H. O. FISCHER.

CARTON WRAPPING MACHINE.

APPLICATION FILED MAY 10, 1912.

1,196,094.

Patented Aug. 29, 1916.

6 SHEETS—SHEET 1.

Fig. 1.

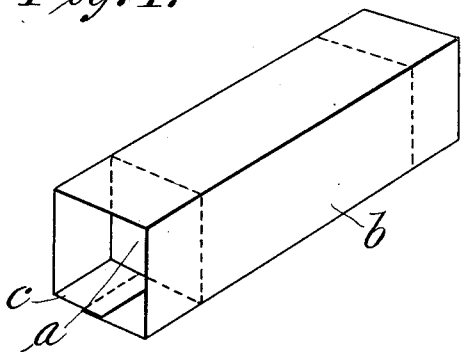


Fig. 2.

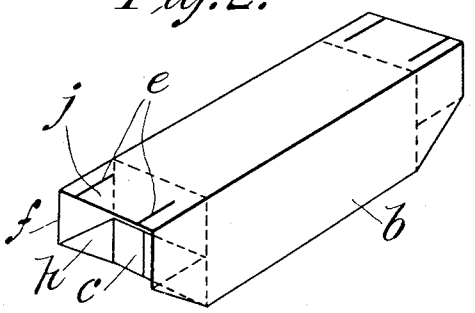


Fig. 3.

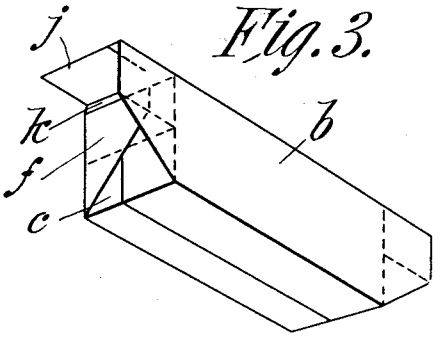


Fig. 4.

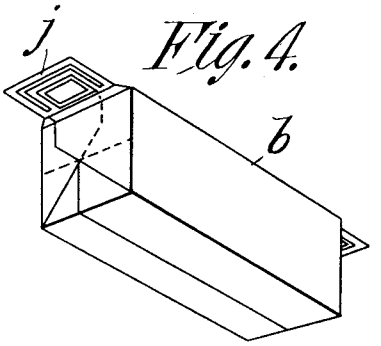


Fig. 5.

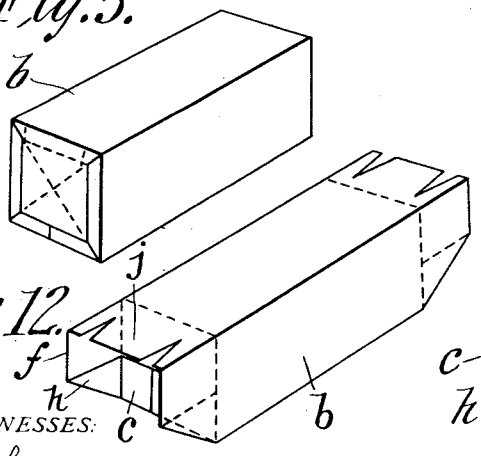
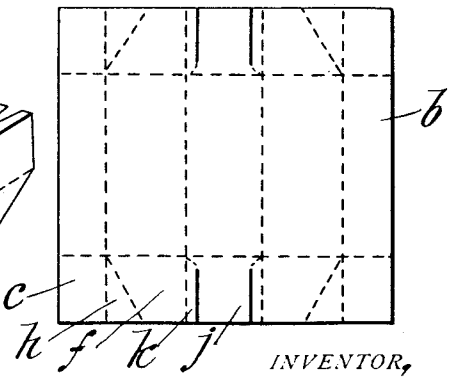


Fig. 12.

Fig. 6.



WITNESSES:

H. L. Sprague

W. P. Noble

INVENTOR,

Hermann Otto Fischer,

BY

Chapin & Co.

ATTORNEY.

H. O. FISCHER.

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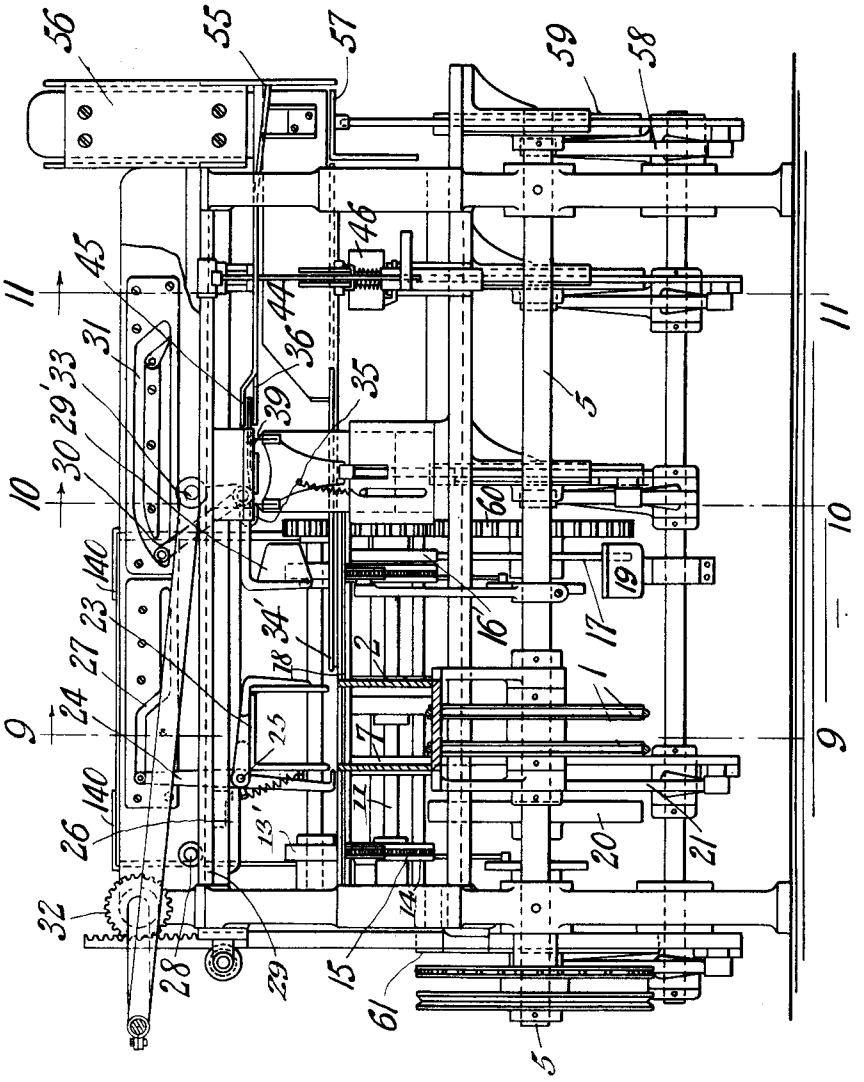
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6 SHEETS—SHEET 2.

