No. 746,209. PATENTED DEC. 8, 1903.

F. WAITE.

LABEL MAKING AND PRINTING MACHINE.

APPLICATION FILED DEC. 24, 1897.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1

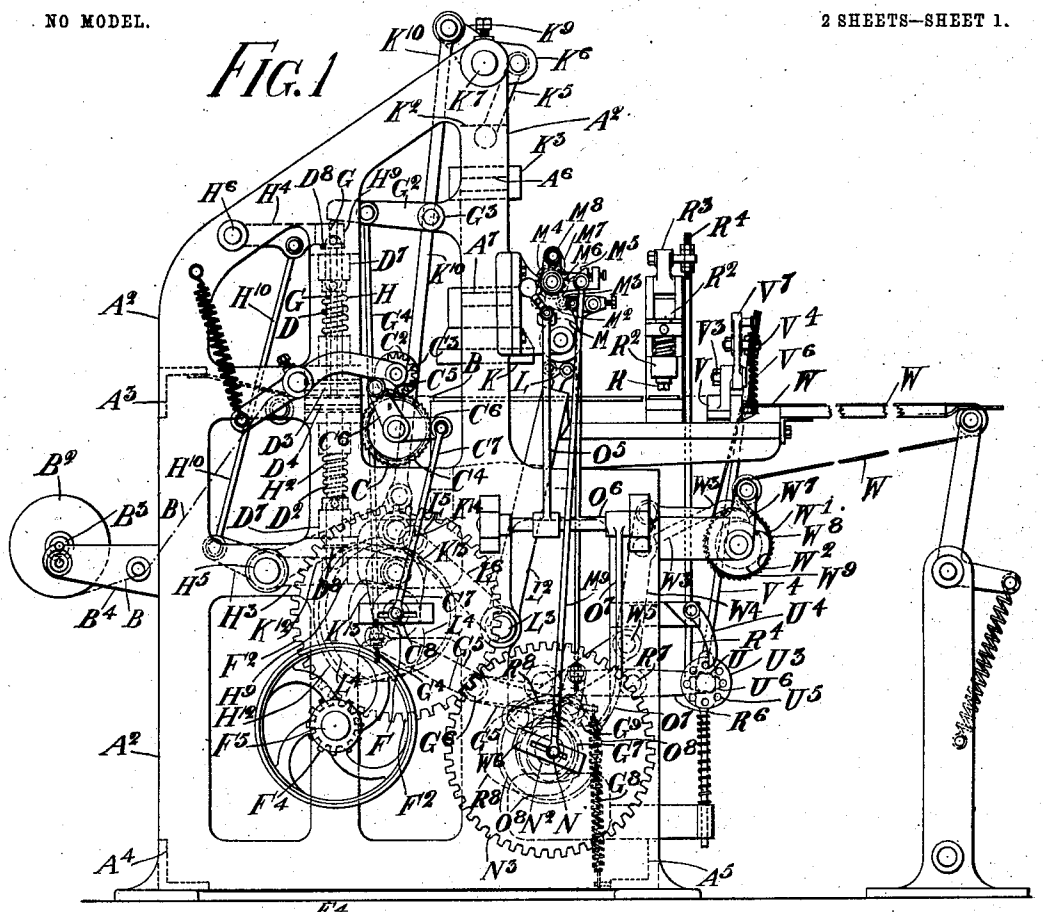
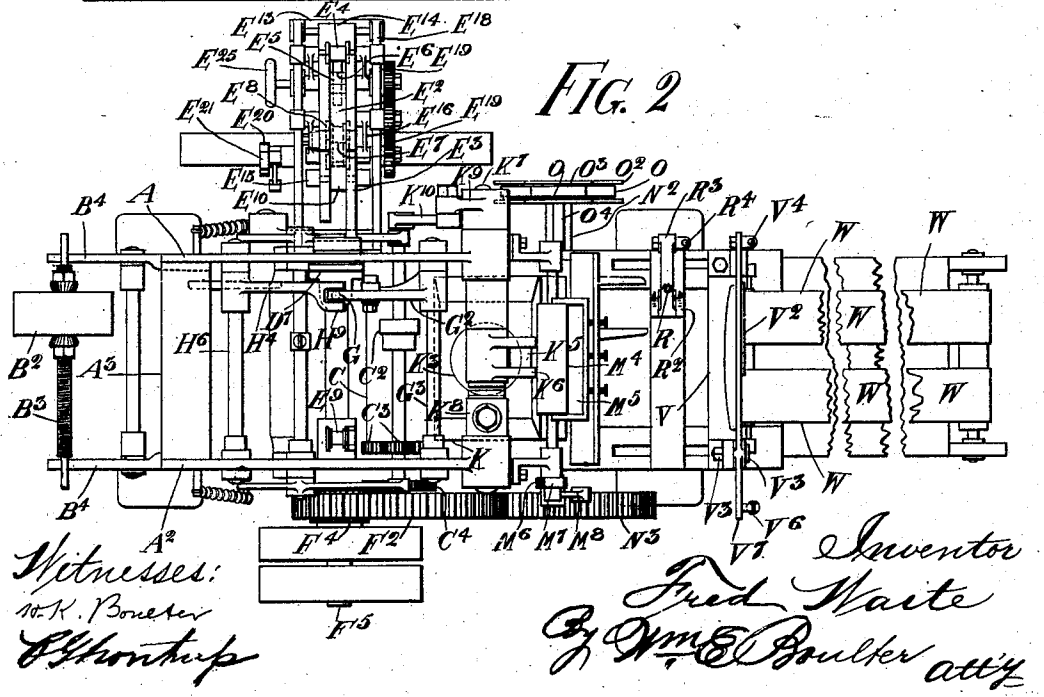


