No. 758,816. PATENTED MAY 3, 1904.

A. J. BRIGGS.

COIN CONTROLLED PRINTING MACHINE.

APPLICATION FILED APR. 1, 1903.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.

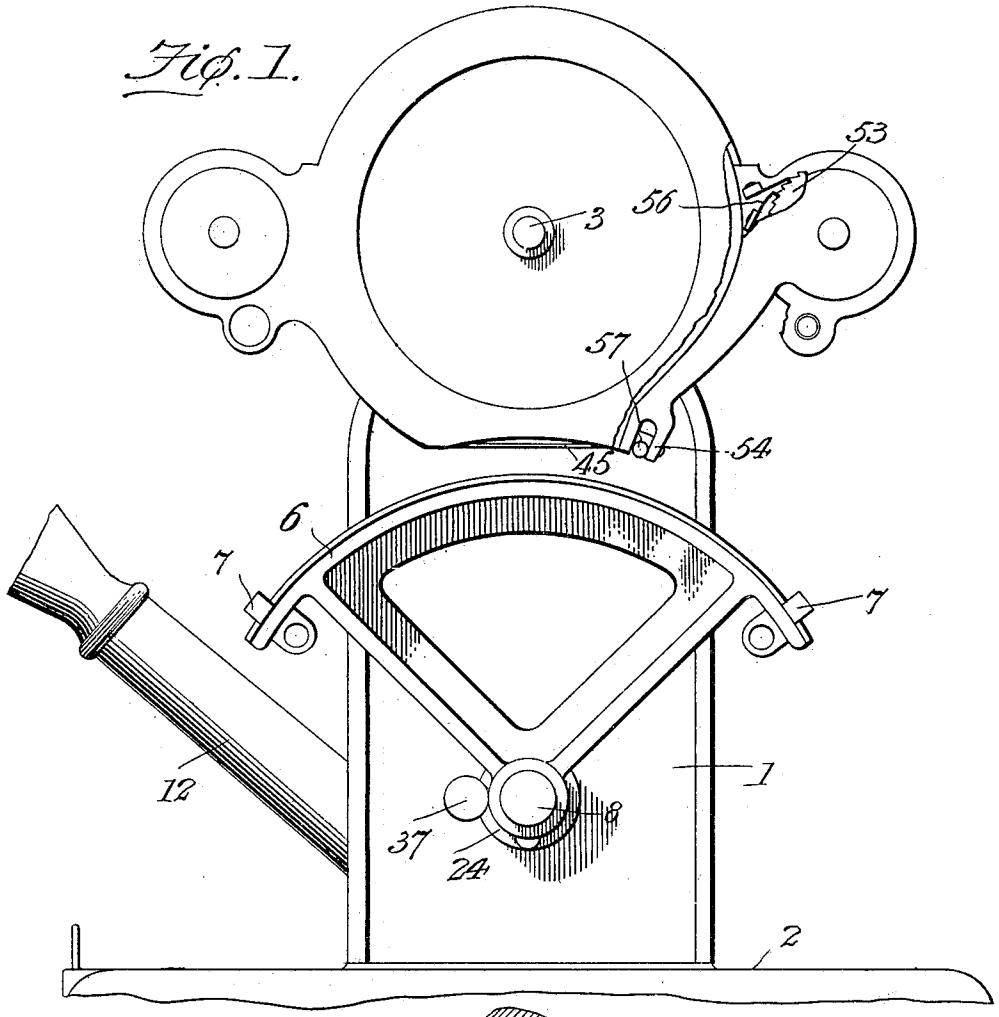
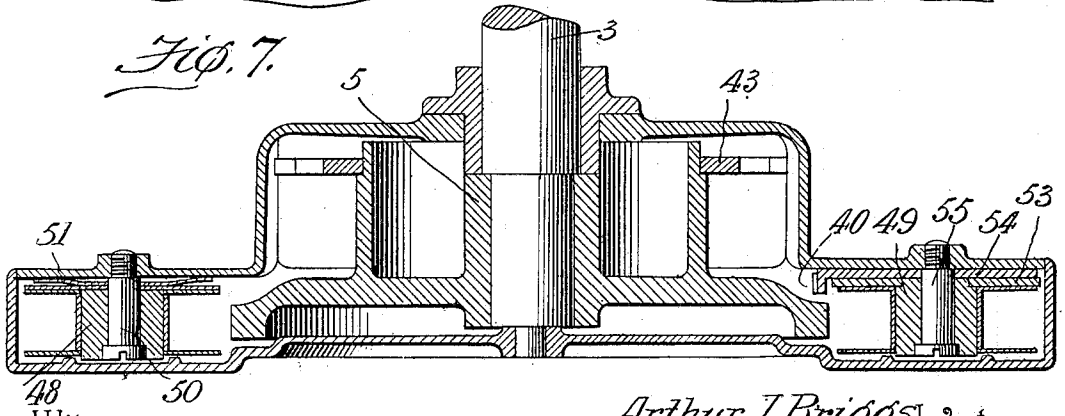


Fig. 7.



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NO MODEL. 4 SHEETS—SHEET 2.

Fig. 2.