Fig. 7.



WITNESSES:

H. L. Sprague

W. P. Noble.

INVENTOR,

Hermann Otto Fischer,

BY

Chapin & Leo

ATTORNEY.

H. O. FISCHER.

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6 SHEETS—SHEET 3.

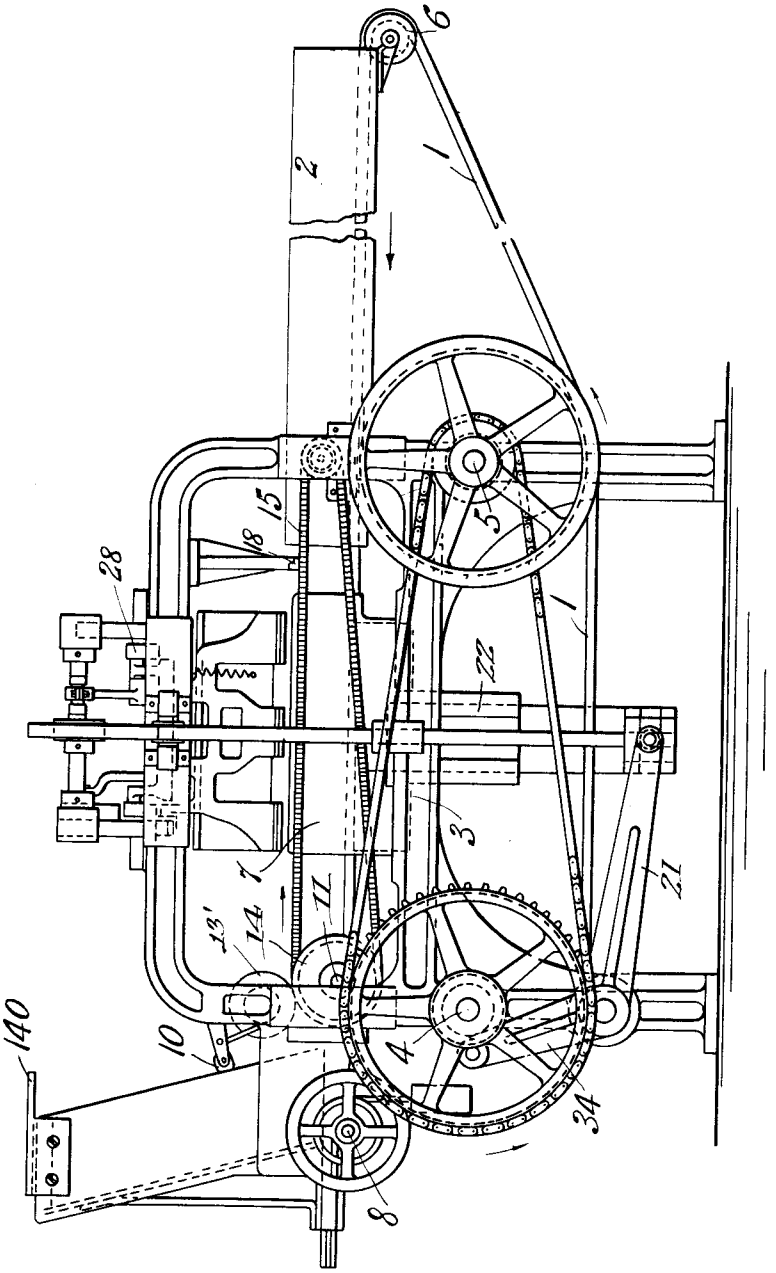


Fig. 8.

WITNESSES:

H. L. Sprague

W. P. Noble.

INVENTOR,

Hermann Otto Fischer;

BY

Chapin & Co.

ATTORNEY.

H. O. FISCHER.

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6 SHEETS—SHEET 4.

