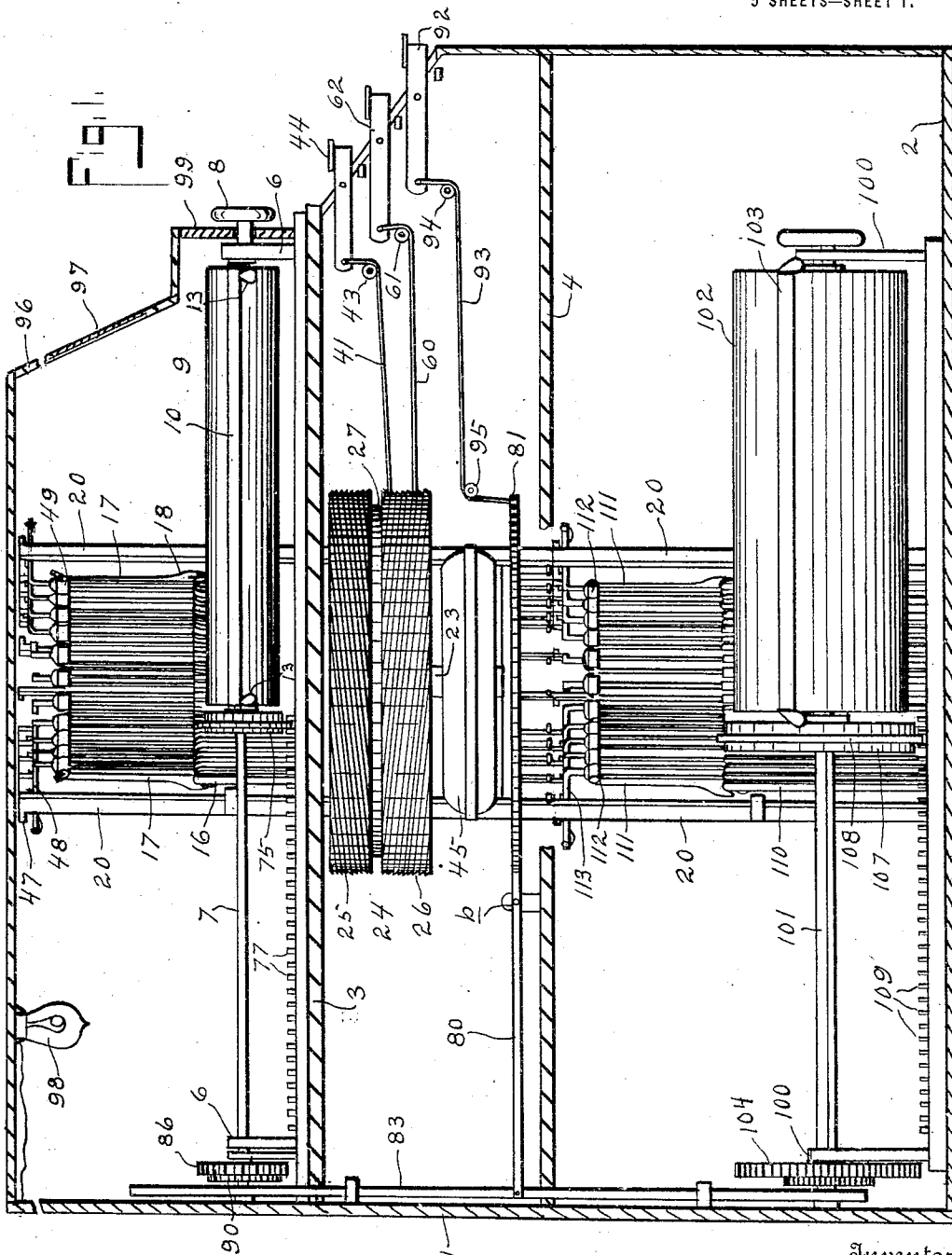


E. SARGENT,
TYPE WRITER.
APPLICATION FILED AUG. 5, 1914.

1,155,445.

Patented Oct. 5, 1915.

5 SHEETS—SHEET 1.



Inventor

Witnesses

James P. Haskell
Eva E. Williams

Evelan Sargent.

By Walter N. Haskell,

his Attorney

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5 SHEETS—SHEET 2.

