

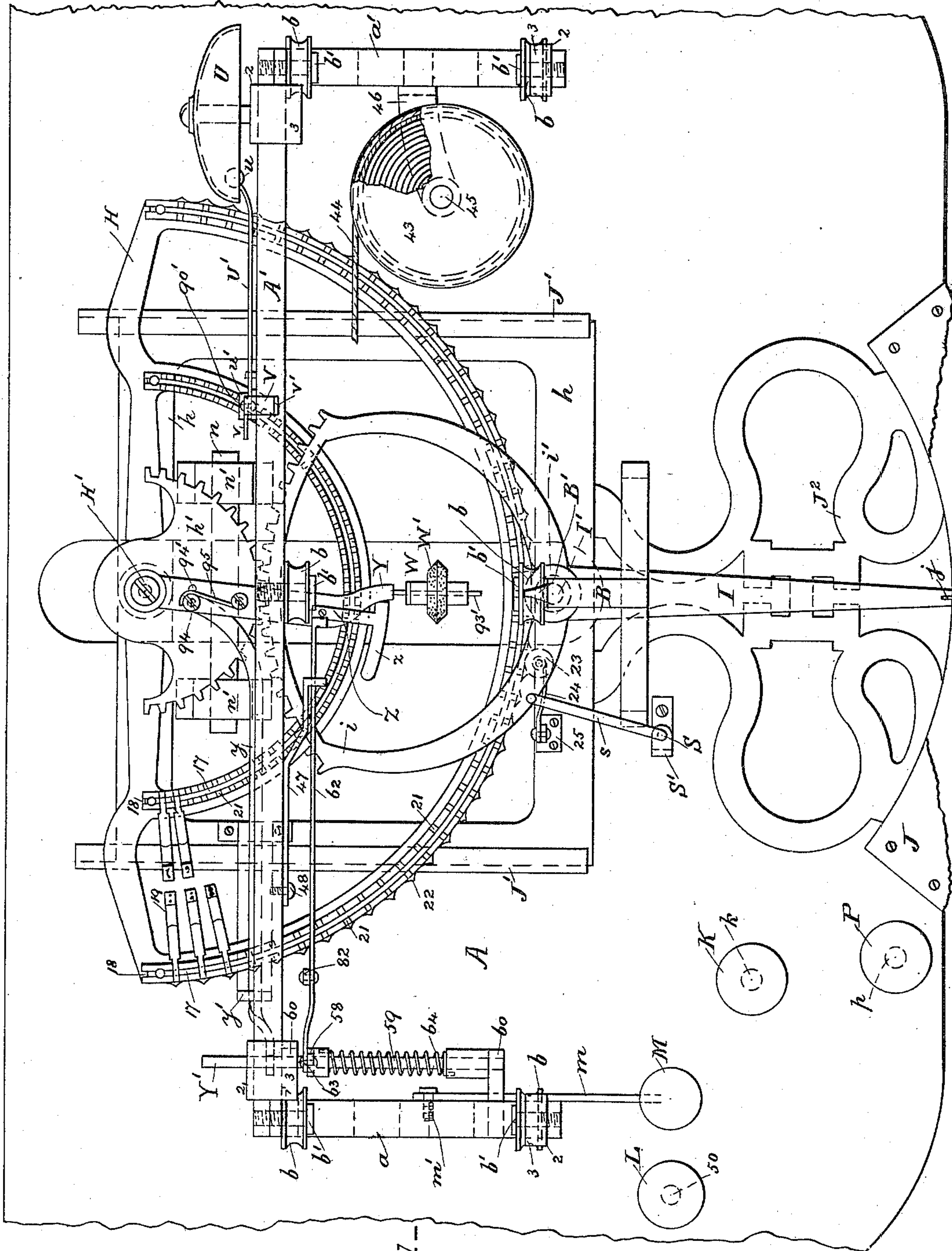
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5 Sheets—Sheet 1.

D. D. & J. L. HARR.
TYPE WRITING MACHINE.

No. 442,973.

Patented Dec. 16, 1890.



WITNESSES

C. J. Bell
Geo. L. Wheelock

Fig. 1

INVENTORS

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by Herbert W. T. Jenner.
Attorney

