

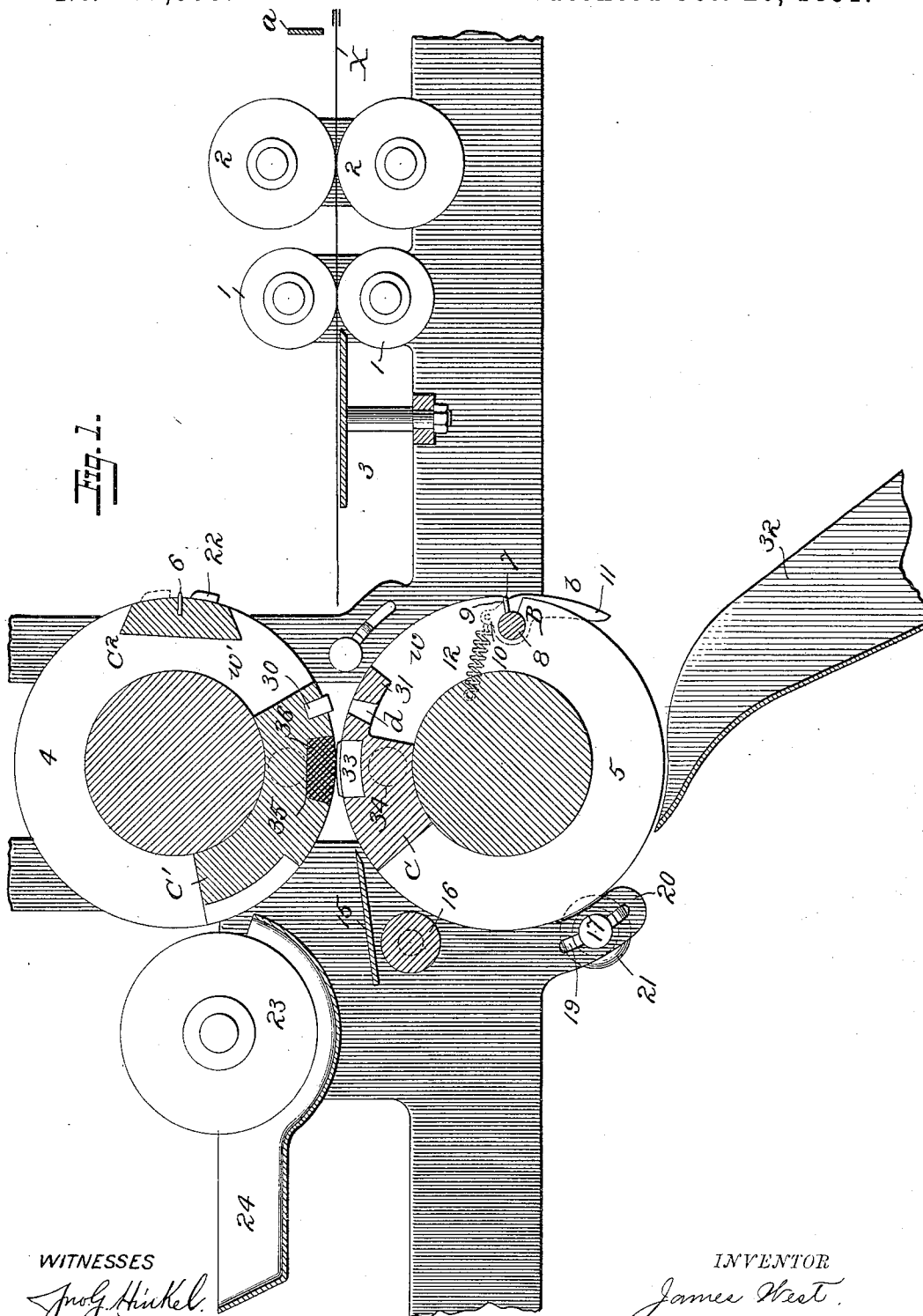
(No Model.)

