

No. 665,407.

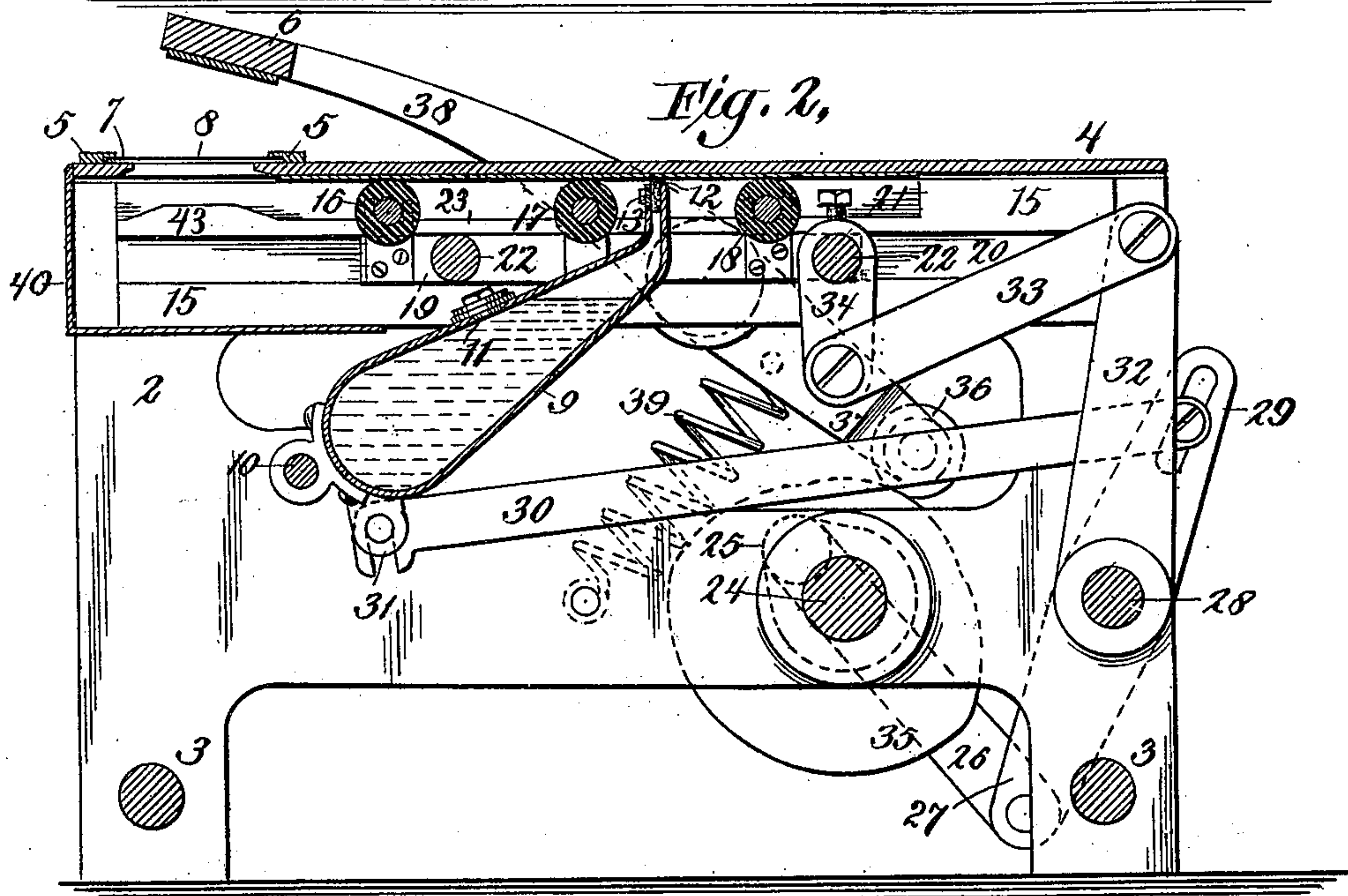
