

No. 708,570.

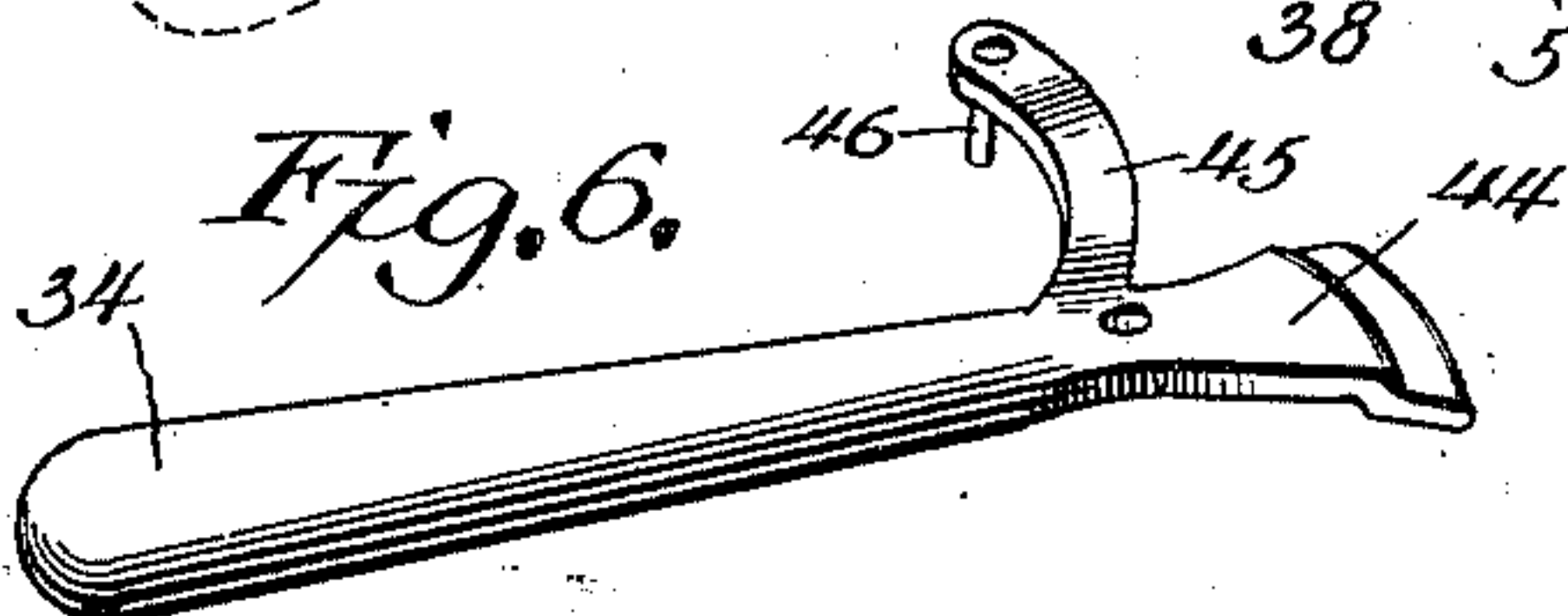
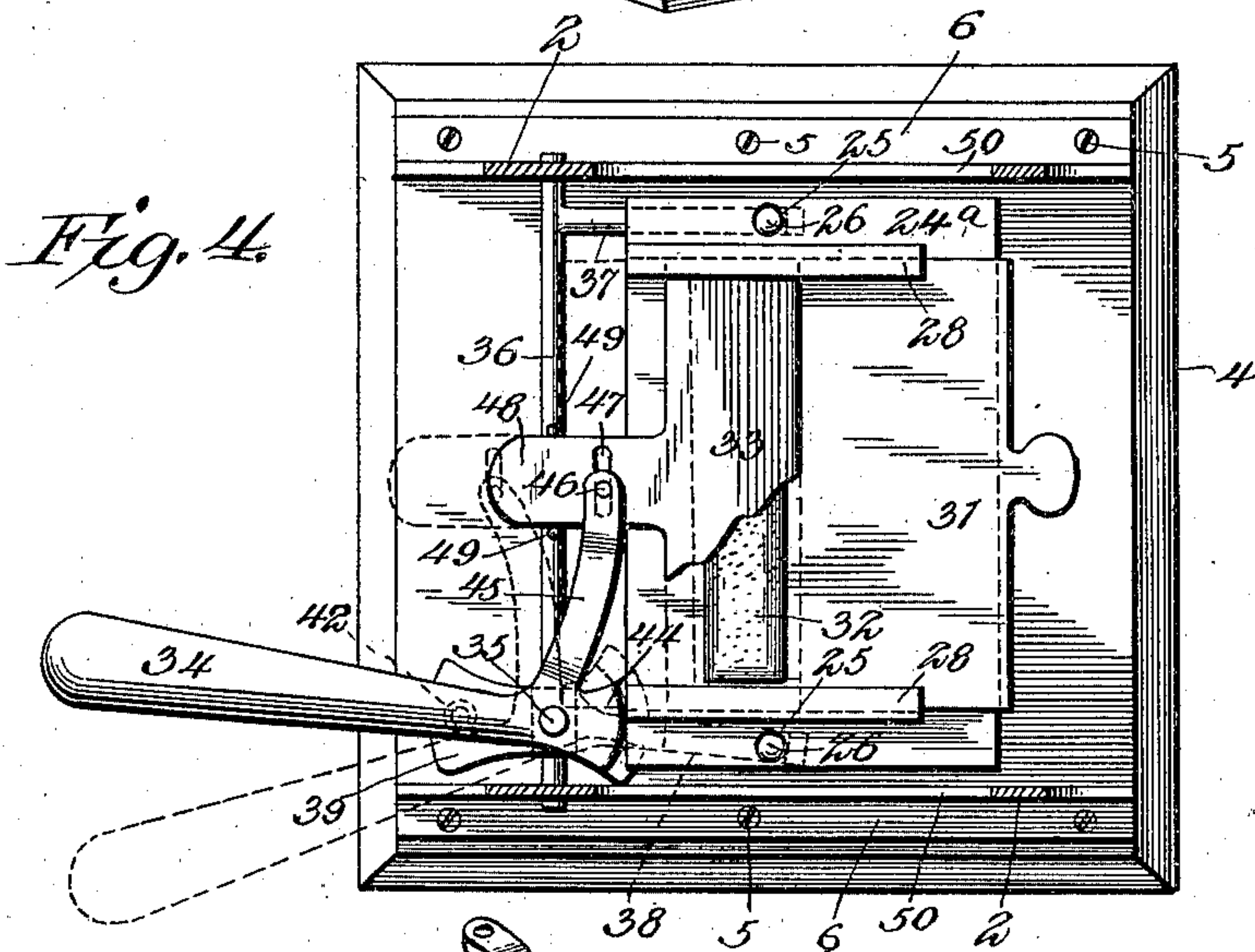
