No. 897,164. PATENTED AUG. 25, 1908.

C. F. SHEPHERD.

PRINTING DEVICE.

APPLICATION FILED OCT. 8, 1907.

3 SHEETS—SHEET 1.

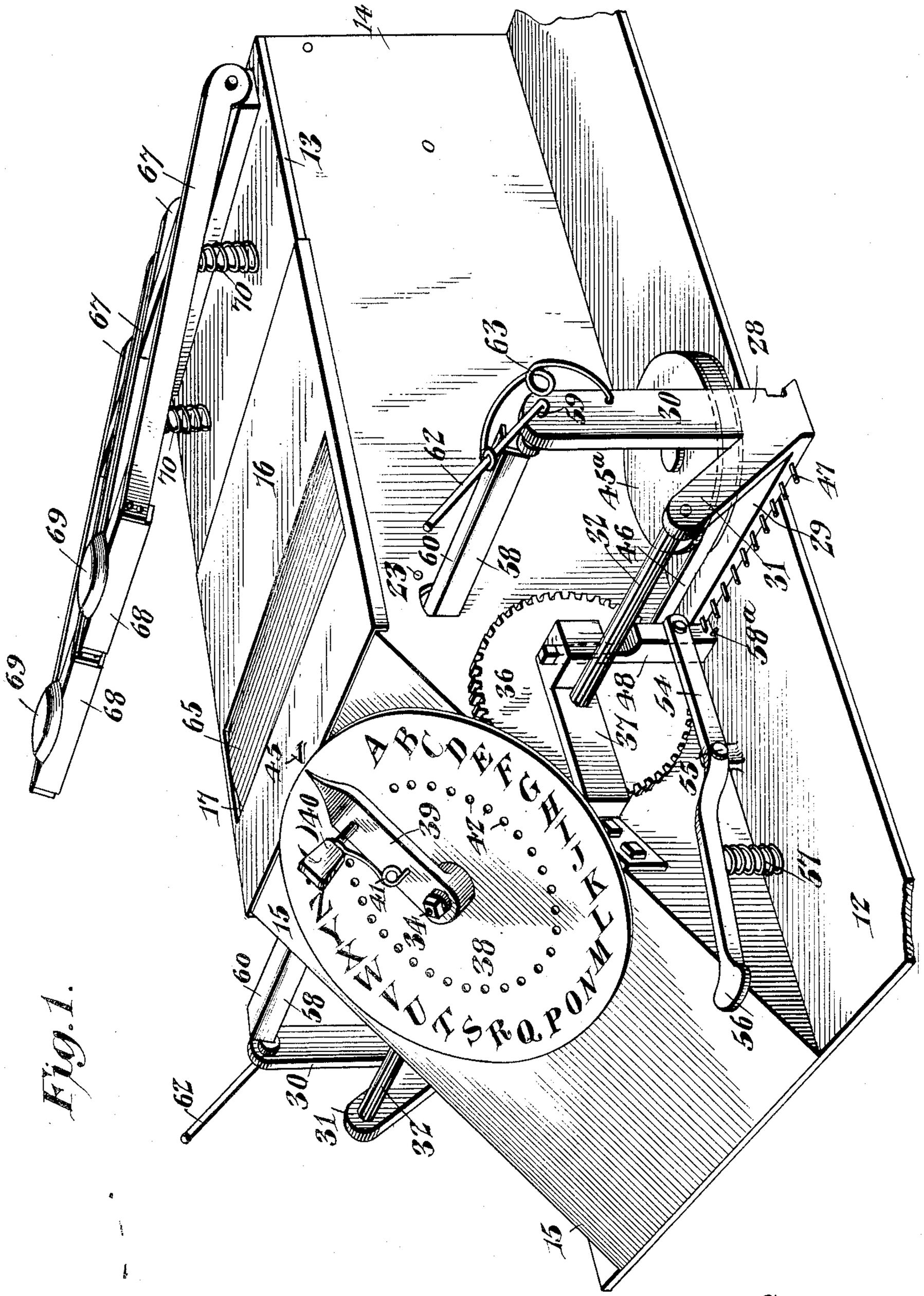

Fig. 1.

Witnesses

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3 SHEETS—SHEET 2.

