

(No Model.)

2 Sheets—Sheet 1.

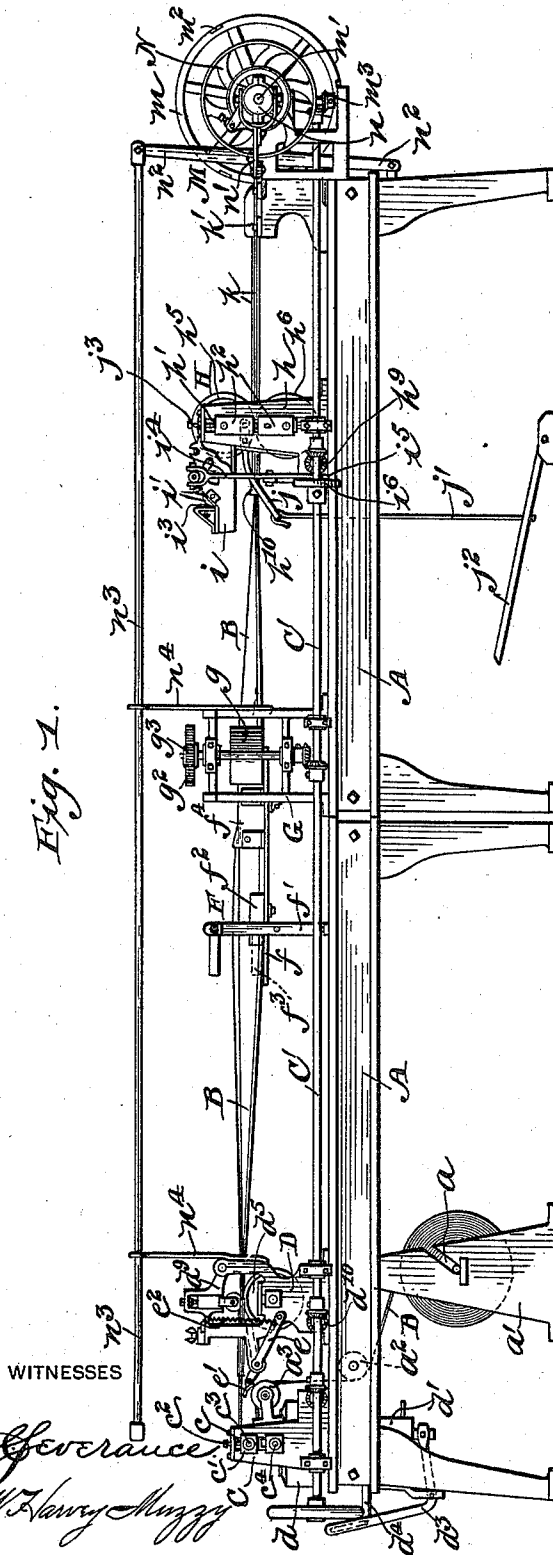
W. H. WUSSOW, Sr.

MACHINE FOR MAKING SHUCKS FOR PAPER BOXES.

No. 579,029.

Patented Mar. 16, 1897.

Fig. 1.



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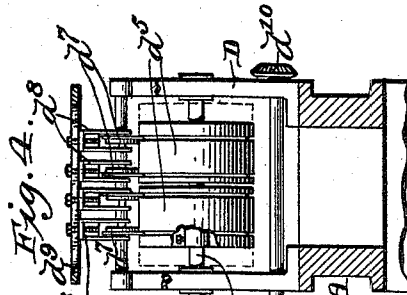


Fig. 3.

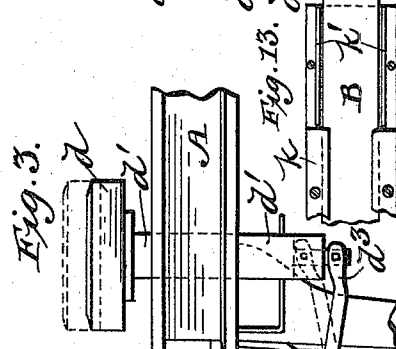
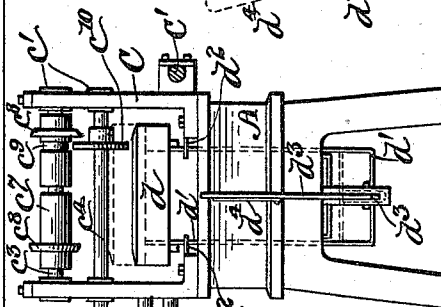


Fig. 2.