FIG. 2



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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 4

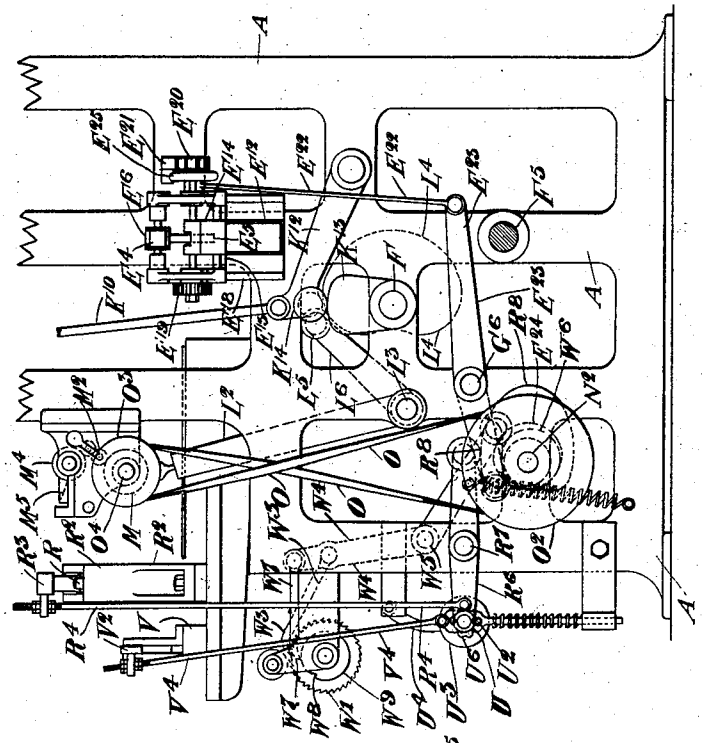


FIG. 5

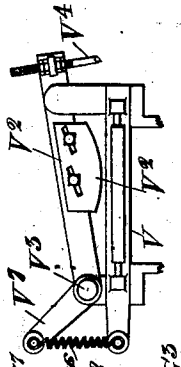
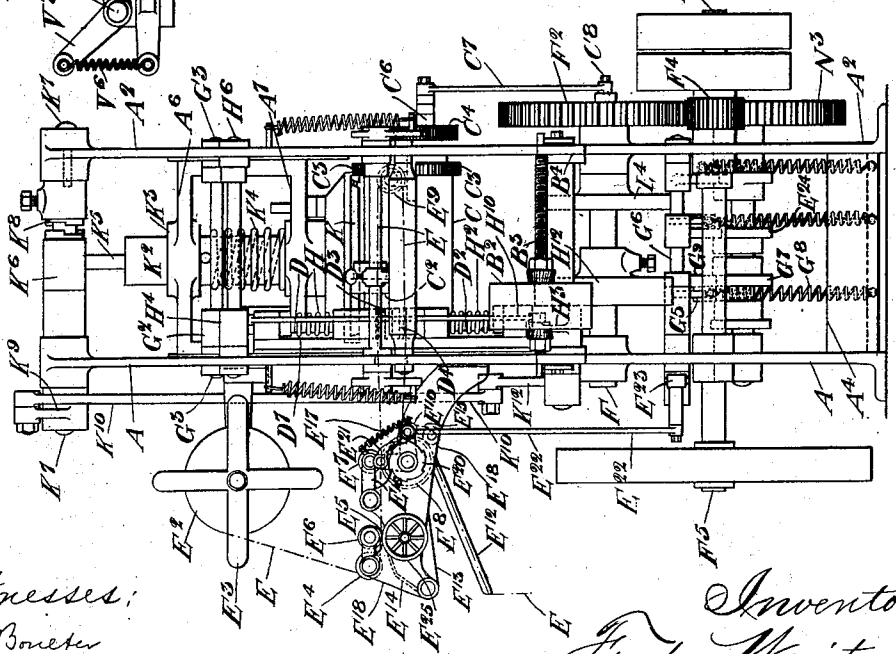


FIG. 3



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No. 746,209. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

FRED WAITE, OF OTLEY, ENGLAND.