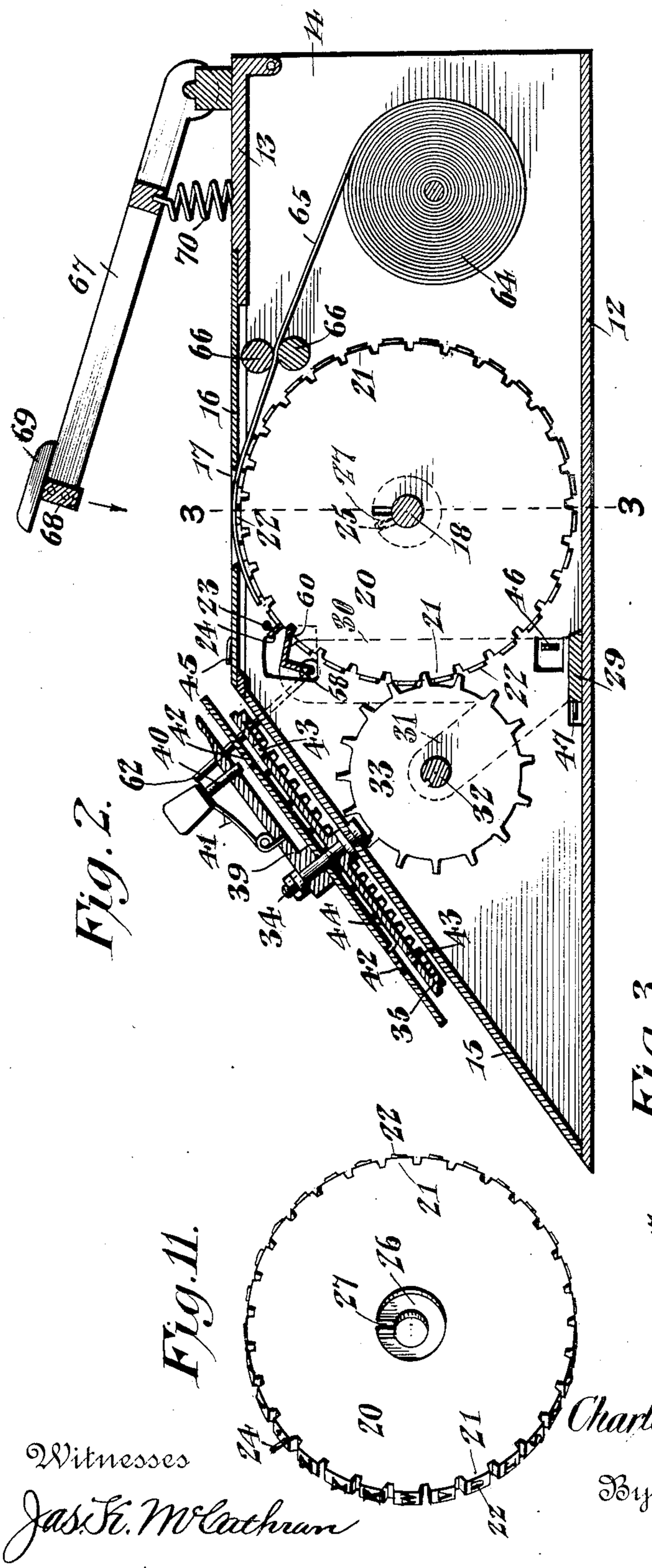

Fig. 2.

Fig. 11.

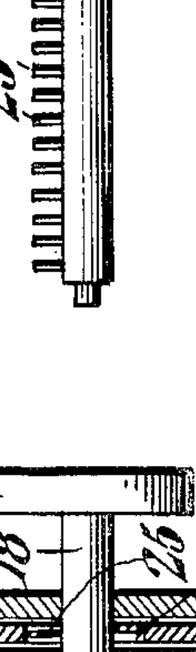

Fig. 10.

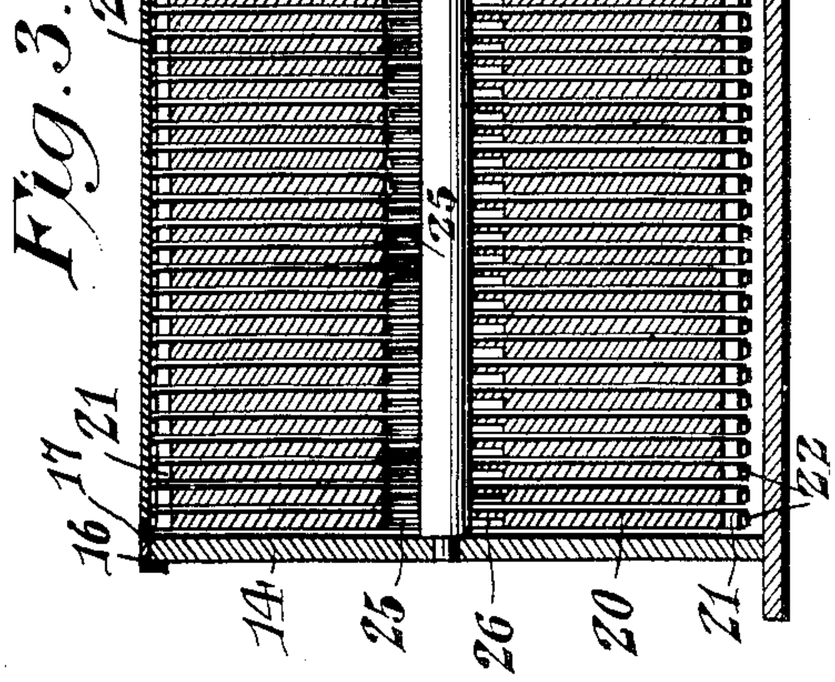

Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 6.

