

No. 725,513.

PATENTED APR. 14, 1903.

J. THOMSON.

INKING MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED FEB. 14, 1902. RENEWED DEC. 4, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

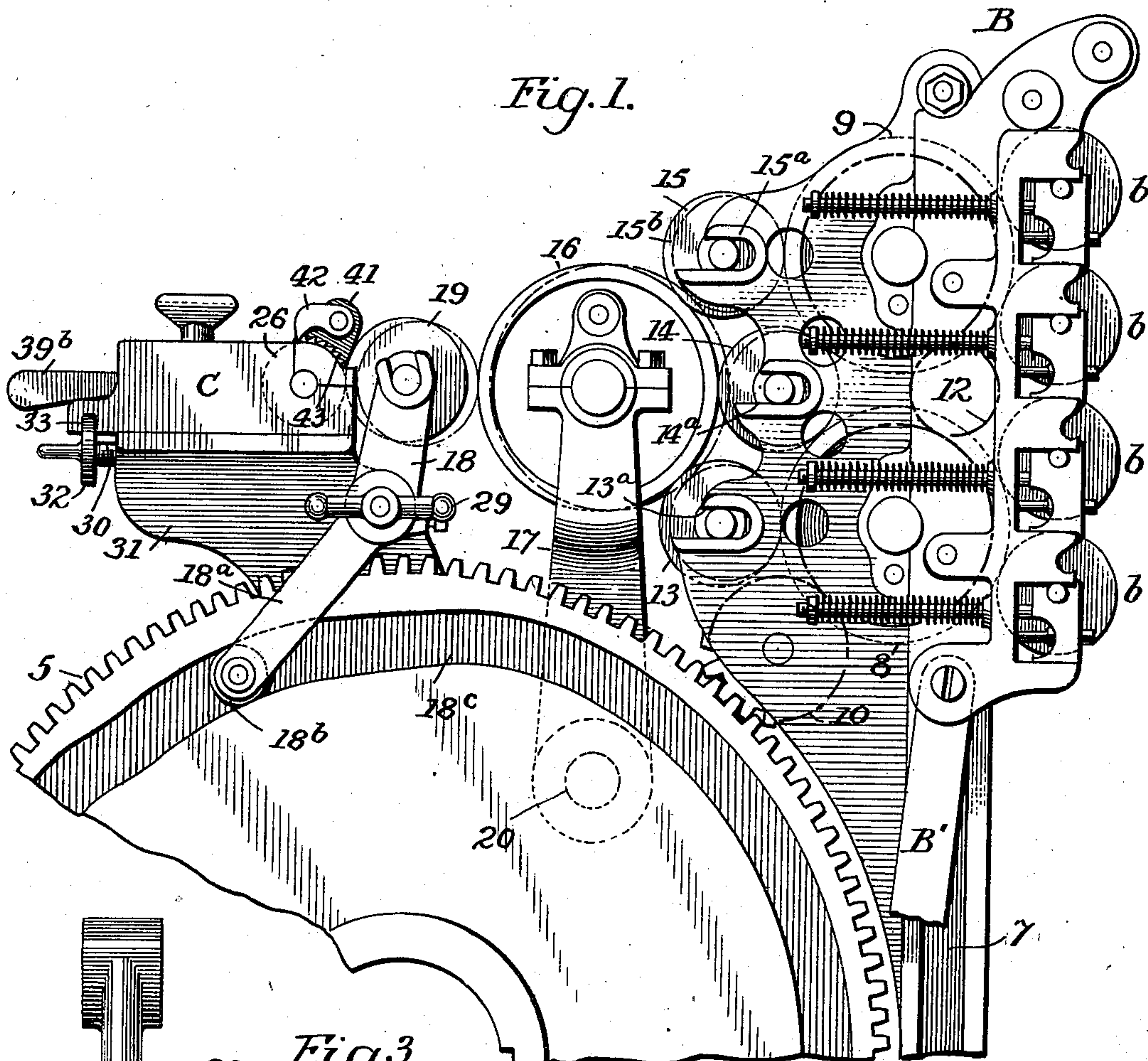


