

J. HARIEL.
BAG AND ENVELOP PRINTING MACHINERY.
APPLICATION FILED MAR. 5, 1909.

1,013,160.

Patented Jan. 2, 1912.

3 SHEETS—SHEET 1.

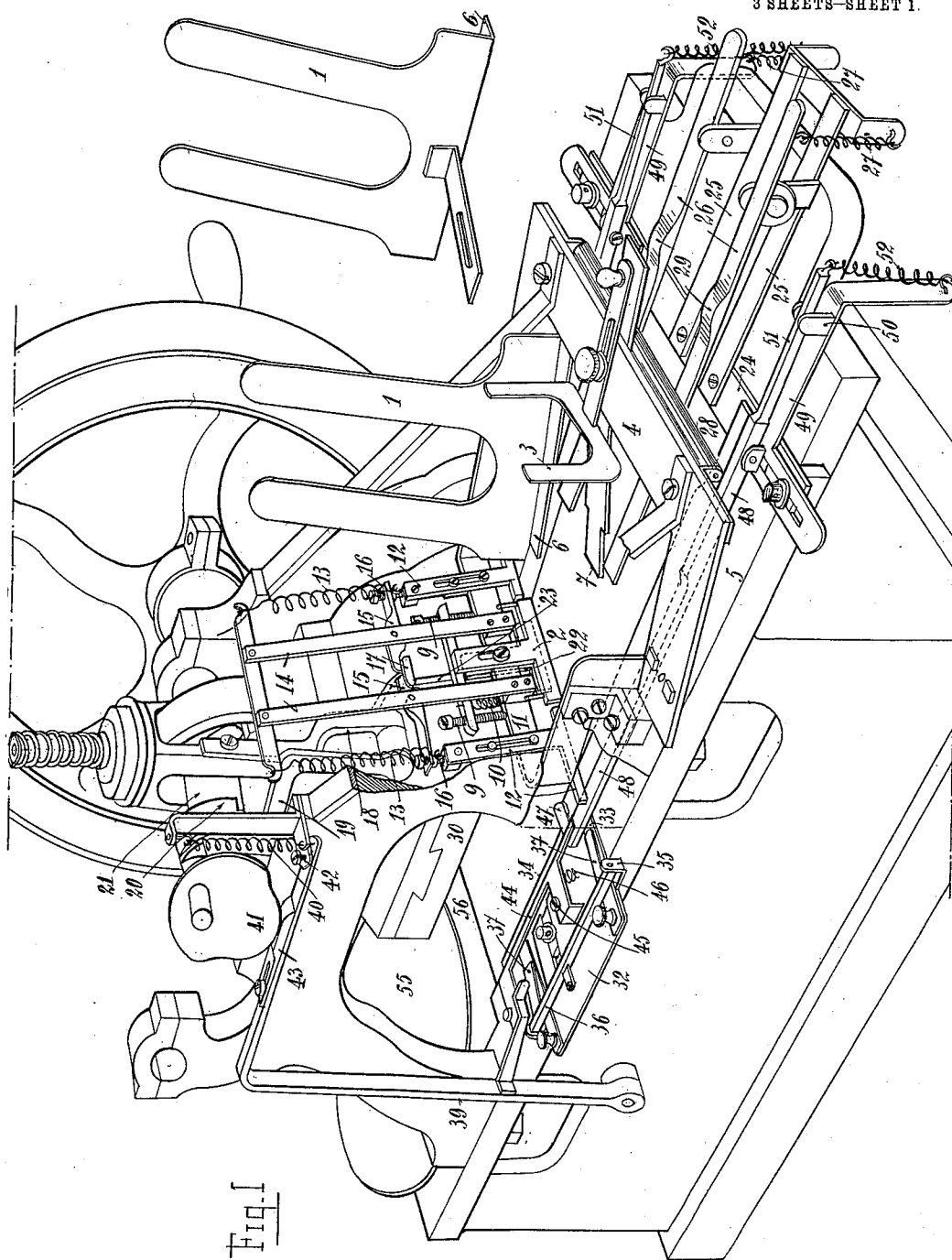


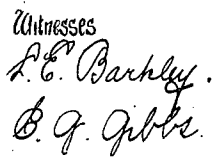
Fig. 1

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3 SHEETS—SHEET 2.