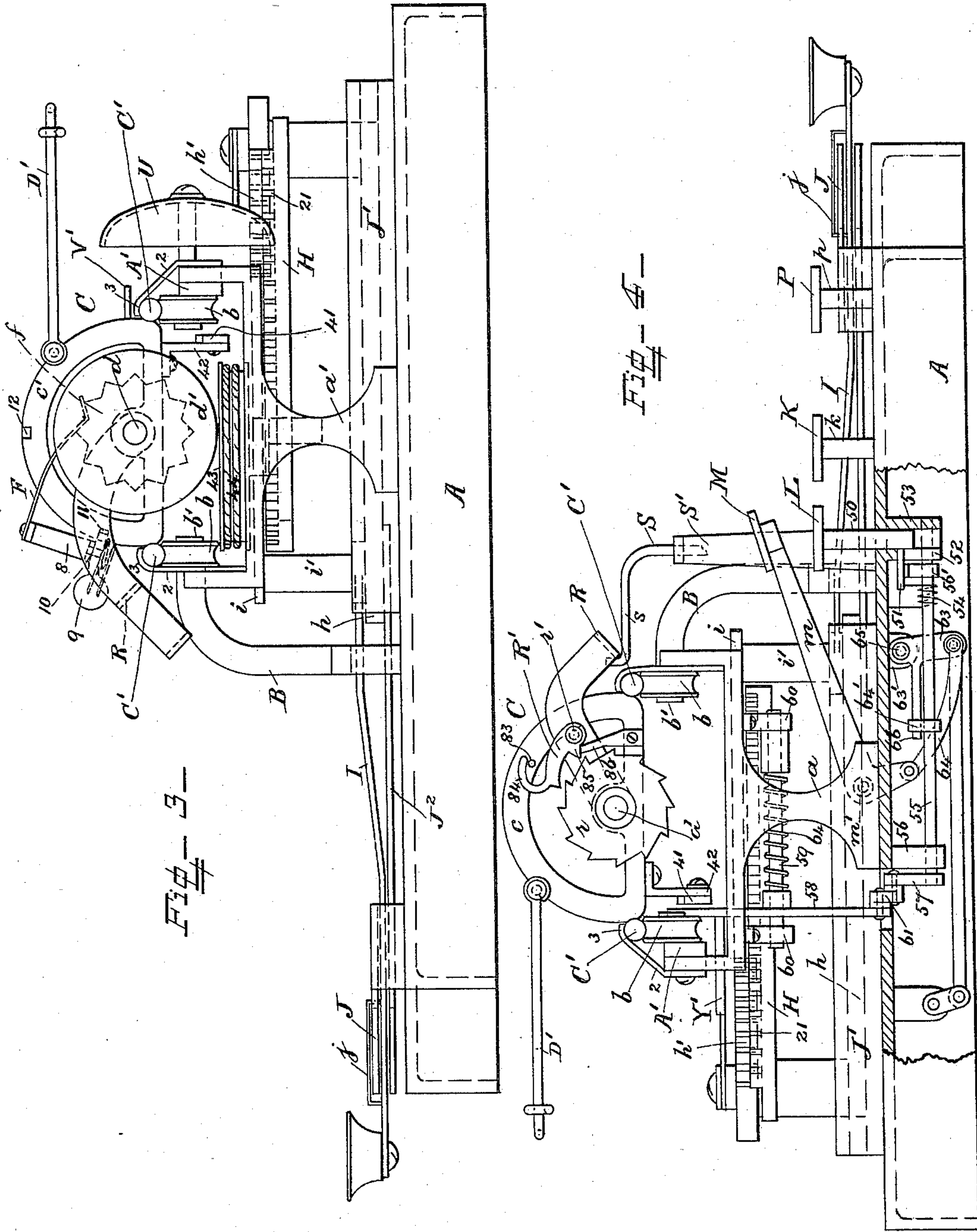
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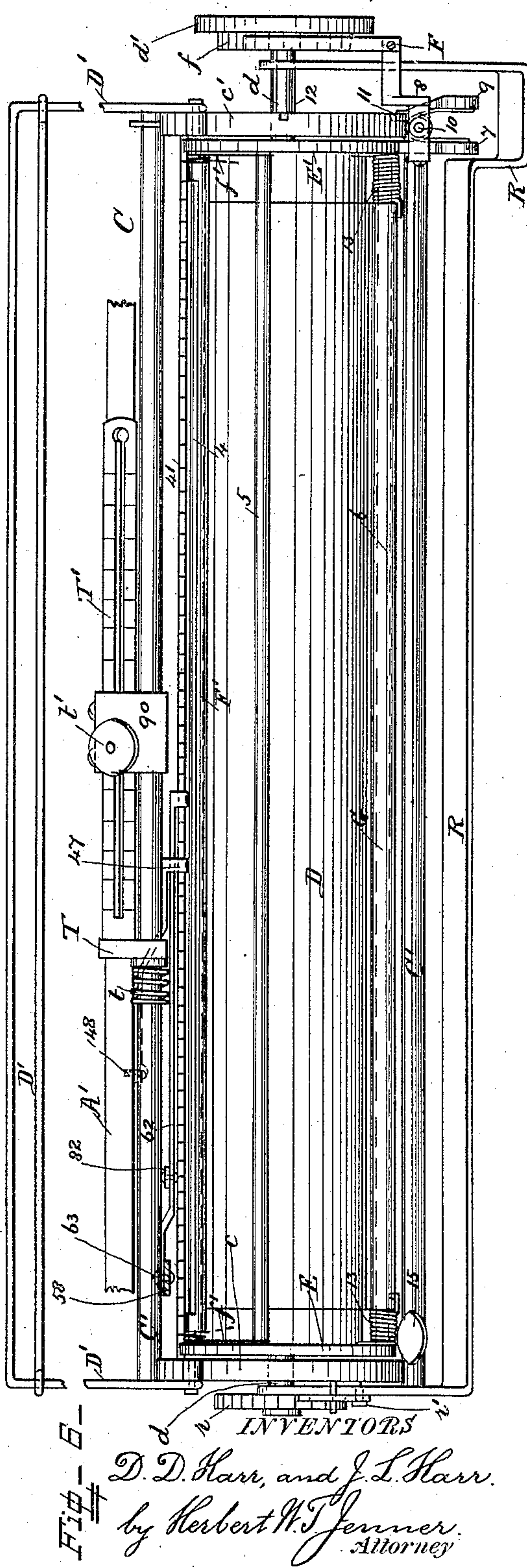
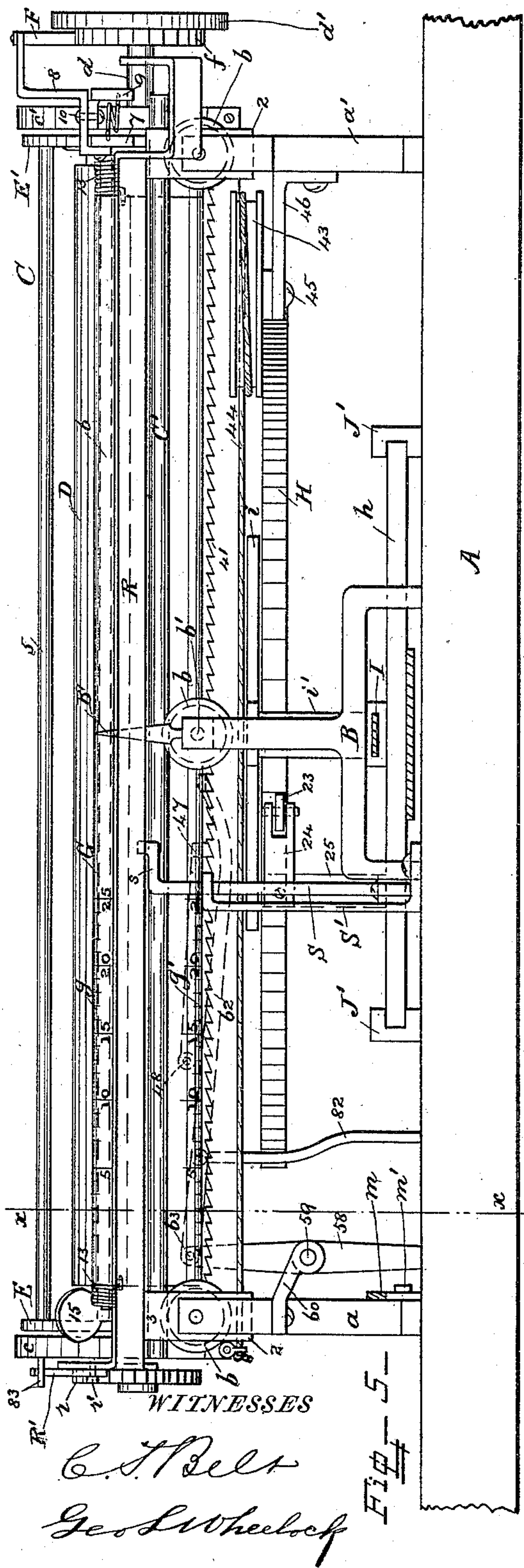
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5 Sheets—Sheet 5.