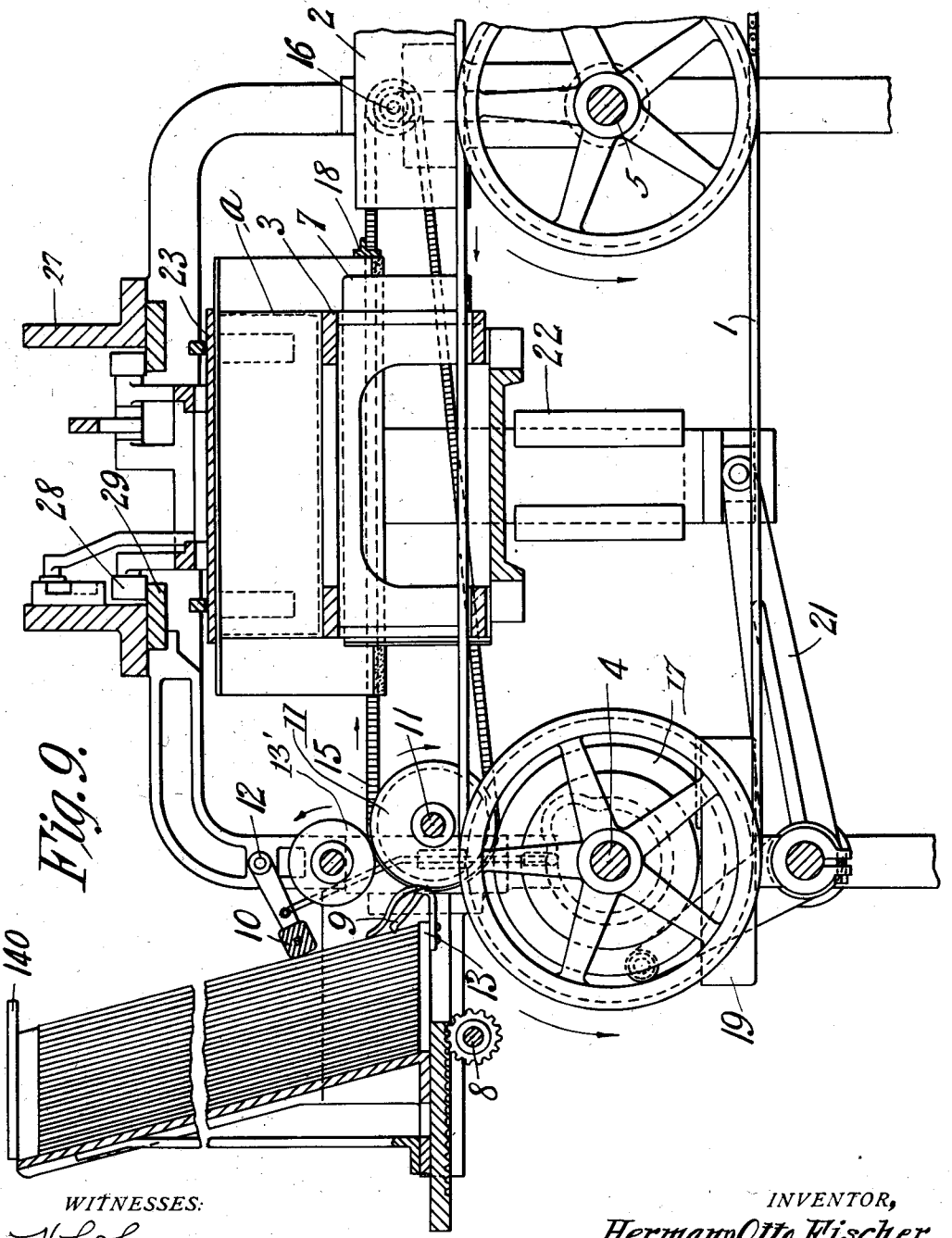


Fig. 9.

WITNESSES:

H. L. Sprague

W. P. Noble.

INVENTOR,

Hermann Otto Fischer,

BY

Chapin & Co

ATTORNEY.

H. O. FISCHER.

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6 SHEETS—SHEET 5.

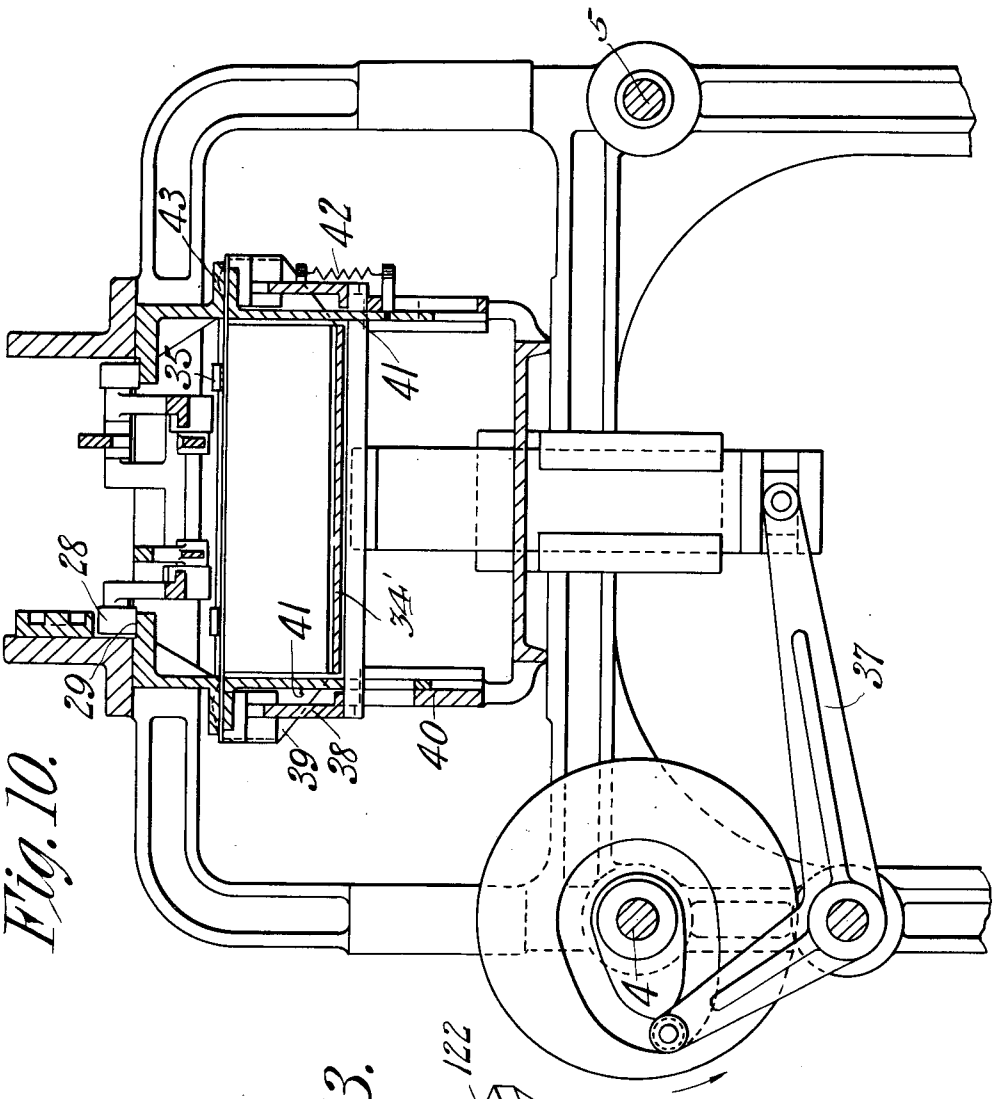


Fig. 10.

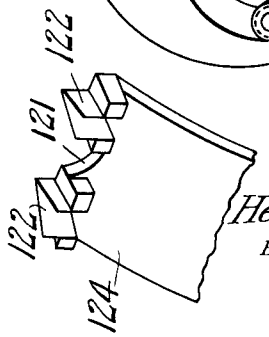


Fig. 13.

WITNESSES:

H. L. Sprague

W. P. Noble

INVENTOR,

Hermann Otto Fischer,

BY

Chapin & Co

ATTORNEY.