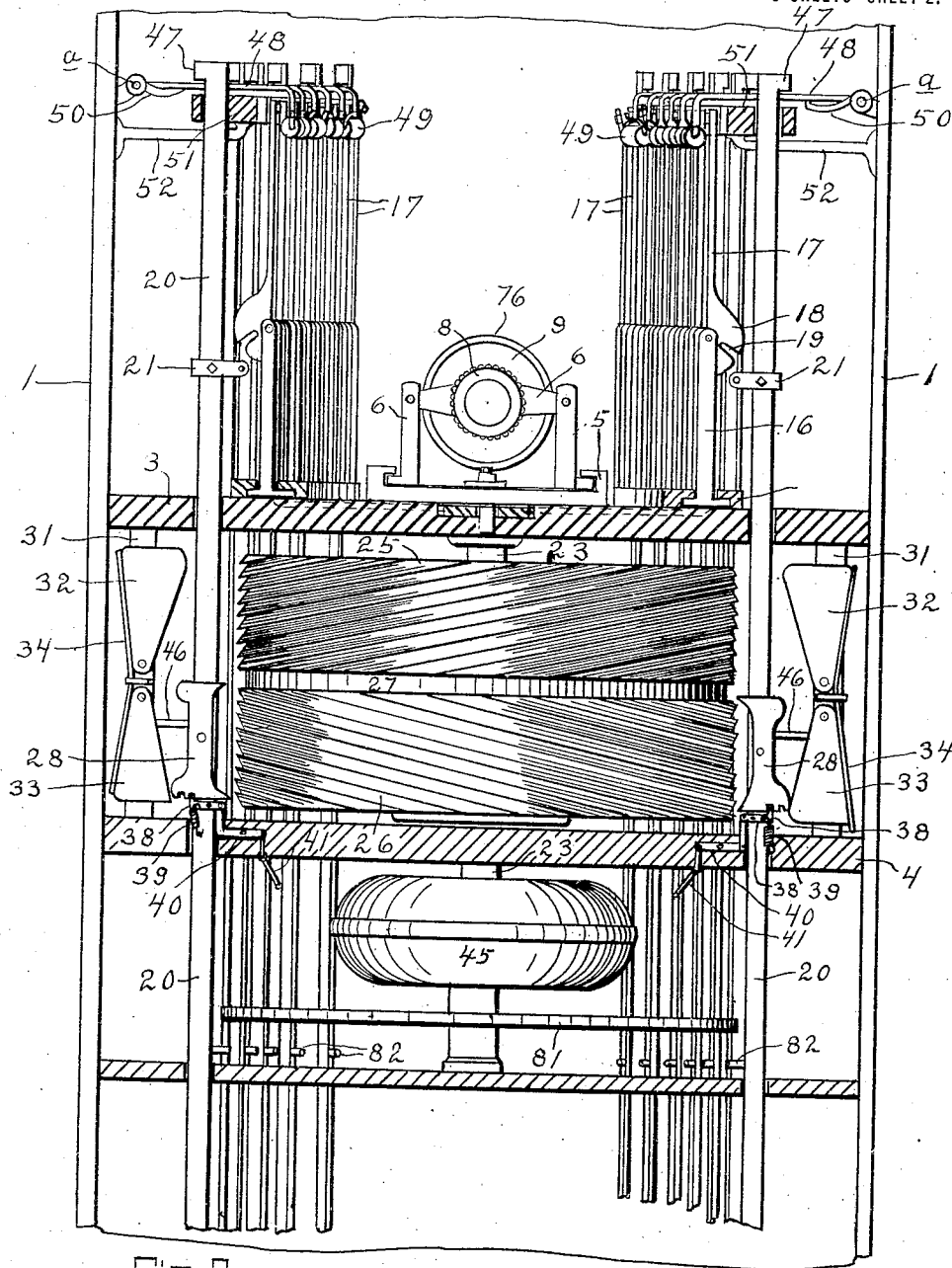


FIG. 2.

Witnesses

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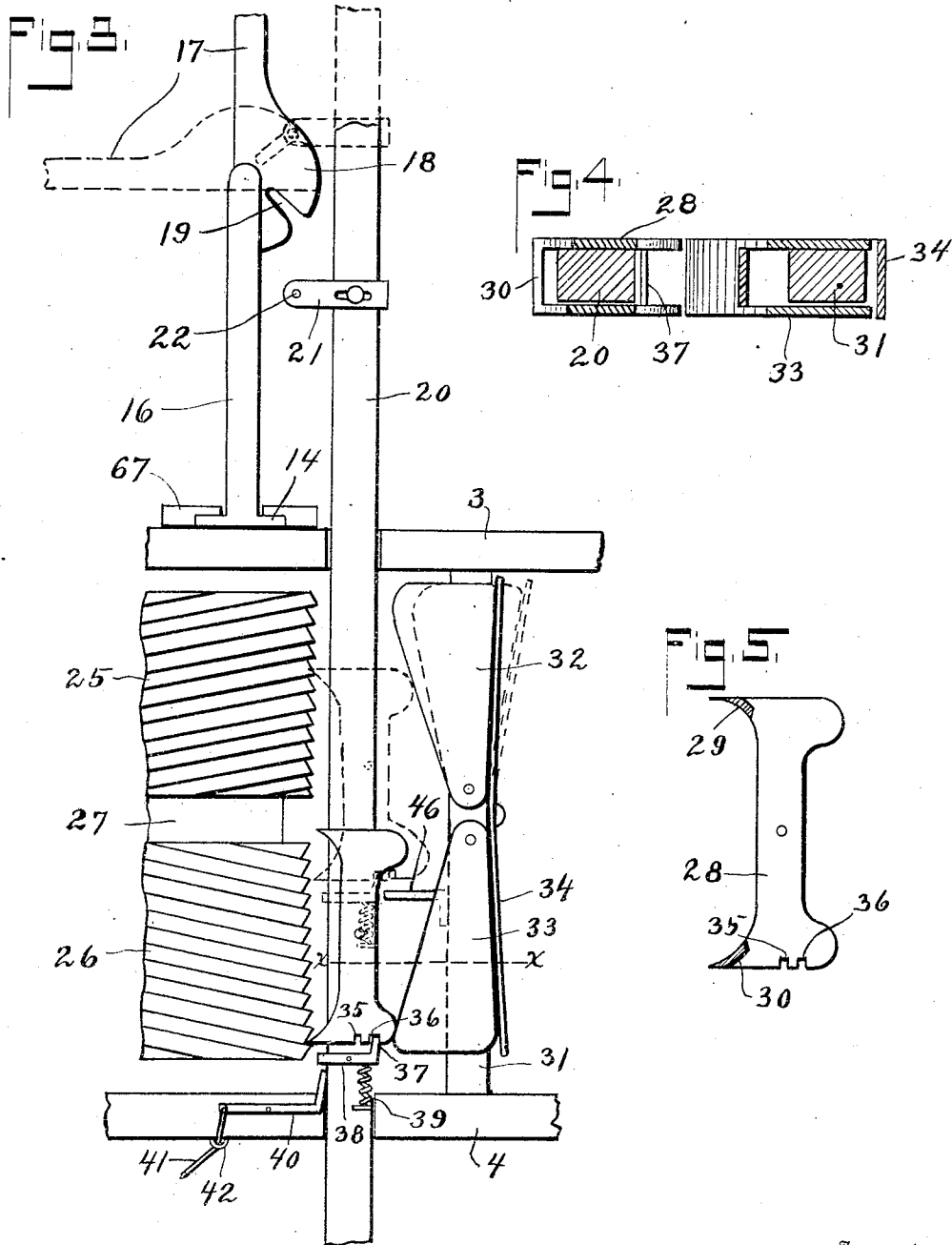
his Attorney

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5 SHEETS—SHEET 3.