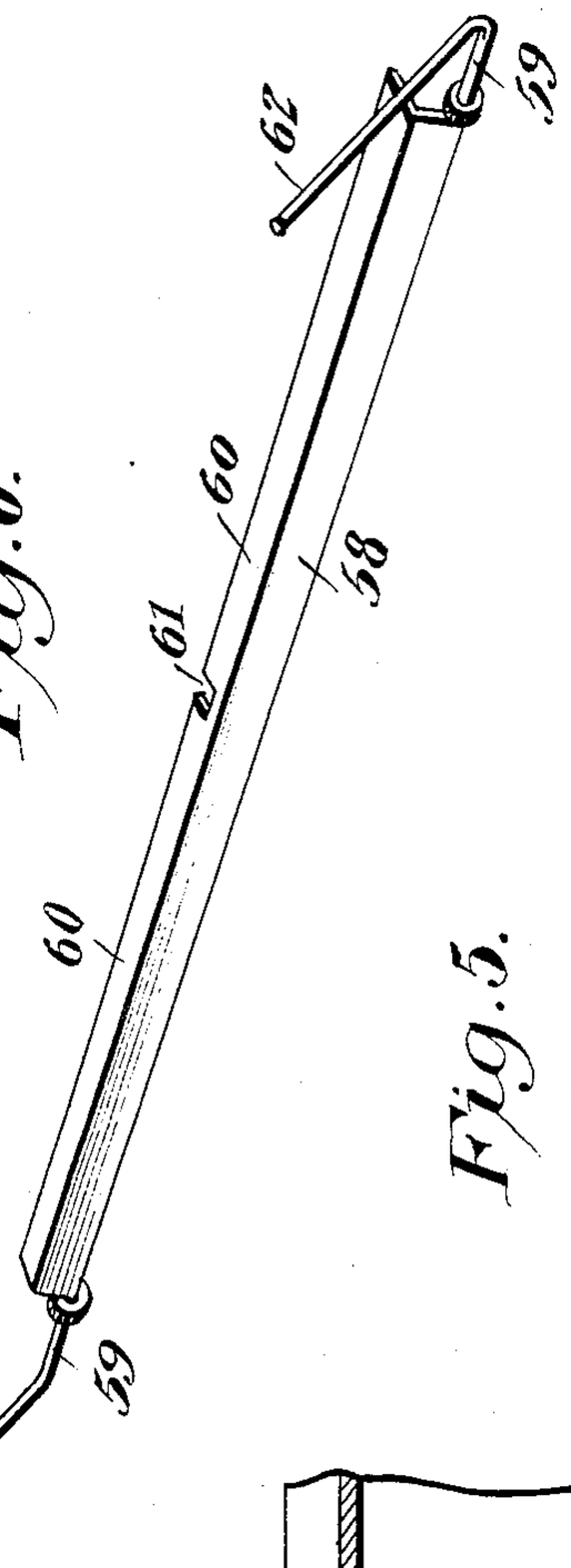


Fig. 7.

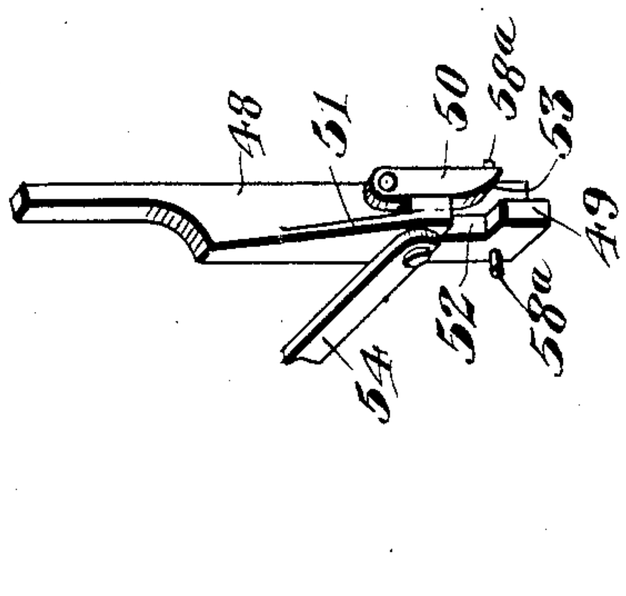


Fig. 9.

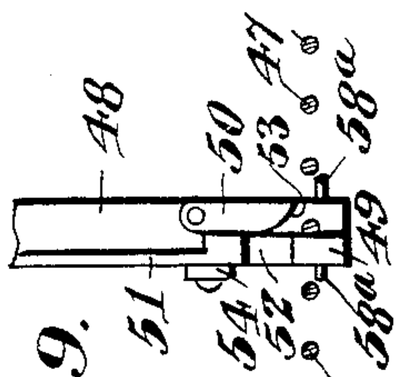


Fig. 5.

