

E. G. LATTA.
 RIBBON MECHANISM FOR TYPE WRITING MACHINES.
 APPLICATION FILED SEPT. 6, 1907.

944,735.

Patented Dec. 28, 1909.

3 SHEETS—SHEET 1.

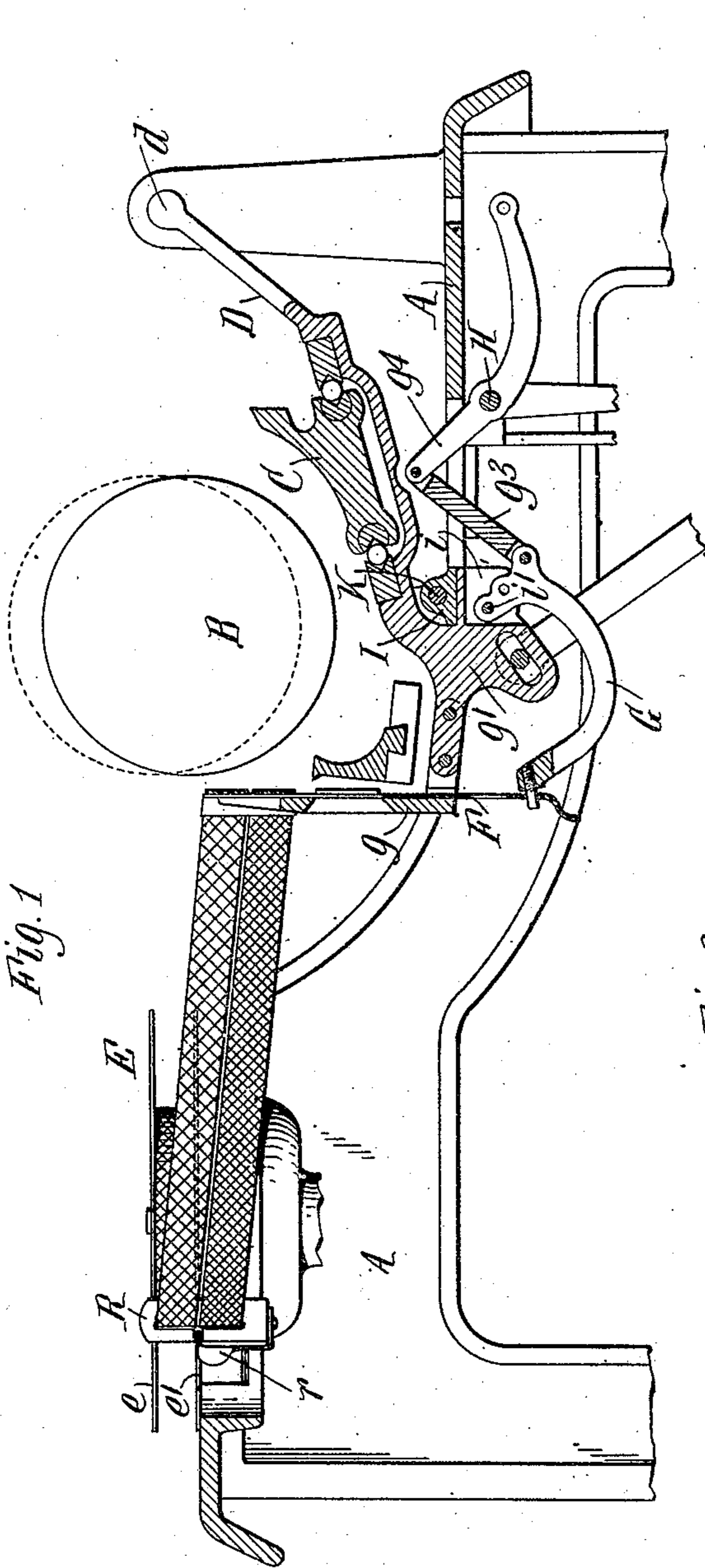


Fig. 1

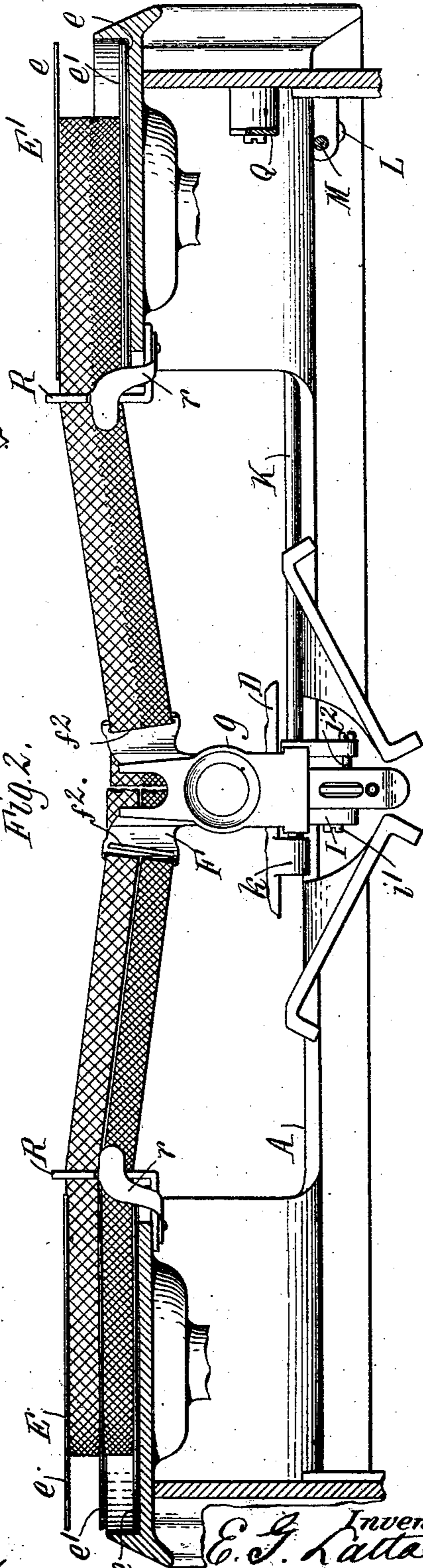


Fig. 2.

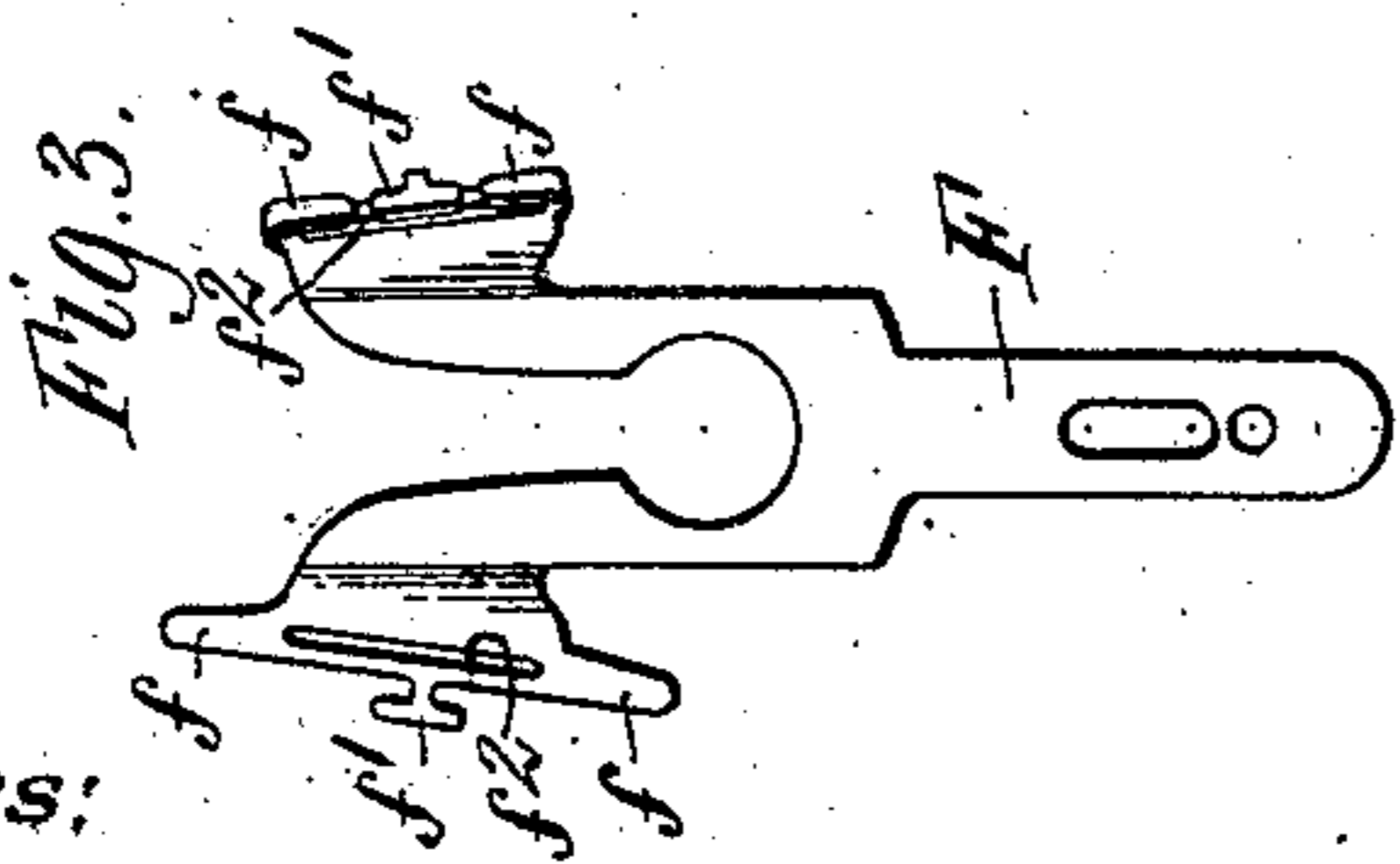


Fig. 3.

