

No. 668,621.

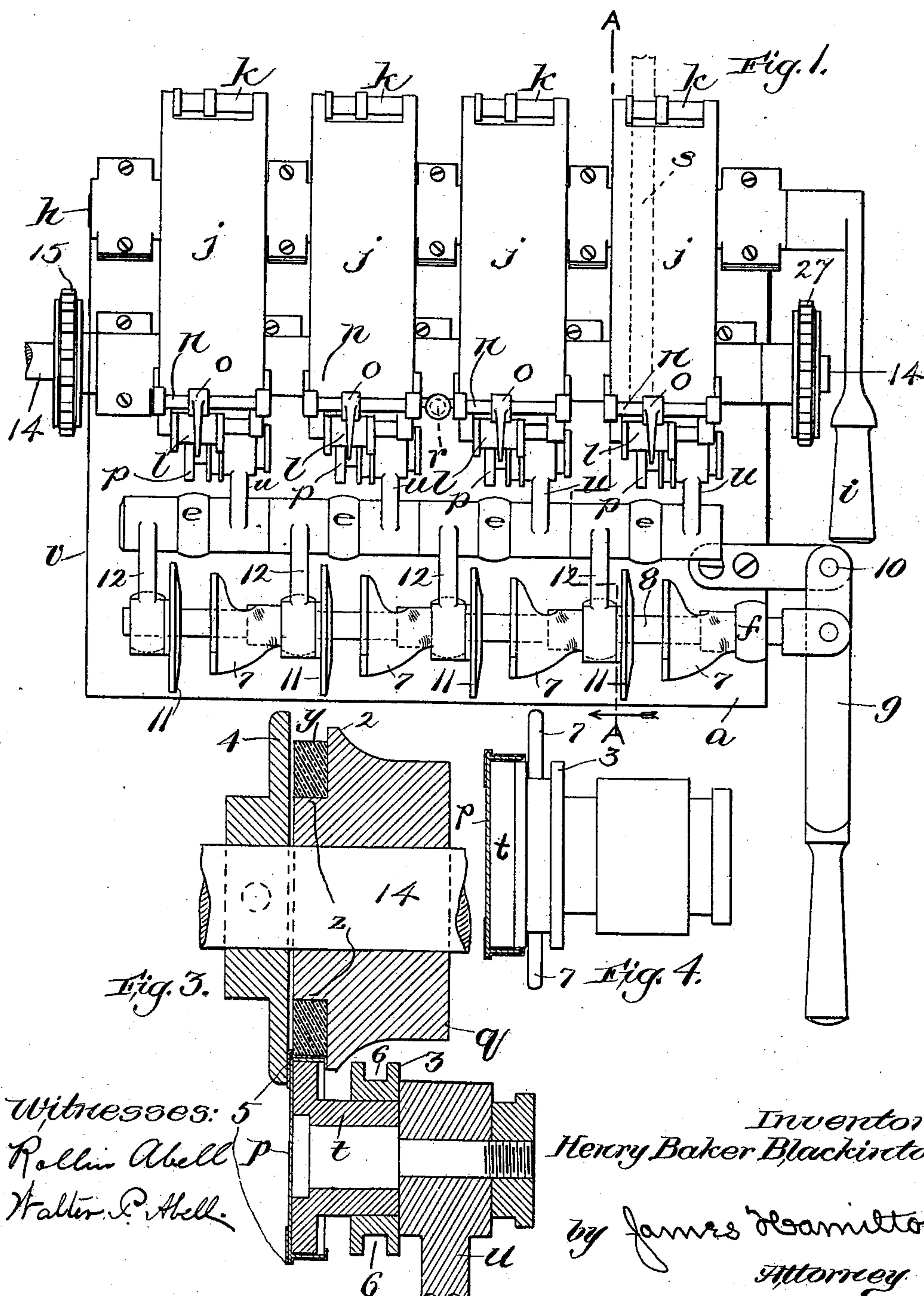
Patented Feb. 26, 1901.

H. B. BLACKINTON.
BOX COVERING MACHINE.

(No Model.)

(Application filed Sept. 1, 1900.)