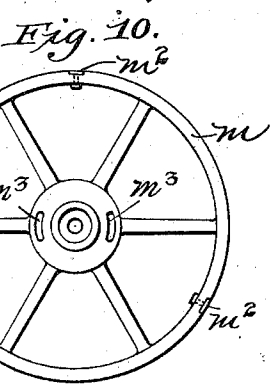
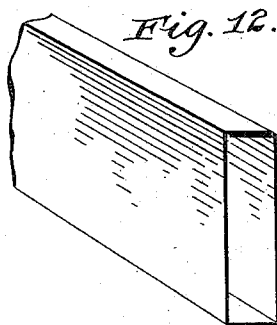
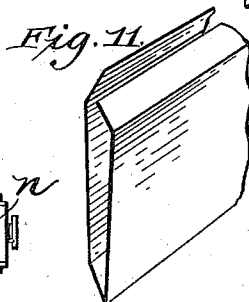
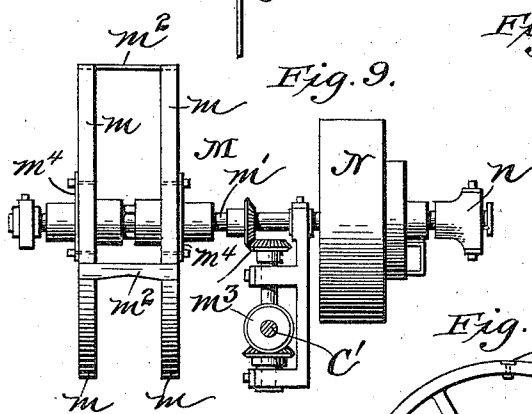
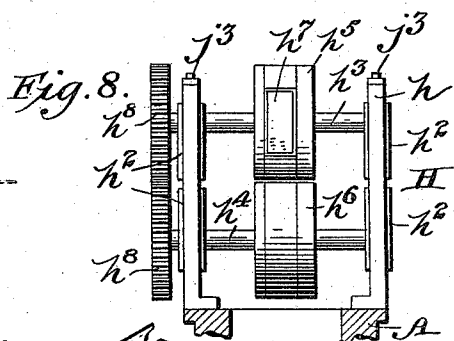
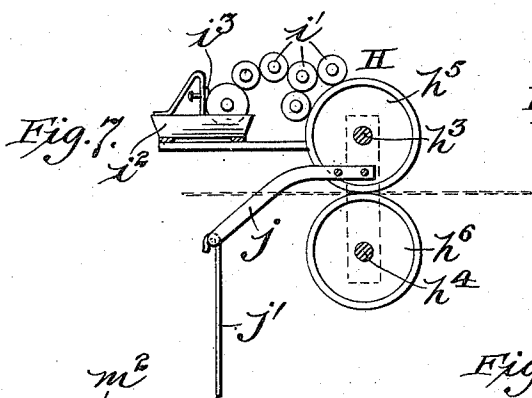
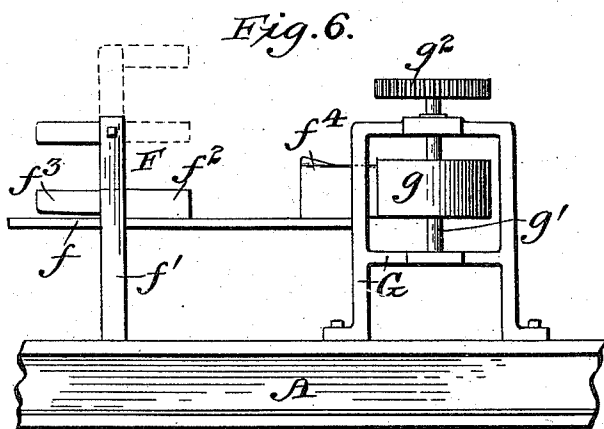
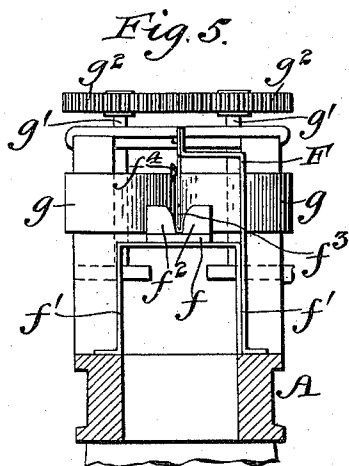
INVENTOR