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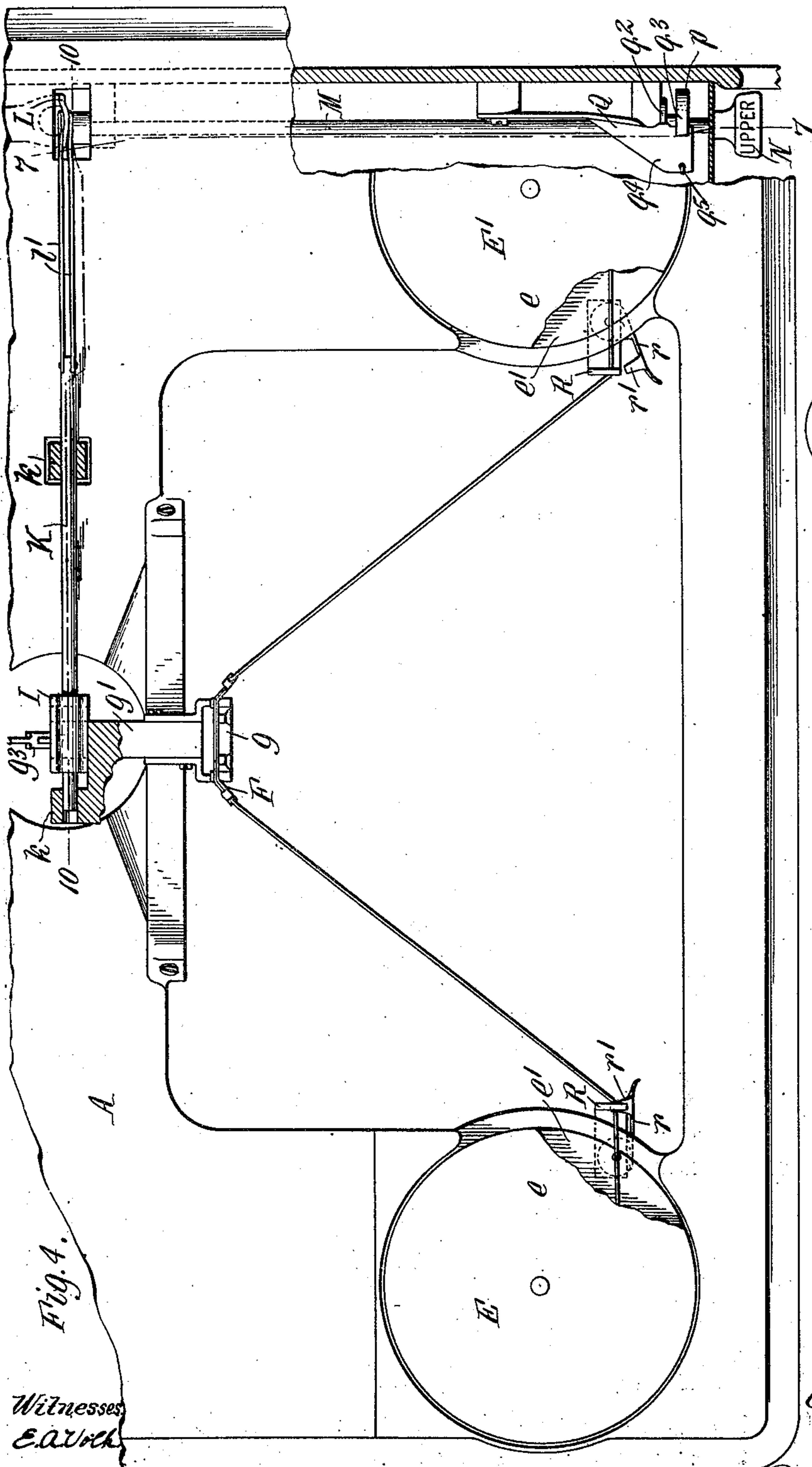


Fig. 4.

Witnesses
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A.G. Dimond.

