No. 669,027. Patented Feb. 26, 1901.

C. L. CROSBY.

MACHINE FOR WRAPPING UP CIRCULARS, NEWSPAPERS, BOOKS, &c.

(No Model.) (Application filed Nov. 9, 1900.)

3 Sheets—Sheet 1.

Fig. 1.

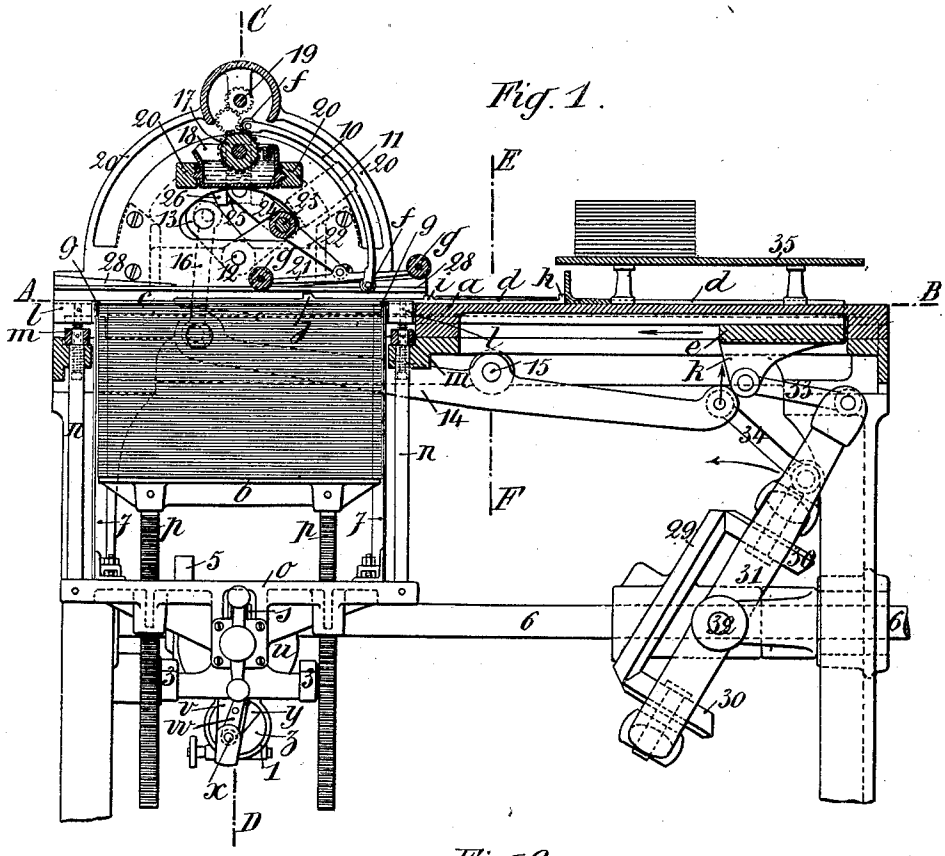
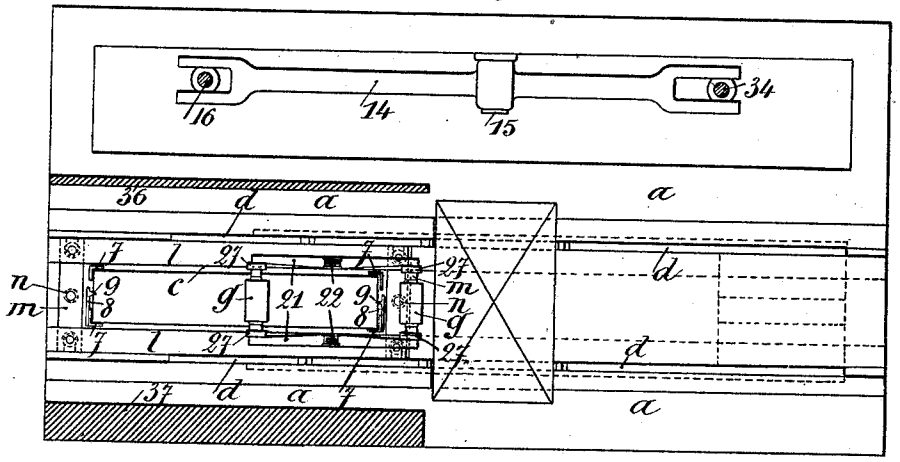


Fig. 2.