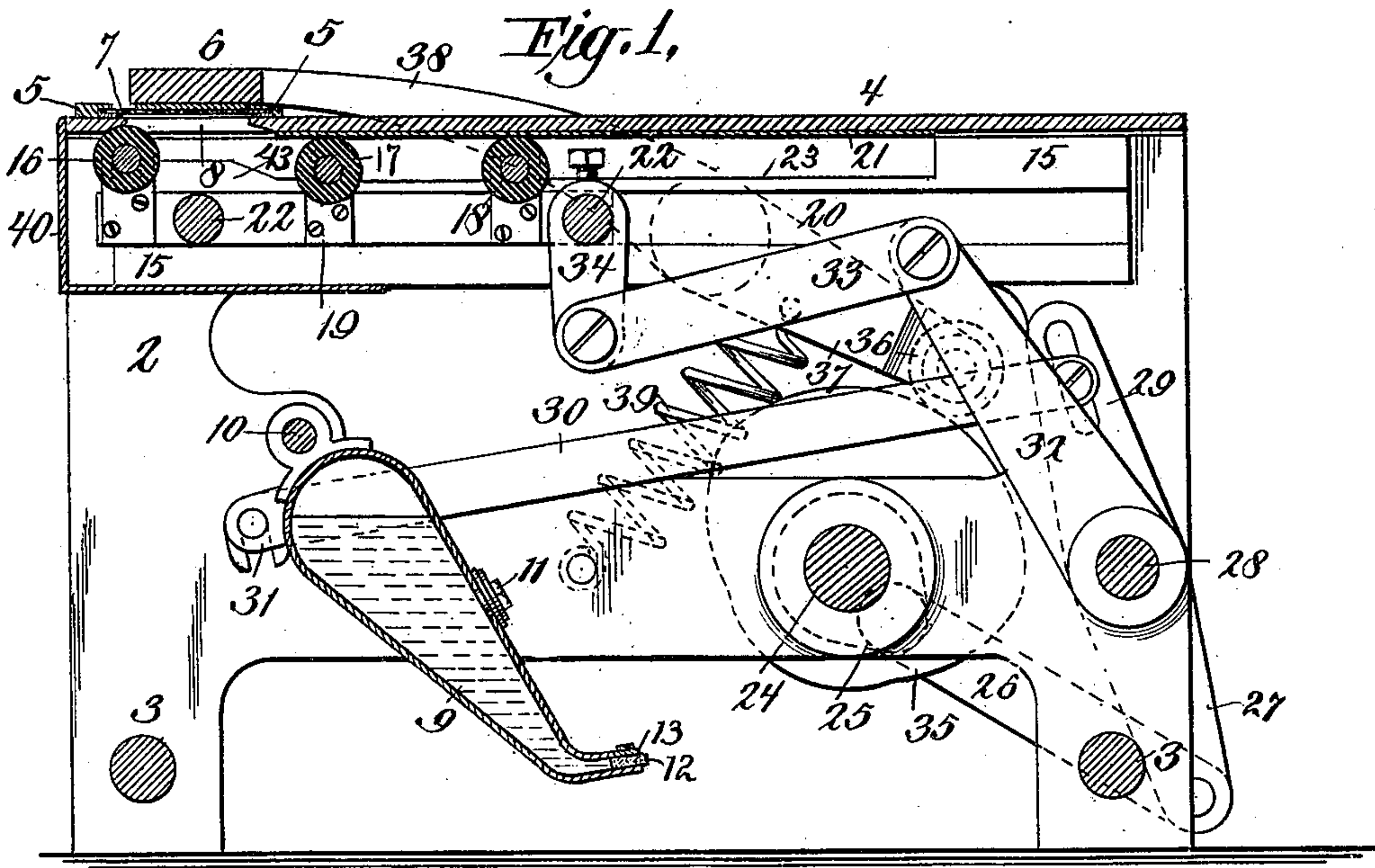
Patented Jan. 8, 1901.