3 Sheets—Sheet 1.

J. WEST.
MACHINE FOR MAKING PAPER BAGS.

No. 461,599.

Patented Oct. 20, 1891.



WITNESSES

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W. S. McArthur.

INVENTOR

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(No Model.)

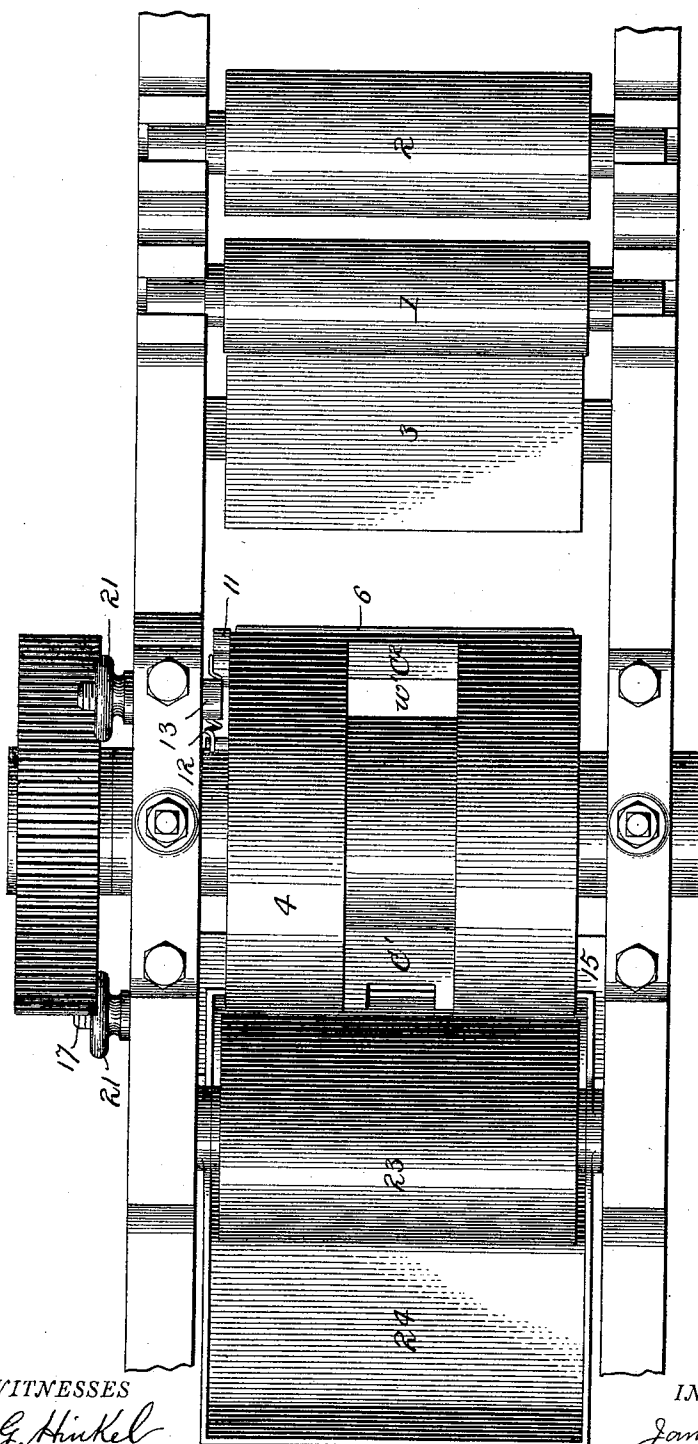
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Fig. 2.



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Fig. 3.

