No. 693,832. Patented Feb. 25, 1902.

J. W. BUTTERFIELD & B. C. SCHMITT.

MACHINE FOR APPLYING PASTE TO LABELS.

(Application filed Aug. 28, 1901.)

(No Model.) 3 Sheets—Sheet 1.

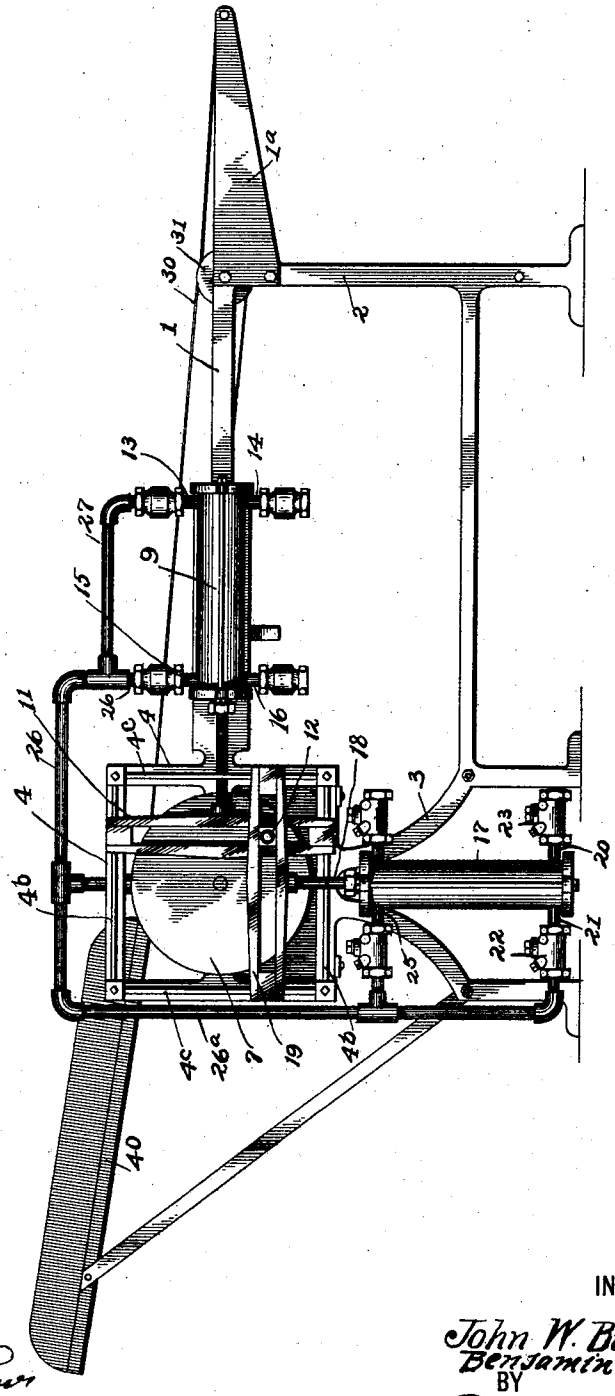


Fig. 1.

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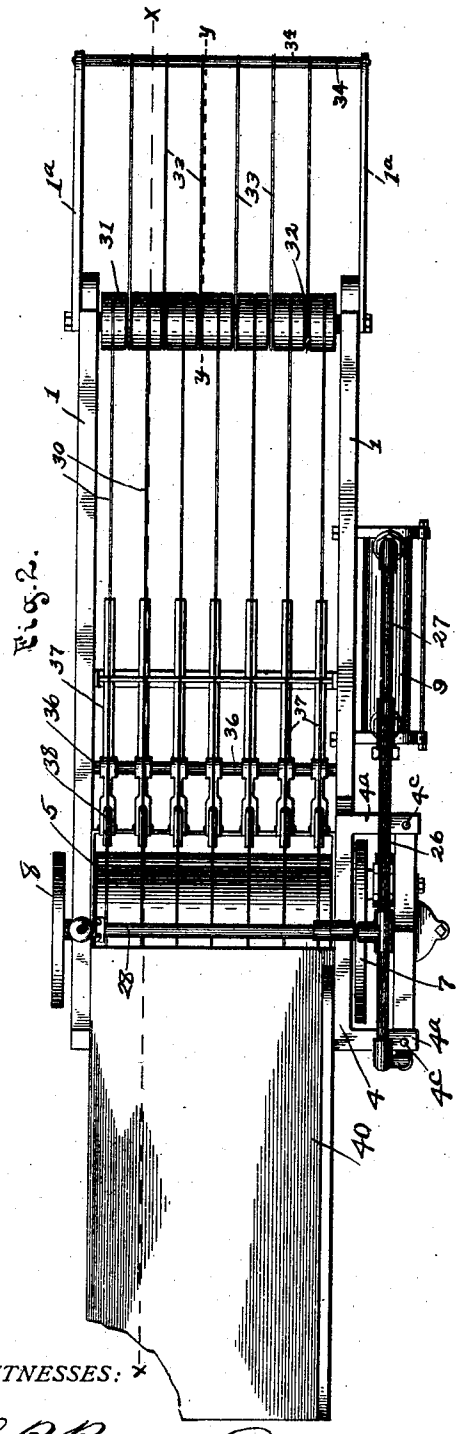


