

No. 881,288.

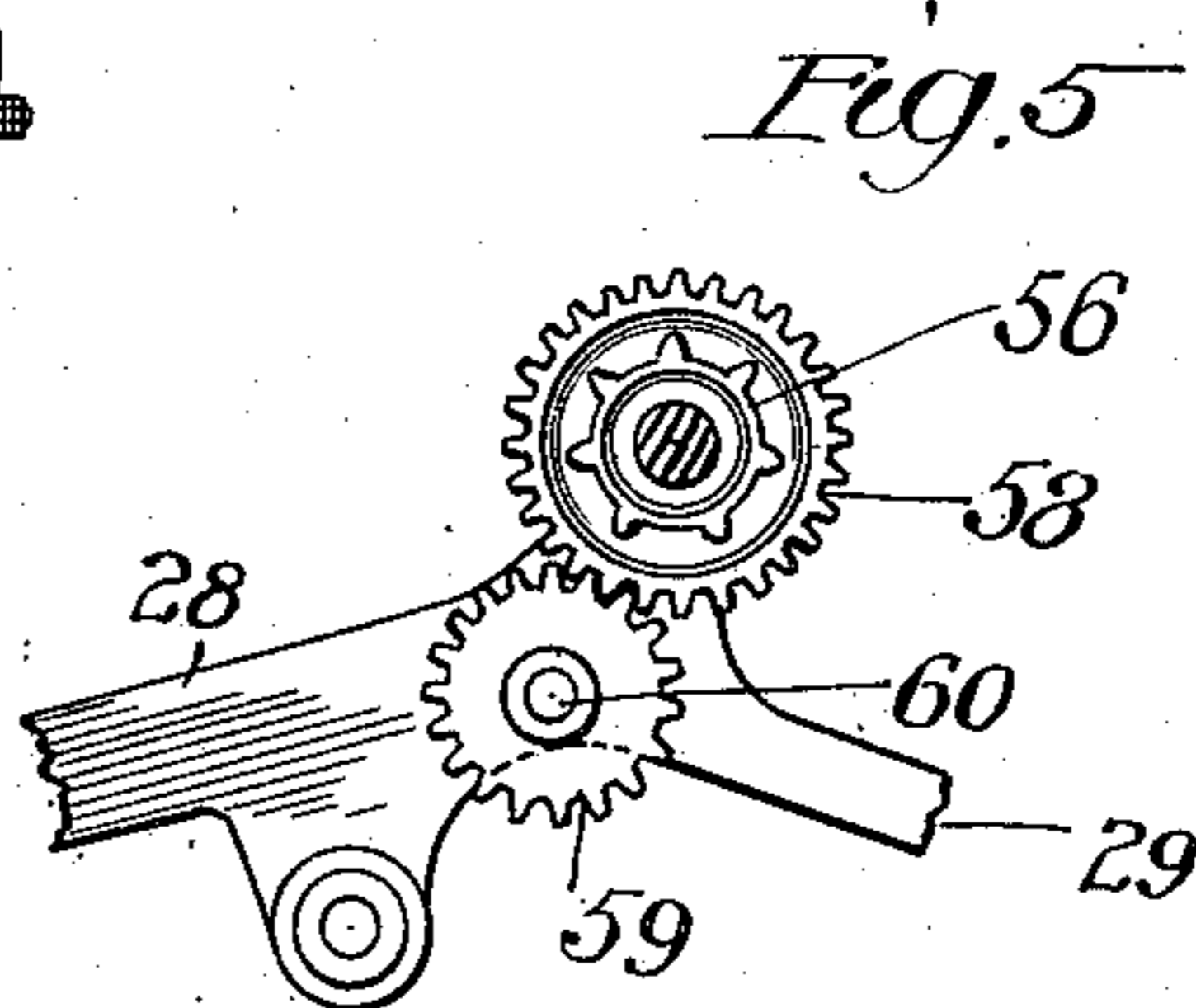
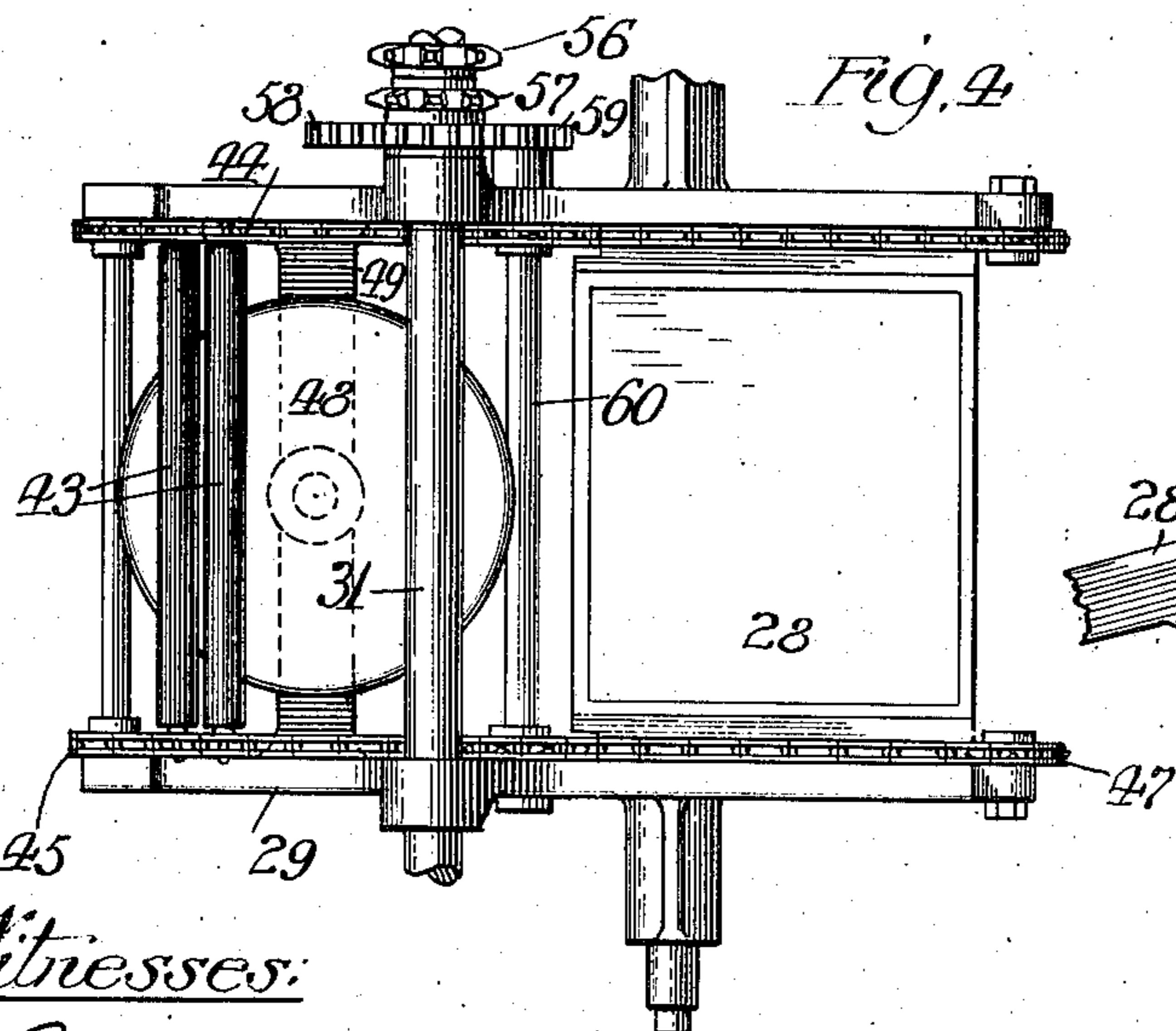