WITNESSES

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Fig. 3.

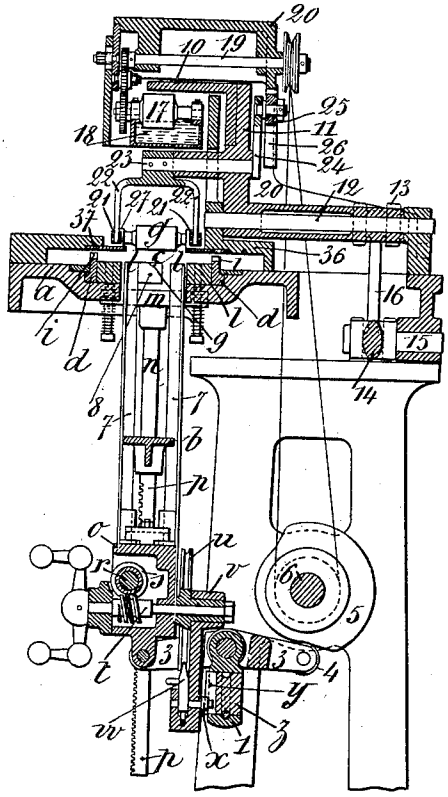


Fig. 4.

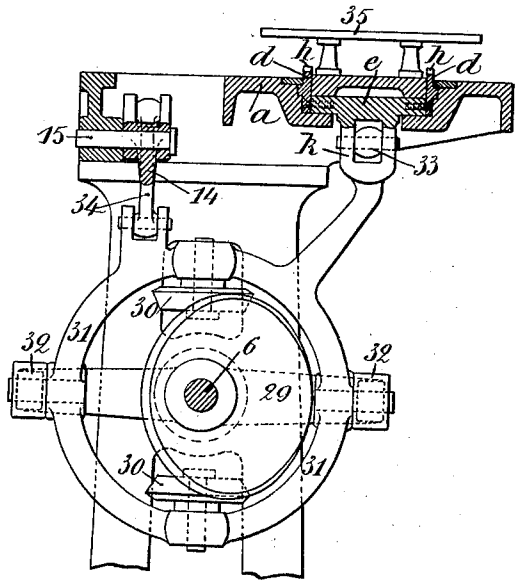


Fig. 12.

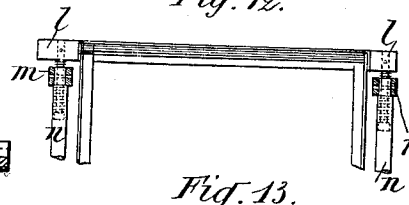


Fig. 14.

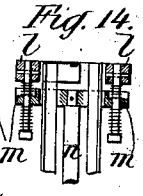


Fig. 10.

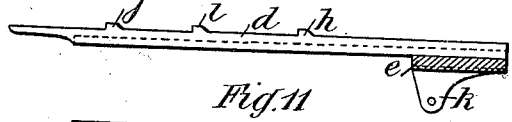
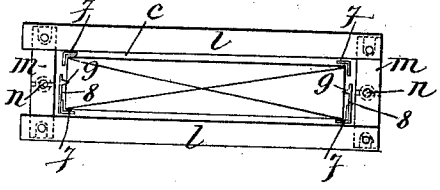


Fig. 11



Fig. 13.



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Fig. 5.