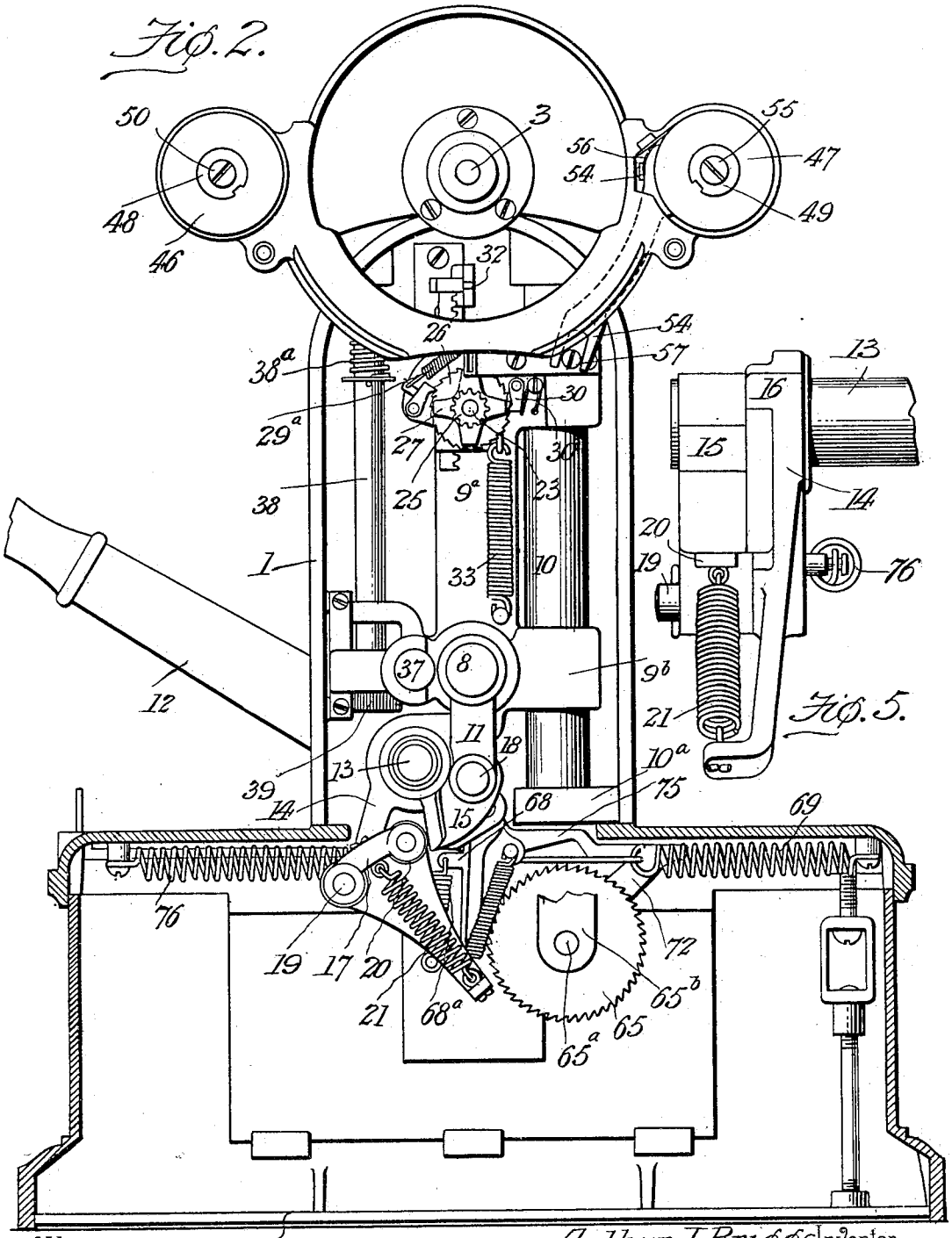


Fig. 5.