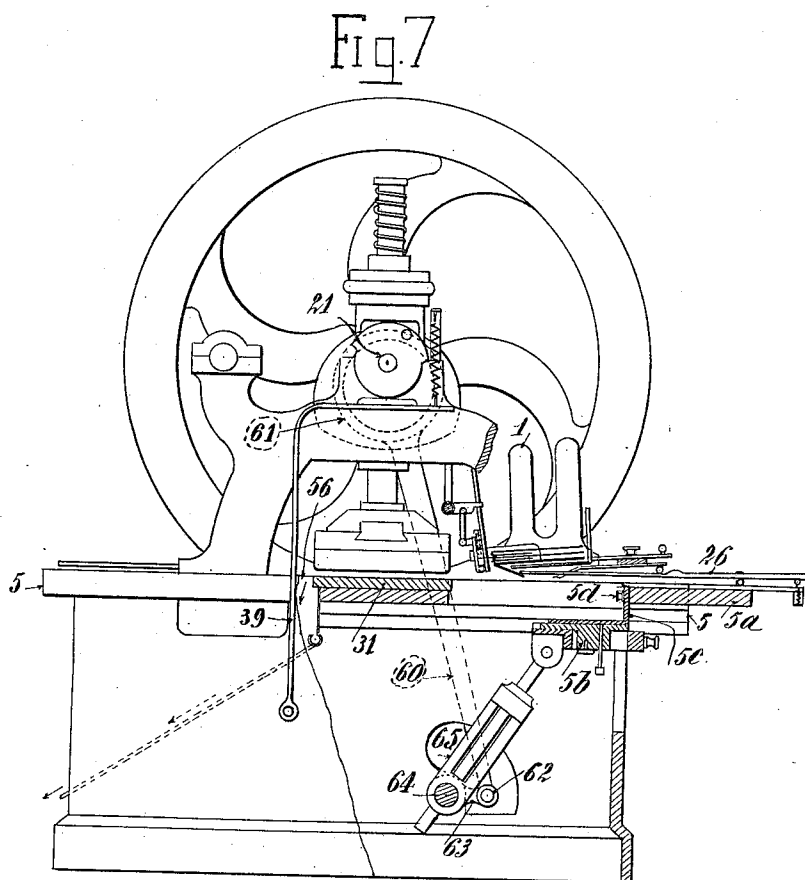
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UNITED STATES PATENT OFFICE.

JULES HARIEL, OF PARIS, FRANCE.

BAG AND ENVELOP PRINTING MACHINERY.

1,013,160.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JULES HARIEL, a citizen of the French Republic, residing at 231 Faubourg St. Martin, Paris, in the Department of Seine, France, have invented new and useful Improved Bag and Envelop Printing Machinery, of which the following is a specification.

This invention relates to a machine for printing envelopes, paper bags and like articles, whether provided with a flap or not, and in which machine the delivery of the articles to be printed is effected automatically. In certain cases of the application of this mechanism the envelopes or the like are placed in a pile between marginal guides, and are successively and automatically moved a little from the under part of the pile by means of their flap, so that they can be laid hold of at one of their edges and be subsequently drawn under the printing plate, from which they are finally removed by the same delivery organs. This mechanism can also be used (the organ for the removal of the sheets having been taken off) for the delivery under the printing plate of sheets guided by hand. This mechanism is illustrated in the accompanying drawing, in which—

Figure 1 shows a perspective general elevation of a printing machine to which the aforesaid mechanism is applied, one of the marginal guides being removed and shown at the side of the machine. Figs. 2, 3 and 4 are perspective elevations representing one of the delivery grips in the three different positions which it occupies during the action of the machine. Fig. 5 shows a partial view of the under part of the same grip partially opened. Fig. 6 shows a partial longitudinal section of the part of the machine where the pile of envelopes is placed. Fig. 6^a shows at right angles a detail of the parts shown in Fig. 6. Fig. 7 shows a longitudinal elevation with partial section of a machine according to this invention.