3 Sheets—Sheet 1.



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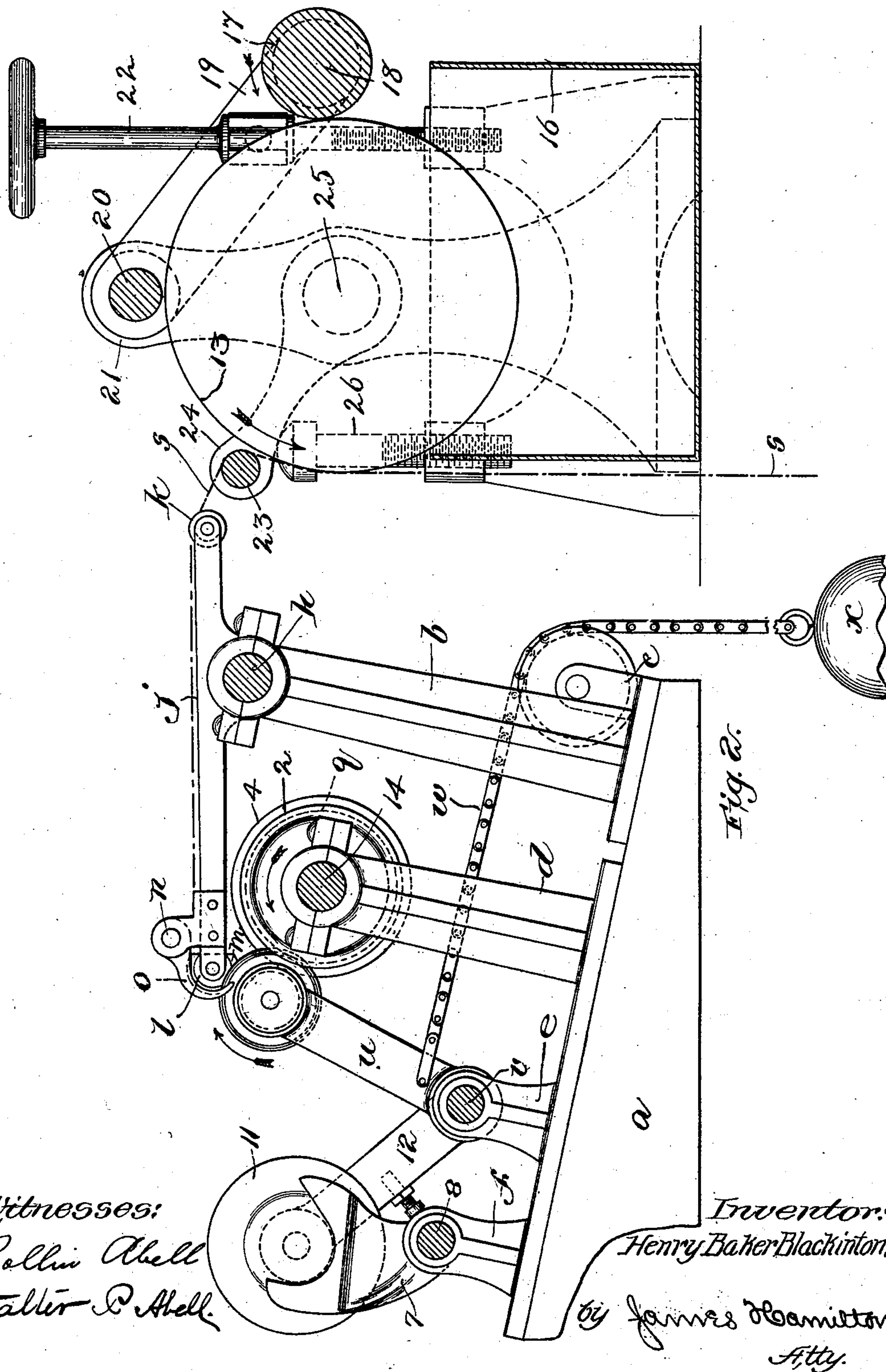
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Witnesses:
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Walter P. Abell.

Inventor:
Henry Baker Blackinton,
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Atty.