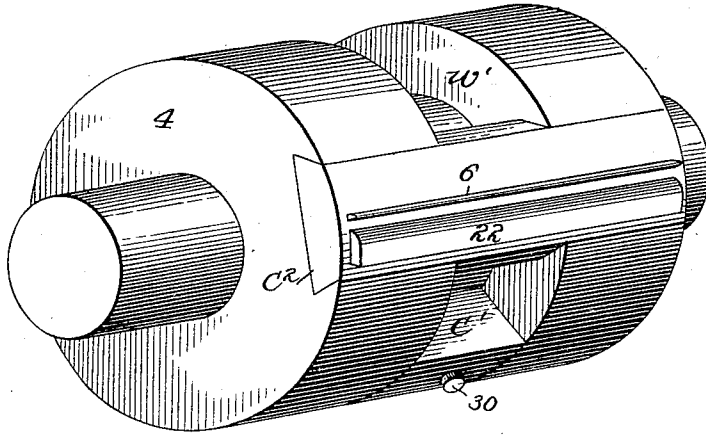
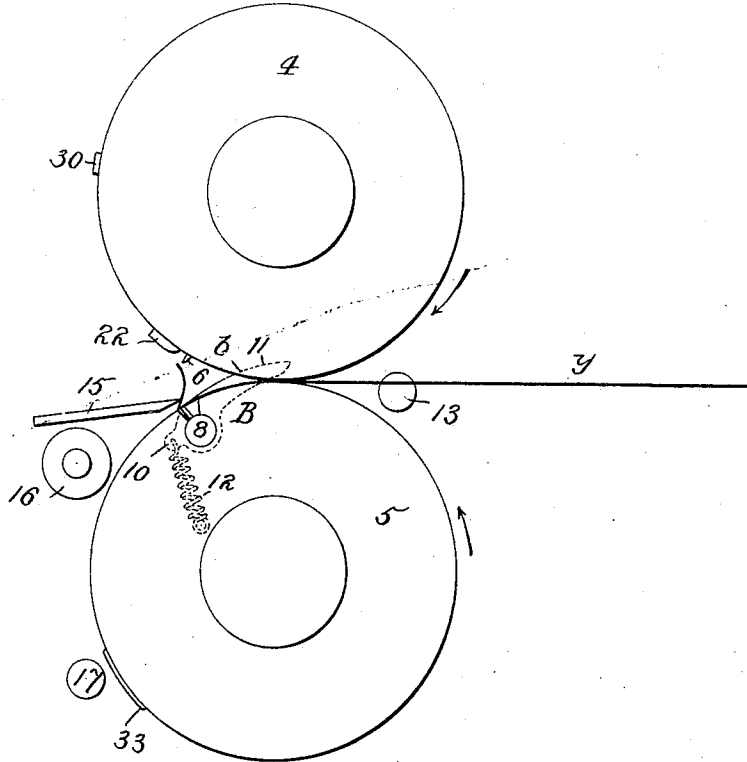


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES WEST, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO SAMUEL CUPPLES, OF SAME PLACE.

MACHINE FOR MAKING PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 461,599, dated October 20, 1891.

Application filed November 11, 1890. Serial No. 371,050. (No model.)

To all whom it may concern:

Be it known that I, JAMES WEST, a citizen of the United States, residing at St. Louis, Missouri, have invented certain new and useful Improvements in Machines for Making Paper Bags, of which the following is a specification.

My invention relates to that class of machines for making paper bags in which a traveling paper is folded and pasted to form a tube cut into sections and then folded transversely at the end and pasted to form the bottom; and my invention consists in devices constructed as fully set forth hereinafter whereby to facilitate the formation of the bottoms at high rates of speed and the punching and printing of the bags.

In the accompanying drawings, Figure 1 is a sectional elevation of sufficient of a paper-bag machine to illustrate my improvements. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a perspective view of one of the bottoming-rolls. Fig. 4 is a sectional elevation showing the bottoming-rollers and adjuncts in the different positions.

The appliances by means of which a continuous strip X of paper is folded into a flat tube and pasted and presented to the action of a reciprocating or revolving knife or breaker *a* are of ordinary character and need not be illustrated or particularly described, the separate tubular sections thus formed being then separately conveyed forward by feed-rolls 1 1 2 2 over a suitable platform 3 toward the bottoming-rolls 4 5.

