(No Model.)

A. M. EASTMAN.

CUTTER FOR PAPER BOX COVERING MACHINES.

No. 348,000. Patented Aug. 24, 1886.

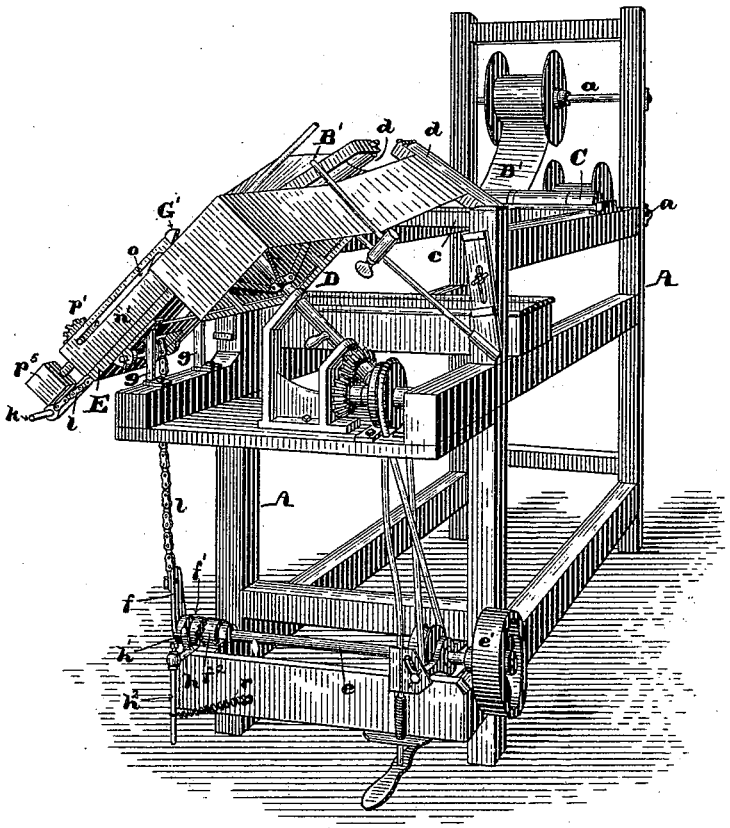

Fig. 1.

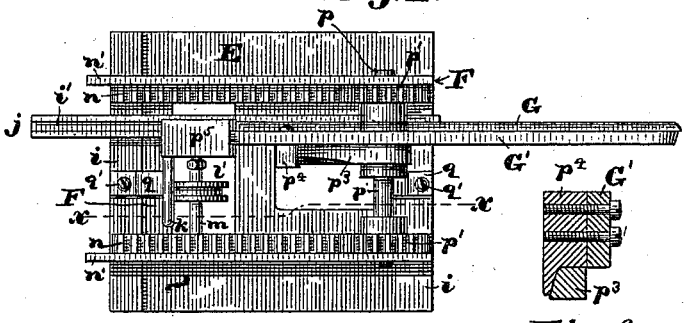

Fig. 2.

Fig. 4.

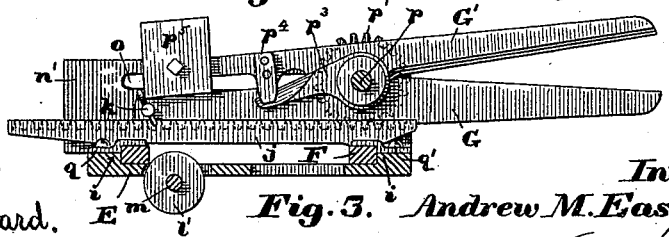

Fig. 3.

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UNITED STATES PATENT OFFICE.

ANDREW M. EASTMAN, OF MILFORD, MASSACHUSETTS, ASSIGNOR TO THOMAS C. EASTMAN, OF SAME PLACE.

CUTTER FOR PAPER-BOX-COVERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 348,000, dated August 24, 1886.