Fig. 3

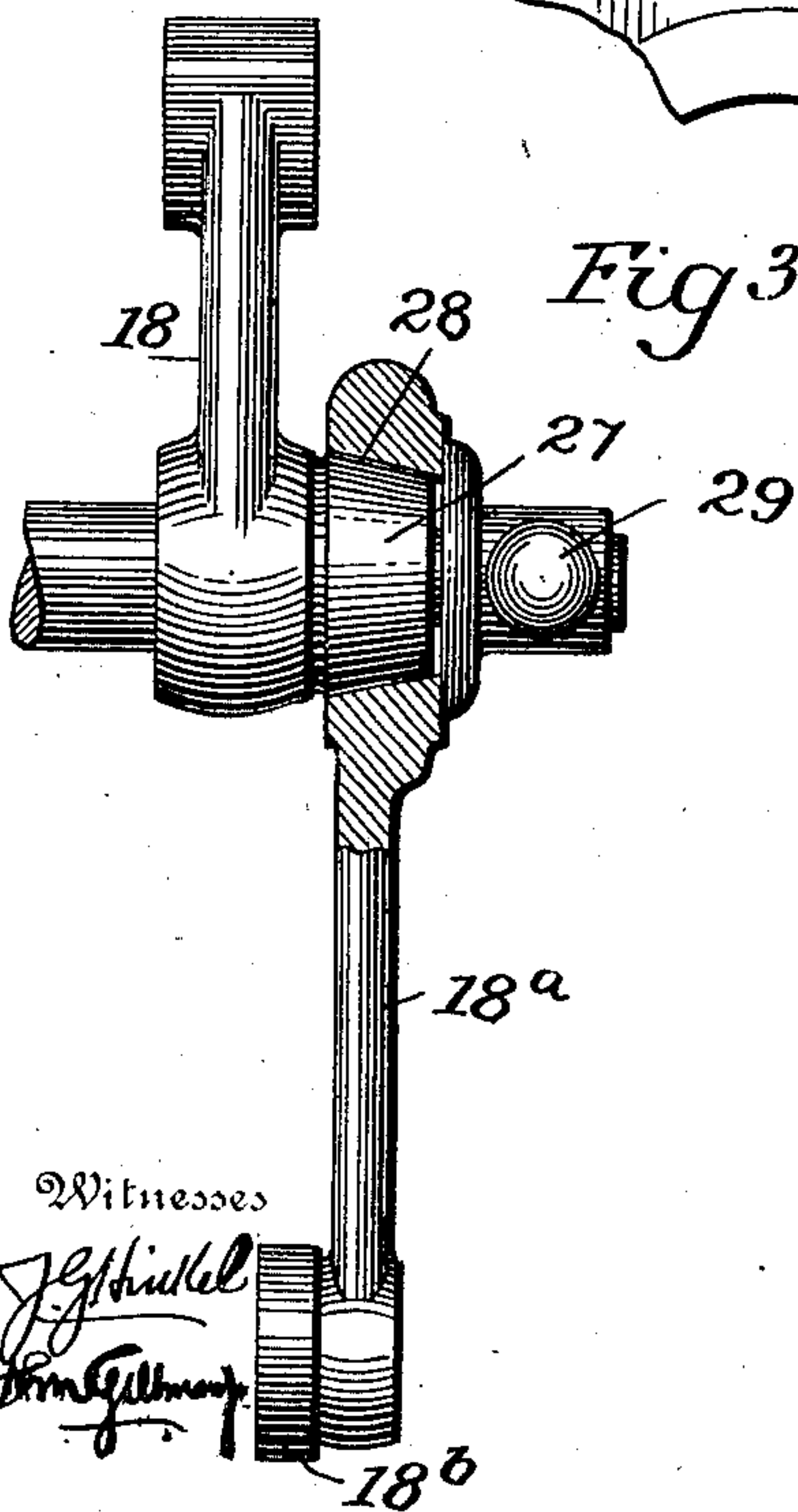
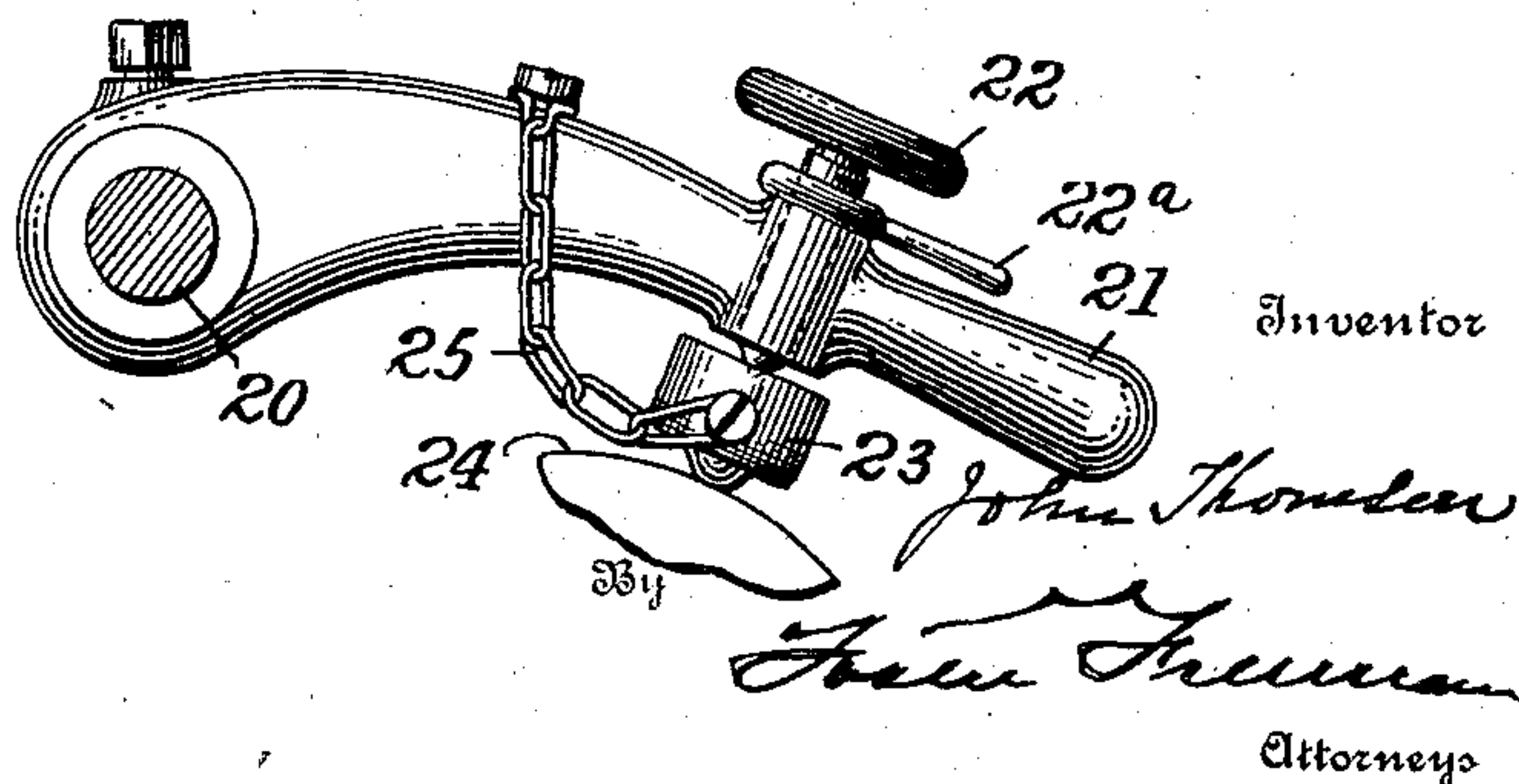


Fig. 4.



