

Sheet 1. 2, Sheets.

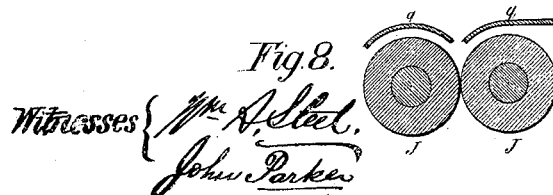
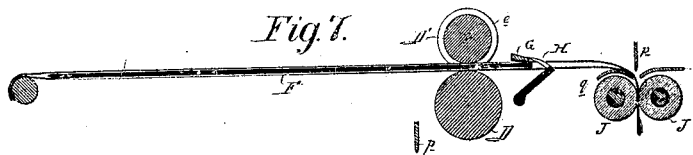
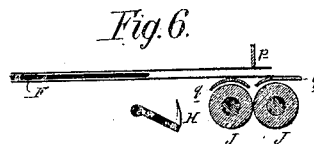
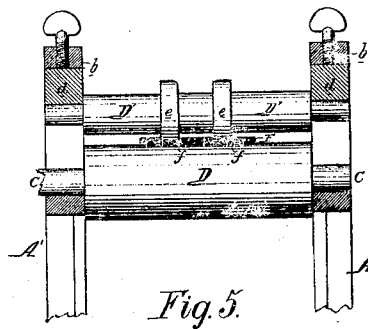
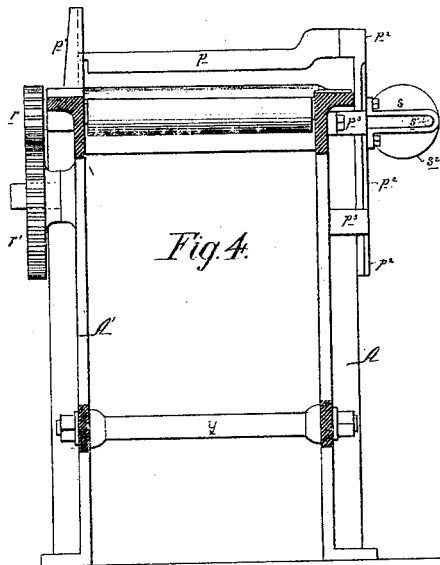
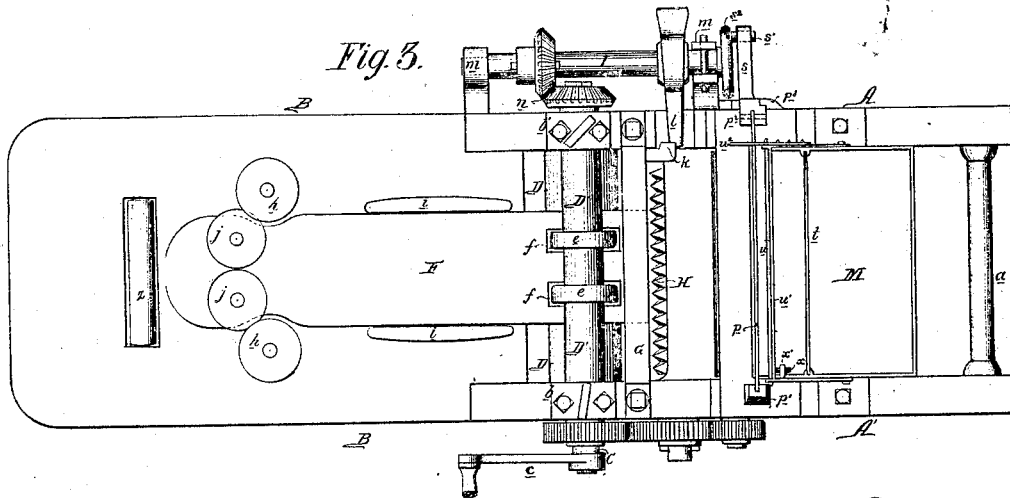
Patented Feb 21 1871.

