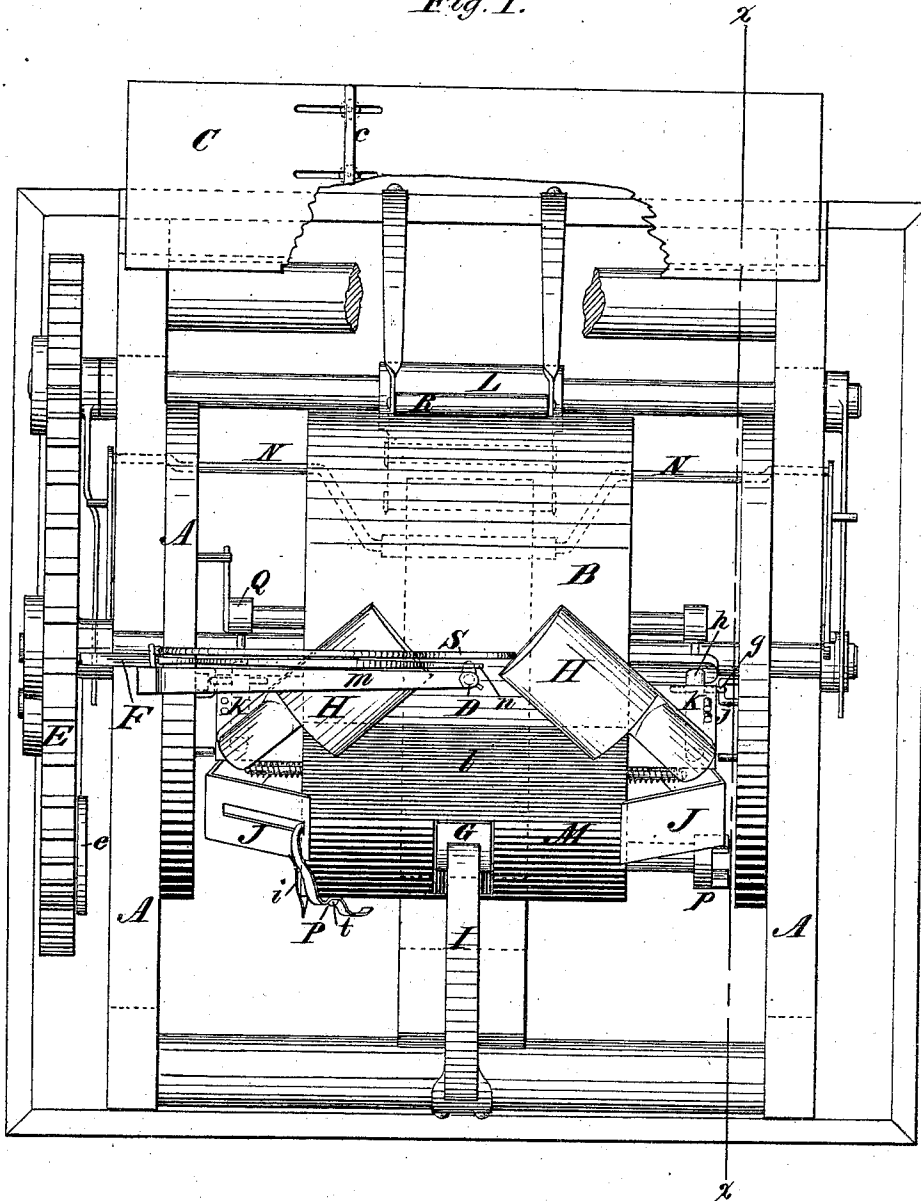


C. B. STILWELL.
Paper-Bag Machines.

No. 147,998.

Patented Feb. 24, 1874.

Fig. 1.