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by Mason, Fenwick & Lawrence
his Attorneys

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING SHUCKS FOR PAPER BOXES.

SPECIFICATION forming part of Letters Patent No. 579,029, dated March 16, 1897.

Application filed October 15, 1895. Serial No. 565,794. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WUSSOW, Sr., a citizen of the United States, residing at Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Machines for Making Shucks for Paper Boxes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in box-machines, and has more particular relation to machines for manufacturing shucks for match-boxes or the like.

It consists of the combination of novel gluing, scoring, folding, pressing, printing, and cutting devices.

It also consists of other novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation of a machine embodying my invention. Fig. 2 represents an end elevation showing the gluing mechanism. Fig. 3 represents a detail side elevation of the glue-vat and its operating mechanism. Fig. 4 represents a detail end elevation of the scoring mechanism. Fig. 5 represents a detail end elevation of the folder and the press-rolls. Fig. 6 represents a detail side elevation of the same. Fig. 7 represents a detail side elevation, partly in section, of the printing-rolls and the inking devices. Fig. 8 represents a detail end elevation of the printing-rolls. Fig. 9 represents a detail end elevation of the cutting mechanism. Fig. 10 represents a detail side elevation of the cutting-wheel. Fig. 11 represents a detail perspective view of a folded shuck not glued. Fig. 12 represents a detail perspective view of the same glued and in its straightened position, and Fig. 13 represents a top plan view of the top plate for guiding the folded web to the cutting-wheel.

The endless web B of pasteboard or other

material from which the boxes are to be made is mounted on a reel a , which is journaled in uprights a' of the frame A. The web passes from this reel over a roller a^2 , journaled in the frame A, and shown in dotted lines in Fig. 1. It then passes over a roller a^3 , having guiding-flanges at each end and journaled in suitable bearings mounted on the frame C of the gluing mechanism. This frame is formed with two vertical slots c , in which bearing-blocks c' are mounted. The upper blocks are adapted to be adjusted vertically by screws c^2 , mounted in cross-pieces at the tops of the slots.

Shafts c^3 c^4 are mounted in said blocks, respectively, and the shaft c^4 is provided with a gear c^5 , that meshes with suitable power-transmitting gears c^6 , connected to the longitudinal power-shaft C'. (See Fig. 2.) The shaft c^3 has a roller c^7 mounted thereon. This roller is provided with annular guide-flanges c^8 near each end and is divided so that it may be adjusted to fit any width of paper. This roller is also provided with an annular groove c^9 .

The shaft c^4 has a glue-distributing wheel c^{10} mounted thereon so as to register with the groove c^9 , so that no glue will be transmitted to the roller c^7 when the web is not running over the roller. The web passes from the roller a^3 under and partially about the roller c^7 and with its edge in contact with the wheel c^{10} , whereby the contacting edge is coated with glue. The wheel c^{10} is supplied with glue from a glue-vat d . (See Figs. 2 and 3.) This vat is mounted on an inverted-yoke-shaped support d' , which in turn is mounted in guides d^2 on the frame C, so as to be capable of vertical movement to lift the vat into the position shown in dotted lines in Fig. 2 or lower it into the position shown in full lines in the same figure. When in the upper position, the wheel c^{10} will dip into the vat and take up the glue to be applied to the web. The yoke d' is raised and lowered by a bell-crank hand-lever d^3 , suitably mounted and having one end pivotally connected to the lower part of said yoke. The free end of said bell-crank is provided with a pivoted arm d^4 , which is adapted to be turned down to engage the frame A and hold said bell-crank in the

dotted position shown in Fig. 3. It will thus be seen that the position of the glue-vat is fully under the control of the operator.