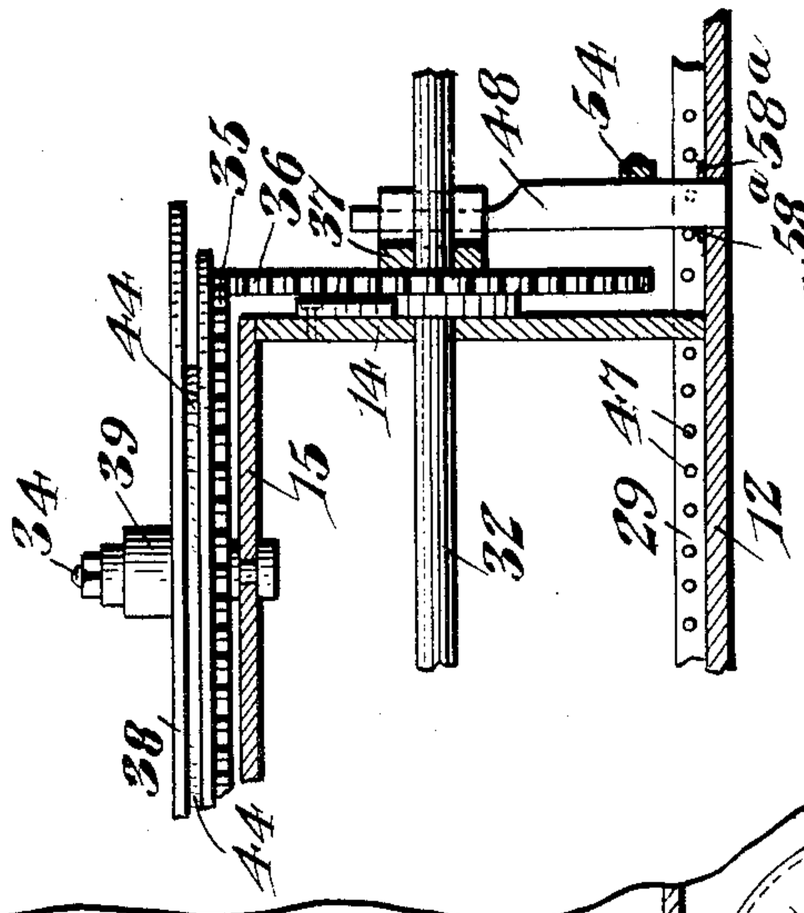


Fig. 8.

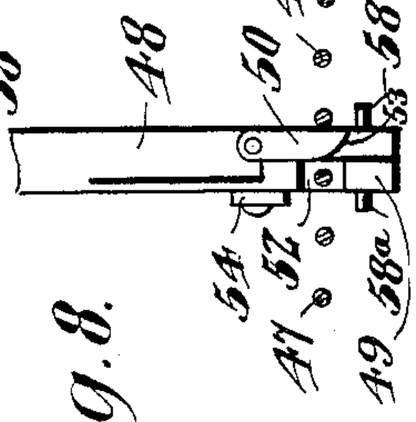
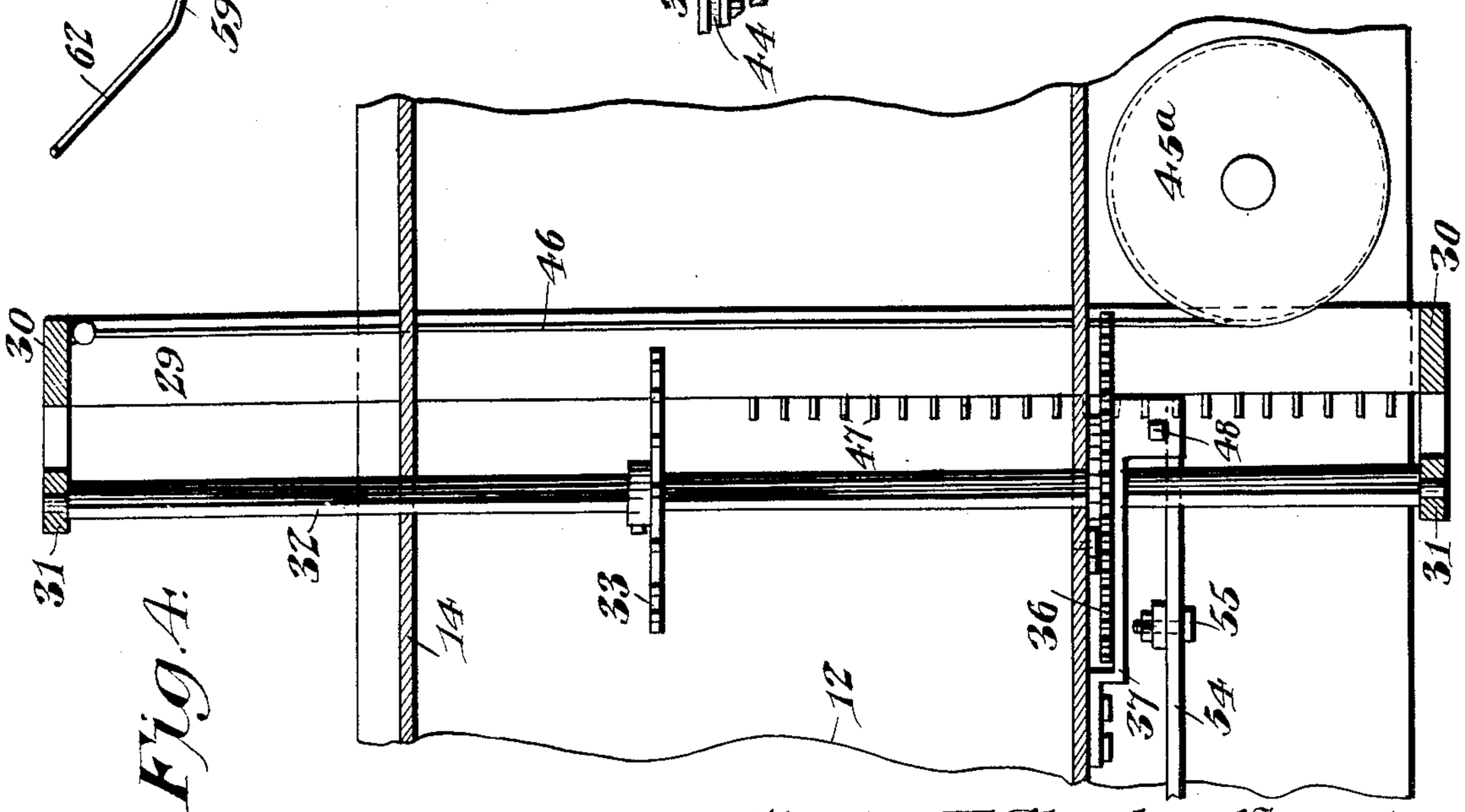