LABEL MAKING AND PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 746,209, dated December 8, 1903.

Application filed December 24, 1897. Serial No. 663,346. (No model.)

To all whom it may concern:

Be it known that I, FRED WAITE, a subject of the Queen of England, residing at Otley, England, have invented certain new and useful Improvements in Label Making and Printing Machines, of which the following is a specification.

This invention relates to improvements in machines for making and printing that class of labels commonly known as "American washer-tags"—that is to say, luggage and similar labels with washers cemented round the eye or perforation by which they are intended to be attached.

To fully describe my invention, reference is made to the accompanying sheets of drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in each of the figures.

Figure 1 represents a side elevation of my improved machine. Fig. 2 is a plan view, and Fig. 3 is a front or end view, of the same. Fig. 4 is a view of the opposite side to that shown in Fig. 1 of a portion of the mechanism. Fig. 5 is a detail view hereinafter referred to.

The side frames A and A^2, forming the main framework of the machine, are connected together by the cross-stays A^3, A^4, A^5, A^6, and A^7. The stay A^3 is omitted in Fig. 3. The paper or its equivalent from which the labels are made is represented by the broken line B, Fig. 1, and is drawn off the roll B^2 by the intermittently-operated feed-rollers C and C^2, between which it passes. The roll B^2 is mounted on the arbor B^3, supported by the brackets B^4 B^4, fixed to the side frames. The punches D and D^2, between which the edge of the paper also passes, are located immediately in front of the feed-rollers C and C^2. The paper or its equivalent from which the washers are formed is represented by the broken line E, Fig. 3. This paper is drawn off a roll E^2, supported by the bracket E^3, fixed to the side frame A, and is passed under the guide-roller E^4, between the gumming-roller E^5 and the press-roller E^6, then between the feed-rollers E^7 and E^8, through an opening in the side frame A and over the bolster D^3 of the top punch D. The paper is then passed across the machine round the guide-roller E^9, fixed to the side frame, and back immediately underneath the bolster D^4 of the bottom punch D^2. The paper then passes back again through the frame A and between the feed-roller E^8 and lower feed-roller E^{10} and down the guides E^{12}. The gumming-roller E^5 dips down into the trough E^{13}, containing a suitable adhesive material, and a scraper E^{14} is provided to scrape surplus material off the sides of the roller. The roller E^5 is made the same width or only a little wider than the diameter of the washers to be fixed to the labels, and the paper E is made wider than this. Consequently there is a margin along each side left ungummed, and the rollers E^8 and E^9 have the center portions reduced in diameter, so as not to touch the paper excepting along the ungummed margins. The rollers E^{10} and E^7 are mounted in arms E^{15} and E^{16}, and the spiral spring E^{17}, stretching between said arms, is provided to press these rollers against the roller E^8. The rollers E^8 and E^5 are mounted in bearings formed in the bracket E^{18} and are geared together by the toothed wheels E^{19}, E^{19}, and E^{19}. The roller E^8 is driven by the ratchet-wheel E^{20}, fixed upon its arbor and operated by the pawl E^{21}, actuated by the rod E^{22}, connected to the lever E^{23}, vibrated by the cam E^{24} on the shaft N^2. A hand-wheel E^{25} is provided on the arbor of the roller E^5.

The paper B, from which the labels are formed, passes between the two layers of washer-paper E, crossing the machine, and at each movement of the feed-rollers C and C^2 sufficient paper is drawn into the machine to make a label. At the same time sufficient of the washer-web paper E to make two washers is fed to the machine, and the position of the guide-roller E^9 is such that the washer-web is presented to the lower punch D^2 with two of the apertures formed by the "punchings" previously removed by the upper punch D equidistant or approximately equidistant on opposite sides of the punch D^2, so that there is sufficient material from which to punch the underneath washer. Each time the rollers C and C^2 are at rest the punches D and D^2 are operated and each punch a disk from the web E and press them firmly against opposite sides of the paper B, and while firmly held in this position the internal punch G, fitted in D, is brought down and punches the hole or eye centrally through both washers

and through the label-paper between them. The punch D^2 is made hollow and forms the bolster for the punch G, and the punchings made by G fall through D^2.