The scoring mechanism (which is shown in Figs. 1 and 4) comprises a frame D, mounted on frame A, grooved rolls d^5 , adjustably mounted on a shaft d^6 , and scoring-wheels d^7 , independently mounted in yokes d^8 , which are adjustably mounted in a hinged frame d^9 . These wheels d^7 are adjusted to enter the grooves of the rolls d^5 , so that when the web is passed between said rolls and wheels it will be scored in four longitudinal lines, which will ultimately form the four corners of the finished box. Both the rolls and the wheels are adjustable, as before stated, so that different-sized webs may be introduced or differently-proportioned boxes formed. The shaft d^6 is provided with a gear-wheel d^{12} , that is connected with the power-shaft C' by suitable intermediate gearing d^{10} , and the rolls d^5 are thus driven. The frame D also supports a tension device, which consists of a pivoted arm e , carrying a friction-shoe e' at one end, said shoe being adapted to engage the web passing over roller a^3 and thus hold it under tension. The pressure is imparted to the arm e by a coil-spring e^2 , attached to the rear end of the arm and to the frame D.

The web passes from the scoring-rolls to the folder F. This folder comprises a base f , supported by standards f' and the frame G of the press-rolls. The base is provided with folding-blocks f^2 . (See Fig. 5.) These blocks have their inner sides beveled upwardly and outwardly and when placed in position form a V-groove between them. The web is doubled and guided into the proper position in this groove by a doubling-blade f^3 . (See Fig. 6.) This blade is provided with a vertical portion and a horizontal handle and is pivoted to a portion of one of the standards f' , so that it may be turned into the dotted position shown in Fig. 6 when so desired. This is necessary when first starting the web through the folder. The folding-blade depresses the web at the third score, counting from the right, and as the web passes onward it is engaged by another folding-blade f^4 , having a downwardly-inclined flange at its upper edge, whereby the web between the right edge and the first score is turned down into a nearly horizontal position.

The press-rolls g are mounted on vertical shafts g' , journaled in the frame G, and receive the web between them after it passes the folder f^4 and press the folded portion of the web which lies between the right edge and the first score on the right firmly against the left glued edge over which it has been doubled by the said folder f^4 . The shafts g' each carry a gear-wheel g^2 at their upper ends, said gears intermeshing with each other and being connected to the power-shaft C' by suitable intermediate gearing g^3 . The web passes from the press-rolls into the printing mechanism H. This comprises a frame h ,

mounted upon the frame A and having vertical slots or guideways h' , in which are mounted journal-blocks h^2 . These blocks support the respective ends of shafts h^3 h^4 . (See Fig. 8.)

The printing-rolls h^5 and h^6 are mounted upon the respective shafts h^3 and h^4 , so as to turn therewith. The roll h^6 is a plane-surfaced roll, but the roll h^5 is provided with a recess h^7 , in which suitable printing-type are set and secured. Each of the shafts h^3 and h^4 is provided with a gear h^8 , said gears intermeshing and being connected to the shaft C' by suitable intermediate gearing h^9 . The web is guided in between the two printing-rolls by guiding-plates h^{10} , which are held apart by suitable edge-strips, so as to allow the web to pass smoothly between them. These plates are secured to the frame h in any suitable manner.

The frame h supports an auxiliary frame i , in which are journaled a series of inking-rollers i' . A portion of these rollers are so journaled as to engage the printing-type on the upper printing-roll as it revolves and thus ink said type. A shallow ink-receptacle i^2 is mounted on said frame i in such a position that one of the rollers i' dips into the contents of the same and thus distributes the ink by contact to the whole series of rollers. A suitable scraping-blade i^3 is mounted so as to scrape the excess of ink from the roller which dips into the ink-receptacle. One of the ink-rollers i' is mounted in such manner as to be capable of longitudinal movement to cause an even distribution of the ink. This movement is caused by a lever i^4 , which is pivoted on the frame h and has a yoked end which straddles the end of the shaft of the movable ink-roller and is pivotally connected thereto. The lower free end of said lever is adapted to be engaged by a projection i^5 on a disk i^6 , mounted on the power-shaft C', whereby said lever is oscillated to impart the desired motion to the ink-roller.

