

No. 643,621.

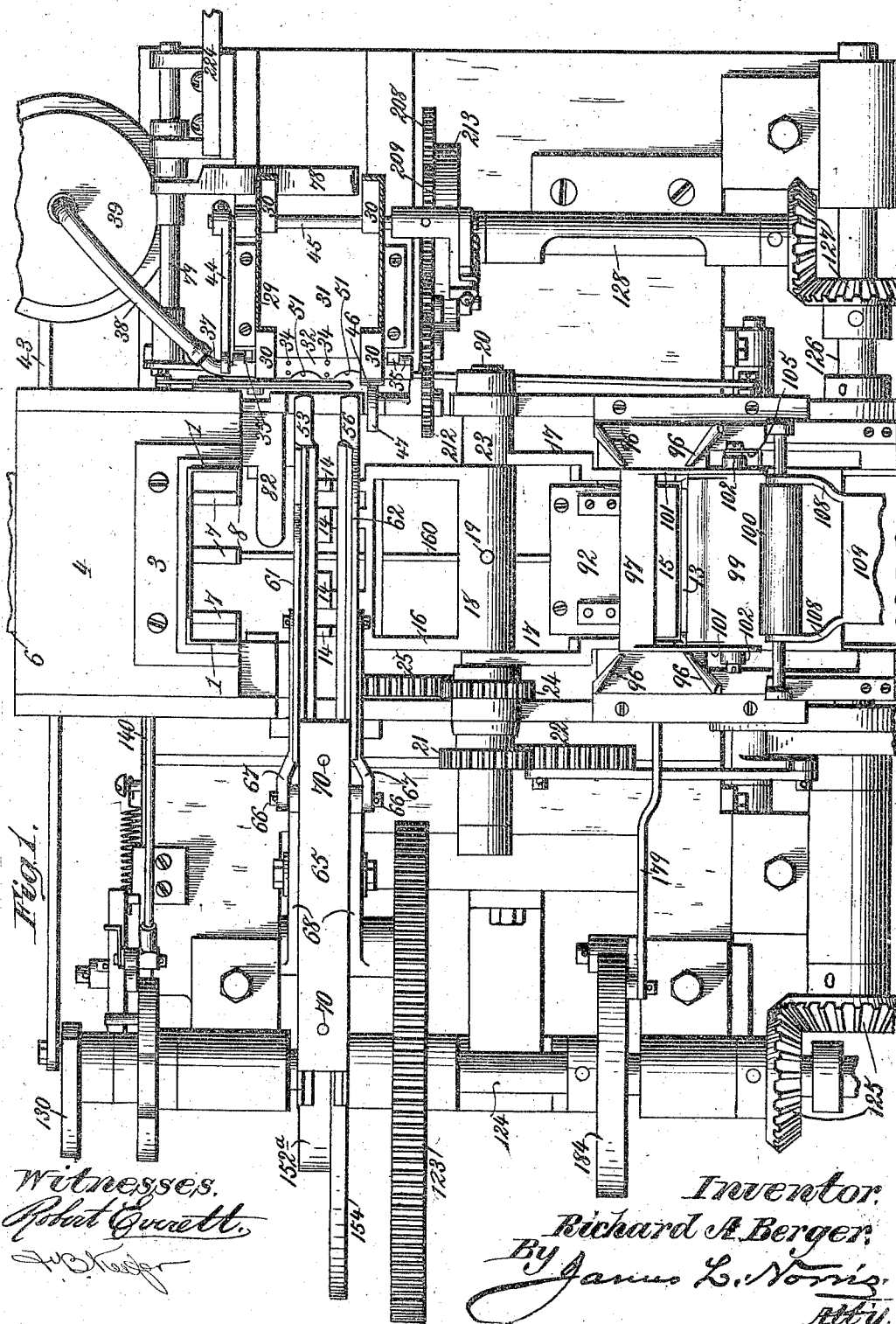
Patented Feb. 20, 1900.

R. A. BERGER.
PACKAGE WRAPPING MACHINE.

(Application filed June 8, 1899.)

(No Model.)

9 Sheets—Sheet 1.



No. 643,621.

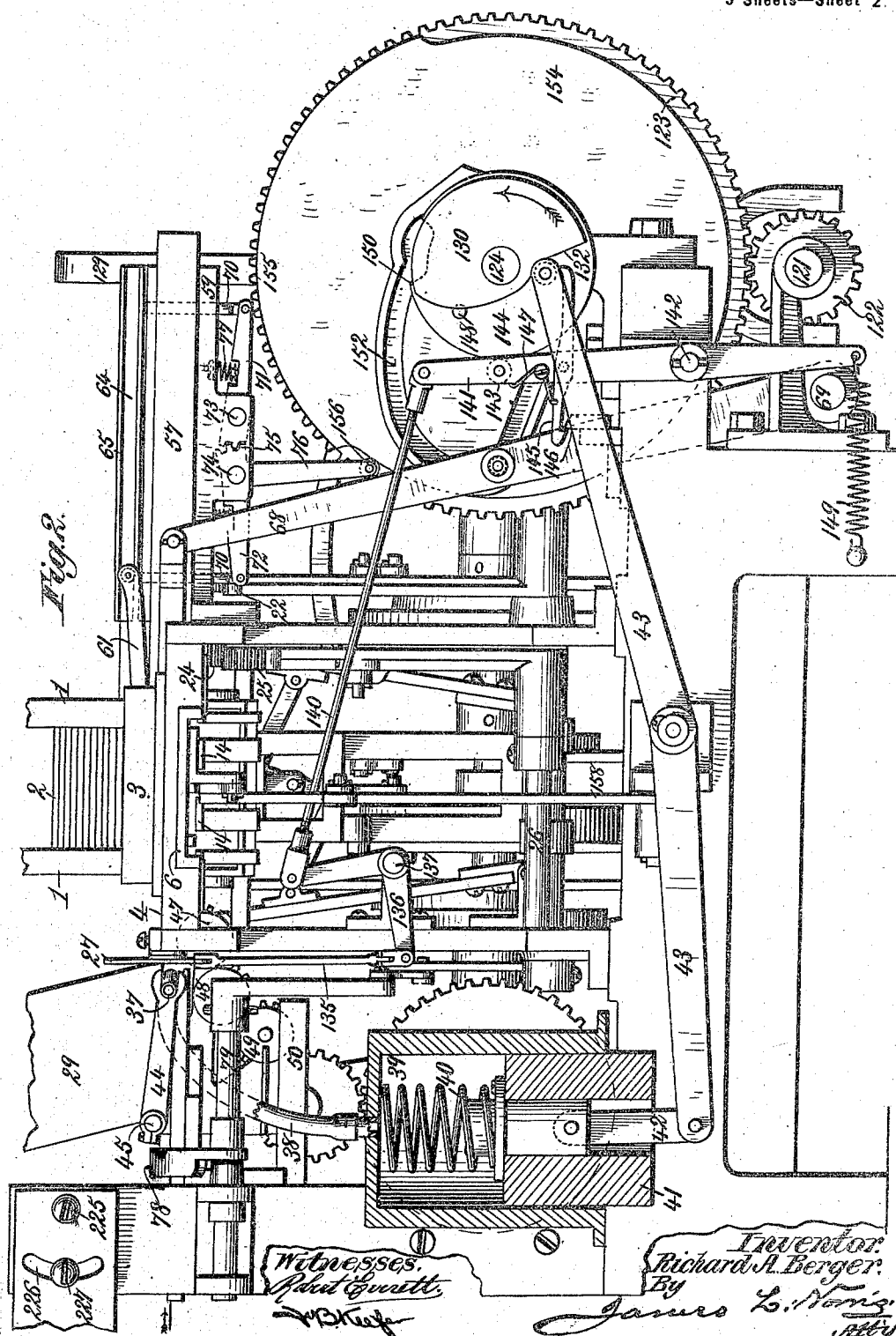
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9 Sheets—Sheet 2.



No. 643,621.

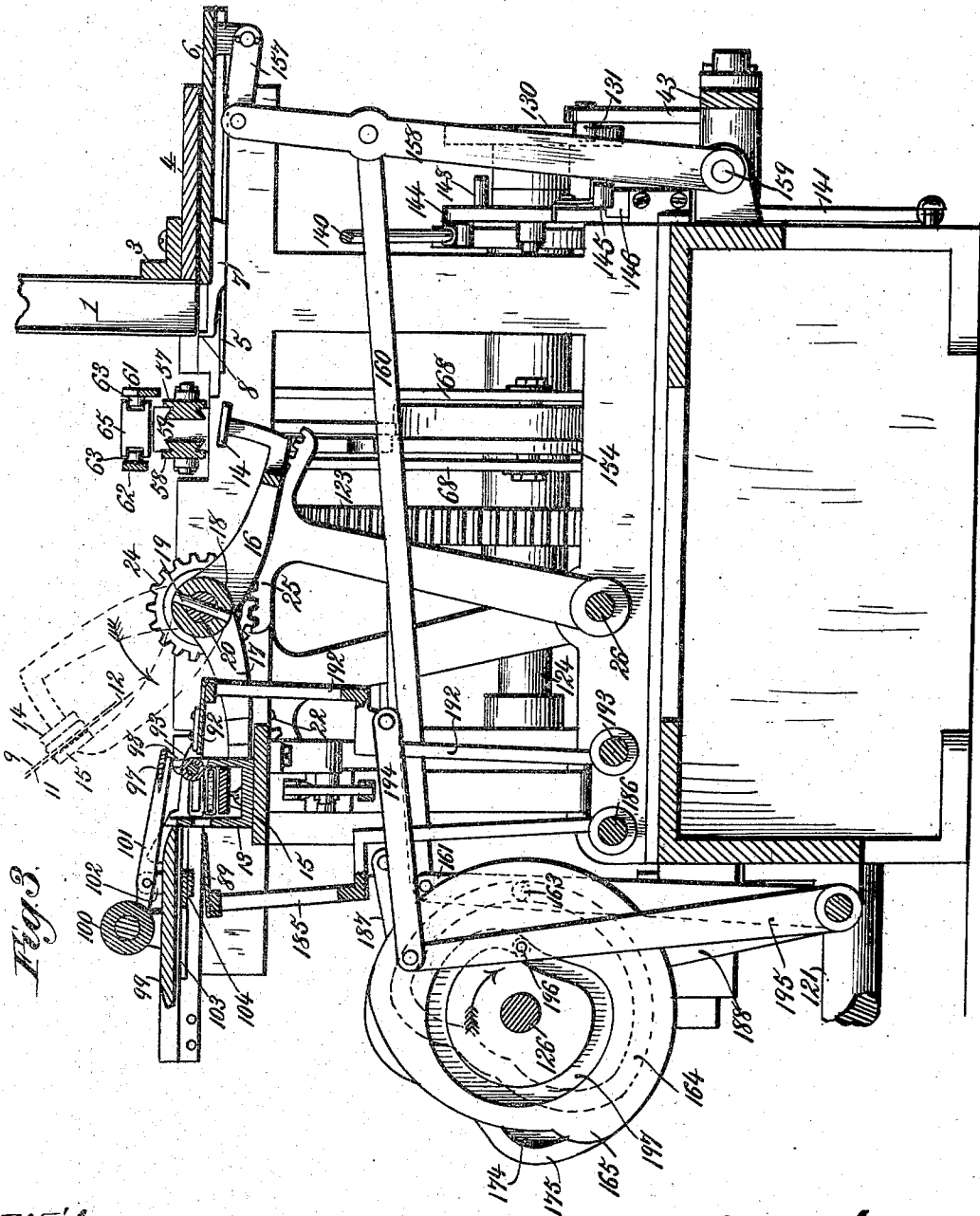
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(No Model.)

9 Sheets—Sheet 3.



Witnesses:
Robert E. Smith
J. B. Kneale

Inventor:
Richard A. Berger,
By James L. Torrey,
Att'y.

No. 643,621.

Patented Feb. 20, 1900.

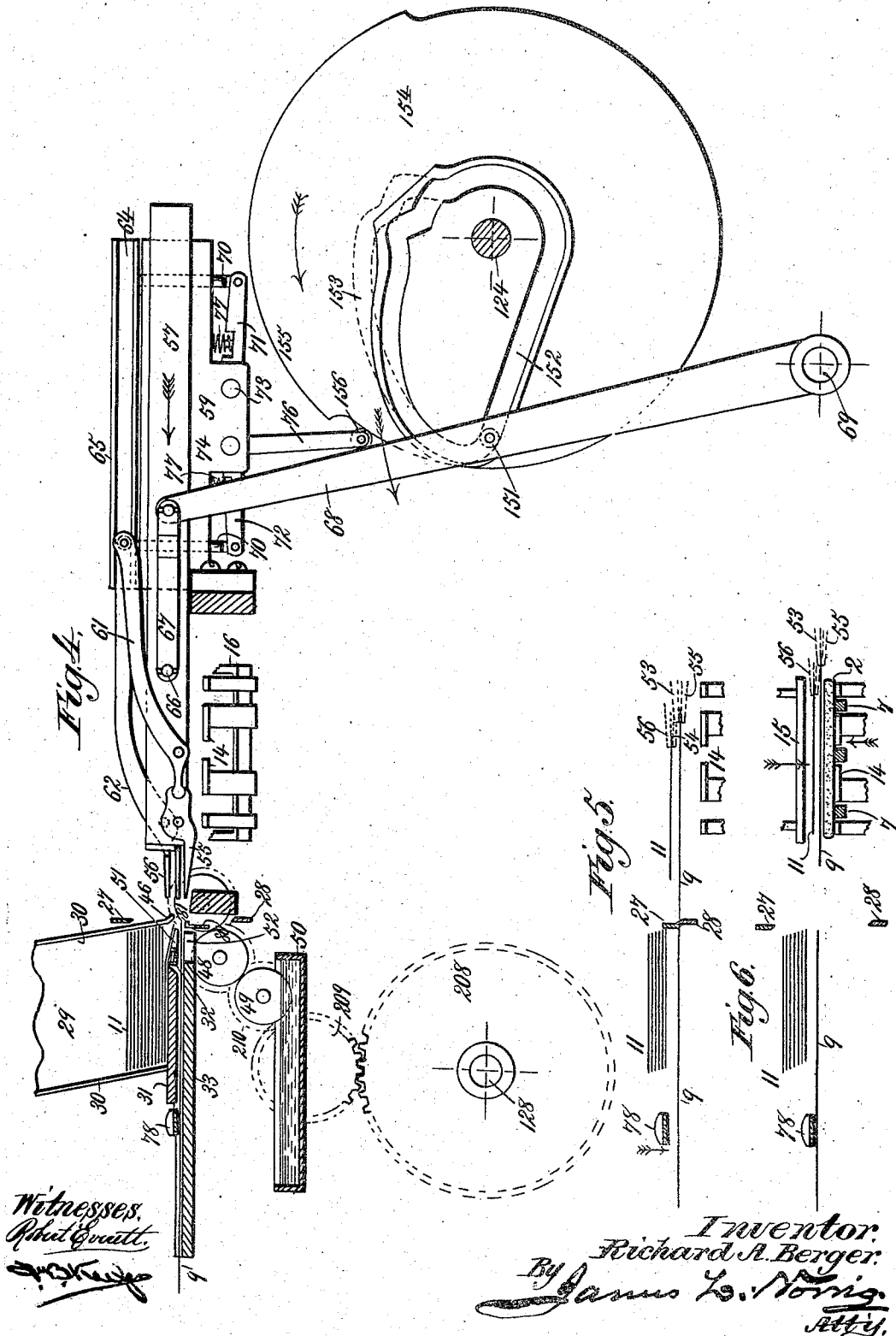
R. A. BERGER.

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(No Model.)