Peter E. Armstrong
by his Atty.
Horton and Son

P. E. Armstrong,
Bag Machine.

No 112005.

Patented Feb 21. 1871.



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by his Atty
Howman and Son

Witnesses {
Mr. A. Steel,
John Parker

UNITED STATES PATENT OFFICE.

PETER EDWARD ARMSTRONG, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. 112,005, dated February 21, 1871.

To all whom it may concern:

Be it known that I, PETER EDWARD ARMSTRONG, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improved Paper-Bag Machine, of which the following is a specification:

My invention consists of certain mechanism for making paper bags, the construction and operation of the said mechanism being too fully described hereafter to need a preliminary explanation here.

The object of my invention has been to produce a simple, cheap, and compact machine for converting tubes of paper into bags, the machine being especially adapted for use by grocers and others who desire to make paper bags for their own consumption.

Figure 1, Sheet 1, is a side elevation of my improved paper-bag machine; Fig. 2, a vertical section of the same; Fig. 3, Sheet 2, a plan view; Fig. 4, a transverse vertical section on the line 1 2, Fig. 3; Fig. 5, a transverse section on the line 3 4, Fig. 3; and Figs. 6, 7, and 8, detached and enlarged views, illustrating portions of my invention.

A and A' represent the opposite side frames of the machine, secured together by cross-pieces *a*; and B is a platform or table, secured at one end to the frames, and supported by diagonal rods or brackets *a'*. The driving-shaft C has its bearings in the vertically-slotted standards *b* and *b'* of the opposite side frames, and is provided between the latter with a roller, D. The driving-shaft has also, at one end, a crank, *e*, if it is to be operated by hand, or a suitable pulley if it is to be driven by power. A roller, D', having two or more projections or collars, *e*, which bear upon the roller D, has its bearings in the standards *b* and *b'*, and is arranged to yield vertically to a slight extent in the said standards, such movement being permitted by gum blocks *d*, or other suitable springs, regulated by set-screws, which bear upon the journals of the said roller.

The object in cutting away the roller D', so as to form the collars *e*, is to permit the introduction between the same and the roller D of a plate, F, which has slots *f* for the admission of the said collars. The plate F rests upon the table or platform B, is prevented from moving laterally by grooved rollers *h* *h*

and strips *i i* on the said table, and is prevented from moving forward in the direction of the arrow, Fig. 2, to a point beyond a fixed cross-bar, G, on the frame of the machine, by means of wheels *j j*, hung to the upper surface of the said plate, and having rounded edges adapted to the grooves in the wheels *h h* of the table. The knife or cutter H, by which the tube of paper from which the bags are to be made is severed, in the manner described hereafter, consists of a blade hung to, and arranged to freely oscillate in, the opposite side frames of the machine, and has, in the present instance, a serrated cutting-edge, which, when the cutter is raised, can be brought in contact with the cross-bar G. The cutter is prevented from falling to a point lower than is shown in Fig. 2 by a projection, *k*, coming in contact with any stationary part of the machine, and the said cutter is operated by means of a revolving arm, *l*, which strikes this projection *k*, and which is hung to a spindle, I, arranged to turn in brackets *m m* on the side frame A, the said spindle deriving its motion from the driving-shaft through the medium of the bevel-gears *n*.

The folding of the tube of paper to form the bottoms of the bags is effected by means of a vertically-reciprocating blade, *p*, and stationary folding-plates *q q*, secured to the frame of the machine, and arranged at a short distance apart from each other, as best observed in Fig. 8. Beneath these folding-plates there are two drawing-rollers, J J, which are clothed with gum-elastic, or other suitable material, and which are driven by means of the cog-wheels *r*, *r*¹, and *r*² from the driving-shaft C, as shown in Fig. 1. One end of the reciprocating blade *p* slides in a grooved standard, *p*¹, on the side frame A', and its opposite end is secured to a bar, *p*², which slides in guides *p*³ on the side frame A. The bar *p*² has a slotted arm, *s*, in which slides the pin *s*¹ of a crank-wheel, *s*², at one end of the spindle I, the desired vertical reciprocating motion being thus imparted to the blade *p*. A paste-reservoir, M, in which is a sliding gate, *t*, to regulate the supply of paste to the blade *p*, is secured to the frame of the machine at the rear of the said blade. The paste is fed to the latter when at the limit of its upward movement by means of a plate, *u*, which is hinged to a