In this system the envelopes or the like, not as yet printed, are placed in a pile on a part slightly sloping toward the frame of the machine, between marginal lateral adjustable guides 1, 1, and two transverse

guides 2, 3, of which the front guide 2 is adjusted in height to a certain distance from the table 5 of the machine, so as not to allow any more to pass than the envelop from the bottom of the pile. The guides 1 and 3 are fixed in the desired position according to the shape of the envelops, upon a sloping frame 4 which is fixed permanently upon the table 5. The guides 1 are provided at their base with a heel piece 6 fixed at a certain height above the table 5, upon which there rest the corresponding edges of the bottom envelop of the pile. This envelop moreover rests at its rear edge, opposed to the flap, upon the upper part of a sloping guide piece 7, which is adjusted in a predetermined position upon the frame 4, in such a manner that its lower end releases the point of the flap of the envelop, which flap falls by its own weight upon the plate 5 in a partially opened position, as shown in Fig. 6. In this position the front edge of the envelop is placed over against the free space which is provided beneath the guide 2. This part 2 can be regulated as to height by means of the screws 9 according to the thickness of the envelops. Springs strive to maintain constantly the guide 2 in its lowest position.

In front of the cross piece 11, sliding in the vertical direction, two spurs 12, 12 are arranged symmetrically on each side of the guide 2 and subject to the action of the springs 13 which tend to maintain the horizontal arms of these spurs 12 away from the table 5. These springs 13 are, in the construction illustrated, attached to the upper cross piece of a frame 14 fixed upon the cross piece 11 of the frame 4.

Upon the uprights of the frame 14 and toward the middle of their height are articulated the levers 15, one end of each of which is connected by an adjustable screw 16 to the upper part of the corresponding spur, while the other end of each of these levers 15 rests upon an arched part formed at the end of a lever 17, the axis of rotation of which turns horizontally in a support 18 attached to the frame of the machine. To the axle of the lever 17 there is fixed another lever 19 which passes under a cam 20 placed

adjustably upon the upper shaft 21 of the machine.

At the back of the cross piece 11 of the frame 4 and at its middle, there slides vertically a pressure piece 22 (Fig. 6) which is connected by means of a rod 23 to the lever 17. In consequence of these arrangements, when the cam 20 acts upon the lever 19 in order to raise the lever 17, this latter lifts on the one hand by means of the rod 23, the middle pressure piece 22, and on the other hand it depresses the spurs 12 by means of the lever 15, the springs 13 acting at the same time to keep the part 22 down and the spurs 12 raised.

The machine which is illustrated in the drawing is of the type of those commonly used for printing visiting cards and is provided, like such machines, with a carriage 5^b which moves to and fro beneath the table 5. This carriage 5^b possesses as usual grips 5^c but these grips serve to secure it by means of the screws 5^a to a carriage 5^a to which is fixed the plate 24 which actuated by the said carriage moves alternately over the table 5 and beneath the frame 4. The carriage 5^b is itself actuated by a slide rod 65 pivoted to it, the other end of said rod being attached to the pivot 64 mounted on the lever 63. The other end of the lever 63 is pivoted at 62 to the rod 60 connected to the eccentric 61 on the shaft 21. Upon the little plate 24 at each side of its middle part, are fixed the bars 25 which form with the plate a mobile frame, on which two other bars 26 rest. These latter are subjected to the action of springs 27 which tend to keep them pressing with their upper surface against a roller 28 revolving freely under the rear of the frame 4. The aforesaid bars 26 are beveled off at their front ends and are provided upon their upper surface with humps 29 which, during the forward motion of the carriage, pass beneath the roller 28 for the purpose of depressing the bars 26 upon the table at the moment at which their beveled ends approach the guide 2; the springs 27 operate to raise the said bars to a given height above the table 5 upon the return motion of the carriage.

