(No Model.) 3 Sheets—Sheet 1.

G. J. HARDY, Jr.

MACHINE FOR MAKING CIGAR OR CIGARETTE BOXES.

No. 422,077. Patented Feb. 25, 1890

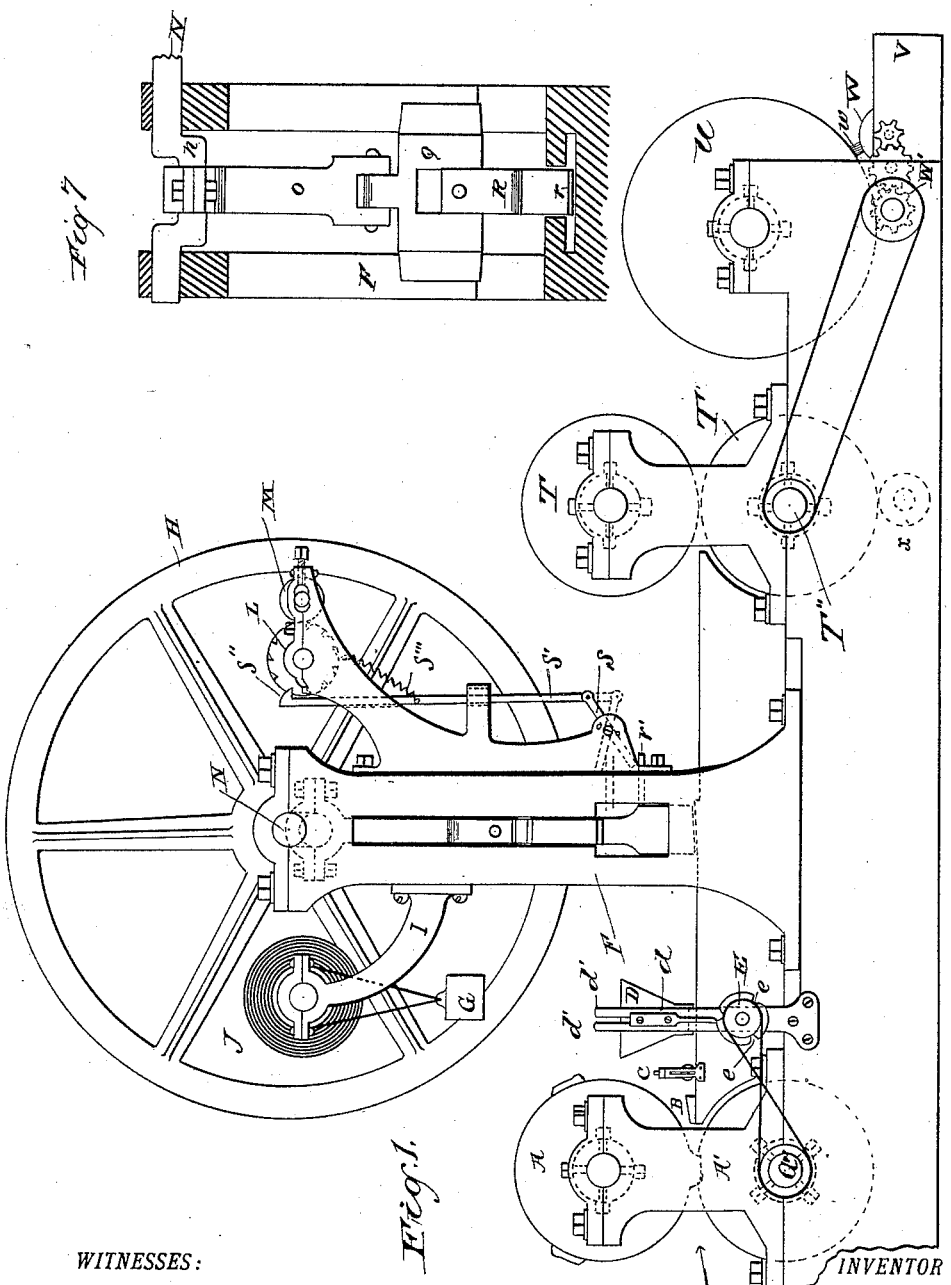

Fig. 1.