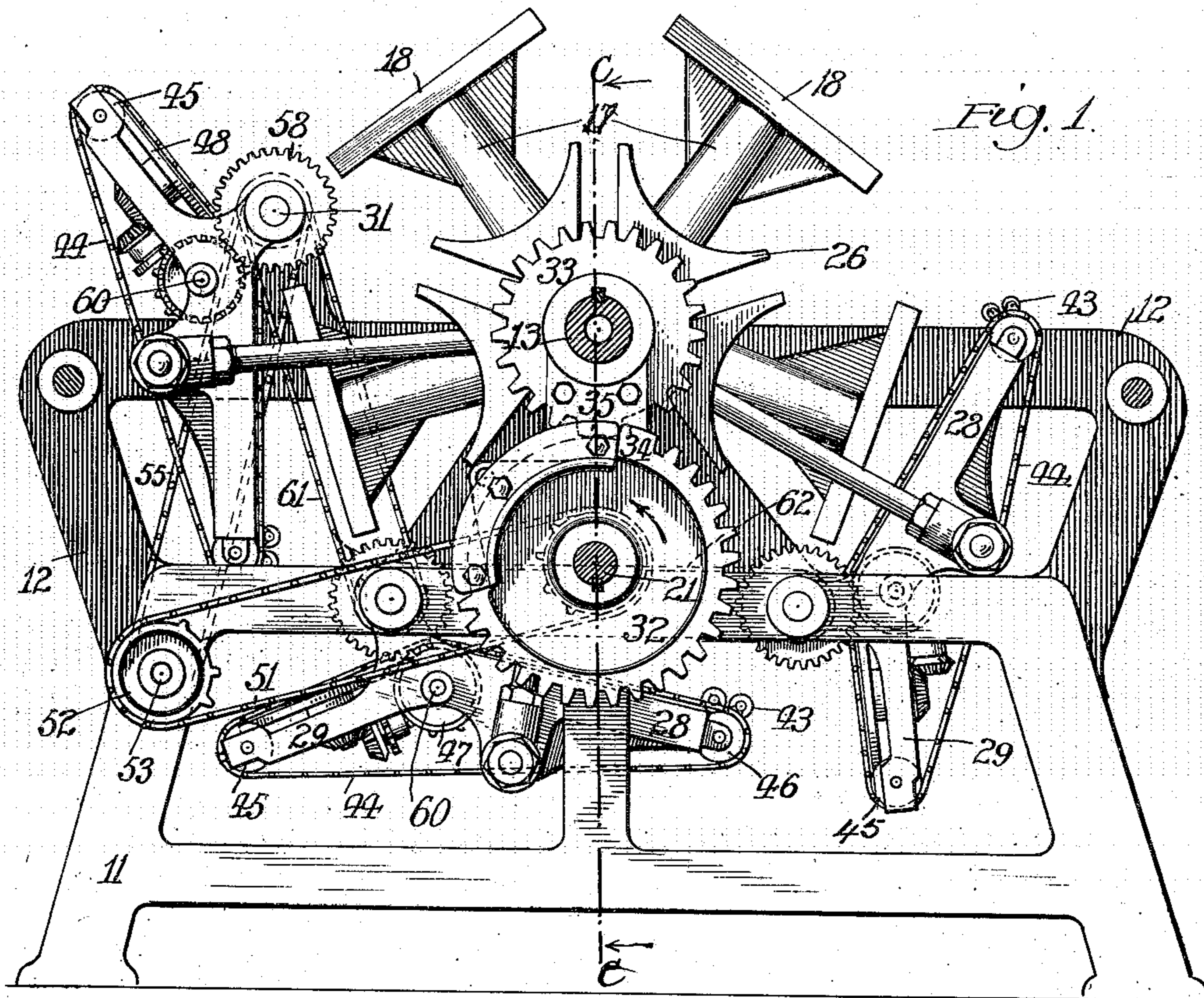
H. G. BARRETT.