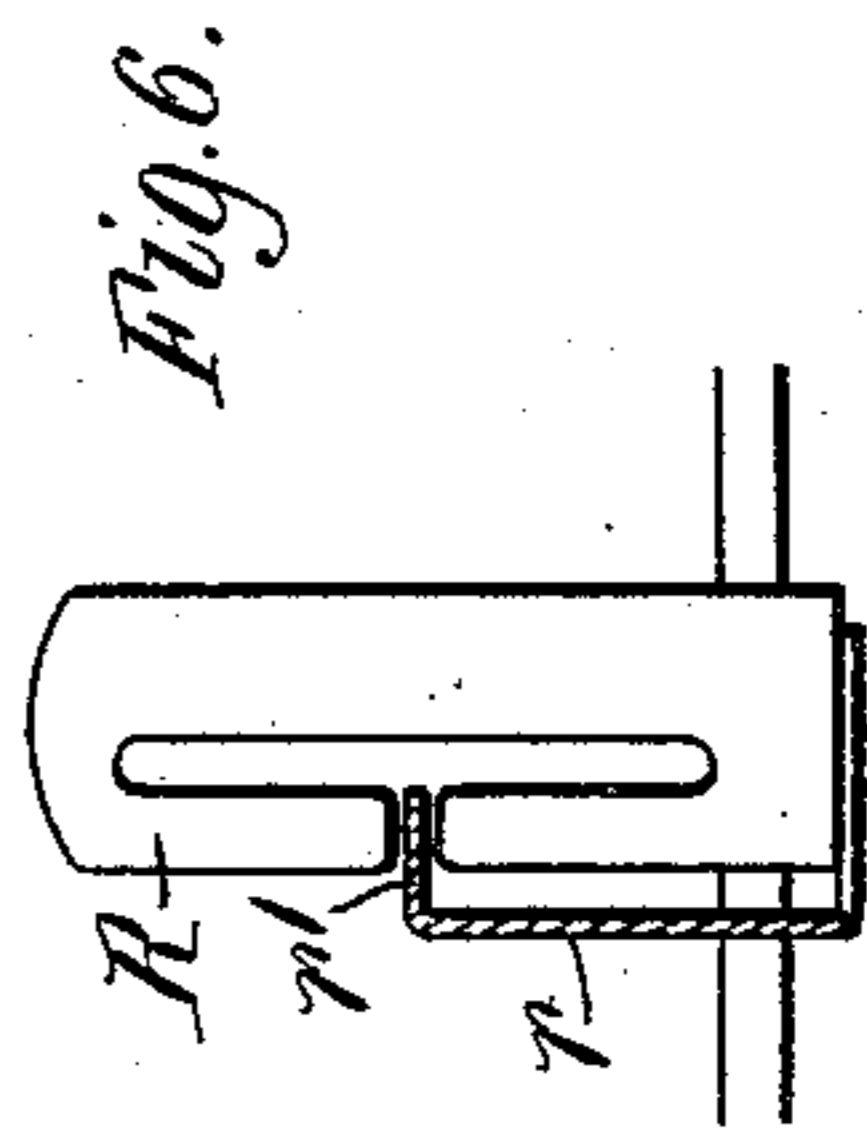


Fig. 6.