Fig. 2.

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(No Model.) 3 Sheets—Sheet 2.

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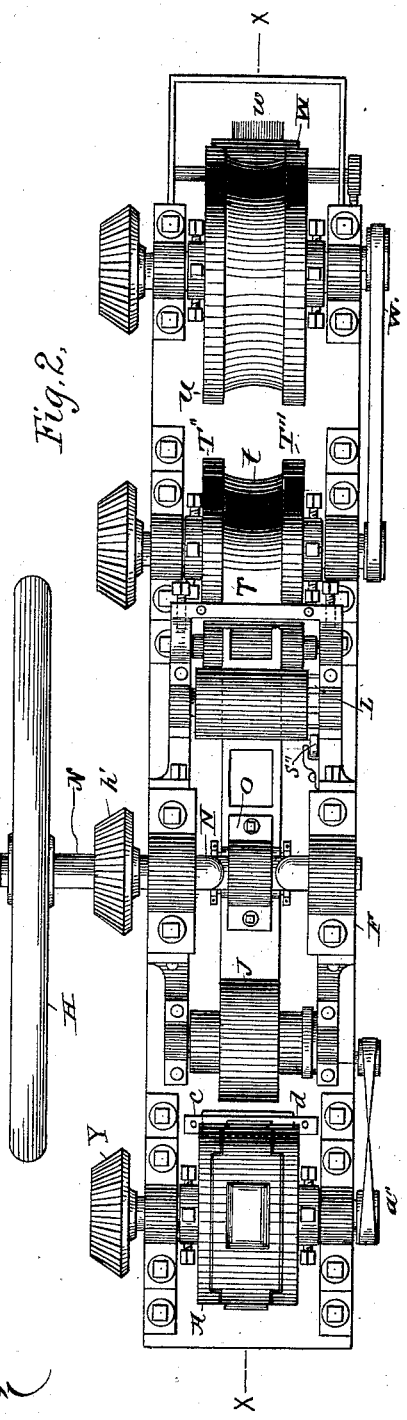

Fig. 2.

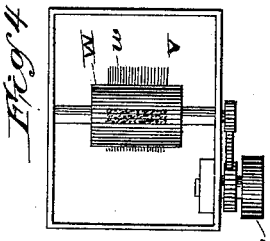

Fig. 4.

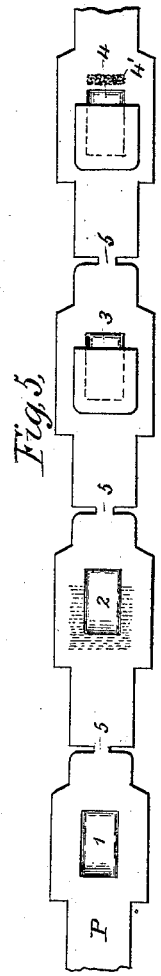

Fig. 5.

Fig. 6.