9 Sheets—Sheet 4



No. 643,621.

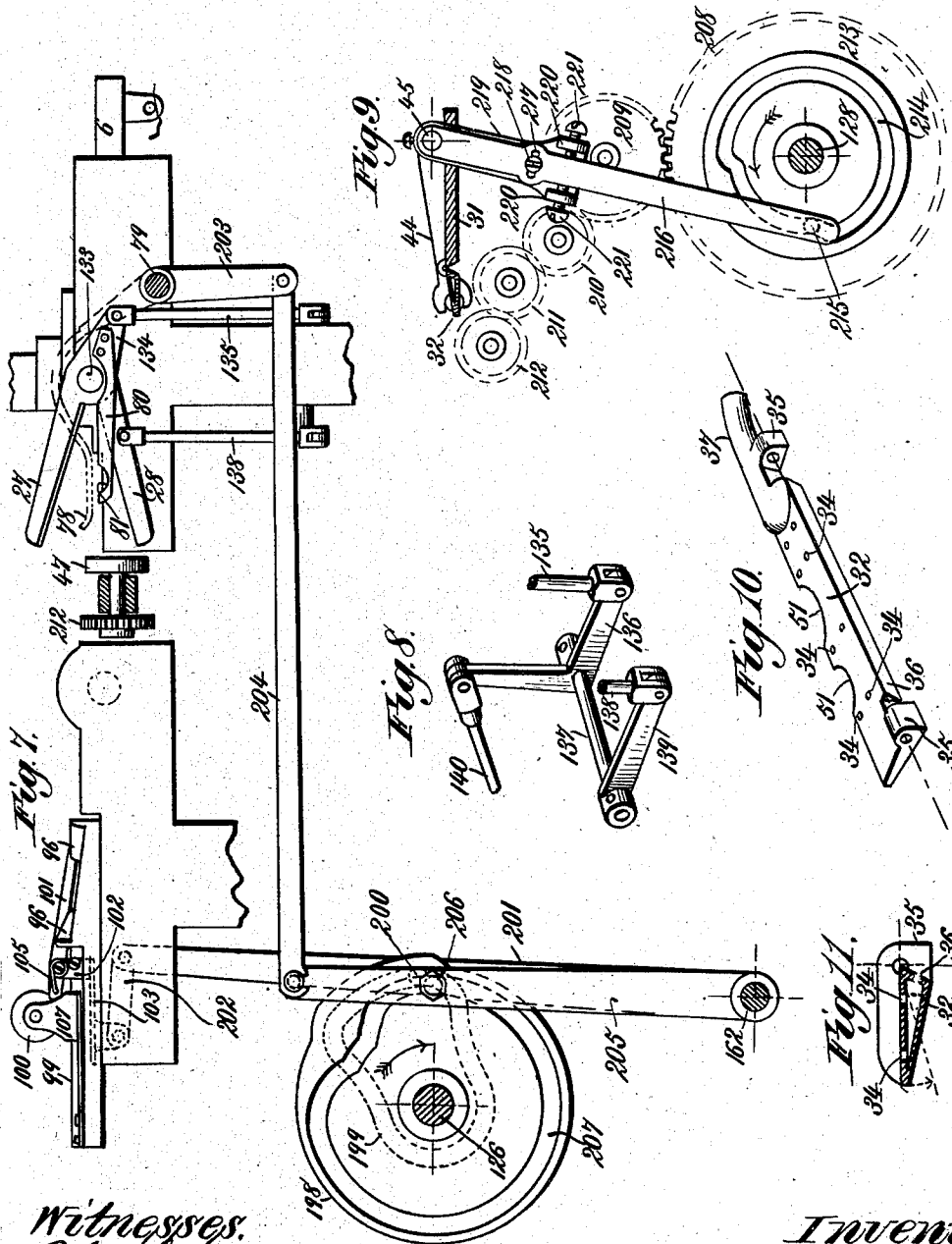
Patented Feb. 20, 1900.

R. A. BERGER.
PACKAGE WRAPPING MACHINE.

(Application filed June 8, 1899.)

(No Model.)

9 Sheets—Sheet 5



Witnesses.
Robert G. Smith,
J. B. Keefe

Inventor.
Richard A. Berger.
By James L. Norris.
Atty.

No. 643,621.

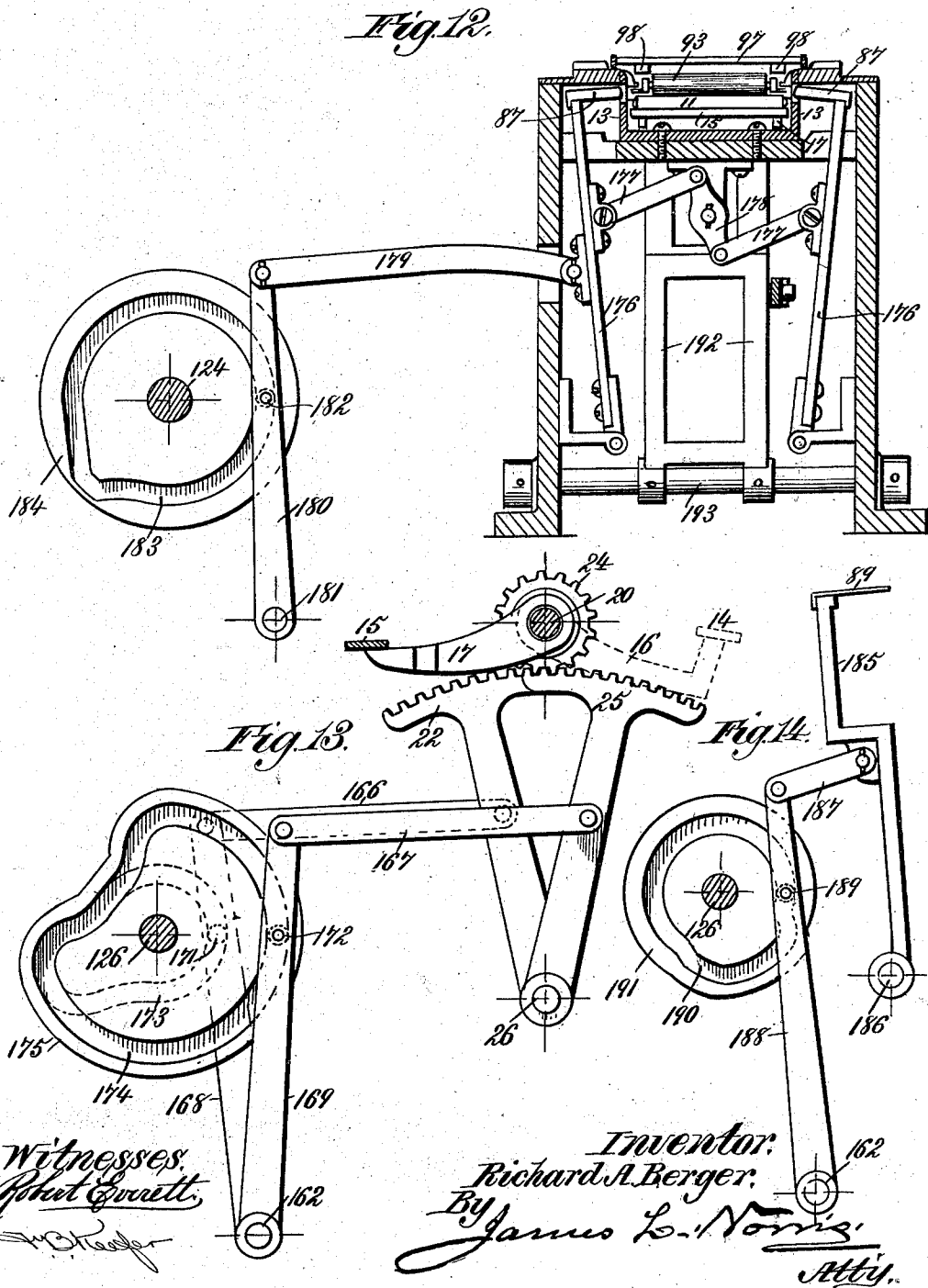
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9 Sheets—Sheet 6.



No. 643,621.

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(Application filed June 8, 1899.)

(No Model.)

9 Sheets—Sheet 7

Fig. 15.

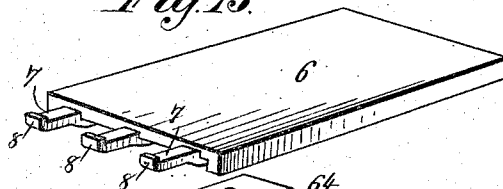


Fig. 16.

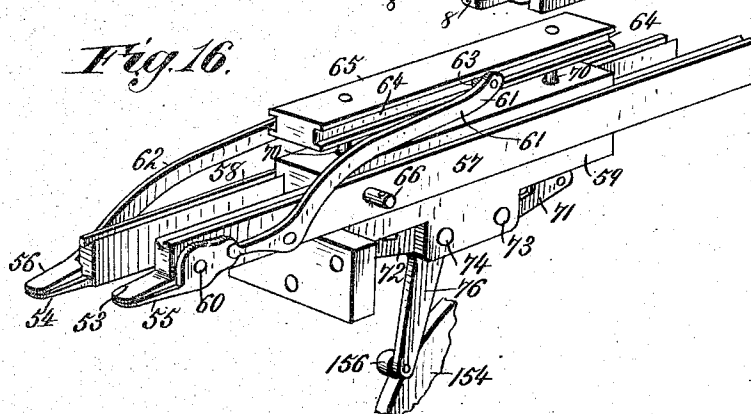


Fig. 17.

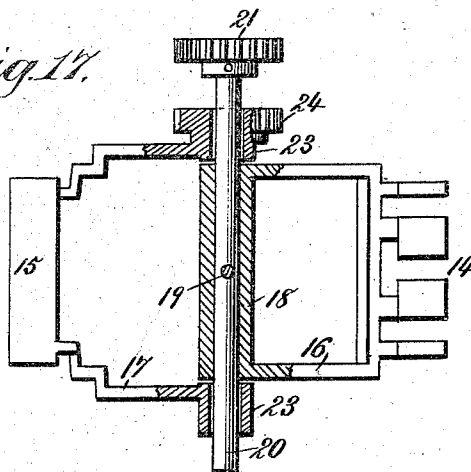
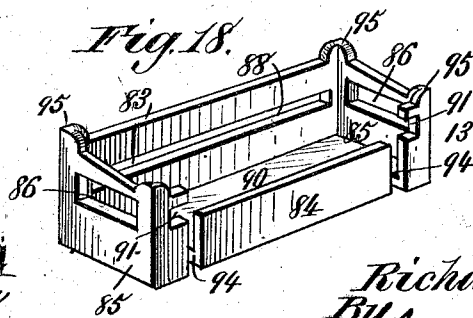


Fig. 18.



Witnesses:
Robert C. Smith,
J. C. Rogers

Inventor:
Richard A. Berger.
By James L. Norris.
Att'y.

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R. A. BERGER.

PACKAGE WRAPPING MACHINE.

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(No Model.)

9 Sheets—Sheet 8.

Fig. 19.

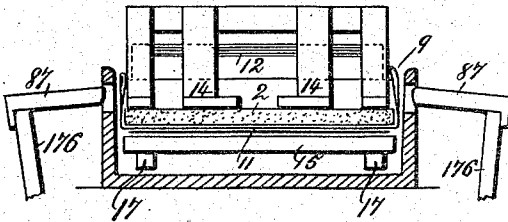


Fig. 21.

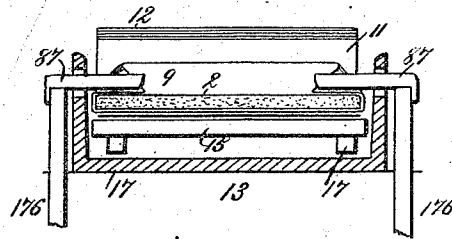


Fig. 20.

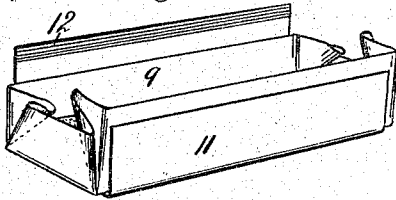


Fig. 22.

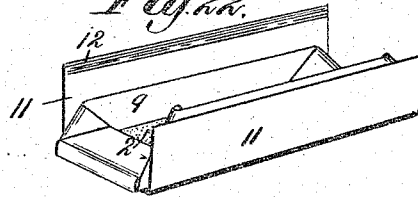


Fig. 23.

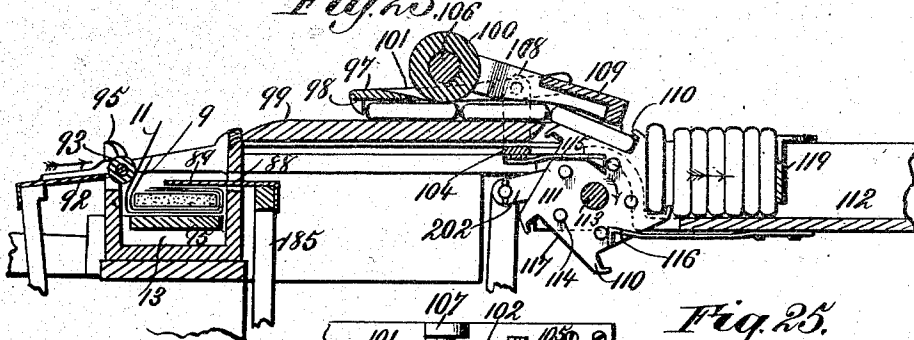


Fig. 24.

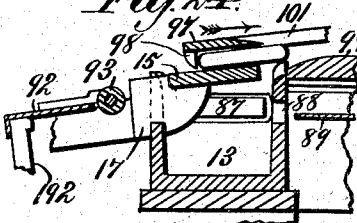


Fig. 25.

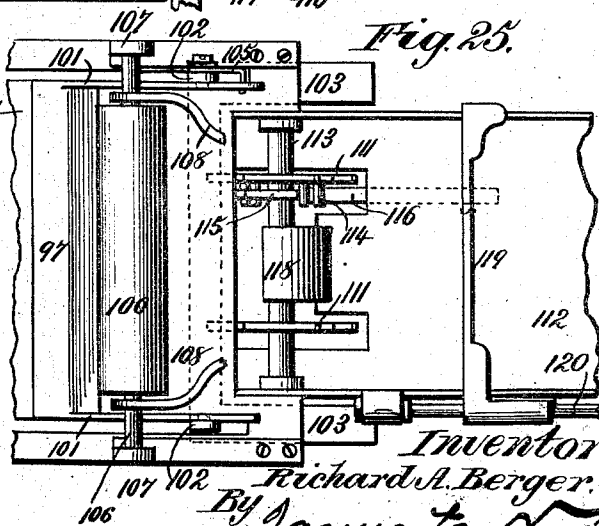


Fig. 26.



Witnesses:
Robert Everett,
J. B. Keeler

Inventor:
Richard A. Berger.
By James L. Norris,
Att'y.

No. 643,621.