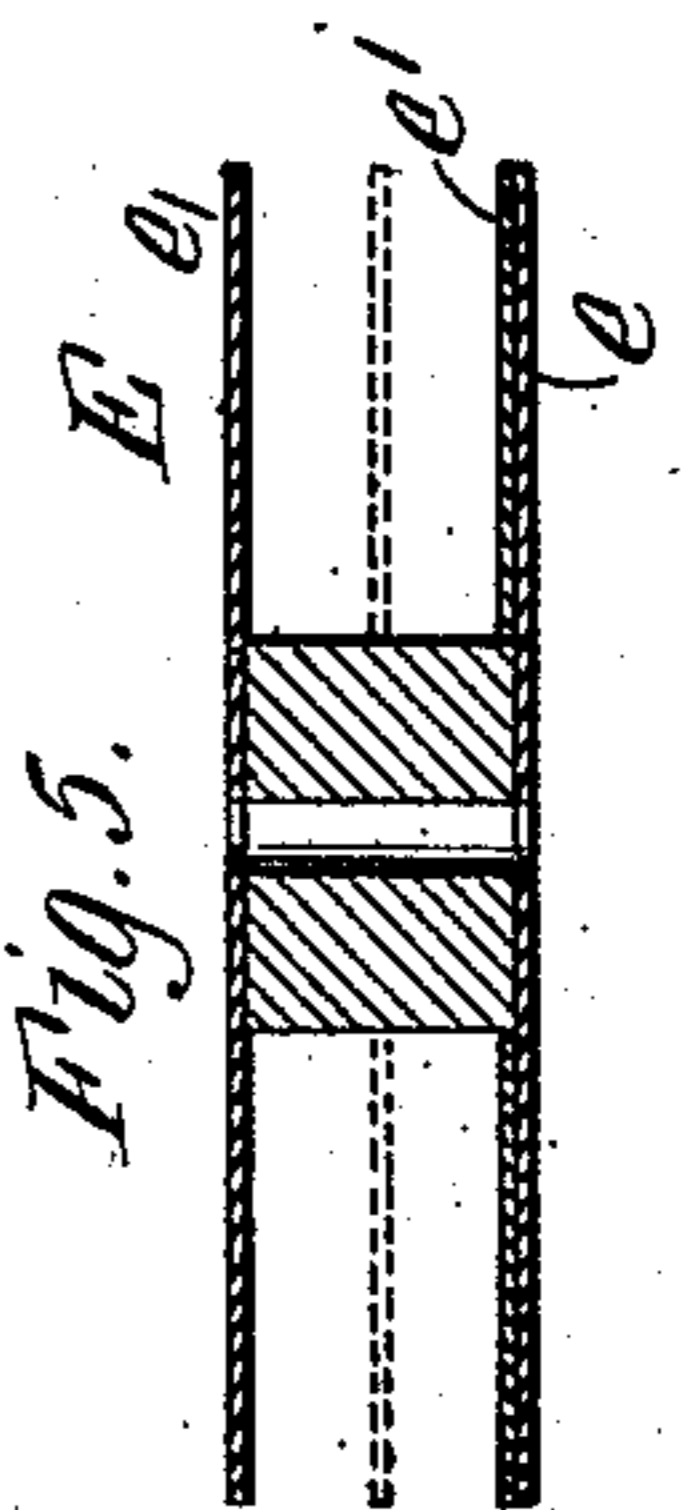


Fig. 5. E₀

Inventor
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