

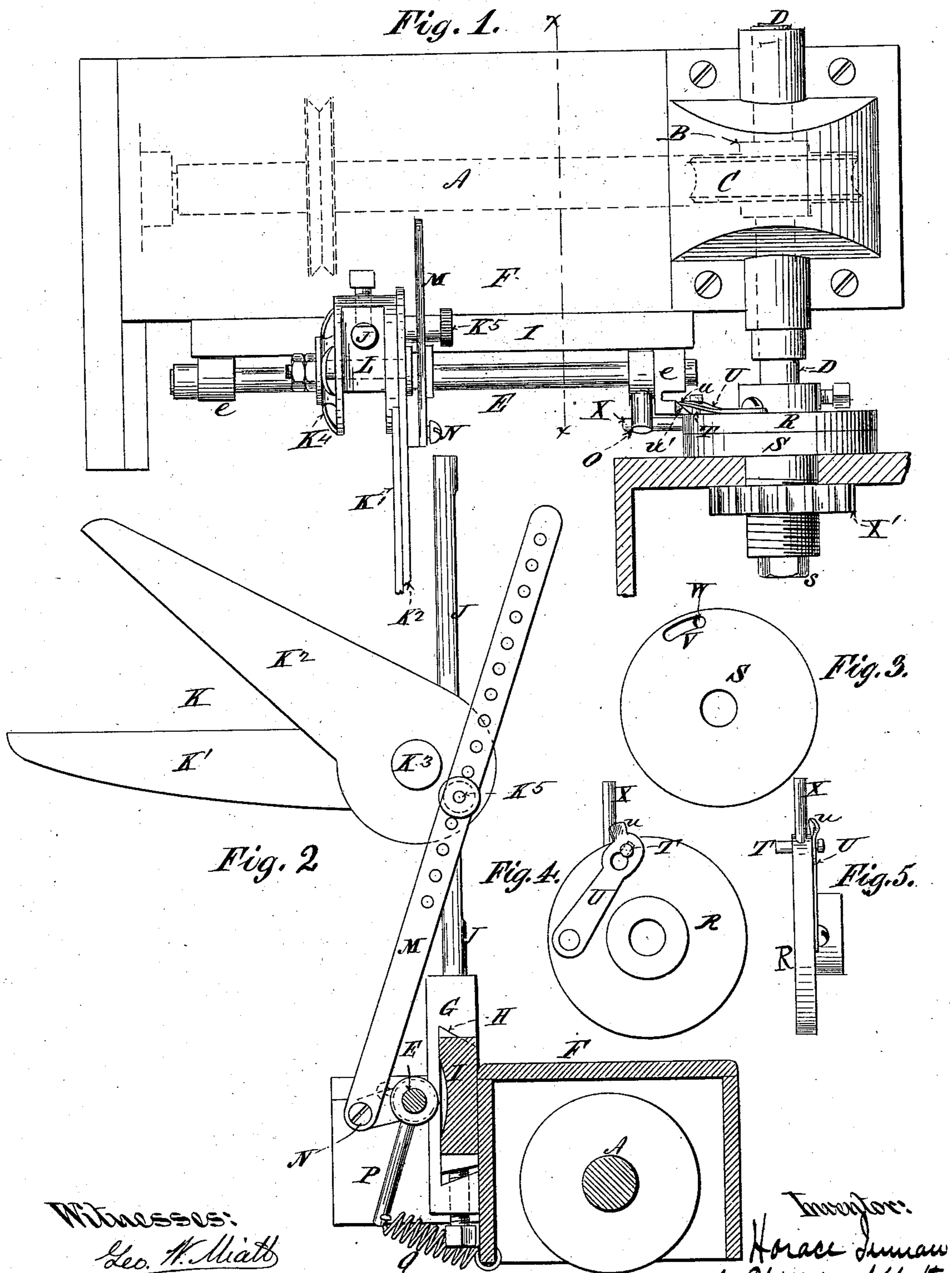
(No Model.)