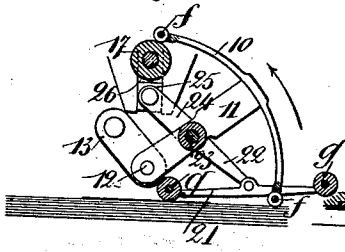


Fig. 7.

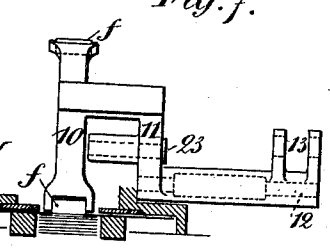


Fig. 6.

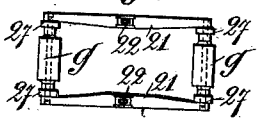


Fig. 8.

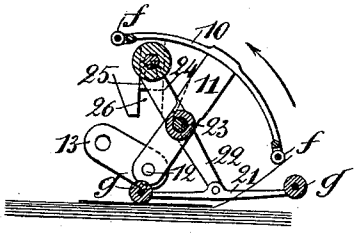


Fig. 9.

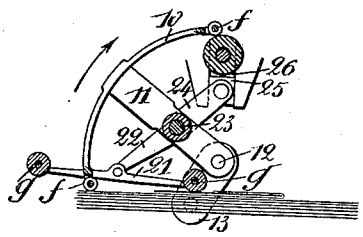


Fig. 15.

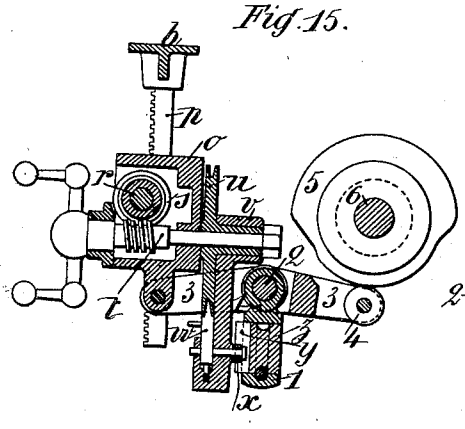
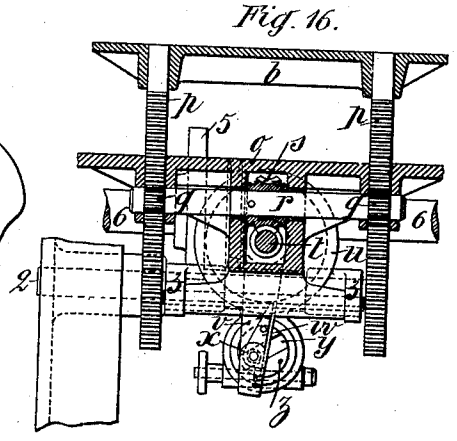


Fig. 16.



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UNITED STATES PATENT OFFICE.

CHARLES LOUIS CROSBY, OF PARIS, FRANCE, ASSIGNOR TO THE SOCIÉTÉ FRANÇAISE DES MACHINES À METTRE SOUSBANDE, OF SAME PLACE.

MACHINE FOR WRAPPING UP CIRCULARS, NEWSPAPERS, BOOKS, &c.

SPECIFICATION forming part of Letters Patent No. 669,027, dated February 26, 1901.

Application filed November 9, 1900. Serial No. 35,988. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LOUIS CROSBY, engineer, residing at 38 and 40 Rue de Chabrol, Paris, France, have invented certain Improvements in Machines for Wrapping Up Circulars, Newspapers, Books, and the Like, of which the following is a specification.

This invention has for its object certain improvements in machines for wrapping up or inclosing circulars, newspapers, books, and the like, and more particularly in connection with the type of machine described in the specification forming part of the United States Patent No. 632,983, of 1899, said improvements having the object of simplifying the construction of the apparatus, to expedite the working thereof, to render the action of feeding and delivery of the prints automatic, and to paste or gum, pick up, and fold the wrappers or bands.