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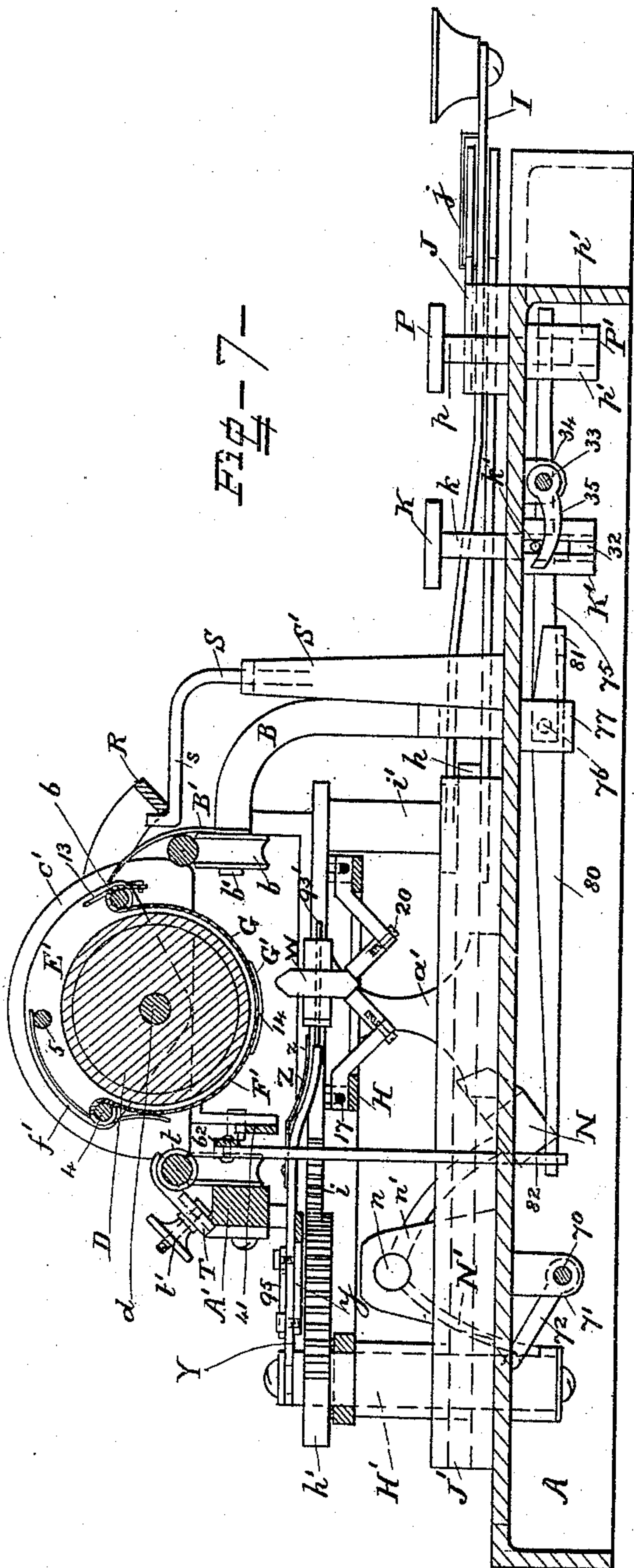
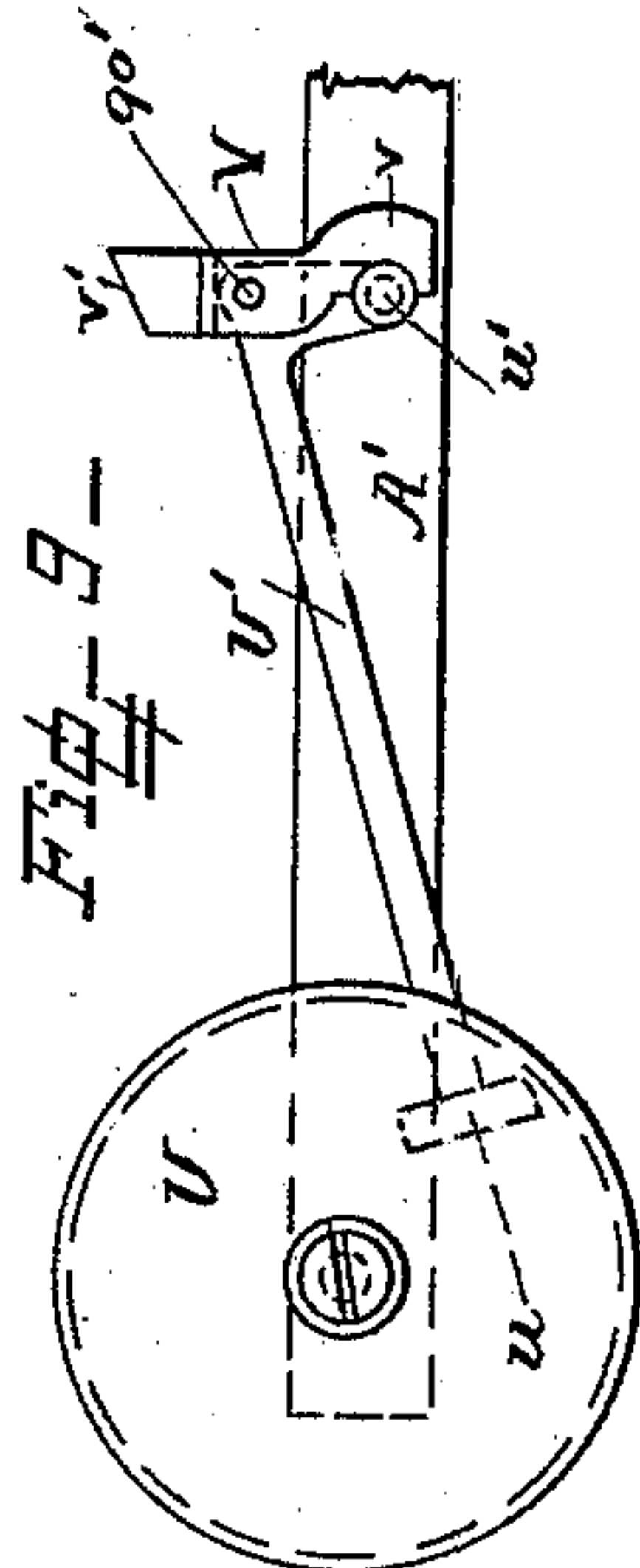
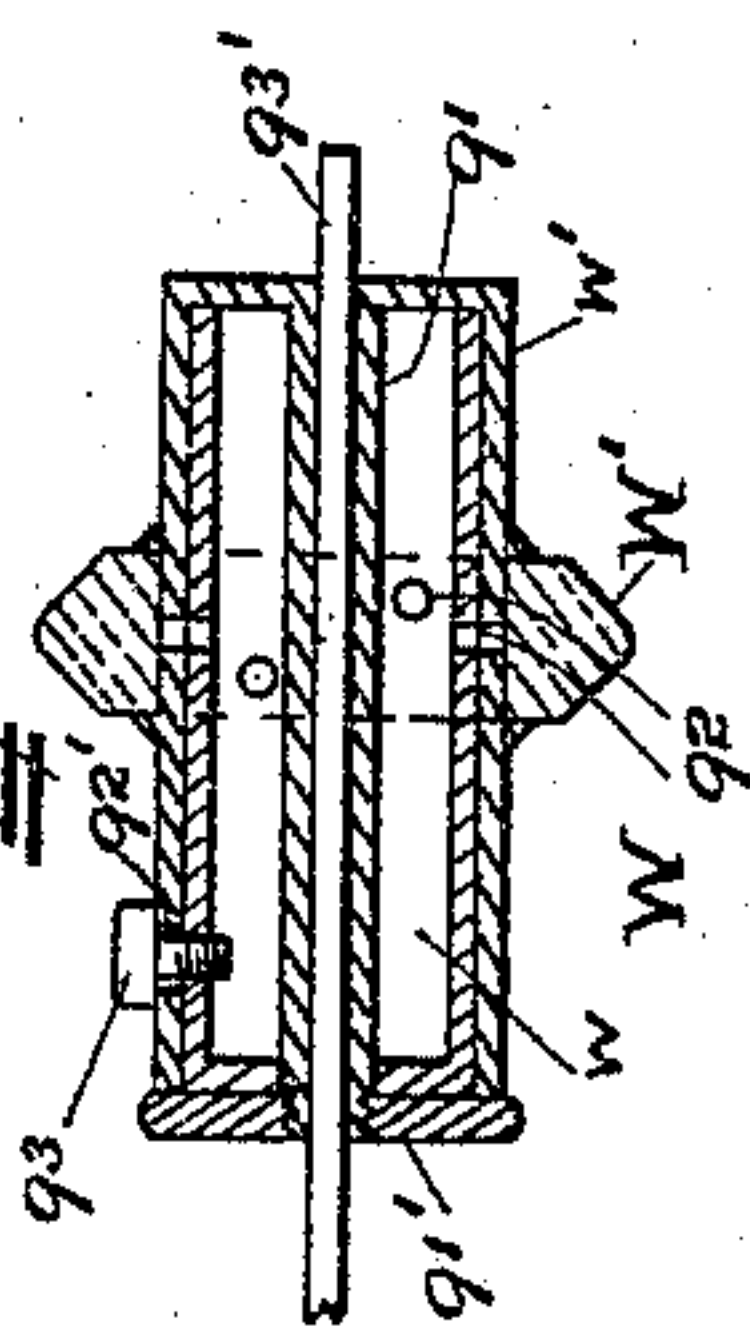