Witnesses

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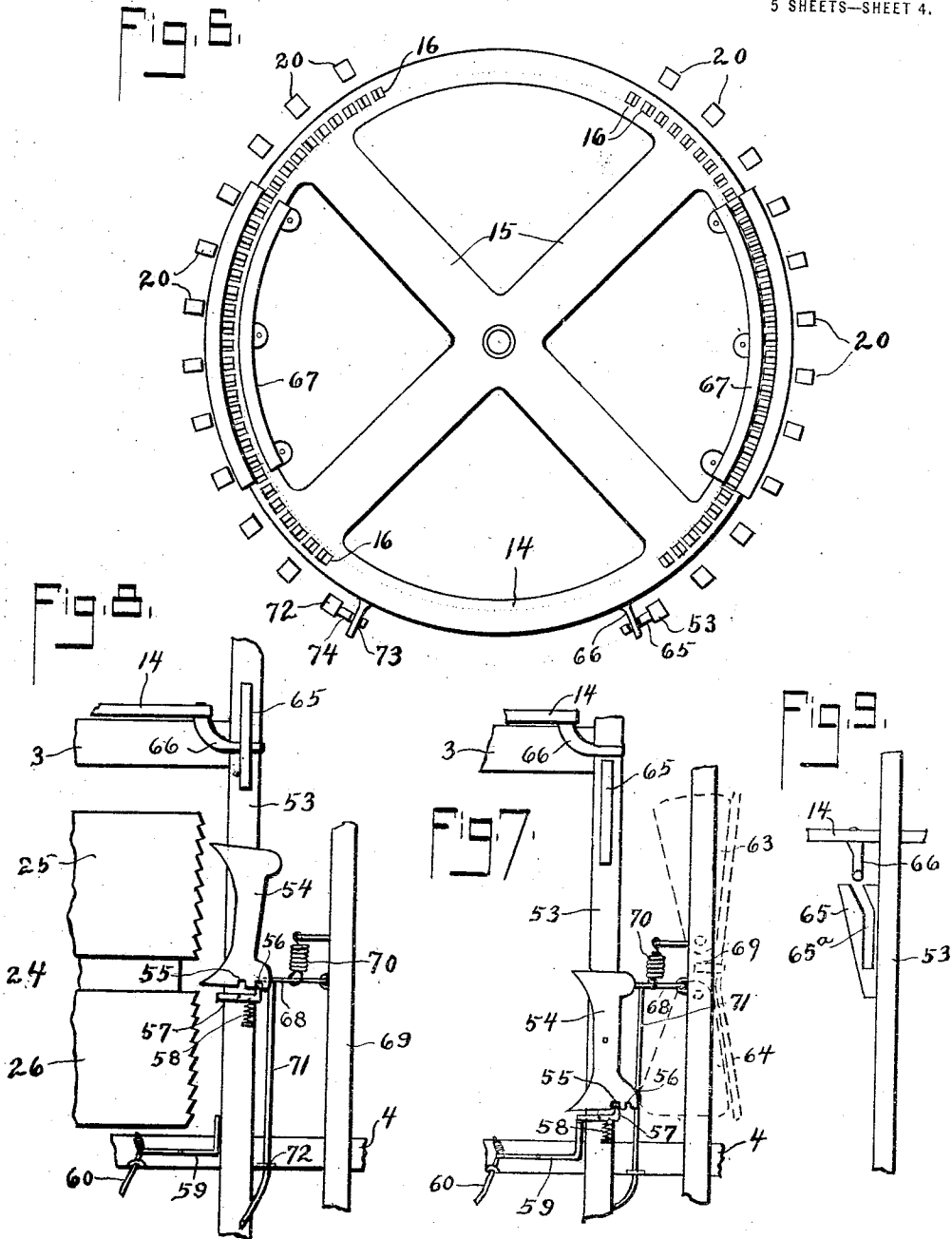
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5 SHEETS—SHEET 4.



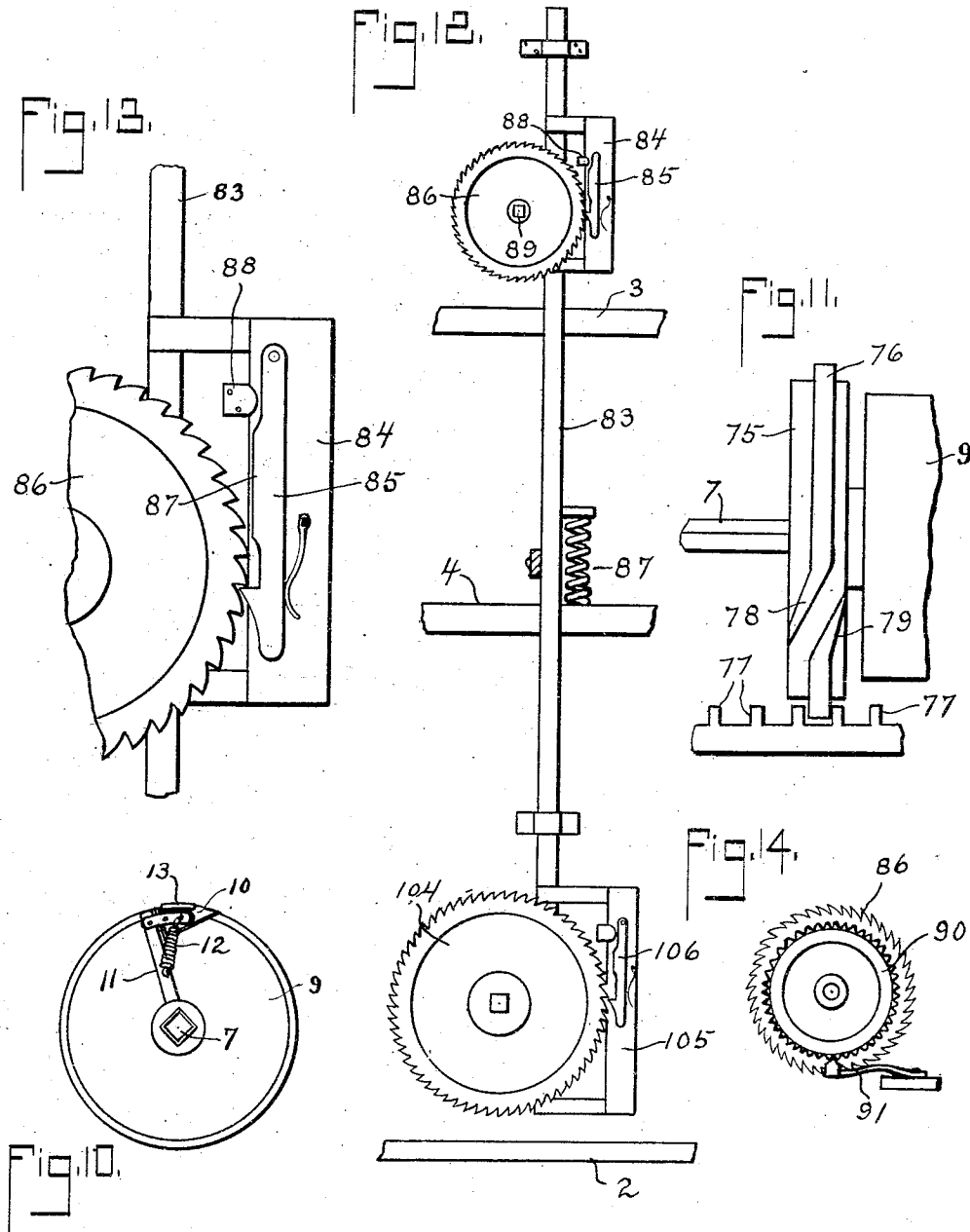
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5 SHEETS—SHEET 5.