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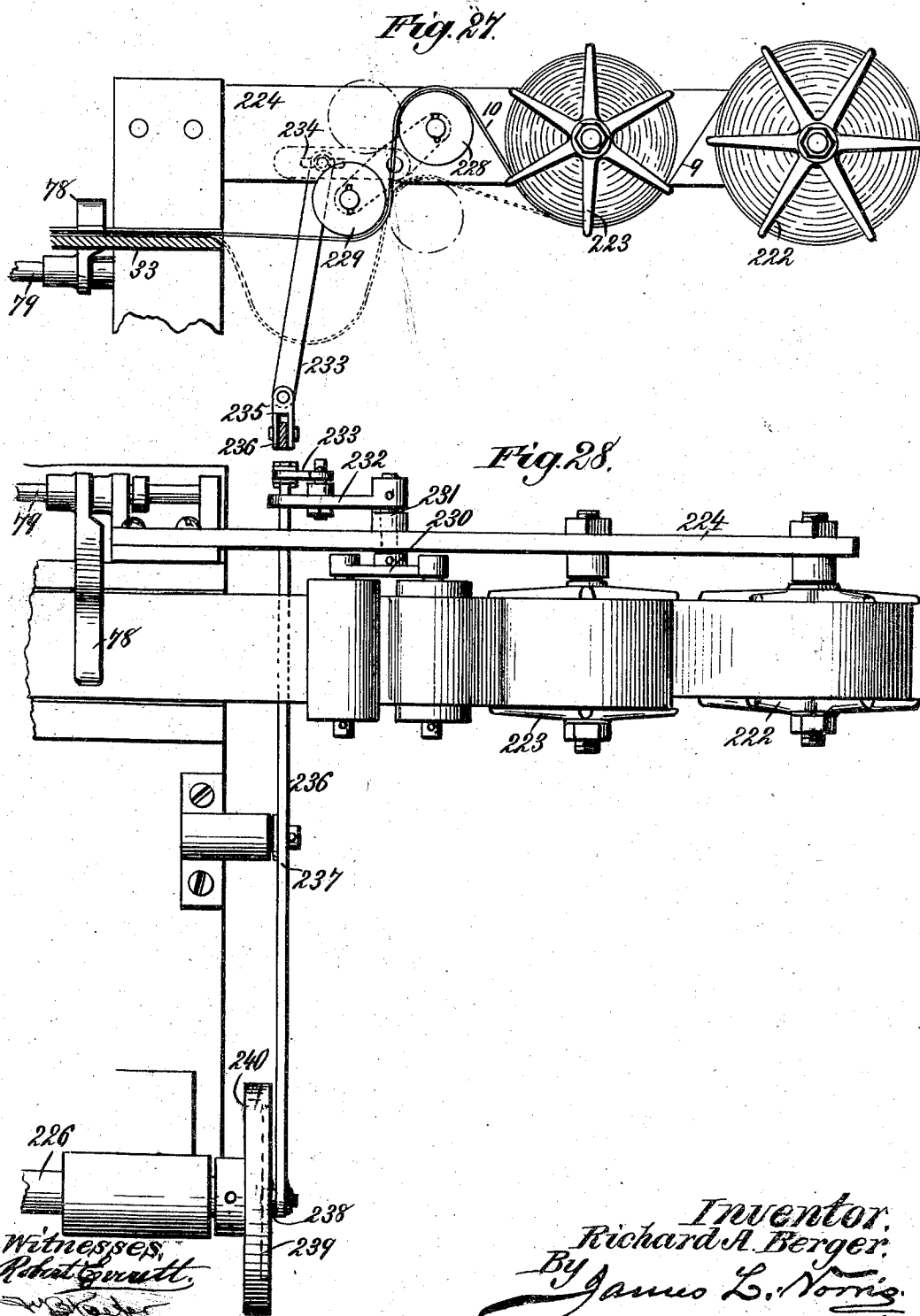
R. A. BERGER.

PACKAGE WRAPPING MACHINE.

(Application filed June 8, 1899.)

(No Model.)

9 Sheets—Sheet 9.



UNITED STATES PATENT OFFICE.

RICHARD A. BERGER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
WESLEY S. BLOCK, OF SAME PLACE.

PACKAGE-WRAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 643,621, dated February 20, 1900.

Application filed June 8, 1899. Serial No. 719,783. (No model.)

To all whom it may concern:

Be it known that I, RICHARD A. BERGER, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented new and useful Improvements in Package-Wrapping Machines, of which the following is a specification.

This invention relates to that class of package-wrapping machines which are designed to apply wrapping material to articles of merchandise, particularly that type of machine wherein each wrapper or wrapper-section has its end portions folded or tucked in upon the article and over which end portions the wrapper is next folded longitudinally from the two opposite sides of the wrapper consecutively in such manner as to completely inclose the article and protect it from the injurious effects of air and moisture.

The machine that is the subject of the present invention is intended specially for applying wrapping material to blocks or sticks of chewing-gum in one or more layers; but I wish it clearly understood that the invention is capable of being practicably and successfully used for applying wrapping material to various articles of merchandise—such as soap cakes, chocolate, and the like—in such manner that the articles will be completely inclosed by folding the wrapping material around the same and tucking in the end portions and corners in such a way that every part of the article will be completely covered.

The chief object of my present invention is to provide novel means whereby the article to be inclosed within a wrapper is under perfect control of parts of the machine and cannot be displaced or shifted relatively to the wrapper from the time it is placed in proper relation to the latter and is completely inclosed thereby.

The invention also has for its object to provide new and improved means for placing the wrapping material above the article to be inclosed therein and subsequently reversing the position of the article and the wrapping material, so that the article is then above the wrapping material, and in which position the wrapping material is acted upon by folding devices for folding the same to effectually in-

close the article and protect it from the effects of the atmosphere.

The invention also has for its object to provide a new and improved package-wrapping machine wherein the wrapping material is drawn longitudinally, the article of merchandise to be inclosed by the wrapping material is positioned under the wrapping material, a section of the wrapping material is severed by cutting devices, and the article and the wrapper are then carried to and placed in a folding box or chamber with the article uppermost, wherein the folding devices fold the wrapper to entirely inclose the article.

The invention also has for its object to provide a package-wrapping machine with wrapping material in the form of a web or webs wound on reels and with novel means for drawing the webs longitudinally the proper distance at regular intervals and place the wrapping material over the articles which are to be inclosed within wrappers severed from the web or webs at regular intervals and which wrapping material is preferably combined with a binder that has been previously cut to the required shape and provided with adhesive material along one margin.

The invention also has for its object to provide a package-wrapping machine wherein the wrapping material proper is in the form of a web wound upon a reel, and the binder is preferably in the form of a piece of paper or other suitable material that is supplied to the machine in an already cut condition, but of less length than the wrapper proper to enable the ends of the wrapper to be properly folded and the binder to be applied around the article at the proper point to bind the article and wrapper in position.

The invention also has for its object to provide new and improved means for grasping and firmly holding the article and the wrapping material and binder while they are transmitted to the folding devices, in which the article is effectually prevented from being displaced relatively to the wrapper and the latter is properly folded to inclose the article.

The invention also has for its object to provide a package-wrapping machine with new and improved end-folding and longitudinally-folding devices for folding in end portions of

the wrapper and subsequently folding and lap-folding the longitudinal edges of the wrapper and binder.

The invention also has for its object to provide new and improved means for placing the article to be wrapped under the wrapping material and binder and transferring the whole to the folding devices.

The invention also has for its object to provide new and improved means for temporarily arresting the longitudinal motion of the wrapping material to enable a wrapper-section to be severed therefrom and to lie in a position above the article which is to be inclosed within the wrapper and its binder by folding devices.

The invention also has for its object to provide a new and improved package-wrapping machine by which chewing-gum and other articles of merchandise can be completely inclosed within wrapping material composed of waxed paper or waxed paper and tin-foil, about which a binder containing any desired advertising or printed matter is applied to secure the parts and obtain a neat, symmetrical, and secure package, whereby the necessity of manually wrapping such articles as chewing-gum is avoided and the packages of chewing-gum and like materials can be rapidly produced, which will present a nice appearance, as though wrapped and secured by hand.

The invention also has for its object to provide nipper mechanism by which it is possible to pull wrapping material in the form of one or more webs and a binder over the articles which are to be inclosed within wrappers, the nipper mechanism having varying ranges of movement for the purpose of adjusting the binder relatively to the part of the wrapping material that is to be folded in at its ends to entirely inclose the articles.

The invention also has for its object to provide a package-wrapping machine with wrapping material in the form of one or more webs and a binder that is to be supplied with adhesive along one edge, and novel mechanism for supplying the adhesive to the edge of the binder or for moistening the adhesive that has been previously supplied thereto, so that when the article is subjected to the action of the folding mechanism the moistened adhesive edge of the binder is securely sealed and a perfect package is produced.

The invention also has for its object to provide a new and improved feed mechanism for advancing the wrapping material to place the leading edges of its several parts in position to be seized by nipping mechanism whereby the wrapping material is drawn longitudinally in proper relation to the article that is to be inclosed.

The invention also has for its object to provide a novel arrangement of wrapper-holding reels and drawing-off mechanism in a package-wrapping machine.

The invention also has for a further object

to provide a novel suction mechanism for turning downward the leading edge of an undermost wrapper in a stack of binders that are supplied to the machine in an already-cut condition.

The invention has for a further object to provide novel mechanism for actuating the shear-blades that cut the web of wrapping material at the required point for providing a wrapper of the desired length relatively to the length of the article and the binder and for holding down the web of wrapping material while it is being severed and until it is necessary to again feed the wrapping material forward.

The invention has for a further object to provide novel mechanism for operating the nipper devices that draw the wrapping material and binder into position above the article to be wrapped.

The invention has for a further object to provide novel devices for feeding the article to be wrapped underneath the wrapping material.

It is a further object of the invention to provide a novel mechanism for gripping the article and its wrapping material and transferring it to suitable folding mechanism.

It is a further object of the invention to provide an improved folding-box and accompanying folding mechanism for tucking in the ends of the wrapping material and for longitudinally folding the wrapper and binder around the article and sealing the completed package.

It is another object of the invention to provide improved mechanism for consecutively conveying the completed packages from the folding mechanism and delivering them to carrier devices, by which they are discharged into a suitable receptacle.

The invention also has for its object to generally improve package-wrapping machines and to provide a machine of this character which will practically and successfully apply wrappers to articles of merchandise and fold in the ends and longitudinal portions of said wrappers in such manner as to entirely inclose the articles.

To accomplish these objects my invention involves the features of construction, the combinations or arrangements of parts, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a top plan view of my improved package-wrapping machine, omitting the reel which carries the web of wrapping material and with some portions of the machine broken away. Fig. 2 is a partly-sectional rear elevation of the machine with parts broken away. Fig. 3 is a vertical transverse section of the machine through the folding mechanism. Fig. 4 is a partly-sectional longitudinal elevation of the nipper mechanism and the devices for applying adhesive to one edge of the binder as it is moved forward, together with the web

of wrapping material. Fig. 5 is a diagrammatic view illustrating the position of various parts at the instant that the web of wrapping material is severed by the shear-blades.

Fig. 6 is a diagrammatic view illustrating the position of various parts as the wrapper-section and binder are properly adjusted relatively to the article to be wrapped. Fig. 7 is an enlarged partially-sectional detail view illustrating the mechanism for operating the pressure-finger that holds down the web of wrapping material after a wrapper-section has been severed therefrom and showing also mechanism through which is actuated the sweeper-bar that conveys away the completed package. Fig. 8 is a detail view of a portion of the mechanism through which the shear-blades are actuated. Fig. 9 is a partly-sectional detail view showing the hinged suction-nozzle and its operating mechanism and also the train of gears through which the gumming-roller is driven. Fig. 10 is an enlarged perspective view of the hinged suction-nozzle by which the leading edge of a lowermost binder in a stack of binders is turned downward into position to be seized by nipper-jaws. Fig. 11 is an enlarged transverse section of the hinged suction-nozzle. Fig. 12 is a partly-sectional elevation of the package-folding mechanism. Fig. 13 is an enlarged detail view of the mechanism for actuating the gripping and transferring jaws. Fig. 14 is an enlarged detail view of one of the end-folders and its actuating mechanism. Fig. 15 is a perspective of the feed-slide for conveying the articles in the magazine to and under the wrapping material. Fig. 16 is a perspective of the nipping mechanism and actuating devices in part. Fig. 17 is a sectional plan of the gripping and transferring jaws opened and a portion of their actuating mechanism. Fig. 18 is a perspective of the folding-box. Fig. 19 is a part-sectional view showing the article in the folding-box between the gripping and transferring jaws, with the ends of the wrapper turned upward in readiness for being folded inward. Fig. 20 is a perspective showing the shape and position of the parts composing the wrapping material and binder as inserted into the folding-box and before the parts of the wrapper are yet folded down upon the article. Fig. 21 is a sectional view of the folding-box with the article therein above one of the gripping and transferring jaws, the other gripping and transferring jaw having been swung back to normal position, and showing also the end-folders in the act of tucking in and folding down the end portions of the wrapper upon the article. Fig. 22 is a perspective showing the form and position of the wrapper and binder after the end portions of the wrapper proper have been folded down onto the ends of the article and before the longitudinal portions are folded down. Fig. 23 is a sectional elevation transversely of the machine through the folding mechanism and also through the mechanism by which

the completed packages are discharged, showing the front longitudinal folder as folding down one longitudinal portion of the wrapper and binder onto the article and the rear longitudinal folder and its roller as just moving into position to seal the package, and also showing the manner in which the completed packages are transferred to carrier devices and thence into a receiving tray or trough. Fig. 24 is a sectional elevation, transversely through the folding-box, showing a completed package as being lifted from said box and in readiness to be transferred by a sweeper-bar to the carrier mechanism. Fig. 25 is a plan of the sweeper-bar, elastic roller, carrier mechanism, and a portion of the receiving tray or trough. Fig. 26 is a perspective of the wrapped and sealed package. Fig. 27 is an elevation of the reels that carry webs of wrapping material and also shows the drawing-off rollers and the pressure-finger, forming part of the feed mechanism for a web or webs of wrapping material. Fig. 28 is a plan of the same, showing also the mechanism through which the position of the drawing-off rollers is adjusted.

In a package-wrapping machine of the general character herein described the articles of merchandise to be wrapped—such as cakes of soap or pieces of chewing-gum, chocolate, or the like, in the form of blocks, sticks, or cakes—are stored in a magazine composed of vertically-channeled standards, (designated by the reference-numeral 1 in Figs. 1, 2, and 3.) These vertically-channeled standards 1 are erected a suitable distance apart and may have any desired height to receive and accommodate any quantity of articles (designated by the numeral 2, Fig. 2) that are superimposed one above another in a vertical column or stack. The channeled opposing faces of the standards 1 serve to receive the ends of the articles, so as to retain said articles in a column or stack and guide them in a downward direction for discharge from the magazine. At their lower open ends the standards 1 may be braced by a recessed and shouldered plate 3, through which they are secured to a table 4, that is supported at a suitable point on the frame of the package-wrapping machine.

Beneath the table 4 there are guides 5, Fig. 3, for a feed-slide 6, Fig. 15, which is movable forward and back for successively discharging the articles 2 from the magazine. This feed-slide 6 is provided at its front end with forwardly-projecting arms 7, having upturned flanges 8, the construction being such that when the feed-slide 6 is moved rearward and its arms 7 lie directly under the lower open end of the magazine, as shown in Figs. 1 and 3, a single article—as, for instance, a block of chewing-gum—will fall by gravity upon said arms and lie between the front edge of the feed-slide and the upturned flanges 8 of the arms 7, so that if the feed-slide 6 be advanced or moved forward the article sup-

ported by said arms 7 will also be carried forward and the solid portion of the feed-slide will move under the column or stack of articles and support the same until the article 5 carried by the arms 7 is removed therefrom and the feed-slide is again moved rearward to again place the arms 7 directly under the lower open end of the magazine, whereupon another article will drop onto said arms. 10 Obviously instead of feeding the articles singly from the magazine several could be discharged at once, superposed one on another, by thickening the feed-slide 6 and making the upturned flanges 8 of a correspondingly-increased height. In this case the several blocks or cakes discharged together would be subsequently inclosed in the same wrapper. Ordinarily, however, the articles will be discharged singly and be each separately 20 wrapped, as hereinafter described.