PATENTED MAR. 10, 1908.

PRINTING PRESS.

APPLICATION FILED SEPT. 24, 1903.

3 SHEETS—SHEET 1.



Witnesses:

Lute. S. Alter

Edw. R. Barrett

Inventor:

Harold G. Barrett.

By J. H. McChoy, Atty,

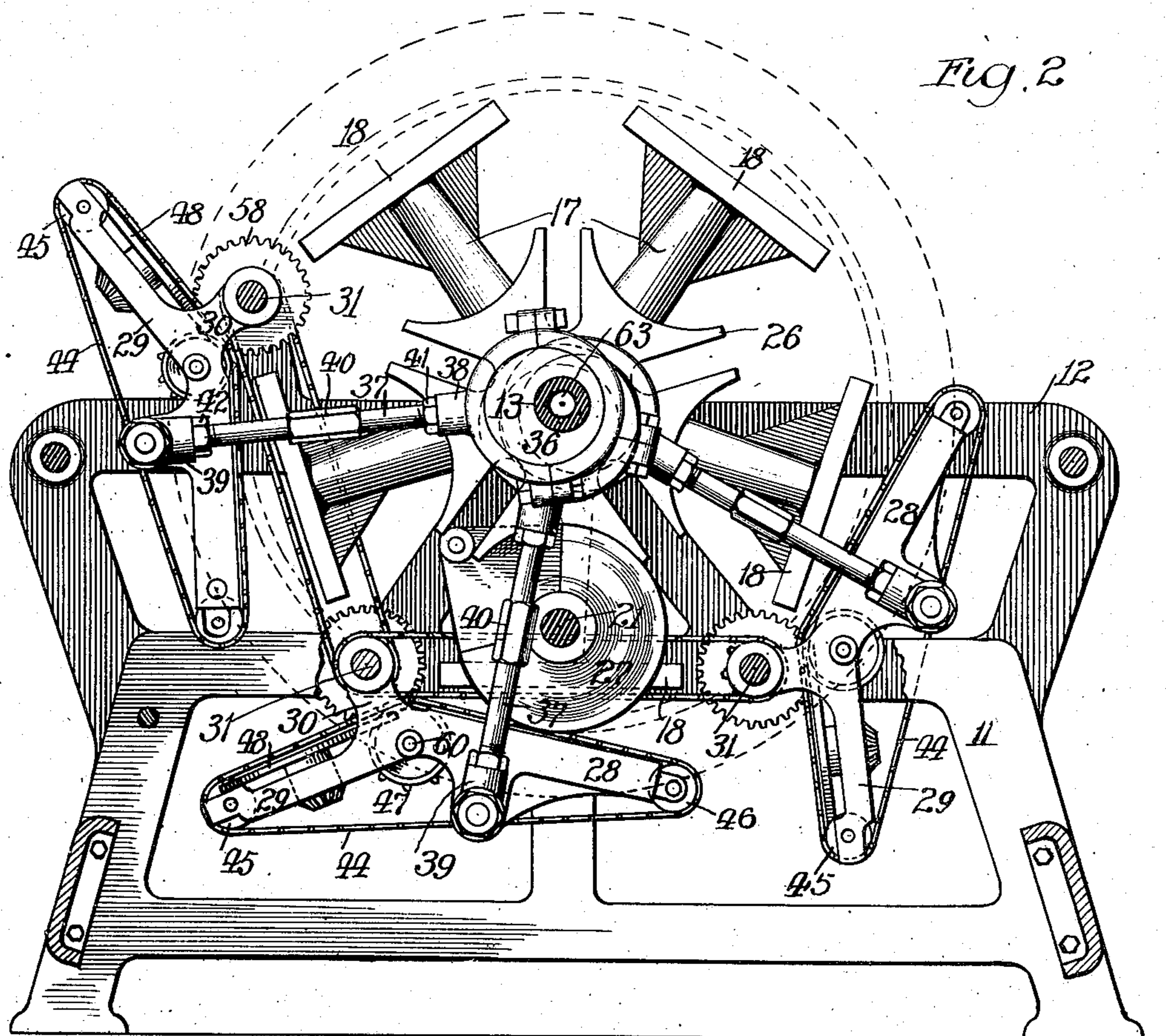