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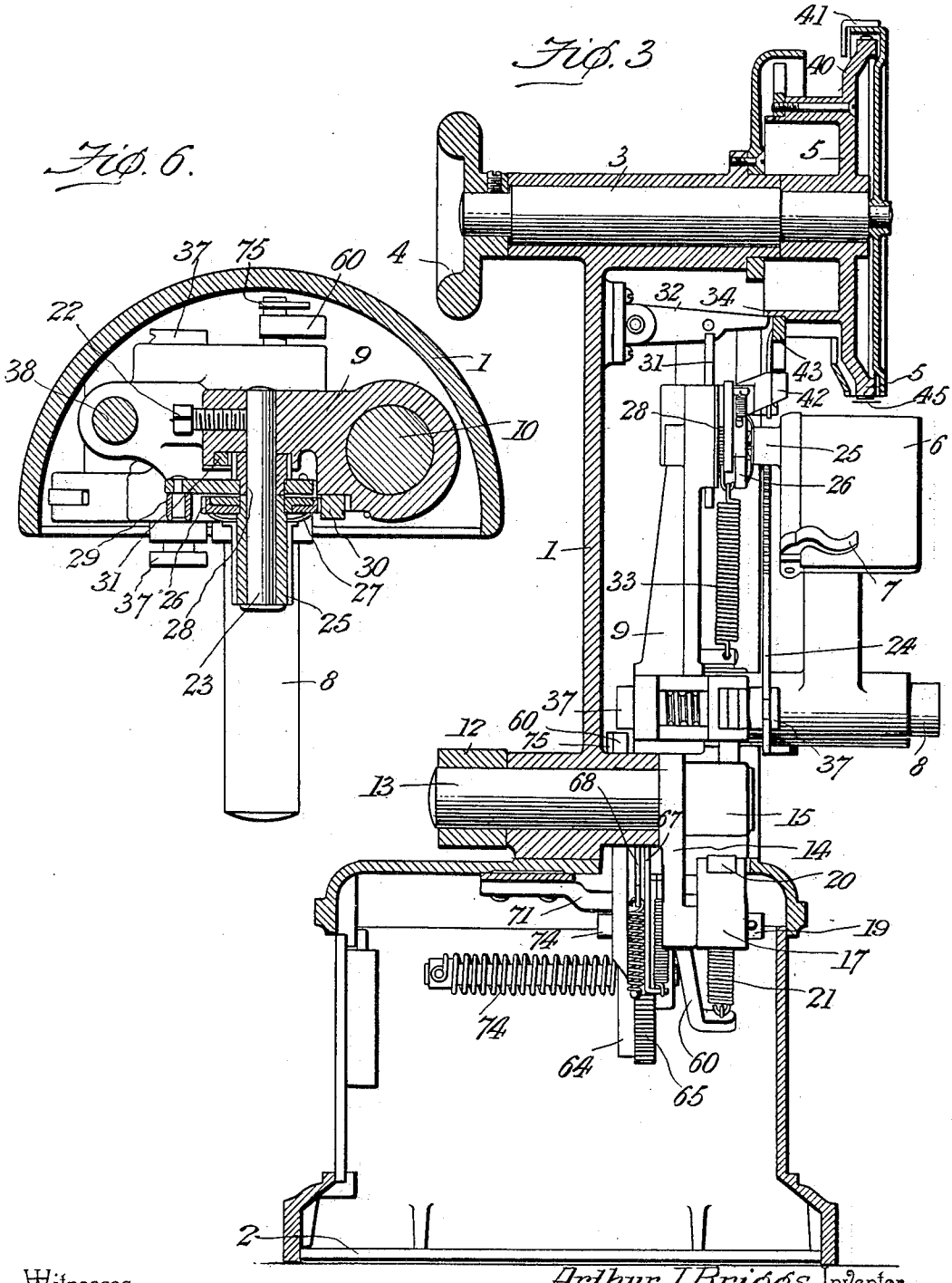
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NO MODEL. 4 SHEETS—SHEET 3.

Fig. 3

Fig. 6.



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NO MODEL. 4 SHEETS—SHEET 4.

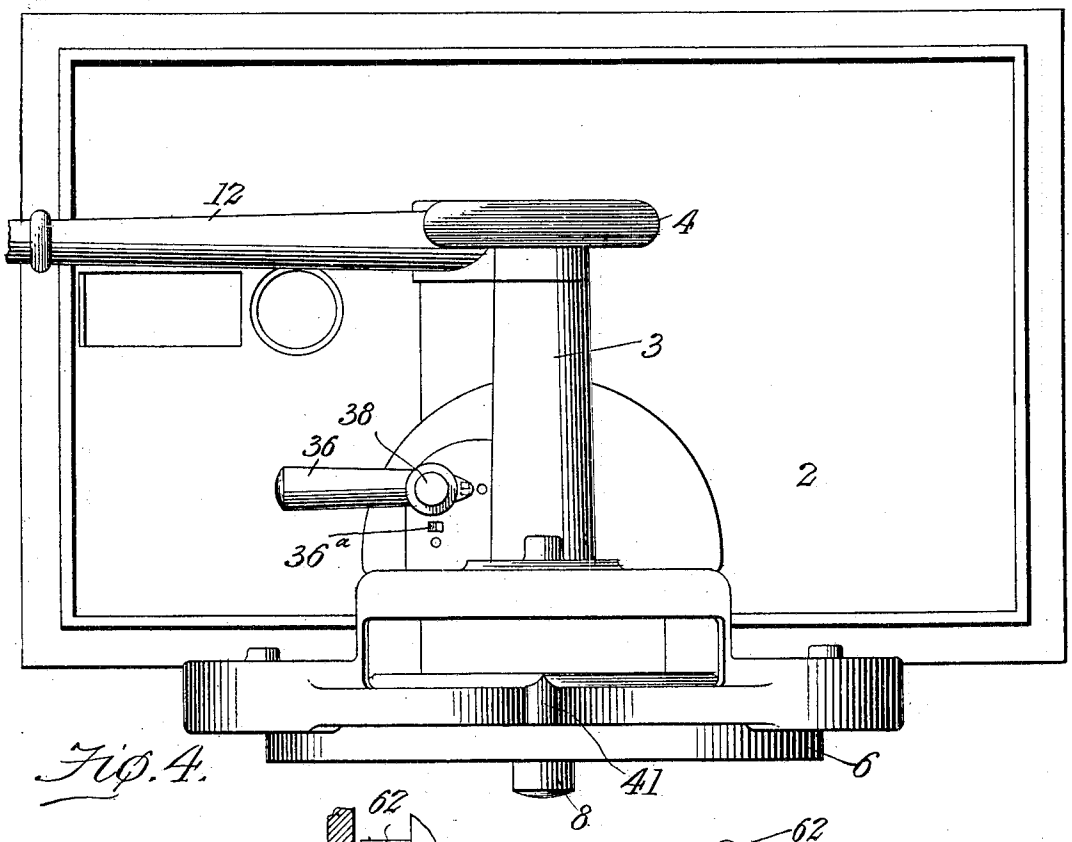


Fig. 4.