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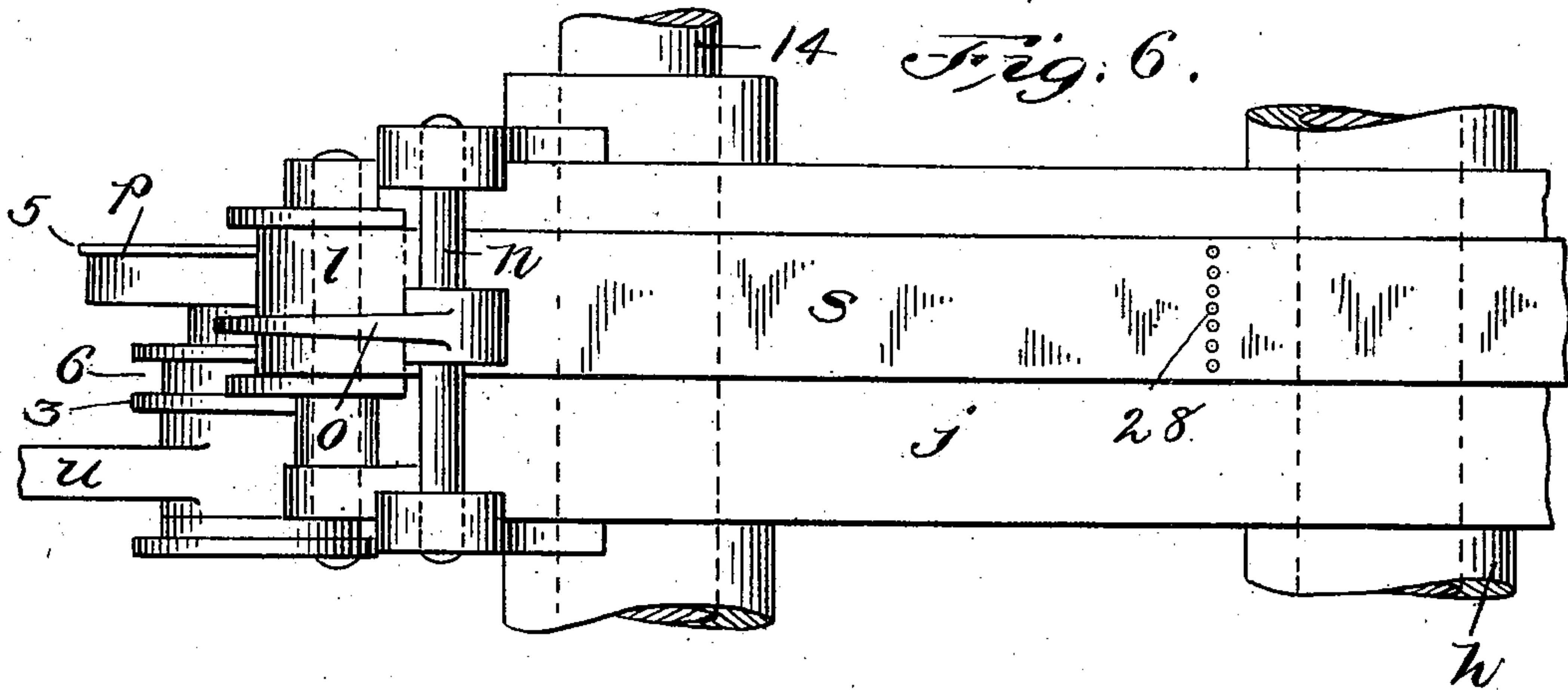
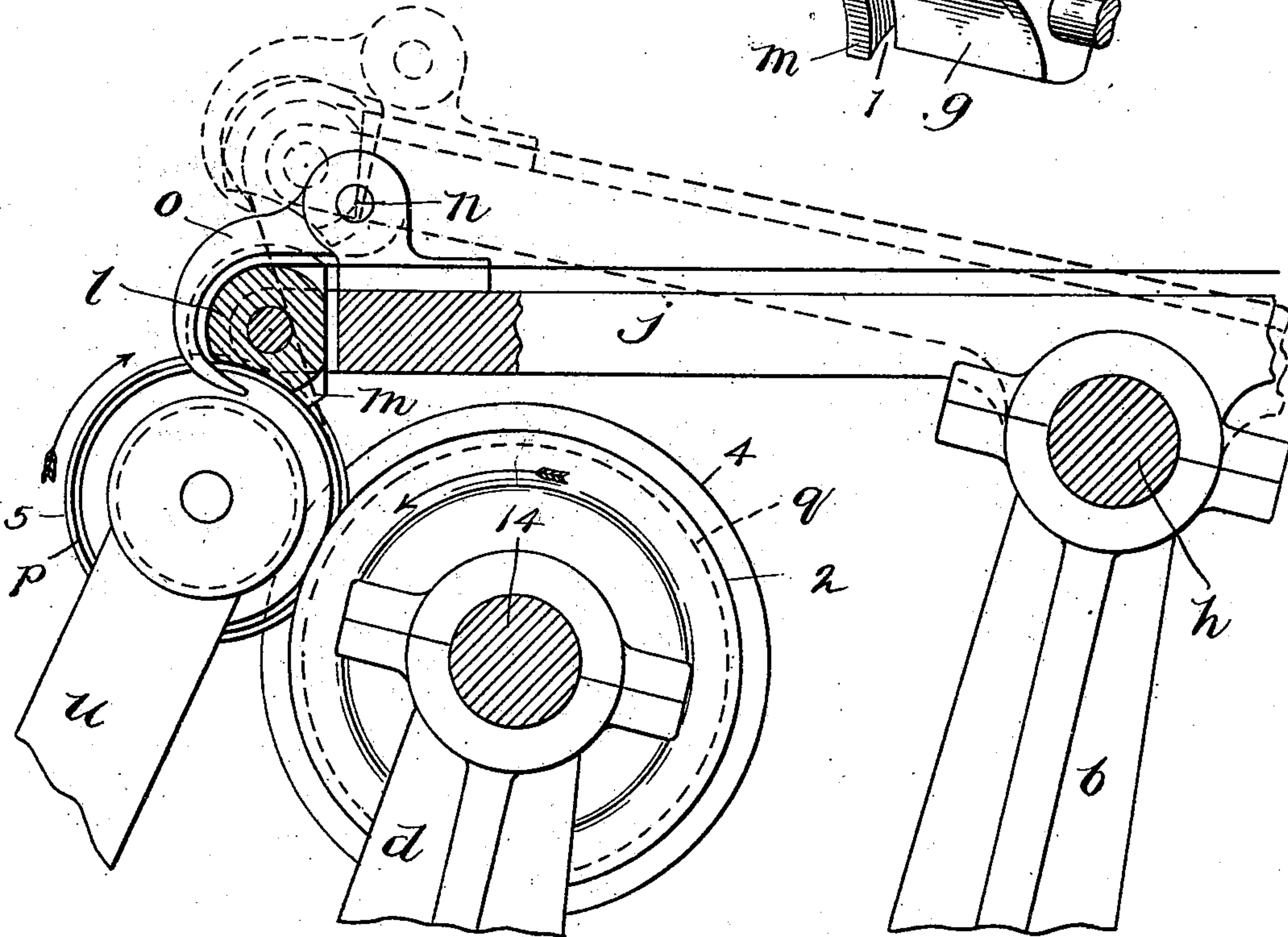


