(No Model.)

J. LEO.

PAPER BOX COVERING MACHINE.

No. 546,489. Patented Sept. 17, 1895.

FIG: 1.

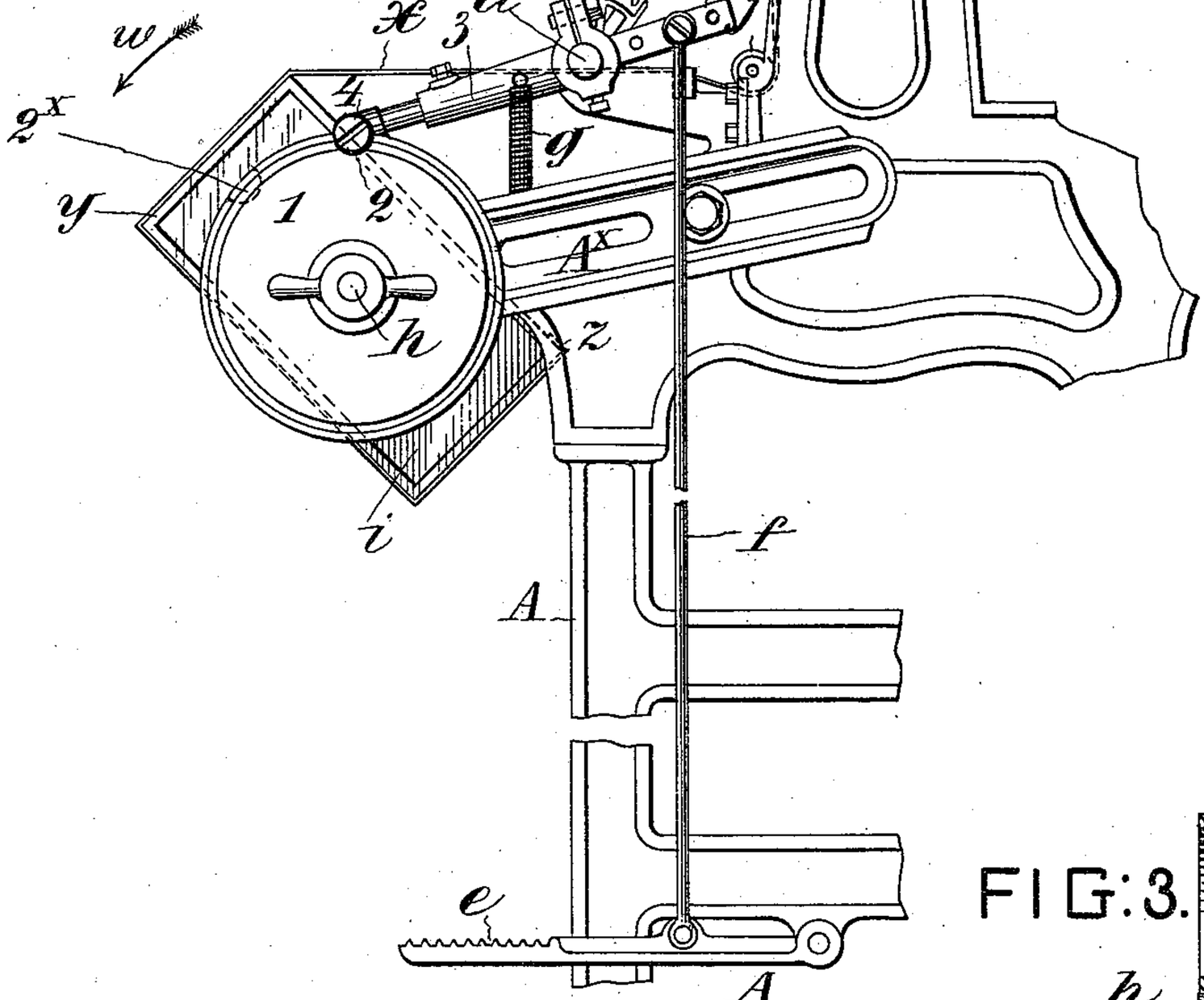


FIG: 2.

