

No. 665,840.

Patented Jan. 8, 1901.

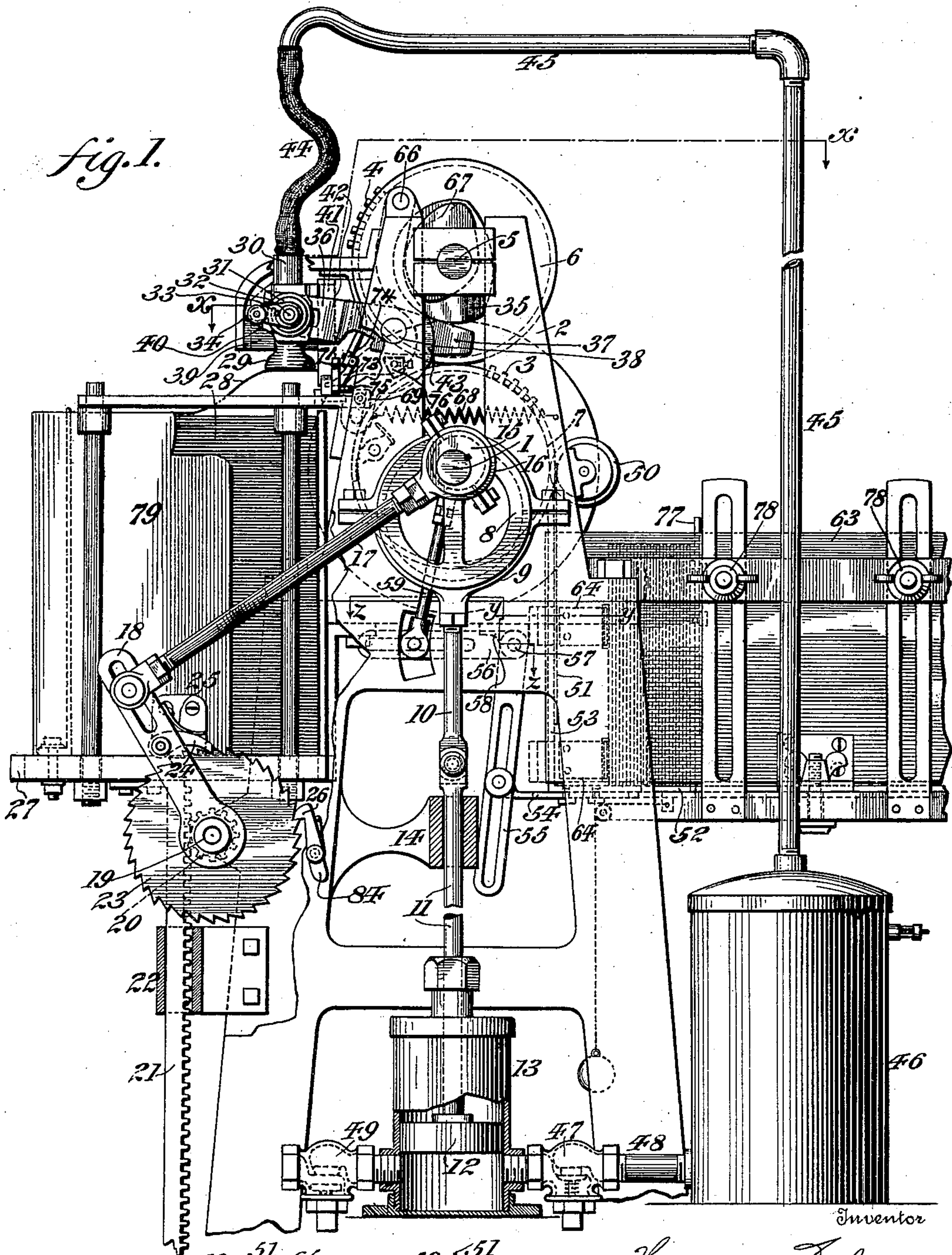
H. SALMON.

ATTACHMENT FOR PRINTING PRESSES.