J. N. P. CRAMER.  
INKING APPARATUS.

(Application filed Apr. 4, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3,

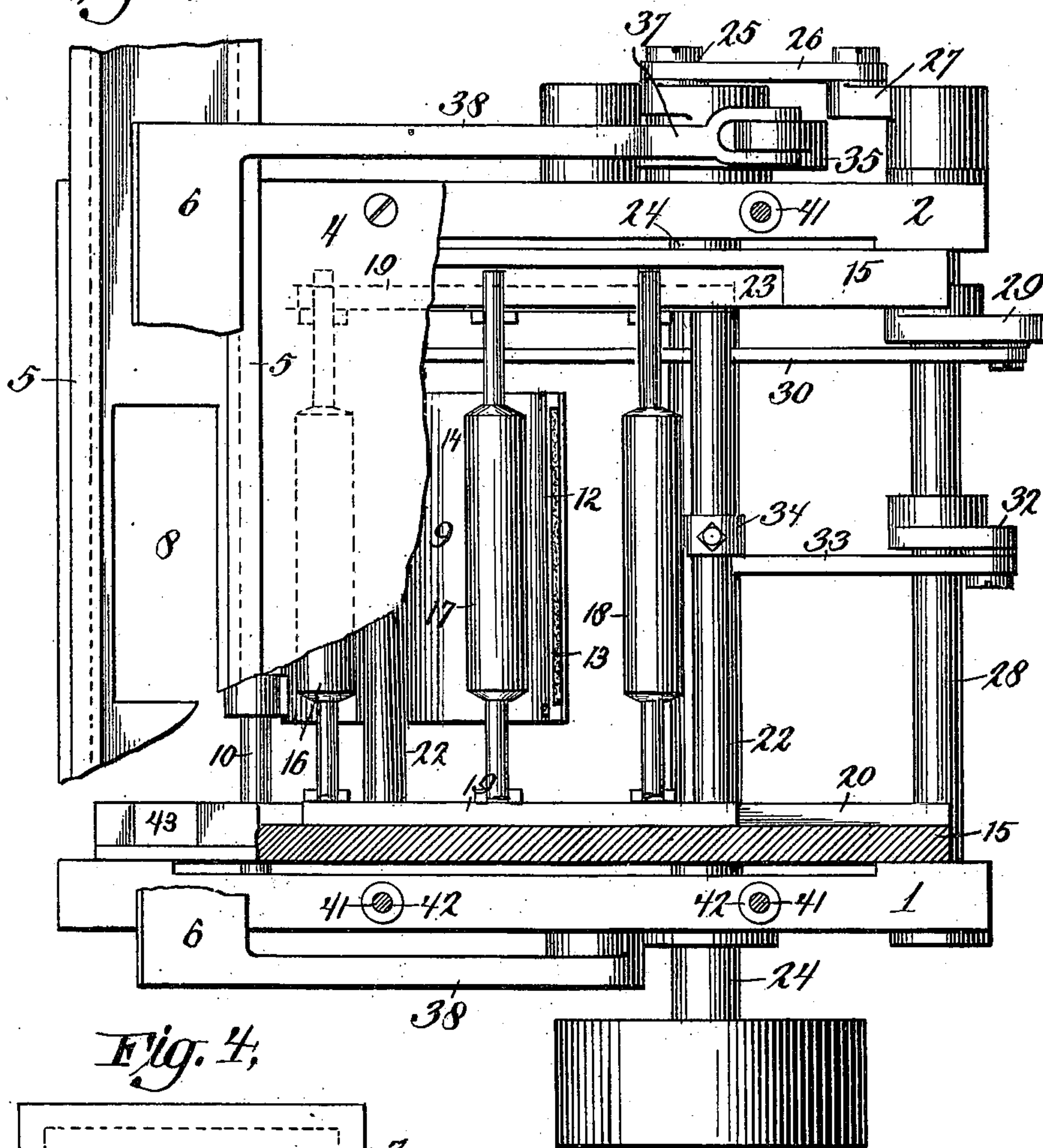


Fig. 4,

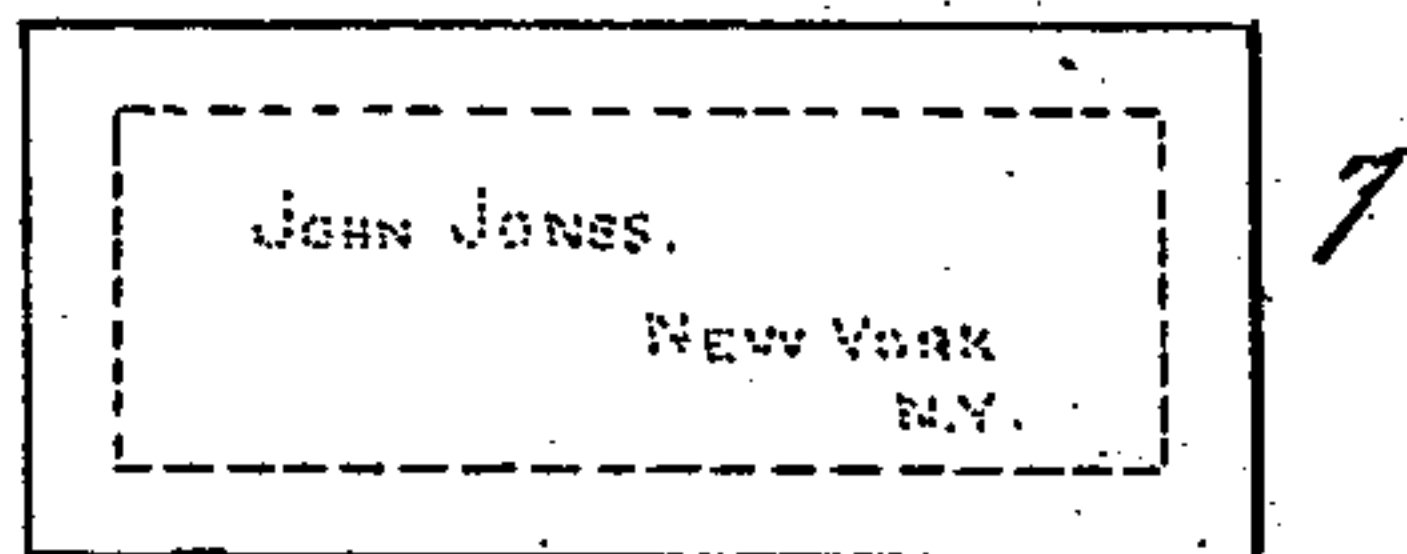