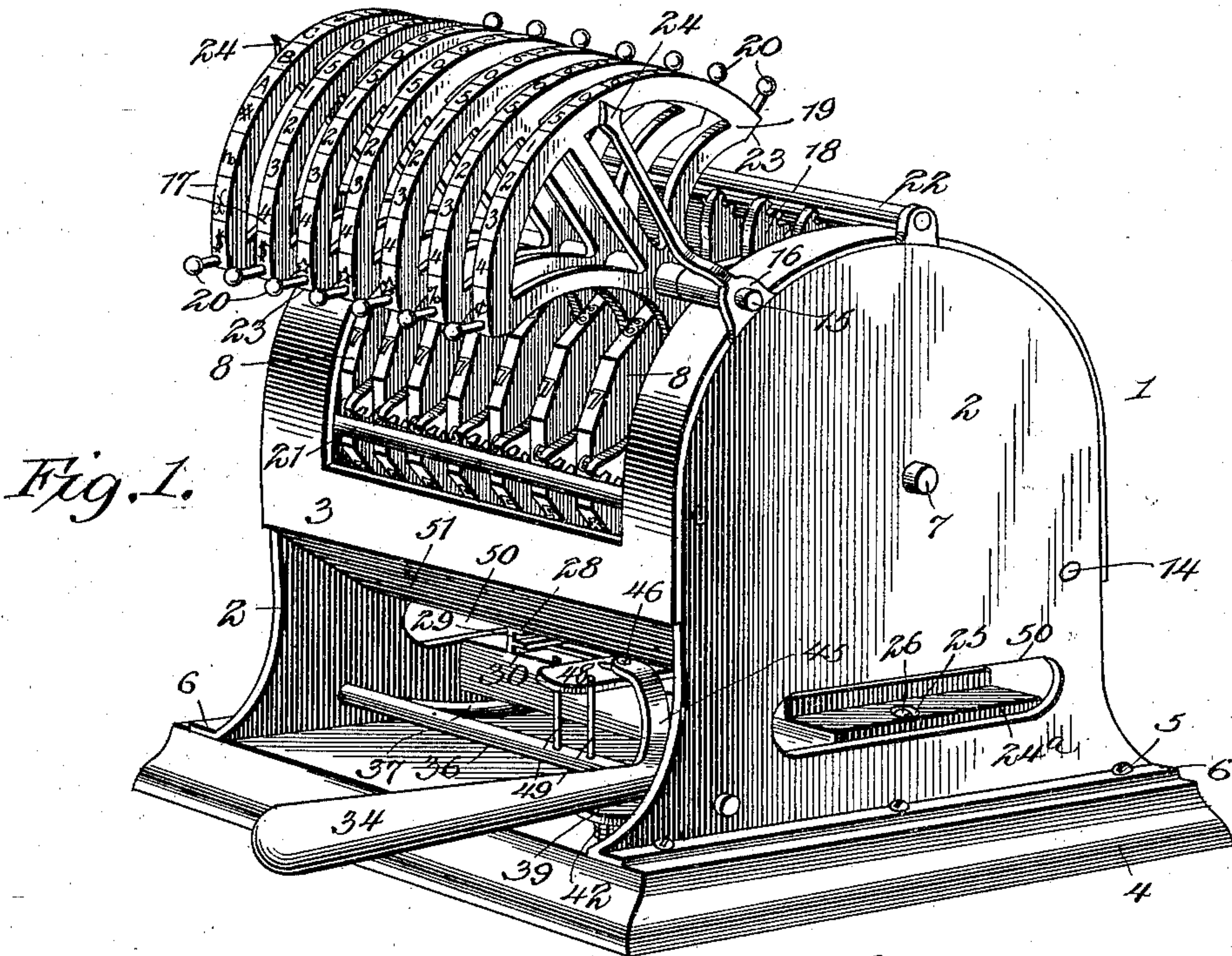
Patented Sept. 9, 1902.