Fig. 5.

Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY BAKER BLACKINTON, OF WINTHROP, MAINE, ASSIGNOR OF TWO-THIRDS TO WILLIAM FRANCIS COX, OF MILTON, AND MAURICE EDWIN GINN, OF WINCHESTER, MASSACHUSETTS.

BOX-COVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 668,621, dated February 26, 1901.

Application filed September 1, 1900. Serial No. 28,797. (No model.)

To all whom it may concern:

Be it known that I, HENRY BAKER BLACKINTON, of Winthrop, in the county of Kennebec and State of Maine, have invented a new and useful Improvement in Box-Covering Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of my new box-covering machine. Fig. 2 is a sectional view on line A A, Fig. 1, and shows, besides, the apparatus for covering with glue one side of the covering-strip. Fig. 3 is a detail view showing, on an enlarged scale, the press-roll, box-holder, and box. Fig. 4 is a detail view showing the manner in which the strip is pressed against the inner surface of the box. Fig. 5 is a detail view showing in elevation the presser-cap, press-roll, box-holder, plunger, and the guiding mechanism for the covering-strip. Fig. 6 is a plan view of what is shown in Fig. 5. Fig. 7 is a perspective view of the presser-cap.

My invention relates to improvements in machines which apply an adhesive covering-strip to boxes of pasteboard or like material.