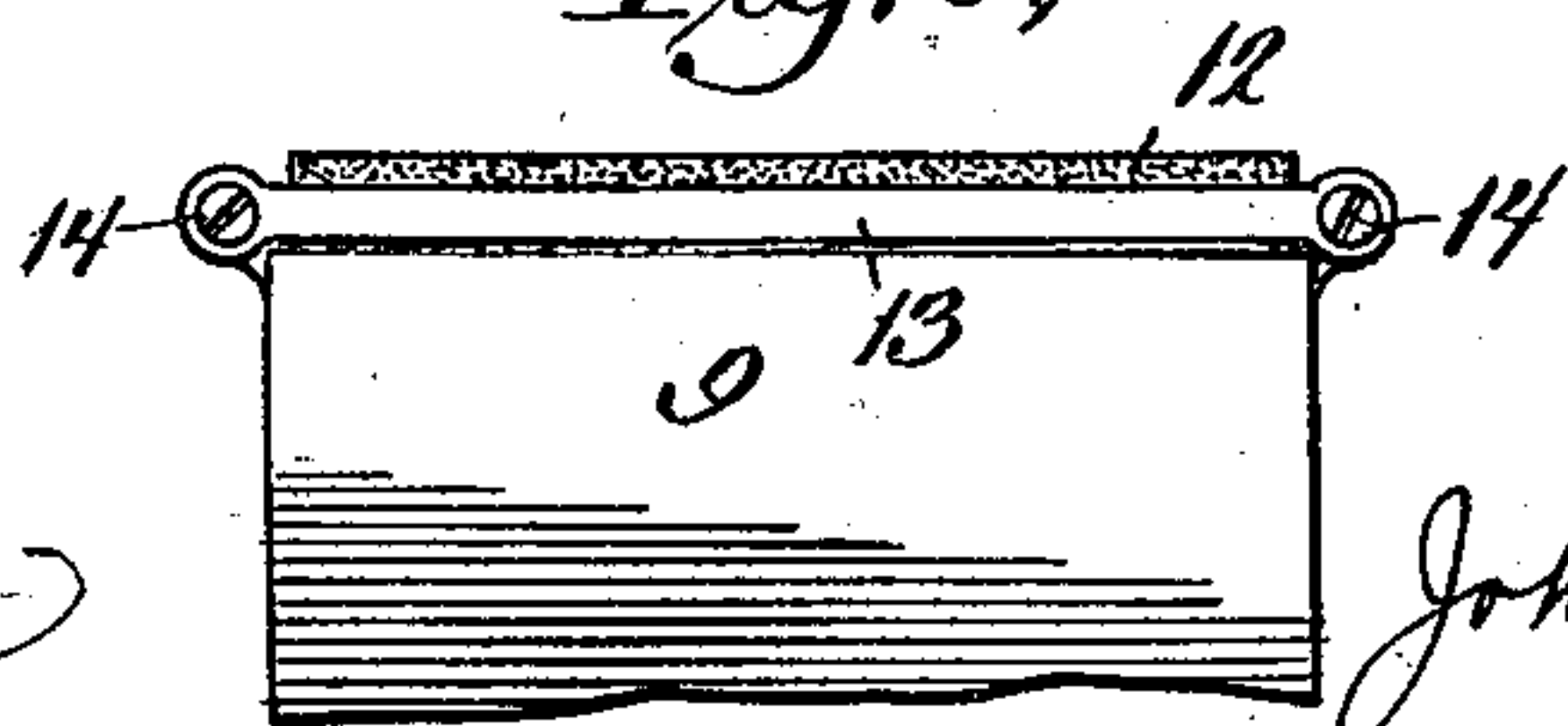


Fig. 5,



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# UNITED STATES PATENT OFFICE.

JOHN N. P. CRAMER, OF NEW YORK, N. Y.

## INKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 665,407, dated January 8, 1901.

Application filed April 4, 1900. Serial No. 11,551. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN N. P. CRAMER, a citizen of the United States, and a resident of the borough of Manhattan, in the city of New York and State of New York, have invented new and useful Improvements in Inking Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

10 This invention relates to inking apparatus, and has for its objects the thorough inclosure and protection of the ink, so as to exclude lint and dust and dirt therefrom and to prevent waste or evaporation or deterioration of the ink, and the ready adjustment and regulation of the amount of ink supplied by the inking apparatus, and the accurate supply of the ink in such quantities as desired without shortage or waste, and the agitation of the ink, so as to maintain a homogeneous condition thereof and prevent settling or separation of any part thereof or the deposit of any sediment therefrom, and also has for its objects simplicity, economy, neatness, and the attainment of other advantageous features, as will more fully appear in the description hereinafter given of means embodying my invention.

Figures 1 and 2 are longitudinal vertical sections of portions of an addressing-machine containing inking apparatus embodying my invention, showing the moving parts in two different positions. Fig. 3 is a plan view of the same with the upper parts of the machine partly broken away. Fig. 4 is a face view of a perforated address card or stencil such as are used in this machine. Fig. 5 is a detail of the adjustable feed or mouth of the ink-fountain.

40 The addressing-machine, partly shown in the drawings, is provided with a frame comprising side frames 1 2, joined by tie-bars 3 3, and an upper table 4. This machine is adapted for printing from stencils, and the stencils are fed along in grooved ways 5 5 on the table 4 under the presser-block or platen 6. One of the stencils 7 is shown in section in operative position in Figs. 1 and 2 and separately in face view in Fig. 4; but the means for feeding and for controlling the movements of such stencils are not shown, means being well known in the art whereby such stencils may be fed along such grooved

ways and brought successively in operative position over the opening 8 in the table. The card, envelop, or other object to be printed 55 is laid over the stencil 7 and under the platen 6 when the platen 6 is raised, as in Fig. 2, and the platen 6 then descends to the position shown in Fig. 1 and the ink-applying device moves in contact with the lower face 60 of the stencil and the ink is forced through the openings in the stencil and imparted to the surface of the object to be printed.

The present invention relates to means for supplying, distributing, and applying the ink 65 and is embodied in an ink-fountain and in means for distributing the ink supplied by such fountain preparatory to imparting the ink to the surface to be printed. The ink-fountain is so constructed and operated that 70 the ink is intermittently supplied to an ink-imparting device and is intermittently applied by this ink-imparting device to ink receiving or distributing surfaces or devices. In the embodiment of my invention shown 75 in the drawings the ink-fountain 9 is a closed hollow receptacle or reservoir loosely mounted at one end on the shaft 10 and provided with a filling-orifice closed by a removable plug 11 and having an ink-imparting device 80 at its outer end. This ink-imparting device consists of a piece or pieces of absorbent material, such as the piece of felt 12, held in an adjustable mouth at the outer end of the ink-fountain, such adjustable mouth being formed 85 by one of the walls of the ink-fountain and by a presser-bar 13 and the presser-bar 13 being adjustable by screws 14 14 to vary the pressure upon the ink-imparting device or piece of felt 12, and thereby to vary its ink- 90 absorbing capacity.

The ink-fountain 9 is actuated to cause it to perform an oscillating movement in its lower position, as shown in Fig. 1, having its mouth and the ink-imparting device 12 below 95 the fluid-level of the ink in the ink-fountain, so that the ink will flow freely to the ink-imparting device, and in its upper position bringing the ink-imparting device into contact with the ink distributing or receiving 100 surface, shown as a table or plate arranged face downward, such ink-receiving surface being at the lower face of the table 4. As the ink-fountain is thus oscillated the ink is



intermittently supplied to the ink-imparting device and intermittently applied by the ink-imparting device to the distributing-table in regulated quantities, depending upon the absorptive capacity of the ink-imparting device, the ink-imparting device receiving ink in lower position and retaining this ink when the fountain moves to upper position, although the ink-imparting device is then above the fluid-level, and applying a portion of the ink thus retained to the ink-distributing table. The feeding of the ink is to some extent assisted by centrifugal action, which causes or tends to cause an outward pressure of the ink toward the ink-imparting device. The amount of ink thus taken up by the ink-imparting device and applied to the ink-distributing table can be regulated to a nicety by adjusting the screws 14 14, and thereby varying the pressure of the presser-bar 13 upon the piece of felt or ink-imparting device 12.