H. O. FISCHER.

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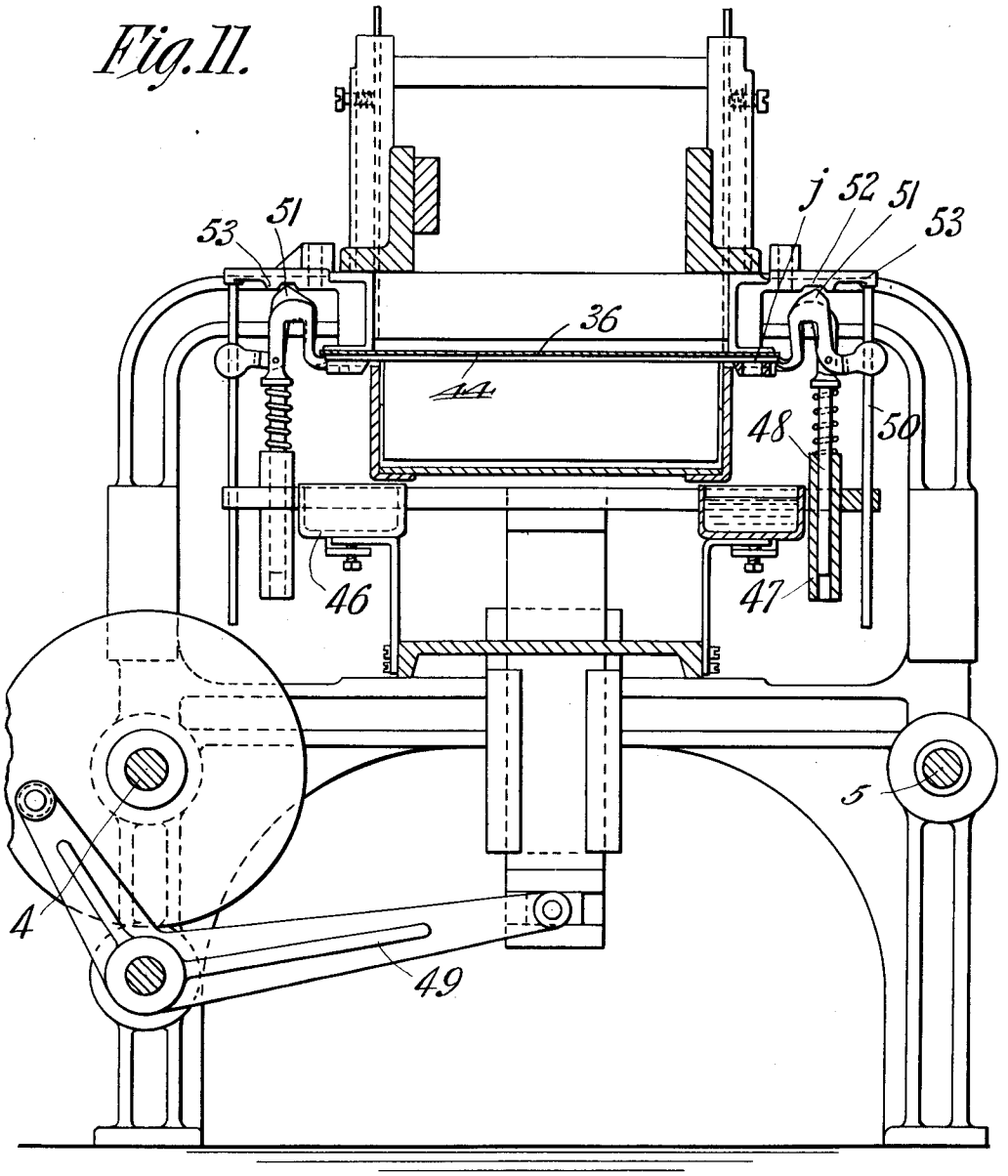
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6 SHEETS—SHEET 6.

Fig. 11.



WITNESSES:

H. L. Sprague

W. P. Noble.

INVENTOR,

Hermann Otto Fischer,

BY

Chapin & Co.

ATTORNEY.

UNITED STATES PATENT OFFICE.

HERMANN OTTO FISCHER, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO PACKAGE MACHINERY COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CARTON-WRAPPING MACHINE.

1,196,094. Specification of Letters Patent. Patented Aug. 29, 1916.

Application filed May 10, 1912. Serial No. 696,392.

To all whom it may concern:

Be it known that I, HERMANN OTTO FISCHER, a subject of the German Emperor, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Carton-Wrapping Machines, of which the following is a specification.

This invention relates to wrapping and packaging machines and particularly to machines for wrapping boxes, cartons and articles of a similar shape.

The present application is a continuation of my copending application Serial No. 676,097, filed February 7, 1912, in so far as the subject-matter common to the two applications is concerned.

The general object of the invention is to provide a thoroughly practical machine of the character indicated which will be adapted to meet the requirements of those plants and factories, as for instance, large bakeries, where wrapping machines must be operated by inexperienced help.

It is a very common practice to wrap articles of the character above mentioned in an outside wrapper, making the usual folds at the ends of the article and then to cover these folds with separate end seals or stickers. This method produces a very attractive package and is a practice much followed in the wrapping of cartons. The present invention is particularly concerned with the production of a package having this general appearance but aims to devise a machine which will produce a package of this character by so manipulating the wrapper at the ends of the package that the required appearance will be obtained without the use of separate end seals. By this method the desired results can be accomplished with a much simpler machine and one requiring less care and attention than those formerly used.

The invention also includes novel mechanism for applying glue or a similar adhesive, novel wrapping mechanisms, and other features which will be pointed out in the appended claims.

In the drawings forming part of this application,—Figure 1 shows the first operating step in the wrapping method. Fig. 2, the second and third steps completed. Fig. 3, the fourth step. Fig. 4, the fifth and sixth steps, and Fig. 5, the seventh step completing the package. Fig. 6 shows a wrapper as it would appear if removed from a completed package; the several folds and sections of the wrapper involved in the wrapping operation being indicated by dotted lines where folded, and full lines where cut. Fig. 7 is a side view of the assembled machine for wrapping cartons, the carton feeding chute being shown in section. Fig. 8 is an end view of the same. Fig. 9 is a sectional view taken on line 9—9 of Fig. 7. Fig. 10 is a section on line 10—10 of Fig. 7. Fig. 11 is a section on line 11—11 of Fig. 7. Fig. 12 is a view similar to Fig. 2 showing a modification in which a portion of the wrapper is cut away. Fig. 13 is a detail view of the cutting mechanism where it is desired to cut away part of the wrapper.

An examination of Figs. 1, 2, 3, 4, and 5 discloses the fact that the wrapping operation may be carried out by hand. The method of wrapping therefore is independent of the specific machine used to carry out the several operations. This improved method of wrapping is described and claimed in the above specified co-pending application.

With reference to Figs. 1 to 6 a description of the wrapping operations will be given as carried out by hand or automatically by a machine.

A wrapper *b* is folded in one direction around a box or carton *a* (see Fig. 1) so that the edges, on one of which is a strip of adhesive material, overlap. The wrapper is now folded against both ends of the carton in a novel manner. The operation at one end only will be described. The lower horizontal end extension *c* of the wrapper is folded against the end of the carton, changing from the position shown in Fig. 1 to that shown in Fig. 2, and thus causing the vertical side extensions of the wrapper to fold over on themselves to an extent indicated by *h* (Fig. 2.) Thus far the folding operations follow what is known as a simple drug store fold. The latter fold would be completed by folding over the end of the carton,—one vertical side of the wrapper over the other—and then the top horizontal extension over the whole. Applicant's fold is similar to such a "drug store" fold in that it retains the simplicity of that fold.