Fig. 8—



WITNESSES
C. S. Bell
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INVENTORS
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UNITED STATES PATENT OFFICE.

DOCK D. HARR AND JOHN L. HARR, OF BELMOND, IOWA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,973, dated December 16, 1890.

Application filed September 9, 1890. Serial No. 364,444. (No model.)

To all whom it may concern:

Be it known that we, DOCK D. HARR and JOHN L. HARR, citizens of the United States, residing at Belmond, in the county of Wright and State of Iowa, have invented certain new and useful Improvements in Type-Writing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to type-writing machines; and it consists in the novel construction and combination of the parts, hereinafter fully described and claimed.

In the drawings, Figure 1 is a plan view of the machine from above with the carriage removed; and Fig. 1^a is the front part of the bed of the machine with the letter-plate, which could not be shown on the same sheet with Fig. 1. Fig. 2 is a plan view from above of the mechanism under the bed, also showing portions of the bed. Fig. 3 is an end view of the complete machine, looking from the right; and Fig. 4 is a similar end view looking from the left. Fig. 5 is a front view of the machine. Fig. 6 is a plan view of the carriage from above. Fig. 7 is a cross-section through the machine, taken on the line *xx* in Fig. 5. Fig. 8 is a longitudinal section through the inking device. Fig. 9 is a detail view of the device for ringing the bell.

A is the bed of the machine, and *a* and *a'* are brackets secured to the ends of the bed.

A' is a bar at the back of the machine secured between the brackets *a* and *a'*.

B is a bracket secured to the front of the bed for carrying the pointer B'. Six grooved rollers *b* are journaled upon pins *b'*, projecting from the brackets *a*, *a'*, and B and the bar A', for supporting the carriage.