The punches D and D^2 are mounted in the bracket D^7, fixed to the side frame A. Springs H and H^2 are provided to move the punches apart, and they are actuated by the levers H^3 and H^4, fixed on the cross-shafts H^5 and H^6, and their forked ends H^9 bear upon the collars D^8, formed upon the punches. The ends H^9 are forked, so as to leave the end of the punch G free and the hole through the punch D^2 clear and open. The levers H^3 and H^4 are connected together by the rod H^{10} and are actuated by the box-cam H^{12} on the shaft F. The punch G is depressed by the lever G^2, pivoted on the shaft G^3 and connected by the rod G^4 to the lever G^5, mounted on the shaft G^6 and arranged to be vibrated by the cam G^7 on the shaft N^2. A spring G^8 is provided to keep the antifriction-roller G^9 on the lever G^5 against its cam, and an internal spring is fitted inside the punch D, adapted to withdraw the punch G when the lever G^2 is lifted.

The rollers C and C^2 are geared together by the wheels C^3, and the roller C is intermittently operated by the ratchet-wheel C^4, fixed upon its arbor. The pawl C^5, engaging the wheel C^4, is mounted upon the lever C^6, connected by the rod C^7 to the eccentric stud C^8 in the wheel F^2, fixed upon the shaft F. The wheel F^2 is driven by the spur-wheel F^4 on the driving-shaft F^5.

The paper leaving the feed-rollers is pushed beneath the inverted type-bed K, which is brought down each time the paper is held for the washers to be fixed. The bed K is fixed to the vertical slide K^2, sliding in guides K^3 in the cross-stays A^6 and A^7, and the spiral spring K^4 is provided to lift the slide and bed. To depress the bed K to print the paper, the top of the slide K^2 is connected by the rod K^5 to the lever K^6, mounted on the rocking shaft K^7, and a clutch K^8, keyed to the shaft K^7, is preferably provided to engage the lever K^6 and enable the latter to be thrown in or out of operation, according to whether the labels are required to be printed or not. The shaft K^7 is rocked by its arm K^9, connected by the rod K^{10} to the arm K^{12}, and the arm K^{12} is vibrated by the cam K^{13} on the shaft F engaging the antifriction-roller K^{14} on said arm.

The bed K is lifted sufficiently each time to allow the inking-rollers L to be passed underneath each time it is lifted. The rollers L are mounted upon the arms L^2, fixed on the rocking shaft L^3, mounted in bearings in the side frames, and the shaft is rocked by the cam L^4 on the shaft F engaging the antifriction-roller L^5 on the arm L^6, rigidly fixed to L^3. The inking-rollers L receive their ink from the cylinder M, fed by the distributing-roller M^2, and the doctor-roller M^3, supplied with ink from the ink-roller M^4, revolving in the ink-duct M^5. The roller M^4 is driven by the ratchet-wheel M^6, fixed on its arbor and operated by the pawl M^7 on the lever M^8, connected by the rod M^9 to the eccentric stud N on the wheel N^3, fixed on the shaft N^2 and driven from the wheel F^2. A strap O from the pulley O^2 on the other end of N^2 drives the pulley O^3, fixed on the arbor O^4 of the cylinder M. The roller M^2 has a slight longitudinal movement imparted to it by the arm O^5, projecting from the rocking shaft O^6, which shaft is rocked by its arm O^7 engaging a cam-groove formed round the periphery of the cam O^8, fixed on the shaft N^2.

To miter the corners of the eyelet end of the labels, I employ a triangular punch R, mounted in the guide R^2 and operated by the lever R^3, which is depressed by the rod R^4, connected to the lever R^6, pivoted on the shaft R^7. The lever R^6 is actuated by the cam R^8 on the shaft N^2. The punch R is adjusted so as to punch out a triangular piece exactly midway between each pair of labels. The labels then pass over the shearing-bed V, against which the blade or knife V^2 works and cuts off the labels as they pass beneath. The knife V^2, a back view of which, with certain other parts, is shown in Fig. 5, is pivoted on the stud V^3, and the other end is depressed to sever the labels by the rod V^4, in connection with the lever R^6. A spring V^6, connected to the projection V^7 on the knife, is provided to lift it.