Witnesses

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UNITED STATES PATENT OFFICE.

EVLAN SARGENT, OF MOLINE, ILLINOIS.

TYPE-WRITER.

1,155,445.

Specification of Letters Patent.

Patented Oct. 5, 1915.

Application filed August 5, 1914. Serial No. 855,156.

To all whom it may concern:

Be it known that I, EVLAN SARGENT, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

My invention has reference to type-writing machines, and the chief purpose thereof is to provide a device of this kind which will be practically noiseless, which is of simple and novel construction and easily operated.

The machine consists primarily of a casing of suitable construction within which is mounted a cylinder rotatable transversely of the casing, and a plurality of type-bars arranged and operated so as to form an imprint upon paper carried by said cylinder during the rotation thereof, said cylinder being also capable of longitudinal movement to suitably space the lines of type-writing. The operation of the type-writer is effected by the action of suitable motive power contained within the machine, the operation of the keys on the usual key-board being only such as may be necessary to release the operating means.

I also provide an auxiliary cylinder operated in substantially the same manner as the cylinder above referred to, upon which the original writing can be reproduced in more compact form.

The many novelties, conveniences and advantages of the various mechanisms employed in my device will more fully appear from the following specifications, due reference being had to the drawings accompanying the same.

In the drawings: Figure 1 is a vertical longitudinal section, medially of the machine, with some of the parts shown complete. Fig. 2 is a partial transverse section medially of the machine, with some of the parts completely shown. Fig. 3 is an enlarged detail of the mechanism for operating one of the bars 20. Fig. 4 is a cross-section in the line $x-x$ of Fig. 3. Fig. 5 shows the dog 28 in detail, in vertical section. Fig. 6 is a plan view of the circle 14 and pertinent parts, in diagram. Figs 7 to 9 inclusive show the parts for shifting the position of the circle 14, in detail. Fig. 10 is an end view of the cylinder 9. Fig. 11 is a detail of the inner end of the cylinder 9, and spacing mechanism. Fig. 12 is a front

elevation of the mechanism for giving to the cylinder 9 and copying cylinder a step-by-step rotation. Fig. 13 is an enlarged detail showing a part of the wheel 86 and actuating the mechanism thereof. Fig. 14 illustrates the drag mechanism on the inner face of the wheel 86.

Corresponding parts are indicated by similar figures of reference throughout the drawings.

1 represents a casing of any suitable construction or material, provided with a main floor 2, and containing additional floors 3 and 4. On the upper face of the floor 3 is secured a track 5, in which a frame 6 is capable of longitudinal movement. Rotatably mounted in the frame 6 is a square shaft 7 provided at its outer end with a knob 8 on the outside of the casing. Slidably supported on the shaft 7 is a cylinder 9, so as to rotate with said shaft, said cylinder being provided with a segment 10, pivotally connected with arms 11 at the ends of the cylinder. By means of coiled springs 12 connecting the segments 10 and arms 11 such segments are held normally in place in said cylinder. At the ends of the segment 10 are finger-plates 13, by means of which the segment may be raised for the purpose of inserting a sheet of paper beneath the same. Upon releasing the segment 10 one edge of the sheet of paper is held firmly thereby, and by rotating the cylinder in the proper direction such paper is caused to encircle the same, in position for use. During this operation the frame 6 and cylinder are withdrawn from the casing 1, and replaced after the sheet of paper is fixed thereon.

Supported on the floor 3 is a circle 14, provided with a central pivot and connecting arms 15. Mounted on the circle 14 on each side of the cylinder 9 is a series of standards 16, pivotally connected with the upper ends of which is a corresponding series of type-bars 17, having at their lower ends cams 18, provided with radial slots 19. In the rear of the standards 16 is a plurality of bars 20 extending downwardly through the floors 3 and 4, and capable of limited vertical movement. Each of the bars 20 is provided with a clip 21, carrying a pin 22 adapted to engage one of the slots 19 upon the upward movement of such bar, and cause the movement of the type-bar downwardly to bring the type on the end

thereof into contact with the paper on the cylinder 9.

Centrally of the bars 20 is a vertical shaft 23 upon which is fixed a cylinder 24 having on its upper part downwardly operating spirals 25, and on the lower part upwardly operating spirals 26, separated by an annular channel 27. Pivotaly mounted on each of the bars 20 is a dog 28, provided at its ends with blades 29 and 30, adapted to engage the spirals 25 or 26 as desired, and cause a movement of such dog and the bar to which it is attached in an upward or downward direction, with the result hereinafter set forth.