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3 SHEETS—SHEET 2.



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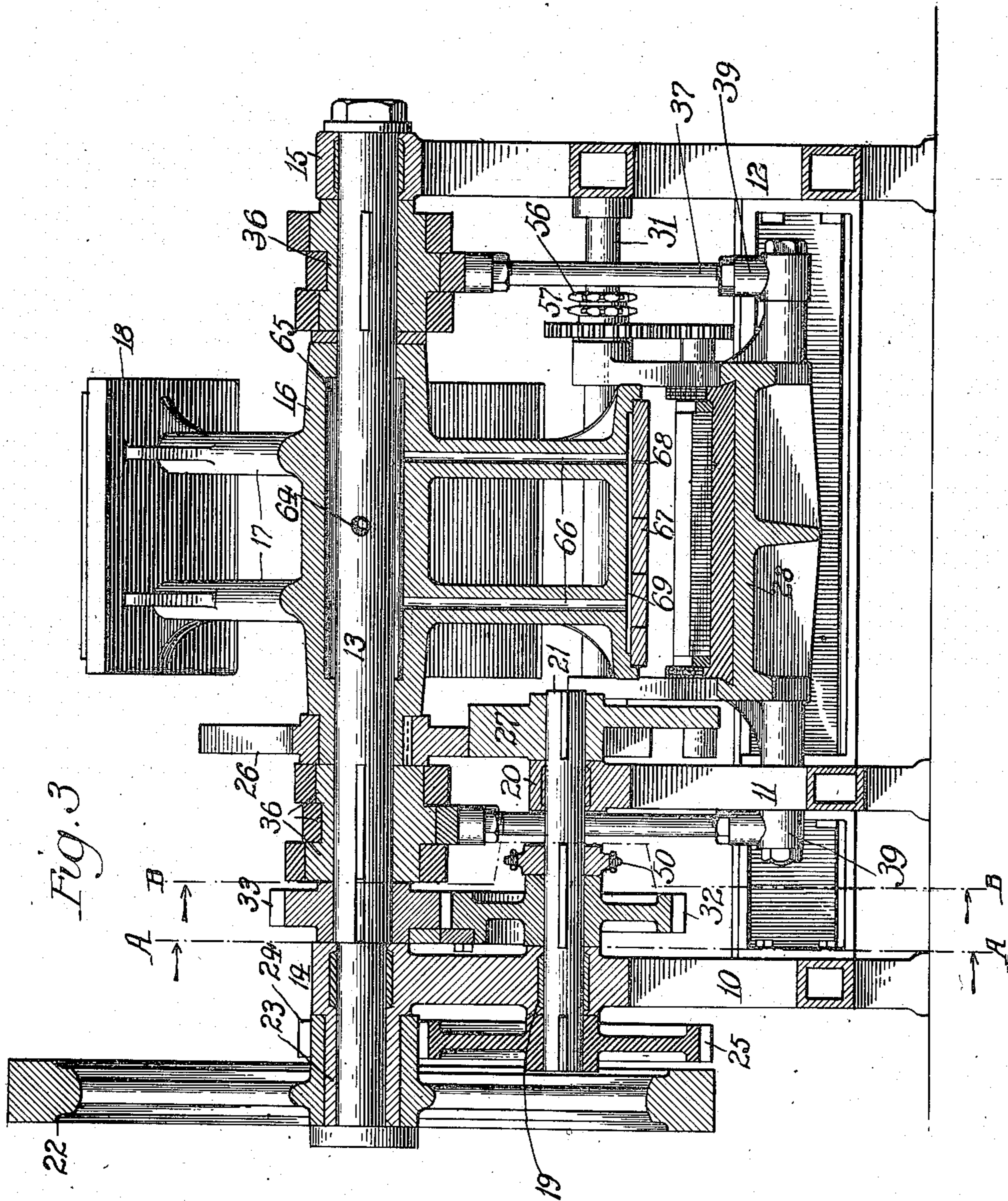
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