Referring to Fig. 2: Cuts *e* are made in the top horizontal end of the wrapper which

allow the side ends *f* and *h* to fold over against the end of the carton and at the same time a portion *k* of the top extension to fold under and against the same, as is shown in Fig. 3. Both side extensions are thus folded against the end of the carton and the portions *k* of the top extension are folded thereunder, as shown in Fig. 4.

An adhesive material is suitably applied, as indicated in Fig. 4, and the end portion *j*, together with the under-folded portions *k* are laid over the end of the package, as indicated in Fig. 5.

In the folding operations just described it is seen that the end folds are made so that there is a complete closure at the end of the package. When the portion *j* is brought over on the other folds an hermetically sealed end results.

Where a "drug store" fold, hereinbefore described, is used in wrapping cartons and the like, it is customary to fasten on each end of the package a seal of any desired shape having thereon a suitable design, as the trade-mark of the manufacturer. This seal is separate from the wrapper and is pasted on after the end folds have been made.

In applicant's end-folding method, a tightly sealed end-fold is made and a seal portion *j* is applied thereto, all from one integral wrapper and in a simple series of folding operations. The desired result is thus obtained in a quicker and more efficient manner than in the case where the old method above outlined is used. In many cases it may be desirable to cut away part of the wrapper instead of merely slitting the same as described. This cut away portion may be V-shaped as shown or any other desired shape. It might be desirable to cut away portions in a manner to so shape the flap *j* that when folded over it will have the form of a round seal. The wrapper can be so printed or colored that when the flap *j* is folded over to seal the end it will give the appearance of a drug store fold which is sealed at the end by a separate appropriate sticker of any desired form.

The machine for using the method of wrapping outlined will now be described: Cartons, or articles to be wrapped, are fed (see Figs. 7, 8, and 9) onto the two endless carrier-belts 1, between guide-plates 2, over a reciprocating plunger or elevator 3. The endless belts 1 travel over grooved pulleys on shafts 4, 5, and 6, being driven by the pulley on the shaft 4 (which is the driving-shaft for the machine) and slipping on the other pulleys when necessary. A frame 7, mounted above the plunger 3, has inturned ends (see Fig. 7) to prevent the cartons traveling past the desired point in the frame. Sheets of paper (or other suitable wrappers) are fed (see Figs. 8 and 9) from a stack of sheets placed on edge in a suitable frame. The back wall of the latter is moved forward by a rack sliding in guideways of the frame and operated by a pinion on the shaft 8 which has a normal tendency to turn, due to the weight motor, seen in Fig. 8. The lower front face of the stack of sheets therefore continually presses against several springs 9 having sharp points bearing on the wrapper. A cam on the shaft 4 with a suitable connecting rod see Fig. 9, swings a bail member pivoted on the center 12 having a rubber-faced element 10 therein bearing on the front face of the foremost wrapper. As the element 10 is elevated it raises the foremost sheet up away from the points on the springs 9. The pressure of these springs holds all the sheets, except the foremost, from being elevated. This is due to the fact that the rubber element 10 has direct frictional contact (only) with the foremost sheet so that the latter is pulled up while the other sheets are held down. The frame carrying the stack of sheets has an inturned upper horizontal shield 140 on each edge thereof (see Fig. 9) so that when the foremost sheet is pushed up the upper edge thereof will engage said shield and cause it to buckle outwardly. Where the labels are printed as they usually are this action will separate the sheets which might otherwise stick together, due to the printing ink thereon. As the block 10 swings out of contact with the loosened sheet, that sheet is free to fall. If there is any tendency for the sheets to stick at this time the downward movement of device 10 due to the grooved operating cam shown dotted in Fig. 9 will positively force the wrapper down into the horizontal feeding device. The conveyers 15 are made of a coiled wire construction common in envelop machines in which the coils separate as they pass around the pulleys and approach each other as they leave the pulleys. The springs 9, inclined as shown, direct the lower edge of the falling sheet between the rollers 13′ and 14, (suitably driven by gearing 60 from the shaft 4) which feed the paper onto the two endless carriers 15 carried by grooved pulleys fixed to the shafts 11 and 16 and driven by the shaft 11. As the wrapper is fed onto these endless carriers, one edge rubs across a wheel 16′ mounted on the shaft 11, the periphery of which is kept covered with glue by contact with a wheel 17 on the shaft 4 which dips into a glue-pot 19, shown in Figs. 7 and 9. A cross piece 18 suitably mounted in the frame squares the paper up in the proper position directly above the carton fed as hereinbefore described. The carton and wrapper are now ready for the first folding operation.

A groove cam 20 keyed to the shaft 4 (see Figs. 7, 8, and 9) rocks the bell crank lever 21. The plunger frame 3, guided by the

stationary members 22 extending lengthwise from one end of the main frame to the other is elevated by lever 21 forcing the carton *a* against the paper or wrapper and both into the folding pocket or gripper 23 (see Fig. 7). The latter has two sets of folding fingers pivoted at its upper left-hand corner on the shaft 25,—one for folding the wrapper over one side of the carton as it is forced into the pocket, and the other for folding in one of the bottom extensions as will hereinafter be described. The former set is swung on its pivot point by the lever 24 (controlled by the cam 27 on the frame) fixed to the shaft 25, as is this former set of fingers. The second set of fingers is loose on the shaft and is normally held against the side of the pocket with a short horizontal extension thereunder, by springs fastened at one end to a lug on the sleeve of these fingers and at the other end to the left side of the pocket. A second lug on said sleeve, when the pocket is in its rearmost position, contacts with a stop 26 on the frame and forces said fingers slightly to the left of the pocket, as shown in Fig. 7. The pocket, as a whole, is carried by a sliding frame suitably mounted with rollers 28 on a track-way 29 of the main frame (see Figs. 7, 9, and 10). This same sliding frame has pivoted thereon the end-folding fingers 29′ two in number, controlled by the lever 30, which, in turn, is controlled by the slotted cam 31 on the main frame. This cam has an upper and lower travel with a gravity gate pass therein, as indicated.