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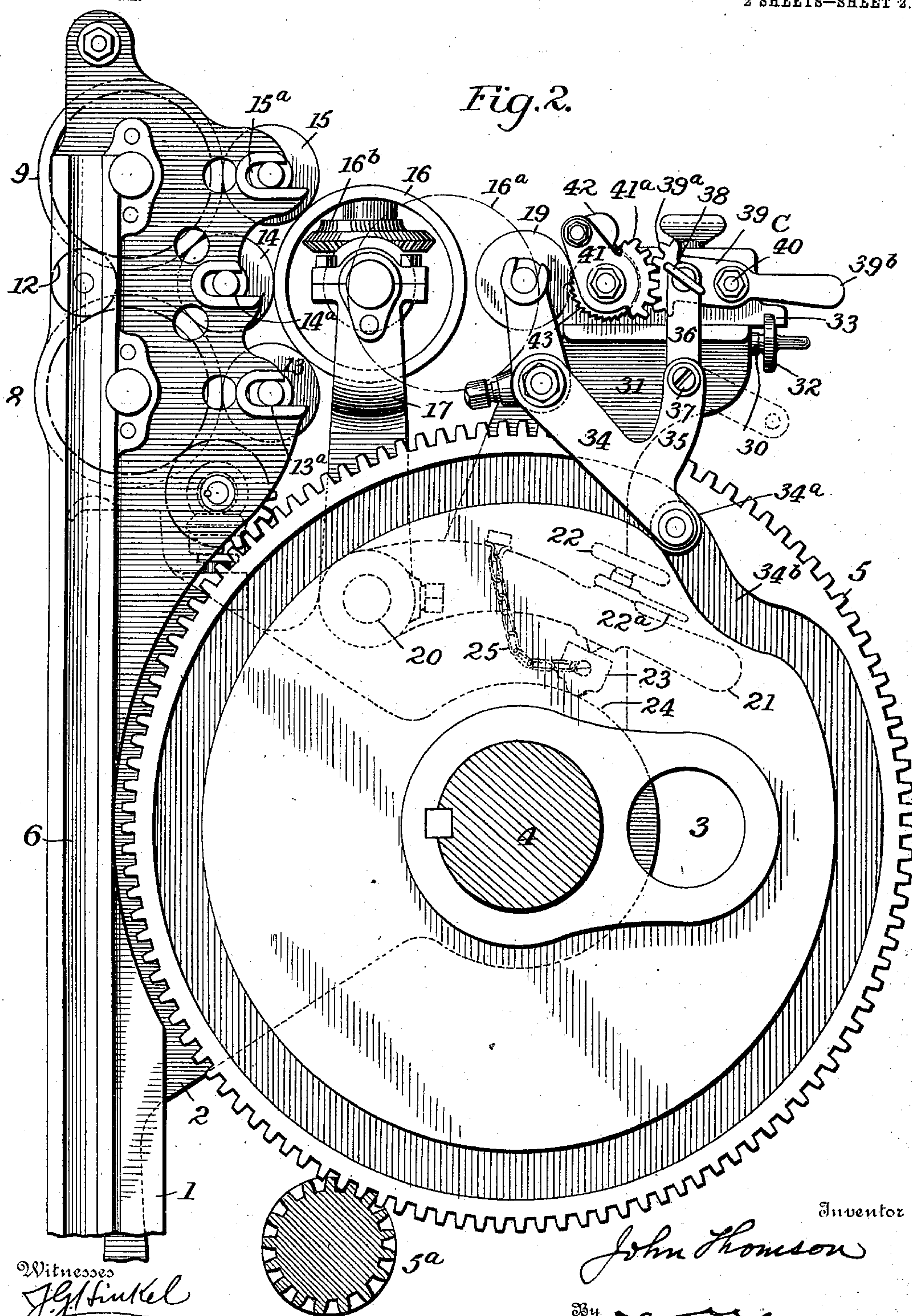
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INKING MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED FEB. 14, 1902. RENEWED DEC. 4, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN THOMSON PRESS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

INKING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 725,513, dated April 14, 1903.