In order that the said invention may be readily understood and carried into effect, I will now proceed to describe the same fully, and for that purpose reference is to be made to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of an improved wrapping-machine embodying this invention. Fig. 2 is a plan of the same, partly in section, taken upon the line A B of Fig. 1. Fig. 3 is a transverse section on the line C D of Fig. 1. Fig. 4 is also a transverse section, but taken on line E F of Fig. 1. Fig. 5 is a detail view illustrating the mechanism for pasting, lifting, and folding the ends of the wrappers or bands. Figs. 6 and 7 are a plan and a side elevation, respectively, of said mechanism. Figs. 8 and 9 are further detail views of the different working positions of the same mechanism. Fig. 10 is a detail view of the feed-carriage designed to present the prints one by one to the bands or wrappers, to inclose them, and to eject them after the termination of the operation. Fig. 11 is a plan view of the same. Figs. 12, 13, and 14 are an elevation, a plan, and a transverse section, respectively, of that part of the arrangement for keeping the prints stationary during the operation of wrapping and for separating each single band or wrapper from the pile. Figs. 15 and 16 are detail views of the mechanism designed to actuate the wrapper-supporting table.

According to this invention the improved wrapping or inclosing machine comprises a table *a*, adapted to receive the prints to be inclosed in wrappers, and a supporting plate or platform *b*, adapted to carry a pile of bands or wrappers for inclosing said prints. The wrapping is effected adjacent to an opening *c* in the table *a*, through which the bands pass.

Upon the table *a* is mounted a carriage formed of two longitudinal bars *d d*, connected together by a short cross-plate *e*, and designed to receive the prints one by one and carry the same near the opening *c* for the application of the wrapper and then eject them after the completion of the operation. The wrapper-supporting plate *b* is adapted to be elevated progressively corresponding to the consumption of the wrappers, and it is further capable of a general lifting motion for the purpose of producing the pressure upon the print placed to the right of the opening *c*, and to hold it stationary during the operation of applying the wrapper.

Above the opening *c* are arranged the parts *f f*, forming the pasting mechanism, and also those parts for lifting the ends of the uppermost band or wrapper upon which the print has been placed, as well as the parts *g g* for folding the ends over the print after the pasting of the same and for removing the finished wrapper.

Having thus explained the apparatus generally, I will now describe the details of each of the constituent parts of the machine.

The carriage for feeding the prints is formed of two parallel bars *d d*, each provided with heel pieces or projections *h i j* and connected together at their rear ends, Figs. 10 and 11, by means of a cross-plate *e*, formed with cheeks or hinge-plates *k* for its attachment to the operating mechanism capable of imparting to the entire carriage a horizontal reciprocatory movement. The bars *d d* are lodged in grooves in the table *a* in such a manner that the heels *h i j* only project above the surface of the latter. The said bars are placed on each side of the opening *c*, at the sides of which the longitudinal bars *l l*, with

cross-bars *m m*, are disposed. The longitudinal bars *l l* are mounted with springs upon the cross-bars *m m*, Figs. 12, 13, and 14, rigidly attached to the upper extremities of vertical rods *n n*, suitably guided and belonging to a counter-platform *o*, adapted to be elevated, as will be hereinafter described, and thereby also elevate the bars *l l* and cross-bars *m m*.

When the machine is at rest, the frame above mentioned is depressed, Figs. 1 and 3, while at the same time the carriage is at the rear end of its stroke, Figs. 1 and 2.