The sliding frame is reciprocated by the rack and pinion device 32, and the crank and lever connection with said frame, as indicated in Fig. 7, the connection with the frame being at the point 33. This rack is driven by a bell-crank lever 34 mounted in the frame and moved by a cam 61 on the shaft 4 (see Figs. 7 and 8). As the rack is raised and lowered, the frame slides forwardly and backwardly. As the sliding frame moves forwardly (see Fig. 7) the rear fingers of the pocket 23 (which contains the carton partially wrapped) snap under the carton, due to the springs before mentioned, and fold the left-hand side extension of the wrapper thereunder. The right-hand side extension of the wrapper is pushed against the edge of the flat plate 34′ suitably fixed in the main frame, which folds that extension (the edge of which has a strip of glue thereon) in an overlapping relation to the left-hand extension, and thus the wrapper is folded around the carton leaving the end folds yet to be made. The pocket 23 continues to pass forward above the plate 34′ which causes the lever 24 to rock counter clockwise, due to the cam 27, and elevate the right-hand set of fingers which forms the forward side of the pocket. This movement opens the pocket to allow the partially wrapped carton to remain on the plate 34′ as said pocket retires with the sliding frame. The forward movement of the pocket forces the carton between said plate 34′, and the spring fingers 35, mounted on a plate 36 fixed to the main frame above the plate 34′. As the sliding frame retires the forward set of fingers rides clear of the carton leaving it held by said plate and springs with the wrapper ends above a set of knives 39 which make the cuts *e* (see Fig. 2) therein.

The cutting knives 39 are best seen in Figs. 7 and 10. They are carried by a vertically reciprocating frame 38 (see Fig. 10) suitably guided by the fixed frame 40. A cam on the shaft 4 rocks the bell-crank lever 37 to operate the knives.

Fig. 10 shows the carton in position for the wrapper extensions to be cut. As the knife frame is elevated and the knives make the cuts *e*, the lower extensions *c* and side extensions *h* are folded into the position shown in Fig. 2 by the plates 41 slidably mounted in said knife-frame and having a spring connection 42 therewith. The angle plates 43 fixed to the main frame support the wrapper ends while being cut and have slots therein to receive the knives. As the knife frame retires the sliding frame again starts forward to place another carton between the plate 34′ and the springs 35. The end folding fingers 29′, pivoted on said frame, are swung downwardly and forwardly by the controlling lever 30 which makes its lower run in controlling cam 31, as said frame advances. The fingers 29′, therefore, advance against the side extensions of the wrapper at each end of the package and fold the portions *f* and *k* into the positions shown in Fig. 3. These end-folding fingers are so shaped and mounted that they not only fold in the portions mentioned, but grasp the partially wrapped carton shown in Fig. 3, and slide it from the position over the knives into the pocket 44. Above this pocket is a mounted plate 36 with up-raised ears 45 which engage the top portions *j* (see Fig. 4) and crowd them down level with the plate 36. These top portions might otherwise catch and tear on the carton being pushed under said plate.

The side plates of the pocket 44 are so shaped as to provide a flaring opening for the partially wrapped cartons. As the latter are forced therein, the remaining side flaps *c* and top portions *k* are folded, as indicated in Fig. 4.

To complete the folding operations, it now remains to fold the portion *j* over the other folds, as indicated in Fig. 5. It is necessary to apply glue or suitable adhesive to such portion, however, before folding it over. The end portions *j* which are level with the plate 36 are, by the operations above described, left in position to have the glue ap-

plied thereto as will now be described. The glue applying operation may be understood best from Figs. 7 and 11. The glue pots 46 are fixed in the main frame. A reciprocating frame 47, guided by rods 50, has rods 48 spring-mounted therein, which rods carry the glue transferring means. Said frame is raised and lowered by a bell crank-lever 49 pivoted in the main frame and rocked by a grooved cam fixed to the shaft 4. The regulating devices 51 are pivotally balanced on rods 48. As the frame 47 is lowered, these glue-transferring means are dipped in the glue; the frame is then raised to apply the glue to the end portions *j* of the wrappers which are underlying the plate 36. When the said portions are in place to take the glue, it is applied as shown in Fig. 11. If, however, in the operation of the machine, it is necessary to lower and raise the glue-applying devices at a time when no carton wrapper is in position to take the glue, provision is made to prevent the glue from reaching the plate 36 as follows: The arms 51 are delicately balanced on the spring-mounted rods 48 so that when said arms are raised by the frame, the topmost projections thereof will strike the extensions 53 of the main frame and prevent further vertical movement of the rods 48 due to the spring mounting thereof. In this limiting position, the glue on the transferring devices can not reach the plate 36. If, on the other hand, the portions *j* of the wrapper are in position to take the glue, then the devices 51 will contact with the portions *j* and swing the balanced arms 51 so that the topmost projection thereof can enter slots 52 in said projections 53; and further vertical movement of the frame will cause definite application of the glue to the said portions *j*. The partially wrapped carton, which is placed in position to have the glue applied to portions *j*, of the wrapper, forces the preceding ones along pocket 44 and under the plate 36. There will, therefore, be one preceding carton with glued portions *j* partly bent down by the inclined ears 55 of the plate 36 ready to be forced into the vertical rectangular chute 56. This is accomplished by the vertically reciprocating plunger 57 operated by a bell crank-lever 58 which is operated and controlled by the cam 59 fixed on the shaft 4. As the cartons are forced into said chute 56 they are spring or frictionally held therein and have the portions *j* folded down and glued to the ends of the package making the latter complete, as shown in Fig. 5. As the completed packages pass through the chute 56 the glued ends have time to set.

It has not been thought necessary to mention the specific construction and detailed movements of the cams and levers for the specific connections and arrangements of the stationary parts with the frame, as such construction is a matter of simple designing for the purposes desired.

Referring to Figs. 12 and 13 and the modification therein indicated and hereinbefore discussed it is believed that the manner in which said modified cutting means is applied to the machine is obvious. The cutting device 121 is substituted for the one shown in the assembled machine and operated in a similar manner. The cutting knives may have any desired form or a cutting die may be used of suitable design. The paper cut out by these cutting devices can be suitably disposed of. As indicated, the paper will fall and be directed outwardly by plates 124 into baskets placed at each side of the machine.

From the foregoing detailed description, together with the accompanying drawings, a complete understanding of the machine and its specific operation can be obtained.

A general outline of the operation will now be given in connection with Figs. 1 and 7.

The cartons to be wrapped are placed in the feeding guide-way and the wrappers stacked in the feed-frame. The shaft 4 is suitably driven. The cartons are forced into the pocket 23, one by one, together with the wrappers, the latter being thus folded one around each carton as the pockets move forwardly, the overlapping folds being glued together. The pockets release the partially wrapped cartons in position for the end-folding operations to take place. The reciprocating knife frame makes one end fold and cuts the wrapper ends. As the following carton is brought into position for its first end fold (the pocket 23 having retired to receive the next carton as the end fold and cuts are made on the wrapper of the one just released) the end folding fingers 29′ advance and make the second end fold. This advance of the fingers 29′ pushes the partially wrapped carton into the pocket 44 by which the third end fold is made and said carton is left in position for glue to be applied to the top end portion of its wrapper. Said end-folding fingers then retire to repeat their operation on the following carton, while the glue is applied as described. As the following carton is brought forward by the end-folding fingers, the preceding one is pushed out of the way. The nearly wrapped cartons are thus pushed, one by one, onto the plunger 57 which forces them into the outlet chute 56 wherein the last end fold is made and the wrapping operation completed.