The object of my invention is to provide a machine of the class described which shall press the strip on the side surface of the box, turn one edge portion of the strip over and press it upon the bottom of the box, and turn the other edge portion of the strip over and press it on the inner side surface of the box.

One feature of my invention is the mechanism by which the covering-strip is pressed against the outer side walls of the box and by which the box is rotated. A press-roll receives its motion of rotation from the driving mechanism and by frictional contact with the box transmits its rotary motion to the box and the box-holder. The strip is guided so that it passes between the press-roll and the box to be covered, and a flange on the press-roll turns one edge portion of the strip over the upper edge of the box and substantially parallel with the bottom of the box preparatory to being pressed against the inner side walls of the box by means hereinafter described.

Another feature of my invention is the device for initially pressing the strip upon the box. This device is a presser-cap, the under surface of which is adapted to fit closely the side surface of the box. The presser-cap is formed with a flange which initially turns one edge portion of the strip over upon the bottom of the box. The under surface of the presser-cap presses the strip initially upon the side surface of the box.

A third feature of my invention is the means devised for guiding the strip between the press-roll and the box to be covered. Over the presser-cap is loosely mounted a curved guide-finger. The covering-strip passes between the curved guide-finger and the presser-cap. The weight of the curved guide-finger forces the covering-strip in the proper direction under the presser-cap and between the press-roll and the box and prevents the buckling of the strip at the beginning of the operation.

A fourth feature of my invention is the rotary disk which presses the edge of the strip against the bottom of the box after it has been initially turned by the presser-cap.

A fifth feature of my invention is the means devised for pressing the strip against the inner side surface of the box. After the edge of the strip is turned over the top edge of the box substantially parallel to the bottom of the box plungers which closely fit the box are forced into the box and press the inturned edge portion against the inner side surface of the box. The bottom of the box is during the movement of the plungers supported by abutments secured to the frame of the machine.

Other features of my invention will be pointed out in the description and claims which follow.

My invention consists in the mechanisms and combinations of mechanisms hereinafter described and claimed.

In the drawings illustrating the principle of my invention and the best means now known to me of applying that principle, *a* is the base, upon which are the standards *b*, *c*, *d*, *e*, and *f*. (See Fig. 2.) Journaled in the

upper ends of the standards *b* is a shaft *h*, fast to one end of which is a handle *i*. Secured to the shaft *h* are plates *j*, the ends of which are raised and lowered by turning the shaft *h* by means of said handle *i*. In the rear end of each of the plates *j* is journaled a roll *k*, over which the covering-strip *s* passes from the gluing-roll. (See Figs. 1 and 2.) In the front end of the plate *j* is journaled a presser-cap *l*, formed with a flange *m*. Fig. 7 shows this presser-cap in perspective, and Figs. 5 and 6 show it in sectional elevation and in plan, respectively. The lower side *g* of the presser-cap *l* is so shaped that it fits snugly over a comparatively large portion of the side surface of the box *p* which is to be covered. It is therefore adapted to press initially a comparatively large surface of the covering-strip *s* into contact with the side of the box. The groove 1 receives the projecting bottom edge of the box, and the flange *m* fits closely down upon the bottom of the box. This flange *m* initially turns an edge portion of the strip over and presses it upon the bottom of the box. The upper surface of the presser-cap *l* is curved and coöperates with the curved guide-finger *o* to guide the strip under the presser-cap, and thereby to prevent buckling of the strip when the presser-cap is lowered upon the box. (See Fig. 5.) The presser-cap *l* is free to rock slightly in its bearings. Above and to the rear of the presser-cap *l* is a rod *n*, upon which is loosely mounted the curved guide-finger *o*. When the plate *j* is raised, as shown in dotted lines, Fig. 5, preparatory to severing the strip *s*, the finger *o* is thrown outwardly by the straightening and tension of the strip *s*. After the strip *s* is severed the weight of the finger *o* causes it to fall and carry the end of the strip *s* under the surface *g* of the presser-cap *l*. This feature of my invention prevents buckling of the strip *s* when the presser-cap *l* is lowered upon the box *p*. The finger *o* falls to one side of the box *p*, and so does not interfere with the latter. (See Figs. 1 and 5.) A spring *r* is attached to a block carried by the two middle plates *j*. This spring *r* abuts against the supporting-frame of the machine when the plates *j* are in their lowered position, and it serves to regulate the pressure exerted upon the covering-strip *s* by the operator by means of the handle *i* and through the presser-cap *l*.