The wrapping material in which the articles 2 are to be inclosed may be composed of three layers—namely, first, a layer 9 of thin waxed paper; second, a layer 10 of tin-foil, 25 and, third, a binder 11, which in practice will bear on its outer side any desired advertising matter. The layers of waxed paper and tin-foil are coequal in dimensions, but the outside binder 11 is considerably shorter than 30 the inner layers 9 and 10, composing the wrapper proper. At one side edge the binder 11 projects beyond one longitudinal edge of the waxed paper and tin-foil, and this projecting portion 12 of the binder 11 is provided 35 on its under side with adhesive material. During the wrapping of the package this projecting adhesive margin, being properly moistened, is cemented down upon the previously-folded opposite longitudinal edge portion of 40 said binder 11 for effectually sealing the package. The several layers composing the wrapper and binder are at first applied to the upper side of the article by causing the feed-slide 6 to move said article into position 45 beneath the wrapping material, and the said article and layers of wrapping material are then gripped together and reversed in position—that is to say, they are turned upside down—so that the cake or block of merchandise is uppermost, lying above the wrapper. 50 In effecting this reversal of position the article 2 and the superposed wrapper and binder are transferred into a folding-box 13, Figs. 3, 12, 18, 19, 21, 23, and 24, as will hereinafter appear. It was before remarked that the 55 wrapper proper may be composed of waxed paper 9 and tin-foil 10, superposed one on the other. These wrapping materials are preferably in the form of webs, and as a means 60 for carrying said webs of wrapping material any suitable reel or reels may be provided, as hereinafter described. In some cases, however, the web of tin-foil may be dispensed with, and, as generally illustrated in the drawings, I have shown the wrapper proper as composed 65 only of waxed paper 9, with which a binder or label 11 is combined. The folding-

box 13 and coacting devices are so constructed, as hereinafter described, that as the article and its now underlying wrapper are 70 pushed down into said folding-box the edge portions of the wrapper and binder are forced upward into a perpendicular position, as shown in Fig. 20, after which the end portions of the wrapper are tucked in, as shown 75 in Figs. 21 and 22. One longitudinal side of the wrapper, together with a corresponding portion of its binder, is then folded and pressed downward upon the article, and subsequently the opposite side is folded down, 80 as indicated in Fig. 23, and the adhesive margin 12 is finally pressed down so as to cement the overlapping parts of the binder, thus producing the completely wrapped and sealed package, as shown in Fig. 26, wherein 85 the article of merchandise is securely inclosed and protected from atmospheric influences. It will be observed that in the completed package the binder 11 has a length that does not exceed the length of the wrapped article, 90 and it is for this purpose that said binder is made of a length considerably less than the length of the layer or layers composing the wrapper proper. As the wrapper and binder are drawn into position in front of the magazine the feed-slide 6 at the lower open end of 95 the magazine is moved forward and the article lying on the arms 7, between the front edge of said feed-slide and the upturned flanges 8, will be carried forward and placed 100 beneath the wrapper, so that the said wrapper actually lies above the article. The wrapper proper having been severed from its web and brought into properly-adjusted position with relation to the article and binder, the 105 said article, wrapping material, and binder will be next transferred into the folding-box 13 by a swinging movement imparted through the medium of two gripping and transferring jaws 14 and 15, Figs. 3, 4, 5, 6, and 17, that 110 are carried by swinging yoke-frames 16 and 17, respectively. As clearly shown in Fig. 17, the gripping-jaw 14 is made sectional to pass by the arms 7 of the feed-slide 6, Fig. 15, while the jaw 15 may be in the form of a solid 115 bar or plate. The yoke-frame 16 of the sectional gripping-jaw 14 is formed with a sleeve 18, through which said yoke-frame is secured, by means of a key 19, Figs. 3 and 17, to a shaft 20, that is journaled in suitable bearings 120 on the machine-frame and arranged about midway between the folding-box 13 and the point where the article of merchandise was fed to the under side of the wrapping material. To one end of this shaft 20 there is secured 125 a pinion 21, Figs. 1 and 17, which engages a segmental rack 22, Figs. 1, 2, 3, and 13. The yoke-frame 17 of the solid gripping-jaw 15 is loosely mounted on the shaft 20 outside the yoke-frame 16 by means of sleeves 130 23, Fig. 17, on one of which there is formed or secured a pinion 24, meshing with a segmental rack 25, Figs. 1, 2, 3, and 13, both racks 22 and 25 having a pivoted support on a

longitudinally-arranged shaft 26, as shown. The segmental racks 22 and 25 are independently operated, as will hereinafter appear, and they swing back and forth in a direction from front to rear of the machine. In what may be called the "normal" or "open" position of the gripping-jaws 14 and 15 (indicated by full lines in Figs. 1 and 3) the sectional jaw 14 lies toward and slightly below the level of the arms 7 on the feed-slide 6, and therefore when an article is discharged from the magazine as the wrapping material is drawn longitudinally into a position in front of said magazine the article is pushed under the wrapping material and is carried directly above the sectional jaw 14 in readiness to be gripped. During this operation the other gripping-jaw 15 lies in the folding-box 13, and after the article and wrapper are brought into correct position above the jaw 14 the yoke-frame 17 is swung in the arc of a circle and its jaw 15 leaves the folding-box and cooperates with the jaw 14 to firmly grip and hold the article and its wrapper, after which the two jaws, gripping said article and wrapper, swing forward in unison in the arc of a circle, as indicated by dotted lines in Fig. 3, and the jaw 15 again enters the folding-box 13 and descends therein, so that the article and wrapper are now reversed in position and the article will lie above the wrapper instead of under the same, as when it was first gripped by the two jaws. The sectional jaw 14 will then move back independent of the jaw 15 to the position shown in full lines, Fig. 3, in readiness to take another article from the arms 7 of the feed-slide.

As shown, the wrapper proper is preferably employed in the form of a continuous web, as indicated by 9, Figs. 4, 5, and 6, from which sections of suitable length are severed by means of shear cutter-blades 27 and 28, operated at properly-timed intervals; but the binders 11 are preferably supplied to the machine in an already-cut condition and of a length and width corresponding to the dimensions of the article to be wrapped and sealed.

For the purpose of storing the binders 11 in the machine in readiness for immediate use there is provided a hopper 29, Figs. 1, 2, and 4, which is constructed with two parallel vertical walls arranged longitudinally of the machine and having inwardly-turned flanges 30, that are inclined from the perpendicular in such manner that the pile or stack of binder-blanks stored in said hopper will occupy a staggered position, as shown in Fig. 4. The bottom of the hopper 29 consists of a plate 31, having a hinged downwardly-swinging leaf 32 at the point where the binders 11 are to be successively discharged. This hopper 29 and its bottom plate 31 are supported on a table or plate 33 in such manner as to provide beneath the hopper a sufficient space for passage of the wrapper-web 9, from which the wrapper proper is to be severed by the

cutter-blades 27 28 at the proper time. The hinged downwardly-swinging leaf 32 of the hopper-bottom is made hollow and provided in its upper face with a series of air-inlet holes 34, Figs. 1, 10, and 11, which are directly under the leading portion of the lowermost binder or label 11 in the hopper 29, so that by inducing a suction in the said hollow hinged leaf 32, at the same time swinging said leaf downward, the leading edge of the lowermost binder will be readily drawn or sucked away from the next binder above and be thus brought into position to be conveniently grasped by nipper-jaws, hereinafter described, at the same time that other nipper-jaws are made to grasp the leading edge of the wrapper-web 9 which is immediately below. Thus the hollow downwardly-swinging hinged leaf 32 constitutes, in effect, a pneumatic suction-nozzle for separating the lowermost binder or label from those piled above in the hopper 29, and by imparting a positive downward swinging movement to this hinged hollow leaf or nozzle at the same time that suction is induced therein the operation of separating the binders or labels 11 singly and successively from the bottom of the pile will be accomplished with ease and certainty. It will be observed by reference to Figs. 4, 9, 10, and 11 that the leaf 32 is tapered in transverse section and that its thickest portion is next to the plate 31, to which it is hinged in a line that coincides with the top edge of each of these parts, hinge-lugs 35 being arranged on the plate 31 and leaf 32 in such position that the pivotal axis of said leaf in its upper edge will be in line with the upper edge of the plate 31, which constitutes the bottom of the hopper. By this manner of hinging the nozzle-leaf 32 its downward swing will leave no gap between it and the edge of the plate 31 into which a label or binder 11 might be drawn. The hinged portion of the leaf 32 is beveled off at 36, Figs. 10 and 11, and a corresponding bevel is provided on the edge of the plate 31 to afford ample clearance for the required downward swing of the leaf 32 at proper intervals. When the hinged leaf or nozzle 32 is in a raised position, its upper surface is substantially flush with the top of the plate 31, as in Fig. 9; but when the said leaf is swung down its top presents an incline to which the leading portion of a superposed binder or label 11 is drawn by suction and over which the label or binder may be readily withdrawn for its intended use. One end of the hinged leaf or suction-nozzle 32 is provided with a nipple 37 for attachment of a rubber tube 38, which connects with a suction air-pump 39, Figs. 1 and 2, through which suction is induced in said hinged leaf or nozzle at proper intervals. In the cylinder of the pump 39 there is a spring 40, for forcing out a plunger 41, thereby causing suction in the hinged leaf or nozzle 32 for the purpose already explained. The plunger 41 is connected by a link 42 to one end of a two-

armed lever 43, that is pivoted to the machine-frame and operated at intervals to compress the spring 40, as hereinafter explained. For the purpose of swinging the hinged leaf 5 or suction-nozzle 32 there is provided a lever 44, Figs. 1, 2, and 9, one end of which is bifurcated to engage the nipple 37 on one end of said leaf or suction-nozzle. The other end of this lever 44 is secured to a rock-shaft 45, that is operated through mechanism hereinafter described. By reference to Figs. 1 and 4 it will be observed that the lower edge of one of the inclined flanges 30 on the hopper 29 is formed with an everted lip 46, that is designed to positively direct one side edge of each binder or label 11 toward a gumming or moistening disk 47 for the purpose of applying adhesive to the projecting margin 12 of said binder or label as it is withdrawn from the hopper 29 or for moistening adhesive material that may have been applied to the binders or labels before stacking them in the hopper. The gumming or moistening disk 47 is supplied through feed-disks 48 and 49 from a pan 50, Figs. 2 and 4, which may contain any suitable gumming or moistening liquid. The required rotation of the disks 47, 48, and 49 is effected through gearing that will be hereinafter described. In order to permit ready access of the nipper-jaws, presently described, for grasping the web 9 of wrapping material and the binder or label 11, the leading edge of the hinged leaf or suction-nozzle 32 is provided with notches 51, Figs. 1, 4, and 10, and similar notches 52 are provided in the corresponding edge portion of the plate or table 33, as shown in Fig. 4.

I will now proceed to describe the nipper mechanism by which the web or webs of wrapping material and the binder or label are drawn or pulled longitudinally into required position in front of the magazine and over the article to be wrapped.

There are two pairs of nippers that are each composed of fixed jaws 53 54 and movable jaws 55 56, Figs. 4 and 16. The fixed jaws 53 and 54 are rigid with the inner ends of horizontally-movable slides 57 58, that are guided in dovetail grooves on opposite sides of a fixed plate 59, forming an extension of the machine-frame. One movable nipper-jaw 55 is pivoted, as at 60, to the inner end portion of the slide 57 and is articulated at one side of its pivot to one extremity of a lever 61, that is also pivoted or fulcrumed on said slide. The movable jaw 56 of the other nippers may form a rigid end portion of another lever 62, fulcrumed to the other slide 58, as indicated in Figs. 1 and 4. The reason for the differences in the construction and arrangement of the two pairs of nippers is that the nipper-jaw 55 closes upward against a fixed jaw 53, while the jaw 56 closes down against a fixed jaw 54, as will be understood by reference to Fig. 16. The outer ends of the levers 61 and 62 are provided with roller-studs 63, adapted to travel in longitudinal guideways 64 in opposite sides

of a bar 65, that is adapted to be lifted and lowered for actuating the levers 61 and 62 in such manner as to close and open the nipper-jaws, as required. On each slide 57 and 58 there is a stud 66, Fig. 16, for pivotal attachment of links 67, Figs. 1, 2, and 4, connecting with the upper ends of levers 68, which at their lower ends are pivoted on studs 69 in such manner that when said levers are vibrated the slides 57 and 58 will be reciprocated, and consequently a corresponding reciprocation will be imparted to the nipper-jaws.

The vertically-movable bar 65, Figs. 1, 2, 4, and 16, is provided near its ends with depending studs or guide-pins 70, that are extended downward through openings in the plate or bar 59 to connect with the ends of levers 71 and 72, that are fulcrumed at 73 and 74, respectively. At one side of their pivots these levers 71 and 72 are connected by intermeshing gear-teeth 75, as shown in Fig. 2, so that when the lever 72 is moved by oscillation of a lever-arm 76, which is rigid therewith, a corresponding movement will be imparted to the lever 71 through said gear-teeth. Between the depending pins or studs 70 and the pivots of the levers 71 72 there are arranged springs 77, Figs. 2 and 4, which bear down on said levers to cause them to draw on the pins 70, thus imparting a positive downward movement to the bar 65, whereby it acts on the levers 61 and 62 in such direction as to cause them to hold the nipper-jaws normally open. On oscillation of the lever-arm 76 in the proper direction, as hereinafter explained, the levers 71 and 72 will be made to act on the pins 70, so as to lift the bar 65, and thereby actuate the levers 61 and 62, so as to close the nipper-jaws onto the wrapping material and binder or label after said nipper-jaws have been moved into position for grasping said wrapping material and binder. Thus if the bar 65 be raised the nipper-jaws will be caused to close for the purpose of gripping the leading edges of the wrapping material and its binder to draw the same forward, and, conversely, if said bar 65 be lowered the nipper-jaws will open and release the said wrapping material and binder or label. While the slides 57 and 58 are advancing the bar 65 is in its depressed position, and consequently the nippers are open to receive the leading ends of the web 9 and binder or label 11, one pair of nippers being arranged to seize the end of the web 9 and the other pair to seize the binder 11, as indicated in Fig. 4, so soon as the said nippers have advanced the required distance. Just before the nippers have reached the position in which they are shown in Fig. 4 the hinged leaf or suction-nozzle 32 has been swung downward and suction has been induced therein, so as to draw down the leading portion of the undermost binder 11 in the hopper 29, and when the nippers are farther advanced to gripping position the bar 65 will be raised and the movable nipper-jaws will thus be closed toward the

fixed jaws, thereby firmly grasping the wrapping material and binder. The slides 57 58 are next retracted, thereby drawing the wrapping material 9 and binder 11 into a position
 5 in front of the magazine and over the sectional gripping and transferring jaw 14, as shown in Fig. 5. When a sufficient quantity of the web 9 has been drawn in front of the magazine, the shear-blades 27 28 close, as
 10 shown in Fig. 5, and sever said web to produce a wrapper. Meanwhile an article 2 is discharged from the magazine and carried by the feed slide-arms 7 into position above the jaw 14 and under the wrapping material, as
 15 shown in Fig. 6. In drawing the wrapper-web 9 and binder 11 in front of the magazine the nippers that pull the web 9 are caused to move somewhat more rapidly than the nippers which draw the binder 11, as indicated
 20 in Figs. 5 and 6, thereby adjusting the web 9 and binder 11 in such relative position that the ends of the wrapper 9 will project beyond the ends of the article 2 and binder 11, while said article and binder will be coterminous.
 25 In other words, when the two pairs of nippers seize the leading ends of the web 9 and binder 11 and commence their outward strokes that pair of nippers 53 55 which seizes the web 9 will move slightly faster at the be-
 30 ginning than the pair of nippers 54 56 which seizes the binder 11, so that the web 9 is drawn ahead of the binder 11 for the purpose of obtaining a wrapper in which the inner layer or wrapper proper will be of greater
 35 length than the binder. After the wrapper-web 9 is severed by the shears 27 28 it continues to move ahead slightly faster than the binder 11 until the article 2, wrapper 9, and binder 11 are in properly-adjusted position.
 40 In Fig. 6 the article 2 is represented as lying on the sectional gripping and transferring jaw 14 in readiness to be lifted away from the feed slide-arms 7, the wrapper 9 and binder 11 are superposed above the article, one pair of
 45 nippers has placed the wrapper 9 in correct position relatively to the article, the other pair of nippers has drawn the binder 11 into position centrally over the wrapper 9, the shear-blades 27 28 are open, and the gripping-jaw 15 is approaching the jaw 14 for the purpose of gripping the binder, wrapper, and article between the two jaws 14 15 and transferring them to the folding-box 13, as before explained. After the nippers have drawn the
 55 web 9 and binder or label 11 longitudinally into position over the gripping-jaw 14 and the web 9 has been severed by the shear-blades 27 28 and until the nippers again advance to repeat the operation already described the portion of the web 9 which is connected with the reel should be held or pressed down in a fixed position upon the table 33 for the purpose of maintaining its leading end in accurate position to be seized by the nippers at the proper time for forming another wrapper.
 65 This holding down of the web 9 is effected through the medium of a pressing-finger 78,