HAROLD G. BARRETT, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO  
WILLIAM H. COWLES, OF SPOKANE, WASHINGTON.

## PRINTING-PRESS.

No. 881,288.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed September 24, 1903. Serial No. 174,529.

*To all whom it may concern:*

Be it known that I, HAROLD G. BARRETT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

My invention is concerned with certain new and useful improvements in presses, which were devised primarily for use in multi-color printing-presses, although some of them can be employed in other presses.

I will first describe a complete machine embodying my improvements, and in the claims I will specifically point out the novel combinations.

To illustrate my invention, I annex hereto three sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which,—

Figure 1 is an elevation of the machine in section on the line A—A of Fig. 3; Fig. 2 is a similar view in section on the line B—B of Fig. 3; Fig. 3 is a vertical longitudinal section through the center of the machine on the line C—C of Fig. 1; Fig. 4 is a top plan view of one of the swinging type beds and annexed inking mechanisms; and Fig. 5 is a detail view of a portion of the inking mechanism.

The framework of the machine consists of the three vertical castings 10, 11 and 12, which are suitably shaped to furnish bearings and support for all the movable members, and which are connected by suitable cross pieces and distance bars, to give the desired rigidity to the frame. The main shaft 13 is journaled in the bearings 14 and 15 in the tops of the frame pieces 10 and 12.

Journaled on the shaft 13, at the middle portion thereof, is the platen support, consisting of the hub 16, the spokes 17 and the plates 18, the number of the plates being preferably two more than the number of type beds employed, in order that in one position one platen may be used to discharge the printed sheet, while an adjacent platen is used to receive a fresh sheet, and the remaining platens are opposite the type beds to receive an impression therefrom.

Journaled in the bearings 19 and 20 in the frame pieces 10 and 11 is the driving shaft 21, which is conveniently driven by the heavy belt wheel 22 journaled on a bearing formed

by the outer end of the shaft 13, or preferably by the sleeve 23 constituting an extension of the frame piece 10. The wheel 22 is provided with the gear pinion 24 meshing with the gear wheel 25 secured on the outer end of the shaft 21, to reduce the speed. To advance the platen support by a portion of each revolution of the driving shaft an angular distance sufficient to bring each platen in register with the next type bed and to lock it from movement during the rest of the revolution of the driving shaft, I secure upon the platen support the Geneva-stop driven-member 26, which has as many angles as there are platens, and which is driven by the Geneva-stop driving and locking member 27 secured on the inner end of the shaft 21. With this construction, it will be apparent that the platen support is intermittently advanced and locked during each revolution of the driving shaft.