Witnesses:

T. C. Brecht.
B. H. Moss

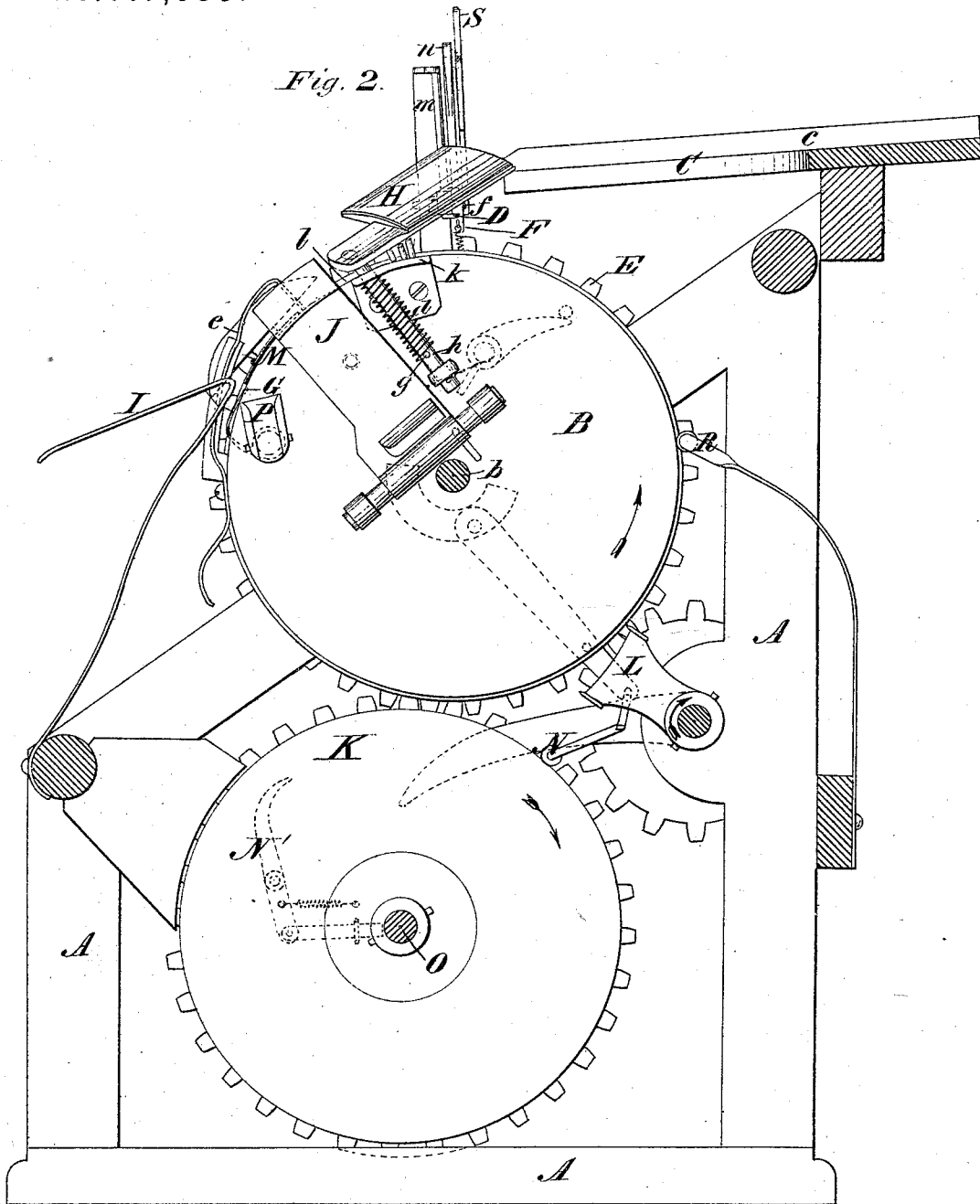
Inventor:

Charles B. Stilwell
by his atty
Wm. D. Baldwin

C. B. STILWELL.
Paper-Bag Machines.

No. 147,998.

Patented Feb. 24, 1874.