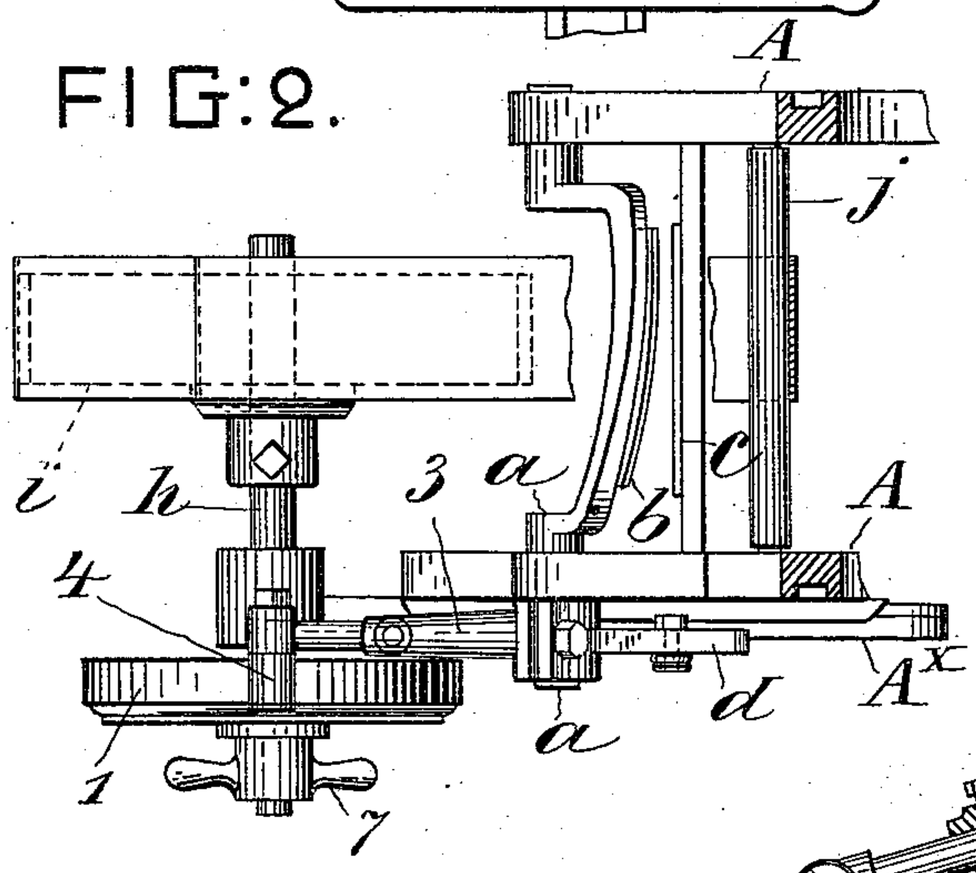


FIG: 3.

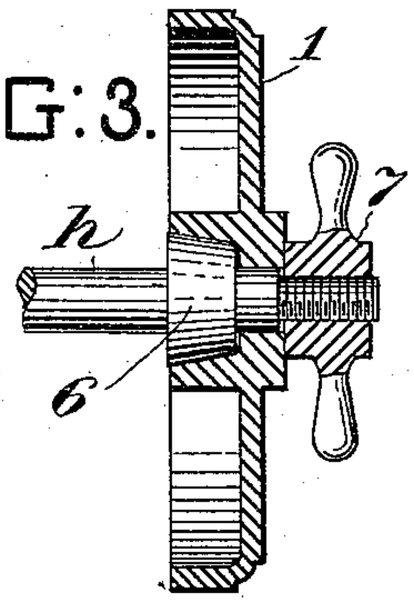
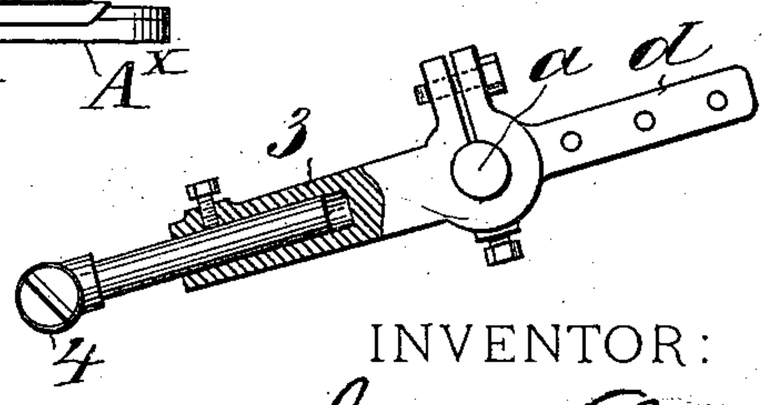


FIG: 4.