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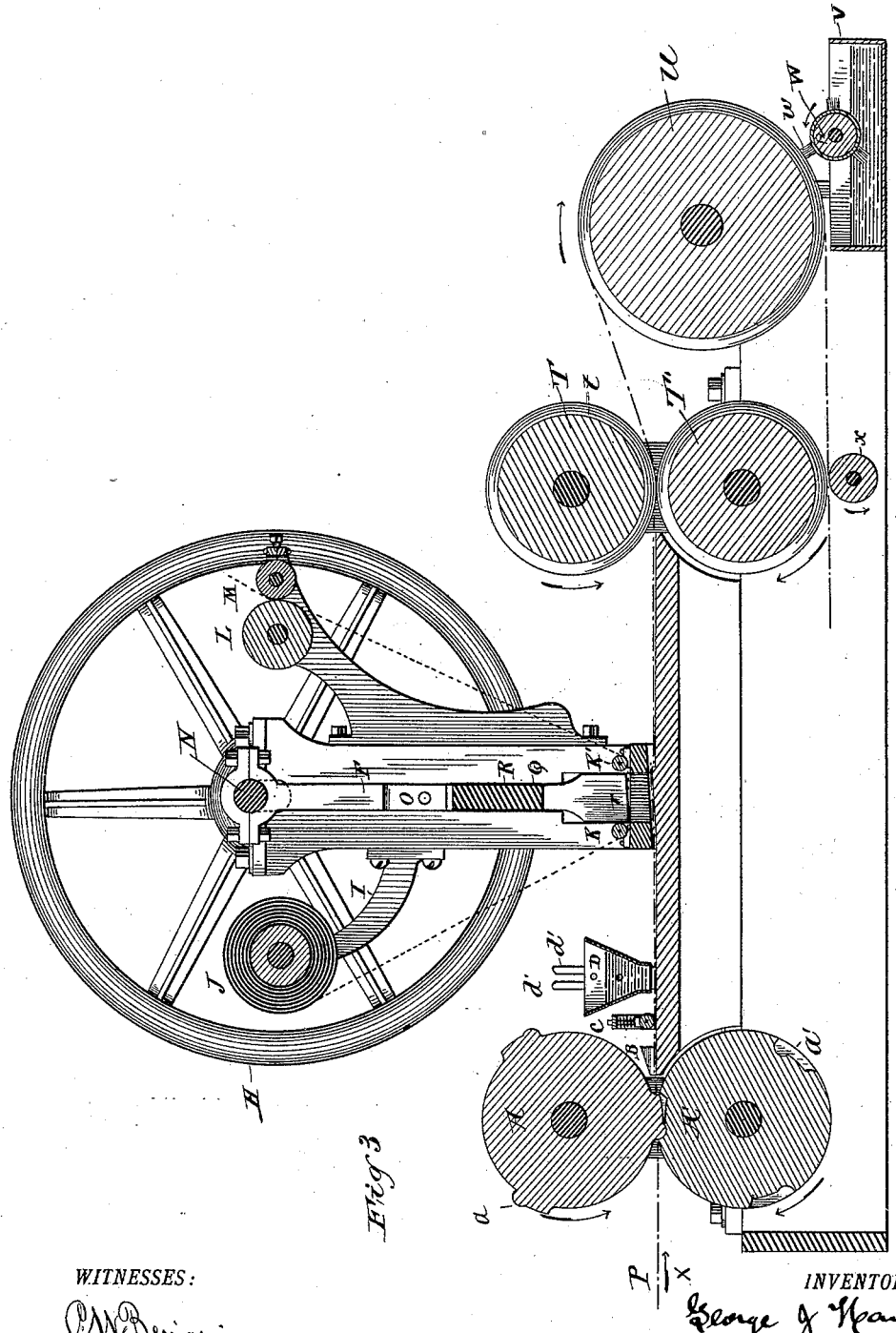

Fig 3

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UNITED STATES PATENT OFFICE.

GEORGE J. HARDY, JR., OF BROOKLYN, NEW YORK.

MACHINE FOR MAKING CIGAR OR CIGARETTE BOXES.

SPECIFICATION forming part of Letters Patent No. 422,077, dated February 25, 1890.

Application filed May 10, 1889. Serial No. 310,317. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. HARDY, Jr., a citizen of the United States, residing at the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Machines for Making Cigar or Cigarette Boxes, of which the following, taken in connection with the accompanying drawings, is a full, clear, and accurate description.

The object of my invention is to produce a machine by means of which a blank for cigar or cigarette boxes can be cut and embossed at the proper folding-lines and furnished with an embossed pocket or safe for matches, and with an emery or sand strip to light the matches on, the whole being produced in one continuous and automatic operation without handling or removing the strip from the machine from the commencement of the operation until its end.

The product of my improved machine, which is substantially a combined cigar or cigarette and match box, I intend to make the subject-matter of another application for patent.

In the drawings, Figure 1 represents a side view of my machine; Fig. 2, a plan view of the same; Fig. 3, a vertical sectional view of my machine through the line *x x*, Fig. 2, showing parts thereof. Fig. 4 shows a view of the details of part of my machine. Fig. 5 is a plan view of the strip of paper or pasteboard as it passes through the machine; Fig. 6, a sectional view of the same, and Fig. 7 details of parts of the machine.