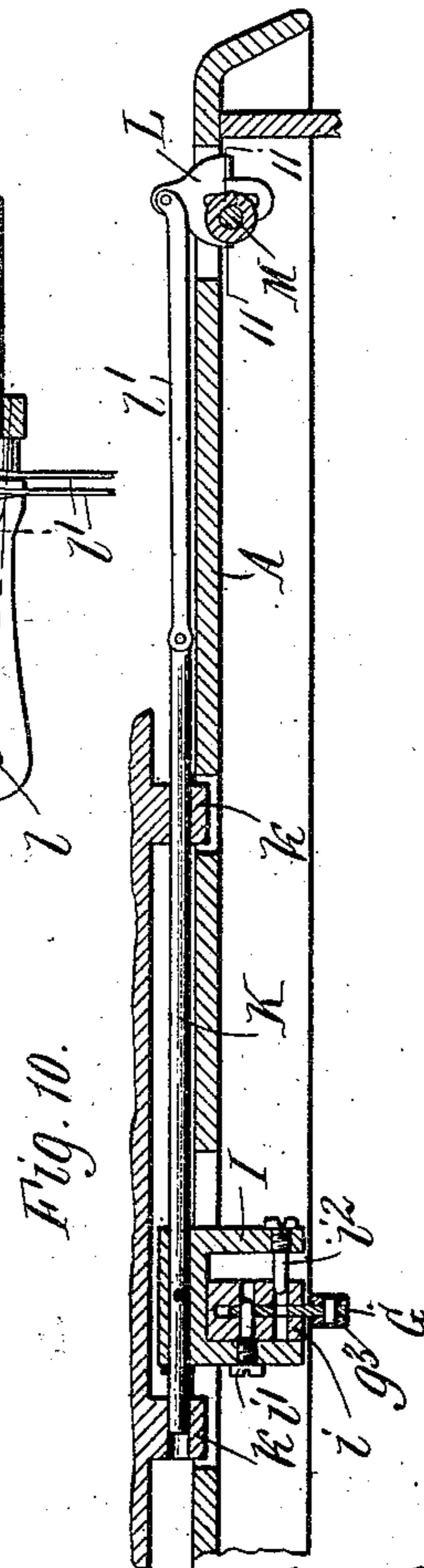
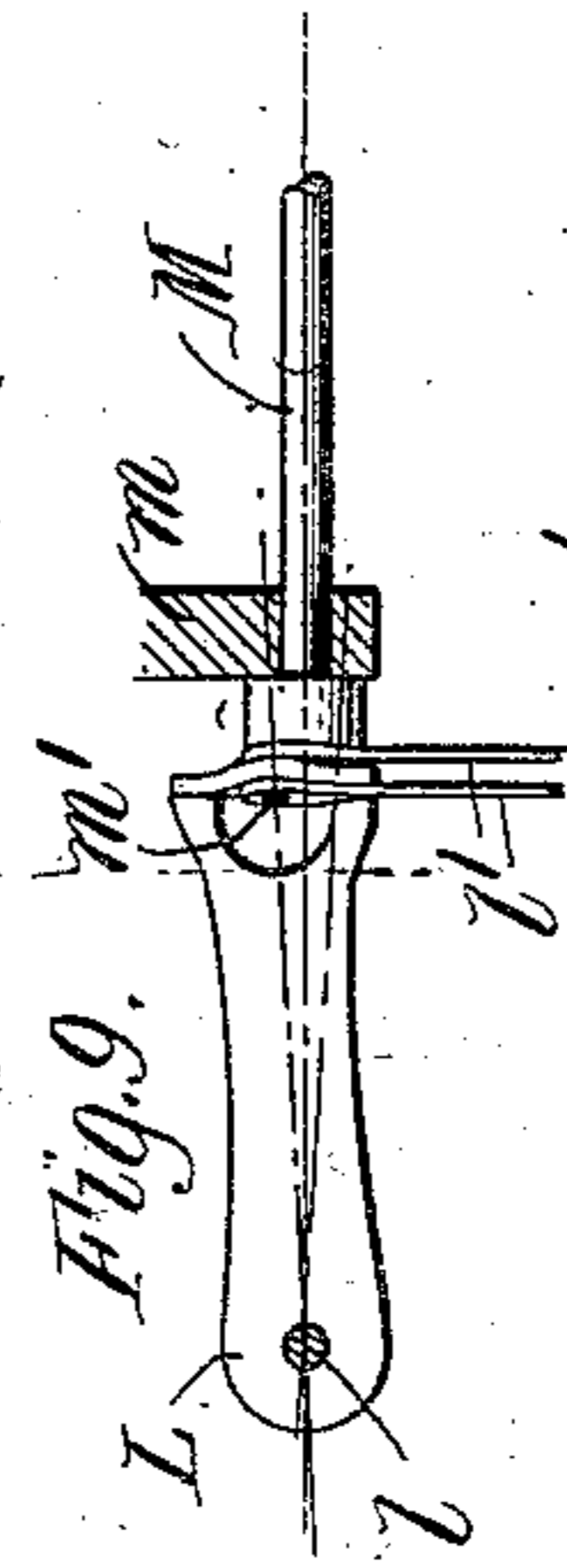
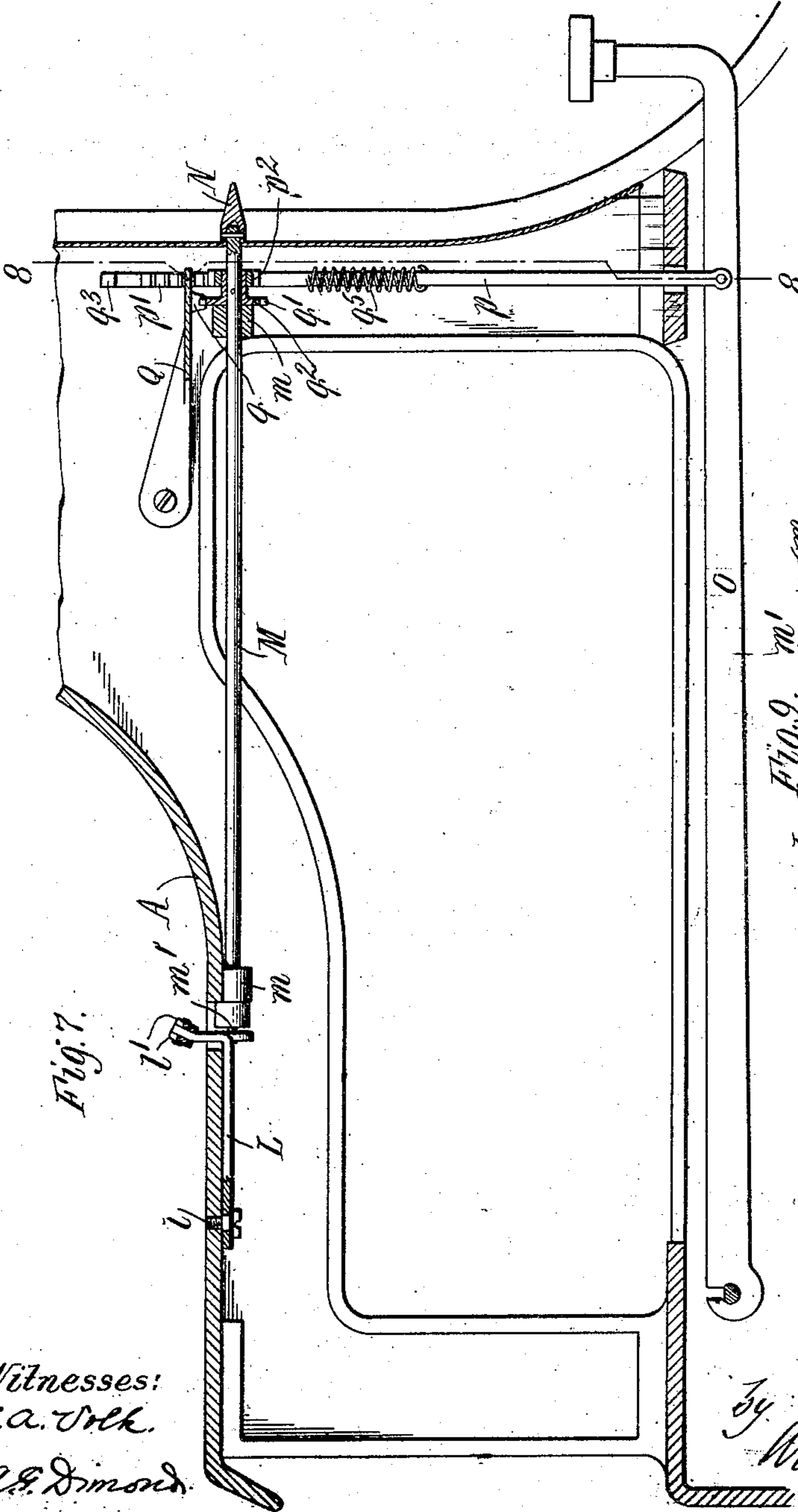