The severed labels drop onto the traveling carrier W, driven by the drum W^2, having a ratchet-wheel W', actuated by the pawl W^3 on the lever W^4, mounted on the stud W^5 and vibrated by the cam W^6 on the shaft N^2. To divide the labels into batches, the second pawl W^7 is provided. This pawl W^7 once during each revolution of the drum W^2 engages the single tooth W^8 in the disk W^9, connected to the said drum, and moves the drum through the space of two or more teeth of the ratchet, thus leaving a distinct space between each batch of labels.

In some cases—as, for instance, when a printing-press is not provided in the machine—it is desirable to deliver the labels in gangs consisting of, say, four partly-divided labels to facilitate printing them afterward. For this purpose the shearing-blade V^2 is made curved. Its stroke is reduced while the gangs are formed, so as to leave a small portion at each end of the label unsevered. The rod V^4 is depressed by the star-cam U engaging the stud U^2 in the rod V^4. This cam is fixed to the disk U^3, which is turned part of a revolution at each upward movement of the rod by the pawl U^4 engaging the teeth U^5 on the said disk. One or more proud parts U^6 is formed on the cam U. Consequently when these are brought round and engage the stud U^2 the knife is depressed to a greater extent and a complete severance of the labels takes place, and in this way the gangs are separated.

I claim—

1. In a label-making machine, the combi-

nation with two oppositely-arranged washer-punches, of feed and guide devices E^4, E^7, E^8, E^9, E^{10}, E^{12}, so arranged as to cause a web of paper to pass along a path to adapt it to be operated upon by one of the punches and to be then returned and cause it to pass along a path to be operated upon by the other punch, and means for periodically operating the punches to punch washers from the web of paper.

2. In a label-making machine, the combination with two oppositely-arranged washer-punches, of feed and guide devices E^4, E^7, E^8, E^9, E^{10}, E^{12}, so arranged as to cause a web of paper to pass along a path to adapt it to be operated upon by one of the punches and to be then returned and cause it to pass along a path to be operated upon by the other punch, feed devices arranged to periodically feed a second web of paper intermediate the two sections of the first web of paper, and in position to have the washers attached to opposite sides of said second web when the punches are operated and means for periodically operating the punches.

3. In a label-making machine, the combination with two oppositely-arranged hollow washer-punches, of feed and guide devices E^4, E^7, E^8, E^9, E^{10}, E^{12}, so arranged as to cause a web of paper to pass along a path to adapt it to be operated upon by one of the punches and to be then returned and cause it to pass along a path to be operated upon by the other punch, a third punch arranged and adapted to be reciprocated within one of the first-mentioned punches, feed devices arranged to periodically feed a second web of paper intermediate the two sections of the first web of paper, and in position to have the washers attached to opposite sides of said second web when the punches are operated and means for periodically operating the various punches.

4. In a label-making machine, the combination with two oppositely-arranged washer-punches, of feed and guide devices E^4, E^7, E^8, E^9, E^{10}, E^{12}, so arranged as to cause a web of paper to pass along a path to adapt it to be operated upon by one of the punches, and to be then returned and cause it to pass along a path to be operated upon by the other punch, levers having one end forked and engaging the punches, a connection between the punches whereby the same may be simultaneously operated, a rotatable shaft, and a cam thereon, said cam being adapted to operate upon one of the levers, and means for forcing the punches apart after having operated upon the web of paper.

5. In a label-making machine, the combination with oppositely-arranged hollow punches, of feed and guide devices E^4, E^7, E^8, E^9, E^{10}, E^{12}, so arranged as to cause a web of paper to pass along a path to adapt it to be operated upon by one of the punches, and to be then returned and cause it to pass along a path to be operated upon by the other punch, a third punch arranged and adapted to be reciprocated within one of the first-named punches, levers having one end forked and engaging the punches, a connection between the punches whereby the same may be simultaneously operated, a rotatable shaft, a cam thereon adapted to operate upon one of said levers, a lever engaging the said third punch, a second rotatable shaft, a cam thereon, and connections intermediate the latter and the last-named lever for the purpose specified.

6. In a label-making machine, the combination with two oppositely-arranged washer-punches, of feed and guide devices E^4, E^7, E^8, E^9, E^{10}, E^{12}, so arranged as to cause a web of paper to pass along a path to adapt it to be operated upon by one of the punches and to be then returned and cause it to pass along a path to be operated upon by the other punch, said feed devices comprising a roller reduced at its center, means to periodically operate the punches to punch washers from the web of paper, and a gumming-roller arranged to apply gum to a surface of the web, said roller being of a width narrower than that of the said web all for the purposes specified.

In testimony whereof I have hereunto set my hand in the presence of the two subscribing witnesses.

FRED WAITE.

Witnesses:
JASON SAVILLE,
DAVID NOWELL.