The box *p* is mounted upon the box-holder *t*, which is journaled in the upper end of the lever *u*. The lever *u* is fulcrumed on the shaft *v*, journaled in the standards *e*, and by the chain *w* is connected with the weight *x*. This weight *x* holds the box *p* against the rubber band *y*, which encircles the cylindrical boss *z* on the press-roll *q*. (See Fig. 3.) The press-roll *q* is formed with a flange 2, which turns one edge of the covering-strip inwardly over the mouth of the box. Coöperating with the press-roll *q* is a disk 4, which presses the other edge of the covering-strip (the edge

turned over by the flange *m* on the presser-cap *l*) upon the bottom of the box. A narrow space separates the disk 4 from the press-roll *q* to permit the flange or projecting edge 5 at the bottom of the box to enter between the disk and the press-roll. The disk 4 may be adjusted along the shaft 14 to vary the space between the disk and press-roll to accommodate different thicknesses of edge 5 of the box. Mounted slidably on the box-holder *t* is a plunger 3, formed with a groove 6, in which engage the jaws of a shipper 7 when the box-holder *t* is pulled down. (See Figs. 2, 3, and 4.) The shippers 7 are fast upon a shaft 8, supported in the standard *f*, and one end of which is secured to a lever 9, fulcrumed at 10. A beveled back plate or abutment 11 is supported by the arm 12, mounted on the shaft *v*. (See Figs. 1 and 2.) One edge of the strip having been turned inwardly over the mouth of the box by the flange 2, as above explained, the lever *u* is pulled down until the jaws of the shipper 7 engage in the groove 6 of the plunger 3. The lever 9 is then thrown inwardly, thereby moving the shaft 8 and the shippers 7, fast upon said shaft, in the same direction. The inward movement of the shippers 7 forces the plungers 3 into the boxes, and thereby presses the intumed edge of the strip against the inner side of the walls of the box. (See Fig. 4.) The beveled back plate 11 supports the box during this operation.

In Fig. 2 is shown an apparatus for covering one side of the strip with an adhesive substance, as glue. The roll 13 is made to rotate by the connection (a sprocket-chain, not shown) between its shaft and the sprocket-wheel 15, fast on the shaft 14, which is the main shaft of the machine. The lower part of the roll 13 is immersed in the adhesive liquid—for example, glue—in the tub 16. A wiper-roll 17, driven from the sprocket-wheel 27, is rotatably mounted on the shaft 18, carried by the hangers 19, which depend from the rod 20, supported in standards 21. An adjusting-screw 22 is secured to one of the hangers 19 and adjusts the pressure between the two rolls, and thereby the amount of glue upon the roll 13. The covering-strip *s* is led from the supply (not shown) over the rod 23, mounted in levers 24, fulcrumed on the shaft 25 of the roll 13. The adjusting-screw 26 bears against one of the levers 24 and adjusts the height of the rod 23, and thereby the extent of surface of the roll 21 which contacts with the strip. These adjustments therefore regulate the amount of glue put on the strip *s*.

The operation of my machine is as follows: The boxes *p* which are to be covered are placed by hand upon the box-holders *t*, and the weight *x* is allowed to draw up the levers *u*, and thereby force the boxes *p* against the rubber *y* on press-roll *q*. The operator bears upon the handle *i*, and thereby forces the presser-caps *l* upon the boxes *p* against the tension of the spring *r*. As the presser-cap *l*