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE

CHARLES F. SHEPHERD, OF SPRINGFIELD, MISSOURI.

PRINTING DEVICE.

No. 897,164. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed October 8, 1907. Serial No. 396,374.

To all whom it may concern:

Be it known that I, CHARLES F. SHEPHERD, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented a new and useful Printing Device, of which the following is a specification.

This invention is primarily intended for printing cards, tags, and the like, but of course is not limited in its use.

The principal object is to provide a novel, simple and practical machine in which names, addresses and the like can be readily and accurately set up and printed, and thus for instance, tags, and labels can be plainly addressed, obviating the trouble of illegible addresses and consequent confusion, delays and loss incident thereto.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Fig. 1 is a perspective view of the machine. Fig. 2 is a longitudinal sectional view therethrough. Fig. 3 is a cross sectional view on the line 3—3 of Fig. 2. Fig. 4 is a detail horizontal sectional view, showing the carriage and associated parts. Fig. 5 is a detail vertical cross sectional view, illustrating the indicating device and gearing in elevation. Fig. 6 is a perspective view of the lock for the printing members. Fig. 7 is a perspective view of the escapement dogs for the carriage. Fig. 8 is a rear elevation of the same showing the dogs in their normal position. Fig. 9 is a rear elevation but illustrating the dogs when moved with respect to the holding teeth of the carriage. Fig. 10 is a side elevation of the resetting shaft for the printing members. Fig. 11 is a perspective view of one of said members.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a support in the form of a casing is employed comprising a bottom wall 12, a top wall 13, side walls 14 and an inclined front wall 15. The top wall includes a plate 16 having a transverse opening 17 therethrough. A shaft 18 is journaled in the side walls 14 below the opening 17, and has an actuating knob 19 on one end. Loosely journaled on this shaft are a plurality of independently rotatable printing members, in the form of wheels 20, provided with peripheral teeth 21 having type 22 thereon, said type thus successively registering with the opening 17 upon the rotation of the members. These members are movable from a set position, and said position is determined by a cross rod 23 located adjacent to the wheels and engaged by a stop pin 24 carried by each of said wheels. The shaft 18 is also rotatable, and is provided with a series of outstanding pins 25 located in sockets 26 formed in the central portions of the members and arranged to engage lugs 27 formed on said wheels in the sockets. With this arrangement, it will be evident that while the printing members may be freely rotated from their set positions so as to carry the stop pins 24 away from the rod 23, if the shaft 18 is revolved, the pins 25 thereof will engage with the lugs or projections 27 and return the printing members to their set positions.

A reciprocatory carriage is mounted to move transversely of and through the casing. This carriage comprises upright end brackets 28 connected by a lower bar 29 and having angularly disposed arms 30 and 31. A shaft 32, journaled on the arms 31 and thus movable with the carriage, has a master gear wheel 33 fixed thereto and movable into mesh with the teeth 21 of the different printing members, as will be evident by reference to Fig. 2. Thus upon the rotation of said shaft 32, it will be evident that the printing member with which the master wheel 33 is engaged, will also be rotated. For the purpose of operating the shaft 32, the following mechanism is preferably employed.

An outstanding stud 34 is mounted on the inclined front wall 15 and journaled on said stud is a gear wheel 35, which is in mesh with another gear wheel 36 journaled on one of the side walls 14 and feathered to the shaft 32, so that while said shaft can slide freely through the gear wheel 36, it must necessarily rotate therewith. The gear wheel 36 is held against movement longitudinally of the shaft by means of a suitable bracket 37 fixed to the side wall of the casing. Rotatably mounted on the stud 34 over the gear wheel is a dial 38 having a series of letters and characters, which correspond to the type on the peripheries of the printing members. An indicator, in the form of a pointer 39, is rotatably mounted on the outer end of the stud, and a reciprocating stem or dog 40 is slidable through the outer end portion of the

pointer, being normally supported by a spring 41. The inner end of this dog is arranged to pass through any of a series of openings 42 in the dial, said openings being alined with the characters on said dial, and is also arranged to pass through corresponding openings 43 in the gear wheel beneath the dial. As already stated, the dial is rotatable, but it is normally held in a predetermined position by a coiled spring 44 located beneath it and having one end attached thereto, the other end being secured to the stud 34. For the purpose of accuracy, an indicator pointer 45 may be placed upon the top of the casing, as illustrated in Fig. 1.