In rear of each of the bars 20 is a support 31 to which are pivotally connected cams 32 and 33, preferably wedge-shape as shown. In rear of said cams is a leaf spring 34, centrally attached to the support 31, whereby said cams are held normally in inward position, or returned thereto. When in said inward position said cams are adapted to alternately engage the lower end of the dog 28 and the upper end thereof, and exert a force thereon tending to cause an engagement of one or other end of said dog with the cylinder 24, and hold the same in such engagement. At its lower edge the dog 28 is provided with a pair of notches 35 and 36, adapted to be engaged by the blade 37 of a catch 38 pivoted to the bar 20, and held normally in engagement with the dog 28 by means of an extensile coiled spring 39. Fulcrumed in the frame is a bell-crank lever 40, the short end of which projects upwardly just beneath the inner end of the catch 38. To the opposite end of the lever 40 is attached a wire 41 which passes through a loop 42 and under a pulley 43 (Fig. 1) to one of the keys 44 in the keyboard of the machine. Mounted on the shaft 23 so as to cause the rotation thereof is a small electric motor 45, whereby rotation is imparted to the cylinder 24. When such cylinder is in movement and the key 44 is operated the catch 38 is released, and the pressure of the cam 33 upon the dog 28 causes an instant engagement of said dog with the spirals 26. As the cylinder 24 rotates quite rapidly there results from this engagement a quick upward movement of the bar 20. The catch 38 moves upwardly with the bar 20, and when the lower end of the dog 28 swings inwardly the blade 37 of such catch immediately engages the outer notch 36, holding the blade 30 in engagement with the spiral 26. Fig. 3. When the bar 20 has been raised to the desired height the blade 37 comes in contact with a trip 46 fixed to the support 31. At this time the cam 32 is exerting a pressure upon the upper end of the dog 28, causing the blade 29 thereof to engage one of the spirals 25, whereupon the bar 20 is again lowered, car-

rying the type-bar 17 to its former vertical position. As soon as the blade 37 moves away from the trip 46 it is again permitted to enter the notch 35, and the downward movement is continued until the upper engaging end of the dog 28 runs off the spiral and into the channel 27. The catch 38 is then in position to be acted upon again by the lever 40.

At their upper ends the bars 20 are provided with lugs 47 adapted to engage arms 48 pivotally connected at their outer ends; as at *a*, and hold such arms normally in horizontal position. The inner ends of the arms 48 are bent downwardly, and carry ink-rolls 49. Near their outer ends the arms 48 are provided with springs 50, the tendency of which is to raise said arms. Upon the upper movement of one of the bars 20 the pressure of the lug 47 upon the arm 48 is removed, and such arm immediately raises, causing the ink-roll to pass upwardly over the face of the type on the type-bar 17, and ink the same immediately preceding the operation of said type-bar, by the continued upward movement of the bar 20. Upon the return movement of the bar 20 the arm 48 and ink-roll carried thereby is again drawn downwardly into its normal position. Near their upper ends the bars 20 pass through openings in an arch-shaped guide 51 supported by brackets 52, the inner face of said guide being provided with a pad 53^a against which the type-bars 17 strike on their return movement, preventing any sound from such impact.

I prefer to provide one of the bars 20 for a set of three of the type-bars 17, and bring the desired type-bar into position for operation by the bar 20 by shifting the position of the circle 14. For this purpose I prefer to locate said circle so that each of the bars 20 will be normally in rear of the center one of the set of type-bars to be actuated thereby, and bring one or other of the other type-bars in front thereof, as desired. For example, by moving the circle in one direction capital letters may be produced, and in the opposite direction numerals or other characters.

To accomplish the shifting of the circle 14 I provide the following means, reference being more specially had to the Figs. 6 to 9 inclusive in the drawings: 53 is a bar similar to the bars 20 and capable of vertical movement. Pivoted to the bar 53 is a dog 54, similar to the dog 28, and adapted to be operated by the spirals 25 and 26. The dog 54 is provided at its lower end with notches 55 and 56 adapted to be engaged by a catch 57 pivoted on the bar 53, and held normally in engagement with one or other of said notches by a coiled spring 58. The catch 57 is capable of being released by means of a bell-crank lever 59 upon which

said catch normally rests. Connected with the lever 59 is a wire 60 passing under a pulley 61 to a key 62 pivoted in the keyboard of the machine. In rear of the dog 54 are spring controlled cams 63 and 64, (shown in broken lines) similar to the cams 32 and 33, and adapted to alternately exert a pressure upon the lower and upper end of the dog 54. Upon the release of the catch 57 the dog 54 engages the spiral 26 at its lower end, and is immediately carried upwardly, carrying with it the bar 53. At a point above the dog 54 the bar 53 is provided with a plate 65, having a slot 65^a, and projecting outwardly from the circle 14 is an arm 66 adapted to enter said slot and be moved laterally thereby upon the upward movement of the bar 53, the movement of said arm being sufficient to turn the circle 14 enough to bring another set of type-bars in front of the bars 20. Upon the downward movement of the bar 53 the arm 66 and circle 14 are returned to their normal position. To aid in the rotation of the circle 14 guides 67 are provided, fixed to the floor 3 and having openings to permit a free movement of the standards 16 upon the partial rotation of the circle.

When the dog 54 attains the highest point to which the spiral 26 will carry it, it is retained in that position until the catch 57, which is now in position in the notch 56, as shown in Fig. 8, is released. This is accomplished by means of a trip 68, pivoted to a support 69, and normally held in elevated position by a spring 70. When the dog 54 is at its highest point the inner end of the trip 68 is just above the catch 57, and is drawn downwardly to release the same by means of a wire 71, passing through a loop 72, and to a key in the keyboard similarly to the wire 60. Upon such release the upper end of the dog 54 is forced into engagement with the spiral 25, causing a return movement of the bar 53 downwardly and causing the plate 65 to disengage the arm 66. To move the circle 14 in an opposite direction a bar 72 is provided having a slotted plate 73 actuating an arm 74 projecting outwardly from the circle 14. The operation of these parts are similar to those of the bar 53 and appurtenant mechanism, but the circle is moved in an opposite direction thereby.