Figs. 1, 2, 4, 5, 6, 7, 27, and 28, that is extended over the web of wrapping material. The pressing-finger 78 is carried by a rock-
 70 shaft 79, which is positively turned at properly-timed intervals, by means hereinafter explained, to raise and lower said finger in such manner that when the finger is lowered, as shown in Figs. 4 and 6, it will press
 75 upon and hold the web 9, and when it is raised, as shown in Fig. 5, it will release the said web and permit it to be moved longitudinally by the nippers, but will descend again as soon as the web 9 is severed. By reference
 80 to Fig. 7 it will be seen that the tail end of the upper shear-blade 27 has secured thereto, beyond the pivot of said blade, a stripping and supporting finger 80, which acts to strip the leading edge of the web 9 away from the lower
 85 shear-blade 27 when the cutter-blades open and to support the said leading end of the web, so that it will not curl downward. There is a notch 81 in the upper edge of this finger 80 to permit access of the nipper-jaws that
 90 pull the wrapper-web. As shown in Fig. 1, a flat guide-finger 82 is preferably extended in a longitudinal direction part way in front of the magazine for the purpose of supporting that edge portion of the wrapper
 95 which is nearest the magazine, so that the article discharged from the magazine can be readily fed to its required position beneath the wrapper without striking against and bending or curling the wrapper edge. As
 100 soon as the nipper-jaws 53 55 and 54 56 have properly adjusted the wrapper 9 and binder 11 above the article 2, said jaws will have been retracted a sufficient distance to permit gripping of the article and wrapper by de-
 105 scendent thereon of the gripping and transferring jaw 15, whereupon the bar 65 will be depressed to open the nipper-jaws and release the wrapper and the binder or label. There is a pause in the retractile movement of the
 110 nippers just before the article and wrapper are grasped by the gripping and transferring jaws 14 15. Then the nipper-jaws open and the retractile movement of the nippers continues, the nipper-jaws 54 56 now moving
 115 faster than the jaws 53 55 until both pairs of nippers are in alinement and returned to their full retracted position, in which both pairs of nipper-jaws remain open in readiness for further operation. The nipper-jaws
 120 that grasp the binder 11 do not at any time come into the path of the swinging gripper-jaw 15, and the nipper-jaws that pull the wrapper 9 are always out of the way before the jaws 14 and 15 grasp the article and its
 125 wrapping material. The article to be wrapped being firmly gripped together with the wrapping material and binder or label by the gripping and transferring jaws 14 and 15, as already described, these jaws now con-
 130 jointly swing in the arc of a circle, as indicated by dotted lines in Fig. 3 and in the direction of the arrow there shown, thereby depositing the article, wrapping material, and

binder into the folding-box 13 in readiness for the operations of making the necessary folds in wrapping and sealing the package. The jaw 15 remains in the folding-box during the folding operation and the removal of the wrapped and sealed package, while the jaw 14 is quickly swung back to normal position in front of the magazine for subsequent transfer of an article and its wrapper and binder.

The folding-box and accompanying folders are particularly designed to so fold the wrapper 9 and binder 11 that the end portions of the inner layer or wrapper 9 will be creased, folded, and overlapped or tucked in beneath the longitudinal folds of both the inner layer 9 and outer layer or binder 11 to secure a perfectly-wrapped package covered and protected at every point, corners and all, thereby effectually excluding air and moisture from the wrapped article.

As clearly shown in Fig. 18, the folding-box 13 has the form of an open-top rectangular receptacle comprising a front wall 83, a rear wall 84, and end walls 85, with slots or openings in each. The end walls are provided with horizontal slots 86 for passage of laterally-movable end-folders 87, Figs. 12, 19, and 21, and the front wall 83 has a horizontal slot 88 for passage of the front longitudinal folder 89, Figs. 3, 23, and 24. The rear wall 84, Fig. 18, is of less height than the front and end walls and is formed with a central cut-away portion 90, having slotted end extensions 91 for passage of the rear longitudinal folder 92 and elastic roller 93, Figs. 3, 12, 23, and 24, the ends of the plate portion of said folder 92 being permitted to pass at the slotted openings 91, while the roller 93 on the edge of said plate will roll over the wall 84 and onto the article in the folding-box. The rear wall and the bottom of the box are provided with vertically-extended slots 94, Fig. 18, to accommodate the side arms of the yoke-frame 17, by which the gripper-jaw 15 is carried. The four corners of the box are formed or provided with vertical finger-like extensions 95, having blunt upper extensions and approximately rectangular inner surfaces, as shown in Fig. 18. It is preferable to have the two vertical extensions 95 at the rear of the box of less height than the front ones, as shown, and the top edges of the end walls of the box are inclined downward from front to rear between said front and rear vertical extensions. On the frame of the machine at the ends of the folding-box 13 there are four diverging wings 96, Figs. 1 and 7, the top edges of which are inclined upwardly and outwardly from the several vertical extensions 95 at the corners of the box, as shown. Now as the article and its wrapper are carried over to the folding-box in a path that describes the arc of a circle the projecting portions of the wrapper 9 will be first presented flatwise to the said wings 96, that diverge outwardly and upwardly from the ver-

tical finger-like extensions 95 at the corners of the box, and as the two gripping and transferring jaws 14 and 15 force the article 2, wrapper 9, and binder 11 into the folding-box 13 these wings 96 will gradually turn the projecting portions of the wrapper 9 upward along diagonal lines diverging from the corners of the box, and thus as acted on by the diverging wings 96 and vertical finger-like extensions 95 the corner portions of the wrapper 9 will first buckle or crimp and turn upward or inward, and then the inside corners and walls of the box 13 will turn the ends and longitudinal edge portions of the wrapper 9 upward, together with the longitudinal edge portions of the binder 11, in such manner that the form or shape of the wrapper and binder will become approximately or substantially as shown in Fig. 20. The end-folder blades 87 are now caused to advance and enter the slots 86 of the end walls of the box 13 to fold end portions of the wrapper 9 down upon the article, as shown in Figs. 21 and 22, whereby portions of the buckled or crimped wrapper-corners will overlap, as shown. The end-folders 87 next retreat, and then the front longitudinal folder 89 is caused to enter the box 13 through the slot 88 and fold one longitudinal edge portion of the wrapper 9 and binder 11 over onto the article 2, as shown in Fig. 23. As the folder 89 retreats the rear longitudinal folder 92 advances and carries its roller 93 into the folding-box and over the article therein, so as to fold down the rear longitudinal edge portions of the wrapper and binder, as shown in Figs. 3, 12, and 23, thereby pressing down and securing that edge of the binder 11 which is supplied with adhesive. The completely-wrapped and securely-sealed package now presents the appearance shown in Fig. 26. By first buckling or crimping and turning inward the corner portions of the inner wrapper 9, as in Figs. 19 to 22, and subsequently folding in the ends and then the longitudinal side portions, as above described, the corners of the article, as well as all other parts thereof, are perfectly covered and protected to effectually prevent access of air or moisture. After the package is wrapped and sealed in the folding-box 13, as above described, and before the rear longitudinal folder 92 and attached roller 93 recede a sweeper-bar 97, Figs. 1, 3, 12, 23, 24, and 25, is carried rearward over the said folder 92 and roller 93, and then this folder and roller retreat. Now while the sweeper-bar 97 remains stationary in its rearward position the gripping-jaw 15, lying in the box 13, rises and then pauses, thus bringing the wrapped package up in front of sweeper-lugs 98, Figs. 12 and 24, on the under side of said sweeper-bar. The sweeper-bar 97 then advances toward the front of the machine, thereby drawing the completed package off from the gripping-jaw 15, as shown in Fig. 24, and onto a table 99, over which it is further drawn by said

sweeper 97 to and beneath an elastic roller 100, where it is temporarily deposited until after the wrapping operation has been repeated on a succeeding article. The sweeper 97 then travels back and carries the last-wrapped article onto the table 99 and against the preceding package, so as to push the latter out from beneath the roller 100, and so on. In passing under this elastic roller 100 the package is subjected to a pressure that is just sufficient to make certain the secure sealing of the wrapper without subjecting the inclosed article to any injury.

The sweeper-bar 97 is attached to or formed on arms 101, that are pivoted or trunnioned to lugs 102 on slide-arms 103, Figs. 3 and 25, connected by a cross bar or bars 104 and supported in suitable guides beneath the table 99, on which the completed packages are first deposited. A spring 105, Figs. 1, 7, and 25, is connected with one of the arms 101 in such manner as to hold the sweeper 97 down to its work.

The elastic pressure-roller 100 has a shaft 106, that is journaled in bearings 107 on the machine-frame, and on this roller-shaft 106 are loosely mounted the arms 108 of a gravity presser-bar 109, Figs. 1 and 23, under which the completed packages are successively pushed. By means of this presser-bar 109 the completed packages are directed in succession into engagement with hooked projections 110 on the peripheral portions of a pair of carriers 111, Figs. 23 and 25, by which the said packages are successively deposited in edgewise position in or upon an elongated tray or trough 112, Figs. 23 and 25, for ultimate removal from the machine. The carriers 111 are preferably in the form of plates 40 secured to a rotatable shaft 113, mounted in the sides of the tray or trough 112 at its junction with the main frame of the machine, and, as shown in Figs. 23 and 25, the rear end of the tray-bottom and the overhanging front edge of the table 99 are each suitably cut away for passage of the rotatable carrier-plates 111 and for convenient reception of the wrapped packages thereon. One of the carrier-plates 111 is provided with a number of 50 laterally-projecting pins 114 to be successively pushed against by a pawl 115 on the cross-bar 104 of the slide-arms 103, by which the sweeper 97 is carried. The number of these pins 114 corresponds with the number 55 of hooked projections 110 on each of the carriers 111, so that as each pin is pushed against by the pawl 115 the carriers will be thereby rotated a sufficient distance to receive a package from under the presser-bar 109, pushed 60 along by the succeeding packages, and also to nearly or quite deposit a package in the tray 112, as shown in Fig. 23. A spring-detent 116 is provided on the tray or trough 112 to engage each pin 114 in such direction as 65 to prevent backlash or reverse rotation of the carrier 111 when the sweeper 97 returns toward the folding-box. The periphery of each

carrier 111 is provided with a series of flattened surfaces 117, that are each extended from the inner side of one hooked projection 110 to the outer side of the next hooked projection, the several hooked projections being turned rearward, as shown in Fig. 23. These flattened surfaces 117 receive the packages as pushed along successively from beneath the presser-bar 109, one package on the corresponding flattened surfaces of the two parallel carriers and each resting against corresponding hooked projections of said carriers. Consequently as the two carriers are rotated together step by step by the pawl 115 the packages will be deposited consecutively in or upon the tray or trough 112, as before stated. A guard 118, Fig. 25, is provided on the inner end of the tray 112 to prevent the deposited packages from falling over toward the shaft 113, to which the carriers 111 are secured. The completed packages are deposited edgewise, and for the purpose of maintaining them in this position a bar 119 is slid- 90 ingly supported across the tray 112 for the forward package to bear against as the accumulated packages are advanced along the receiving tray or trough. One end of this bar or sliding support 119 rests loosely upon the top of one side edge of the tray or trough 112, and the other end of said bar or support is slid- 95 ingly hinged or pivoted on a rod 120, Fig. 25, supported along the opposite side of the tray, so that the bar 119 can slide along the tray as pushed forward by the accumulating line of packages or may be swung to one side when so desired. As the receiving tray or trough 112 becomes filled the packages can be removed and the slide or bar 119 be moved 105 back toward the package-carriers.

It will now be convenient to proceed with description of the mechanism for actuating the several working parts of the machine that are immediately concerned in the wrapping 110 of such articles as chewing-gum, chocolate, or the like and for discharging the completely-wrapped packages from the wrapper folding and sealing devices already described.

At one end of the machine-frame there is 115 a drive-shaft 121, mounted in suitable bearings and carrying a pinion 122, Fig. 2, meshing with a large spur-gear 123, Figs. 1, 2, and 3, on a counter-shaft 124, which transmits power through bevel-gearing 125 to a line- 120 shaft 126, supported in suitable bearings along the front of the machine. The shaft 126 connects through bevel-gearing 127 with a shaft 128, having its bearings on the right-hand end of the machine-frame, as shown in 125 Fig. 1. The drive-shaft 121 may be provided with driving and clutch devices of any suitable character controlled through a lever 129, as may be required.

By reference to Figs. 1, 2, and 3 it will be 130 seen that the rear end of the shaft 124 carries a cam 130, the periphery of which is formed to act in such manner on a roller 131, Fig. 3, attached to the lever 43, Fig. 2, as to

cause said lever to lift the air-pump plunger 41 against the action of the spring 40 and hold said plunger elevated until the open nipper-jaws 53 55 and 54 56 have nearly approached the point where they are to seize the wrapping material and its binder. A releasing portion 132 of the cam 130 then passes by the roller 131, and thus permits the lever 43 to yield under the strain exerted by the compressed spring 40, that now forces the pump-plunger 41 outward and so induces suction in the hinged nozzle 32, Figs. 1 and 4, which is immediately thrown downward by its lever 44, Figs. 1, 2, and 9, into the position shown in Fig. 4, and thus the lowermost binder 11 in the hopper 29 has its leading edge sucked downward into position to be readily grasped by one pair of nipper-jaws at the instant that the leading edge of the web 9 of wrapping material is seized by the other pair of nippers. When the nippers in moving backward have drawn a binder 11 and a sufficient quantity of the wrapper-web 9 outward in front of the magazine, as before explained, the shear-blades 27 and 28 close forcibly and sever the web 9 at the required point to give the necessary length of wrapper. The shear-blades 27 and 28 are pivotally mounted on a common axis 133, Fig. 7. The upper shear-blade 27 is constructed with a rearward-extended tailpiece 134, which is connected by a link 135 with one arm of a bell-crank 136, Figs. 2 and 8, fixed on a rock-shaft 137, that is suitably mounted on the machine-frame. The lower shear-blade 28 is connected by a link 138 with a crank-arm 139, that is also fixed to said rock-shaft. The upwardly-projecting arm of the bell-crank 136 is connected by a rod 140 with the upper end of a lever 141, which is pivoted at 142 to a portion of the machine-frame. This lever 141 supports a roller 143, that is in bearing contact with the periphery of the cam 144 on the shaft 124, that is actuated from the drive-shaft, as before explained. This cam 144 is arranged to act on the roller 143 to force the lever 141 in such direction as to maintain shear-blades 27 and 28 in a normal open position. When in this position, the lever 141 is locked by a latch 145, mounted thereon and engaging a catch 146 on the machine-frame. A spring 147 normally forces the latch 145 into engagement with said catch. On the cam 144 there is a laterally-projecting pin 148, which at the proper time will strike one end of the latch 145, thereby disengaging its other end from said catch 146, and at this instant the spring 149, connected with the lower end of said lever 141, will forcibly act thereon in such manner as to cause it to pull on the rod 140, and thereby vibrate the bell-crank 136 in such manner as to cause the shear-blades 27 and 28 to sever the web 9 of wrapping material. In the periphery of the cam 144 there is a cut-away portion 150, which comes opposite the roller 143 when the catch 145 is tripped,

and thereby permits the spring 149 to vibrate the shear-actuating lever.