Witnesses:

J. C. Bucht.
B. H. Morse

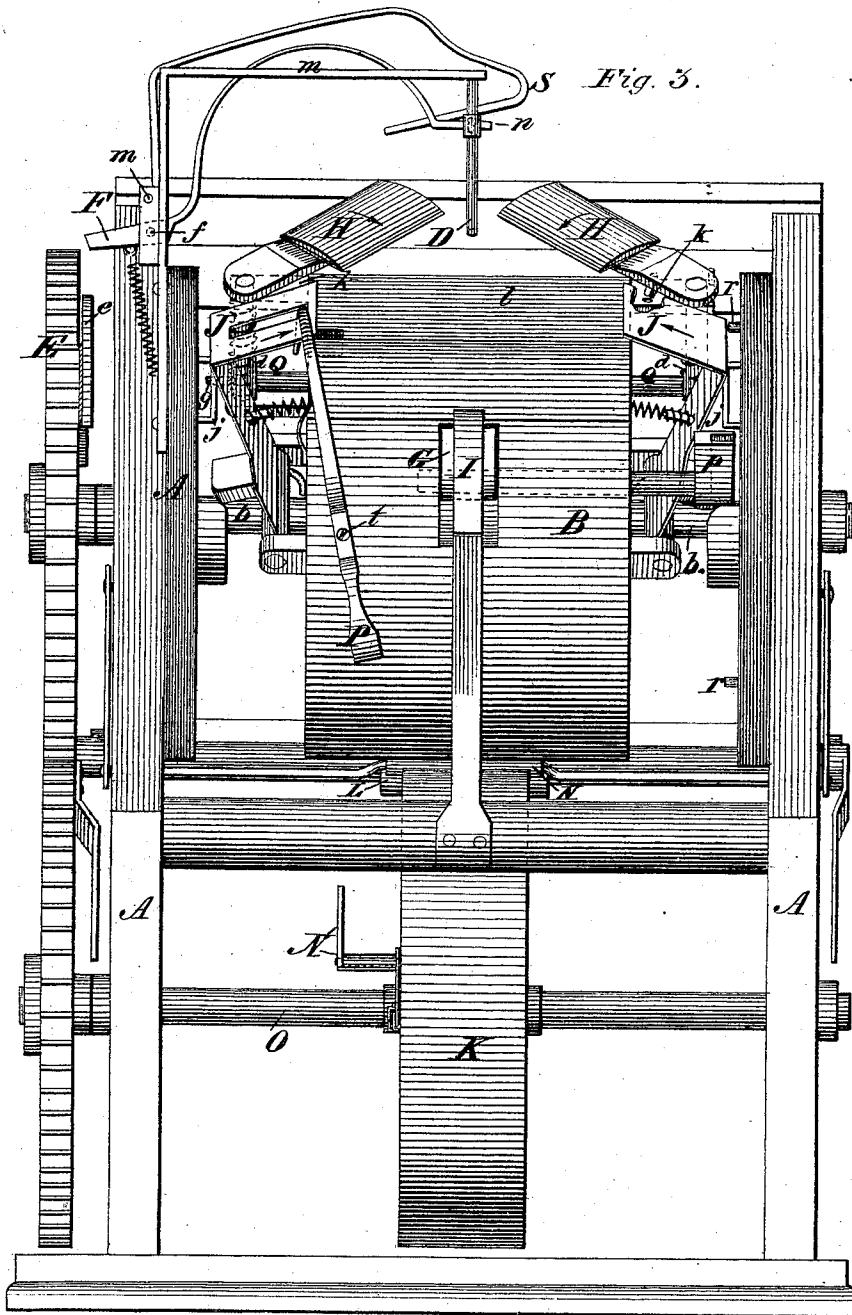
Inventor:

Charles B. Stilwell
by his Attorney
Wm. Baldwin

C. B. STILWELL.
Paper-Bag Machines.

No. 147,998.

Patented Feb. 24, 1874.



Witnesses:

Harry King
D. W. Morse

Inventor

Charles B. Stilwell
by his Attorney
Wm. D. Baldwin

C. B. STILWELL.
Paper-Bag Machines.

No. 147,998.

Patented Feb. 24, 1874.