My machine is constructed and operated as follows: The paper, pasteboard, or other suitable material forming the blank (represented by the broken line P, Fig. 3) is fed into the machine and passes through it in the direction of the arrows *x*, and first passes between the rollers A and A′, the said rollers being provided with male dies *a* on the wheel A, fitting into corresponding female dies *a′* on the wheel A′. These dies cut and emboss the blank, as shown at 1 in Fig. 5, in such manner that there is a small strip 5 left at the rear end of the blank. These wheels A and A′, thus provided with male and female dies, are so geared by the gear-wheels Y that they revolve in the direction shown by the arrows, thus pulling the paper toward the other operative parts of the machine.

B is a guide or stop, which prevents the blank from following the motion of the rollers A and A′, and directs it under the tension-guide C, and thence to and under the glue-pot D. The glue-pot D is arranged so as to hold glue, having at its bottom an orifice, the size of which can be regulated to discharge a greater or less quantity of glue by means of a valve regulated by a thumb-screw (not shown in the drawings) or other similar regulating device.

d is a guide or bar, by means of which the glue-pot D is raised or depressed in the slides *d′* as the blank passes underneath, and the action of the slide or bar *d* is such that when the glue-pot D is moved down against the blank passing beneath it the desired portion of the glue is caused to flow down upon and around the edges of the depression formed in the blank by the dies *a a′*, as shown by the dotted lines or blank 2 in Fig. 5. When, by the motion of wheel E, the glue-pot D is elevated, the remainder of the blank passes free from contact with the glue-pot, and consequently is not coated with the glue. This motion of the wheel E is effected by means of wheels *a″*, attached to the wheel A′ and operated by the belting shown in the drawings, the wheel E being of such a size that its circumference may be divided at equidistant points by three notches *e*, so arranged that at each one-third revolution of the wheel E a blank passes under the glue-pot D, the circumference of the wheel E elevating the glue-pot D, while the portion of the blank to which no glue is to be applied passes, and the slots *e* allowing the glue-pot to fall when the part of the blank to be glued is in proper position. It will be seen that the blank as formed now presents the appearance of an ordinary cigar or cigarette box blank, with a depression therein suitable for holding matches, with the edges of the depression having glue around for the proper attachment of the cover of the match-box, which is the next step in the operation. Upon the standard F, which supports the fly-wheel H, main shaft N, and main gear-wheel *h′*, is secured the arm I, with its upper end so formed as to hold a roll of paper J.

G is a weight attached to a proper tension device for regulating the run of paper from the roll. The paper passes from the roll J down and under the guide-rolls K K′, and thence up between the rolls L and M, hereinafter described.

Upon the shaft N of the fly-wheel H is formed the crank *n*, attached to which is the pitman O, which is pivoted to the slide Q. This slide Q moves up and down in a vertical position in suitable grooves in the standard F. Bolted to the slide Q is the plunger R, having at its lower edge a knife *r*, of such size and dimensions that it will cut from the roll of paper passing under the guides K K′ a piece sufficient in form and size to form the cover of the match-box. Projecting from the plunger R, through a slot in the standard F, is the pin or stop *r*′, which engages with the arm S, pivoted to the bar S′. Said bar S′ terminates in its upper end in the catch S″, which engages in teeth upon the wheel L. The wheel M, pressing upon the plain surface of the wheel L, is moved by frictional contact therewith. As the fly-wheel H revolves, the crank N forces the plunger R down upon the paper, cutting the required portion of the paper to form the cover of the match-box and at the same time forcing it into contact with the glued portion of the blank, thus completing the match-box portion of my invention.

The further revolution of the fly-wheel H, in driving the plunger R upward, brings the pin *r*′ in contact with the inner end of the arm S, and carries it to the position indicated by the dotted line in Fig. 1, pulling down the lower end of the bar S′, and, by means of the catch S″, revolving the wheel L a certain distance. This in turn moves the wheel M, and the paper from the wheel M, held in contact between L and M, is pulled forward and upward a sufficient distance to allow sufficient paper to pass between the guides K and K′ to form the next blank box-cover.

As the fly-wheel H revolves and the plunger R is brought down to its cutting position, the spring S‴ brings the catch S″ into contact with the wheel L.

The blank, with the match-box cover formed thereon, thence passes between the wheels T and T′, as shown in Fig. 3, and then around the wheel U. The wheel T is so formed that the center of the blank passes in a groove *t*, Fig. 3, out of contact with any portion of the machine, while the margin of the strip from which the blank is made is held in contact and moved forward by the friction of the edges of the wheel T.