The levers 68, through which the nippers are reciprocated, each support a roller 151, engaged in cam-races 152 and 153 on opposite sides of a large cam-wheel 154 on the shaft 124, as shown in Figs. 1, 2, and 4. The cam-race 152 is formed in a thickened or offsetting portion 152^a of the cam-wheel. The cam-race 153 differs slightly in contour from the cam-race 152, as indicated by dotted lines in Fig. 4, the purpose being to provide for a longer travel of the roller 151, engaged in this cam-race 153, whereby in retracting the nippers the jaws 54 56, that pull the binder 11, will move less rapidly than the jaws 53 55, which draw the wrapper-web. Both cam-races 152 and 153 are so constructed as to provide for the necessary pauses in the operation of the nippers to conform with the requirements of the machine. The cam-wheel 154 has an enlarged peripheral portion 155 of suitable extent for acting at the proper time against a roller 156 on the end of the bell-crank lever 76, through which the bar 65 is lifted to close the nipper-jaws onto the wrapping material. After the wrapping material has been drawn in front of the magazine and the nippers retracted, the bell-crank lever 76 will be released by the reduced portion of the cam-wheel 154, and then the bar 65 will be forced down by the springs 77 to open the nipper-jaws and release the wrapping material. In the meantime the feed-slide 6 has moved an article outwardly from the lower part part of the magazine and beneath the wrapping material. This feed-slide 6 is connected by a link 157 with the upper end of a lever 158, that has its lower end pivoted at 159 to a portion of the machine-frame, as shown in Fig. 3. The lever 158 is connected by a rod or bar 160 with the upper end of a vibratory lever 161, the lower end of which is pivotally supported at 162 on the lower portion of the machine-frame. The lever 161 carries a roller 163, engaged in a cam-race 164 of a cam 165, mounted on the shaft 126, Figs. 1 and 3.

The segmental racks 22 and 25 for operating the gripping-jaws 14 and 15 are actuated through bars or links 166 and 167, Fig. 13, that connect, respectively, with the upper ends of vibratory levers 168 and 169, having a pivotal support 162 at their lower ends. Each of these levers 168 and 169 supports a roller 171 and 172, engaged, respectively, in cam-races 173 and 174 in opposite sides of a cam-wheel 175 on the shaft 126, and these cam-races 173 and 174 are so formed that the gripping-jaw 14 will be independently operated to carry it into position to receive the article to be wrapped and the gripping-jaw 15 will be operated independently to bring it into position above the wrapping material, after which both jaws will operate in unison in transferring the article and its wrapper into the folding-box. As the gripping-jaw 14 returns to the

position in front of the magazine the end-folders 87 are operated to fold or tuck in the ends of the wrapping material onto the article. These end-folders are attached to the upper ends of bars 176, Fig. 12, and are pivotally supported at their lower ends within the machine-frame. These pivoted or hinged bars 176 are connected with each other through folding-levers 177 and 178 in such manner that said bars may be moved in unison. One of said bars 176 is connected, through a link 179, with the upper end of a vibratory lever 180, having a pivotal support 181 at its lower end. This vibratory lever 180 supports a roller 182, engaged in a cam-race 183 in a cam-wheel 184 on the shaft 124, as shown in Figs. 1 and 12.

The front longitudinal folder 89 is secured to the upper portion of a vibratory frame 185, Figs. 3 and 14, the lower end of which has a pivotal support at 186 within the machine-frame. This vibratory frame 185 connects by a link 187 with the upper end of a lever 188, having the pivotal support 162 at its lower end. The lever 188 supports a roller 189, engaged in a cam-race 190 in a cam-wheel 191 on the shaft 126.

The rear longitudinal folder 92 and its attached roller 93 are carried by the upper end of a vibratory frame 192, having a pivotal support 193 at its lower end. This vibratory frame 192 connects, by a link 194, with the upper end of a lever 195 on the pivotal support 162 and supports a roller 196, engaged in a cam-race 197 in one side of the cam-wheel 165, from which also the feed-slide 6 is actuated. After the rear longitudinal folder 92 and roller 93 have completed the folding and sealing of the package the sweeper-bar 97 is moved rearward, the rear longitudinal folder retreats, and the gripper-jaw 15 lifts the package in front of the lugs 98 on the sweeper-bar. The sweeper-bar 97 then moves forward and conveys the package to and beneath the elastic roller 100, as before explained. This sweeper-bar 97 and also the pawl 115, Figs. 23 and 25, which actuates the carriers 111, are operated from a cam-wheel 198 on the shaft 126, Fig. 7. In one side of this cam-wheel 198 there is a cam-race 199, engaging the roller 200 on a vibratory lever 201, having a pivotal support on the shaft 162, as shown in Fig. 7. The upper end of the vibratory lever 201 is connected, through a link 202, to one of the slide-arms 103, on which said sweeper-bar 97 and pawl 115 are mounted.

When the nipper mechanism draws forward the wrapper-web 9 and binder 11 in front of the magazine, the finger 78 rises and relieves the web 9 from pressure; but as soon as the shear-blades 27 and 28 sever the web 9 this finger 78 descends and holds the web 9, so that it cannot slip back. As before stated, the pressure-finger 78 is mounted on a rock-shaft 79, Figs. 1, 2, and 7. On this rock-shaft 79 is a crank-arm 203, which is connected, through a link or rod 204, Fig. 7, with the upper end

of a vibratory lever 205, that supports a roller 206, engaged in a cam-race 207 in one side of the cam-wheel 198, before mentioned, and from which the pressure-finger 78 and the sweeper-arm 97 are both actuated at proper-timed intervals.

On the shaft 128 is a spur-gear 208, which drives a train of gears 209 210 211 212 for rotating the paste-disk 47, hereinbefore described, to apply adhesive material to one edge of the binder 11 or to moisten adhesive that has been previously applied thereto. The shaft 128 also carries the cam-wheel 213, Fig. 9, having therein a cam-race 214, engaging a roller 215 on a lever 216, the upper end of which is secured to the rock-shaft 45, through which is actuated the lever-arm 44 for swinging downward the hinged suction-nozzle 32 when the suction-pump 39 is operated, as before explained, for the purpose of drawing down the leading edge of the lowermost binder in the stack of binders contained in the hopper 29. In the lever 216, Fig. 9, there is an elongated slot 217 for passage of a screw 218, which connects with a hanger 219, depending from the rock-shaft 45, and the lower portion of this hanger 219 is provided with laterally-projecting lugs 220 for supporting set-screws 221, that bear against opposite edges of said lever. By means of the screws 218 and 221 any required set or adjustment can be given to the lever 216 to vary the degree of movement to be imparted through the rock-shaft 45 to the lever 44, that actuates the hinged suction-nozzle.

As before remarked, the wrapping material may consist simply of the web 9 of waxed paper and the binder 11, that also serves as a label, or a web of tin-foil 10 may be employed also in connection with the web 9 of waxed paper. When the two webs 9 and 10 are employed together, there will be provided two reels 222 and 223, Figs. 27 and 28. These reels may be supported on a bar 224, projecting horizontally on one rear end portion of the machine-frame. It is preferable to pivot one end of this bar to the machine-frame, as at 225, Fig. 2, and to provide the bar with a circular slot 226 for passage of a screw 227, whereby the said bar can be easily adjusted to any required inclination, if desired. The web 9 of waxed paper is preferably arranged on the outermost reel 222 and is drawn off therefrom underneath the web 10 of tin-foil, which is supported on the innermost reel. The two webs 9 and 10 are passed together over one drawing-off roller 228 and beneath another drawing-off roller 229, Fig. 27, the journals or spindles of which rollers are supported in the opposite ends of a two-arm tilting frame 230, Fig. 28. This two-arm tilting frame 230 has a central pivotal support 231 in the bar 224, on which the reels 222 and 223 are mounted, and the said central support 231 is connected, by means of a rigidly-attached link 232, to the upper end of a lever 233, Fig. 27. The link 232 is rigidly attached to the

central pivotal support 231 of the tilting frame 230, but has an adjustable connection 234 with the lever 233. At its lower end the lever 233 is connected by a link 235 with one end of a horizontally-arranged two-arm rocking lever 236, that is pivotally supported at 237 intermediate its ends, as shown in Fig. 28, and the other end of this lever 236 carries a roller 238, engaged in a cam-race 339 in a cam-wheel 240, mounted on an extended end of the shaft 126, hereinbefore mentioned. From this cam 240 the connected levers 236 and 233 are operated at proper-timed intervals in such manner as to rock or tilt the drawing-off rollers 228 and 229 into the position shown by dotted lines in Fig. 27, thereby drawing off the wrapping material from the reels 222 and 223 without subjecting said material to any injurious strain, and then at proper-timed intervals the said cam permits the said rollers 228 and 229 to resume their normal position, as shown by full lines in Fig. 27. In tilting the drawing-off rollers 228 and 229 to the positions shown by dotted lines in Fig. 27 the two parallel webs 9 and 10 of wrapping material will be drawn off from their respective reels, and when the drawing-off rollers are released by the further rotation of the cam 240 to resume their normal position a slack of wrapping material will be provided between said rollers and the depressed pressure-finger 78, as shown by dotted lines in Fig. 27, so that when the leading edges of the webs 9 and 10 are seized by the nipping mechanism and the finger 78 is raised the slack that has been previously formed in said web will enable the wrapping material to be drawn forward in front of the magazine without strain and without any liability of having pieces pinched from it when it is first grasped by the nipper-jaws, as might be the case if the web or webs were subjected to any undue strain. Obviously this arrangement of drawing-off rollers 228 and 229 could be as well employed when only a single web of wrapping material is provided for inclosing the article to be wrapped.

The several cams and cam-races herein referred to may have any suitable contour appropriate to the required movements effecting the several necessary operations of the machine in proper order, as hereinbefore explained.

What I claim as my invention is—

1. In a package-wrapping machine, the combination with a magazine, means for discharging an article therefrom, and a folding mechanism, of means for carrying wrapping material, mechanism for moving the wrapping material longitudinally into a position above the article to be wrapped, and oscillatory gripping-jaws swinging in an arc of a circle from a point near the magazine to the folding mechanism for holding the article and wrapping material in fixed relation to each other and while so held transferring them from near the magazine to the folding mechanism, and devices for operating said jaws, substantially as described.

2. In a package-wrapping machine, the combination with a folding mechanism, of means for carrying wrapping material, mechanism for moving the wrapping material longitudinally into a position above the article to be wrapped, and opening and closing swinging jaws mounted on a common axis and constructed to seize and transfer the article and the wrapping material in fixed relation to each other to the folding mechanism, and devices for opening, closing and swinging the jaws, substantially as described.

3. In a package-wrapping machine, the combination with a folding mechanism, of means for carrying wrapping material, longitudinally-reciprocating nipper mechanism for drawing the wrapping material longitudinally into a position above the article to be wrapped, and mechanism for gripping the article and the wrapping material, holding them in fixed relation to each other, and transferring them to the folding mechanism with the article uppermost, substantially as described.

4. In a package-wrapping machine, the combination with mechanism for folding a wrapper about an article of merchandise, a magazine for containing articles to be wrapped, and means for successively discharging the articles from the magazine, of means for carrying the wrapping material, mechanism for moving the wrapping material longitudinally over the article which is to be wrapped, a cutter for severing a wrapper-section from the wrapping material, swinging and cooperating gripping-jaws mounted on a common axis and constructed to seize the article and the wrapper-section, hold them in fixed relation to each other and transfer them from a point near the magazine to the folding mechanism, and devices for operating said jaws, substantially as described.

5. In a package-wrapping machine, the combination of mechanism for folding a wrapper about an article of merchandise, a magazine for containing the articles, means for supporting a web of wrapping material, reciprocatory mechanism for drawing the wrapping material longitudinally into a position above the article which is to be wrapped, mechanism for moving an article from the magazine under the wrapping material as the latter is drawn longitudinally over the article, a cutter for severing a wrapper-section from the wrapping material, two swinging and cooperating gripping-jaws for transferring the article and the wrapping material in an arc of a circle and in fixed relation to each other from a point near the magazine to the folding mechanism, and devices for opening, closing and swinging said jaws, substantially as described.

6. In a package-wrapping machine, the combination of a magazine, a folding mechanism arranged some distance from said maga-

zine, means for supporting wrapping material, horizontally-reciprocating nippers for moving the wrapping material horizontally, means for horizontally reciprocating the nippers, devices for successively discharging articles from the magazine and inserting them under the wrapping material as the latter is moved horizontally by the nippers, and mechanism for transferring an article and its wrapper from near the magazine to the folding mechanism, substantially as described.

7. In a package - wrapping machine, the combination with a magazine, a folding mechanism, and means for supporting wrapping material, of mechanism for moving the wrapping material longitudinally, devices for inserting the article to be wrapped beneath the wrapping material, a cutter for severing a wrapper-section from the wrapping material, two swinging and cooperating gripping-jaws for transferring the article and the wrapper-section in an arc of a circle from near the magazine to the said folding mechanism, and devices for opening, closing and swinging said jaws, substantially as described.

8. In a package - wrapping machine, the combination of a folding mechanism for folding a wrapper about an article of merchandise, means for carrying the wrapping material, mechanism for moving the wrapping material longitudinally into a position above the article which is to be wrapped, a cutter for severing a wrapper-section from the wrapping material, two swinging and cooperating gripping-jaws for transferring the article and the wrapper-section in an arc of a circle to the folding mechanism, and devices for opening, closing and swinging said jaws, substantially as described.

9. In a package - wrapping machine, the combination of a magazine for containing articles of merchandise, means for successively discharging the articles from the magazine, a reel for carrying a web of wrapping material, reciprocatory nipper mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, and a transferring mechanism composed of two swinging and cooperating gripping-jaws turning vertically in an arc of a circle between the magazine and the folding mechanism for transferring the article and wrapper-section from near said magazine to said folding mechanism, substantially as described.

10. In a package - wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a reel for carrying a web of wrapping material, mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, two swinging and cooperating gripping-jaws for transferring the article and wrapper-section in an arc of a circle from near the magazine to said folding mechanism, and devices for opening, closing

and swinging said jaws, one of said gripping-jaws being adapted to lift the wrapped article to a point from whence it may be removed, substantially as described.

11. In a package - wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, a reel for carrying a web of wrapping material, mechanism for drawing the web longitudinally, a cutter for severing a wrapper-section from the web, a folding mechanism, two swinging and cooperating gripping-jaws for transferring the article and wrapper in an arc of a circle from near the magazine to said folding mechanism, one of said gripping-jaws being adapted to lift the wrapped article from the folding mechanism, and a sweeper for removing the wrapped article from above the folding mechanism, substantially as described.