The carriage C is provided with end frames *c* and *c'*, and C' are bars extending between the end frames and resting in the grooved rollers *b*. Stationary plates 2, provided with hooked upper ends 3, engage with the bars C' over the said rollers, so that the bars are kept in the grooves and are free to slide longitudinally.

D is the paper-roller, secured upon the shaft *d*, journaled in the carriage end frames *c* *c'*,

and *d'* is the hand-wheel for revolving the roller.

E E' are plates pivoted on the shaft *d* at the ends of the roller and coupled together by the longitudinal bars 4, 5, and 6. The plate E' is provided with a lug 7, and 8 is a bracket secured to the said lug. A spring-actuated catch 9 is pivoted to the bracket 8 by the pin 10 and engages with either of the notches 11 or 12 on the end frame *c'*.

F is the line-spacing spring, secured to the said bracket 8 and engaging with the wheel *f*, which is secured on the shaft *d* and is provided with angular teeth, which permit the roller to be turned in either direction against the pressure of the spring when sufficient force is applied to the hand-wheel *d'*.

D' are bars pivoted to the frames *c* and *c'* and extending across the machine, for supporting the paper clear of the type-plate.

A back guide-plate F' for the paper is provided, and consists of a curved plate pivoted at its upper edge upon the bar 4, and held in contact with the roller by the springs *f'* at each end of it.

G is the front guide-plate for the paper, consisting of a curved plate pivoted at its upper edge upon the bar 6, and provided with guide-strips G' at each end, which overlap and bear upon the back guide-plate F', being pressed against it by means of the springs 13 on the bar 6. The hammer strikes the type upwardly against the paper on the roller through the space 14 between the two guide-plates F' and G, as will be more fully described hereinafter.

A projecting lug 15 is secured to the guide-plate G and raises it clear of the roller when pressed upward, and thereby permits a sheet of paper to be inserted between the roller and the two guide-plates by turning the roller, the paper being inserted at the back downward between the plate F' and the roller.

The guide-plate G is provided with two similarly-numbered indices *g* on its top edge and *g'* on its lower edge. When the machine is being worked and the catch 9 is in the notch 11, the index *g* comes opposite the pointer B', which indicates the number of letters from the beginning of the line. To examine the work, the catch 9 is disengaged

from the notch 11, and the roller, together with the plates E E', the shaft *d*, and everything mounted on the said shaft, is turned over, upward, and backward until the catch 9 engages with the notch 12 at the top of the end frame *c'*. This brings the lower index *g'* into view, and the carriage can be slid longitudinally when the roller is turned back again, so as to bring any desired numeral of the upper index opposite to the pointer, and thereby bring the paper-space opposite to the corresponding numeral of the lower index over the hammer, the numeral of the lower index opposite to the said space of the paper desired to be brought over the hammer being noted before turning back the roller.

H is the oscillating type-plate secured on the shaft H', journaled in the frame *h* under the carriage, and *h'* is a toothed segment also secured on the said shaft. The type-bars are pivoted in two semicircular rows upon the pivot-wires 17, which are carried in the grooves 18 of the type-plate H. Only a few of the type-bars are shown, as they are all alike, and the type 19 may be secured to the free ends of the bars, as shown, by the screws 20, or the type may be formed in one piece with the type-bars. The type-plate H is provided with cross-grooves 21 for the pivoted ends of the type-bars to work in, and has a series of projections 22 around its outer edge. A roller 23 is carried by a spring 24, which is supported by the bracket 25, secured to the frame *h*, and the said roller bears in the spaces between the said projections 22, and by its slight pressure and friction causes the type-plate when oscillated to stop in those positions which bring the type-bars directly over the hammer. The type-plate is oscillated by means of the lever I, secured on the sleeve *i'*, which is pivoted upon the pin I', projecting from the frame *h*, and *i* is a toothed segment secured to the upper part of the said sleeve *i'* and gearing into the aforesaid toothed segment *h'*.

J is the letter-plate secured over the lever I to the front part of the frame *h*, and *j* is the indicator secured to the said lever and extending over the letter-plate.

J² is the ornamental connecting portion which secures the letter-plate J to the frame *h*, so that the letter-plate rests upon the bed and slides back and forth with the frame.

When the indicator is brought over a letter or character on the letter-plate by turning the lever I, the corresponding type is brought over the hammer. The inner row of type preferably prints the small letters and the outer row the capital letters, and the numerals, punctuation, and other marks are divided between the two rows.

The frame *h* slides back and forth in the grooved cross-guides J', so that the type of both rows may be brought over the hammer. A round pillar *j'* projects downwardly from the frame *h*, and 26 is a spring secured to the bottom of this pillar and to the bed, and nor-

mally holding the inner row of type-bars over the hammer. A pillar 27 projects from the rear part of the frame *h* and forms the bearing for the shaft H'. A plate 28 is secured to the bed, and is provided with an adjustable stop-screw 29 for the pillar 27 to strike against to limit the forward movement of the frame *h*. A plate 30 is also secured to the bed, and is provided with an adjustable stop-screw 31 for the plate *j'* to strike against to limit the rearward movement of the frame *h*. The frame *h* is moved forward by the spring 26, and is moved rearward by the mechanism which will now be described.

K is the finger-key for pushing back the frame *h*. This key is mounted on the stem *k* and slides vertically in the boss K' on the bed. A pin *k'* projects from the stem *k* through the slot 32 in the boss K' and prevents the stem from turning around in the boss. A shaft 33 is journaled in bearings 34, projecting from the bed, and 35 is an arm secured on the said shaft for the pin *k'* to bear against. A lever 36 is pivoted to the bed by the pin 37, and is provided with the fork 38 at one end, which engages with the round pillar *j'*. A rod 39 pivotally connects the other end of the lever 36 with the lever 40, secured upon the end of the shaft 33. When the key K is depressed, the shaft 33 is turned in its bearings, and the frame *h* is pushed back by the forked lever connected to the lever 36 on the shaft, as above described.