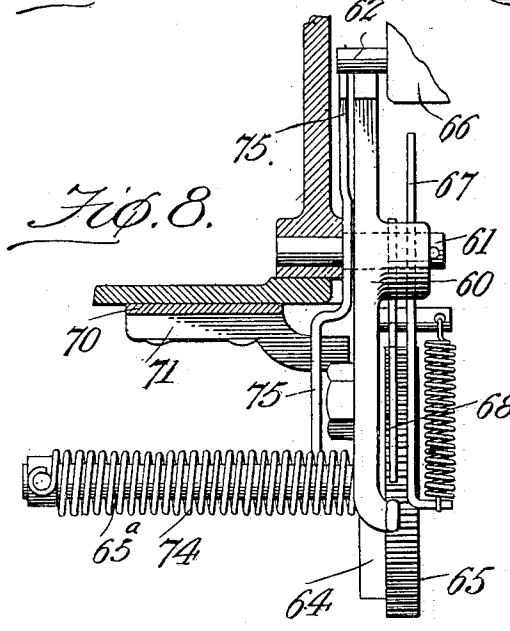


Fig. 8.

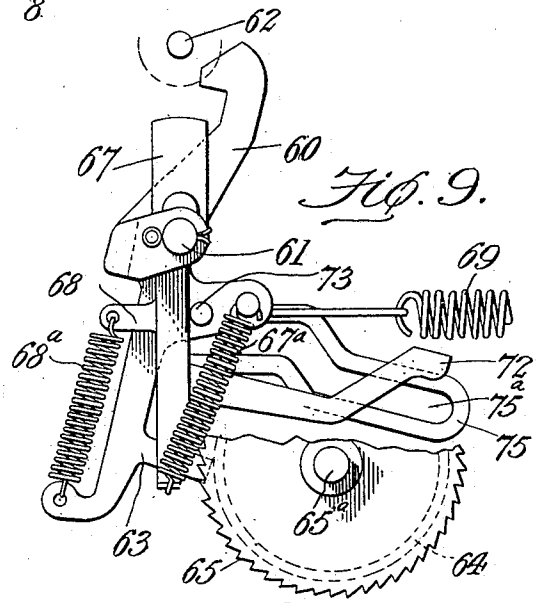


Fig. 9.

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No. 758,816. Patented May 3, 1904.

UNITED STATES PATENT OFFICE.

ARTHUR JAMES BRIGGS, OF CANASTOTA, NEW YORK.

COIN-CONTROLLED PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 758,816, dated May 3, 1904.

Application filed April 1, 1903. Serial No. 150,635. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR JAMES BRIGGS, a citizen of the United States, residing at Canastota, in the county of Madison and State of New York, have invented a new and useful Coin-Controlled Printing-Machine, of which the following is a specification.

This invention relates to coin-controlled machines, and especially to machines designed to print any desired matter upon the inside of gloves or upon the sweat-bands of hats.

The object of the invention is to provide a simple, compact, and durable machine which will effectively perform the work required of it and will require but little power to operate it.

The invention consists, generally speaking, of a printing device composed of a type-wheel with an inking mechanism, a support for the article to receive the printing which is brought into contact with the type-wheel by means of a hand-lever, a device for spacing the characters properly, a locking device by which the mechanism is locked after a certain number of characters have been printed, and a coin in the slot mechanism for releasing the locking mechanism when it is desired to operate the machine.

In the accompanying drawings, forming a part of this specification, there is shown the preferred form of embodiment of the invention capable of carrying the same into practical operation, it being understood that changes may be made in the form, proportions, and exact mode of assemblage of the elements therein shown without departing from the spirit of the invention, the scope of which is indicated in the appended claims.

In the drawings, Figure 1 is a view in front elevation of the upper portion of the machine, a portion of the casing being broken away. Fig. 2 is a view in front elevation of the entire machine with the casing and curved support removed. Fig. 3 is a vertical longitudinal section of the machine in the plane of the centers of the main shafts thereof. Fig. 4 is a plan view of the machine. Fig. 5 is a detail view showing a portion of the mechanism connecting the operating-lever and the reciprocating carrier upon which the curved support 9 is carried. Fig. 6 is a horizontal section in the plane of the center of the stud 23. Fig. 7 is a horizontal section in the plane of shaft 3. Figs. 8 and 9 are detail views from the side and front, respectively, of the coin-controlled latch mechanism.

In the drawings corresponding parts are indicated by the same reference characters throughout.