While applicant has described one preferred form of machine for carrying out his method of wrapping packages, the invention herein disclosed may be embodied in machines of various forms.

It is obvious that the machine shown in

the accompanying drawings could, with only very slight modifications, be used advantageously in wrapping packages by methods other than the preferred method above described; for instance, by removing the knives 39 the machine would make the regular "drug store" or "point" fold.

What I claim is:—

1. A wrapping machine comprising mechanism to feed articles to be wrapped therein, other mechanism to feed wrappers one for each article, together with devices to pass said wrappers one around each article in one direction and bring the edges in overlapping relation, cutting means to form a flap in each end of the wrapper extensions, together with folding devices for folding first said wrapper extensions, except the flaps, with certain portions around the ends of the article, and the remaining portions under the flaps, and then folding said flaps and underlying extensions against the other folds to form a seal for the end of the package.

2. A wrapping machine comprising feeding mechanism for articles to be wrapped, other feeding mechanism to feed wrapping material for said articles and applying adhesive thereto, together with mechanism to which said articles and wrapping material are fed for passing a portion of said material around the body of each article with extensions beyond the end thereof, and bringing the longitudinal meeting edges in overlapping relation with the adhesive therebetween, cutting means to form a flap in each end extension of the wrapper, end-folding mechanism for folding the end extensions against the article in several folds, means to apply adhesive to said flaps, and folding means to thereafter lay the flaps over all of said several folds at the ends of the article to form end seals for the package.

3. A wrapping machine comprising a folding pocket, feeding mechanism to feed a carton in line with the opening in said pocket, other feeding mechanism to feed wrapping material between said pocket and a carton, plunger mechanism operable to force said carton with the wrapping material into the pocket, whereby the carton is partially wrapped in one direction, means to move the pocket in the machine, mechanism operable on the movement of the pocket to complete the wrapping of the carton in the same direction, end-folding mechanism to complete the wrapping of the carton by folding the ends of the wrapper thereagainst comprising cutting means to form a flap in each end extension of the wrapper, folding members operable to make three folds of the end extensions at each end of the wrapper, and then fold the flap thereover, and mechanism to apply adhesive to said flap before folding it against the end folds.

4. A wrapping machine comprising two feeding devices,—one for cartons and the other for wrapping material—folding mechanism for passing said material completely around each carton in one direction, and other folding mechanism to fold said wrapping material over the ends of said carton comprising a cutting means to cut a flap in each end of said material, folding fingers with operating means to make three folds over each end of the carton, mechanism to apply glue to each of said flaps, and further mechanism operable to fold each flap over the said end folds, whereby an end seal is formed.

5. In a wrapping machine, means for applying adhesive to a wrapper comprising a reciprocable frame, a rod yieldingly mounted therein having a part adapted to carry adhesive, an arm balanced on said rod, a stop to normally limit the movement of said frame by contact with said balanced arm, a slot in said stop, a plate against which the wrapper to receive adhesive is adapted to lie, said balanced arm being arranged to contact with said wrapper on movement of the frame to swing into registry with the slot in the stop, thereby allowing the rod to move with the frame for the purpose desired.

6. A wrapping machine comprising feeding mechanism for articles to be wrapped, other feeding mechanism to feed wrapping material for said articles, together with mechanism to which said articles and wrapping material are fed arranged to press a portion of said material around the body of each article forming wrapper extensions beyond the ends thereof, and bringing the meeting edges in overlapping relation, cutting means to form a flap in each end extension of the wrapper, end folding devices for folding the end extensions against the article in several folds, and folding means to thereafter lay each flap over all of said several folds at its end to form an end seal for the package.

7. A wrapping machine comprising feeding mechanism for articles to be wrapped, other feeding devices to feed wrapping material for said articles, a folding pocket, a movable plunger to force an article against the wrapping material and both into the pocket whereby the article is partially wrapped in one direction, means to complete the wrapping in that direction so that tubular end extensions are formed in the other direction, controlling means for said folding pocket operable to open the pocket and release the article so wrapped, a support therefor, means for forming an end fold in each of said tubular extensions and cut a flap therein, end folding fingers operative to make two overlapping folds in each extension which overlap the first fold made, and a flap folding mechanism operable to

fold each flap over the other end folds to form a seal therefor, all for the purpose described.

8. In a wrapping machine, a supporting means for an article completely wrapped in one direction with end extensions of the wrapper which remain to be folded over the ends of the article and means to fold said extensions over the ends thereof comprising a reciprocable frame, an end folding device thereon which folds a portion of an end extension against the article and has a cutting means to cut a flap in that extension opposite said folded portion, other end folding devices to fold the remaining portions of the extension against the article except the flap and a flap folding mechanism to finally fold the flap over the other end folds to form a seal therefor.

9. In a wrapping machine a support for an article completely wrapped in one direction but having end extensions of the wrapper which remain to be folded over the ends of the article, folding and cutting means coöperating to form said end extensions into hermetically sealed end closures comprising mechanism operable to cut a flap in each end extension of less dimension in both directions than the dimensions of the end closure, devices to fold each end extension except the flap into folds overlapping with respect to each other as well as to the flap and flap folding means operable to fold the flaps over the other folds to complete the closure.

10. In a wrapping machine a support for an article completely wrapped in one direction but having end extensions of the wrapper which remain to be folded over the ends of the article, said extensions overlying each side of the support, a reciprocable frame having folding fingers which pass at each side of the support and make an end fold against the package, cutting devices carried by said frame to cut a flap in each end extension, as the frame reciprocates, another reciprocating frame having end folding fingers movable at right angles to the first frame operable to make end folds over the end of the article and a folding pocket into which the said fingers carry the partially wrapped article from the support thereby making other end folds over the end of article, together with another folding pocket and a plunger operable to transfer the partially wrapped package from the first to the second pocket thereby to fold the flap of each end extension over the other end folds all for the purpose described.