In order that the carriage may be moved longitudinally, a ratchet-toothed rack 41 is provided, and is secured to the end frames *c* *c'* by the brackets 42. This carriage is moved to the right automatically by means of the spring-actuated wheel 43, and the cord 44 wound upon the said wheel and attached to the left-hand end of the rack. The wheel 43 is journaled on the pin 45, projecting from the bracket 46, which is secured to the bracket *a'*. A retaining-pawl 47 is pivoted to the bar A' by the pin 48 and engages with the rack, so that the carriage may be held at any tooth of the rack as the rack is moved to the left.

L is the spacing-key for moving the carriage to the left step by step. This key is secured on the stem 50, provided with a projecting pin 51 working in the slot 52 of the boss 53 on the bed. This pin prevents the stem from revolving; and 54 is a spring bearing against the said pin for holding the key in its raised position. A shaft 55 is journaled in bearings 56, projecting from the bed, and 56' is an arm secured on the said shaft and bearing against the pin 51. The shaft 55 also has a lever 57 secured upon its end. A vertical lever 58 is journaled on the shaft 59, which is supported by the brackets 60, secured to the bracket *a*, and the lower end of this lever 58 is pivotally connected to the upper end of the lever 57 by means of the link 61. A pawl 62 is pivoted by the pin 63 to the upper end of the lever 58 and engages with the teeth of the rack. When the key L is depressed, it turns

the shaft 55 and rocks the lever 58, thereby moving the pawl 62 longitudinally and permitting it to drop into the next tooth of the rack. A spring 64, coiled upon the shaft 59 and connected to the lever 58, pulls back the pawl 62 and causes the carriage to be moved for the space of one ratchet-tooth directly the key is released. The pawl 62 passes under the retaining-pawl 47; but the slight vertical motion of the pawl 62 in passing over the ratchet-teeth is not sufficient to raise the pawl 47 out of engagement with the rack.

M is the key for working the hammer, secured to the bell-crank lever *m*, which is pivoted to the bracket *a* by the pin *m'*. The short arm of the bell-crank lever is pivotally connected to the bottom of the lever 63 by the rod 64, and the said lever is pivoted to the lug 63' on the bed by the pin 65. An arm 66 projects from the lever 63 and engages with an arm 64', secured upon the spacer-shaft 55, so that the spacer-pawl 62 is moved to actuate the carriage each time the hammer-key is depressed.

N is the hammer secured upon the shaft *n*, which is journaled in the bearings *n'*, projecting from the bed, and N' is an arm projecting downwardly from the said shaft. A longitudinal shaft 70 is journaled in the bearings 71, projecting from the bed, and 72 is a crank secured upon the shaft 70 and adapted to bear against the said arm N'. A lever 73 is secured upon the opposite end of the shaft 70, and 74 is a rod which pivotally connects the lever 73 with the said lever 63. When the hammer-key M is depressed, it rocks the lever 63 and turns the shaft 70, and the crank 72 raises the hammer and causes it to strike the type-bar over it and prints a character upon the surface of the paper on the roller.

P is the key for working the line-spacing device and causing the carriage to be automatically traversed to the right. This key is provided with a stem *p* and works in the boss P' on the bed, which boss is provided with the slots *p'*. A lever 75 is pivoted by the pin 76 to the lug 77 on the bed, and the end of this lever projects through a hole in the stem *p* and through the slots *p'* of the boss P'. A lever 80 is also pivoted on the pin 76 and has a projecting lip 81 on its short end under the said lever 75. The other end of the lever 80 engages with the lower end of a rod 82, the upper end of which is pivoted to the pawl 62. When the key P is depressed, the rod 82 is raised and the pawl 62 is disengaged from the teeth of the rack. In being thus raised by the rod 82 the pawl 62 strikes against the pawl 47 and lifts it also out of engagement with the ratchet-teeth of the rack. The carriage then moves automatically to the right, being propelled by the spring-actuated wheel 43 and the cord 44, as hereinbefore described.

The movement of the key P, which permits the carriage to travel to the right, simultaneously turns the paper-roller for the distance between two adjacent lines, so that a

new line can be commenced at once. This line-spacing device consists of a longitudinal bar R, having its ends pivoted on the shaft *d* outside the carriage-frames *c* and *c'*. A ratchet-wheel *r* is secured upon the opposite end of the shaft *b* from the hand-wheel.

R' is a pawl pivoted to the bar R by the pin *r'*, for turning the ratchet-wheel when the said bar is raised, and 83 is a pin projecting from the frame *c* to prevent the roller from being turned for more than a one-line space at each movement of the said bar. The pawl R' is provided with a curved end 84, which keeps it from being thrown over out of gear altogether with the ratchet-wheel, and a spur 85 projects from the lower part of the pawl R' and rests upon the stop 86, secured to the frame *c*. The stop 86 normally holds the pawl out of gear with the ratchet-wheel, so that the paper-roller is held in position by the spring F and wheel *f*, which permit it to be turned in either direction by applying sufficient force to the hand-wheel. The pawl R' falls into gear with the ratchet-wheel teeth as soon as the bar R is raised sufficiently to lift the spur 85 clear of the stop.

The bar R is lifted by depressing the key P in the following manner: S is a vertical rod sliding in the guide S', secured to the bed and provided with the cranked upper end *s*, which engages with the said bar R. A shaft *s'* is journaled in the bearings 87, projecting from the bed, and 88 is a crank on the end of the shaft *s'*, which engages with the end of the lever 75, which projects through the stem *p*. A lever 89 is secured upon the other end of the shaft *s'* from the crank 88, and is provided with the forked end 89', which engages with the lower end of the rod S. The depression of the key P turns the shaft *s'* and raises the rod S and bar R, causing the paper-roller to be revolved for the space between two adjacent lines.

T is an adjustable stop resting on the rear bar A' and provided with the spring *t* for the end frame *c* of the carriage to strike against when the carriage reaches the end of its travel toward the right. The stop T regulates the width of the margin left unprinted on the left hand of the sheet of paper. The stop T is provided with a longitudinally-slotted shank T', and *t'* is a thumb-nut engaging with the end of a screw passing through the slot of the shank T' and through a hole in the plate 90, secured to the bar A'. The shank T' is graduated and marked, so that margins of any desired width may be arranged for.

U is the bell, secured on a pillar projecting from the bar A', for giving warning before the end of each line is reached.

U' is a bell-crank lever, provided with the hammer *u* for striking the bell, and pivoted on the pin *u'*, projecting from the bar A'.