To bring the type beds and platens in contact, in my invention, I use movable type-beds, and bring them into contact with the platens between each advance of the latter. These movable type-beds 28 are of a generally rectangular shape, and preferably consist of the type-bed portion proper and the extension 29 which supports the inking mechanism, and the ears 30 located between the type-bed proper and the extensions, and through which pass the rod or shaft 31 by which the type beds are supported so that they can be swung to bring them into contact with the platens. I preferably arrange mechanism to swing these type beds to bring them into contact with the platens during that portion of the revolution of the driving shaft in which the platens are locked from movement, and to secure this result I employ the mutilated gear wheel 32 secured on the driving shaft 21 and meshing with the gear wheel 33 secured on the shaft 13. The diameter of the gear wheel 33 is, say, two-thirds that of the mutilated gear wheel 32, and the teeth are omitted from one-third of the periphery of the wheel 32, so that during a revolution of the latter, it will give the gear wheel 33 and the shaft 13 a complete revolution, and then permit the latter to stop while the driving shaft completes its revolution.

To strengthen the gear wheels and prevent the liability of breakage of the teeth when

they reengage after passing the mutilated portion, I provide the gear wheels 32 and 33 each with an enlarged tooth, 34 and 35 respectively, so located that they are in position to be engaged when the mutilated portion of the wheel 32 has passed the engaging point. The shaft 13 has secured thereon, at either end of the platen support, as many eccentrics 36 as there are type beds, the eccentrics being set on the shaft at the proper angles to simultaneously bring all the type beds into contact with the platens through the connecting links 37. These connecting links preferably have their ends screwed by oppositely directed threads into the nut sockets 38 and 39 secured on the eccentrics and pivoted on the type-bed frames, respectively. By means of the angular sections 40 of the links and jam-nuts 41 and 42 cooperating with the screw-threaded ends of the links 37 and the nut sockets 38 and 39, I am enabled to secure a very accurate adjustment to take up any wear of the parts resulting from the use of the machine.

From a consideration of the mechanism as thus far described, it will be apparent that as the shaft 21 is rotated, at each revolution the platens will be advanced the proper angular distance to bring them into register with the type beds, and locked during the remaining portion of the rotation of said shaft, during which time the rotation of the shaft 13, which now begins, will serve to swing the type beds into contact with the temporarily stationary platens; and swing them back before the platens are moved to the next position.

Any suitable mechanism may be employed to ink the type beds between the impressions, but I preferably employ a pair of inking rollers 43 carried by a pair of sprocket chains 44 running on the sprocket wheels 45, 46 and 47, journaled at the inking end, type-bed end, and center of each side of the type-bed frames, respectively. The inking rollers may obtain the necessary supply of ink from any desired source, and I have illustrated them as running over the circular inking plate 48, which is mounted to rotate slowly in the bearings formed in the cross piece 49 of the type frame, and which may be actuated intermittently to advance it a small angle at each operation of the machine, to thereby furnish a fresh surface to the rollers, as is customary in this class of inking devices.

The chains 44 may be moved always in one direction, making a complete circuit at each operation of the machine, or may be reciprocated back and forth at each operation from the inking plate 48 over the type bed and back. I preferably move the chains constantly in one direction, and for this purpose I employ the following mechanism: Secured upon the driving shaft 21 is a sprocket wheel 50, which, through the sprocket chain 51,

drives a sprocket wheel 52 secured upon a shaft 53 having suitable bearings in the frame pieces 11 and 12. Near the end of the shaft 53 that has its bearings in the bracket 12, is a sprocket wheel 54, which, through the chain 55, operates a sprocket wheel 56 loosely mounted on the end of the uppermost shaft 31 in the same plane. Rigidly secured to the sprocket wheel 56 is another sprocket wheel 57, of the same size, and a gear wheel 58, the two sprockets and gear wheel being secured upon a common sleeve loosely mounted on the said shaft 31. The gear wheel 58 meshes with the small gear wheel 59, secured upon the shaft 60 extending across the frame of the type bed and journaled in suitable bearings therein, and having the sprocket wheel 47, which drive the chains 44, secured thereon. The sprocket wheel 57, by the chain 61, drives another sprocket wheel 56 on the intermediate one of the three shafts 31 shown in the form employed, which carries the same sprocket wheels 56 and 57, and the gear wheel 58, which drives the inking mechanism for that particular type bed in the same manner, and the sprocket wheel 57 on that particular type bed, through the sprocket chain 62, drives the inking mechanism on the remaining type bed by the same mechanism. By the mechanism thus described, it will be seen that at each revolution of the driving shaft 21, each of the type beds will be inked, the parts being preferably so timed that the inking rollers 43 pass over the type bed while the latter is stationary and during the intermittent forward movement of the platens. By arranging the type-bed frames as thus shown, with the type bed in one end and the inking mechanism on the other, and pivoting them intermediately, it will be seen that they are more or less perfectly balanced, so that less power will be required to run the machine than if they were pivoted at one end, the weight of the inking mechanism counterbalancing the weight of the type bed.