swinging frame, u^1 , hung to the opposite sides of the reservoir, and having an arm, u^2 , which overhangs the blade p , so that it may be raised with the latter. The plate u has a pin, x , which is brought in contact with a bent arm, x^1 , on the reservoir when the frame u^1 is raised, so that the said plate may be thrown outward against the blade p , in order to deposit upon the latter the supply of past which it has raised from the reservoir.

Operation: The machine can be driven by power; but it is more especially intended as a hand machine, to be used by grocers and others who desire to make paper bags for their own consumption.

The bags are not made from a flat strip or sheet of paper, but from paper manufactured in the form of a tube without any joint, the machine being consequently much less complicated than those heretofore used, which first form the tube from a flat strip of paper before proceeding to the formation of the bags. The flattened tube of paper is wound upon a roller hung to the under side of the machine—to the cross-bar y in Fig. 2, for instance—and the tube is passed upward around a roller, z , in the plate B, and is then passed over the plate F, the latter being contained entirely within the tube when the machine is in operation, as shown in Fig. 7. The tube of paper is permitted to pass freely between the grooved edges of the wheels h , and the rounded edges of the wheels j ; but the said wheels effectually prevent any forward movement of the plate F. The tube is fed forward to the folding and pasting devices and cutter H by means of the drawing-rollers D and D', the collars $e e$ of the latter acting upon the paper, but, owing to the slots f , being free from contact with the plate F.

The operation of the folding and pasting devices is as follows: While the end of the tube is being fed toward the folding-plates $q q$, the blade p is raised, as shown in Fig. 2, and supplied with paste by the plate u , and when the end of the paper tube has been brought to the position shown in Fig. 6, the blade p descends and forces the end of the tube between the folding-plates $q q$, thus folding, and at the same time pasting, the same to form the bottom or closed end of the bag. The bag thus folded and pasted is drawn downward by means of the rollers J J, and while securely held by the same, as shown in Fig. 7, is severed from the tube by the cutter H, the

action of the latter being as follows: The plate F, which is contained within the tube, extends to a point beneath the edge of the cross-bar G, which the cutter strikes in its upper movement. The said plate thus serves to separate the two sides of the tube, there being a space between them corresponding in width to the thickness of the plate. The cutter crosses this space in severing the bag from the tube, as shown in Fig. 7, so that, in consequence of the angle at which the cutter operates, one edge or side will project beyond the other, and the severed end of the tube will also be cut in a corresponding manner, so that in forming the bottom of the next bag the paste may reach both edges of the same, and thus form a tight joint when the folding is completed.

The cutter H, immediately after severing the tube, drops to its former position, Fig. 2, or may be furnished with a spring to accelerate such movement, in order that there may be no interruption to the further feeding of the tube and formation of the next bag.

A main peculiarity of my invention, and a point in which it differs most essentially from other machines of its class, is that the bottom or closed end of the bag is entirely completed and firmly held before the said bag is severed from the tube. This insures a clean cut, the tube being held at both ends, so that there can be no danger of slipping.

My machine possesses several other advantages and peculiarities, among which may be mentioned its compactness and simplicity, these features rendering it of especial utility as a hand machine.

I claim—

1. The combination of the reciprocating knife H and the rotating arm l , operating as set forth.
2. A reciprocating or vibrating blade, p , in combination with a plate, u , by which paste is transferred from a reservoir to the said blade, substantially in the manner described.
3. The combination of the grooved rollers $h h$, wheels $j j$, and plate F.

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

PETER EDWARD ARMSTRONG.

Witnesses:

WM. A. STEEL,
LOUIS BOSWELL.