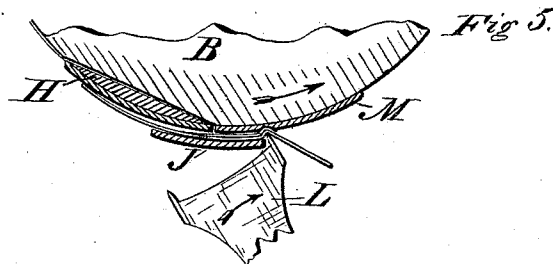
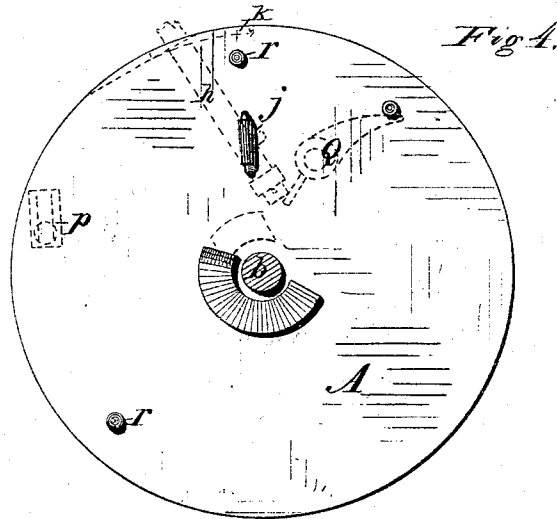


Fig 9.

Fig 10.

Fig 11.

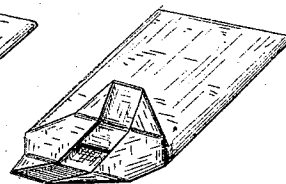
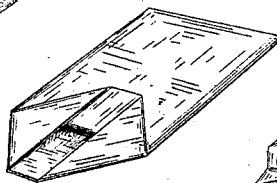
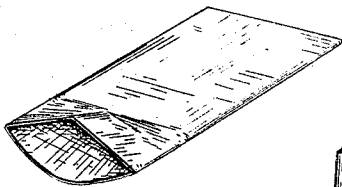
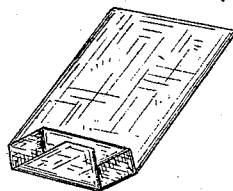
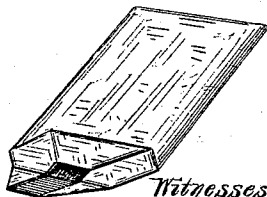


Fig 12.

Fig 13.



Inventor,

Charles B. Stilwell
by his Atty
Wm. Baldwin

Witnesses.
Harry King.
B. C. Morse

C. B. STILWELL.
Paper-Bag Machines.

No. 147,998.

Patented Feb. 24, 1874.

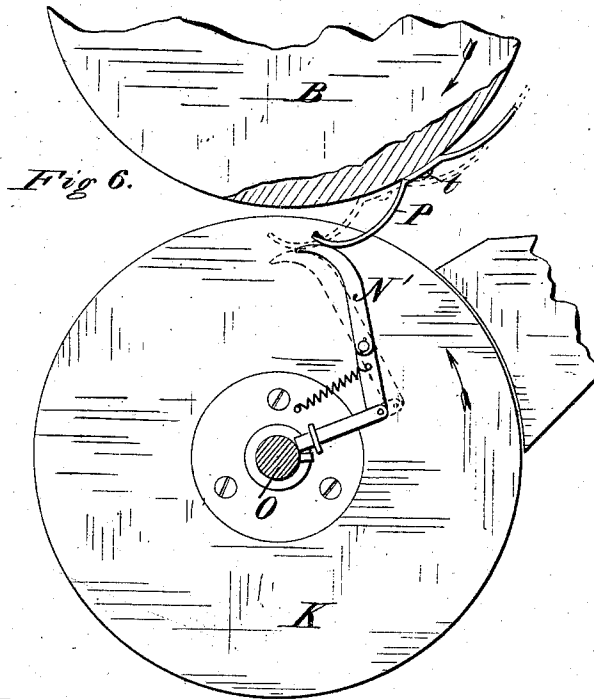


Fig 7.