When the machine is being started, it becomes necessary to raise the upper printing-roll in order to pass the end of the web between the printing-rolls. To accomplish this, I provide a yoke j , which is pivoted to the frame h on each side, the ends of said yoke on each side being pivotally connected to the respective blocks h^2 of the upper printing-roll. A bar j' is pendent from the outer portion of said yoke and is connected to a foot-lever j^2 , by means of which the operator raises the upper printing-roll at will. The journal-blocks of the said upper roll are limited in their upper movement by screw j^3 , mounted in frame h .

The printing-rolls print upon one side and the top of the finished box. The web passes from the printing-rolls through suitably-spaced guiding-plates k to the cutting mechanism M. This comprises two spaced wheels m , adjustably mounted upon a shaft m' . (See Figs. 9 and 10.) These wheels are connected at the proper points about their pe-

ripheries by knives m^2 . The cutting edge of each knife is inclined toward the center, so as to give a shearing cut to the web as it is fed forward to it from the plates k .

5 Each of the spaced wheels m is provided with segmental slots $m^3 m^3$, and the shaft m' is provided with two disks $m^4 m^4$, through which bolts are passed. These bolts pass through the said slots $m^3 m^3$, and the said
10 wheels m are thus adjustably secured to the shaft m' . This adjustment is necessary so that in starting the machine the cutting-wheel may be adjusted so as to cut at the proper place between the printed portions of
15 the shuck.

The upper plate k is cut away in proximity to the cutting-wheel and guides k' formed on each side of the cut-away portion. The object of this construction is to permit the continuously-moving web to buckle upward when its forward end is temporarily stopped by the cutting-blade during the cutting operation.
20

The shaft C' is connected to the shaft m' by suitable gearing m^3 . A belt-pulley N is loosely mounted upon the shaft m' , but is adapted to be connected thereto at will by a suitable clutch mechanism n . The clutch is operated by a pivoted bell-crank lever n' , which in
30 turn is operated by a pivoted lever n^2 . This lever n^2 is moved from the forward part of the machine by an operating-rod n^3 , mounted in suitable supports n^4 .

It will be noted that as the web passes forward the cutting-wheel cuts it into the desired lengths which have been previously determined for the boxes.
35

Having now described my invention, what I claim as new, and desire to secure by Letters
40 Patent, is—

1. In a machine for making shucks for paper boxes, the combination with feeding, glu-

ing and scoring mechanisms, of a pivoted folding-bar and guiding-blocks on each side to fold the paper around the bar, substantially as described. 45

2. In a machine for making shucks for paper boxes, a pivoted folding-bar and guiding-blocks on each side to fold the paper around the bar, substantially as described. 50

3. In a machine for making shucks for paper boxes, the combination of a pivoted folding-bar and guiding-blocks on each side to fold the paper around the bar and a plate having an inclined flaring flange at one end adapted to complete the folding operation by turning the straight edge of the blank at right angles and lapping it, and the presser-rollers for pressing the blanks, substantially as described. 55 60

4. In a machine for making shucks for paper boxes the combination with means for feeding, gluing and scoring and folding the paper, of a cutting device consisting of a double wheel having rims for guiding the web to the knives and V-edged cutting-knives connecting the rims of the wheel, substantially as described. 65

5. In a machine for making shucks for paper boxes the combination with means for feeding, gluing and scoring and folding the paper, of a cutting device consisting of a double wheel having rims for guiding the web to the knives and V-edged cutting-knives connecting the rims of the wheel, a clutch and an operating-lever for throwing the cutting devices into and out of operation, at will, substantially as described. 70 75

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. WUSSOW, SR.

Witnesses:

S. WILKURTZ,
HENRY HENKEL.