At the inner end of the cylinder 9 is a disk 75, rotatable with said cylinder and provided with an annular rib 76 adapted to be engaged by a series of teeth 77 supported on the floor 3 in line with the shaft 7. Upon the rotation of the shaft 7 and disk 75 the rib 76 thereon is engaged by two of the teeth 77, which prevent longitudinal movement of the cylinder 9, and compel the rotation thereof in the same direction while the printing is being done thereon. At one

point the rib 76 has a diagonal wing 78, which enters the next succeeding space between the teeth and causes the disk and cylinder to move longitudinally of the shaft 7 a distance equal to one of said teeth and spaces. This movement is accomplished at the end of the rotation of the cylinder 9, and at the end of the line printed on the paper thereon, the cylinder being then in position for the printing of the next succeeding line. The rib 76 is also provided with a wing 79 oppositely disposed to the wing 78, whereby by reversing the rotation of the cylinder 9 the longitudinal movement thereof is also reversed.

Pivoted on the floor 4 as at *b* is a lever 80, the inner end of which is formed into a circle 81, of substantially the same diameter as the cylinder 24. The bars 20 are provided at a point below the circle 81 with inwardly projecting pins 82, which engage such circle when the bars 20 have nearly reached the end of their upward strokes and raise said circle a slight distance. The rear end of the lever 80 is correspondingly lowered, carrying with it a shift-bar 83 in the rear end of the machine. On the upper end of the bar 83 is a frame 84, carrying a spring-controlled dog 85, adapted to engage the teeth of a ratchet-wheel 86 rotatably mounted above floor 3 conveniently to the bar 83. The dog 85 is held normally out of engagement with the wheel 86 by means of a lug 88 in engagement with a projection 89 on said dog. Upon the downward movement of the bar 83 such dog is permitted to move inwardly into engagement with one of the teeth of said wheel, and a return movement of the bar 83, induced by a spring 87, causes said dog to rotate the wheel 86 the distance of one of said teeth, whereupon said dog is again thrown outwardly, out of engagement with said wheel.

The wheel 86 is centrally provided with a square opening 89^a, which receives the inner end of the shaft 7 when the frame 6 is fully inserted in the machine, whereby said shaft 7 and the cylinder 9 are caused to rotate with the wheel 86. The spacing of the letters in the line is thus provided for, the distance between said letters being determined by the spacing of the teeth upon the wheel 86. In rear of the wheel 86 and rotatable therewith is a toothed disk 90, engaged by a spring-tooth 91, which acts as a drag upon the wheel 86. The notches in the disk 90 correspond with those in the wheel 86, so that as said wheel completes one of its movements the tooth 91 is in position to prevent further rotation thereof, holding the same from accidental movement. To a key 92 in the keyboard is attached one end of a wire 93, such wire passing downwardly beneath a pulley 94 and over a pulley 95 to a connection with the circle 81. By operation of the

key 92 the shift-bar 83 can be actuated, causing a spacing of the letters upon the cylinder 9.

In the front of the casing 1 is an inclined portion 96 provided with a glass 97 through which the cylinder 9 may be observed at a point where the writing is being produced thereon. In the rear of the casing is suspended a small electric light 98, by means of which sufficient light can be provided for the interior of the case. The opening to the part inclosing the cylinder 9 is preferably closed by small sliding doors 99, which come together just in rear of the knob 8.

To recapitulate, the completed operation of the machine is as follows: The frame 6 is withdrawn from the machine with the cylinder 9 in place therein. A sheet of paper is then secured in place on such cylinder and the frame returned to its former position in the machine, with the shaft 7 in engagement with the ratchet-wheel 86. The cylinder 9 is in position with the segment 10 near the top thereof so as to leave such space for margin as may be desired. The motor 45 being in operation, and the cylinder 24 in constant rotation, the desired key in the keyboard is touched by the finger of the operator, a slight touch being sufficient to cause the release of one of the catches 38, and corresponding movement of the bar 20 to which it is attached. The desired type-bar is thereby actuated and returned to its normal position, the type being inked both before and after such operation. If it is desired to change the position of the type-bars before the printing operation, this is accomplished by touching the proper key for shifting the circle 14. The arrangement of the key-board and operation thereof may be similar to that in other machines, except that very little pressure upon the keys is required by reason of the main part of the operation being performed by power.

In the lower part of the machine is slidably mounted a frame 100 similar to the frame 6, and carrying a square shaft 101, upon which is mounted a cylinder 102 so as to rotate therewith. Said cylinder is provided with a segment 103 by means of which a sheet of paper may be secured thereon. The end of the shaft 101 enters a square opening in a ratchet-wheel 104 rotatably mounted in the rear of the casing 1 conveniently to the shift-bar 83, and adapted to be operated therefrom by means of a frame 105 on the lower end of said bar, carrying a spring-controlled dog 106 of similar construction and operation to the dog 85. Each movement of the bar 83 gives to the wheel 104 and cylinder 102 a rotating movement equal to one of the teeth of said wheel. Integral with the cylinder 102 is a disk 107 provided with an annular rib 108,

engaged by teeth 109 on the floor of the machine and similarly constructed to the rib 76. On each side of the cylinder 102 is a series of standards 110 upon which are pivotally mounted type-bars 111, similar in arrangement to the type-bars 17, and adapted to be actuated in the same manner and at the same time by the bars 20. The type-bars 111 are also provided with ink rolls 112, carried by arms 113 constructed and operated in a similar manner to those in the upper part of the machine. The operation of the mechanical parts in the lower part of the machine by means of which printing may be effected upon the cylinder 102 being identical with those which perform the same work on the cylinder 9, no further illustration or description thereof is deemed necessary.