Application filed February 14, 1902. Renewed December 4, 1902. Serial No. 133,929. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Inking Mechanism for Printing-Presses, of which the following is a specification.

My invention relates to inking mechanism for printing-presses, and has for its object to improve and simplify the construction so as to adapt the same to meet the requirements of the proper distribution of ink from the minimum to the maximum amount; and to these ends it consists in the various features of construction, arrangement, and combination of parts having the general mode of operation substantially as hereinafter more particularly set forth.

In the accompanying drawings, Figure 1 is a left-hand side elevation of a portion of a platen printing-press with the invention applied thereto. Fig. 2 is a right-hand side elevation of the same. Fig. 3 is a detached detail, enlarged, of the vibrating frame connection; and Fig. 4 is a detached detail of the adjusting-lever of the primary distributing ink-cylinder.

My present invention relates to inking mechanism for printing-presses, more particularly adapted for use in so-called "platen printing-presses," although the general features or principles of my invention can be utilized by those skilled in the art for various purposes and in various connections by adaptations or modifications of details of construction and arrangement without departing from the general principles of the invention, and I do not, therefore, limit myself to the exact construction and arrangement of parts shown or the use thereof in the precise manner set forth.

In the accompanying drawings I have illustrated the cooperating parts of a printing-press only so far as is necessary to understand the invention; and I have chosen for illustration substantially such a press as is shown and described in my Patent No. 689,436, granted December 24, 1901, and by reference to this patent or to the general art

in this class of presses the mechanism for operating the parts of the press shown herein will be readily understood.

Referring to the drawings, 1 represents a portion of the frame of the press having a bed 2, (shown more particularly in dotted lines, Fig. 2,) forming a bearing 3 for a shaft 4, carrying gears 5 5, which gears may be actuated in any usual manner, as by a pinion 5^a, as in the patent above referred to, or by any other well-known and usual construction. Applied to the frame 1 are the carriage-ways 6 and 7, in which the ink-distributing carriage B operates, and this can be operated in any desired manner common to printing-presses, as by means of a pitman B', connected to be operated as shown in my patent above referred to or otherwise. This carriage may be of any usual construction, but is shown in the present instance as having the general features of construction shown in my prior patent and which are not herein specifically described, as they form no part of the present invention, it being understood that the carriage is provided with a number of form-rollers *b b*, which are adapted to receive the ink from the form-roller-inking cylinders 8 9 and transfer it to the printing-surface in the usual way. These form-roller-inking cylinders 8 9 are shown as mounted in the frame and are adapted to be positively rotated by some suitable connection, and in the present instance I have shown the pinions 10 and 12, the former of which engages the gears 5 and gears on one inking-cylinder, and the second, as 12, transmits the motion from one inking-cylinder to the other in a manner clearly shown and well understood, and all the features so far described are substantially as shown and described in detail in my patent above referred to.

One of the features of my present invention relates to the disposal or arrangement of the composition distributing-rollers, as 13 14 15, and these are shown as mounted in the frame and having bearings in the form of elongated slots 13^a 14^a 15^a, and which preferably extend horizontally or at right angles to the vertical carriage-ways 6 7. These slots have a

relatively extended bearing-surface on their under side, while their upper bearing-surface is somewhat shorter, as clearly shown in the drawings, and this not only permits the ready
 5 insertion or removal of the composition distributing-rollers, but allows them to adjust themselves in their bearings so as to maintain frictional contact with the form-roller-inking cylinders 8 9, by which frictional con-
 10 tact the composition distributing-rollers are driven. It well known that these composition rollers change their form somewhat by contraction or otherwise, and these bearings permit of the composition distributing-rollers
 15 adjusting themselves in relation to the cylinders 8 9, even when they are contracted or reduced in size, as indicated by dotted lines 15^b in Fig. 1, so that their surfaces will be in frictional contact with said cylinders under
 20 various conditions.