F. J. MARTIN.
PRINTING MACHINE.

(Application filed Apr. 18, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
Howard D. Ott.
R. M. Elliott.

F. J. Martin, Inventor,
By *E. J. Siggers.*
Attorney

No. 708,570.

Patented Sept. 9, 1902.

F. J. MARTIN.
PRINTING MACHINE.

(Application filed Apr. 18, 1901.)

(No Model.)

2 Sheets—Sheet 2.

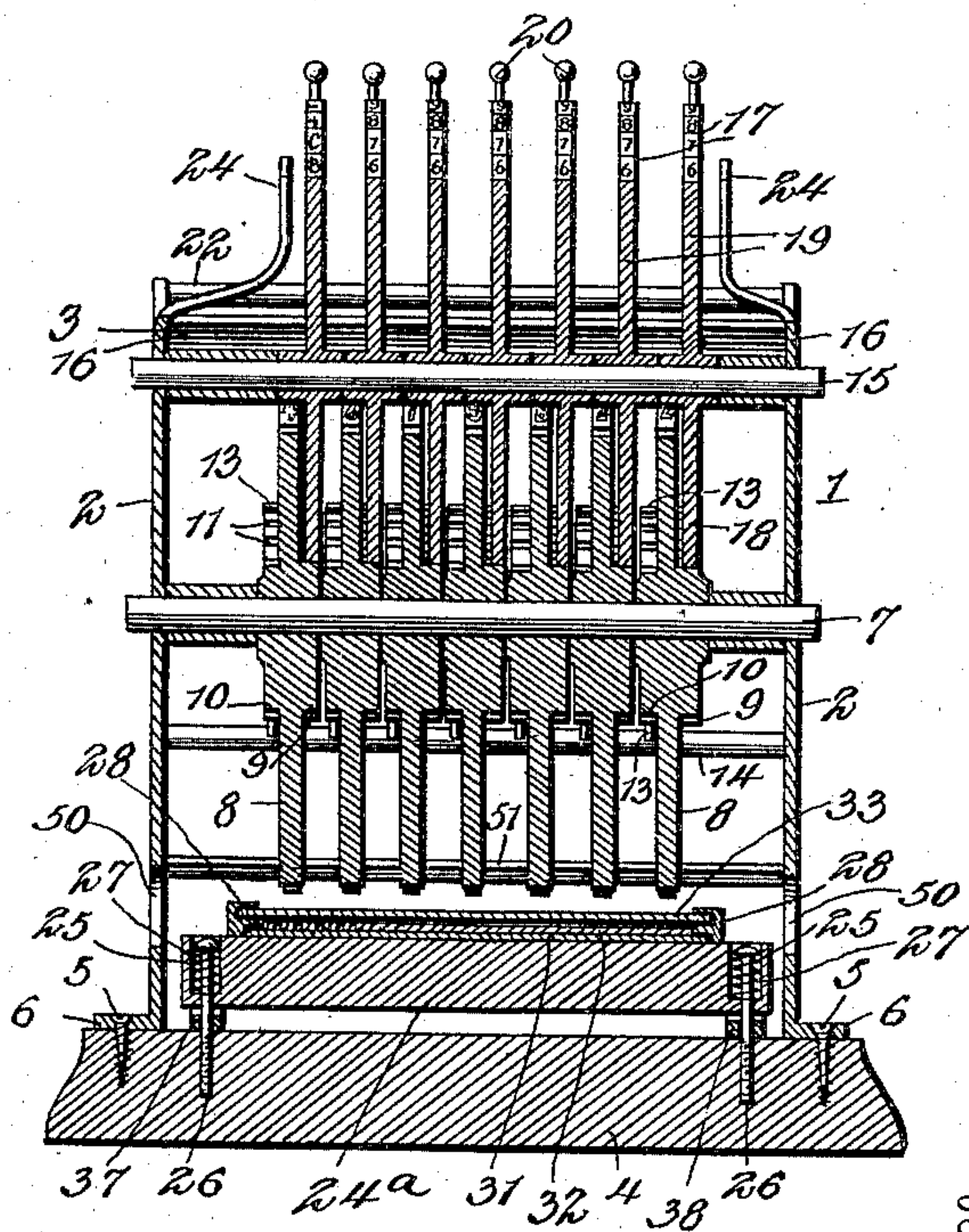
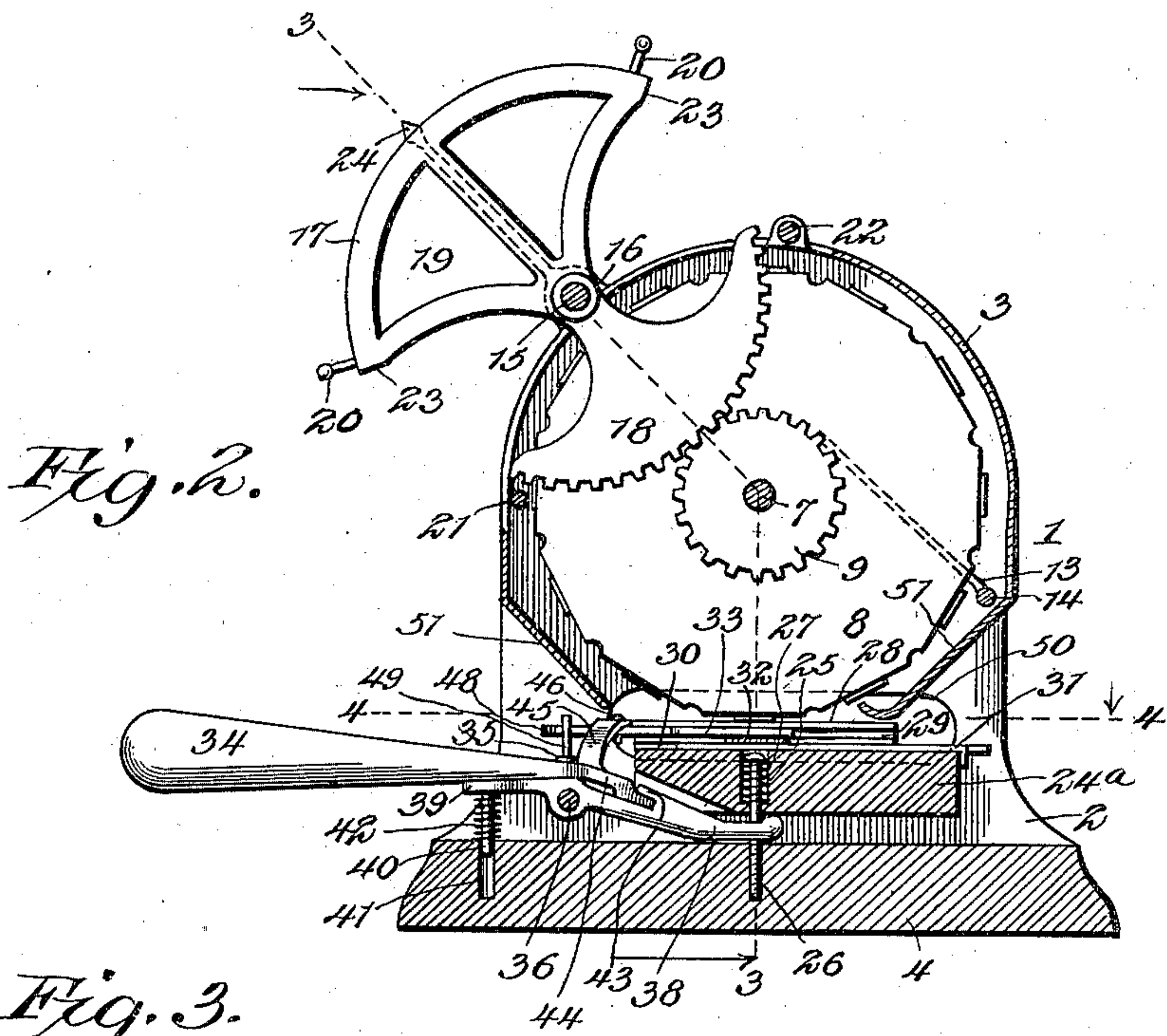
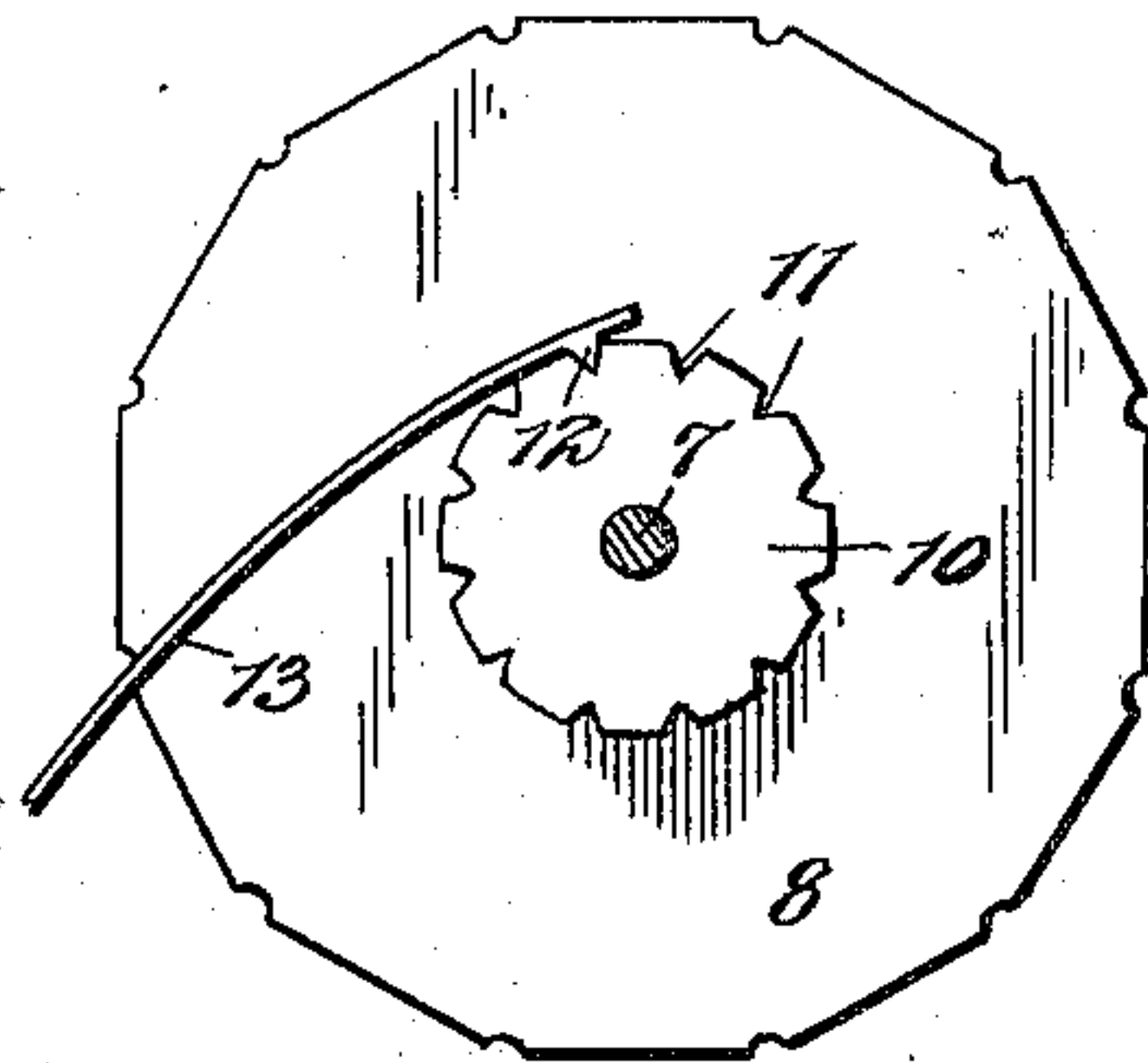