12. In a package - wrapping machine, the combination of a magazine for containing articles of merchandise, means for discharging the articles from the magazine, two swinging and cooperating gripping-jaws, means for supplying a wrapping-web and a binder, two pairs of reciprocatory nippers to seize the wrapping-web and the binder, respectively, and draw them longitudinally over the article, cutting mechanism for severing the wrapping-web, means for moving one pair of the nippers a greater distance than the other to shift and position the binder relatively to the wrapping-web, a folding mechanism to which the article and its wrapper and binder are transferred by the gripping-jaws, and means for removing the wrapped article, substantially as described.

13. In a package - wrapping machine, the combination of a magazine for containing articles of merchandise, means for supporting wrapping material, means for moving the wrapping material in front of said magazine, cutting mechanism, means for discharging an article from the magazine into a position beneath the wrapping material, a folding-box, end-folders and front and rear longitudinal folders, mechanism for gripping and transferring the article and wrapping material in fixed relation to each other from in front of the magazine to the folding mechanism, and mechanism for removing the wrapped article, substantially as described.

14. In a package - wrapping machine, the combination with a magazine for containing articles of merchandise, and means for supporting wrapping material, of means for moving the wrapping material longitudinally, cutting mechanism for severing the wrapping material into a wrapper, means for supporting separately-cut binders, means for feeding said binders, mechanism for discharging an article from the magazine into proper relation to the wrapper and binder, a folding-box, mechanism for end-folding the wrapper and for longitudinally folding the wrapper and binder conjointly upon the article, mechanism for

transferring the article and wrapping material in fixed relation to each other from in front of the magazine to the folding mechanism, and mechanism for removing the wrapped article from the folding mechanism, substantially as described.

15. In a package-wrapping machine, the combination of a table, a reel for carrying a web of wrapping material, means for supporting a supply of ready-cut binders or labels, reciprocating nippers for gripping the leading end of said web of wrapping material and one of said binders and drawing them longitudinally, mechanism for placing the article to be wrapped in proper relation to the wrapping material and binder, cutting mechanism for severing the web of wrapping material, folding mechanism, and gripping and transferring jaws for transferring the article and its wrapper and binder to the folding mechanism, substantially as described.

16. In a package-wrapping machine, the combination of a magazine for containing the articles to be wrapped, reels for carrying webs of wrapping material, means for supporting a supply of ready-cut binders or labels, reciprocating nippers to grasp the webs of wrapping material and the binders and draw them longitudinally in front of the magazine, mechanism for placing the article to be wrapped beneath the wrapping material, cutting mechanism, folding mechanism, and gripping and transferring mechanism for transferring the article, wrapper and binder from in front of the magazine to the folding mechanism, substantially as described.

17. In a package-wrapping machine, the combination with a magazine, and a folding mechanism, of two gripping-jaws normally separated, means for discharging an article from the magazine and placing it over one of the jaws, means for shifting wrapping material above said article, means for actuating the other jaw and causing the two jaws to grip the wrapping material and the article, and means for operating both jaws simultaneously to transfer the article and the wrapping material to the folding mechanism, substantially as described.

18. In a package-wrapping machine, the combination with a magazine, and a folding mechanism, of two oscillating gripping-jaws normally separated, means for discharging an article from the magazine and placing it over one of the jaws, means for moving wrapping material above said article, means for actuating the other jaw and causing the two jaws to grip the wrapping material and the article, and means for simultaneously swinging both jaws for transferring the article and the wrapping material to the folding mechanism, one of the jaws remaining in the folding mechanism during the folding operation while the other jaw is shifted away from the folding mechanism toward the magazine, substantially as described.

19. In a package-wrapping machine, the

combination with a magazine, and a folding mechanism, of two gripping-jaws normally separated, means for discharging an article from the magazine over one of the jaws, means for shifting wrapping material above said article, and rack-and-pinion mechanism for independently operating the jaws and causing them to seize and grip the article and the wrapping material and transfer them to the folding mechanism, substantially as described.

20. In a package-wrapping machine, the combination with means for supporting a web of wrapping material, cutting mechanism for severing wrappers from said web at regular intervals, and means for supporting a supply of ready-cut binders or labels, of two pairs of horizontally-reciprocating nippers for seizing and drawing said web and binder horizontally, means for closing the nippers upon the web and binder, mechanism for opening the nippers after they have shifted a wrapper in relation to an article to be wrapped, means for reciprocating the nippers, and folding mechanism, substantially as described.

21. In a package-wrapping machine, the combination with means for supporting webs of wrapping material and a supply of ready-cut binders or labels, and cutting mechanism for severing wrappers from said webs at regular intervals, of two pairs of longitudinally-reciprocating nippers for seizing and drawing the webs and a binder longitudinally over the article to be wrapped, means for closing the nippers upon the leading ends of the webs and binder, mechanism for opening the nippers after they have shifted the wrapper and binder in proper relation to the article to be wrapped, means for reciprocating the two pairs of nippers at a proper relative speed, and folding mechanism, substantially as described.

22. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material, a magazine, means for discharging an article from the magazine, folding mechanism, cutting mechanism for severing a wrapper from said web of wrapping material, and means for supporting a supply of ready-cut binders or labels, of reciprocating nippers for pulling the web of wrapping material and a binder longitudinally in front of the magazine, and nipper-operating mechanism through which one pair of nippers is moved faster than the other and by which a pair of nippers is moved slightly after the other pair has ceased moving, for the purpose of shifting and adjusting the binder in proper relation to the wrapper and article to be wrapped, after the web of wrapping material is severed, substantially as described.

23. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, of a feed-slide having separated projecting arms at one end, located below the level of the top surface of

the slide, means for moving the slide back and forth at regular intervals, mechanism for placing a wrapper over an article supported by the separated arms, a folding mechanism, and gripping and transferring devices constructed to pass between the arms of the slide for transferring the article and the wrapper from said arms to the folding mechanism, substantially as described.

24. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, of a feed-slide having separated projecting arms at one end arranged below the level of the top surface of the slide, means for moving the slide back and forth, means for drawing wrapping material longitudinally over an article supported by the said arms, cutting mechanism for severing a web to form a wrapper, folding mechanism, and gripping and transferring devices constructed to pass between the arms of the slide for transferring the article and the wrapper from said arms to the folding mechanism, substantially as described.

25. In a package-wrapping machine, the combination with reels for holding webs of wrapping material, means for supporting a supply of ready-cut binders, a magazine for containing articles of merchandise, and means for discharging the articles successively from the magazine, of longitudinally-moving slides having fixed nipper-jaws, movable nipper-jaws mounted on the slides, mechanisms for moving the slides back and forth and operating the movable jaws at regular intervals, a folding mechanism, and means for transferring an article and a wrapper to the folding mechanism, substantially as described.

26. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, mechanism for discharging the articles successively from the magazine, and means for supplying wrapping material, of longitudinally-movable slides having fixed nipper-jaws and movable nipper-jaws, mechanisms for moving the slides back and forth and operating the movable nipper-jaws at regular intervals, cutting mechanism, folding mechanism, and means for transferring an article and a wrapper from a point adjacent to the magazine to the folding mechanism, substantially as described.

27. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material, and means for drawing or pulling the web longitudinally, of shear-blades for severing the web into wrappers, a vibratory lever-arm carrying a latch, connections between the lever-arm and the two shear-blades, a catch with which the latch on the lever engages, a cam acting on the vibratory lever-arm and provided with a pin to trip the latch and disengage it from the catch, and a spring actuating the lever-arm for closing the shear-blades to sever the webs, substantially as described.

28. In a package-wrapping machine, the

combination of a magazine for holding articles of merchandise, means for discharging the articles successively from the magazine, means for holding wrapping material, means for drawing or pulling the wrapping material longitudinally in front of the magazine, a folding mechanism, a cutter for severing the wrapping material into wrappers, pivoted yoke-frames having gripping-jaws, and rack-and-pinion mechanism for independently moving the yoke-frames at a certain time and subsequently moving them in unison at another time for transferring an article and a wrapper from a point adjacent to the magazine to the folding mechanism, substantially as described.

29. In a package-wrapping machine, the combination with a magazine for containing articles of merchandise, and means for successively discharging the articles from said magazine, of a reel for carrying a web of wrapping material, cutting mechanism to sever a wrapper from said web, means for supporting a stack of ready-cut binders or labels, a tank to contain an adhesive or moistening fluid, a rotary disk for applying adhesive to a marginal portion of an undermost binder or for moistening previously-applied adhesive, means for conveying fluid or adhesive material from said tank to said rotary disk, nippers for pulling the web of wrapping material and a binder in front of the magazine, folding mechanism, and devices for transferring an article and a wrapper and binder from a point adjacent to the magazine to the folding mechanism, substantially as described.

30. In a package-wrapping machine, the combination of a table, a reel for carrying a web of wrapping material, mechanism for drawing or pulling the web of wrapping material over the table, cutting mechanism for severing the web, a rocking pressure-finger for holding the web down upon the table after a wrapper has been severed from the web, folding mechanism, and means for transferring an article and a wrapper to the folding mechanism, substantially as described.

31. In a package-wrapping machine, the combination with a magazine, means for discharging articles successively therefrom, means for moving wrapping material over each article discharged, and a folding mechanism, of two swinging, gripping and transferring jaws pivoted between the magazine and the folding mechanism, pinions connected, respectively, with the frames of the gripping-jaws, movable racks respectively engaging the said pinions, and means for independently operating the racks and subsequently moving them in unison for transferring an article and a wrapper from a point adjacent to the magazine to the said folding mechanism, substantially as described.

32. In a package-wrapping machine, the combination of a stationary folding-box, gripping and transferring mechanism swinging in an arc of a circle to carry an article and a su-

perimposed wrapper in fixed relation to each other and to deposit them in reversed position in said folding-box, end-folders movable toward and from each other for first folding the ends of the wrapper upon the article, and longitudinal folders movable toward and from each other for subsequently folding the sides of the wrapper longitudinally upon the said folded end portions to cover and seal the same, substantially as described.

33. In a package-wrapping machine, the combination of a stationary folding-box, gripping and transferring mechanism for carrying an article and a superimposed wrapper-body and binder and depositing them in reversed position in said folding-box, end-folders and longitudinal folders movable in substantially the same horizontal plane, and mechanism for operating said folders to first fold the end portions of the wrapper-body down upon the upper side of the article and to subsequently fold the wrapper and binder down upon the folded end portions of the wrapper-body to cover the same, one of said longitudinal folders being provided with means for pressing upon and securing an adhesive margin of the binder, substantially as described.

34. In a package-wrapping machine, the combination of a stationary folding-box, gripping and transferring mechanism to carry an article and a superimposed wrapper in fixed relation to each other and to deposit them in reversed position in said folding-box, pivoted vibratory arms having attached thereto folders movable in substantially the same horizontal plane, and cam mechanism for actuating said arms and attached folders to first fold the ends of the wrapper down onto the article and to subsequently fold the sides of the wrapper upon and over the folded ends of said wrapper, substantially as described.

35. In a package-wrapping machine, the combination of a folding-box having its corners constructed with finger-like extensions which intercept the flattened wrapper-section as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, and folders for first folding end portions of the wrapper-section upon the ends of the article and subsequently folding the longitudinal edges upon the said folded and buckled or crimped parts at the ends of the wrapper, substantially as described.

36. In a package-wrapping machine, the combination of a folding-box having front, rear and end walls constructed at the four corners with finger-like vertical extensions, blunt at their upper ends, which intercept the flattened wrapper-section as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, and folders for first folding end portions of the wrapper-section, with parts overlapping, upon the ends of the article, and subsequently folding the longitudinal

edges upon the said folded and overlapped end parts, substantially as described.

37. In a package-wrapping machine, a folding-box having its corners constructed with finger-like vertical extensions which intercept the flattened wrapper as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, substantially as described.

38. In a package-wrapping machine, a folding-box having its corners constructed with finger-like vertical extensions each provided with a substantially rectangular inner surface, and which intercept the flattened wrapper as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, substantially as described.

39. In a package-wrapping machine, the combination of a folding-box having front, rear and end walls, the front and end walls containing slots near their upper edges for the entrance of folder-blades, and constructed at the four corners with finger-like vertical extensions which intercept the flattened wrapper-section as it and the article thereupon are presented to the folding-box and buckle or crimp and turn corner parts of the wrapper-section, reciprocating folder-blades working through the slots in the front and end walls of the box, and a folder working over the rear wall of the box, substantially as described.

40. In a package-wrapping machine, a rectangular folding-box having vertical front, rear and end walls with slots therein for passage of folding devices, the rear wall being vertically slotted for passage of the frame of a gripping-jaw, substantially as described.

41. In a package-wrapping machine, a folding-box having slotted vertical front, rear and end walls, the rear wall being of less height than the others and the end walls having inclined upper edges, with vertical fingers at the four corners of said box, substantially as described.

42. In a package-wrapping machine, the combination with a folding-box having its four corners provided with vertical fingers, of diverging wings extended diagonally from the corners of said box and provided with inclined upper edges, substantially as described.

43. In a package-wrapping machine, the combination of a folding-box having slotted vertical walls and provided with diverging wings at its upper corners, gripping and transferring mechanism swinging in an arc of a circle to carry an article and superimposed wrapping material in fixed relation and deposit the same in reversed position in said folding-box, end-folders to first enter said box and fold inward and downward the end portions of said wrapping material, a front longitudinal folder to next enter the box and fold over one longitudinal edge portion of the wrapping material onto the article and over the folded-

in end portions of the wrapper, and a rear longitudinal folder for subsequently folding inward and downward the other longitudinal edge portion of the wrapping material and to cause the sealing of adhesive on said last-named longitudinal edge portion of the wrapper, said end-folders and longitudinal folders being movable in approximately the same horizontal plane, substantially as described.

44. In a package-wrapping machine, the combination of a folding-box having its corners provided with diverging wings, gripping and transferring mechanism swinging in the arc of a circle to carry an article and a superimposed wrapper in fixed relation and deposit the same in reversed position in said folding-box with portions of the wrapper turned upward therein, end-folders and longitudinal folders movable in approximately the same horizontal plane, vibratory supports for said folders, and cam-actuated connections through which said folders are operated to first fold inward and downward the end portions of said wrapper onto the article, next fold over one longitudinal edge portion of the wrapper onto the article and over the folded-in end portions of the wrapper and subsequently fold inward and downward the other longitudinal edge portion of the wrapper and cause the sealing of adhesive thereon, substantially as described.

45. In a package-wrapping machine, the combination of a folding-box, gripping and transferring jaws for depositing an article and its wrapping material in said box, end-folders for folding in the end portions of the wrapping material, front and rear longitudinal folders for consecutively folding longitudinal portions of the wrapper and sealing an adhesive portion thereof, operating mechanism for the gripping and transferring jaws whereby one of said jaws is returned to normal position after depositing the article and wrapper in the folding-box and the other jaw remains in said box and is subsequently actuated to lift the wrapped package, and a sweep for removing the lifted package, substantially as described.

46. In a package-wrapping machine, the combination with a table and a reel for carrying a web of wrapping material, and mechanism for drawing the web of wrapping material longitudinally over an article to be wrapped, of cutting mechanism for severing the web, a pressure-finger to hold said web down upon the table after the web is severed, and drawing-off rollers mounted in a tilting frame intermediate the said reel and pressure-finger and with which the web of wrapping material is engaged, and cam-actuated mechanism for tilting said drawing-off rollers to cause them to draw off the web from the reel and provide a slack in said web between the reel and the pressure-finger, substantially as described.