The ink applied to the ink-distributing table is distributed thereon, the means shown for distributing the ink consisting of the distributing-rollers 16 17 18, which are carried in a roller-frame composed of side bars 19 and cross-bars 22, such roller-frame reciprocating in guideways 20, formed inside guide-pieces 15, which guide-pieces may be adjustably or otherwise held in the main frame. The front roller 16 of these distributing-rollers is also the inking-roller, this front roller 16 moving forward under the printing device or stencil 7 and applying ink through the openings in the stencil to the surface to be printed. The lower surface of the stencil is elevated somewhat above the lower surface of the distributing-table, and it is therefore necessary to elevate the inking-roller to bring it into contact with the stencil. As the stencils are usually of paper or parchment and it is desirable to use the same stencil for hundreds of printing operations, the movements of the inking-roller in contact with the stencil should be accurate and uniform and the tension or pressure applied by the inking-roller should be equal in all parts of its movement in contact with the stencil and it should move away from and into contact with the stencil cleanly and accurately. It is also highly desirable that the distributing-rollers should be under uniform tension when moving in contact with the distributing-plate. These desirable advantageous features are attained in the apparatus shown embodying my invention by means of guides controlling the movements of the inking and distributing roller and of the distributing-rollers, these guides having inclines and rises at their front ends and the rollers being freely movable vertically in their bearings in the roller-frame, so that their vertical position and pressure will be entirely under the control of the guides. The guides 23 for the inking and distributing roller 16 and for the distributing-rollers 17 and 18 are shown as formed in the side guide-

pieces 15, above the guideways for the roller-frame, and have at their front portions the inclines and rises 43, and the shafts of the rollers 16, 17, and 18 rest upon the guides, and the bearings of these shafts in the reciprocating roller-frame are open-top forks, and as the rollers are reciprocated they are guided by these guides and held against the distributing-table with a uniform pressure, and the roller 16 is moved by the inclines of the guides upward against the stencil and is held for a short distance by the rises of these guides in contact with the stencil. In the construction shown the inking and distributing roller 16 in each printing operation moves over the stencil twice—once in the forward movement of the inking and distributing roller and once in the rearward movement thereof.

All parts of the machine are shown as actuated from the main shaft 24. The inking apparatus is actuated from a crank 25 on the main shaft 24, joined by a connecting-rod 26 to the arm 27 of the oscillating shaft 28, and the oscillating shaft 28 has an arm 29, joined by a connecting-rod 30 to an arm 31 on the ink-fountain 9, and an arm 32, joined by a connecting-rod 33 to an arm 34, secured to one of the cross-bars 22 of the roller-frame. The presser-block or platen 6 is actuated from a cam 35 on the main shaft 24, such cam 35 working against a cam-roller 36, held in an arm 37 of the frame 38 of such platen, and the cam moves and holds the platen down and a spring 39 holds the cam-roller against the cam, this construction of platen-actuating parts being substantially as heretofore known in such devices.

For convenience in filling the ink-reservoir is so mounted in the machine as to be readily removable, and in the construction shown this is accomplished by fitting the shaft 10 of the ink-fountain, upon which the ink-fountain is loosely mounted, so that this shaft may be readily removed, and by connecting the front end of the connecting-rod 30 to the arm 31 of the ink-fountain by an open yoke over a pin on the arm, so that the front end of the connecting-rod may be readily lifted and disconnected from the fountain-arm 31. To provide for an adjustment of the movement of the ink-fountain, the shaft-arm 29 has a slotted connection with the rear end of the connecting-rod 30.

The ink used in an addressing-machine employing perforated or stenciled address-cards is usually an oil-ink, containing but little varnish and not adhesive in its nature. I have therefore made the surface of the distributing-plate slightly rough or adhesive to insure that the distributing-rollers will rotate thereon from contact therewith, and this roughened or adhesive surface I have provided by covering the distributing-plate with a fabric, such as linen, caused to adhere to the metallic plate by a substance which will not dissolve or soften under the action of the



ink, such as shellac, and such a fabric covering 21 is shown in the drawings. I have in some instances saturated this fabric with shellac, and thereby produced a hard, non-absorptive, but rough surface, and I have omitted the fabric covering and merely milled the metal surface of the distributing-plate, and thereby produced a hard rough surface, and with both of these constructions have obtained a surface affording sufficient friction to cause the rotation of the rollers from contact therewith. I prefer, however, to use a fabric covering and to coat only the inner surface of the fabric with the shellac or other substance, and thereby a soft and absorptive distributing-surface is produced which supplies the necessary friction and over which the ink will be readily and evenly distributed by the rollers. I have employed rubber as the material for the distributing-rollers 16, 17, and 18.

The oscillating movement of the ink-fountain 9 keeps the ink thoroughly agitated therein and prevents separation of parts of different specific gravities or settling of any parts thereof, and thereby insures a constant homogeneous condition thereof and prevents the deterioration and waste and fouling of the ink-fountain resulting from the deposit of a sediment therein. The ink-fountain 9 is thoroughly inclosed and the ink therein thus protected from dust and dirt and lint, as well as from evaporation and deterioration, such as exposure to air would cause. It not only imparts the ink in regulated quantities capable of accurate adjustment, but also applies the ink directly to the distributing-plate and then moves out of the way of the distributing-rollers, and thus permits full and free movements of the distributing-rollers.