The operation of the structure, as thus far described, is as follows: Assuming the various printing members in their set positions, and the carriage located so that the master wheel 33 is engaged with one of said number wheels, the indicator or pointer 39 is turned on the dial 38 to the desired letter or character, which is to be set up on the printing member. The dog 40 is then depressed so that the stem thereof passes through the opening in line with such character and through the corresponding opening in the gear wheel. The pointer is then returned to its position in line with the indicator 45. The result is that the gear wheel 35 is rotated, and this through the medium of the gear wheel 36, will rotate the shaft 32 and the master wheel 33. The printing member 20 is consequently turned to present the desired character centrally beneath the opening 17. The carriage is then moved so that the master wheel 33 is in coaction with the next wheel, whereupon the operation is repeated.

The operation of the carriage is controlled by the following mechanism. A suitable spring drum 45[a] is mounted on the base 12, and a tape 46 that winds thereupon is connected to the carriage. The spring drum therefore constitutes a motor for moving the carriage in one direction. Escapement mechanism is employed for controlling the movement of the carriage under the action of said motor. To this end, the bar 29 already described, is provided with a series of outstanding pins or teeth 47, and coöperating with these teeth is a set of dogs mounted on a reciprocatory carrier 48, one of the dogs as 49, being integral and stationary with respect to the carrier, the other 50 being pivoted thereto. The dog 49 constitutes in effect part of a flange 51 formed upon the carrier and having a slot 52 therein. The dog 50 extends across the slot and bears against the flange, being provided with a rearwardly curved lower end 53. The teeth 47 are alined with the slot 52, but the dog 50 practically closes said slot, as will be evident by reference to Figs. 7, 8 and 9. The vertical movement of the carrier 48 is secured by means of a lever 54 fulcrumed between its ends, as shown at 55, the rear end of the lever being connected to the carrier, the front end having a finger piece 56. A spring 57, bearing against the under side of the front arm of the lever, serves to normally hold the carrier in its lowermost position, the downward movement thereof being limited by a stop pin 58[a] projecting from the carrier. With this mechanism it will be evident particularly by reference to Figs. 8 and 9 that the carriage is normally held against movement by one of the teeth 47 engaging against the dog 50. If, however, the front end of the lever 54 is depressed, the carrier will be elevated. Consequently the dog 50 will be raised above the tooth and the carriage will be moved so that the tooth will then bear against the dog 49. When the front end of the lever 54 is released, the spring 57 will return the carrier 48 to its lowermost position. This will bring the slot 52 into register with the tooth that bears against the dog 49 and the carriage will have a further movement until the succeeding tooth engages the dog 50. The movement thus allowed the carriage is sufficient to carry the master wheel 33 from one printing member to the next.

For the purpose of locking the printing members positively against movement in the direction given by the actuating means, with the exception of the member operated upon by the master wheel 33, a locking bar 58 is pivoted by gudgeons 59 on the arms 30 of the end brackets 28, and has an offset flange 60 that engages between adjacent teeth of the printing members 20, as shown in Fig. 2. This flange, is however, provided with a slot 61 located directly over the master wheel. Consequently, the teeth of the printing member, which is in coaction with said master wheel, will pass freely through the slot, but as soon as the carriage moves to carry the master wheel to the next printing member, said slot will move with it, locking the member just operated upon, and freeing the member with which the master wheel moves into coaction. The gudgeons 59 of the locking bar 58 are provided with offset handle portions 62 and a spring 63 engaged with one of said terminals, serves to yieldingly hold the bar in operative position, but permits it being moved to an inoperative position, simultaneously releasing all the printing members as will be evident.

A suitable inking or carbon roll 64 is journaled in the casing in rear of the printing members, and the strip or sheet 65 passes between guide rollers 66 and over the printing members. Pivotally mounted on the top wall 13 are separate sets of swinging arms 67 carrying at their free ends pressing bars 68 that swing into coaction with the type set up, said pressing bars having suitable handles 69 and being normally supported by springs 70.

The operation of the complete machine may be briefly described as follows. The carriage is moved to the left and the spring drum 45 consequently wound up. If for instance, a name and address are to be set up on the printing members, the first member is rotated by means of the actuating device, as already described, to bring the first letter in such name to a central position beneath the opening 17. The front arm of the lever 54 is then depressed and released, which allows the carriage to move to a position to bring the master wheel into coaction with the second printing member, whereupon the second letter is set up and so on until the name is completed. The address is then in like manner set up on the succeeding members. A tag, card, or other device is thereupon placed on the sheet 16, and the first of the pressing members 68 brought sharply down upon it. Thus the name will be printed on such article. The tag or article is readjusted and the second pressing member operated to print the address under the name. The locking bar is then swung out of coöperative relation with the different members, the shaft 18 is revolved to return the members to their set position, the carriage is again moved to the left, and the machine is ready for a new operation.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a printing device of the character set forth, the combination with a support, of a plurality of independently movable printing members mounted on the support, a combined actuating device and indicator rotatably mounted on the support, and mechanism mounted on the support and movable thereon with respect both to the printing members and the combined actuating device and indicator for connecting different printing members to said combined actuating device and indicator.