From the foregoing it will easily be understood in what manner the first phase of the action of the machine is effected, that is to say the part relating to the removal of the envelop from the bottom of the pile. When the frame is at the end of its rearward course, the beveled ends of the bars 26 will be removed from the table 5 and at the same time from the guide 2 so that they will be pressing against the rear part of the bottom of the lowermost envelop of the pile and at a certain distance from the flap of this envelop which is then half open. During the forward motion of the carriage, the blades 26 sliding against the bottom of the

envelop pass into the angular space formed by the half open flap until they strike against the angle formed by the junction of the flap with the envelop. Continuing with the frame their forward motion, the blades 26 sink as soon as the humps 29 pass beneath the roller 28 so that they detach the front part of the envelop forming the bottom of the pile and carry it beneath the guide 2 to a certain distance at which it is nipped by the part 22 which descends at this moment. When the carriage moves back, the humps 29 keep the beveled ends of the bars away from the bottom of the guide 2, which obviates any friction. The envelop 80 thus removed from the bottom of the pile is then carried under the printing plate 30 by mean of the following organs: Upon the table 5 and at each side of the block 31 upon which the envelop rests at the moment of the printing, that is to say, at the back of the lifted cross piece 11 of the frame 4, there are placed little plates 32 which can be adjusted in the desired position according to the size of the envelops, bags, etc. Upon these little plates 32 are fixed the ends of flexible blades 33 formed with another blade 34 uniting them longitudinally. The end of this latter blade directed from the side of the spurs 12 is bent upward, so as to facilitate the passage of the lateral edges of the envelop under the aforesaid blade 34. The little plates 32 being fixed in place, their longitudinal blade 34 tends, by reason of the elasticity of its arms 33, to keep itself lifted to a certain distance above the surface of the table. Each little plate 32 is provided with raised lugs 35 upon which revolve the ends of an axle 36 bearing the arms 37. These arms extend above the flexible blades 33 and a finger 38 supported by a vertical lever 39 articulated at the side to the base of the machine, acts upon one of these arms for the purpose of pressing the blade 34 upon the table 5. This lever 39 is bent at its upper part and is supported by aid of a spring 40 under a cam 41 fixed upon the upper shaft 21 of the machine. An adjustable stop 42 limits the motions of the lever 39 with regard to the cam; this lever is provided at the point where it comes into contact with the said cam, with a contact block 43, which can be caused to slide along the said lever 39 whenever it is desired to suppress momentarily the action of this cam. Above the longitudinal plate 34 there is placed the bar 44 upon which the inking rollers fit, and which is suspended elastically at a predetermined height, by means of the screws 45 and of springs 46. The inking rollers and their controlling organs have not been shown upon the drawing in order to render the latter more clear. Between the longitudinal plate 34 and the bar 44 of each part 32, there slides the bent end 47 of a long lever 48