The handling of paper usually causes a lint to settle upon all upturned and unprotected surfaces, such as will speedily impair the action of the distributing-surfaces, and an important feature of my invention is the protection of the ink-distributing surfaces from such lint and from dirt or other falling particles. This is accomplished by arranging the distributing-plate in substantially horizontal position with its face downward and also by partly inclosing this lower face and locating the ink-distributing rollers beneath this table and also by protecting the rollers when in forward position. As shown, the horizontal ink-distributing plate or table 4 is inclosed at the sides by the guides 15 15, which it overlaps, and this table extends rearwardly beyond its ink-receiving part and extends forwardly beyond the impression devices, and a front and lower casing 40 further protects the distributing-surfaces.

The tension of the distributing-rollers 16, 17, and 18 may be adjusted by the adjustment of the guide-piece 15, as above stated, or by the adjustment of the position of the table 4, such table 4 being secured to the frame by screws 41 and being readily adjustable by

using washers 42 or other spacing devices of desired thickness between the bottom of the table and the tops of the side frames. 70

It is evident that various modifications may be made in the construction above described within the purview of my invention and that parts of my invention may be used separately or in combination with other parts than those above described. 75

What I claim, and desire to secure by Letters Patent, is—

1. An ink-fountain comprising an ink-reservoir and an absorbent ink-imparting device, the fountain being movable into a position such that the ink will flow to the absorbing ink-imparting device and into a position such that the ink will flow away therefrom, and means for actuating the same, substantially as set forth. 80 85

2. An inking apparatus comprising an ink-fountain and an ink receiving and distributing surface, the ink-fountain having an ink-reservoir and an ink-imparting device and means whereby the ink is intermittently supplied to the ink-imparting device and is intermittently applied by the ink-imparting device to the receiving and distributing surface, substantially as set forth. 90 95

3. An ink-fountain comprising an ink-reservoir and an absorbent ink-imparting device, and means whereby the ink is intermittently supplied to the absorbent ink-imparting device, substantially as set forth. 100

4. An ink-fountain comprising an inclosed ink-reservoir having a mouth and an absorbent ink-imparting device at said mouth, and means for moving the same into a position such that the ink will flow to the ink-imparting device and into a position such that the ink will flow away therefrom, substantially as set forth. 105

5. An inking apparatus comprising an ink-fountain and an ink-receiving surface and movable ink-distributing means, the ink-fountain having an ink-imparting device and means for actuating the ink-fountain to cause the ink-imparting device to apply ink to the receiving-surface and then to move the ink-fountain away from the receiving-surface, and for actuating the movable ink-distributing means to cause the same to move over the part of the receiving-surface to which the ink has been applied, substantially as set forth. 110 115 120

6. An inking apparatus comprising an ink-fountain and an ink-receiving surface, the ink-fountain having an ink-reservoir and an ink-imparting device, the fountain being movable into a position such that the ink will flow to the ink-imparting device and the ink-imparting device will be away from the ink-receiving surface and into a position such that the ink will flow away from the ink-imparting device and the ink-imparting device will be in contact with the receiving-surface, and means for actuating the same, substantially as set forth. 125 130