Fig. 5.



F. J. Martin, Inventor,

By

E. J. Siggers

Attorney

Witnesses
Howard D. Ott.
R. M. Elliott.

UNITED STATES PATENT OFFICE.

FLORIAN J. MARTIN, OF MILWAUKEE, WISCONSIN.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 708,570, dated September 9, 1902.

Application filed April 18, 1901. Serial No. 56,450. (No model.)

To all whom it may concern:

Be it known that I, FLORIAN J. MARTIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Printing-Machine, of which the following is a specification.

This invention relates to printing-machines, and more particularly to a machine to be used for numbering and price-marking and for protection in the issuing of checks, drafts, &c.

The object of the invention is to present a simply-constructed, thoroughly-reliable, cheap, and durable machine for the purpose named in which the parts shall be so combined and operated as to reduce to a minimum any danger of breakage or derangement in use and which may be quickly and readily employed either for printing lengthwise of a strip of paper, as with checks, drafts, &c., or crosswise of such strip, as in price-marking, numbering, &c.

With the above and other objects, herein-after more fully explained, in view, the invention may be said to consist generally in a casing in which are housed a plurality of type-wheels, combined with type-wheel actuators and indicators, the latter being composed each of two oppositely-disposed sectors concentric with each other, one of which sectors is provided with teeth meshing with gear-wheels carried by the printing-wheels and the other with characters corresponding with those on the type-wheels. The type-wheel actuators and indicators move through an arc concentric with that traversed by the type-wheels, so that when a character on the outer sector, which constitutes the indicator, is brought opposite a suitable pointer the operator will know that the corresponding character on the type-wheel is in position to be brought into contact with the platen, thereby to effect printing.

The invention consists, furthermore, in combining with the bed-block, the latter supporting an inking-pad, a combined platen-shifting bed-block and inking-pad-actuating lever, the three functions performed by this lever being accomplished in regular successive order of operation—that is to say, movement of the lever in a horizontal plane in one

direction operating to remove the platen from over the inking-pad and downward movement of the lever while in this position operating to elevate the bed-block, thereby to bring the inking-pad into engagement with the types of the printing-wheel, and movement of the lever in an opposite direction in a horizontal plane serving to bring the platen over the inking-pad, and downward movement of the lever while in this position operating to move the platen toward the type-wheels, thereby effecting an impression on a strip of paper interposed between the type-wheels and the platen.

Further and more specific details of construction will be hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, I have illustrated a form of embodiment of my invention capable of carrying my procedure into effect, it being understood that the invention may be constructed in other ways without departing from the spirit of the same, and in these drawings—

Figure 1 is a view in perspective of a printing-machine embodying my invention. Fig. 2 is a view in vertical transverse section. Fig. 3 is a longitudinal sectional view taken on the line 3 3 of Fig. 2 looking in the direction of the arrow thereon. Fig. 4 is a view in sectional plan taken on the line 4 4 of Fig. 2 looking in the direction of the arrow thereon. Fig. 5 is a detached detail view in elevation of one of the printing-wheels, showing more particularly the mechanism by which the type is held over the platen against shifting movement when printing is being done. Fig. 6 is a perspective detail view of a portion of the combined platen-shifting bed-block and inking-pad-actuating lever.

Referring to the drawings, 1 designates the casing of the machine, comprising two end plates 2 and a cover or shell 3, connecting the end plates and serving to house the internal mechanism of the machine. The end plates may be made of any suitable material, preferably of metal, and formed in any desired shape in elevation, and are secured to a base 4 in this instance by screws 5, passing through flanges 6 on the end plates. Ex-

tending longitudinally of the casing and working in suitable journal-bearings in the end plates is a shaft 7, carrying the type-wheels 8, of which there are shown in this instance seven, although it is to be understood that this number may be increased or diminished without departing from the spirit of the invention. As each of the type-wheels of the series is a counterpart of the other a description of one will serve for all. Each of these wheels carries on one side a gear-wheel 9, which may be integral with the wheel or be secured thereto, and on the opposite side a ratchet-wheel 10, which may be either integral with or secured to the wheel, the ratchet-wheel being provided with depressions or V-shaped incuts 11, corresponding in number to the type carried by the face of the wheel, these depressions to be engaged by a tooth 12, carried by a spring-rod 13, mounted on a shaft 14, secured in the end plates.

Mounted in parallelism with the shaft 7 is a shaft 15, this shaft, as shown in Figs. 1 and 2, being disposed toward the front of the machine and journaled in bearings 16, carried by the end plates 2. Upon this shaft is mounted a series of type-wheel actuators and indicators 17, each being the counterpart of the other, so that a description of one will serve for all. Each type-wheel actuator and indicator is composed of two oppositely-disposed sectors 18 and 19, respectively, the sector 18 being provided on its periphery with teeth to engage the gear-wheel 9 of the type-wheel and the other sector carrying on its periphery characters corresponding to those on the type-wheels. The sector 18 is here shown as a solid structure and the sector 19 as a hollow or open-work structure, this latter arrangement being adopted for purpose of lightness; but it is to be understood that, if desired, both of the sectors may be solid structures or both may be open-work. The periphery of the sector 19 is divided into twelve spaces, corresponding to the number of type carried by the type-wheel, the center space of the sector being occupied in this instance by "0" and the succeeding spaces but one toward the front of the machine by numerals, arranged in this instance in the following order: "5 1 2 3 4," the lowest space being occupied by a character, in this instance a cent-mark. This corresponding space in the next sector is provided with a per-cent. mark, the next three succeeding spaces by stars, and the next two succeeding spaces by dollar-marks. From the "0" toward the rear of the machine the spaces or the sector have figures arranged on them in the following order: "6 7 8 9," the last space being blank throughout the series, so that any number containing from one to six figures may be printed. The sector at the left hand of the machine is by preference devoted to characters—such as a dollar-mark, the English pounds-mark, the abbreviation "No.," the conventional representation of a number, in-

indicated by four crossed lines, the letter "A," the letter "B," the letter "C," the letter "D," the letter "E," the letter "F," and the letter "G," or these letters may be dispensed with and other characters used in trade employed in lieu thereof. By having the "0" arranged in the center space of each sector it will be only necessary to rotate the sector through the arc of about one-eighth of a circle to bring one-half of the characters on the type-wheels in position to print and like movement of the sector in the reverse direction to bring the remaining characters of the type-wheels in position to print. To facilitate manipulating the sectors, each is provided at its opposite ends with a knob or projection 20 to be grasped by the fingers of the operator. In order that the toothed sector shall be kept in positive mesh with the driving-gear of the type-wheel, so that when the sector is moved through the limit of its arc in both directions there will be no danger of the toothed sector and driving-gear becoming unmeshed, two stop-rods 21 and 22 are employed, these extending longitudinally of the length of the casing and are engaged by the ends 23 of the sector 19, which, as shown in this instance, are squared or flattened for the purpose.