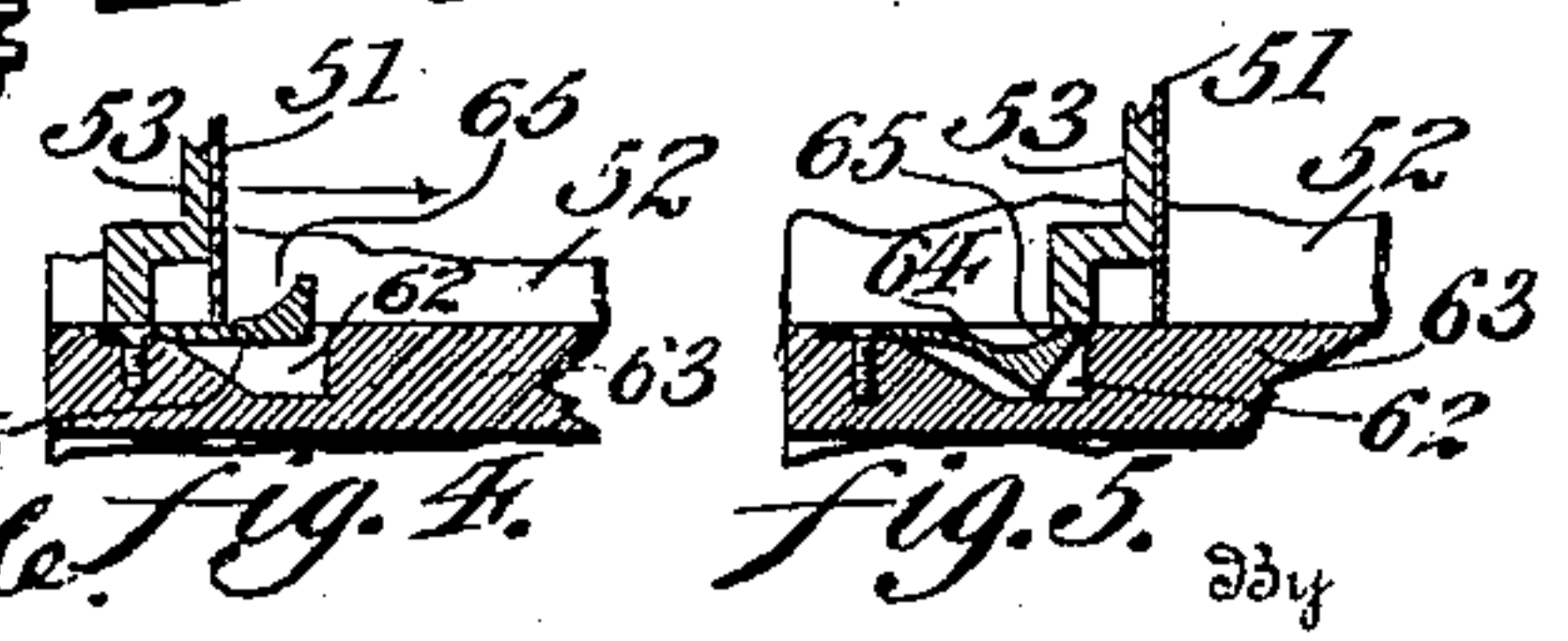
(Application filed Mar. 29, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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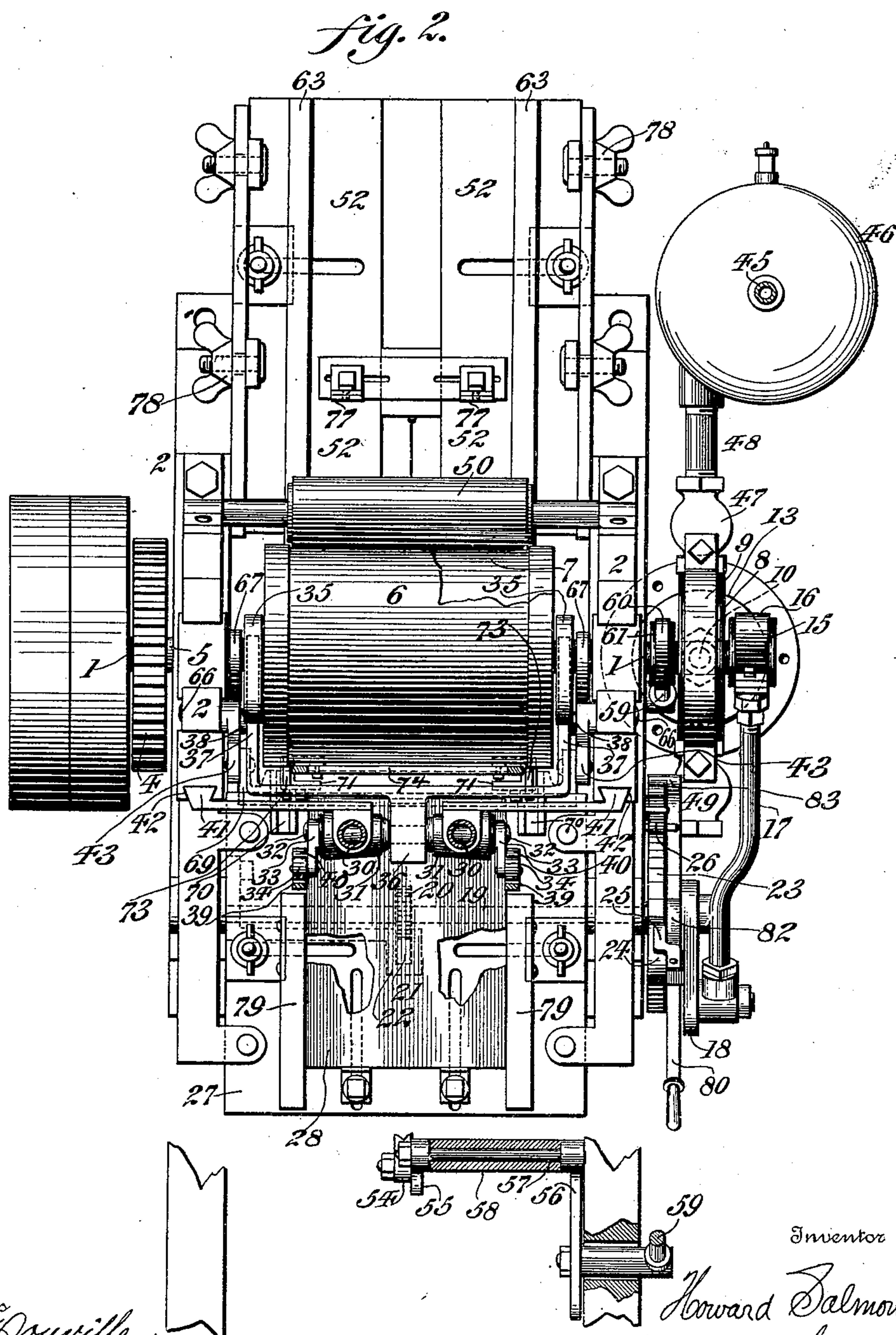
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3 Sheets—Sheet 2.