Original application, No. 167,951, filed June 8, 1885. Divided and this application filed May 15, 1886. Serial No. 202,270. (No model.)

To all whom it may concern:

Be it known that I, ANDREW M. EASTMAN, of Milford, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machines for Covering Paper Boxes, of which the following, taken in connection with the accompanying drawings, is a specification.

My present invention is a division of another application filed by me in the Patent Office at Washington, June 8, 1885, No. 167,951, and relates especially to the paper-severing devices and the means of operating the same; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be best understood by reference to the description of the drawings, and to the claims to be hereinafter given.

Figure 1 of the drawings is a perspective of a machine embodying my invention. Fig. 2 is a plan of the paper-cutting mechanism removed from the machine. Fig. 3 is a sectional elevation of the same, the cutting-plane being on line *x x* on Fig. 2, and Fig. 4 is a transverse section through the weighted arm of the upper shear-blade and the cam-lever by which it is operated.

In the drawings, A represents the frame of the machine, upon which are mounted the shafts *a* and *a'*, the paste trough or receptacle *c*, the paste-roll C, the box-carrying form D and its operating mechanism, the paper-guiding rolls *d d*, the driving-shaft *e*, and mechanism for arresting the motion of the box-carrying form at the completion of each revolution, all of the foregoing parts being constructed, arranged, and operated substantially as shown and described in detail in the above-mentioned application, and therefore require no further description here.

Upon one end of the shaft *e* is secured the driving-pulley *e'*, and upon the opposite end thereof has loosely mounted the arm *f*, the hub of which is provided with the peripheral groove *f'*, and with clutch-teeth to engage with corresponding teeth on the hub or collar f^2, firmly secured upon the shaft *e*.

A horizontal shipper-rod, *h*, is mounted in suitable bearing on the lower side rail of the frame, and is provided with upwardly-projecting arms *h' h'*, which engage with the groove *f'* and with the pendent arm h^2, extending nearly to the floor in a position to be moved about the axis of the rod *h* by the pressure of the operator's foot to cause the two parts of the clutch to engage and the arm *f* to revolve with the shaft *e*.

Upon the front end of one of the upper side rails of the frame is firmly secured the stand *g*, to the upper end of which is secured in an inclined position the frame E, provided upon its upper side with the ribs *i i*, between which is fitted, so as to be adjustable in the direction of the length of the machine, the frame F, provided upon its upper side with the upwardly-projecting rib *j*, in the upper edge of which is formed the longitudinal groove *i'*, in which is is fitted, so as to be movable endwise therein, the lower shear-blade, G, from which projects laterally the pin *k*, to which one end of a chain, *l*, is connected, said chain passing over the sheave or pulley *l'*, mounted upon the shaft *m*, having its bearings upon the frame E, and having its other end secured to the free end of the arm *f*, as shown in Fig. 1.

The frame F has cast thereon the toothed racks *n n* and the upwardly-projecting ribs *n' n'*, in each of which is formed a longitudinal slot, *o*, of a length somewhat greater than the required endwise movement to be given to the shear-blade G.

In a suitable bearing in the shear-blade G is loosely fitted a shaft, *p*, upon which are firmly secured so as to revolve therewith the spur-pinions *p' p'* and the lifter-arm p^3, having a portion of its length made with an inclined side to serve as a cam to act upon the inclined surface of the shouldered lug p^4, secured to the upper shear-blade, G', which is also fitted loosely upon the shaft *p*, and provided at its lower end with the counter-weight p^5, as shown. The ends of the shaft *p* project into the slots *o* in the ribs *n' n'*, to prevent the shear-blades and the shaft *p* being lifted so as to disengage the pinions *p' p'* from the racks *n n*.

The frame F may be secured in any desired position on the frame E by means of the clamps *q q* and screws *q' q'*. (Shown in Figs. 2 and 3.)