H. INMAN.

CUT-OFF ATTACHMENT FOR PAPER BOX COVERING MACHINES.

No. 376,096.

Patented Jan. 10, 1888.



Witnesses:

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UNITED STATES PATENT OFFICE.

HORACE INMAN, OF AMSTERDAM, NEW YORK.

CUT-OFF ATTACHMENT FOR PAPER-BOX-COVERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 376,096, dated January 10, 1888.

Application filed May 17, 1886. Serial No. 202,365. (No model.)

To all whom it may concern:

Be it known that I, HORACE INMAN, a citizen of the United States, and a resident of Amsterdam, in the county of Montgomery and State of New York, have invented certain new and useful Cut-Off Attachments for Paper-Box Machines, of which the following is a specification.

My invention relates to a device for automatically cutting off the covering or covering and trimming materials used to cover the bodies of paper boxes and their covers applied by "box-covering machines," so called. A machine of the class referred to is described in the United States Letters Patent granted to me February 13, 1883, being Reissue No. 10,286.

The invention consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings like reference letters refer to the same parts in all the figures.

Figure 1 illustrates a top plan view of the invention; Fig. 2, an end view taken on the line *xx* of Fig. 1; Fig. 3, a view of the inside face of the disk S; Fig. 4, a view of the outside face of the disk R; Fig. 5, an edge view of the disk R.

The parts of the machine other than the cutting devices here under consideration are fully shown and described in my said former patent to which I refer, and need not be here described. I do not, however, limit myself to the specific devices shown in said patent, because my present invention is applicable to any form of box-covering machine in which there is a rotary box-form for the support of the box-body.

A is a worm-shaft supported in an arm extending from the machine, as shown in my said former patent. The worm-shaft is duly journaled and rotated in any suitable manner and by any suitable means.

B is the worm fastened to the shaft A. It meshes into a worm-wheel, C, on the box-form shaft D, which is also duly journaled.

E is a shaft or rod journaled or pivoted at *ee* to the arm F, which supports the box-form shaft. G is a block of metal provided with a dovetailed recess, H, which slides lengthwise of the arm F on the dovetailed carrier-bar I.

J is an upwardly-extending rod fastened to the block G.

K is a pair of shears, one blade, K', of which is fastened to a block, L, which slides vertically on the rod J. The cutting-edge of this blade is horizontal, or substantially so. The other blade, K², is pivoted to the blade K' at K³. A spring washer, K⁴, acts on a nut on the end of the pivot K³, which constantly draws the blades K' and K² together and secures good shearing action of these blades. The blade K² has a pin, K⁵, projecting from it at the rear of the pivot K³, which engages with a connecting-rod, M. This rod is pivoted to the end of a finger or pin, N, extending laterally from the shaft E. The shaft E has also two other fingers laterally extending therefrom—one, (marked O,) near the box-form shaft, and the other, (marked P,) near the farther end of the shaft. To this latter finger a spring, Q, is fastened, the other end of which is attached to any suitable part of the arm F. The spring Q, acting through the pins P and N and connecting-rod M, normally throws the upper blade, K², of the shears upwardly, thus holding them open.

R and S are two disks, placed side by side on the box-form shaft D. The disk R is provided with a hub and set-screw, as shown, or other means for fastening it at the desired spot on the shaft D. The disk S is likewise provided with a hub, which is threaded externally, as shown. This disk, however, is not fast on the shaft D, but rotates thereon. It is held in position by the nut *s*, screwed on the end of the shaft.

T is a pin which plays through a hole made near the edge of the disk R, and projects from the inner face thereof. A spring, U, which is attached to the disk R and to the pin T, normally pushes it inwardly through the disk. V is a curved groove formed in the inner face of the disk S, coinciding with the line of motion of the pin T.

W is a hole through the disk S at the end of the groove V. It is coincident with the hole through the disk R.