To afford visual means of determining when the proper type on the type-wheel is over the platen or printing-point, two pointers 24 are employed, one at each end of the casing, these pointers being to indicate what character on the type-wheel is in striking position. Thus when the sectors are moved to bring any character or aggroupment of characters or any number or aggroupment of numbers on the type-wheels in position to impart an impression the characters or numbers must all aline with the two pointers, and when this is effected there will be no possibility of a mistake occurring in the printing. By reason of the coaction between the tooth 12 of the locking-spring and the ratchet-wheel 10 any number of impressions may be taken from the characters or numbers that have been brought under the platen. This arrangement distinguishes this device somewhat from other machines of this character wherein upon the taking of each impression the type are shifted.

Arranged under the type-wheel is a bed-block 24^a, the same being constructed of any suitable material, preferably of wood, and provided near each end with an orifice 25, in each of which works a headed pin 26, a coiled spring 27, interposed between the head of each pin and the bottom of the orifice, serving normally to hold the base-block depressed, and thus the platen away from the type-wheels. Secured upon the bed-block 24 are two guides 28, each provided with two guideways 29 and 30, respectively, the guideways 29 being formed by inwardly-projecting flanges either secured to or integral with the guides and the guideways 30 by the under sides of the lower flanges and the upper side

of the bed-block. The guideways 30 are engaged by an inking-pad carrier 31, the same comprising a sheet of metal provided with a rectangular opening in which sits the inking-pad 32, the object of this arrangement being to permit ready removal of the inking-pad when the same is to be reinked. The upper guideways 29 are engaged by the platen 33, this platen when printing is to be effected being moved over the inking-pad to the position shown in full lines in Fig. 4 and when the inking of the type is to be effected to be moved to the position shown in dotted lines in Fig. 4.

The mechanism for effecting raising and lowering of the bed-block, and with it the platen, and the shifting of the platen to and from the inking-pad comprises what I term a "combined platen-shifting, bed-block, and inking-pad-actuating lever" 34. The lever is fulcrumed on a pin 35, extending upward from a rock-shaft 36, the rock-shaft having at one end an arm or projection 37, bearing against the under side of the bed-block, as clearly shown in Fig. 3, the opposite end of the bed-block being raised by an arm 38, forming a coactive part of the lever above referred to. The arm 38 is secured to the shaft 36, as clearly shown in Fig. 2, and carries on its outer end or that disposed toward the front of the machine a flattened or enlarged head 39, the under side of which carries a depending pin 40, working in an orifice 41, formed in the base, a spring 42, coiled upon the pin 40 and bearing against the under side of the head and the upper side of the base, serving to keep the arm normally depressed. The arm 38 is provided on its upper surface with an overhanging lug 43, engaged by an enlarged flattened head 44 of the lever 34, by which arrangement, as will hereinafter appear, the lever 44 may be swung through the arc of a prescribed circle and still be kept in engagement with the lug 43. The lever 34 carries an arm 45, extending approximately at right angles to the length of the lever and curved upward, as shown in Figs. 1 and 2, and carries at its free end a pin 46, working in a slot 47, formed in a tongue 48 of the platen 33, the shaft 36 being provided with two pins or projections 49, one on each side of the tongue, to guide the same in a right line.

Where numbers or characters are to be placed lengthwise of a strip of paper, as with checks or the like, it will be obvious that the strip will have to be fed in a direction parallel with the lines of type on the type-wheel, and where the characters are to be crosswise of the strip of paper, as in price-marking, numbering, and the like, it is obvious that the strip of paper will have to be fed at right angles to the lines of type on the type-wheel. To permit the feeding of the strip of paper lengthwise of the lines of type, each end plate of the casing is provided with a slot or opening 50, arranged in line with the platen 34, so that the strip of paper may be readily po-

sitioned for receiving an imprint. When, however, the impression is to be crosswise of the strip, the feeding takes place from the front of the machine, and in order to guide the strip of paper to position and also to keep it out of contact with the inked type guides 51 are employed, these being formed, preferably, as shown in Fig. 2, by bending in a portion of the lower end of the cover or shell to the position shown in Fig. 2, the portion bent in to form these guides being that which would ordinarily be cut off to permit operation of the lever 34 and the other parts of the device. It is to be understood, however, that I do not limit myself to the exact arrangement of paper-guides shown, as others may be employed, operating in substantially the same manner, without departing from the spirit of my invention. It will here be noted that the feed-openings 50 are alined transversely of the front and rear feed-openings formed by the space included between the base and the guide-plates 51, whereby the machine is provided with two work-guides, which are disposed at substantially right angles to each other in order that a check or the like may be fed to the printing means from the front, back, or either side of the machine, according to the required disposition of the characters upon the check.

When printing is to be effected, the following procedure is to be observed: Suppose it to be desired to print upon a strip of paper, say, for example, "\$450." The sector at the left hand of the machine will first be rotated toward the rear of the machine to bring the dollar-mark opposite the pointer 24, then the next sector is moved to bring the "4" opposite the pointer, the next sector to bring the "5," and the next sector to bring the "0." The remaining sectors will be then moved either to bring the blank spaces thereon opposite the pointers or other characters after the "450," such as stars or the like. As each of the sectors is moved like movement is transmitted, through the sector 18 and the driving-gear 7, to the corresponding type-wheel, and the type corresponding to that on the sector 19 is brought in position over the platen to print. The machine being thus set, the lever 31 is moved to the right to clear the inking-pad 32 of the platen 34, and the lever is then depressed to lift the bed-block and cause the inking-pad to contact with the type. When the lever is released, it will automatically resume its normal position through the agency of the spring 42. The lever is now moved to the left, which projects the platen 34 forward and over the inking-pad. The strip of paper is then brought over the platen either from the front or from the side of the machine, as the case may be, and the lever is again depressed, thereby lifting the bed-block with the platen and forcing the strip of paper against the type and effecting an impression.