Referring to the drawings by reference characters, 1 designates the main frame of the machine, which is supported upon a suitable base 2. A shaft 3 extends to a boss at the top of the machine-frame and has rigidly secured thereto at one end a hand-wheel 4, by means of which the shaft is rotated, and at the opposite end, which for convenience will be known as the "front," is mounted a type-wheel 5, which is rigidly secured to the shaft and rotatable therewith. The type-wheel 5 is provided on its periphery with raised printing characters or type, including the usual letters, numerals, and punctuation-marks necessary for printing names and addresses. Immediately below the type-wheel 5 is a support 6, having a segmental upper portion, upon which the article to be printed upon, as the sweat-band of a hat or a glove, is adapted to be supported and held in position by means of spring-clamps 7 7, attached to the segmental support 6 at the margin nearest the main frame of the machine. The segmental support 6 is mounted to oscillate on a stud 8, which projects forward from a reciprocating carrier 9, which will be more fully described hereinafter. The carrier 9 consists of a body portion 9^a and arms 9^b, which are bored to permit the passage therethrough of a vertical guide-rod 10, which serves to guide the reciprocations of the carrier 9. The guide-rod 10 is firmly fastened at top and bottom to lugs 10^a integral with a wall of the main frame of the machine 1. The reciprocation of the carrier 9 is effected by means of a hand-lever 12, securely attached at one end to a shaft 13, mounted in the lower portion of the frame 1 of the machine and bearing securely fastened to the end opposite to that on which the hand-lever 12 is fastened the irregular-shaped arm 14, which has integral therewith

the stop 16 and which is normally held in the position shown in the drawings by a spring 76, attached at one end to arm 14 and at the other to the frame of the machine, and loosely mounted on the end of the shaft 13, beyond the arm 14, is a member 15, to which is pivotally connected, by means of the stud 18, a link 11, whose upper end is pivotally connected with the carrier 9 by means of the stud 8. The member 15 is kept in contact normally with the stop 16 on the irregular arm 14 by means of a pivoted arm 17, mounted on a stud 19, carried by the arm 14 and having at its free end a stud upon which is mounted an antifriction-roll 20. A spring 21, placed as shown in the drawings, keeps the roll 20 in contact with a suitable bearing-surface provided on the upper portion of the member 15 and forces the member 17, which carries the roll 20, against the member 15 with such force that arm 14 and member 15 move together as a single structure, and the carrier 9, which is connected with the member 15 by means of the link 11, is carried forward with the various structures attached thereto. A movement of the lever-arm 12 is sufficient to bring the segmental support 6, which is attached to the carrier 9, into contact with the printing elements upon the periphery of the type-wheel 5 when there is no material mounted upon the segmental support to receive the imprint; but when the sweat-band of a hat or a glove or any other suitable material is provided on the support 6 the spring 21 permits the lever 12 to move the usual distance, while the support 6 is not brought into contact with the printing elements of the type-wheel, but stops a short distance below the wheel on account of the presence of the material to be printed upon, which is supported on its upper surface. The degree of pressure between the printing elements and the material on the support 6 will obviously depend upon the stiffness of the spring 21 and the thickness of the material to be printed upon.

In order to provide for the accurate spacing of the successive imprints from the type-wheel upon the material supported on the segmental support 6, mechanism is provided to shift the said support a proper distance after the printing of each character to bring the next character in proper relation to the preceding one. The mechanism for shifting the carrier consists of a gear-segment 24 of substantially the same length and curvature as the support 6 and attached thereto and having in engagement therewith a pinion 25, operated in a manner now to be described. The pinion 25 is mounted to rotate on a stud 23, which projects forward from the body portion 9^a of the carrier 9, being held in position by a set-screw 22. At its rear end the pinion 25 has a fixed flange, which works in a recess in the back of a ratchet-wheel 26. The ratchet-wheel 26 encircles the hub of pinion 25 and is mounted to rotate thereon under certain circumstances. In order to cause the pinion 25 and ratchet-wheel 26 to move in unison at certain times, a dished spring 27 is provided between the ratchet-wheel 26 and projections from the hub of the pinion 25 and is adapted to produce a considerable degree of friction between the ratchet-wheel 26 and flange carried at the rear end of the pinion 25. By this arrangement it is possible to rotate the pinion 25 while the ratchet-wheel 26 is held stationary, if it is desired to do so, as when it is desired to set the segmental support 6 in a certain position before beginning the printing operation; but when the ratchet-wheel 27 is not held stationary the movement imparted to pinion 25 will be communicated to ratchet-wheel 26, and vice versa. On the stud 23, upon which pinion 25 is mounted to rotate, is another pinion 28, which has attached to it a flange carrying a dog 29, which is held by means of a suitable spring 29^a in engagement with the notched periphery of the ratchet-wheel 26. Pivotally mounted upon the carrier 9 adjacent to the ratchet-wheel 26 is another dog 30, which also engages the notches on the periphery of the ratchet-wheel, being held in contact therewith by a spring 30^a. Slidably mounted in suitable guides on the carrier 9 is a rack 31, whose teeth engage the pinion 28, and carried by the type-wheel 5 is a cam 34, which engages with the pivoted arm 32, mounted on the main frame 1 of the machine and having a lug extending over the upper end of the rack 31. A spring 33, attached at one end to the flange carried by the pinion 28 and at the other end to the reciprocating carrier 9, keeps the rack 31 normally at the upper portion of its path of movement, and when the carrier 9 is moved upward to bring the material supported by the support 6 into contact with the printing-wheel 5 the upper end of the rack comes into contact with the lug on the pivoted arm 32 and is forced downward thereby, so turning the pinion 28 through the same space and causing the flange to which is attached the dog 29 to make a similar movement downward. The dog 29 moves freely in a downward direction over the teeth on the ratchet-wheel 26 without imparting thereto any movement, all backward motion of the wheel 26 being prevented by the dog 30, which engages the said ratchet-wheel on the opposite side. When dog 29 has reached the end of its downward movement, it again engages with the ratchet-wheel, and when the carrier 9 is allowed again to descend after the printing operation spring 33 turns the flange carrying the dog 29 back to its original position and also restores the pinion 28 and the rack 31 to their original positions and at the same time through the engagement of the dog 29 with the ratchet-wheel 26 causes the said ratchet-wheel 26 to make a partial revolution upon the stud 23. The friction pro-