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PAPER-BOX-COVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 546,489, dated September 17, 1895.

Application filed January 30, 1895. Serial No. 536,624. (No model.)

To all whom it may concern:

Be it known that I, JAMES LEO, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Paper-Box-Covering Machines, of which the following is a specification.

My invention relates to that class of machines employed in pasting on the paper covering of the sides and ends of boxes, such as are usually made from pasteboard, and, as herein shown, I have represented the invention as adapted to a machine known to the trade as the "Lynn" machine. Such a machine will be found illustrated and described in the patent to G. W. Glazier, No. 360,582, dated April 5, 1887, and particularly in Fig. 7 of said patent. My improvements are not, however, restricted altogether to this particular machine, but they are well adapted to it. A machine of this kind has a mounting for the roll of covering-paper, a tension device and guide-rollers for the strip of covering-paper, a paste-fountain, a paste-roller for applying paste to one side or face of the moving strip of paper, a rotatively-mounted form to carry and hold the box being covered, and a vibrating knife to cut off the strip of covering-paper. The operator, in using the machine, mounts a box to be covered on the rotatively-mounted box-form, draws out the end of the paste-covered strip of paper and attaches it to the box, and then, by rotating the box and form, applies and rubs down the covering-paper. When the operator judges from experience that enough of the pasted strip of paper to complete the covering of the box has passed the knife, she applies her foot to a treadle, thus drawing down the knife and cutting off the strip. A spring or weight retracts the knife. It will be obvious, from the above description, that the operator is guided wholly by her eye in estimating the amount of paper that has passed the knife and in deciding when to cut off the strip, and the object of my invention is to provide the machine with an automatic detent device or impeding device, which will warn or notify the operator when she shall have rotated the form far enough to draw just enough of the strip of covering-paper past the knife to complete the work, whereby she is enabled to cut off the strip at exactly the same point for each box and thus avoid waste of material, as well as work the more rapidly. I prefer to construct the device so that the form will be actually stopped against rotation when it has been rotated to the proper extent, the operation of the knife in cutting serving to unlock or free the form, but an absolute stop or lock is not essential. The warning or detent device is made adjustable, as will be hereinafter explained.

In the drawings, which serve to illustrate my invention, Figure 1 is a side elevation of so much of a Lynn machine as is necessary to illustate the application of my invention thereto. This view shows my warning or detent device in side elevation. Fig. 2 is a plan of the improved machine seen in Fig. 1. Fig. 3 is a sectional view of the disk 1, forming a part of my device, showing the mode of mounting said disk adjustably on the spindle of the box-form. Fig. 4 is a sectional view of the stud-arm 3 of my device, showing the mode of constructing it telescopically for longitudinal adjustment.

For convenience of distinction I will employ reference letters to designate parts of the machine to which my device is applied and refence numerals to designate the parts of my improved warning or detent device.

A represents the frame of a Lynn box-covering machine.

a is the rock-shaft, carrying the vibrating knife *b*.

c is the stationary cutting-blade.

d is an arm on the rock-shaft *a*, to which arm is coupled a treadle *e*, by a rod *f*. Normally the knife *b* is held upraised by a spring *g*, coupled at one end to an arm on the rock-shaft *a*.

In guides in the frame A is adjustably mounted a slide-plate $A^{\times}$, and in a long bearing in this slide-plate is rotatively mounted the spindle *h*, which carries the form *i*. I may say here that this form is now made in various ways. Sometimes a simple block of wood of the proper size to fit snugly into the box is employed, and sometimes an adjustable block adapted to fit boxes of different sizes and shapes is employed. This, however, has no relation to my invention.