2. In a printing device of the character set forth, the combination with a support, of a plurality of independently movable printing members mounted on the support, a combined actuating device and indicator rotatably mounted on the support, a gear element operated by the combined actuating device and indicator, and means associated with the gear element and movable with respect thereto into and out of coaction with the different printing members to connect the combined actuating device and indicator to said printing members.

3. In a printing device of the character set forth, the combination with a plurality of movable printing members, of an actuating device therefor, a carriage movable with respect to the members, and mechanism movably mounted on the carriage and movable with said carriage to different positions for connecting the actuating device and the different members, said mechanism being movable on the carriage to actuate the members.

4. In a printing device of the character set forth, the combination with a plurality of movable printing members, of an actuating device therefor, a carriage movable with respect to the members and the actuating device, mechanism mounted on the carriage and movable therewith into coaction with the different members for transmitting motion from the actuating device to the different members, and means operated by the actuating device for moving the mechanism on the carriage to effect the operation of the members.

5. In a printing device of the character set forth, the combination with a support, of rotatable printing members mounted thereon, an actuating device also mounted on the support, a reciprocatory carriage mounted on the support, and mechanism mounted on the carriage and movable therewith into coaction with the different members, said mechanism being moved on the carriage by the actuating device to transmit motion from the actuating device to the printing members.

6. In a printing device of the character set forth, the combination with rotatable printing members, of a reciprocatory carriage, a master wheel mounted on the carriage and movable therewith into and out of coaction with the different members, an actuating device, and gearing connecting the actuating device and master wheel and permitting their relative movement.

7. In a printing device of the character set forth, the combination with rotatable printing members, of a reciprocatory carriage, a shaft journaled on the carriage, a master wheel fixed to the shaft and movable into and out of coaction with different members, an actuating device, and a gear operated by the actuating device and feathered on said shaft.

8. In a printing device of the character set forth, the combination with a support, of a plurality of rotary printing members journaled on the support, a rotatable actuating device journaled on the support, a reciprocatory carriage mounted on the support and movable with respect to the printing members and actuating device, a master gear

journaled on the carriage and movable therewith into coaction with the different printing members, and means for transmitting motion from the actuating device to the master wheel when the same is in coaction with the different printing members.

9. In a printing device of the character set forth, the combination with a casing, of a plurality of rotary printing members journaled in the casing, a rotary actuating device journaled on the casing and including an indicator, a reciprocatory carriage slidably mounted in the casing, a shaft journaled in the carriage, a master wheel fixed to the shaft and movable into coaction with the different printing members, a gear wheel feathered upon the shaft, and a gear wheel operated by the actuating device and meshing with said feathered gear wheel.

10. In a printing device of the character set forth, the combination with a support, of rotatable printing members thereon, a movable carriage, a device rotatable on the carriage and movable therewith into coaction with the different members, means for rotating the device to operate the members, and means for effecting a step by step movement of the carriage.

11. In a printing device of the character set forth, the combination with a support, of movable printing members thereon, a carriage movably mounted on the support, means mounted on the carriage and movable therewith into coaction with the different members, mechanism mounted on the support for moving the means on the carriage to operate the members, a motor for moving the carriage in one direction, and escapement mechanism controlling said movement of the carriage.

12. In a printing device of the character set forth, the combination with a support, of movable printing members thereon, a movable carriage, an actuating device, means mounted on the carriage for transmitting motion from the actuating device to the printing members, a motor for moving the carriage in one direction, and escapement mechanism controlling said movement of the carriage and comprising a toothed bar mounted on the carriage, movable dogs coöperating with the bar, and a lever operable independently of the actuating device for actuating the dogs.

13. In a printing device of the character set forth, the combination with a supporting casing, of rotatable printing members journaled thereon, a rotary actuating device journaled on the casing, a reciprocatory carriage, gearing mounted on the carriage for transmitting motion from the actuating device to the different printing members, a motor spring connected to the carriage for moving the same in one direction, a toothed bar mounted on the carriage, reciprocatory dogs coöperating with the teeth of the bar to control the movement of said carriage, and a manually actuated lever mounted on the casing and connected to the dogs for actuating the same.

14. In a printing device of the character set forth, the combination with a support, of movable printing members mounted thereon, a carriage movably mounted on the support, means mounted on the carriage and movable therewith into coaction with the different members for operating them, mechanism mounted on the support and connected to said means on the carriage to operate the same, said mechanism being movable different distances permitting the movement of the carriage, and means for indicating the amount of movement of the operating mechanism.

15. In a printing device of the character described, the combination with a support, of rotatable printing members mounted thereon, a reciprocatory carriage mounted on the support, a master wheel rotatably mounted on the carriage and movable therewith into coaction with the different members, and means mounted on the support and having connections with the master wheel to rotate the same on the carriage and permit the movement of the carriage.