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fig. 3.
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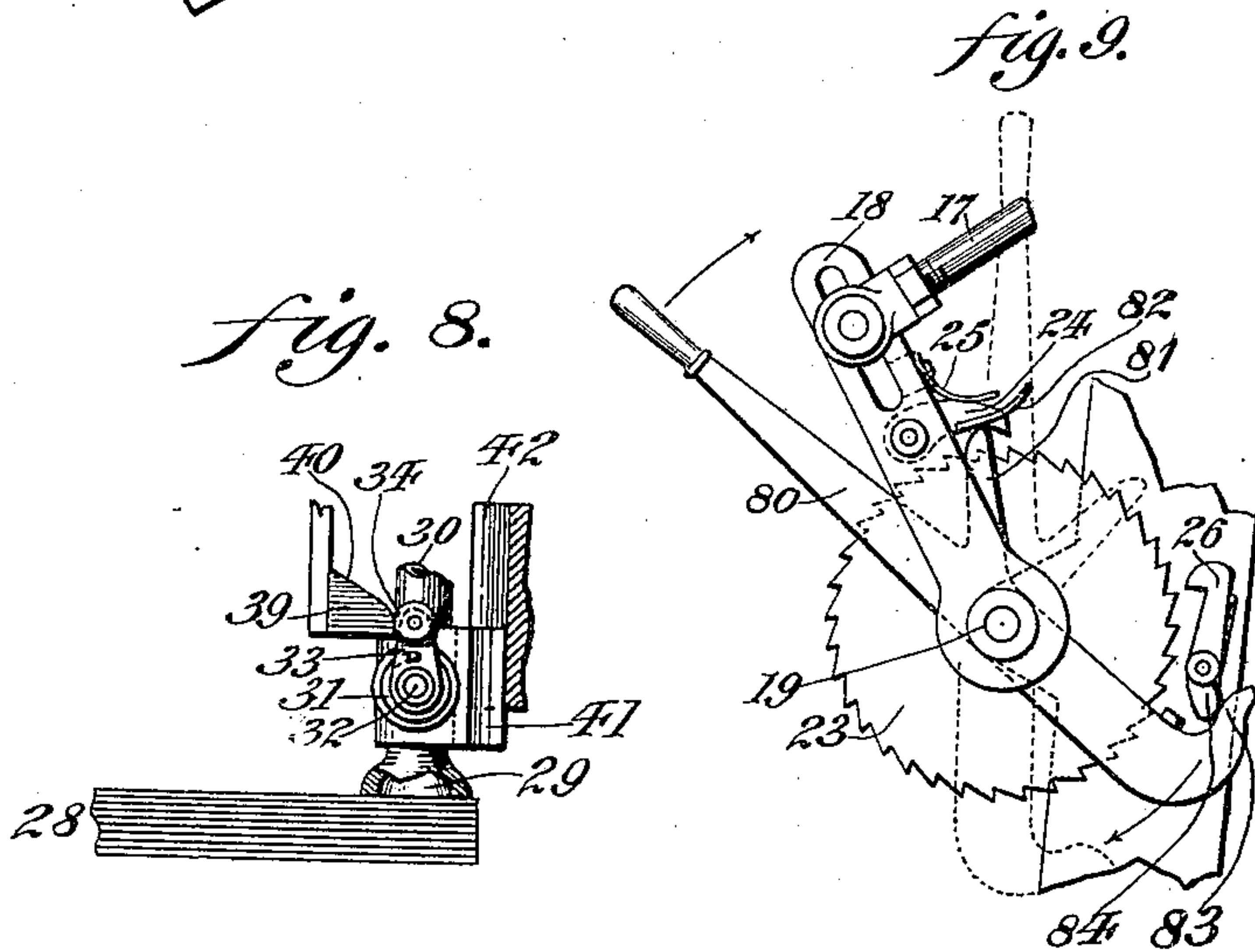
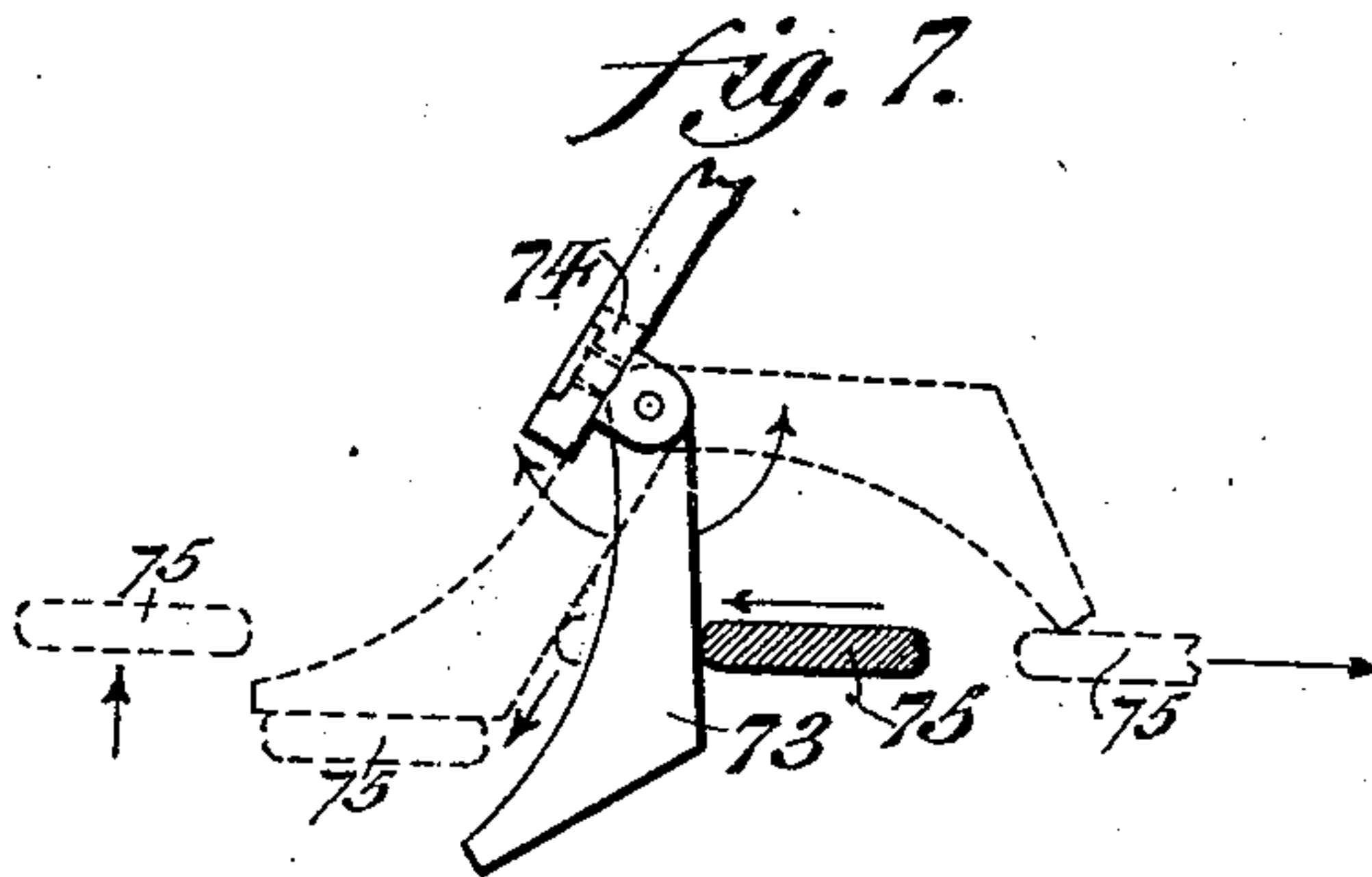