duced between the ratchet 26 and pinion 25 by the spring 27 is sufficient for the upward movement of the ratchet-wheel 26 in the manner just explained to be communicated to the pinion 25 and from it to the gear-segment 24, which is attached to the segmental support 6, and produces a corresponding movement therein.

The cam 34, carried by the type-wheel 5, is of irregular contour and is so proportioned that it produces a downward movement of the pivoted arm 32 and corresponding movement of the other parts of the mechanism for shifting the support 6, which will give the desired spacing for each character printed.

In order to provide for printing two lines upon the material supported by the support 6, there are provided a hand-lever 36, attached to shaft 38, a pinion 39, also attached to shaft 38, and a sliding rack 37, which is slidably mounted in suitable guideways provided at one side of the carrier 9. The boss of the gear-segment 24 acts as a flange at the end of the boss on the support 6 to engage a notch in the end of the sliding rack, thus forming a connection between the sliding rack and the curved support, so that the movements of the rack 37 are communicated to the support. The lever 36 is held in contact with the upper surface of the frame of the machine by means of a spring 38^a, coiled around the shaft 38, and in order to keep the curved support 6 in the proper position during the printing of each line the lever 36 has on the under surface thereof at the end in contact with the frame of the machine a small projection adapted to engage with two recesses placed at proper points on the machine-frame, one of the recesses being shown at 36^a. The support is shown in Fig. 4 in position for printing the second line, and to shift to position for printing the first line the lever 36 must be turned through an arc of ninety degrees.

To bring the successive characters desired for printing a line into proper printing position, the type-wheel 5 is rotated after each imprint by means of a hand-wheel 4 until the desired character is in position to print. This will be indicated by a pointer 41, provided at the top of the casing covering the front of the type-wheels, and a set of characters formed on the beveled surface 40 at the back of said wheel in exactly opposite arrangement to those provided on the periphery of the wheel, making it easy for the person operating the machine to tell when the desired character is approximately in proper position. After the desired type has been brought approximately into position by means of the hand-wheel, as shown by the pointer 41 and characters on the beveled surface of the type-wheel, the accurate positioning of the characters is automatically accomplished by means of a toothed indexing-wheel 43 which is bolted to the rear portion of the head of the type-wheel 5 and is provided at its periphery with a plurality of notches, each of which correspond to a character on the periphery of the type-wheel. When the carrier 9 is raised to bring the support 6 into contact with the type-wheel, the lug 42, having a **V**-shaped upper portion, is forced upward into a notch on the index-wheel corresponding to the character to be printed, and by the engagement of the **V**-shaped portion of the lug 42 with the index-wheel 43 the type-wheel 45 is brought into the exact position desired. It will be seen that by this arrangement it is possible to turn the type by means of a hand-wheel 4, while the carrier 9, which carries the indexing lug or finger 42, is lowered; but when the carrier 9 is raised the lug 42 engages with the notch of the indexing-wheel 43, and the type-wheel 50 is firmly held in the desired position.

The printing is done through an inking-ribbon 45, similar to that used on a type-writer. As the machine is operated the ribbon is slowly wound from a spool 46 onto a spool 47, thus bringing fresh ribbon under the type as the ink in the ribbon is used. The front part of the casing around the type-wheel and spools is made removable to permit ready access to the spools when it is desirable to replace the ribbon or reverse the spools. The spools proper are made of sheet metal and are made to slide easily over the cylindrical members 48 and 49. On the inner surface of the central bore of each of the spools is a projection which fits into a groove provided on each of the cylindrical members 48 and 49, causing the spool to be turned with said cylindrical members. The cylindrical member 48 is mounted on a stud 50, so as to turn freely, and is provided with a fixed flange against which a light dished spring 51 presses, thus forming a brake on the rotation of the spool and keeping the inking-ribbon taut. The member 49 differs from the part 48 in having a flange 53 provided with very small notches to convert it into a ratchet-wheel, as best shown in Fig. 1. The lever 54 is pivotally mounted on the stud 55, on which the cylindrical portion 49 rotates, and terminates in an arm which extends over the notched periphery of the flange 53 and carries a spring-dog 56, which operates the ratchet-wheel. The lower end of the lever 54 is forked and engages the stud 57, carried by the reciprocating carrier 9, so that as the carrier 9 moves upward the dog carried by the arm 54 advances the ratchet one notch at each movement of the carrier 9. The ratchet 53 is held against backward rotation by a spring-dog 58, mounted on the upper portion of the casing of the spool 47.