To hold the sheets to be printed on the platens in the various angles that the latter assume, I may employ any suitable mechanical mechanism, but I preferably use a vacuum, making the shaft 13 hollow at one end, as seen at 63, and opening the hollow portion as at 64, into the annular air space formed by cutting out the center of the hub 16, as seen at 65. Air channels 66 extend through the spokes of the platen support, and the surface of the platens is formed by plates 67 provided with numerous fine perforations 68, the plates 18 being cut away sufficiently to furnish the necessary small air chamber 69. By connecting the hollow shaft with some air-exhausting mechanism, it will be apparent that a blank placed on the plate 67 will be held there firmly against any except an intentional removal. If the perforations 68

are of a size to interfere with the clearness of the impression, the portion of the plate 67 upon which the impression is to be made can be covered by a sheet of paper or thin cardboard strong enough to resist the suction of the air, while the paper or cardboard may be cut away or have perforations made therein coincident with the perforations 68 opposite the portions where the impression is not made.

While I have shown my invention as embodied in a press adapted for multi-color printing, it will be understood that it might be employed for any press in which a plural series of impressions are to be made on the same paper or blank. It will be also understood that my invention is capable of various modifications, and that I do not desire to be limited in the interpretation of the following claims, except as may be necessitated by the state of the prior art.

What I claim as new and desire to secure by Letters Patent of the United States is,—

1. In a device of the class described, the combination with the plurality of type beds and platens adapted to cooperate therewith grouped about a common center, of means for moving said platens intermittently to bring them into register with the different type beds in succession and for moving the type beds toward the platens to contact therewith between the movements of the latter.

2. In a device of the class described, the combination with the framework, of the rotating support for the platens, the plurality of platens therein, the plurality of type beds grouped about the center of said support and movable in the frame towards said center, means for advancing the platen support intermittently to bring the platens into register with the different type beds in succession and for moving the type beds toward the platens to contact therewith between the movements of the support.

3. In a device of the class described, the combination with the plurality of type beds and platens adapted to cooperate therewith grouped about a common center, of means for moving said platens intermittently to bring them into register with the different type beds in succession and for moving the type beds toward the platens to contact therewith between the movements of the latter, and means for inking the type beds between their contacts with the platens.

4. In a device of the class described, the combination with the framework, of the rotating support for the platens journaled therein, the platens carried by said support, the plurality of type beds grouped about the common center, means for advancing said support intermittently to bring the platens into register with the different type beds in

succession, means for moving the type beds toward the platens to contact therewith between the movements of the support, and means for inking the type beds between their contacts with the platens.

5. In a device of the class described, the combination with the framework, of the rotating platen-support journaled therein, the plurality of platens carried by said support, the plurality of type beds mounted to swing in said frame and grouped about the platen support, means for moving the platen support intermittently to bring the platens into register with the different type beds in succession, and means for swinging the type beds toward the platens to contact therewith between the movements of the latter.

6. In a device of the class described, the combination with the framework, of the platen support journaled therein, the platens carried by said support, the type-bed carrying frames having type beds at one end and ink-distributing mechanism at the other grouped about said platen support and pivoted to the main frame between their ends, inking rollers moving from the distributing mechanism over the type bed, means for moving said platen support intermittently to bring the platens into register with the different type beds in succession, means for moving the type beds towards the platens to contact therewith between the movements of the latter, and means for operating the distributing mechanism.

7. In a device of the class described, the combination with the framework, of the platen support journaled therein, the platens on said support, the balanced swinging type-beds grouped about said platens and adapted to cooperate therewith, means for moving the support intermittently to bring the platens into register with the different type beds in succession, and means for swinging the type beds toward the platens to contact therewith between the movements of the latter.

8. In a device of the class described, the combination with the plurality of type beds and platens adapted to cooperate therewith grouped about a common center, of a rotating driving shaft, and connections between said platens and type beds and driving shaft whereby a part of the rotation of the latter is used to advance the platens intermittently to bring them into register with the different type beds in succession and the remainder of the rotation is used to move the type beds toward the platens to contact therewith.