Another distinguishing feature of my present invention relates to the primary distributing ink-cylinder and its mounting and adjustment in relation to the other parts of the
 25 inking apparatus, and I have shown such a cylinder, as 16, as preferably a substantial duplicate of the form-roller-inking cylinders 8 9. This primary distributing ink-cylinder, or as it is commonly called "changer" cylinder,
 30 is adapted to reciprocate longitudinally, more or less, as is common in this class of cylinders, and I have indicated at 16^b some suitable means for producing this well-known changer action, but will not specifically describe the same herein, as it forms no part
 35 of the present invention. This primary distributing ink-cylinder is mounted in a frame 17, which is pivoted to the frame of the press, as at 20, and connected to the frame 17 is
 40 means for adjusting the position of the frame and the cylinder carried thereby, and I have shown a hand-lever, as 21, connected to the frame 17, and provided with means whereby it can be adjusted. While these means may
 45 vary and accomplish the same general result, I have shown the hand-lever 21 as provided with a hand-screw 22, which may have a bearing directly upon some point of the frame of the press, as 24; but preferably
 50 I interpose between the hand-screw and the bed or bearing 24 a block, as 23, which can be readily placed in or out of position and which may conveniently be attached to the hand-lever by some suitable means, as a
 55 chain 25. This block furnishes a quick and satisfactory aid in securing the adjustment of the frame 17 without undue motion or operation of the hand-screw 22, while the hand-screw can be moved so as to get a refinement
 60 of adjustment. Thus by turning the hand-screw inward to thrust against the bed, as 24, and interposed block 23 the primary distributing ink-cylinder 16 in the frame 17 will be swung forward so as to obtain any desired
 65 intensity of contact with the composition distributing roller or rollers 13 14 15, and by turning the hand-screw outward the block is loos-

ened and removed, and (the ductor-roller, hereinafter described, having been first removed) the primary distributing ink-cylinder 16 can
 70 be quickly swung backward into the position indicated in dotted lines 16^a, so as to permit the ready access to and removal of the composition distributing roller or rollers 13 14 15. Furthermore, by partially withdrawing
 75 the hand-screw, without removing the free block 23, the primary distributing ink-cylinder 16 can be swung back sufficiently to relieve its contact upon the composition distributing-rollers, as when the press is temporarily
 80 out of operation, thereby preventing the formation of indentations in or flattening of the surface of the composition distributing-rollers. By this arrangement it will be seen that any desired nicety of adjustment or
 85 bearing between the primary distributing ink-cylinder 16 and the composition distributing-rollers may be attained by the operation of the hand-screw 22, which may be locked in position by the lock-nut 22^a or otherwise, and when it is desired to remove the
 90 composition distributing-rollers the cylinder can be quickly and readily adjusted to furnish free access thereto. It will be observed that this primary distributing ink-cylinder
 95 is rotated by frictional contact with one or more of the composition distributing-rollers when the press is in operation.

Another feature of my invention relates to the disposal and adjustment of the ductor-roller, which is intended to take the ink from
 100 the ink-fountain cylinder and carry it to the primary distributing ink-cylinder 16; and I have shown as mounted on the frame of the press a vibrating frame 18, having bearings
 105 for the ductor-roller 19. Connected to this vibrating frame 18 is some suitable means for actuating it, (shown in the present instance as a lever 18^a,) having on its free end a roller
 110 18^b, engaging a cam 18^c on one of the gears 5, and by this means the ductor-roller is vibrated between the ink-fountain cylinder and the primary distributing ink-cylinder 16 in a manner well understood.

In order to permit adjustment of the ductor-roller, so as to secure the desired degree
 115 of contact between it and the primary distributing-ink cylinder at all times according to its relative position, some sort of adjusting means has to be employed between the frame
 120 18 and the lever 18^a, and in the present instance I have provided a frictional clamping means which is simple and effective and which, as shown, is secured by forming a
 125 conical stud, as 27, upon the frame 18, to which is fitted a tapered bearing 28, formed in the lever 18^a, and the two parts are drawn together by some suitable means, as a hand-screw 29, by which the desired degree of friction between the bearing portions of the frame
 130 18 and lever 18^a is secured.