In place of the usual appliances for pasting and folding each tubular section at one end to form the closed bottom I make use of a creaser-blade 6 upon one of the rolls and a gripper B upon the other roll, so arranged that the blade will force a portion of the tube transversely between the jaws of the gripper, which will hold the same until the projecting pasting end is turned down. The creaser-blade and gripper may be arranged and constructed in different ways, but, as shown, the blade 6 is a transverse radial blade carried by the upper roll 4, while the gripper B is carried by the lower roll 5 and consists of a blade 7, secured to a rock-shaft 8, so as to swing to and from the edge 9 of a slot in the roll 5, the blade 7 and

edge 9 forming gripper-jaws for holding the fold of paper, as described hereinafter. At one end of the shaft 8 is a two-armed lever *b*, the short arm 10 being connected to a spring 12, fastened to one end of the roll and tending to rock the shaft 8 in the direction of the arrow to bring together the jaws 7 and 9, while the long arm 11 extends so as to strike an adjustable stop 13 at the moment when the blade 6 is in position to enter between the jaws 7 and 9. When the bottoming-rolls are moving in the direction of the arrow and the end of a tubular section *y* is in proper time for the creaser-blade 6 to make contact with the paper at a distance of about three-quarters of an inch from the end, the continued revolution of the rolls and the action of the stop 13 will cause the jaws 7 and 9 to be opened and the creaser-blade to fold the paper transversely between the jaws, and as the arm 11 passes from contact with the stops 13 the spring 12 will bring the jaws together, causing them to clamp the fold of paper at the point where it is creased and hold the same tightly. The end of the paper-section has applied to its face a layer of gum or paste either before or after the creasing above described, and as said end is carried from beneath the roll 4 it makes contact with a stationary block 15, which turns the said end upward and then over, after which the end passes beneath a roller 16, that flattens it down upon the body of the paper-section beneath so firmly that it adheres thereto. As the section still clamped between the jaws 7 9 is carried farther around the roll 5, the arm 11 of the lever *b* makes contact with an adjustable stop 17, which depresses said arm, rocks the shaft, and separates the jaws, thereby releasing the bag. By these means a sharp, straight, clean end fold is formed across the tubular strip, whatever may be its thickness, so that the bag-bottom is regular and uniform and absolutely at right angles to the sides of the bag, while the folding is effected with certainty and can be performed with much greater rapidity than by the appliances generally used for this purpose. The stops 13 and 17 are supported so as to be adjustable to the different positions, thereby determining exactly the time when the jaws shall open and let go the strip. One mode of

adjustment is illustrated, and consists in extending the contracted ends of the stops each through a slot 19 in a fixed plate 20, and applying a nut 21 to a thread on said end, so that by loosening the nut the stops may be adjusted and thereafter may be adjusted by tightening the nut.

Different appliances may be used for applying the paste to the face of the bag-section near its end. I prefer, however, to make use of a type 22, projecting beyond the face of the roll 4 and receiving paste from a paste-feeder roll 23, turning in a trough 24. The type 22 is preferably arranged slightly in advance of the creaser 6, and the bags are so fed that the end of each bag is brought to position from the type as the end enters between the rolls 4 and 5, so that the row of paste is applied prior to the action of the creaser, after which the folding down of the end by the action of the blade 15 and roller 16 causes it to be pasted against the body. If desired, however, the type 22 may occupy the position shown in dotted lines *y* in Fig. 1, in which case the paste will be applied across the body of the strip end as upon the folded portion or flap, and the latter will be folded down against the pasted surface.