By forming the cylinder 102 with a considerably larger diameter than that of the cylinder 9, the printed matter on the latter cylinder can not only be duplicated upon the larger cylinder, but several lines on the sheet on the small cylinder can be copied on one line on the larger cylinder, and the writing on the larger cylinder can be condensed still further by decreasing the amount of spacing between the letters in the lines, and also between the lines. By this means several letters which are written on the small cylinder may be copied on one sheet on the larger cylinder for filing purposes, and will occupy a great deal less space when thus reproduced than is required by the copying method now employed.

All the parts of the machine are constructed with a view to the silent operation thereof, and by reason of all of the working parts being inclosed within a casing, the sound is muffled, and the operation of the machine practically noiseless, so as not to interfere with conversation in the vicinity of the machine. This will be recognized as a great advantage in cases where testimony is being taken directly upon the machine, and in other uses where the noise of the machine might interfere with the dictation, or with a perfect understanding of statements made to the operator while the machine is in action.

It will be obvious that many changes can be made in the mechanical structures which are embodied in my machine, and in the operation thereof, without departing from the spirit of the invention, and I do not wish to be understood as limiting myself to the particular construction, arrangement or operation of parts as shown and set forth herein.

What I claim as my invention and desire to secure by Letters Patent of the United States, is:

1. A device of the class named, comprising a casing; a cylinder mounted therein so as to rotate transversely thereof; means for

causing longitudinal movement of said cylinder; a plurality of type-bars pivotally mounted adjacent to said cylinder; vertically movable bars adapted to actuate said type-bars; a constantly operating mechanism mounted in said casing adjacent to said bars; and means for imparting the movement of said operating mechanism to said last-named bars, to suitably actuate the same.

2. In a device of the class described, the combination of a casing; a plurality of type-bars mounted therein so as to operate at a common point; vertically movable bars in rear of said type-bars and capable of actuating the same; a plurality of inking devices held normally in position adjacent to said type-bars; and means for suitably actuating said inking devices upon the upward movement of the vertically operative bars in rear thereof.

3. A device of the class named, comprising an inclosed casing; a cylinder mounted therein so as to rotate transversely thereof; means for giving to said cylinder a progressive longitudinal movement; a plurality of type-bars pivotally supported adjacent to said cylinder so as to operate at a common point; vertically movable bars in rear of said type-bars and capable of actuating the same; a central operating mechanism adapted to be constantly operated; means for imparting the movement of said operating mechanism to said last-named bars to suitably raise and lower the same; means for providing the type on each type-bar with a supply of ink upon the upward movement of the vertically movable bar in rear thereof.

4. In a device of the class named, a plurality of type-bars, pivotally mounted so as to operate at a common point; vertically movable bars adjacent to said type-bars; means for imparting the movement of said last-named bars to said type-bars to suitably actuate the same; a central rotatable cylinder capable of being constantly rotated and provided with a plurality of upwardly operating spirals and a plurality of downwardly operating spirals; dogs on said bars adapted for alternate engagement with said spirals; and means for compelling the engagement of said dogs with said spirals, to cause a movement of said bars upwardly or downwardly.

5. In a device of the class named, a plurality of type-bars pivotally mounted so as to operate at a common point; vertically movable bars adjacent to said type-bars; means for imparting the movement of said bars to said type-bars to suitably actuate the same; a central rotatable cylinder capable of being constantly operated, and provided with a plurality of upwardly operating spirals and a plurality of downwardly operating spirals; dogs on said bars adapted to

alternately engage said spirals; means for enforcing the engagement of said dogs with said spirals; means for holding said dogs normally out of engagement with said spirals; and manually operated means for releasing said dogs to permit an engagement with said upwardly operating spirals.

6. A device of the class described, comprising a casing; a cylinder mounted therein so as to be permitted progressive longitudinal movement; a plurality of type-bars pivotally supported so as to operate at a common point on said cylinder; means for rotating said cylinder intermittently; bars in rear of said type-bars; means for imparting the movement of said bars to said type-bars to suitably operate the same; a central rotatable body provided with a series of upwardly operating spirals and a series of downwardly operating spirals; dogs on said bars adapted to alternately engage said spirals; means for holding said dogs out of engagement with said spirals; means for releasing said dogs to permit an engagement thereof with said upwardly operating spirals; and means for reversing said dogs, to compel engagement thereof with said downwardly operating spirals.

7. In a device of the class named a central rotatable cylinder provided with a series of upwardly operating spirals and a series of downwardly operating spirals above the same; means for operating said cylinder continuously; vertically movable bars adjacent to said cylinder; dogs on said bars adapted to engage said first-named spirals at their lower ends and said last-named spirals at their upper ends; catches for holding said dogs out of engagement with said spirals or in engagement therewith; manually operated means for releasing said catches to permit an engagement of said dogs with said upwardly operating spirals; means for compelling the engagement of said dogs with said spirals; and means for actuating said catches to cause a reversal of movement of said dogs and bars.

8. In a device of the class named, a central rotatable body provided with upwardly and downwardly propelling means; a motor adapted to operate said body continuously; vertically movable bars adjacent to said central body; dogs on said bars adapted to engage said propelling means, to move said bars upwardly or downwardly; means for holding said dogs normally out of engagement with said central body; means for releasing said dogs to permit such engagement; means for compelling the engagement of said dogs with said central body, to raise or lower said bars; a plurality of type-bars pivotally mounted, so as to operate at a common point; means for imparting the movement of said bars to said type-bars, to suitably actuate the same; means for pro-

viding the type on each type-bar with a supply of ink upon the upward movement of the vertically movable bar in rear thereof.

9. In a device of the class described, a central rotatable cylinder provided with upwardly and downwardly propelling means; means for rotating said cylinder continuously; vertically movable bars adjacent to said cylinder; dogs on said bars adapted to engage said propelling means, to move said bars upwardly or downwardly; means for holding said dogs normally out of engagement with said cylinder; means for releasing said dogs to permit such engagement; means for compelling the engagement of said dogs with said cylinder, to raise or lower said bars; a cylinder rotatably mounted transversely of the machine, above said first-named cylinder, and capable of progressive longitudinal movement; a plurality of type-bars pivotally mounted adjacent to said last-named cylinder, so as to operate at a common point; means for imparting the movement of said vertical bars to said type-bars, to suitably actuate the same; and means for suitably inking the type on said bars.