The type may be either metal, rubber, or

any other material to suit the purpose, or, if preferred, they may be a part of the type-wheel—in other words, cut thereon. Where of rubber or any material other than metal, they will be cemented to the faces of the type-wheel in the usual manner, or they may be secured thereto by screws. Where on metal and when not an integral part of the wheels, they may be secured in position by being dovetailed to the faces of the wheel or be secured thereto by screws or other fastening means.

It will be seen from the foregoing description that while the device described provides for every contingency that will arise in the employment of a printing-machine used for the purposes designated that it is composed of a very few number of parts and that these are so assembled as to present the highest and most effective range of usefulness with the slightest possible danger of derangement or breakage in use. All of the parts may be made interchangeable, so that in event of the breakage of one or more parts these may be supplied from the factory and positioned in the machine by a person of ordinary ability.

Having thus described the invention, what I claim is—

1. In a printing-machine of the character described, the combination of shiftable printing mechanism, which is normally fixed in printing position, a shiftable inking device normally out of engagement therewith, a shiftable platen, and common manually-operated means for inserting and withdrawing the platen from between the inking device and the printing mechanism and into operative relation with respect to said printing mechanism, and also for moving the inking device into and out of engagement with the printing mechanism.

2. In a printing-machine, the combination with relatively fixed oscillatory shiftable printing mechanism, of a vertically-movable inking device normally out of engagement therewith, a shiftable platen, and common hand-operated means for raising the inking device into engagement with the printing mechanism, and also for moving the platen over and away from the inking device and for raising the same into operative relation with respect to the printing mechanism.

3. In a printing-machine of the character described, the combination with shiftable but normally fixed printing mechanism, of a vertically-movable inking device therefor, a platen movable substantially horizontal in a plane lying between the inking device and the printing mechanism to cover and uncover the inking device, and also movable vertically into operative relation with respect to the printing mechanism, and a vertically and horizontally swinging lever having operative connections with the inking device and the platen.

4. In a printing-machine of the character specified, a casing-housing printing mechanism, substantially as described, the ends of

the casing being provided with slots through which the material to be printed upon may be inserted, in combination with an inking means for the printing mechanism, a platen, and means operating to remove the platen from over the inking means to permit inking of the printing characters and to project the platen over the inking means when printing is to be effected.

5. In a printing-machine of the character specified, the combination with printing mechanism, of a bed-block arranged below the printing mechanism, an inking-pad mounted on the bed-block, a platen, and a lever adapted when shifted, in one direction in a horizontal plane, to move the platen from over the inking-pad, and when depressed to bring the inking-pad into contact with the characters of the printing mechanism, and when shifted in the opposite direction in a horizontal plane, to bring the platen over the inking-pad and when depressed to lift the bed-block and with it the platen toward the characters of the printing mechanism.

6. In a printing-machine of the character specified, a plurality of printing-wheels each bearing a gear-wheel and a ratchet-wheel, and type-wheel actuators and indicators each comprising two oppositely-disposed sectors having their arcs of rotation concentric, one of the sectors being provided with teeth to mesh with the said gear-wheel and the other bearing characters corresponding to those on the type-wheel, locking means for engaging the ratchet-wheel, pointers coacting with the character-bearing sector, and stops also coacting with the extremities of the character-bearing sector to limit its arc of rotation.

7. In a printing-machine of the character specified, a plurality of printing-wheels each bearing a gear-wheel and a ratchet-wheel, type-wheel actuators each comprising two oppositely-disposed sectors having their arcs of rotation concentric, one of the sectors being provided with teeth to mesh with the said gear-wheel, and the other bearing characters corresponding to those on the type-wheel, a bed-block arranged below the type-wheels, an inking-pad mounted on the bed-block, a platen, and a lever adapted when shifted in one direction in a horizontal plane to move the platen from over the inking-pad, and when depressed to bring the inking-pad into contact with the characters of the type, and when shifted in the opposite direction in a horizontal plane to bring the platen over the inking-pad and when depressed to lift the bed-block and with it the platen toward the characters on the type-wheel.

8. In a printing-machine having printing-wheels, and actuating mechanism therefor, a movable bed-block normally held out of engagement with the printing mechanism, an inking-pad carried by the bed-block, a platen, and a lever to perform the triple func-

tions of moving the platen over and away from the inking-pad and of raising the bed-block.

9. In a printing-machine having printing-wheels and actuating mechanism therefor, substantially as described, of a movable bed-block normally held out of engagement with the printing mechanism, an inking-pad carried by the bed-block, a platen, and a lever for moving the platen over and away from the inking-pad and for raising the bed-block.

10. In a printing-machine having printing-wheels, and actuating mechanism therefor, substantially as described, a movable bed-block normally held out of engagement with the printing mechanism, an inking-pad carried by the bed-block, a platen, means for moving the platen over and away from the inking-pad and for raising the bed-block, and means for automatically returning the bed-block to its normal position upon the release of its actuating means.

11. In a printing-machine of the character specified, the combination with a plurality of printing-wheels, and actuating and indicating mechanism therefor, substantially as described, of a bed-block carrying an inking-pad and a platen, means operating automatically to hold the bed-block normally depressed, a rock-shaft bearing two arms extending beneath the bed-block, one of the arms being provided with a flattened head and with an overhanging lug, a lever pivotally connected with the latter arm and having a flattened head engaging the said lug, and an arm carried by the lever and having a pivotal connection with the platen.