An equally important matter of controlling the degree of contact between the ductor-roller 19 and the ink-fountain cylinder 26 is

secured by providing means for adjusting the ink-fountain with relation to the said ductor-roller, and in the drawings I have shown the ink-fountain C as supported upon
5 brackets 31, formed on the bed of the press and adapted to slide on the brackets, and in order to adjust the ink-fountain C, I have shown adjusting-screws 30, preferably one adjacent each end of the fountain, which screws
10 operate in the brackets 31 and are provided with collars 32, engaging slots 33 in the bottom of the ink-fountain C. It will thus be seen that the fountain may be adjusted in proper relation to the ductor-roller by slid-
15 ing it in or out at each end, so as to produce a uniform light or heavy contact or a light contact at one end and a heavy contact at the other end of the ductor-roller 19, according to the requirements of any particular
20 case.

As is usual in this class of inking apparatus the fountain-cylinder 26 is intermittently revolved, and in the present instance in order to accomplish this I provide connections
25 comprising, essentially, a lever 34, pivoted to an extension upon the vibrating frame 18 and preferably carrying a friction-roller 34^a, engaging a cam 34^b in one of the gears 5. Connected to this lever 34, (which is shown
30 as provided with an arm 35,) is a link 36, pivoted at its lower end, as at 37, to the arm 35, and its upper end is pivotally secured to the fountain-lever 39, which is shown as pivotally mounted, as at 40, on the ink-fountain
35 frame. The link 36 is preferably detachably secured to the fountain-lever, and I have shown a thumb-screw 38 as a convenient means for accomplishing this. The forward
40 end of the ink-fountain lever 39 is formed or so connected as to operate the ink-fountain intermittently, and in the present instance it is shown as being provided with segmental gear-teeth 39^a, adapted to engage similar
45 teeth 41^a on the ratchet-lever 41, which is loosely mounted on the ink-fountain cylinder 26, and which carries a pawl 42, adapted to engage a ratchet 43 on said ink-fountain cylinder. In consequence of this link connection between the lever 34 and the fountain
50 apparatus the fountain may be freely adjusted in and out, as before described, and by disconnecting the link 36 from the fountain-lever 39 the fountain can be removed from the press, as for "washing up" or otherwise. Moreover, when the link 36 is disconnected from the fountain-lever by means of
55 a handle 39^b the fountain-lever can be manually tested before connecting it to be positively actuated by the cam.

60 Having thus specifically described the embodiments of my invention shown in the accompanying drawings, the advantages will be readily apparent to those skilled in the art; but it may be stated that some of these
65 advantages are that the direct conveyance of the ink from the fountain to a cylinder having a reciprocating or changer action, as cyl-

inder 16, which is also in contact with all of the composition distributing-rollers, and they in turn being also in contact with the form-roller-inking cylinders 8 9, insures that the
70 line or band of ink received from the fountain shall be cut and cross-cut to a very high degree of perfection. Furthermore, the intensity of pressure upon the distributing-rollers being alike upon each and susceptible of
75 refined adjustment increases the durability and efficiency of the inking apparatus and renders high speeds of operation feasible. Furthermore, two distinct adjustments of the
80 ductor-roller accomplishes complete control both in the reception of the ink from the fountain and the transposal thereof to the distributing-cylinder.

It will be understood that while I have
85 shown in the present embodiment of my invention two form-roller-inking cylinders 8 9 and three composition distributing-rollers 13 14 15 one or more of each of said rollers may be used in combination, according to the re-
90 quirements of any particular case.

Having thus described my invention, what I claim is—

1. The combination with a frame having carriage-ways as 6 and 7, and having bearing-slots extending at substantially right angles to the carriage-ways, form-roller-inking cylinders mounted in said frame, means for positively rotating said cylinders, composition distributing-rollers mounted in said
95 bearing-slots adapted to be driven by frictional contact with said form-roller-inking cylinders, and a primary distributing ink-cylinder suitably arranged to positively thrust any or all of the distributing-rollers against
100 the form-roller-inking cylinders, substantially as described.