The locking mechanism shown in Figs. 8 and 9 consists of a latch 60, pivotally mounted on a stud 61 on the rear portion of the main frame 1. The latch 60 is of irregular outline,

having its upper portion formed into a hook which is adapted to lock over the stud 62 on the rear surface of the reciprocating carrier 9 and when so engaged with said stud 62 to hold the carrier in its latched position. When the machine is in operation, the latch is held out of engagement with the stud 62 by an arm 63, provided at the lower end of said latch 62, which rests against a flange 64 on the rear face of a ratchet-wheel 65. When the hook at the upper end of latch 60 engages the stud 62, the arm 63 at the lower end of the latch enters an opening (not shown) which is provided in the flange 64, and as long as the hook in the upper end of latch 60 engages the stud 62 and the arm 63 at the lower end of the stud engages the recess in the flange 64 of the ratchet-wheel it is impossible to impart movement to the carrier 9.

In the operation of the machine when the carrier 9 descends after the printing of a character the boss 66, provided at the lower end of the carrier, comes in contact with the top of a sliding member 67, slotted to permit the passage of stud 61 and having at its lower end a dog which engages a ratchet-wheel 65 and pushes it forward one notch against the tension of the spring 74, encircling the stud 65^a, carried by lug 65^b, on which the ratchet is rotatably mounted. Dog 68, pivoted on the stud 61 and held in engagement with ratchet 65 by a spring 68^a, prevents backward rotation on the ratchet. This ratchet is advanced by one tooth each time a character is printed until the recess provided in the flange 64 comes opposite the arm 63, allowing the arm 63 to enter it and the latch 60 to engage stud 62 through the action of spring 69, which is attached at one end to the frame of the machine and at the other to a projection on the latch 60.

The means for releasing the latch 60 from engagement with the stud 62 comprises a coin in the slot device, of which 70, as shown in Fig. 8, is a section of the end of the slide. Attached to the end of the slide is a member 71, which projects through a cam-slot 75^a in a latch-lever 75 and engages a cam-surface on an arm 72, which is attached to and forms part of latch 60. When member 71 is moved over the arm 72, it strikes the upward incline near its free end. The arm is depressed, swinging the latch 60 on its pivot 61 and disengaging the hook at its upper end from the stud 62 on the carrier 9 and at the same time disengaging the arm 63 from the recess in the flange 64 of the ratchet-wheel. A stud 73, carried by the latch 60, at the same time forces the members 67 and 68 away from the ratchet-wheel 65, which is allowed to whirl back under action of the spring 74 until it is checked by suitable stops (not shown) with the recess in the flange 64 out of position to admit the arm 63, and consequently holding the latch 60 out of engagement with the stud 62 and permitting the machine to be operated by means of the lever 12. The lever 75, the cam-slot in which is engaged by the member 71, is pivoted on stud 61 in the same way that latch 60 is and has at its upper end a hook similar to that provided on the latch 60. This hook is thrown into engagement with the stud 62 when the slide 70, which forces the lever 72 downward to release the latch mechanism, is pushed in and latches the mechanism until the slide 70 is withdrawn to its original position. When forced down, the arm 75 is thrown into the position shown in Fig. 9 and the mechanism is in position for operation. If the lever-arm 75 were not provided, the device could be operated indefinitely as long as the slide 70 remained pushed in; but when the slide 70 is withdrawn to its original position the number of characters which may be printed after the introduction of a single coin into the machine will be determined by the number of notches upon the periphery of the ratchet-wheel 65 which will be engaged by the dog 67 before the arm 63 is thrown into the recess provided therefor in the flange 64.

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

1. In combination, a movable segmental support for the sweat-band of a hat or the like, clamps at either end of said support, a type-wheel rotatably mounted above said support and provided with characters upon the periphery thereof, and means for raising said support into contact with said wheel.

2. In combination, a reciprocating carrier mounted for vertical movement, a stud projecting forwardly from said carrier, a segmental support mounted on said stud for pivotal movement, a type-wheel mounted above said support, means for raising said carrier to bring said support into contact with said type-wheel, and mechanism operative on the descent of said carrier to swing said support upon the stud by which it is carried.

3. In combination, a reciprocating carrier, a segmental support mounted on said carrier for pivotal movement, a type-wheel disposed in the plane of movement of said support, means for moving said carrier to bring said support into contact with said type-wheel, and mechanism operative on the movement of the carrier away from the type-wheel to swing the support upon its pivot.

4. In combination, a type-wheel, a carrier mounted for vertical reciprocation and having a forwardly-projecting stud, a support for the sweat-band of a hat or the like pivotally mounted on said stud, means for bringing said support into contact with said type-wheel, and means comprising a rack connected with said support and a pinion in mesh with said rack for shifting said support longitudinally of said stud.

5. In combination, a type-wheel, a carrier arranged for reciprocatory movement toward and away from the type-wheel, a support for the sweat-band of a hat or the like mounted upon said carrier, means for moving said carrier toward and away from the type-wheel, mechanism comprising members associated with said carrier and said type-wheel and movable bodily therewith for automatically and positively adjusting the position of said type-wheel to insure proper alinement for the printing of any character carried thereby.