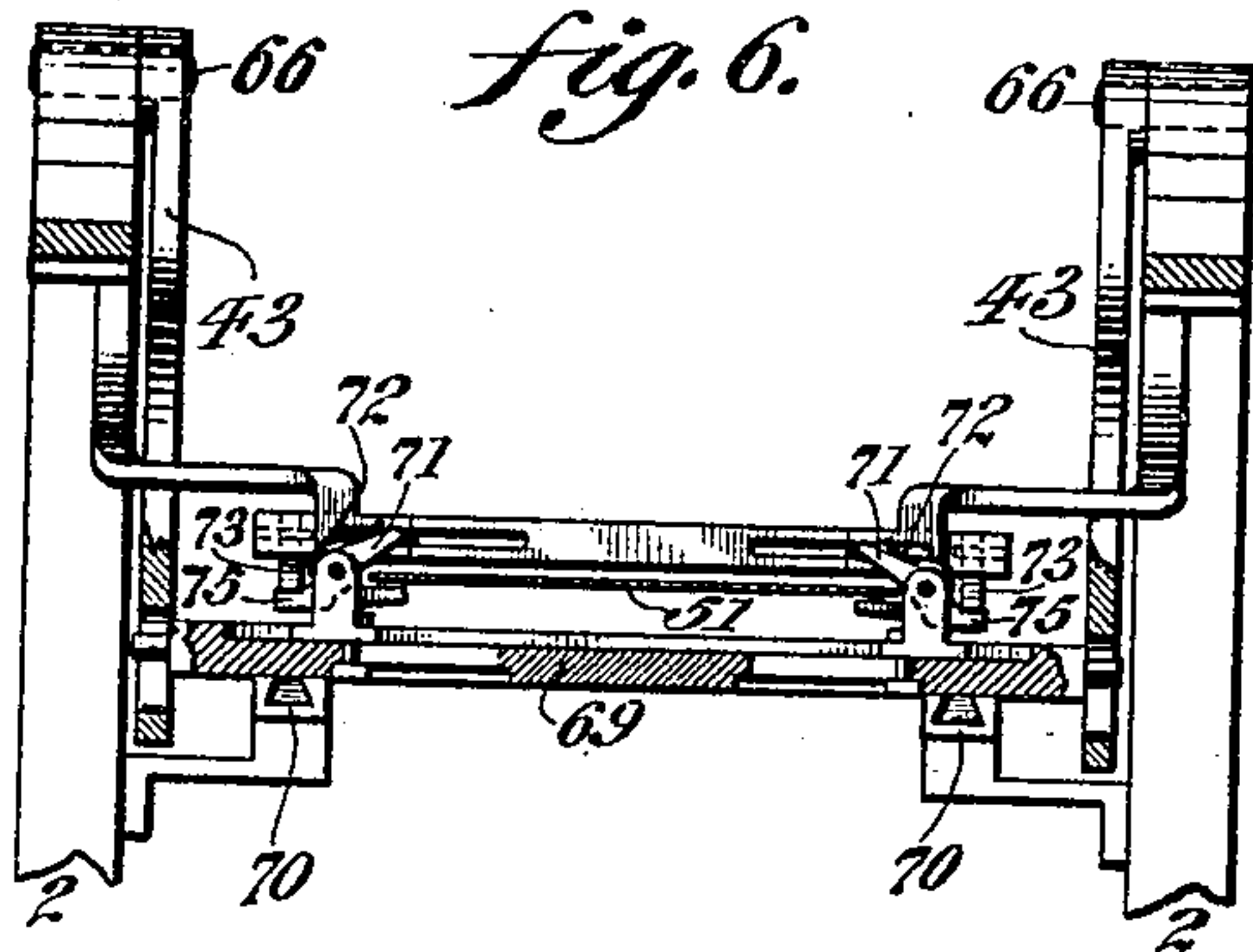
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 665,840, dated January 8, 1901.