2. In a platen printing-press, the combination with a form-roller-inking cylinder, or cylinders, of composition distributing-rollers,
110 mounted at the rear of, and driven by, the said cylinder or cylinders, a primary receiving and distributing cylinder, mounted at the rear of and driven by the said distributing-rollers, a ductor-roller and an ink-fountain,
115 the ductor-roller being mounted in a vibrator-frame and constructed and arranged to transfer the ink it receives from the fountain directly to the primary distributing-cylinder, substantially as specified.
120

3. The combination with a form-roller-inking cylinder, of a composition distributing-roller, a primary distributing ink-cylinder adapted to be frictionally operated by the distributing-roller, a pivotally-mounted frame
125 supporting the primary distributing ink-cylinder, and means for adjusting said cylinder to and from the distributing-roller, substantially as described.

4. The combination with a form-roller-inking cylinder, a composition distributing-roller, and a primary distributing ink-cylinder, of a pivotally-mounted frame supporting
130 said latter cylinder, a hand-lever connected

to said frame, and adjustable means for adjusting said hand-lever, substantially as described.

5 The combination with a form-roller-ink-
ing cylinder, a composition distributing-
roller, and a primary distributing ink-cyl-
der, of a pivotally-mounted frame supporting
said latter cylinder, a hand-lever connected
to said frame, a hand-screw mounted in said
10 lever, and a free block whereby the said frame
may be adjusted, substantially as described.

6. The combination with a form-roller-ink-
ing cylinder, a composition distributing-
roller, and a primary distributing ink-cyl-
15 der, of a pivotally-mounted frame supporting
said latter cylinder, a hand-lever connected
to said frame, a hand-screw, mounted in said
lever, a lock-nut connected to said hand-le-
ver, and a free block adapted to be interposed
20 between the hand-screw and bearing-surface,
substantially as described.

7. The combination with a primary distrib-
uting ink-cylinder, a ductor-roller, a vibrat-
ing frame supporting said ductor-roller and
25 ink-fountain, of means for adjusting the vi-
brating frame to carry the ductor-roller into
proper contact with the primary distributing
ink-cylinder, and means for adjusting the
ink-fountain to and from the ductor-roller,
30 substantially as described.

8. The combination with a primary distrib-
uting ink-cylinder, and an ink-fountain, of a
vibrating frame, a ductor - roller mounted
therein, a lever 18^a connected to said vibrat-
ing frame, a cam for operating said lever, and
35 frictional devices connecting said frame and
said lever, comprising a tapering stud and

bearing, and means for securing them to-
gether, substantially as described.

9. The combination with an ink-fountain 40
having an ink-cylinder, of a fountain-lever
connected to operate said ink-cylinder, means
for actuating said fountain-lever, and a de-
tachable connection between said means and
fountain-lever, substantially as described. 45

10. The combination with an ink-fountain
having an ink-cylinder, of a fountain-lever
connected to operate said ink-cylinder, an ac-
tuating-lever as 34, a cam for operating said
lever, and a detachable link as 36 between 50
said actuating-lever and fountain-lever, sub-
stantially as described.

11. The combination with an ink-fountain
having an ink-cylinder, of a fountain-lever
having an operating-handle and connected to 55
operate the ink-cylinder, an actuating-lever
for said fountain-lever, and detachable con-
nections between the actuating - lever and
fountain-lever, substantially as described.

12. The combination with an ink-fountain 60
having an ink-cylinder, of a fountain-lever,
a ratchet-lever mounted on said ink-cylinder
and connected to be operated by the fountain-
lever, means for actuating said fountain-le-
ver, and a detachable link between said means 65
and said fountain-lever, substantially as de-
scribed.

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

JOHN THOMSON.

Witnesses:

C. E. DAVIDSON,

HELEN M. BLANCHFIELD.