I have not deemed it necessary to show in

the drawings the mounting for the roll of covering-paper, the tension device, the paste-applying mechanism, &c., as these are all well known. The strip *x* of pasted covering-paper passes about a guide-roller *j* in the frame, and thence over the stationary blade *c* to the box *y* on the form *i*. The operator, at starting, draws forward the end of the strip *x* and secures it to the box *y* at *z*, for example; then rotating the box toward her, in the direction of the arrow *w* in Fig. 1, she pastes the paper down upon the surface of the box. When the box in its rotation shall have reached about the position seen in Fig. 1, enough of the strip of paper will have been drawn past the knife to complete the covering of the box, and my device will now come in play and warn the operator of this fact. She will then depress the treadle *e* and cut off the strip.

I will now describe my device. On the end of the spindle *h*, which carries the form *i*, is secured a disk 1 of any convenient diameter, and in the periphery of this disk is formed a notch or recess 2. On the rock-shaft *a*, which carries the vibrating knife, is fixed an arm 3, which carries at its free end a stud 4, which is so situated that it rests on the periphery of the disk 1. The disk 1 is set with reference to the box-carrying form *i*, so that when enough of the strip *x* has been drawn past the knife to complete the covering of the box the stud 4 will drop into the recess 2 in the disk 1 and arrest or impede its rotation. This warns the operator and she at once depresses the treadle and cuts off the strip. In doing this she rocks the shaft *a* and necessarily raises the arm 3, thus lifting the stud 4 out of the recess in the disk 1 and freeing the latter. She now rotates the box (and form) far enough to complete the pasting down of the remainder of the covering paper, and this has the effect to carry around the disk 1 and move the recess 2 to about the point $2^{\times}$ in Fig. 1. I prefer to make the stud 4 a roller-stud, as it rests on the moving periphery of the disk 1 at all times; and I prefer to make the arm *d*, to which the treadle is coupled, and the arm 3, all in one piece, providing said compound arm with a socket to receive the rock-shaft *a* and a slit clamp and screw for clamping it onto said shaft. The arm 3 I prefer to make telescopic, as seen in Fig. 4, so that it may be shortened or lengthened to suit the adjustment of the form-spindle *h* toward or from the knife, this latter being effected by shifting the slide plate $A^{\times}$. The disk 1 is clamped frictionally on the shaft *h*, so that it may be adjusted about the same in a manner to bring the recess 2 into its proper position. Fig. 3 shows the construction. On the shaft *h* is a conical boss 6, which enters a conical bore or seat in the disk 1, and on the screw-threaded outer end of the shaft is a thumb-nut 7, whereby the disk is pressed forcibly onto the cone 6 and the disk thus held firmly against rotation on the shaft.

It is not necessary that the falling of the stud 4 into the recess 2 in the disk shall absolutely lock the disk against rotation, but it might be arranged to lock the disk. The size of the disk 1 is not important. It may be of any convenient diameter. The arm 3 may also be entirely independent of the arm *d*; but in applying my invention to existing machines I find it convenient to discard the arm *d* already on the machine and substitute therefor the compound arm herein shown.

I am aware that devices have been proposed for the purpose set forth herein, but so far as I am aware none of these has a lock or detent which arrests the form and prevents it from moving in either direction until the strip of paper is cut, and none which has the facility for adjustment I attain by the rotation of my recessed disk 1 about the form spindle or arbor on which it is mounted. This facility for adjustment is important as is also the employment of a recess 2 to receive the stud 4 in lieu of a ratchet and pawl device, which permits the form to rotate freely in one direction without the necessity of first cutting off the strip of paper. The stud 4 holds the form in its terminal position until the operator depresses the treadle and thus disengages it.

Having thus described my invention, I claim—

1. In a box-covering machine, the combination with the form and form-spindle having on it a cone 6 and thumb-nut 7, of the disk 1, having a conical bore to fit the cone 6, and a locking recess 2, of a pivotally mounted arm 3, bearing a detent stud which rests on the periphery of said disk, the treadle and the treadle-rod adapted to operate said arm 3, substantially as set forth.

2. In a box-covering machine, the combination with the form-spindle, of a disk 1, mounted adjustably on said spindle and having in its periphery a single recess 2, of the rock-shaft *a*, the arm 3 thereon, provided with a stud 4, which bears on the periphery of said disk 1, the knife carried by the rock-shaft, the arm *d*, on said shaft, and the treadle coupled to said arm, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES LEO.

Witnesses:
HENRY CONNETT,
JAS. KING DUFFY.