The wrapper-supporting plate or platform *b* is supported by rods *p p*, which pass through and are guided in the counter-platform *o*. These rods may be formed with rack-teeth to gear with pinions *q q*, fast upon a shaft *r*, the central portion of which latter is fitted with a helicoidal wheel *s*, gearing with a worm *t*, upon the shaft of which is mounted a grooved pulley *u*. Upon the hub of said pulley is loosely mounted a lever-arm *v*, carrying a spring-controlled oscillatory finger *w*, the free end of which finger engages in the groove in the pulley, so as to act upon the same in the manner of a pawl. The pivot-pin of the finger *w* is fitted with a roller *x*, engaged in an inclined slot *y* in an adjustable piece *z*, secured in a collar 1, mounted upon a stationary shaft 2, forming the fulcrum to an oscillating lever 3, pivoted by one end to the counter-platform *o* and carrying at its other end a roller 4, running upon a cam 5, keyed upon the driving-shaft 6. The counter-platform *o* is thus supported by the lever 3, and in turn supports the wrapper-supporting plate or platform *b*.

Upon the counter-platform are fixed vertical angle-irons 7 7 7 7, which surround the corners of the platform *b* and those of the pile of wrappers carried upon it, so as to serve as guides during the ascending motion. The upper ends of the angle-irons are disposed within the corners of the frame formed of the bars *l l* and *m m*. The said angle-irons have fixed to their upper ends angle-plates 8, formed with a triangular tooth 9, situated at the middle of the small sides of the opening *c* and designed to act upon the pile of bands or wrapper like a finger-nail acts upon the pages when turning over the leaves in a book.

The parts *f f* for gumming and for lifting the wrappers are formed of rollers mounted in the terminal forks of a swinging beam in form of an arc 10 integral with a radial arm 11, adapted to oscillate on a stationary pin 12, situated in the center of the curved beam. The radial arm 11 is integral with another arm 13, to which an angular motion is imparted by any convenient means—for example, by the aid of a straight beam 14, fulcrumed at 15 and connected to the said arm 13 by a link 16. The rollers *f f* in the oscillating motion of the curved beam 10, to which they are secured, take each in turn the gum from a rotary roller 17, dipping with its lower portion into a trough 18, containing the gum or paste. The rotation of this roller may be obtained through the intervention of suitable gear-wheels in connection with a shaft 19, which receives rotation from the driving-shaft by means of a belt, as shown in Fig. 3. The gum-trough 18 and the bearings of the shaft 19 are fixed to a support or bracket 20 of circular shape, bolted to the table *a* of the machine. The parts *g g* for folding the ends of the band or wrapper are also fitted with rollers mounted in the ends of two arms 21 21, carried centrally by arms 22 by a fork fixed to one of the extremities of a shaft 23, mounted in the radial arm 11 of the beam 10. The shaft 23 carries at its other end a lever-arm 24, furnished with a slide-block 25, engaging in a slot 26 in the support or bracket 20. The parts *g g* and their supporting-arms 21 21 form a frame, into which alternately pass the parts *f f* for the purpose of reaching the upper band or wrapper of the pile carried upon and elevated by the platform *b*, as will be hereinafter described. Upon the said frame at each side of the rollers *g g* there are mounted runners 27 27, adapted to come in contact with inclined planes 28 28, provided at the ends of the opening *c* for the purpose of tilting the said frame upon its suspension-points in such a manner as to depress that one of the two rollers *g g* which is engaged in folding the corresponding end of the band or wrapper.

The straight beam 14, hereinbefore mentioned, is operated by the aid of any convenient gear, which may consist, for instance, of a circular friction-disk 29, having beveled-face edges and mounted eccentrically and obliquely upon the driving-shaft 6. This disk acts upon two friction-wheels 30 30, mounted upon pins in a circular ring 31, adapted to oscillate upon trunnions 32, disposed diametrically opposite each other and supported by auxiliary bracket-arms secured to the frame of the machine. To the said ring are pivotally connected two levers 33 and 34, the former being secured to the hinge-plates *k* of the cross-plate *e* of the feed-carriage for the prints and the second being pivotally secured to the straight beam 14 for operating the gumming and folding mechanisms *f f* and *g g*. It will be noticed that the motions of these gumming and folding mechanisms are absolutely synchronous with one another, notwithstanding that the one mechanism participates in a circular movement, while the other participates in a practically rectilinear motion. This dependency of movement is obtained by the peculiar arrangement of the said mechanisms upon a rocking beam with a single operating-arm 13. It will further be seen that the rocking movement of the folding mechanism is converted into a practically rectilinear motion, owing to their articulated suspension upon the arm of the rocking beam 10 and to their combination, on the one hand, with the stationary guide-slot 26 and, on the

other hand, with the inclined planes 28 28, as hereinbefore described.