X is a pin which extends from the edge of the disk R. The end of the spring U (seen at *u*) is bent away from the disk R, and as the disk is revolved the end *u* of this spring comes

in contact with a deflecting cam-like surface, u' , formed on any suitable part of the arm F or bar I in the path of the end of the spring u , as it rotates, which pulls the spring u outwardly and away from the disk R, carrying the pin T with it until the pin is withdrawn from the hole W in the disk S sufficiently far to permit its end to enter and slide along the groove V to the end thereof; and during its passage through the groove the disk S, to which is attached the box-form and the box, will remain stationary. The pin, when in the hole W, locks the disk S to the disk R, and compels its rotation therewith.

X' is a large nut roughened on its edge. In the center thereof is a threaded hole adapted to engage with the thread on the exterior of the hub of the disk S.

The boxes to be covered are fastened or held against the outer face of the disk S by means of the nut X'. The disk S is, in fact, a face-plate, against which the boxes to be covered are clamped by the nut X'.

The operation is as follows: The shaft D is driven by the worm-wheel C, as usual, which rotates the disks R and S, the box-form, and the adjacent parts. The covering or covering and trimming material coming from the machine passes over the horizontal blade k' of the shears K. As the disks R and S revolve, the pin T holds them together, it passing through the transverse holes in them both, and is held in its place by the spring U. When, however, the end of the spring U comes in contact with the cam-surface u' , the pin T is withdrawn by the continued rotation of the disks R and S from the hole W in the disk S, and the adjustment of these parts is such that as they continue their rotation the pin X comes in contact with the pin O on the shaft E just as the pin T has been sufficiently withdrawn to allow its end to enter and slip along in the groove V, and during this time the disk S and the box on it are stationary, being held back by the uncut covering or covering and trimming material. The disk R, however, continues to rotate, while the disk S is stationary, and the pin X, pressing against the pin O, rocks the shaft or rod E upwardly, which, acting through the pin N and the connecting-rod M, causes the blade k^2 of the shears to sweep downwardly, shearing across the edge of the other blade, and thus severs the covering or covering and trimming material. As soon as the pin X disengages from pin O, by reason of the continued rotation of the box-form shaft, the spring Q, acting through the pin T, rocks the shaft E in the opposite direction, and the shears are open, ready for a repetition of the operation.

The operator when removing the covered

box from the box-form rotates the disk S toward himself a trifle, thus moving the pin T back again through the groove V into coincidence with the hole W. It then enters that hole and locks the disks R and S together again. The next box is then applied to the box-form, and the operation is repeated.

It will be noticed that my cut-off device can be adjusted so as to cut the paper at exactly the desired place to prevent waste thereof irrespective of the size of the box, because the block G can be moved along the bar I to any desired point, and the arm N and connecting-rod M can likewise be moved on the shaft E, and the shears can be raised or lowered, as desired, by sliding the block L on the upright rod J.

Many changes in the details of construction will suggest themselves to those familiar with such mechanism. I do not, therefore, limit myself to the details of construction shown.

Having described my invention, I claim—

1. In a machine for covering paper boxes, the combination of an intermittently-rotating box-form mounted on a continuously-rotating shaft, a laterally-extending arm or finger attached to the shaft, and a cut-off device, substantially as described, operated by the said arm or finger at the time the box-form is at rest, all combined and operating substantially as set forth.

2. In a machine for covering paper boxes, the combination of a rotating box-form mounted on a rotating shaft, a laterally-extending arm or finger attached to the shaft, and an automatic severing device, substantially as set forth, which is operated by the arm or finger at each complete rotation of the shaft, substantially as set forth.

3. The combination, in a box-covering machine, of a face-plate which receives its motion from the box-form shaft, and a threaded clamping-nut adapted to clamp the box-form against the face-plate by the action of screw-threads, substantially as and for the purposes set forth.

4. The combination, in a box-covering machine, of the shears K, connecting-rod M, pin N, pin P, spring Q, shaft E, block G, rod J, pin O, and a rotating box-form shaft having an extending arm adapted to engage with the pin O as the shaft revolves, substantially as and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 12th day of May, A. D. 1886.

HORACE INMAN.

Witnesses:

CHARLES B. WEBER,
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