The operation of my invention is as follows: The several parts of the machine being ad-

justed to the job in hand, and the box to be covered being placed upon the form, and the paper B′ from the roll mounted upon the shaft *a* being drawn forward and secured by its end to one end of the box-bottom, as shown in Fig. 1, the operator presses the pendent lever h^2 outward with his left foot, when the two parts of the clutch will be engaged and the arm *f* will revolve with the shaft *e*, and, pulling down upon the chain *l*, moves the shear-blades endwise toward the web of paper B until the same is fairly between the blades, when the inclined side of the arm p^3 comes in contact with the inclined surface of the shouldered lug p^4, and, by pressing said lug with the rear arm of the upper shear-blade, G′, away from the lower blade, G, causes the forward or cutting arm of said blade G′ to be pressed into close shearing contact with the blade G, and at the same time the blade G′ is moved about its axis to sever the paper. When the cutting of the paper has been accomplished, the foot of the operator is removed from contact with the pendent arm h^2, allowing the spring *r* to react and cause the separation of the two parts of the clutch, when the shear-blades will be moved downward by the force of gravity acting thereon until they reach the position shown in Fig. 1. When a different-sized box is to be covered, the shear-blades are adjusted to the proper position to cut the paper of the desired length by loosening the screws *q′ q′*, moving the frame F upon the frame E to the right or left, as the case may require, and then tightening said screws again.

The paper-severing devices herein described and claimed are shown and described in the before-mentioned application No. 167,951, of which this is a division, but is not claimed therein.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for covering paper boxes, a paper-severing mechanism composed of a non-vibrating shear-blade fitted to and movable endwise in a grooved track toward and from and at right angles to the line of draft of the paper to be cut, a vibrating shear-blade pivoted to said non-vibrating shear-blade, mechanism, substantially as described, for moving said shear-blades to and from the paper to be cut, with a blade upon either side thereof, and mechanism for vibrating one of said blades at the proper time to sever the paper.

2. In a machine for covering paper boxes, a cutting-off mechanism composed of a non-vibrating shear-blade having loosely mounted in a bearing therein a shaft, a second shear-blade loosely mounted upon said shaft, and a lifting-arm firmly secured upon said shaft and adapted to engage with and vibrate said second blade when said shaft is moved about its axis.

3. The combination, in a machine for covering paper boxes, of a non-vibrating shear-blade, a vibrating shear-blade pivoted thereto by a shaft fitted loosely to both of said blades, a lug secured to said vibrating blade and having an inclined or cam surface, and a lifting-arm firmly secured upon said shaft, and provided with an inclined or cam surface arranged to engage with the cam-surface of said lug as the shaft is revolved and cause said shear-blades to be pressed laterally together while they are moving toward and past each other.

4. The combination, in a machine for covering paper boxes, of a pair of shear-blades pivoted together by a loose shaft fitted therein, a spur-pinion secured upon said shaft, a rack to engage with said pinion, a track for guiding said blades in their endwise movements, a lifter-arm firmly secured upon said shaft and provided with a cam-surface near its free end, a cam-shouldered lug and a weight secured to the outer arm of the upper of said blades, and a mechanism, substantially as described, for moving said blades endwise to their highest position, and thereby causing a rotation of said shaft and of the lifter-arm and a closing of said blades to sever the paper.

5. In combination with a pair of shear-blades arranged to be moved endwise to and from the paper to be cut and to be vibrated to sever the paper, the frame F, provided with the grooved track *j i′*, and adjustable upon the stationary frame E in a direction at right angles to the endwise movement of said blades.

6. The combination, in a machine for covering paper boxes, of the fixed frame E, the laterally-movable frame F, provided with the racks *n*, and the grooved track *j i′*, the non-vibrating blade G, the vibrating blade G′, provided with the cam-shaped lug p^4, the shaft *p*, the pinions *p′ p′*, the cam-lifter arm p^3, the pulley *l′*, the driving-shaft *e*, the clutch f^2, the arm *f*, and the shipper $h\ h'\ h'\ h^2$, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 13th day of May, A. D. 1886.

ANDREW M. EASTMAN.

Witnesses:
J. E. WALKER,
C. B. WETHERBY.