The machine thus constituted operates in the following manner: Presume that the prints it is desired to inclose in bands or wrappers are placed on a small table 35 and that the bands or wrappers for the same are piled upon the platform *b*, the height of the wrappers being so regulated with regard to the counter-platform *o* that the uppermost band of the pile rests against the teeth 9 9. Furthermore, we will presume the feed-carriage for the prints, the wrapper-supporting platform *b*, and the gumming and folding mechanisms to be in the position shown in Fig. 1. The operator places by hand one of the prints upon the bars *d d* of the carriage between the heels *h* and *i* and then starts the driving-shaft 6 of the machine, which at each revolution produces the following effects: At the first semirevolution of the driving-shaft the carriage is displaced toward the front of the machine and takes with it the print, which is thereby placed above the pressure-bars *l l*, across and midway over the opening *c*—that is to say, at right angles with the bands or wrappers, which are beneath the said opening. At the same time the gumming or pasting and folding mechanisms swing from the right to the left and from left to right, owing to the action of the straight beam 14, connected to the arm 13, and this without producing any effect, the prints and the wrapper-bands being below their plane of operation. In other words, they are running idle. At the second semirevolution the cam 5, fast upon the driving-shaft 6, elevates the counter-platform *o* and its connected parts, thus causing the longitudinal bars *l l* to press and retain beneath the angle-pieces 36 and 37 the ends of the print whose difference in thickness is compensated for by the compression of the springs disposed between the said bars *l l* and cross-bars *m m* supporting them. This elevation of the counter-platform *o*, furthermore, has the effect of bringing the uppermost wrapper-band of the pile upon the platform *b* into contact with the under surface of the print and with the gumming-roller *f* at the right, (after this latter has previously been coated with gum,) as shown in Figs. 5 and 7. This effect is produced at the beginning of the second semirevolution of the shaft 6, so that during the completion thereof it causes the return toward the rear of the machine of the feed-carriage, the heels of which pass beneath the print which has been raised and pressed in the manner before stated, thus allowing the carriage to return to the initial position in order to receive a fresh print between the heels *h* and *i*. The completion of the second semirevolution produces at the same time the rocking from the right to the left and back again of the gumming and folding mechanism, with the difference that this time the said mechanisms operate in an active manner. Indeed the gumming-roller *f* at the right raises the corresponding extremity of the band with which it is in contact, Fig. 8, while at the same time applying to it during its rotation the gum which it carries and in causing it to pass by the tooth 9, which separates it from the other wrapper-bands in case they should stick together. This lifting is effected across the frame which carries the folding mechanism. At this moment the folding mechanism *g* on the right comes into contact with the raised end of the wrapper-band, which it takes at the back, so as to fold it down over the print, to which it adheres, owing to the pressure exerted by the said mechanism through the intervention of the inclined planes 28, whereby the entire mechanism receives an oscillating motion. At this moment the gumming mechanism *f*, Fig. 9, at the right arrives in contact with the gum-roller 17, from which it obtains a fresh supply, while the gumming-roller *f* on the left is brought into contact with the corresponding extremity of the band, which it lifts in the manner explained with regard to the opposite end, which the folding-roller *g* from the left now folds down and gums to the former. When the gumming and folding mechanisms have returned to their initial position, the print is secured in its wrapper, and at the same time the counter-platform *o* is lowered and takes with it all its connected parts, but leaving the print free in its wrapper, which now reposes upon the bars of the carriage in front of the heels *j j* thereof. During a new revolution of the driving-shaft the cycle of operations, hereinbefore described, is renewed, with the difference, however, that the print in the wrapper situated in front of the heels *j j* is ejected from the machine, where at the subsequent return motion of the carriage it comes against the ends of the bars *l l*, which throw it down and cause it to fall into a receiver.