V is the bell-hammer trip, provided with the hook *v* at its lower end and the inclined portion *v'* at its upper end. This trip is pivoted to the short arm of the lever U' by the

pin 90', and its hook *v* rests against the head of the pin *u*'.

V' is a pin projecting from the end frame *c*'. When the carriage is near the end of its travel toward the left, the pin V' strikes the inclined portion *v*' of the trip and raises the hammer *u*. The hammer falls and rings the bell as soon as the pin lets go the trip. The hook *v* disengages from the pin-head when the pin strikes the other side of the trip during the return movement of the carriage toward the right, so that the trip turns upon its pivot-pin 90' and permits the pin V' to pass it.

W is the inking device. (Shown to an enlarged scale in Fig. 8.) This inking device consists of an inner cylinder *w*, in which the ink is placed, and an outer cylinder *w'*, carrying a disk of felt W'. The outer cylinder *w'* is provided with a longitudinal tube 91, and 91' is a thumb-nut screwed on the said tube over the open end of the said outer cylinder next to the head of the inner cylinder. Meeting holes 92 are provided in both cylinders behind the felt disk for the ink to flow through, and the area of the open passages through these holes is regulated by means of the slot 92' in the outer cylinder and the guide-screw 93, projecting from the inner cylinder through the said slot. The area of the ink-passage and the supply of ink to the felt is regulated by turning the inner cylinder within the outer cylinder by means of the projecting head of the screw 93, so as to slide the meeting holes more or less out of line with each other.

The inking device is journaled upon the round end 93' of the inking-lever Y, which is pivoted on the top of the shaft H', and the felt disk inks both rows of type simultaneously as the said rows are oscillated under it. The disk has beveled edges and is free to move longitudinally on the end of the lever Y, so that it may adjust itself to bear uniformly against the type. The felt disk is normally held at the center of the machine by means of the link *y*, which slides in the guide *y'*, secured to the frame *h*.

Y' is a long pin which projects from the lever 58, which is the lever which operates the traversing pawl 62 every time the hammer is raised by depressing the key M. The link *y* is provided at one end with a hole, which slides upon the long pin Y' as the frame *h* is moved back and forth, so that the said pin and link are always operatively connected together. The other end of the link *y* is provided with a pin 94, which works in a slot 94' in the lever Y, and 95 is a spring secured to the lever Y for holding the pin 94 at one end of the slot.

Each time the hammer is raised to strike a type-bar the felt disk is moved in the arc of a circle to one side of the type-bar thus about to be struck by means of the link *y* and lever Y, so that the newly-inked type may be raised by the hammer and leave its impression on the paper above it. The felt disk returns to its central position directly the key

M is released. The spring 95 permits the pin 94 to have a little play in its slot and relieves the inking device from sudden jerks and jars.

Z is a spring secured to the inking-lever Y, and provided with the head *z* for the type-bars to strike against when raised by the hammer. This head is always held over the type-bar being raised, it prevents it from being struck too hard against the paper, and depresses it out of the return-path of the inking-disk directly the hammer-key M is released.

What we claim is—

1. In a type-writing-machine, the combination, with the paper-roller and its shaft, of the carriage supporting the said shaft, the inner frame pivoted on the said shaft and consisting of the oscillatory plates journaled on the said shaft between the ends of the roller and the said carriage end frame, the longitudinal coupling-bars secured to the said plates, the back guide-plate and the front guide-plate supported by the said bars, and a catch for locking the inner frame to the said carriage, substantially as set forth.

2. In a type-writing machine, the combination, with the paper-roller and its shaft, of the hand-wheel and the toothed wheel *f*, secured on the said shaft, the end plates pivoted on the said shaft and connected by bars 4 and 6, the line-spacing spring supported by one of the said end plates and engaging with the wheel *f*, the carriage pivotally supporting the roller-shaft, and a catch for securing one of the said end plates to the carriage and permitting the said plates, bars, and roller to be oscillated in the said carriage, substantially as set forth.

3. In a type-writing machine, the combination, with the paper-roller and its shaft, of the end plates pivoted on the said shaft and connected by bars 4 and 6, the curved back guide-plate pivoted on bar 4 and provided with a spring for pressing it on the roller, the curved front guide-plate pivoted on bar 6 and provided with projecting strips at each end for overlapping the back plate, a spring for pressing it on the roller, and a lug for raising its lower edge and permitting the paper to be inserted, substantially as set forth.

4. In a type-writing machine, the combination, with the stationary pointer, of the sliding carriage, the paper-roller journaled in the said carriage, the oscillating inner frame provided with longitudinal bars, end plates pivoted on the roller-shaft, and the front guide-plate supported by one of the said bars and provided with two similarly-numbered indices adapted to be brought in front of the said pointer when the said roller and inner frame are oscillated in the carriage, substantially as set forth.

5. In a type-writing machine, the combination, with the oscillating type-plate provided with concentric curved grooves 18 and cross-grooves 21, of the pivot-wire supported in the said curved grooves, and the two rows of type-bars provided with type and pivoted in the

said cross-grooves upon the pivot-wires, substantially as set forth.

6. In a type-writing machine, the combination, with the bed and the cross-guides secured to the bed, of the frame sliding in the said guides, an oscillating type-plate pivoted to the said frame, a toothed segment connected to the said plate, a pivoted operating-lever provided with a toothed segment gearing into the aforesaid segment, and two concentric rows of type-bars provided with type and pivoted to the said plate, the two said rows of type-bars being adapted to be slid into operative position alternately, substantially as set forth.

7. In a type-writing machine, the combination, with the bed and the cross-guides secured to the bed, of the frame sliding in the said guides and having a curved letter-plate secured to its front end, an oscillating type-plate pivoted to the rear end of the frame and provided with two concentric rows of pivoted type-bars, a toothed segment connected to the said plate, an operating-lever pivoted to the said frame and provided with a toothed segment gearing into the aforesaid toothed segment, and an indicator extending over the letter-plate, substantially as and for the purpose set forth.