9. In a device of the class described, the combination with the plurality of type beds and platens adapted to cooperate therewith grouped about a common center, of means for inking the type beds between their contacts with the platens, a rotating driving shaft, and connections between said platens,

type bed and inking mechanism, and said driving shaft, whereby a portion of the rotation of the latter is used to intermittently advance the platens to bring them into register with the different type beds in succession and the remaining portion to move the type beds to bring them into register with the platens between the movements thereof, and the inking mechanism acting to ink the type beds between their contacts with the platens.

10. In a device of the class described, the combination with the framework, of the platen support journaled therein, the platens mounted on said support, the swinging type beds grouped about said platens, removable journals for the type beds, and means for advancing the platen support intermittently to bring the platens into register with the different type beds in succession and for swinging the type beds toward the platens to contact therewith between the movements of the latter.

11. In a device of the class described, the combination with an intermittently rotatable platen, of a swinging frame having a type bed thereon pivoted adjacent the center of gravity thereof, and means for swinging the frame to contact the type bed with the platen when the latter is stationary.

12. In a device of the class described, the combination with an intermittently rotatable platen, of a swinging frame having a type bed at one end and ink-distributing mechanism at the other end pivoted near the center, inking rollers moving from the distributing mechanism over the type bed, and means for swinging the frame to contact the type bed with the platen when the latter is stationary.

13. In a device of the class described, the combination with the plurality of type beds and platens adapted to cooperate therewith grouped about a common center, of means for moving said platens intermittently to bring them into register with the different type beds in succession, and means for moving the type beds toward the platens to contact therewith between the movements of the latter, said means consisting of a rotating shaft, eccentrics thereon corresponding in position to the type beds, and links connecting the eccentrics and type beds.

14. In a device of the class described, the combination with the plurality of type beds, and platens adapted to cooperate therewith grouped about a common center, of means for moving said platens intermittently to bring them into register with the different type beds in succession, and means for moving the type beds toward the platens to contact therewith between the movements of the latter, said means consisting of a rotating shaft, adjustable links connecting the type beds and shaft, and connections be-

tween the shaft and the links for moving the latter.

15. In a device of the class described, the combination with the framework, of the platen-carrying frame rotatably mounted thereon, the platens carried by said frame, the type beds grouped about said platens, a driving shaft, Geneva-stop driven mechanism between said shaft and the platen-carrying frame to advance the frame intermittently, and means for moving said type beds toward the platens to contact therewith between the movements of the latter.

16. In a device of the class described, the combination with the framework, of the main shaft mounted to rotate therein, the platen frame mounted to rotate on said shaft, platens carried by said frame, type beds grouped about said platens, a driving shaft, mutilated gear connections between said driving shaft and main shaft for giving the latter a complete rotation during a portion of the rotation of the former, driving and locking connections between the driving shaft and the platen-carrying frame for advancing the latter intermittently while the main shaft is not moving, and connections between the main shaft and the type-beds, whereby the latter are moved into contact with the platens between the movements of the latter.

17. In a device of the class described, the combination with the plurality of type beds and platens adapted to cooperate therewith grouped about a common center, of a driving shaft, Geneva-stop connections between said driving shaft and platens for advancing the same intermittently, and means actuated by said driving shaft to contact the platens and type beds between the forward movements of the former.

18. In a device of the class described, the combination with the framework, of the rotating platen support journaled in said frame, the platens mounted on said support, the type beds grouped about said platens, a driving shaft, Geneva-stop mechanism between said driving shaft and platen support for intermittently advancing the latter, and means operated by said driving shaft for contacting the platens and type beds between the forward movements of the platen support.

19. In a device of the class described, the combination with the framework, of the rotating platen support journaled in said frame, the platens mounted on said support, the type beds grouped about said platens transversely movable support for the type beds, a driving shaft, Geneva-stop mechanism between said driving shaft and platen support for intermittently advancing the latter, and means operated by said driving shaft for contacting the platens and type beds between the forward movements of the platen support, consisting of an eccentric

shaft, and links connecting the shaft and transversely movable supports.

20. In a device of the class described, the combination with the platen support, of the shaft upon which it is journaled, a flat surfaced platen carried by said support an air passage leading from said shaft to the platen support, an air chamber formed in the lat-

ter, and air passages leading from the chamber to the surface of the platen.

In witness whereof, I have hereunto set my hand this 19th day of September, 1903.

HAROLD G. BARRETT.

Witnesses:

JOHN H. McELROY,

C. A. McELROY.