Application filed May 29, 1900. Serial No. 18,361. (No model.)

To all whom it may concern:

Be it known that I, HOWARD SALMON, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Attachments for Printing-Presses, which improvement is fully set forth in the specification and accompanying drawings.

My invention consists of an improvement in an attachment for printing-presses wherein I provide suction devices operated with respect to the printing-rolls, having cut-off valves for said suction devices and means for actuating said valves and suction devices so that the paper is properly presented to the printing-rolls.

It also consists of novel means for raising the bed as the material is removed therefrom.

It also consists of a novel construction of feeding device adapted to coact with the suction devices.

It also consists of a novel mechanism for creating and controlling the suction at the proper intervals.

It also consists of novel details of construction, as will be hereinafter fully described, and particularly pointed out in the claims.

Figure 1 represents a side elevation of a feeding device for printing-presses embodying my invention, certain portions thereof being shown in section. Fig. 2 is a section of Fig. 1, taken on the line *x x* of Fig. 1, looking in the direction of the arrows. Fig. 3 represents a section on line *z z*, Fig. 1. Figs. 4 and 5 represent sections on lines *y y*, Fig. 1, showing the different positions of a portion of the mechanism for feeding the material after the same has been printed. Fig. 6 represents a front elevation of a portion of the feeding mechanism seen at the upper left-hand portion of Fig. 1. Fig. 7 represents, on an enlarged scale, a side elevation of a portion of feeding mechanism, to be hereinafter referred to. Fig. 8 represents a side elevation, partly broken away, of a portion of the suction mechanism. Fig. 9 represents a side elevation of certain detached portions of the device.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates the main shaft, which is mounted in suitable bearings in the framework or housing 2 and is actuated in any suitable manner, said shaft carrying the gear 3, which meshes with the gear 4, mounted on the shaft 5, which carries the printing-roll 6, which is located above the roll 7, mounted on the shaft 1.

8 designates an eccentric mounted on the shaft 1 and carrying the eccentric-strap 9, wherefrom connection is made by the eccentric-rod 10 and piston-rod 11 to the piston 12 in the cylinder 13, said piston-rod 11 being guided in the ways 14.

15 designates an eccentric mounted on the shaft 1 and having the eccentric-strap 16, which has extending therefrom the rod 17, one end of which engages the slotted end of the lever 18, which is loose on the shaft 19, which latter carries the pinion 20, which meshes with the rack 21, guided in the ways 22.

23 designates a ratchet-wheel mounted fast on the shaft 19 and adapted to be actuated by the pawl 24, carried by the arm 18, said pawl being held in position by the spring 25, it being apparent that said ratchet-wheel is prevented from improper motion by the check pawl or dog 26.

27 designates a bed or support for the paper or material 28, which is adapted to be fed through the rolls 6 and 7. The feeding of the paper is effected by the suction through the nozzles 29, connected to the pipes 30, which latter are opened and closed at the proper intervals by the valves 31, whose stems 32 carry the arms 33, on which are mounted the rollers 34.

44 designates flexible connections to the pipe 45, which leads from the reservoir 46, which communicates with the valve 47 by the pipe 48, said valve being connected with the cylinder 13, which has the valve connection 49, leading therefrom.

50 designates a roll mounted at the discharge side of the roll 7 (see Fig. 1) and adapted to propel and direct the printed sheet 51 to its proper place upon the delivery-bed 52. The sheet 51 is propelled by the pusher 53, which is actuated by the arm 54, which is connected to the slotted arm 55, secured to the shaft 57, journaled in the hanger 58, so as to be operated by the slotted arm 56, which

is engaged by the lower end of the rod 59, attached to the eccentric-strap 60, which is actuated by the eccentric 61.

62 designates a recess in each of the sides 63, adjacent which is secured the spring 64, the latter having the upturned portion 65.

35 designates cams firmly secured to the shaft 5 and adapted to impart a rocking motion to the lever 36, whose members 37 are fulcrumed, as at 38, in the frame 2.