8. In a type-writing machine, the combination, with the sliding frame for supporting the type-plate and the spring normally holding it pressed forward, of a pivoted lever operatively connected to the said plate, a finger-key provided with a pin projecting laterally from its stem, a shaft provided with a projecting arm arranged under the said pin, a lever secured on the said shaft, and a rod pivotally connecting the two said levers, whereby the said frame may be pushed backward by depressing the finger-key, substantially as set forth.

9. In a type-writing machine, the combination, with the carriage provided with a ratchet-toothed rack, of a finger-key provided with a stem, a rock-shaft provided with a projecting arm operatively connected with the said stem, a vertical lever journaled on a shaft, a spring coiled upon the said shaft and connected to the said lever, a pawl pivoted to the upper end of the said lever and engaging with the rack, a lever secured on the said rock-shaft, and a link pivotally connecting the two said levers, whereby the said pawl may be moved longitudinally by depressing the finger-key and the carriage may be advanced by the said spring when the said finger-key is released, substantially as set forth.

10. In a type-writing machine, the combination, with the pivoted bell-crank lever provided with a key for working the hammer, of a shaft supported in bearings, a lever secured to the said shaft, intermediate mechanism pivotally connecting the said lever with the bell-crank lever, the hammer, the hammer-shaft journaled in bearings, the arm projecting from the said hammer-shaft, and a crank

on the end of the aforesaid shaft engaging with the said arm, whereby the hammer may be raised by depressing the said key, substantially as set forth.

11. In a type-writing machine, the combination, with the pivoted bell-crank lever provided with a key for working the hammer, of the lever 63, pivoted to the bed and provided with the projecting arm 66, the rod pivotally connecting the bell-crank lever with the said lever, the pivoted hammer, intermediate mechanism operatively connecting the hammer with the said link, the longitudinally-reciprocating pivoted pawl for moving the carriage, the rocking shaft 55, provided with an arm 64, engaging with the said arm 66, and intermediate mechanism operatively connecting the shaft 55 with the said pawl, whereby the said pawl may be advanced by depressing the said key for raising the hammer and placed in a position to subsequently move the carriage directly the hammer falls, substantially as set forth.

12. In a type-writing machine, the combination, with the carriage, of the paper-roller and its shaft journaled in the carriage, the ratchet-wheel secured on the said shaft, the longitudinal line-spacing bar having its ends pivoted on the said shaft, the pawl pivoted to one end of the said bar and adapted to engage with the ratchet-wheel, a stop on the carriage for limiting the forward motion of the pawl at each stroke, and a second stop on the carriage engaging with a spur on the pawl and normally holding the said pawl clear of the teeth of the ratchet-wheel, substantially as set forth.

13. In a type-writing machine, the combination, with the pivoted line-spacing bar traveling with the carriage, of the vertical rod provided with a cranked upper end engaging with the said bar, a stationary guide for the said rod, a shaft journaled in bearings, a lever secured to the said shaft and operatively connected to the vertical rod, a finger-key provided with a stem, and a crank secured to the said shaft and operatively connected with the finger-key, whereby the said bar may be operated by depressing the said key, substantially as set forth.

14. In a type-writing machine, the combination, with the carriage provided with a toothed rack, of the spring-actuated wheel and the cord for moving the carriage automatically in one direction, the pivoted line-spacing bar traveling with the carriage, the pivoted retaining-pawl, the pivoted traversing pawl, a finger-key, and intermediate actuating mechanism, substantially as described, and operatively connecting the said finger-key with the line-spacing bar and with the said pawls, whereby the said pawls may be raised from the rack to permit the spring-actuated wheel to propel the carriage, and the line-spacing bar may be raised simultaneously to provide for the commencement of a new line, substantially as set forth.

15. In a type-writing machine, the combination, with the carriage provided with a toothed rack, of the pivoted retaining-pawl, the pivoted traversing pawl passing under the said retaining-pawl, the vertical rod pivoted to the traversing pawl, the pivoted lever 80, connected to the said vertical rod at one end and provided with a projecting lip at the other end, the pivoted lever 75, engaging with the said lip, and a finger-key provided with a stem connected to the said lever 75, whereby the said rack on the carriage may be released from both the said pawls by depressing the finger-key, substantially as set forth.

16. In a type-writing machine, the combination, with the felt type-inking disk, of the outer cylinder supporting the said disk and provided with the central tube 91 and the slot 92', the inner cylinder provided with a screw projecting through the slot, both cylinders having adjustable meeting holes 92 under the felt disk, and the thumb-nut screwed on the end of the said tube and closing the outer cylinder and retaining the inner cylinder in position, substantially as set forth.

17. In a type-writing machine, the combination, with the oscillating type-plate and the two concentric rows of type-levers supported thereby and provided with type, of the pivoted inking-lever and the revoluble inking-disk journaled on the end of the said lever and adapted to slide longitudinally thereon in contact with both rows of type, substantially as set forth.

18. In a type-writing machine, the combination, with the oscillating type-plate and the two concentric rows of type-bars supported thereby and provided with type, of the pivoted inking-lever, the inking-disk carried by the said lever, and a longitudinally-reciprocating lever operatively connected to the

hammer-operating devices and to the inking-lever, whereby the inking-disk may be moved out of the path of the type, substantially as set forth.

19. In a type-writing machine, the combination, with the sliding frame, of the oscillating type-plate pivoted to the said frame and provided with two concentric rows of pivoted type-bars, the inking-lever for carrying the inking-disk pivoted on the type-plate shaft, the long pin Y', projecting from the hammer-operating lever, the link y, pivoted at one end to the inking-lever and having a hole in its other end sliding on the said long pin, and a guide for the link y secured to the frame, substantially as and for the purpose set forth.

20. In a type-writing machine, the combination, with the pivoted inking-lever supporting the inking-disk and provided with the slot 94', of the reciprocating operating-link provided with a pin sliding in the said slot, and the spring 95, secured to the inking-lever and holding the said pin in one end of the slot, whereby the inking-lever may be flexibly connected to the said operating-link, substantially as set forth.

21. In a type-writing machine, the combination, with the pivoted inking-lever carrying the inking-disk, and the link y for moving the said disk out of the path of the type, of a spring secured to the said inking-lever and provided with a head for the raised type to strike against, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

DOCK D. HARR.
JOHN L. HARR.

Witnesses:

S. A. KEELER,
W. H. HORTON.