47. In a package-wrapping machine, the combination of a magazine to contain articles of merchandise, mechanism for discharging

articles from said magazine, a reel carrying a web of wrapping material, nipper mechanism to draw the wrapping material in front of the magazine and over the article to be wrapped, cutting mechanism to sever said web of wrapping material, a pressure-finger to hold down the web of wrapping material after a wrapper has been severed therefrom, drawing-off rollers intermediate the reel and the pressure-finger and engaging said web, a tilting frame in which said drawing-off rollers are mounted, and cam-actuated lever mechanism for tilting said drawing-off rollers to draw the web of wrapping material from the reel and to provide a slack in said web intermediate the reel and the pressure-finger, substantially as described.

48. In a package-wrapping machine, the combination of a reel for carrying a web of wrapping material, cutting mechanism for severing a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, and nipper mechanism to seize the leading edge of the wrapper-web and the leading edge of the binder or label and draw them longitudinally over an article to be wrapped, substantially as described.

49. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material and a table from which said web is to be drawn, of a hopper or receptacle to contain a stack of ready-cut binders or labels, a hollow downwardly-swinging leaf forming a part of the bottom of said hopper or receptacle and provided with air-inlets whereby it is adapted to serve as a suction-nozzle, a suction-pump in communication with said suction-nozzle, mechanism for operating said pump, and means for swinging downward the said leaf or suction-nozzle when the pump is operated, whereby the leading edge of the lowermost binder in the stack of binders is sucked or turned downward, and nipper mechanism to seize the said downward-turned edge of the binder and the leading edge of the wrapper-web and draw the same over an article to be wrapped, substantially as described.

50. In a package-wrapping machine, the combination with a reel for carrying a web of wrapping material, and a table over which the said web is to be drawn, of a hopper or receptacle supported above one edge of said table to contain a stack of ready-cut binders or labels, a hollow downwardly-swinging hinged leaf forming one edge of the bottom of said hopper and having air-inlets whereby it is adapted to serve as a suction-nozzle, a suction-pump in communication with said suction-nozzle, cutting mechanism to sever the wrapper from the web of wrapping material, and reciprocatory nipper mechanism to seize the leading edge of the web of wrapping material and the leading edge of the lowermost binder in the stack of binders and draw them longitudinally over the article to be wrapped, substantially as described.

51. In a package-wrapping machine, the combination with mechanism for supporting and carrying a web of wrapping material, and a cutter to sever a wrapper from said web, of a hopper or receptacle to contain a stack of ready-cut binders or labels, a hollow hinged leaf forming a portion of the bottom of said hopper or receptacle and provided with notches in one edge and with air-inlets whereby it is adapted to serve as a suction-nozzle, a suction-pump in communication with said hinged leaf or suction-nozzle, mechanism for operating said pump and for simultaneously swinging downward the said hinged leaf whereby the leading edge of a lowermost binder or label in the stack is turned downward, and nipper mechanism to seize the leading edge of the wrapper and of the binder or label and draw them longitudinally over an article to be wrapped, substantially as described.

52. In a package-wrapping machine, the combination with means for supporting and carrying a web of wrapping material, and cutting mechanism for severing a wrapper from said web, of a hopper or receptacle to contain a stack of binders or labels, nipper mechanism to seize the leading edge of the wrapper-web and the leading edge of the binder and draw them longitudinally over an article to be wrapped and mechanism for applying adhesive to one marginal edge of the binder as it is drawn forward, substantially as described.

53. In a package-wrapping machine, the combination with means for carrying a web of wrapping material, mechanism for severing a wrapper from said web, a hopper to contain a stack of ready-cut binders, and mechanism for drawing a wrapper and a binder over and upon an article to be wrapped, of a tank containing adhesive or a moistening fluid, and a rotary disk for applying adhesive or moistening fluid from said tank to the projecting marginal edge of the binder, substantially as described.

54. In a package-wrapping machine, the combination with a reel for carrying a web of waxed paper, or similar wrapping material, and a reel for carrying a web of tin-foil, of a table over which said webs are to be drawn, cutting mechanism to sever a wrapper from said webs, a rocking pressure-finger to hold the main body of the web down onto the table after a wrapper has been severed, drawing-off rollers intermediate said reels and finger and engaged with the webs of wrapping material, a tilting frame in which said drawing-off rollers are mounted, cam-actuated lever mechanism for operating said tilting frame to draw off the webs and leave a slack therein between the reels and the pressure-finger, and reciprocatory nipper mechanism to seize the leading edge of the combined webs and draw the same forward over the article to be wrapped, substantially as described.

55. In a package-wrapping machine, the

combination with means for carrying and supporting a web of wrapping material, and cutting mechanism to sever a wrapper from said web, of a hopper or receptacle to contain a stack of ready-cut binders or labels, a suction-nozzle having the form of a hinged downwardly-swinging leaf and constituting a part of the bottom of the said hopper or receptacle, a suction-pump communicating with said hinged suction-nozzle or leaf, means for simultaneously operating said pump and swinging downward said suction-nozzle or hinged leaf to suck downward the leading edge of the lowermost binder or label in the stack, nipper mechanism to seize the leading edge of the web of wrapping material and the leading edge of said lowermost binder or label and draw them longitudinally over the article to be wrapped, and a gumming or moistening disk over which the projecting marginal portion of the binder or label is drawn, substantially as described.

56. In a package-wrapping machine, the combination of a magazine to contain articles of merchandise to be wrapped, a feed-slide movable beneath said magazine and having a series of arms and upturned flanges to receive and discharge an article from said magazine, means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, suction mechanism to draw downward the leading edge of the lowermost binder or label in said stack, and nipper mechanism to seize the leading edge of the wrapper and binder and draw them longitudinally over the article to be wrapped, substantially as described.

57. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, suction devices to draw down the leading edge of the lowermost binder or label in the stack, mechanism for applying adhesive to a projecting marginal portion of the lowermost binder or label, and nipper mechanism to seize the leading edges of the wrapper-web and the binder and draw them longitudinally over the article to be wrapped, substantially as described.

58. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, suction mechanism for turning downwardly the leading edge of the lowermost binder or label in the stack, nipper mechanism to seize the leading edges of the wrapper-web and the binder and draw them longitudinally over the article to be wrapped, a folding-box, two swinging gripping and transferring jaws, one of which is adapted to receive the article to be wrapped

as it is moved into position beneath the wrapper and binder, and mechanism for operating said gripping and transferring jaws to grip the article and the wrapper and binder and deposit them in the folding-box, substantially as described.

59. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, a hopper or receptacle constructed to support, in staggered position, a stack of ready-cut binders or labels, suction devices for drawing downward the leading edge of the lowermost binder or label in the stack, shear cutter-blades to sever a wrapper from the web of wrapping material, one of said blades being provided with a finger to support the leading edge of the web from which the wrapper has been severed and prevent the same from turning downward, and nipper mechanism to draw the wrapper and binder longitudinally over the article to be wrapped, substantially as described.

60. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism to sever a wrapper from said web, a hopper or receptacle to contain a stack of ready-cut binders or labels, suction mechanism to draw down the leading edge of the lowermost binder or label in the stack, a rotary disk over which a projecting marginal portion of the lowermost binder or label is drawn, and whereby adhesive or moistening fluid is applied thereto, the said hopper or receptacle for the binders or labels being provided with an everted lip adjacent to said rotary disk to direct the marginal portion of the binder or label onto the disk, and nipper mechanism to draw the wrapper and binder longitudinally and adjust them relatively to the article to be wrapped, substantially as described.

61. In a package-wrapping machine, the combination with means for carrying and supporting a web of wrapping material, and cutting mechanism for severing therefrom a wrapper at regular intervals, of a receptacle to support a supply of ready-cut binders or labels, nipper mechanism to seize the leading edges of the wrapper and binder and draw them longitudinally over the article to be wrapped, and devices for operating said nipper mechanism to cause one pair of nippers to move faster than the other pair to adjust the wrapper and binder relatively to the article to be wrapped and to release the same after the wrapper and binder are in adjusted position, substantially as described.

62. In a package-wrapping machine, the combination with a magazine to contain articles of merchandise, and mechanism for discharging an article from said magazine, of two pairs of nippers to draw a wrapper and a binder longitudinally over the article to be wrapped, two gripping and transferring jaws, one of which is adapted to receive the article discharged from the magazine, folding

mechanism, operating mechanism for reciprocating the two pairs of nipper-jaws and to cause one pair to move slightly faster than the other to adjust the binder and wrapper relatively to the article to be wrapped, and mechanism for actuating the gripping and transferring jaws to grip the article and its wrapper and binder and transfer them to the folding mechanism, substantially as described.

63. In a package-wrapping machine, the combination with devices for supporting a wrapper and a binder, of two pairs of nipper-jaws to seize the leading edges of the wrapper and binder, respectively, and draw them over and upon the article to be wrapped, mechanism for operating said nipper-jaws to cause one pair to move slightly faster than the other pair to adjust the wrapper and binder relatively to the article to be wrapped, a folding-box, gripping and transferring jaws to transfer the article and the wrapper and binder in fixed relation into the folding-box, and folders to fold the wrapper and binder upon the article in the folding-box, substantially as described.

64. In a package-wrapping machine, the combination with a magazine to contain articles of merchandise, mechanism for discharging articles successively from said magazine, and devices for supporting a wrapper and a binder, of two pairs of nipper-jaws to seize the leading edges of said wrapper and binder and draw them longitudinally over the article to be wrapped, mechanism for operating said nipper-jaws in such manner as to cause one pair of jaws to move slightly faster than the other pair to adjust the wrapper and binder relatively to the article, a folding-box, gripping and transferring jaws, mechanism for operating said gripping and transferring jaws independently to cause one jaw to assume a position for receiving the article to be wrapped and for operating said jaws in unison to transfer the article and its wrapper and binder into the folding-box, and folders for first folding end portions of the wrapper inward and downward upon the article and subsequently folding and sealing the longitudinal portions of said wrapper and binder, substantially as described.

65. In a package-wrapping machine, the combination of means for carrying and supporting a web of wrapping material, cutting mechanism for severing a wrapper from said web at regular intervals, a pressure-finger to hold down the web of wrapping material after a wrapper has been severed therefrom, devices for supporting a stack of ready-cut binders or labels, suction mechanism for drawing downward the leading edge of the lowermost binder or label, means for applying or moistening adhesive on a projecting marginal portion of the binder or label, two pairs of nipper-jaws to seize the leading end of the wrapper-web and the leading end of the binder, respectively, and draw them longitudinally over the article to be wrapped, folding mech-

anism, and gripping and transferring jaws to grip the article and its wrapper and binder and transfer the same to the folding mechanism, substantially as described.

5 66. In a package-wrapping machine, the combination of a folding-box, diverging wings extended diagonally from the corners of said folding-box and provided with inclined upper edges, mechanism for depositing the article
10 and a wrapper and a binder therefor into said folding-box, end-folders for folding inward the end portions of the wrapper upon the article in the folding-box, a front longitudinal folder to fold over a longitudinal portion of
15 the wrapper and binder upon the article, and a rear longitudinal folder comprising an elastic roller and adapted to fold in the other longitudinal portion of the wrapper and binder upon the article and to seal the package, substantially as described.

67. In a package-wrapping machine, the combination with mechanism for drawing a wrapper and a binder longitudinally over an article to be wrapped, of a folding-box having
25 its corners provided with vertical fingers, diverging wings extended diagonally from the corners of said box and each provided with an inclined upper edge, gripping and transferring jaws to convey the article and its
30 wrapper and binder to the folding-box and deposit them therein in an inverted position with the article on top, end-folders to fold in the end portions of the wrapper upon the article, vibratory supports for said end-folders,
35 a front longitudinal folder to fold inward one longitudinal side portion of the wrapper and binder, a longitudinal rear folder to fold in the other longitudinal side portion of the wrapper and binder upon the article, said
40 rear longitudinal folder comprising an elastic roller to seal an adhesive edge of the binder, vibratory supports for the front and rear longitudinal folders, and cam-actuated mechanism for operating the vibratory supports of all
45 of said folders; substantially as described.

68. In a package-wrapping machine, the combination with mechanism for drawing a wrapper and a binder over and upon an article to be wrapped, a folding-box and gripping
50 and transferring jaws to deposit the article and its wrapper and binder in an inverted position into the folding-box, with the article on top, of folders for first folding inward the end portions of the wrapper upon the article
55 and subsequently folding in the longitudinal side portions of the wrapper and binder, one upon the other, and sealing the same, substantially as described.

69. In a package-wrapping machine, the combination with a folding-box having slotted vertical walls, and gripping and transferring jaws to deposit an article and its wrapper and binder in said box, of end-folders for first
60 folding in the end portions of the wrapper upon the article, a front longitudinal folder, a rear longitudinal folder comprising an elastic roller, vibratory supports for the several

folders, cam-actuated mechanism for operating said folders, and a reciprocating sweeper-bar to remove the completed package from
70 the folding mechanism, substantially as described.

70. In a package-wrapping machine, the combination of a folding-box, gripping and transferring jaws to deposit an article and its
75 wrapper and binder in said box, with the article on top, mechanism for operating said gripping and transferring jaws to return one of said jaws to normal position after depositing the article and its wrapper in said box
80 and to operate the other jaw for lifting the completed package after the wrapper has been folded thereon, end-folders for first folding in the end portions of the wrapper upon the article, a front longitudinal folder, a rear longitudinal folder, and a sweeper for removing
85 the completed package after it is lifted by the gripping-jaw in the folding-box, substantially as described.

71. In a package-wrapping machine, the combination with folding mechanism comprising a folding-box and end-folders and longitudinal folders, of gripping and transferring jaws to deposit an article and its
90 wrapper and binder in said folding-box, mechanism for operating one of said gripping-jaws to return it to normal position and for causing the other jaw to lift the completed package in the folding-box, a sweeper for removing the completed package from above the
95 folding-box, and an elastic roller to which the completed package is carried by the sweeper, substantially as described.

72. In a package-wrapping machine, the combination of a folding-box, mechanism for
105 depositing an article and its wrapper and binder in said box, end-folders and longitudinal folders for folding the wrapper and binder upon the article and for sealing the binder, means for lifting the completed package
110 age, a table adjacent to the folding-box, a sweeper to remove the completed package from above the folding-box to said table, an elastic roller mounted above said table and under which the completed packages are carried
115 in succession, and carrier mechanism to receive the completed packages, substantially as described.

73. In a package-wrapping machine, the combination with folding mechanism, and a
120 table, of an elastic roller mounted above said table, a pivotally-supported pressure-bar beyond said elastic roller, a reciprocating sweeper-bar to remove the completed packages from above the folding mechanism and
125 to carry the same over said table to and beneath the elastic roller in succession, and rotary carrier mechanism to receive the completed packages from under the elastic roller and pivoted pressure-bar, substantially as described.

74. In a package-wrapping machine, the combination with folding mechanism, a table, an elastic roller mounted above said table, a

pivotaly-supported bar beyond said roller, and a reciprocatory sweeper-bar to carry the completed packages from above the folding mechanism to and beneath the said roller in succession, of rotary carriers provided with a series of hooked projections to receive the completed packages in succession from beneath the elastic roller and pivoted pressure-bar, and a trough or tray on which said completed packages are deposited edgewise from the rotary carriers, substantially as described.

75. In a package-wrapping machine, the combination with mechanism for folding a wrapper and binder around and upon an article to completely inclose the same and to seal the binder, of a table, pressure devices mounted above said table, a sweeper to convey the completed packages from above the folding mechanism to said pressure devices in succession, rotary carriers for receiving the completed packages in succession from beneath said pressure devices, a tray or trough into which said completed packages are deposited edgewise from the rotary carriers, and a movable support for one end of the series of packages deposited in said tray or trough, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RICHARD A. BERGER.

Witnesses:

RICHARD J. HALY,
PHILIP McMENOMEY.