6. In combination a type-wheel, a carrier mounted for reciprocatory movement toward and away from said type-wheel a support for the sweat-band of a hat or the like pivotally mounted on said carrier, means for reciprocating said carrier, and mechanism comprising coöperating members rigidly connected with said type-wheel and said carrier for automatically and positively adjusting the position of the type-wheel to insure proper alinement for the printing of any character carried thereby.

7. In combination, a type-wheel having characters on the periphery, a support, means for moving said support into contact with the periphery of the type-wheel, means for shifting said support after each contact with said type-wheel, and latch mechanism operative to lock said support out of contact with said type-wheel after a certain number of contacts between said wheel and said support.

8. The combination in a machine of the class described of printing elements, a movable carrier, an operating-lever, and yielding connections between said movable carrier and said operating-lever whereby said carrier may be actuated by said operating-lever when said carrier is free to move and whereby movement of said operating-lever will be permitted without movement of said carrier when said carrier is not free to move.

9. The combination in a mechanism of the class described, of a reciprocating carrier, a support pivotally mounted on said carrier, printing elements, means for moving said carrier toward and away from said printing elements, and mechanism operative on the movement of the carrier away from said printing elements for automatically swinging said support after each movement toward the printing elements.

10. The combination in mechanism of the class described, of a movable carrier, a type-wheel, a support on said carrier adapted to contact with said type-wheel, means for moving said carrier to bring said support into contact with said type-wheel, means for rotating said type-wheel to bring different parts thereof into printing position, a notched indexing-wheel associated with said type-wheel, and a member mounted on said carrier and adapted to engage said indexing-wheel when said support is moved into contact with said type-wheel to aline accurately into printing position the character on said type-wheel which is most nearly in printing position.

11. In combination, a support, a type-wheel bearing characters of different widths, means for bringing said support into contact with said type-wheel, means for rotating said type-wheel to bring different characters into printing position, means for holding the type-wheel stationary during the printing operation, and means for shifting said support after each contact with the type-wheel, said shifting means being adapted to shift said support proportionately to the widths of the characters printed.

12. In combination, a support, a type-wheel bearing characters of different widths, means for moving said support into contact with said type-wheel, means for rotating said type-wheel to bring different characters into printing position, means associated with the support for locking said type-wheel during the printing operation, and means operative upon the movement of the support away from the type-wheel to shift the support after each printing operation, said shifting means being adapted to shift the support a distance proportionate to the width of the character printed.

13. The combination in a mechanism of the class described, of a type-wheel, a carrier mounted for reciprocatory movement toward and away from said type-wheel, a support for a hat-band or the like pivotally mounted on said carrier, a cam rigidly connected with said type-wheel and of irregular width to correspond to the widths of the different characters on the type-wheel adjacent to the various parts of the cam, and mechanism operated by engagement with said cam to shift said support on its movement away from the type-wheel a distance proportional to the width of the character last printed.

14. The combination in a mechanism of the class described, of a type-wheel, a carrier mounted for reciprocatory movement toward and away from said type-wheel, a support pivotally mounted on said carrier, a cam of irregular contour rigidly connected with said type-wheel and having the width of the cam at all points proportional to the width of the adjacent characters on the type-wheel, a movable arm held in contact with the periphery of said cam, and mechanism mounted on said carrier and operated by contact with said arm for shifting said support, after each printing operation, a distance proportional to the width of the character printed.

15. The combination in a mechanism of the class described, of a type-wheel, a cam of irregular contour rigidly associated with said type-wheel and having its width at all points proportional to the widths of the adjacent

characters upon the type-wheel, a pivoted arm having its free end held in contact with the periphery of said cam, a carrier mounted for reciprocatory movement toward and away from said type-wheel, a support pivotally mounted on said carrier, a member slidably mounted on said carrier and adapted for contact with said pivoted arm on the movement of said carrier toward the type-wheel, a ratchet mechanism operated by a spring and set by the movement of said slidably-mounted member, to shift said support after each printing operation.

16. In combination in mechanism of the class described, shiftable printing elements, a movable support, means for bringing said support into and out of contact with said printing elements, and automatic locking means adapted to lock said support in position after a predetermined number of contacts with said printing elements.

17. The combination in a mechanism of the class described, of printing elements, a movable support, means for bringing said support into and out of contact with said printing elements, spring-operated ratchet mechanism advanced one degree at each printing operation, a drum rigidly connected with said ratchet and having an opening in the periphery thereof, and a spring-pressed latch having a member for positive engagement with said carrier and a detent for engagement with the opening in said drum, the parts being so arranged that the detent will enter the recess in said drum after the completion of a predetermined number of printing operations.

18. The combination in a mechanism of the class described, of printing elements, a movable support, means for bringing said support into and out of contact with said printing elements, ratchet mechanism advanced one step at each printing operation, a drum rigidly associated with said ratchet and provided with an opening in the periphery thereof, a pivoted latch having a projection for engagement with said carrier, and a detent for engagement with the opening in said drum when the projection is in engagement with the carrier, a spring to return said drum to a position such that the drum must be turned through an almost complete revolution to bring the detent on said latch into engagement with the opening therein, and means for throwing said latch into operative position.

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

ARTHUR JAMES BRIGGS.

Witnesses:
S. M. WING,
A. E. WEEKS.