Fig. 2.

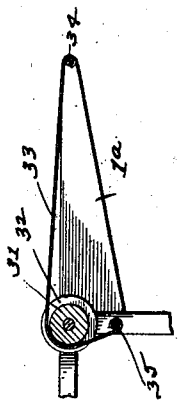


Fig. 4.

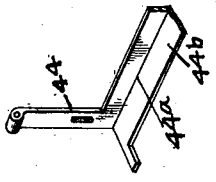


Fig. 5.

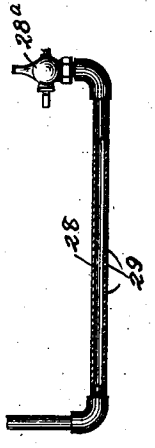


Fig. 5.

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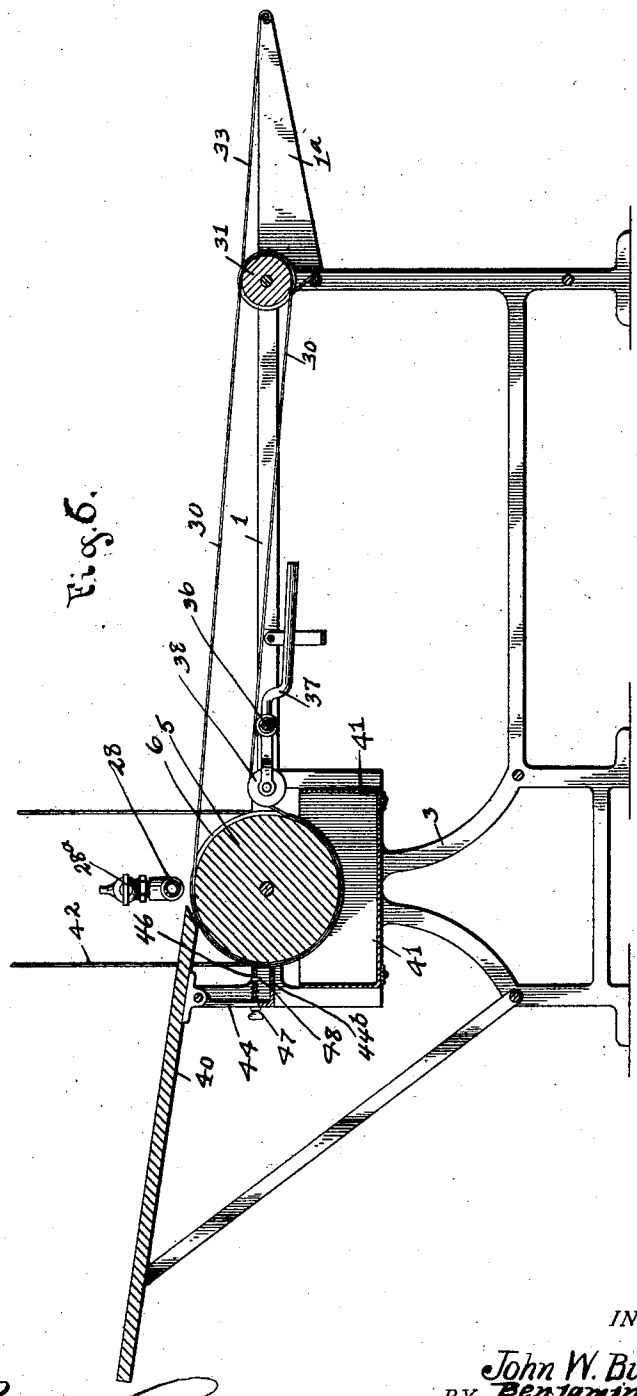
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Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN W. BUTTERFIELD AND BENJAMIN C. SCHMITT, OF COLUMBUS, OHIO.