7. An inking apparatus comprising an ink-receiving surface, a movable ink-fountain having an ink-reservoir and having an ink-imparting device capable of receiving and  
5 holding a charge of ink, and means for actuating the ink-fountain to cause the ink-imparting device to fall to receive a charge of ink and to rise to apply the ink to the receiving-surface, substantially as set forth.
- 10 8. An inking apparatus comprising an ink-fountain having an ink-imparting device, an ink-receiving surface and movable ink-distributing means cooperating therewith, substantially as described.
- 15 9. An inking apparatus comprising an ink-fountain and an ink-receiving surface, the ink-fountain having an ink-reservoir and an ink-imparting device and being fitted to receive an oscillating movement and movable  
20 to bring the ink-imparting device into and out of contact with the ink-receiving surface, and means for actuating the same, substantially as set forth.
- 25 10. An inking apparatus comprising an ink-fountain and an ink-receiving surface and ink-distributing means, the ink-distributing means being movable relatively to the ink-receiving surface, and the ink-fountain having an ink-imparting device and being movable  
30 relatively to the ink-receiving surface to bring the ink-imparting device into and out of contact with the ink-receiving surface, and means for actuating the same, substantially as set forth.
- 35 11. An inking apparatus comprising an ink-distributing table arranged face downward and having a substantially-horizontal lower face, and downwardly extending side walls partly inclosing said lower face, whereby said  
40 lower face is protected from falling particles, and ink-distributing rollers arranged to reciprocate under and in contact with the ink-distributing table and protected thereby and by the side walls thereof from falling particles, substantially as set forth.
- 45 12. An inking apparatus comprising an ink-distributing table arranged face downward, a movable ink-fountain having an ink-imparting device, and means for oscillating the ink-fountain to move the ink-imparting device  
50 into position to supply ink to the ink-distributing table and to move the ink-imparting device away from such position, substantially as set forth.
- 55 13. An inking apparatus comprising an ink-distributing table arranged face downward, a movable ink-fountain having an ink-imparting device and means for actuating the ink-fountain to cause the ink-imparting device  
60 to move upward into contact with the ink-distributing table and downward away therefrom, substantially as set forth.
- 65 14. An inking apparatus comprising an ink-distributing table arranged face downward, an oscillating ink-fountain having an ink-reservoir and an ink-imparting device, and means for actuating the ink-fountain to cause  
it to move downward so as to bring the ink-imparting device below the level of fluid in the ink-fountain and to move upward to bring  
70 the ink-imparting device into contact with the ink-distributing table, substantially as set forth.
15. An inking apparatus comprising an ink-distributing table arranged face downward, 75 ink-distributing rollers arranged to reciprocate under and in contact with the ink-distributing table, a movable ink-fountain having an ink-reservoir and having an ink-imparting device capable of receiving and hold- 80 ing a charge of ink and means for actuating the ink-fountain to cause the ink-imparting device to fall to receive a charge of ink and to rise to apply the ink to the distributing-table and for actuating the distributing-roll- 85 ers, substantially as set forth.
16. An inking apparatus comprising a distributing-surface roughened throughout its entire width to increase the friction thereof, distributing-rollers, and means for causing a 90 movement of the distributing-rollers relatively to the distributing-surface and in contact with the distributing-surface, substantially as set forth.
17. An inking apparatus comprising a dis- 95 tributing-plate arranged face downward, a movable fountain having an inclosed ink-reservoir and a mouth and an absorbent ink-imparting device at said mouth, and means for actuating the ink-fountain to cause the 100 ink-imparting device to move downward to receive a charge of ink and to move upward to apply the ink to the distributing-plate, substantially as set forth.
18. An inking apparatus comprising a dis- 105 tributing-plate arranged face downward, movable ink-distributing means arranged to work in contact therewith, a movable ink-fountain having an inclosed ink-reservoir and a mouth and an absorbent ink-imparting de- 110 vice at said mouth, and means for actuating the ink-fountain to cause the ink-imparting device to move downward to receive a charge of ink and to move upward to apply the ink to the distributing-plate and for actuating the 115 movable ink-distributing means, substantially as set forth.
19. An inking apparatus comprising a distributing-plate arranged face downward, distributing-rollers, and a movable ink-foun- 120 tain having an inclosed ink-reservoir and a mouth and an absorbent ink-imparting device at said mouth, in combination with a printing device in proximity to one end of the ink-distributing plate, the ink-distributing 125 rollers being arranged to move under and in contact with the ink-distributing plate and in contact with the printing device and means for actuating the ink-fountain to cause the ink-imparting device to move downward 130 to receive a charge of ink and to move upward to apply the ink to the distributing-plate and for actuating the distributing-rollers, substantially as set forth.



20. An inking apparatus comprising a movable ink-fountain consisting of an inclosed ink-reservoir having a mouth and an absorbent ink-imparting device at said mouth and  
5 an adjustable presser device bearing against the absorbent ink-imparting device, an ink-receiving surface, and means for causing the ink-fountain to move into a position such that the ink will flow to the ink-imparting  
10 device and the ink-imparting device will be away from the ink-receiving surface and into a position such that the ink will flow away from the ink-imparting device and the ink-imparting device will be in contact with the  
15 ink-receiving surface, substantially as set forth.

21. An inking apparatus comprising a distributing-plate arranged face downward, an ink-imparting device, distributing-rollers

and a frame carrying the same, means for imparting a reciprocating movement to said frame, and guides for holding said rollers against the distributing-plate, substantially as set forth. 20

22. An inking apparatus comprising an ink-fountain having an ink-reservoir and an absorbent ink-imparting device, an ink-distributing table arranged face downward and movable ink-distributing means cooperating therewith, substantially as set forth. 25 30

Signed in the borough of Manhattan, city of New York, State of New York, this 30th day of March, 1900.

JOHN N. P. CRAMER.

Witnesses:

HENRY D. WILLIAMS,  
HERBERT H. GIBBS.