approaches the box *p* the strip *s* is held under the lower surface *g* of the presser-cap *l* by the curved guide-finger *o*, which coöperates with curved upper surface of the presser-cap *l*. The strip *s* is therefore prevented from buckling when it contacts with the box. The presser-cap *l* fits closely upon the side of the box and initially compresses a comparatively large surface of the strip *s* into contact with the side of the box. The flange *m* on the presser-cap *l* turns over and presses upon the bottom of the box an edge portion of the strip *s*. Power is applied to the shaft 14, thereby rotating the disk 4 and the press-roll *q* and through the press-roll *q* rotating the box *p* and box-holder *t*. The covering-strip is drawn from the paper-supply over the rod 23 and touches against the gluing-roll 13. It then passes over the roller *k* and the plate *j*, under the guide-finger *o* and over the upper surface of the presser-cap *l*, and thence between the presser-cap *l* and the box *p*. In this way the finger *o*, acting by its weight, guides the strip under the surface *g* of the presser-cap *l* and between the box *p* and the presser-cap *l*. The edge portion of the strip which is turned over initially by the flange *m* of the presser-cap *l* is pressed upon the box-bottom by the rotating disk 4. (See Fig. 3.) The flange 2 of the press-roll *q* turns the other edge portion of the strip *s* inwardly over the mouth of the box. The body portion of the strip *s* is pressed against the side of the box *p* by the surface *g* of the presser-cap *l* and by the rubber *y* on the press-roll *q*. After a sufficient length of the covering-strip is wrapped on the box the main shaft 14 is stopped. The operator then seizes the handle *i* and raises the ends of the plates *j* by turning the shaft *h*. This movement throws the plates *j* into the position shown in dotted lines in Fig. 5. The operator next severs the strips by any suitable cutting mechanism, or if the strip is perforated at proper intervals transversely, as at 28, Fig. 6, the raising of the plates *j* may be made to sever the strip at the proper point. The main shaft may again be set in rotation and the strip smoothed down by the press-roll *q* and the disk 4. The handle *i* is released until the spring *r* rests upon the frame, the presser-cap being kept out of contact with the box at this time by said spring *r*. The box-holders *t* are next drawn down by hand out of contact with the press-rolls *q* and until the box-bottoms rest against the beveled back plates 11. In this position the mouths of the boxes are opposite the plungers 3. To press the inturned edge of the strip upon the inside of the box is the function of the plunger 3, shippers 7, and lever 9. The bottom of the box resting against the beveled plate 11, the operator throws inwardly the lever 9, thereby carrying the shaft 8 and the shippers 7, fast upon that shaft, in the same direction. This movement of the shippers 7 forces the plunger 3 into the box, thereby pressing the inturned edge of the

covering-strip against the inside walls of the box. To remove the box from the box-holder *t*, the lever *u* is rotated until the bottom of the box is free from the beveled plate 11. The covered box is then removed from the box-holder *t* by hand.

What I claim is—

1. As a new article of manufacture, a presser-cap for box-covering machines; said cap having its under surface adapted to fit closely the box to be covered and formed with a flange projecting beyond said surface for turning an edge portion of the covering-strip; and having its upper surface curved and thereby adapted to guide said strip in its passage from said upper surface to said lower surface.

2. In a box-covering machine, a mechanism for rotating the box comprising the combination of a rotary box-holder upon which the box is mounted; a press-roll which rotates said box and its holder by frictional contact with said box and presses the covering-strip on said box; and mechanism for rotating said press-roll.

3. A guiding mechanism for the covering-strip comprising a presser-cap and a guide-finger loosely mounted above said presser-cap; the covering-strip passing between said presser-cap and said guide-finger, and said guide-finger forcing the covering-strip under the presser-cap.

4. A mechanism for pressing the covering-strip against the inner side walls of the box comprising the combination of a rotary box-holder upon which the box is mounted; a plunger mounted upon and free to slide along the shaft of said box-holder; means by which said plunger is moved along said shaft into the box; and means for supporting the box during the movement of the plunger.

5. A box-covering machine comprising a supporting-frame; a rotary box-holder; a presser-cap formed with a flange, a side of said presser-cap being adapted to fit closely the side walls of the box and the flange projecting from said side turning an edge portion of the covering-strip over the presser-cap and over upon the bottom of the box; means to guide the strip between the presser-cap and the box; and means to rotate the box-holder.

6. A box-covering machine comprising a supporting-frame; a rotary box-holder; means to rotate said box-holder; a presser-cap having its under surface adapted to fit closely the box to be covered and formed with a flange projecting beyond said under surface and having its upper surface curved and thereby adapted to guide said strip from said upper surface to said lower surface; a rotary disk which presses upon the bottom of the box the edge portion turned by said flange; and means for guiding the strip over said presser-cap and between said presser-cap and said box.