It is desirable to punch the bags near their ends to form perforations, in which a loop of cord or wire may be passed for the purpose of holding a bunch of bags together and as a support for holding the bunch upon a nail. Heretofore it has been customary to punch these openings by the use of ordinary dies, and when it is done in the machine the pieces punched out are apt to find their way to the bearings, journals, and in contact with the pasted portions of the strip. To avoid these objections and facilitate the rapid and effective punching of the bags I place the punch of suitable character upon the bottoming-rolls preferably in such position that the end of the bag will be punched just prior to its leaving the rolls. One form of punching devices which has proved to be effective is shown in the drawings and consists of a pin 30, projecting beyond the surface of the roll 4, and a die 31, having an opening *d* extending completely through it and adapted to receive the end of the pin 30, these parts being arranged so that a punch will act upon a bag near the open end of the same just as the latter passes between the rolls. The pin 30 is preferably fitted detachably in a socket in the roll 4 or in a carrier secured to the roll, as hereinafter set forth, while the die 31 has a recess *w* below it, so that as the pin punches through the die may enter said recess. As shown, the recess *w* is an annular recess formed by cutting a peripheral groove in the roll 5, and a chute 32 extends into this recess so as to receive the punched pieces and convey them to a suitable receptacle, thus preventing them from being dispersed, as heretofore. By forming the roll 5 with an annular groove or recess I am enabled to secure a desirable support not

only for the die 31, but also when the bags are to be printed for the type 33, the said die and type being carried by or forming a part of a block C, which fits in the recess *w* and is capable of being turned to any position radially therein and of being tightly secured by means of a radially-set screw 34. It will be seen that the side and bottom of the recess constitute guides which insure absolutely the proper adjustment of the block C and the parts carried thereby, whatever may be the position in which the said block is set. In like manner the parts supported by the roll 4 may be carried by one or more blocks C', fitting in an annular groove or recess *w'* in said roller, adjustable therein and secured by radial set-screws or otherwise. In such case the pin 30 fits a socket in block C', which also has a socket 35 for receiving a block of gum 36, which acts as a block for the type 33, so as to afford a yielding bed for the paper when the impression is made. As the creaser-blade 6 and the paste-type 22 must extend completely across the roll, they cannot be carried by a block adjustable in the recess *w'*. I therefore form a longitudinal socket 37 in the face of said roll for the reception of a transverse block C², preferably dovetailed and capable of being moved endwise into its position and supporting the creaser-blade and the type.

It will be seen that with the construction above described the operating parts of the said different rolls may be readily adjusted, so as to be brought to their proper positions for co-operating to produce the desired results, and that they are properly guided and supported whatever may be the position in which they are set, and that any one of the operating parts may be readily removed whenever necessary for alterations or repairs.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination, with the devices for forming a paper tube, of bottoming-rolls, one provided with a punch and the other with a die, substantially as described.

2. The combination, with the devices for forming and feeding a paper tube, of rolls, one carrying a projecting pin and the other being formed with a circumferential groove, in which is placed a die adapted to co-operate with the said pin to punch the said tube, and a chute having its end situated adjacent to the circumferentially-grooved portion of the said roller to convey away the pieces of paper punched out by the said projection and die, substantially as described.

3. The bottoming-rolls provided with peripheral annular recesses or grooves, each having a block adjustably secured therein, and supporting part of the operating devices carried by said roll, substantially as set forth.

4. In a paper-bag machine, the combination, with the tube-forming devices, of an upper bottoming-roll and a lower bottoming-roll

having a circumferential groove, a block adjustable in said groove and means for holding the block in the place to which it is adjusted, and a type carried by said block, substantially as described.

5 5. The combination, in a paper-bag machine, of the bottoming-rolls 4 and 5, each circumferentially grooved, the roll 4 having situated in its groove a block C', carrying a
10 punch and a type, and the roll 5, having mounted in its circumferential groove a block carrying a yielding bed adapted to come opposite the aforesaid type, and a die adapted
15 to come opposite the aforesaid punch, substantially as described.

6. In a paper-bag machine, the combination, with the lower roll and clamping devices and type, of a roll 4, having a circumferential groove and a transverse recess, the block C', mounted in the said groove and carrying a bed 20 36, and a block C², mounted in the said recess and carrying the blade 6, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 25 two subscribing witnesses.

JAMES WEST.

Witnesses:

J. M. KERR,
N. G. PIERCE.