The wheel U is provided with a similar groove, while the supporting-edges of the strip from which the blank is formed are supported by the outside rims of said wheel. Below the wheel, as shown in Fig. 3, is placed the emery-solution box or tank V, holding a solution of sand, or emery and glue, or other like solution. Revolving in the tank V is the wheel W, provided with the brushes *w*, so arranged that each one of them takes up in turn a portion of the solution and applies it to one blank, at its proper position above the match-box, as the blank passes around the wheel U.

W′ shows pulley and gearing, by which the wheel W is revolved, by the revolution of a pulley T″, mounted on the shaft of the wheel T′. The strip, with the blank thus completed, then passes beneath the lower portion of the wheel T′, in contact with which revolves the wheel *x*, provided with knives so placed that, as the strip and blank passes, the knives come in contact and cut the connecting-strip 5 (shown in Fig. 5) between the blank, and thus separate them and allow them to be ready for folding or bending into proper shape to be placed in the outside cover of the box.

Fig. 4 shows more in detail the construction of the emery-tank and brushes, while Fig. 7 shows details of the crank-plunger and match-box cutter.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for making cigar or cigarette box blanks, feed-rollers provided with cutting-dies to cut and form the blank from a strip of material, said feed-rollers having thereon embossing-dies, forming in said blank a recess to form a safe or receptacle for matches, in combination with an automatic glue-pot placing glue in the proper position around the embossed portion of said blank, a knife and plunger cutting a cover for the match-box from a strip of paper moved by automatic means past said plunger and pressing said cut piece of paper upon said glued portions of the blank, feed-rollers, one of which is provided with a recess to carry the blank forward, a cylinder, around which the blank and strip pass, revolving in contact with brushes so mounted on a wheel that the brushes take up and apply friction material from a tank holding the same at a point above the match-receptacle, and a further feed-roller provided with a knife so arranged as to sever completely the blank from the strip of material from which it is formed, substantially as described.

2. In a machine for automatically forming cigar or cigarette box blanks, feed-rollers provided with dies for cutting the blanks from a strip of material, and also provided with dies for embossing or indenting said blank with recesses or receptacles for matches.

3. In a machine for making cigar or cigarette box blanks which have embossed match-receptacles previously gummed at their edges, an arm mounted upon the standard supporting the journal-boxes of the fly or driving wheel of the machine, holding a roll of paper with a proper tension device to regulate its run, in combination with a knife and plunger moving in slides in said standard and actuated by a jointed pitman attached to a crank

on the axis of said fly or driving wheel and provided with a pin or stop moving in a slot in said standard, said stop acting upon and actuating a crank-bar which at its upper end is provided with a toothed projection fitting into teeth upon a wheel held in another standard mounted upon the support of the journal-box of the fly or driving wheel, said wheel moving in contact with another wheel mounted upon said arm, the whole so arranged that the motion of the knife and plunger actuates the paper passing under said knife and between the wheels or rollers, so that the paper is passed beneath said knife and plunger and pressed against said embossed and glued blanks and the paper from which the cover for the match-box is cut forced step by step forward between the two wheels or rollers, together with a spring holding said bar in contact with the two wheels, substantially as described.

4. The combination of the feed-rollers provided with dies for embossing the match-receptacle in the blank, a reciprocating glue-pot adapted to contact with and glue said blank at intervals, and a reciprocating plunger for pressing the cover for the match-receptacle against said glued surfaces, substantially as set forth.

5. The combination, with the dies and feed-rollers for forming the match-receptacle in the blank, of a reciprocating gumming device adapted to gum the edges of said receptacle, a plunger having a knife reciprocating in unison with said gumming device to and from the blank, a roller for feeding a strip of material between said plunger and the blank, whereby said plunger and knife will cut a portion out of said strip and press it upon the blank, and advancing-rollers for advancing said strip under said plunger, substantially as set forth.

In testimony whereof I have hereunto set my hand this 7th day of May, 1889.

GEO. J. HARDY, JR.

Witnesses:
M. SHERIDAN,
R. T. VAN BOSKERCK.