39 designates stationary cams secured to the frame 2 and provided with working faces 40, on which the rollers 34 are adapted to travel when the valves 31 are raised and lowered in order to open and close the same. The valves 31 are provided with tongues 41, which travel in grooves 42 in the frame 1, so as to cause said valves to be properly guided in their up and down movements.

43 designates arms journaled, as at 66, in the frame 2 and adapted to be rocked on said journals by the cams 67 and springs 68.

The lower portions of the arms 43 engage a cross-bar 69, guided in ways 70 in the frame 2, so as to impart a reciprocating motion to said cross-bar. (See more particularly Fig. 6.)

The cross-bar 69 has fitted thereon in any suitable manner the grippers 71, which may be moved either nearer to or farther from each other according to the width of the article to be printed. The grippers 71 are kept normally closed by the springs 72.

73 designates triggers pivoted to a cross-bar 74, secured to the frame 2, said triggers being adapted to be moved either toward or from each other according to the width of the article to be printed.

The grippers 71 are formed with heel portions 75, adapted to work in conjunction with the triggers 73, so as to cause said grippers 71 to be opened and closed at certain intervals.

When the grippers 71 have reached their farthestmost position to the right, (see Fig. 1,) the heel portions 75 thereof are depressed by the cam 76, thus causing the grippers to open and release the article previously held by them.

The articles fed to the delivery-bed 52 are retained in position thereon by the weighted fingers 77, which bear against said article and cause the same to abut against the upturned portions 65, thereby causing the articles to fit snugly within the box formed by the delivery-bed 52 and sides 63.

The bed 52 may be raised or lowered so as to be properly adjusted to various dimensions of articles fed thereto, it being apparent that when the thumb-nuts 78 are slackened the bed 52 may be either raised or lowered.

The sides 63 and 79 of the beds 27 and 52, respectively, are adjustable relatively to the width of the article to be printed.

80 designates a lever loosely fitted on the shaft 19 and provided with an arm 81, adapted to contact at certain times with the under

side of the projecting portion 82 of the dog 24, so as to remove the latter from engagement with the teeth of the ratchet-wheel 23. The lever 80 is also provided with an upturned portion 83, adapted to be brought at certain times in contact with the heel 84 of the check-pawl 26, so as to remove the latter from engagement with the teeth of the ratchet-wheel 23.

When the wheel 80 is in the position seen in full lines in Fig. 9, the dog 24 and check-pawl 26 are removed from engagement with the teeth of the ratchet-wheel 23, thereby permitting the bed 27 to be lowered when so desired. When the lever 80 is released, it turns on the shaft 19 in the direction indicated by the arrow in Fig. 9 and moves into the position seen in dotted lines in said figure, it being noted that the dog 24 and check-pawl 26 are then permitted to again engage the teeth of the ratchet-wheel 23, as is evident.

The lever 80 is omitted in Fig. 1 for clearness of illustration of certain of the parts in said figure; likewise the projection 82, forming part of the dog 24.

The operation is as follows: The paper to be printed is placed upon the bed or support 27 and appears in stacks at 28, the height of said bed having been adjusted, depending upon the amount of paper to be printed. The machine is now started, power being applied thereto through the pulleys, and the shaft 1 is caused to operate. This gives motion to the eccentric and eccentric-strap 9, causing the piston 12 to operate and creating a suction in the reservoir 46, which communicates with the nozzles 29 by a suitable pipe provided with a branch to both nozzles. The shaft 5 meanwhile has been operated, which imparts motion to the cams 35, which in revolving impart motion to the lever 36 and lower the same, carrying with it the nozzles 29, which are thus brought in close proximity to the paper. In its descent the nozzles carry with it the rollers 34, which will move on the faces 40 so as to assume the position seen in Fig. 8, at which time the valves 31 are open, and the suction caused by the operation of the machine will cause a sheet of the paper 28 to be raised with the nozzles, which it now does as the cams 35 continue to revolve and strike the end 37 of the lever 36. As the shaft 1 revolves it carries with it the eccentric 15 and the strap 16, which operates the rod 17, journaled in the slotted lever 18, which carries the pinion 20 and the pawl 24, which engages with the ratchet-wheel 23, mounted on the shaft 19 and carrying a pinion 20, which turns and raises the rack 21 and with it the bed 27, thus moving the paper a distance equal to one sheet thereof. The paper which has been raised by the nozzles 29 is now engaged by the grippers 71, which have been moved forward with the arms 43, actuated by suitable cams, said grippers delivering the paper between the rolls 6 and 7, where the impres-

sion is made, and from thence the paper is passed between the roll 7 to the roll 50 and discharged, as shown at 51 in Fig. 1, and is propelled by the pusher 53 out of the path of the next succeeding sheet, the springs 64 preventing the return of the paper. The parts then assume their original positions ready for the next sheet.