12. In a printing-machine of the character specified, the combination with a plurality of printing-wheels, and actuating and indicating mechanism therefor, of a bed-block bearing an inking-pad and a platen, and a lever adapted, when moved in a horizontal plane, to move the platen either to expose or cover the inking-pad and when depressed through interposed mechanism, to raise the bed-plate either to cause inking of the character of the type-wheel or to effect printing.

13. In a printing-machine of the character specified, a plurality of printing-wheels and actuating and inking mechanism therefor, a bed-block having spring means operating normally to cause the bed to be depressed and thus out of the path of movement of the type-wheels, a rock-shaft carrying two arms extending beneath the ends of the bed-block, one of the arms being provided at its outer extremity with an enlarged flattened head carrying a depending pin working in an orifice in the base-plate of the machine, the pin carrying a spring operating normally to hold the arm raised, and the inner portion of the arm being provided with an overhanging lug, a lever pivoted upon the latter arm and having an enlarged flattened head to engage with the lug, an arm carrying a pin engaging a slot formed in a projection on the platen,

and guide-pins carried by the rock-shaft and coacting with the tongue.

14. In a printing-machine of the character specified, the combination with a plurality of printing-wheels and actuating and inking mechanism therefor, of a bed-block provided with two sets of guideways, the lower set of guideways being engaged by an inking-pad carrier, and the upper guideways by a platen, and means for moving the platen to cause it to cover or expose the inking-pad and to raise the bed-block.

15. In a printing-machine of the character specified, a casing comprising a base-plate, end plates secured thereto and a shell or cover secured to the end plates, a shaft journaled in suitable bearings in the end plates and supporting a plurality of type-wheels each bearing a ratchet-wheel and a gear-wheel, a shaft supported in bearings near the front of the machine and carrying a plurality of type-wheel actuators and indicators, corresponding in number to the type-wheels, each comprising two oppositely-disposed sectors having their arcs of rotation concentric, one of the sectors having teeth engaging the said gear-wheels and the other sector bearing characters corresponding with those on the type-wheels, locking means engaging the ratchet-wheels, a bed-block arranged below the type-wheels, an inking-pad and a platen supported by the bed-block, a rock-shaft journaled in the end plates and carrying two arms projecting under the bed-block, one of the arms being provided on its outer extremity with an enlarged flattened head and near its inner extremity with an overhanging lug, a lever pivoted on its latter arm and having an enlarged flattened head engaging the said lug, the lever carrying an arm provided with a pin engaging a slot formed in a tongue projecting from the platen, guide-pins carried by the rock-shaft and coacting with the tongue to cause the platen to move in a right line, guides arranged in the casing and operating to direct insertion to the slip of paper under the type-wheels, the end plates of the casing being provided with openings to permit insertion of a strip of paper therethrough and under the type-wheels.

16. In a printing-machine of the character specified, the combination with a plurality of type-wheels and actuating mechanism therefor, of a vertically-movable bed-block, carrying an inking-pad and a platen, a lever adapted for horizontal movement and rocking movement in the two extremities of the arc of a circle, horizontal movement in one direction with rocking movement effecting projection of the platen over the inking-pad and then lifting of the bed-block to effect printing, and horizontal movement in the other direction and depression effecting uncovering of the inking-pad and lifting of the bed-block to effect inking of the pad.

17. In a printing-machine of the character specified, a plurality of printing-wheels each

having its periphery provided with printing characters of any suitable material, each type-wheel carrying a gear-wheel and a ratchet-wheel, locking means engaging the gear-wheels, type-wheel actuators and indicators corresponding in number to the type-wheels, and comprising each two oppositely-disposed sectors having their arcs of rotation concentric, one of the sectors being provided with teeth engaging the gear-wheels, and the other bearing characters corresponding to those on the type-wheels, pointers coacting with the character-bearing sectors, knobs carried by latter sectors by which they may be moved, stops for limiting the arc of rotation of the sectors, a movable bed-block carrying an inking-pad and a platen, and a lever adapted through interposed mechanism to move the platen over or away from the inking-pad and to lift the bed-block.

18. In a printing-machine of the character described, the combination with a base, of a casing comprising opposite ends rising from the base, a top shell extending between and supported by the end pieces and having a longitudinal opening extending through the front and top thereof, the lower front and rear edges of the casing being terminated short of the base and provided with inwardly and downwardly inclined guide-plates, the lower ends of which terminate above the base, the opposite end pieces having corresponding transverse openings lying at the lower ends of the guide-plates, printing mechanism mounted between the end pieces and having adjusting means projected through the opening in the shell or casing, a vertically-movable inking device carried by the

base and the opposite inclined guide-plates forming similar openings disposed in alignment transversely to the first-mentioned openings. 50

19. In a printing-machine of the character described, a rotatable printing-wheel having type characters, and carrying a gear-wheel, a type-wheel actuator and indicator pivoted at one side of the printing-wheel and embodying two oppositely-disposed sectors having their arcs of rotation concentric, one of the sectors being provided with teeth to mesh with the gear-wheel, and the other sector having characters corresponding to those on the type-wheel, a relatively fixed pointer co-operating with the characters on the indicating-sector, and means for locking the type-wheel against accidental movement. 55 60 65

20. In a printing-machine of the character described, the combination of a plurality of independently - rotatable printing - wheels mounted upon a common axis and having type characters upon their peripheries, gears carried by the type-wheels, type-wheel actuators and indicators each of which embodies oppositely-disposed sectors having their arcs of rotation concentric and pivoted at one side of the printing-wheels, one of the sectors being provided with teeth in mesh with the adjacent gear and the other sector having its periphery provided with characters corresponding to the type characters of the adjacent type-wheel, and a fixed pointer co-operating with the characters on all of the indicating-sectors, whereby, when a plurality of sectors are set at a predetermined relation, the disposition of the type characters which are in printing position is clearly indicated. 70 75 80 85