It will be observed that at every lift of the counter-platform *o* the platform carrying the wrappers is raised a little in order to compensate for the gradual decrease in the pile of wrappers, thereby always keeping the upper wrapper in contact with the teeth 9 9. This effect is obtained, as will have been understood from the foregoing, by means of the mechanism shown in Figs. 15 and 16 acting upon the racks *p p* integral with the platform *b*.

Obviously the improved apparatus hereinbefore described may be constructed in any appropriate size, and its operative parts may be modified as regards form, dimensions, and arrangement without departing in any way from the nature or spirit of the invention.

I claim as my invention—

1. A machine for wrapping or inclosing prints or the like in wrappers, comprising a feed-carriage, and means adapted to place the carriage above a pile of wrappers, means to automatically eject the wrapped print, a platform carrying the wrappers, means to pro-

gressively elevate the platform as the pile of wrappers decreases, means for giving an upward motion to the platform besides the first-mentioned motion, means for seizing the print presented to the top of the pile of wrappers and gumming and folding means adapted to act successively upon the two extremities of the wrapper, such means being both controlled by a single operating means, as set forth.

2. A machine for wrapping or inclosing prints or the like in wrappers, consisting of the combination with a wrapper-carrying platform of a feed-carriage, carrying-bars, having heel-pieces to carry the prints one by one above the wrappers, other bars operated by the wrapper-carrying platform to in turn lift the prints to be wrapped, points of support above the bars, and means to maintain the print carried by the bars against the points of support while being provided with a wrapper.

3. A machine for wrapping or inclosing prints or the like in wrappers, consisting of the combination with a wrapper-carrying platform of a feed-carriage, carrying-bars, having heel-pieces to carry the prints one by one above the wrappers, other bars operated by the wrapper-carrying platform to in turn lift the prints to be wrapped, yielding means between the bars and the platform that operates them, points of support above the bars, and means to maintain the print carried by the bars against the points of support while being provided with a wrapper.

4. A machine for wrapping or inclosing prints in wrappers, consisting of a wrapper-carrying platform, in combination with a counter-platform, a compressing-frame carried thereby, said platforms having a displacement relative to each other, and means whereby the said counter-platform is adapted to be lifted to compress the print being provided with a wrapper, substantially as described.

5. A machine for wrapping or inclosing prints in wrappers, consisting of a wrapper-carrying platform, in combination with a counter-platform, a compressing-frame carried thereby, angle-irons to guide the pile of wrappers, said platforms having a displacement relative to each other, and means whereby the said counter-platform is adapted to be lifted to compress the print being provided with a wrapper, substantially as described.

6. A machine for wrapping or inclosing prints in wrappers, comprising a gumming mechanism, and a folding mechanism and a single operating-arm connected to both said mechanisms to operate them together, as set forth.

7. A machine for wrapping or inclosing prints or the like in wrappers, comprising gumming means, and a folding means, arms suitably connected carrying said means, and a single operating means connected to but one of said arms, but operating both, substantially as described.

8. A machine for wrapping or inclosing prints or the like in wrappers, comprising a gumming means and a folding means, arms each carrying one of said means, a common shaft on which both arms turn, and a single operating means secured to one of the arms, substantially as described.

9. A machine for wrapping prints in wrappers comprising a gumming means and a folding means, arms each carrying one of said means at its end, a common shaft for the arms, located near their center, a slide-block at one end of one arm and a slide for the block, and operating means connected to the other arm, substantially as described.

10. A folding and gumming mechanism for wrapping-machines, comprising arms, a shaft therefor, supporting-arms at the ends of first said arms carrying the gumming or the folding means, one of said supporting-arms being fixed to its carrying-arm and the other pivoted to its carrying-arm and an operating means, substantially as described.