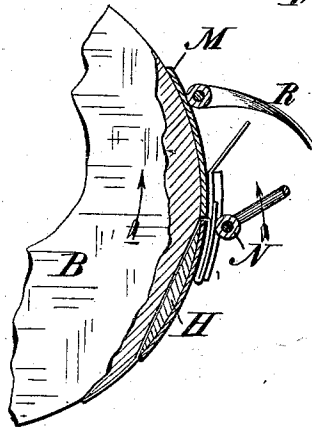
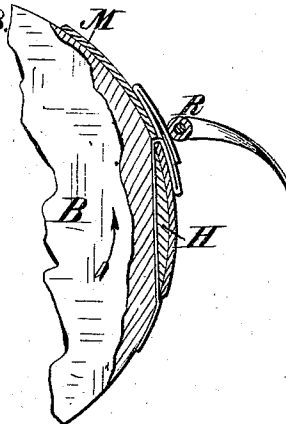


Fig 8.



Witnesses.

Harry King
B. H. Moses

Inventor.

Charles B. Stilwell
by his atty
Wm. B. Baldwin

UNITED STATES PATENT OFFICE.

CHARLES B. STILWELL, OF NEW YORK, N. Y.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. **147,998**, dated February 24, 1874; application filed October 22, 1873.

To all whom it may concern:

Be it known that I, CHARLES BOUGHTON STILWELL, of New York city, New York, have invented certain Improvements in Paper-Bag Machinery, of which the following is a specification:

My invention relates to machines of the class in which a satchel-bottomed bag is formed automatically from a paper tube fed into the machine. The object of the invention is to fold, paste, and press the bottom of the bag while passing continuously through the machine, thus securing the utmost rapidity of production at a minimum cost.

The subject-matter claimed is hereinafter specified.

The accompanying drawings represent a paper-bag machine embodying all my improvements in the best way now known to me; obviously, however, some of these improvements may be used without the others, and in machines varying somewhat in their details of construction from those hereinafter shown.

Figure 1, Sheet 1, represents a plan view of the machine with the parts in the position they occupy after the tube has been fed upon the cylinder, the side leaves being in the act of folding down upon the bag. Fig. 2, Sheet 2, represents a vertical section through the machine on the line *xx* of Fig. 1, with the parts in the same position as that shown in that figure. Fig. 3, Sheet 3, represents an elevation of the front end of the machine with the parts in the same relative position as that shown in the preceding figures. Fig. 4, Sheet 4, represents a side elevation of a portion of the fixed frame. Fig. 5, Sheet 4, represents a side view of a portion of the creasing devices. Fig. 6, Sheet 5, represents a side elevation of the automatic shipping device used in connection with the pasting-roller and working-cylinder. Fig. 7, Sheet 5, represents the lower folding-roller in the act of forming the first fold after the bag is pasted. Fig. 8, Sheet 5, represents the upper stationary roller, making the second and final fold; and Figs. 9, 10, 11, 12, and 13, Sheet 4, represent the bag in its various stages of production.

That side of the machine upon which the feed-board is fixed I call the rear end, the other the front end.

The mechanism is mounted in a strong frame, A, of suitable form and material, and may be driven by power applied to any one of the principal shafts. I prefer, however, to drive the main shaft *b*, upon which the working-cylinder or cylindrical revolving bed-plate B is mounted. This cylinder turns continuously (while the machine is in operation) in the direction indicated by the arrow, Fig. 2. The paper from which the bags are formed may be fed into the machine in the form of a continuous flat tube, and be cut into lengths, as required, by well-known mechanism. I prefer, however, to use tubes cut of proper lengths to form the bag, as shown in Fig. 9. The upper and lower sides of the front end of the tube may be of even length; but I prefer to cut the upper edge so that it may project beyond the lower to facilitate the opening of the bag, as hereinafter explained. When fed by hand, these flattened tubes are placed upon a feed-board, C, in a pile, with one side resting against a side gage, *c*, Figs. 1 and 2, which is made adjustable laterally to accommodate bags of different widths. The tubes are fed by hand, one at a time, very much as in the Hoe cylinder-press, against a stationary adjustable stop or bottom gage, D, overhanging the working-cylinder B. This stop is provided with a lip short enough to bear only on the under side of the overhanging upper front edge of the tube. A cam, *e*, on a main driving gear-wheel E acts on a rocking arm, F, which vibrates vertically on a pivot, *f*, on a stop frame or standard, *m*, forcing the presser-foot *n*, which slides upon the stop, down upon the projecting front edge of the tube, which is thus clamped between the lip of the stop D and the presser-foot. Simultaneously with this movement, an arm, S, moving parallel with the presser-foot, descends behind the stop and bears upon the tube, thus causing its mouth to open (see Fig. 9) until its lower front edge touches the working-cylinder. Just as this movement is effected the edge of a nipper, G, mounted in the working-cylinder descends upon this lower edge inside of the tube, and clamps it upon the cylinder. This nipper is oscillated by means of a tilting lever, P, on its rock-shaft coming in contact with studs *r r* placed in proper positions on the frame. (See Figs. 3 and 4.) As