MACHINE FOR APPLYING PASTE TO LABELS.

SPECIFICATION forming part of Letters Patent No. 693,832, dated February 25, 1902.

Application filed August 28, 1901. Serial No. 73,529. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. BUTTERFIELD and BENJAMIN C. SCHMITT, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Machines for Applying Paste to Labels, of which the following is a specification.

Our invention relates to machines for applying paste to labels; and the objects of our invention are to provide a simple, reliable, and effective mechanism by which a desirable coating of paste or similar material may be applied uniformly and rapidly to the backs of labels, to provide improved means for holding the labels in contact with the supporting-cylinder, and to produce other improvements the details of construction and arrangement of parts of which will be more fully pointed out hereinafter. These objects we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of our improved machine. Fig. 2 is plan view. Fig. 3 is a detail view, partly in elevation and partly in section, of the transverse air-discharging pipe. Fig. 4 is a sectional view on line *y y* of Fig. 2. Fig. 5 is a perspective view of a portion of a paste-regulating device, and Fig. 6 is a sectional view on line *x x* of Fig. 2.

Similar numerals refer to similar parts throughout the several views.

In carrying out our invention we employ a suitable oblong framework, of which 1 represents the upper parallel side bars, 2 the front standards, and 3 the rear standards. With the upper portion of one of the vertical frame-standards 3 and the rear portion of the adjoining frame-bar 1 we form a vertically-disposed rectangular frame 4, the latter having projecting from its corner portions arms 4^a, which are connected by horizontal and vertical guide-rods 4^b and 4^c.

Between the rear portions of the frame-bars 1 is rotatably mounted a roll 5, the periphery of which is provided at intervals with grooves 6. One of the end spindles of the roll 5 carries on the outer side of the frame 4 a disk 7, while the remaining end spindle is provided on the opposite side of the frame with a power-wheel 8.

Supported from one of the frame-bars 1 and on that side of the machine on which is provided the frame 4 is a horizontal air-pump cylinder 9, the latter being provided with a piston 10, which enters the rear end of said cylinder and which on the inner side carries a desirable form of close-fitting piston-head. (Not herein shown.) The outer or rear end of the piston-rod 10 is rigidly connected with the central portion of a vertically-disposed and slotted head 11, the upper and lower guide-rods 4^b passing loosely through the ends of said head. Arranged eccentrically on the outer face of the disk 7 is a pin 12, which projects, as shown more clearly in Fig. 2, within the central slotted opening of the head 11. The air-pump cylinder 9 is provided at its outer end with upper and lower check-valve-controlled inlet-pipe arms 13 and 14, and at its inner end with correspondingly arranged and controlled inlet-pipe arms 15 and 16.

On the outer side of that forward frame-standard 3 which is provided with the frame-head 4 and opposite the lower portion of said frame-standard we provide a vertical air-pump cylinder 17, the latter having, as prescribed for the cylinder 9, a piston 18, which enters said cylinder at its upper end. The upper end of the piston 18 is secured to the center of the length and under side of a horizontal and central slotted head 19, which also receives the outwardly-projecting disk pin 12. The ends of the slotted head 19 are arranged to slide vertically on the guide-rods 4^c of the frame 4. At its lower end the cylinder 17 has leading therein pipe-arms 20 and 21, which are intersected by suitable check-valves 22 and 23. The upper end portion of the cylinder 17 is likewise provided on opposite sides with valve-controlled pipe-arms 24 and 25.

Leading upward from the pipe-arm 15 of the pump-cylinder 9 is a pipe 26, which, extending rearward over the frame 4, passes downward, as indicated at 26^a, and connects with the pipe-arm 21 of the cylinder 17. Through the medium of a pipe 27 the pipe-arm 13 of the cylinder 9 is connected with the

pipe 26, and the pipe-arm 25 is also connected with the pipe-arm 26^a.

Leading transversely over the roll 5 from the horizontal portion of the pipe 26 is an air-discharging pipe 28, which, as indicated more clearly at 29 in Fig. 3 of the drawings, has its under side perforated. The outer portion of the pipe 28 terminates in a suitable valve-controlled outlet 28^a.