11. A folding and gumming mechanism for wrapping-machines, comprising arms, a shaft therefor, supporting-arms at the ends of first said arms carrying the gumming or the folding means, one of said supporting-arms being adapted to have its extremities, one on each side of the working extremity of the other supporting-arm at the time of gumming, and an operating means, substantially as set forth.

12. A folding and gumming mechanism for wrapping-machines, comprising arms, a shaft therefor, supporting-arms at the ends of first said arms carrying the gumming or folding means, one supporting-arm curved and one straight, and an operating means, substantially as described.

13. A folding and gumming mechanism for wrapping-machines, comprising arms, a shaft therefor, supporting-arms at the ends of first said arms carrying the gumming or the folding means, one supporting-arm curved and rigidly secured to its carrying-arm, and one straight and pivoted to its carrying-arm and an operating means, substantially as described.

14. A folding and gumming mechanism for wrapping-machines comprising a gumming means and a folding means each carried by an arm, a common shaft for each arm, and an operating means for the arms, in combination with inclined plates to control the folding means, as set forth.

15. A folding and gumming mechanism for wrapping-machines, comprising a gumming means and a folding means each carried by an arm, a common shaft for each arm, and an operating means for the arms, in combination with a gumming-roller, and independent means to operate such roller, substantially as described.

16. A machine for wrapping up prints or the like, comprising a gumming mechanism and a folding mechanism, and a single beam, to operate them, in combination with a wrapper-carrying platform, and means for moving

the platform so as to place the upper wrapper within the operative plane of said mechanisms at certain times, for the purpose described.

17. A machine for wrapping up prints or the like, comprising a gumming mechanism and a folding mechanism, and a single beam, to operate them, in combination with a wrapper-carrying platform and means for moving the platform so as to place the upper wrapper within the operative plane of said mechanisms at certain times, and an independent means for progressively lifting the platform as the wrappers are used, substantially as described.

18. A machine for wrapping up prints or the like comprising a gumming and folding mechanism, a wrapper-carrying platform, and a counter-platform, means for progressively moving the wrapper-platform, and means for simultaneously lifting both platforms, whereby the top wrapper is brought into the operative plane of the gumming and folding mechanisms and the print is secured in position to be wrapped.

19. A machine for wrapping up prints or the like, comprising a wrapper-carrying platform, a counter-platform, racks for the first platform, gears to operate the racks carried by the counter-platform, means for lifting the counter-platform, gears and racks, and means for revolving the gears a certain distance on each movement of the platforms, as and for the purpose set forth.

20. A machine for wrapping up prints or the like, comprising a wrapper-carrying platform and a counter-platform, racks for the first platform and gears carried by the counter-platform, to engage the racks, a pawl-wheel, gearing between the pawl-wheel and the gears, a pawl and means for advancing the pawl upon the lifting of the platform, substantially as described.

21. A machine for wrapping up prints or the like, comprising a wrapper-carrying platform and a counter-platform, racks for the first platform and gears carried by the counter-platform, to engage the racks, a pawl-wheel, gearing between the pawl-wheel and the gears, a pawl, means to lift the platforms, and a stationary incline, said pawl being adapted to be moved by contact with the incline when the platforms are raised, substantially as described.

22. A machine for wrapping up prints or the like, comprising angle-iron guides, and triangular teeth permanently secured to said guides in combination with a gumming mechanism, as and for the purpose described.

23. A machine for wrapping up prints or the like, comprising angle-iron guides and triangular teeth permanently secured to said guides, in combination with a gumming mechanism, means to lift said angle-iron guides always the same distance, whereby the teeth are insured a certain definite position in relation to the gumming mechanism irrespective of the number of wrappers used, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES LOUIS CROSBY.

Witnesses:
LÉON FRANCKEN,
EDWARD P. MACLEAN.