11. A wrapping machine, comprising a folding pocket having one side movable to receive and then release an article to be wrapped, wrapping fingers coöperating with said pocket, means to feed an article to be wrapped in line with the pocket, means to feed wrapping material between the article and the pocket, plunger mechanism to force the article and the wrapper into the pocket whereby it is partially wrapped, means to operate the wrapping fingers to further complete the wrapping of the article in one direction, mechanism to move the pocket against a stationary part of the machine to complete the wrapping of the article in the same direction and then release the article from the pocket, and end-folding mechanism adapted to receive the partially wrapped article as it is released from the pocket and complete the wrapping of the article by forming closing folds over the ends thereof.

12. A wrapping machine, comprising a wrapping pocket, mechanism to feed an article and wrapping material in line with the pocket, plunger mechanism for forcing the article and its wrapping material into the pocket whereby it is partially wrapped in one direction, folding fingers operable to force the wrapping material farther around the article, mechanism for moving the pocket in a straight line through the machine whereby the wrapping material is completely passed around the article in the same direction, mechanism operating during the movement of the pocket to open the same to release the article, and folding mechanism operable to receive the article so released and complete the wrapping operations thereon, all for the purpose described.

13. A wrapping machine having, in combination, a wrapping pocket having three sides with one side movable, mechanism to reciprocate the pocket from article-receiving to releasing position, wrapping mechanism movable with the pocket and operable during the movement of the pocket to partially wrap an article carried thereby, means operable to hold the movable side of the pocket in parallel relation to its opposite side when in receiving position and at an angle thereto when in releasing position, all for the purpose described.

14. A wrapping machine, comprising, in combination, devices for feeding articles to be wrapped, other devices for feeding separate wrapper blanks one for each article, together with means operative during the wrapping operations to cut each separate wrapper blank after it has been fed forward into suitable form for the wrapping operations, and mechanism for wrapping the blanks around the articles.

15. In a wrapping machine, the combination with mechanism for packaging articles, of means for feeding wrapper blanks one at a time to said mechanism together with other mechanism operative while said packaging mechanism is operating on the blank to cut the blank into suitable form for the packaging mechanism.

16. In a wrapping machine, the combination with mechanism to partially wrap an article in a separate wrapper blank, of other mechanism to cut the wrapper blank when entirely wrapped around an article in one direction, and devices to complete the wrapping operations after the blank has been cut.

17. In a wrapping machine, the combination with wrapping mechanism and means to feed forward wrapper blanks, one for each article to said wrapping mechanism, of means to feed to said mechanism articles to be wrapped in said blanks, and mechanism to form cuts in each blank after the same has been fed forward to enable the wrapping mechanism to make the desired folds in the blank around the article.

18. A wrapping machine comprising feeding mechanism for articles to be wrapped, other feeding mechanism to feed wrapping material for said articles, together with mechanism to which said articles are fed for passing a portion of said material around the body of each article with extensions beyond the end thereof, and bringing the meeting edges in overlapping relation, end folding mechanism for folding the bottom end extensions against the article, and other mechanism to fold the side end extensions inwardly in over and interlapping folds whereby the top end extensions may be brought downwardly with its edges in parallel relation with the edges of the article.

19. In a machine of the character described, the combination of a wrapping pocket constructed to receive a package and to grip the same, a support over which the pocket is movable, means for reciprocating said pocket over said support, said pocket having forward and rear sides, and means for moving the forward side of the pocket while it is at the forward part of its stroke so that it will clear the package upon its return stroke.

20. In a machine of the character described, the combination of a wrapping pocket, a support over which said pocket is movable, means for reciprocating said pocket over said support, means for introducing packages one at a time into said pocket in a direction at right angles to the direction of said reciprocating movement, said pocket being provided with forward and rear sides, means for moving the forward side of the pocket while it is at the forward part of its stroke so that it will clear the package on its return stroke, and additional means operative to carry forward the article last advanced by the pocket while the pocket advances another article.

21. In a wrapping machine, the combination with article feeding mechanism and wrapper feeding mechanism, of wrapping means operative to fold a wrapper fed by said mechanism around each article fed to it by said article feeding mechanism, said wrapping mechanism being operative to fold the wrapper around the article to form a tube having extensions projecting at the opposite ends of the article, and means operative to manipulate said end extensions to fold them against the opposite ends of the article and to form at each end a wrapper flap substantially covering the other end portions of the wrapper and forming an end seal for the package.

22. In a wrapping machine, in combination, an elevator adapted to receive the package to be wrapped and defining the first station thereof, a downwardly open gripper above the elevator and defining the second station of the package, paper-feeding mechanism to insert a sheet of wrapping paper between the package on the elevator and the gripper, means to raise the elevator and carry the package and paper into the gripper with the bottom portions of the paper depending below the gripper, a folder movable under the package in the gripper to fold one depending portion of the paper under the package, means for shifting the gripper horizontally to a third station, and later retract the gripper, a device in the path of the package between the second and third stations to fold the remaining depending portion of the paper under the package, mechanism to open the gripper and release the package after arrival thereof at the third station, means for advancing the package beyond the third station, and mechanism for forming the end-folds of the wrapper.

23. In a wrapping machine, in combination, a package-gripper having an open side to receive a package to be wrapped, a package-carrier adjacent to the gripper and movable from an initial position toward the open side of the gripper to move the package into the latter, means to feed a sheet of paper across the open side of the gripper while the carrier is in its initial position, a pusher in advance of the gripper, means to advance and retract the gripper and the pusher in unison, and mechanism to withdraw the pusher from the path of the package and release the gripper from the package while the pusher and gripper are advanced and to restore the gripper and pusher to initial position when the two are retracted.

24. In a wrapping machine, in combination, a package-advancing gripper comprising a member to engage the rear of the package and a pivoted member to engage the front of the package, a pivoted package-pusher in front of the gripper, means to advance and retract the gripper and pusher, and mechanism to swing pivoted member and the pusher out of the path of the package before retraction and into the path of

the package after retraction of the pusher and gripper.

25. In a wrapping machine, a sliding element, a package-advancing gripper connected to said element and having a member adapted to engage the front of the package, a package-pusher connected with the slide in advance of the pusher and movable into and out of the path of the package, means to advance and retract the sliding element, and means to move the said member and the pusher into and out of the path of the package.

26. In a wrapping machine, in combination, a downwardly open package gripper, a package-elevator below the gripper to lift a package into the same, means for feeding a sheet of paper between the gripper and a package on the elevator, a package-supporting plate extending in advance of the gripper, a package-pusher in front of the gripper, means to advance and retract the gripper and the pusher, mechanism to move the pusher into and out of the path of the packages on the supporting-plate, mechanism for releasing the gripper from the package, and means for actuating said mechanisms.

HERMANN OTTO FISCHER.

Witnesses:
FRANKLIN G. NEAL,
HARRY W. BOWEN.