soon as the tube is thus clamped upon the cylinder, the presser-foot *n* and bearing-arm *S* rise, thus releasing their hold upon the projecting upper edge of the tube. The nipper *G* now draws the tube off the feed-board onto the surface of the cylinder, upon which it is clamped by side leaves or holders *H*, mounted on arms *h* oscillating in bearings on the cylinder. (See Fig. 2.) These arms are folded inward upon the cylinder at the proper moment by means of levers *g* upon them, which strike lugs *j* on the frame, Figs. 1, 3, and 4, at suitable periods during the revolution of the working-cylinder. The side leaves or holders *H* are retracted, when released, through the combined instrumentality of a lifting device, *Q*, and of spring *d* on the arms, (see Figs. 2 and 3,) which springs throw the side leaves outward when lifted by the lifting device *Q*. A cam-guide, *k*, on which the leaves *H* travel, causes them to drop suddenly down upon the cylinder, and to rise as quickly from it. The cylinder is flattened on its periphery at *l*, and the side leaves *H* rest on this flattened part, their upper surfaces being rounded to complete the contour of the cylinder. I have shown two side leaves, but a single one of sufficient length may be used. The mouth of the paper tube is now drawn over the point of a folding-finger, *I*, fixed on the frame, and as the lower edge of the tube is drawn forward by the nippers under the finger, while the upper edge rides over it, a fold is formed of the shape shown in Fig. 10, the upper part of the tube being folded back upon the holders or side leaves *H*. Immediately after the formation of this fold, retaining-clamps *J J* move inwardly upon the sides of the fold and clamp it. These side clamps are of the width of the bottoms of the bags, and partially overlap the holders *H*, hereinbefore mentioned. As soon as the side clamps have taken hold, the nipper releases the edge of the tube previously held by it. The tube is now carried over the surface of a pasting-roller, *K*, which prints the paste upon the proper place on the bag in any of the usual well-known ways. When the feeding of the paper tubes to the cylinder ceases, the pasting-roller is automatically thrown out of gear by means of a shipping device, *N'*, disconnecting it from the shaft *O*, as shown by dotted lines in Fig. 6. This shipping device is operated upon by the lever *P*, pivoted to the cylinder at *t*, and rocking on said pivot, and provided with a spring to force its upper end inward, Figs. 1 and 3. When a tube has been supplied to the cylinder, one of its edges presses the upper end of the lever outward, freeing the shipping device from its lower end, Fig. 3, when the pasting-roller becomes connected and revolves with the shaft *O*, Fig. 6. After passing the pasting-roll, the blank is creased by a rotating creaser, *L*, which creases it on both sides of the side clamps. (See Fig. 5.) The working-cylinder is covered at the point upon which the creases act with a cushion, *M*, of rubber or other elastic material, which yields

slightly under the pressure, thus making a sharply-defined crease or indentation in the paper, as shown in Figs. 5 and 11. The backs of the holders or leaves *H* are also covered with rubber or other elastic material, as they form part of the surface upon which the creaser acts. As soon as the creaser moves out of the way, an oscillating folding-follower, *N*, moving more rapidly than the cylinder, folds the rear pasted edge of the blank over upon the main portion, as shown in Figs. 7 and 12, immediately after which the front portion of the pasted blank is folded back upon the other portion by a stationary folder, *R*, Figs. 8 and 13. As soon as this is done the side clamps *J* retract, and as soon as they are out of the way the side leaves *H* swing back, leaving the finished bag, Fig. 13, free to be carried off by fingers or tapes, in the usual way.