Running in the grooves 6 of the roll 5 are endless cords 30, which, extending outward or forward, pass over a transversely-journaled roll or shaft 31, which is arranged between the forward ends of the frame side arms 1. As shown more clearly in Fig. 4 of the drawings, the roll or shaft 31 has its periphery provided at intervals with grooves 32, through which extend the inner end portions of outwardly or forwardly extending parallel wires 33, the outer ends of said wires being secured to a transverse rod 34, connecting the ends of frame extension-arms 1^a of the bars 1, while the inner ends of the wires 33 are connected with a transverse frame-rod 35 below the roll 31.

In front of the roll 5 and fulcrumed in rear of the centers of their lengths on a transverse shaft 36 are tension-levers 37, the forward ends of which have journaled therein grooved wheels 38, which through contact with the cords 30 and through the weight of the rear portions of said levers operate to elevate the lower lines of said cords and retain the same under proper tension.

As indicated at 40, we provide an inclined feed-table, which is supported from and in rear of the main frame in such position as to discharge its contents onto the roll 5.

Supported transversely below the roll 5 is a paste-reservoir 41, within which a portion of said roll is adapted to run.

Pivotally supported from the under side of the feed-board 40 is a depending paste-regulating or roll-scraping device 44. This scraping device has its lower horizontal arm 44^a provided with a forwardly-turned flange 44^b, the outer edge of which is held in desirable proximity to the roll 5 through the medium of an adjusting-pin 46, which passes loosely through an opening in the upright arm of the scraper 44 and carries on its threaded outer end a suitable nut 47. The inner end of the pin 46 is connected with a laterally-projecting frame-lug 48.

In utilizing our invention rotary motion is contributed to the roll 5 through a belt 42, running upon the wheel 8. The motion thus imparted to said roll is contributed to the cords 30 and through the latter to the roll 31. The rotation of the disk 7, which is also imparted by the rotation of the roll 5, results through the working of the disk-pin 12 in the slots or guideways of the heads 11 and 19 in the backward-and-forward movement of said head 11 and in an upward-and-downward movement of said head 19. The rearward or outward movement thus imparted to the piston 10 results in opening the check-valve of the pipe-arm 14 and drawing air into the cylinder 9 through said arm and forcing such air as may be in rear of the piston-head outward through the pipe 26 and in closing the valve of the pipe-arm 16, while the inward movement of the piston 10 results in opening the valve of the arm 16, closing the valve of the arms 15 and 14, and opening the valve of the arm 13, thus forcing air contained in front of the piston through said arm 13 and pipe-arms 17 and 26. In a like manner the upward-and-downward movement of the piston 18 results in alternately drawing air into the cylinder 17 through the check-valve 23 and the valve of the pipe-arm 24 and in alternately forcing the air thus introduced into said cylinder out through the pipe-arms 25 and 21 and into the pipe 26. The air thus forced into said pipe 26 enters the discharging-pipe arm 28 and escapes through the perforations 29, directly against the roll 5. In its traveling movement through the reservoir 41 the periphery of the roll 5 becomes coated with paste, so that the labels which may be fed in sheets or otherwise down the feed-board 40 onto said paste-covered roll will by force of the air from the openings 29 of the arm 28 be pressed into contact with the paste-covered surface of said roll and then carried outward on the cords 30 and delivered onto the wires 33. In this operation it will be seen that means are provided for imparting a continuous blowing action against the periphery of the roll 5, which is sufficient to insure a desirable coating contact of the labels therewith before their removal.

In order to provide a uniform coating of paste on the roll 5, we have provided the paste regulating or scraping device 44, the flange 44^b of which will serve to remove the surplus paste from said roll.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a machine for applying paste to labels, the combination with a framework, a roll journaled therein and means for imparting rotary motion to said roll, of an air-pump operated by the rotation of said roll, a perforated pipe-arm adjacent to the periphery of said roll, air-conducting pipes leading from said air-pump to said perforated pipe-arm and a paste-containing reservoir in which said roll is adapted to turn, substantially as specified.

2. In a machine for applying paste to labels, the combination with a framework, a paste-containing reservoir supported therein, a roll 5 journaled in said framework and running in said reservoir, a roll 31 journaled in the forward portion of said framework and cords running over said rolls, of horizontal and

vertical air-pump cylinders 9 and 17 having valve-controlled inlet and outlet openings at opposite ends, a reciprocating piston for each of said pump-cylinders, connections between said pistons and roll 5 whereby the rotation of the latter imparts reciprocating motion to the former, a perforated air-distributing pipe-arm adjacent to the periphery of the roll 5 and pipe connections between said pump-cylinders and said perforated pipe-arm, substantially as specified.

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BENJAMIN C. SCHMITT.

In presence of—
C. C. SHEPHERD,
C. M. MORROW.