10. A device of the class described, comprising a casing, a cylinder rotatable in the upper part of said casing transversely thereof; means for imparting to said cylinder a progressive longitudinal movement; a plurality of type-bars pivotally mounted adjacent to said cylinder, so as to operate at a common point; means for suitably inking the type on said type-bars; a cylinder rotatable beneath said first-named cylinder, and provided with upwardly and downwardly propelling means; a plurality of vertically movable bars adjacent to said last-named cylinder and said type-bars; means for imparting the movement of said last-named cylinder to said vertical bars, to raise and lower the same; and means for imparting the movement of said vertical bars to said type-bars, to suitably actuate the same.

11. A device of the class described, comprising a casing; a cylinder rotatable in said casing, transversely thereof; means for imparting to said cylinder a progressive longitudinal movement; a transparent member in the wall of said casing permitting a view of said cylinder; means for lighting the interior of said casing; a plurality of type-bars pivotally mounted adjacent to said cylinder; means for suitably inking the type on said type-bars; a cylinder rotatable in said casing and provided with upwardly and downwardly propelling means; a plurality of vertically movable bars adjacent to said last-named cylinder and said type-bars; means for imparting the movement of said last-named cylinder to said vertical bars; and means for imparting the movement of said bars to said type-bars to properly actuate the same.

12. A device of the class described, comprising a casing; a cylinder rotatable therein, transversely thereof; means for imparting to said cylinder a progressive longitudinal movement; a plurality of type-bars pivotally mounted adjacent to said cylinder, and operating at a common point; a central rotatable cylinder provided with upwardly operating spirals and downwardly operating spirals; vertically operating bars adjacent to said central cylinder and said type-bars; means for imparting the movement of said vertical bars to said type-bars to suitably actuate the same; dogs pivoted on said bars adapted to engage said cylinder to raise or lower said bars; catches pivoted on said vertical bars and adapted to hold said dogs normally out of engagement with said cylinder; a key-board on the outside of said casing provided with a plurality of keys; and means for imparting the movement of said keys to said catches to release the same.

13. A device of the class described comprising a casing; a frame slidable therein; a square shaft rotatable in said frame; a cylinder rotatable with said shaft and movable longitudinally thereon; a disk on the end of said cylinder provided with a cam-track; a series of teeth engaging said track and adapted to give to said cylinder a progressive longitudinal movement; means for giving to said shaft an intermittent rotary movement; a plurality of type-bars pivotally mounted adjacent to said cylinder; vertically movable bars conveniently to said type-bars and adapted to actuate the same; a constantly operating mechanism centrally of said machine; and means for imparting the movement of said operative mechanism to said vertical bars, to raise and lower the same.

14. A device of the class described, comprising a casing; a frame slidable therein; a shaft rotatable in said frame; a cylinder mounted on said shaft so as to have movement longitudinally thereof and rotatable therewith; means for giving said cylinder a progressive longitudinal movement; means for giving to said shaft an intermittent rotary movement; a plurality of type-bars pivotally mounted adjacent to said cylinder and provided at their pivotal ends with actuating cams; a plurality of vertically movable bars adjacent to said type-bars and provided with means of engagement with said cams; a central operating mechanism; means of engagement between said bars and operating mechanism; means for holding said bars and operating mechanism normally out of engagement; a plurality of keys; and means for imparting the movement of said keys to said engaging means, to cause the operation of said bars by said operating mechanism.

15. A device of the class described com-

prising a casing; a frame slidable therein; a shaft rotatable in said frame; a cylinder mounted on said shaft so as to have movement longitudinally thereof and rotatable therewith; means for giving said cylinder a progressive longitudinal movement; a plurality of type-bars pivotally mounted adjacent to said cylinder; vertically movable bars in rear of said type-bars; a central operative mechanism; means for imparting the movement of said operative mechanism to said bars to raise and lower the same; means for imparting the movement of said vertical bars to said type-bars to suitably actuate the same; a lever fulcrumed in said casing and adapted to be actuated by said vertical bars near the end of their upward movements; a vertical shift-bar actuated by said lever; means for imparting the movement of said shift-bar to said rotary shaft to give an intermittent rotation thereto; and means for retarding the movement of said shaft.

16. In a device of the class described a casing; a central operative mechanism; means for constant operation thereof; a plurality of vertical bars adjacent to said central mechanism; means for imparting the movement of said mechanism to said bars to raise and lower the same; means for throwing said bars into engagement with said operative mechanism; a plurality of type-bars pivotally mounted adjacent to said vertical bars, so as to be adjustable with reference thereto, and comprising a multiple thereof; a cylinder mounted centrally of said type-bars, and rotatable transversely of said machine; means for progressive longitudinal movement of said cylinder; means for intermittently rotating the same; means for suit-

ably inking the type on said type-bars; and means for adjusting the position of said type-bars with reference to said vertical bars.

17. In a device of the class described, a casing; a central rotatable cylinder provided with upwardly propelling means and downwardly propelling means; a cylinder mounted in the upper part of said casing so as to be capable of progressive longitudinal movement therein; means for imparting to said cylinder an intermittent rotary movement; a plurality of type-bars adjacent to said cylinder; a plurality of vertical bars in rear thereof and adapted to actuate the same; means of engagement between said vertical bars and said operative mechanism to raise and lower said bars; means for throwing said bars into engagement with said operative mechanism; an auxiliary cylinder of increased diameter in the lower part of said casing; means for imparting progressive longitudinal movement to said last-named cylinder; means for giving an intermittent rotary movement to said last-named cylinder simultaneously with the movement of said first-named cylinder; a plurality of type-bars pivotally mounted adjacent to said last-named cylinder; and means for imparting the movement of said vertical bars to said last-named type-bars to suitably actuate the same simultaneously with said first-named type-bars.

In testimony whereof I affix my signature in presence of two witnesses.

EVLAN SARGENT.

Witnesses:

W. N. HASKELL,
H. S. LEA.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."