16. In a printing device of the character set forth, the combination with a support, of a plurality of rotatable members journaled on the support, means for separately rotating the members including a carriage and a master wheel mounted on the carriage and movable successively into coaction with the different members, means for rotating the master wheel, and means mounted on the carriage and movable therewith, said means holding the different members against movement with the exception of the member engaged by the master wheel.

17. In a printing device of the character set forth, the combination with a support, of a plurality of rotatable members journaled thereon, means for separately rotating the members including a carriage and a master wheel mounted on the carriage and movable successively into coaction with the different members, and a locking bar mounted on the carriage and having a slot, said bar interlocking with the different members to prevent their movement with the exception of the member engaged by the master wheel, and said member operating through the slot of the bar.

18. In a printing device of the character set forth, the combination with a plurality of separately movable printing members, of means movable from one member to the other for separately operating the same, means for positively locking all the members against movement, except the one with which the operating means is in coaction,

means for effecting the movement of the operating means into engagement with one member and the simultaneous movement of the locking means out of engagement with the same printing member, said locking means being movable to an inoperative position, simultaneously with respect to all the printing members to permit the free operation of said members.

19. In a printing device of the character set forth, the combination with a support, of a plurality of members rotatably mounted on the support, means for separately operating the different members, said means including a carriage and a master wheel journaled on the carriage and movable into coaction with the different members, and a device movably mounted on the carriage for locking the different members against movement with the exception of the one that is in coaction with the master wheel, said locking device being movable out of coaction with all the members to permit the free movement thereof.

20. In a printing device of the character set forth, the combination with a casing, of a plurality of rotary members journaled thereon, a reciprocatory carriage, a master wheel journaled on the carriage and movable therewith into coaction with the different members, means for operating the master wheel, and a locking bar pivotally mounted on the carriage and interlocking with the different members to prevent their movement with the exception of the member that is in coaction with the master wheel, said bar being capable of a swinging movement out of coaction with all the members to permit their free rotation.

21. In a printing device of the character set forth, the combination with a plurality of separately movable printing members, of means for separately operating the same, means for positively locking all the members against movement in the direction given by the operating means, except the one with which the operating means is in coaction, said locking means being movable away from the members to an inoperative position with respect to all the members simultaneously, and means separate from the operating means for resetting the members when the locking means is inoperative.

22. In a printing device of the character set forth, the combination with a casing, of a shaft journaled therein, a plurality of independently rotatable members journaled on the shaft, a reciprocatory carriage, a master wheel mounted on the carriage and movable into coaction with the different members, means for rotating the master wheel to move the members, a device mounted on the carriage and engaging the members to positively lock them against movement after their operation by the master wheel, means for moving the locking device to an inoperative position with respect to the members, and means for rotating the wheels when released from the locking device upon the rotation of the shaft.

23. In a printing device of the character set forth, the combination with movable printing members, of actuating mechanism therefor including a movable scale member, an indicator coacting with the scale member and movable with respect thereto, and means for detachably connecting the scale member and indicator for effecting their simultaneous movement.

24. In a printing device of the character set forth, the combination with movable printing members, of actuating mechanism therefor including a movable scale member, an indicator coacting with the scale member, and a dog movably mounted on the indicator and movable into engagement with the scale member to effect the simultaneous movement of said indicator and member.

25. In a printing device of the character set forth, the combination with movable printing means, of actuating mechanism therefor including a rotatable dial a rotatable pointer coöperating with the dial and movable with respect thereto, and a dog movably mounted on the pointer and movable into engagement with the dial to lock said pointer and dial together in order to effect their simultaneous movements.

26. In a printing device of the character set forth, the combination with movable printing means, of actuating mechanism therefor including a gear wheel, a rotatable dial associated with the gear wheel, an indicator movable over the dial, and means for detachably connecting the indicator, the dial and the gear wheel together, in order to effect their simultaneous and corresponding movements.

27. In a printing device of the character set forth, the combination with a casing, of a plurality of independently rotatable printing members journaled therein, means for rotating all of said members to move them to a set position, a reciprocatory carriage mounted on the casing, means for effecting a step by step movement of the carriage, a master wheel journaled on the carriage and movable therewith into coaction with the different members, and means for rotating the master wheel including a gear wheel journaled on the casing, a dial located over the gear wheel, a pointer located over the dial, and a dog mounted on the pointer and movable into engagement with the gear wheel to effect its rotation.

28. In a printing device of the character set forth, the combination with a support, of a plurality of independently rotatable printing members located side by side therein, common means movable into and out of co-

action with the members for separately rotating said members, and a plurality of independently movable pressure members located side by side and movable into and out of coaction with the printing members.

29. In a printing device of the character set forth, the combination with a support, of a plurality of members rotatably mounted on the support, means for separately operating the different members, said means including a carriage and a device mounted on the carriage and movable into coaction with the different members, and locking means mounted on the carriage and engaging the members to hold the same against movement except the one with which the operating means is in coaction, said locking means being movable on the carriage out of coaction with all the members to permit the free movement thereof.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES F. SHEPHERD.

Witnesses:
G. H. NICHOLS,
T. F. FERGUSON.