It will of course be apparent that various changes may be made in the details of construction without departing from the spirit of my invention, and I therefore do not desire to be limited in every instance to the exact construction as herein shown and described.

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

1. In an attachment for a printing-press, printing-rolls, suction devices operated simultaneously with said rolls adapted to act on the material to be printed, a pivotally-mounted support for the suction devices, cut-off valves carried by the suction devices and means for actuating said valves for movement with the suction devices.

2. In an attachment of the character named, printing-rolls, suction devices for feeding the material to be printed to said rolls, propelling devices adapted to act in conjunction with said suction devices, controlling-valves carried by the suction devices and actuated by movement of the latter and a bed for supporting the material.

3. In an attachment of the character named, printing-rolls, suction devices, means for operating said suction devices to open and close the same, grippers for feeding the material to be printed to said rolls, a bed for supporting the material and means for raising the same as the material is removed therefrom.

4. In an attachment of the character named, printing-rolls, suction devices, means for opening and closing said suction devices, means for feeding the material to be printed to said rolls, means for raising and lowering said suction devices, a bed for supporting material and means for raising the same as the material is removed therefrom.

5. In an attachment of the character named, printing-rolls, suction devices, means for opening and closing said suction devices, means for feeding the material to be printed to said rolls, means for raising and lowering said suction devices, and a bed for supporting the material.

6. In a device of the character named, printing-rolls, suction devices, means for opening and closing said suction devices, grippers for feeding the material to be printed to said rolls, means for raising and lowering said suction devices and a bed for supporting the material.

7. In an attachment of the character named, printing-rolls, means for operating same, vertically-movable suction devices carrying controlling-valves and adapted to act on the material to be printed, and means for automat-

ically opening and closing said suction devices and gripping devices suitably actuated for removing the material from the suction devices, and feeding the same to the printing-rolls.

8. In an attachment of the character named, printing-rolls, suction devices, means for moving the same, vertically-controlling valves on said suction devices, means for automatically opening and closing said devices, and grippers adapted to receive the material to be printed and feed the same to the printing-rolls.

9. In an attachment of the character named, printing-rolls, suction devices, means for opening and closing said suction devices, grippers for feeding the material to be printed to said rolls, means for raising and lowering said suction devices, a bed for supporting the material, and means for raising the same as the material is removed therefrom.

10. In an attachment of the character named, printing-rolls, suction devices, means for operating the same, grippers for feeding the material to be printed to the rolls, a pusher adapted to receive the material after it has been printed and storing the same.

11. In an attachment of the character named, printing-rolls, suction devices, valves for said suction devices, a lever suitably operated for raising and lowering said suction devices, and means for opening said valves when said suction devices are lowered, a gripping device suitably actuated for receiving the material and feeding the same to the printing-rolls.

12. In a device of the character named, suction devices for raising the paper, gripping devices for feeding the same to the printing-rolls, means operatively connected with the shaft of one of the printing-rolls for raising the bed upon which the paper is supported, and means for operating said last-mentioned means, whereby said bed can be quickly lowered.

13. The combination of a reciprocating cross-bar, grippers adjustable thereon to and from each other, rock-arms and cams to rock said arms and actuate said grippers.

14. In a device of the character named, means for raising the material to be printed, means for feeding the same to printing-rollers, a pusher operatively connected with the shaft of one of the printing-rolls adapted to receive the matter when printed, and store the same in position at right angles to that in which it is fed to the rolls, and means for preventing the return of said printed paper with said pusher.

15. The combination of a frame, rock-arms journaled therein, a reciprocating cross-bar engaged by the lower portions of said arms, grippers on said cross-bar, and cams and springs for rocking said arms.

16. In an attachment of the character named, printing-rolls, suction devices for

feeding the material to be printed to said rolls, propelling devices adapted to act in conjunction with said suction devices, controlling-valves carried by the suction devices
5 and actuated by the movement of the latter, a bed for supporting the material, and means connected with the main shaft and disconnected from the suction devices for raising said bed as fast as the material is removed therefrom.

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Witnesses:

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