7. A box-covering machine comprising a supporting-frame; a rotary box-holder; a press-roll which rotates said box-holder by

contact with the box thereon and which presses the covering-strip upon the outer side walls of the box; means for holding the box against the press-roll; a rotary disk for turning an edge portion of said strip over upon the bottom of the box; and means for rotating said press-roll and said disk.

8. A box-covering machine comprising a supporting-frame; a rotary box-holder; a presser-cap, a side of which is adapted to fit closely the side of the box and formed with a flange projecting from said side for turning an edge portion of the covering-strip over upon the bottom of the box; means for guiding the covering-strip between the presser-cap and the box; a press-roll which contacts with the box and thereby rotates it, and which presses the covering-strip upon the outer side walls of the box; means for rotating the press-roll; and means for holding the box in contact with the press-roll.

9. A box-covering machine comprising a supporting-frame; a rotary box-holder; a presser-cap, a side of which is adapted to fit closely the side of the box and formed with a flange projecting from said side for turning an edge portion of the covering-strip over upon the bottom of the box; means for guiding the covering-strip between the presser-cap and the box; a press-roll which contacts with the box and thereby rotates it, and which presses the covering-strip upon the outer side walls of the box; a rotary disk which presses the turned edge portion upon the bottom of the box; means for rotating the press-roll and the disk; and means for holding the box in contact with the press-roll.

10. A box-covering machine comprising a supporting-frame; a rotary box-holder; a press-roll formed with a flange, said press-roll contacting with the box to rotate said box and to press the covering-strip upon the outer side walls of the box and the flange on said press-roll turning an edge portion of the strip over the mouth of the box; means for guiding the strip between the press-roll and the box; means for rotating the press-roll; means for holding the box in contact with the press-roll; and means for pressing the inturned edge portion of the strip against the inner surface of the box.

11. A box-covering machine comprising a supporting-frame; a rotary box-holder; a press-roll formed with a flange, said press-roll contacting with the box to press the covering-strip upon the outer side walls of the box and the flange on said press-roll turning an edge portion of the strip over the mouth of the box; means for guiding said strip between the press-roll and the box; means for rotating the press-roll; means for holding the box in contact with the press-roll; a slidable plunger adapted to fit closely within the box; means for pressing said plunger into the box to press the inturned edge portion against the

inner surface of the box; and means for supporting the box during the movement of the plunger.

12. A box-covering machine comprising a supporting-frame; a rotary box-holder; a presser-cap, a side portion of which is adapted to fit closely the side of the box and formed with a flange which turns an edge portion of the strip over upon the bottom of the box; means for guiding the covering-strip between the presser-cap and the box; a press-roll formed with a flange, said press-roll contacting with the box to press the strip upon the outer side walls of the box and the flange on said press-roll turning the other edge portion of the strip over the mouth of the box; means for rotating the press-roll; means for holding the box in contact with said press-roll; and means for pressing the inturned edge portion of the strip against the inner surface of the box.

13. A box-covering machine comprising a supporting-frame; a rotary box-holder; a presser-cap, a side of which is adapted to fit closely the side of the box and formed with a flange which turns an edge portion of the strip over upon the bottom of the box; a rotary disk for pressing said edge portion upon the bottom of the box; means for guiding the covering-strip between the presser-cap and the box; a press-roll contacting with the box to press the strip upon the outer side walls of the box and the flange on said press-roll turning the other edge portion of the strip over the mouth of the box; means for rotating the press-roll and the disk; means for holding the box in contact with said press-roll; and means for pressing said inturned edge portion of the strip against the inner surface of the box.

14. A mechanism for pressing the covering-strip against the inner side walls of the box comprising the combination of a box-holder upon which the box is mounted; a plunger mounted upon and free to slide along the shaft of said box-holder; and means by which said plunger is moved along said shaft into the box.

15. In a box-covering machine, the combination of a rotary box-holder upon which the box is mounted; a flanged press-roll which rotates said box and its holder by frictional contact with said box and presses the covering-strip on said box; the flange on said press-roll turning an edge portion of said strip inwardly over the edges of the side walls of the box; and mechanism for rotating said press-roll.

In testimony whereof I have hereunto set my hand this 29th day of August, 1900.

HENRY BAKER BLACKINTON.

Witnesses:

CHARLES BORLAND,
JAMES HAMILTON.