I deem it unnecessary to describe in detail the construction of the mechanism employed to effect the operations above mentioned, as such details will be understood from the drawings, are well known to skillful constructors of such machinery, form no part of the subject-matter claimed, and may be varied in various well-known and equivalent ways, without departing from the spirit of my invention, or without involving anything more than the skill of the constructor.

I claim as my invention, in a paper-bag machine—

1. The combination, substantially as set forth, of the stop, the lip, and the presser-foot, which clamps the front edge of the upper side of the tube from which the bag is to be formed upon the lip.

2. The combination, substantially as set forth, of the stop, its lip, and the bearing-finger, which opens the mouth of the tube.

3. The combination, substantially as set forth, of the stop, its lip, the presser-foot, and the bearing-finger.

4. The combination, substantially as set forth, of the stop, its lip, the presser-foot, the cylinder, the bearing-finger, and the nipper which seizes the edge of the paper tube when depressed by the bearing-finger.

5. The holders *H*, mounted upon the cylinder, and swinging inward thereupon to clamp the bag upon the cylinder, and to form creasing-edges upon which the bottom of the paper tube may be folded, substantially as set forth.

6. The combination, substantially as set forth, of the working-cylinder, the nipper, and the holders *H*, for the purposes specified.

7. The combination, substantially as set forth, of a working-cylinder having one portion of its periphery flattened, and the holders *H*, having their under sides flattened, to rest upon the flat part of the cylinder, and the upper sides rounded to conform to the curve of the cylinder, for the purposes specified.

8. The combination, substantially as set forth, of the cylinder, the holders *H*, oscillating in bearings thereon, and a camway and

lifting device, which causes the holders to rise and swing clear of the paper tube in retracting, and to drop vertically upon it in advancing, to avoid pushing it out of place.

9. The combination, substantially as set forth, of the cylinder, the nipper, the holders H, and the folding-finger.

10. The combination, substantially as set forth, of the working-cylinder and its laterally-moving clamps J, which hold the bag upon the cylinder after the first fold is made.

11. The combination, substantially as set forth, of the cylinder, the oscillating holders or leaves H, and the laterally-moving clamps J, which rest partially upon the leaves.

12. The combination, substantially as set forth, of the cylinder, the nipper which determines the angles of the diagonal folds, and the clamps J, which determine the width of the bottom of the bag.

13. The combination, substantially as set forth, of the working-cylinder, the pasting mechanism, and the shipping-lever, which automatically throws the pasting mechanism out of action when there is no paper tube on the cylinder.

14. The combination, substantially as set forth, of the actuating-cylinder, the clamps J, and their retracting-springs.

15. The combination, substantially as set forth, of the working-cylinder, the clamps J, and the pasting-roller.

16. The combination, substantially as set forth, of the working-cylinder, the holder-

leaves H, forming part of the periphery of the cylinder, the clamps J, and the creaser, which works over the clamps, and forms the creases for the final folds of the bottom of the paper tube.

17. The holder-leaves H, faced with an elastic material, as set forth, to form a portion of the surface upon which the creaser acts.

18. The combination, substantially as set forth, of the working-cylinder, its clamps J, the creaser, and the traveling folder, moving faster than, but in the same direction as, the cylinder, for the purpose specified.

19. The combination, substantially as set forth, of the working-cylinder, its clamps J, the creaser, and the stationary folder to form the last fold.

20. The combination, substantially as set forth, of a rotating shaft, a paste-roller mounted loosely thereon, and a shipper which connects and disconnects the two without displacing the paste-roller.

21. The combination, substantially as set forth, of the working-cylinder and the oscillating lever pivoted thereto, which is automatically moved by the bag to operate upon the shipping-lever.

In testimony whereof I have hereunto subscribed my name.

CHAS. B. STILWELL.

Witnesses:

E. C. DAVIDSON,
JOS. I. PEYTON.