which is articulated upon an elbow 49 fixed in a regulatable position upon the mobile part 24; the said lever is kept guided vertically by a projection 50 of the spur 49 and between the forks of which projection there fits a prolongation 51 from the said lever. This same lever 48 is subject to the action of the spring 52 which tends to keep it raised on the side of the bent end 47 against the corresponding spur 12. Besides its surface which comes into contact with the plate 34, the bent end 47 of the lever 48 has underneath jaws 53 (Fig. 5) which can be pressed against a very thin and flexible plate 54 supported longitudinally by the side lever 48. This plate 54, which in combination with the lever 48 forms a kind of pincers, is normally constantly pressed upon the table 5 during the various motions of longitudinal displacement and the raising up of the end 47 of the lever. The operation of this second part of the supply mechanism of the machine is as follows: the distance of the plates 32 from the table 5 and of the spurs 49 of the plate 24 are at first regulated according to the width of the envelopes and the manner in which the edges of these envelopes can pass under the longitudinal plates 34; these latter being themselves adjusted in position so as to permit of the operation of the levers 48 and of their jaws 53. Let us assume now that the organs are in the position which they occupy at the moment when the carriage moves back after having delivered an envelop under the guide 2 and the part 22 as has been already explained. In this position of the organs, the jaws 53 of each lever 48 are opened by the fact that the spurs 12 are at this moment held raised by the action of the cam 20 while the middle presser 22 retains the envelop which has been brought under it by means of the blades 26. Just before the carriage reaches the end of its rearward course, the cam 20 acts upon the levers 18, 17 to determine the raising of the middle tappet 11, which then releases the envelop, while the spurs 12 are lowered and carry down with them the jaws 53. The edges of the envelop are engaged between the jaws 53 and the blades 54 so that the envelop is carried by them, toward the block 31 as soon as the carriage commences to move in that direction. The envelop thus remains retained by the jaws up to the moment when, having been brought by them under the printing plate 30, the spurs are raised in order to open the aforesaid jaws and the middle presser 22 is lowered to retain the envelop which the blades 26 have just brought under it. From this moment onward the cam 41 acts upon the lever 39 in order to lower by means of the finger 38 the rigid arms 37 which then press the longitudinal plate 34 against the edges of the envelop so as to hold it stationary during the

backward motion of the carriage, that is to say during the printing. When the carriage goes back, the plates 54 slide without any resistance underneath the envelop independently of the gripping action of the plates 34. As soon as the carriage has reached the end of its rearward course, the spurs 12 again descend in order to seize and carry under the printing plate another envelop released by the presser 22 in the same manner as has already been explained. During this action for delivering under the printing plate another envelop, the cam 41 does not exercise any further action upon the lever 39, so that the longitudinal blades 34 are raised and permit the pincers 53 which are then closed, to push before them the envelop just printed, which then slides freely under the said blades 34 and finally falls through the opening 56 made between the block and the inking plate 55. The further removal of the envelop, paper bag or such like printed article forms no part of the present invention.

What I claim is:

1. In combination with a printing machine, mechanism for removing the undermost of a pile of paper blanks having folded flaps, forwarding it to the printing position and liberating it after printing, comprising a movable carriage, means for imparting reciprocatory motion to said carriage, the plate 24 attached to said carriage, the frame 25 fixed on said plate 24, the spring controlled delivery blades 26 resting on the frame 25, humps 29 on said delivery blades 26, a roller 28, springs 27 adapted to press the said delivery blades up against the under side of the roller in such a manner that upon the advance of the carriage the ends of the blades 26 are depressed when the humps come in contact with the roller, pass beneath the pile of blanks and engage in the angle of the flap of the undermost blank and carry it forward, a rising and falling presser 22 adapted to descend upon the forwarded blank and hold it during the return motion of the blades 26, cam-controlled spurs 12, the jaws 53 operated by said spurs during the rise of the presser 22, and the blades 54 adapted to cooperate with the jaws 53 and to seize the blank at its edge to carry it to the printing position, the blades 34 holding the blank during the impression.

2. In combination with a printing machine, mechanism for forwarding the undermost of a pile of blanks to the position for printing, mechanism for temporarily holding it in place during the return stroke of the forwarding mechanism, the adjustable plates 32, flexible blades 33 fixed on the plates 32, a cross blade 34 uniting the blades 33, arms 37 pivotally supported on the plates 32, means for periodically depressing the said arms, the lever 48 under the control of the cross blade 34, a prolongation 51 on said le-

ver, jaws 53 attached to the under part of
the end of said lever 48 and a flexible plate
54 on said lever, the whole so coöperating
that the jaws 53 and the flexible plate 54 en-
5 gage the sides of the paper blank, bring it
beneath the printing surface and finally re-
lease it at the moment of the impression.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

JULES HARIEL.

Witnesses:

PAUL CAGUET,
H. C. COXE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."