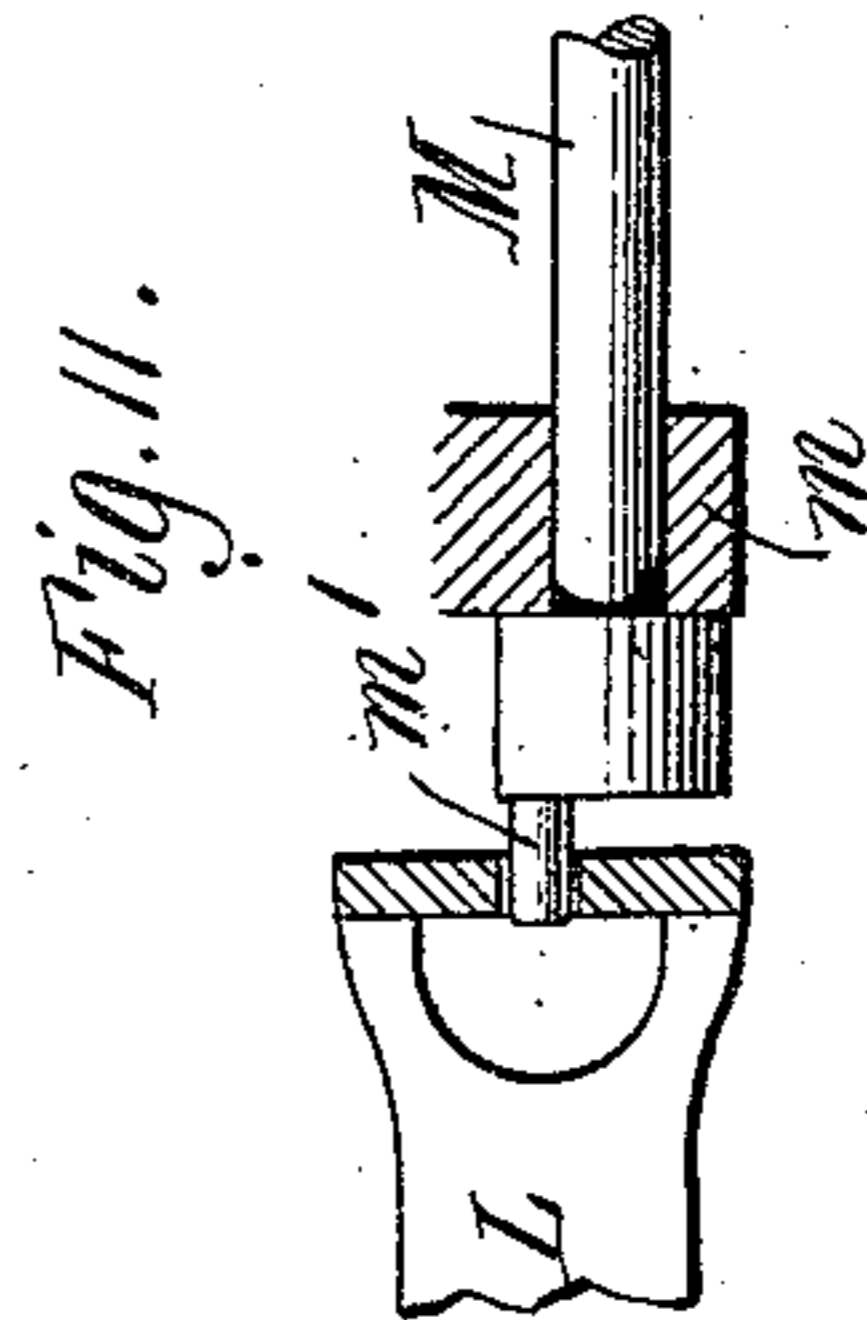
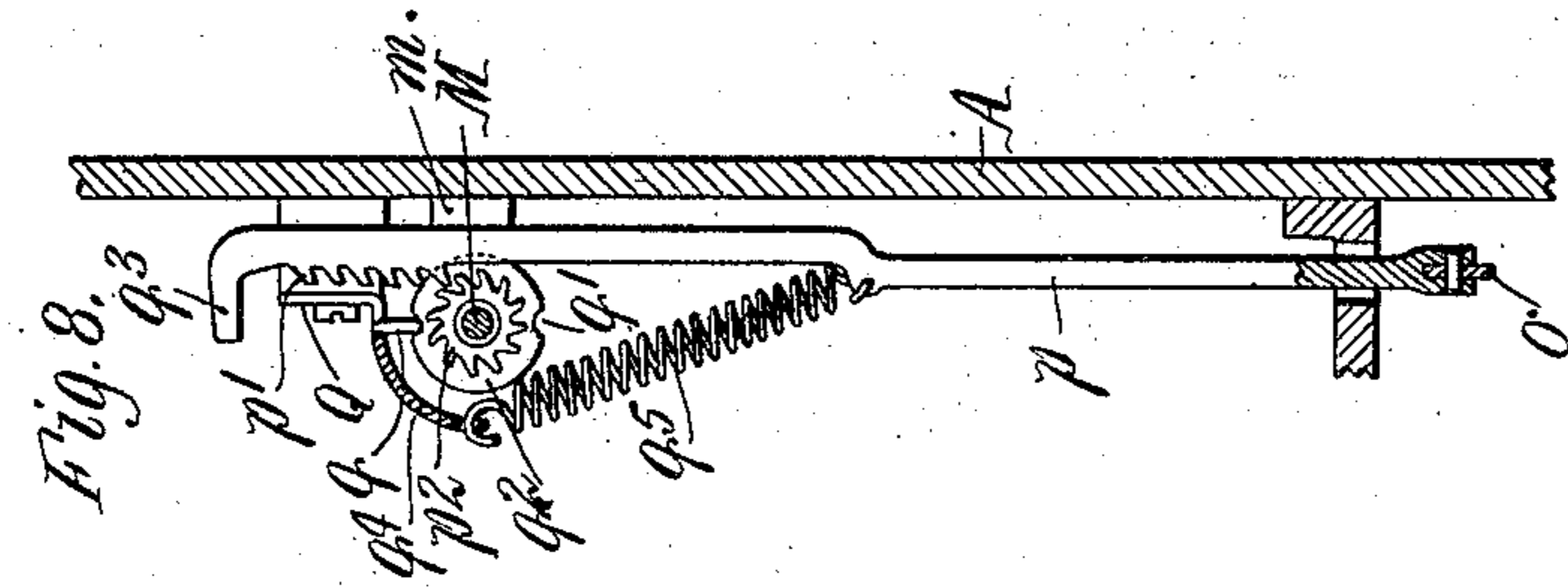
Wilden, Pined Hard Attorneys:

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 RIBBON MECHANISM FOR TYPE WRITING MACHINES.
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3 SHEETS—SHEET 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

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RIBBON MECHANISM FOR TYPE-WRITING MACHINES.

944,735.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed September 6, 1907. Serial No. 391,551.

To all whom it may concern:

Be it known that I, EMMIT G. LATTA, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Ribbon Mechanisms for Type-Writing Machines, of which the following is a specification.

This invention relates to ribbon mechanisms for visible writing typewriting machines in which the ribbon is vibrated to place it in printing position between the type and the platen as the former approach the latter to make the impressions, and to withdraw it to expose the writing when the type recede from the platen.

The invention is more especially directed to improvements in machines which are equipped with two narrow ribbons of different colors or characteristics, or a single wide ribbon, and with means for vibrating either of said narrow ribbons, or either of two different portions of the wide ribbon to and from the printing position, as desired. While the improvements are particularly adapted for use in front-strike machines and are illustrated in the drawings as applied to such a machine, some features thereof are equally applicable to other forms of typewriters and other machines employing ink ribbons.

The principal objects of the invention are to produce a machine in which either two narrow ribbons, or a single wide ribbon can be used as desired without necessitating the provision of extra or detachable parts; also to provide desirable means of simple construction for instantly and positively placing either one of the narrow ribbons, or either part of the wide ribbon, in use; also to provide an automatic indicator that denotes which ribbon or part of the ribbon is in use; also to adapt the same ribbon spools and guides for carrying a single wide ribbon or two narrow ribbons arranged edge to edge and having means for separating the ribbons and preventing interference between them when two are used; and also to improve the ribbon mechanisms for typewriting and analogous machines in the respects hereinafter described and set forth in the claims.

In the accompanying drawings, consisting

of three sheets: Figure 1 is a fragmentary central longitudinal sectional elevation of the upper portion of a front-strike typewriting machine provided with ribbon mechanism embodying the invention. Fig. 2 is a front elevation, partly in section, thereof, showing the same at the left hand of the figure equipped with two narrow ribbons, and at the right hand side thereof with a single wide ribbon. Fig. 3 is a rear elevation of the partially completed vibrating ribbon guide or vibrator. Fig. 4 is a broken plan view, partly in section, of the ribbon mechanism. Fig. 5 is a sectional view of one of the ribbon spools detached. Fig. 6 is an elevation, partly in section, of one of the stationary ribbon guides and separators. Fig. 7 is a longitudinal sectional elevation of the ribbon mechanism, in line 7—7, Fig. 4. Fig. 8 is a transverse sectional elevation thereof in line 8—8, Fig. 7. Fig. 9 is a detail plan view of the pivoted ribbon changing lever or plate and the associated parts. Fig. 10 is a transverse sectional elevation of the ribbon mechanism in line 10—10, Fig. 4. Fig. 11 is a sectional plan, on an enlarged scale, in line 11—11, Fig. 10.

Like letters of reference refer to like parts in the several figures.

A represents a portion of the main frame of the machine, B the platen, C the platen carriage, and D the shift frame on which the carriage is supported and travels transversely of the machine. The machine is of that sort in which the type-bars are provided with upper and lower case type, and the shift frame D is suitably pivoted at the upper rear portion of the main frame to swing up and down about an axis indicated at *d*, Fig. 1, to place the platen in printing relation with one or the other set of type. The shift frame is operated by suitable means not shown. The shift frame shown or any other suitable means may be employed for shifting the platen.

E E' represent ribbon spools arranged at opposite sides of the front upper portion of the machine on vertical axes, and F represents a vibrating ribbon guide or vibrator arranged centrally in front of the platen, by which the ribbon or ribbons is or are held in proper relation and vibrated to and from the printing position. When two narrow

ribbons are used they can, if desired, be wound edge to edge on one pair of spools, and in such case each spool is preferably provided between its end disks *e* with a separator disk *e'* loosely surrounding the hub of the spool. When a single wide ribbon is used on the spools, the separator disks are placed against one end disk at one edge of the ribbon, as shown at the right-hand side in Fig. 2 and in 5, but when two narrow ribbons are employed on the spools, the separator disks are moved to the middle of the spools between the two ribbons and thus separate and hold the ribbons out of contact with each other, as shown at the left-hand side of Fig. 2.

The vibrating ribbon guide or vibrator *F* shown is made from a single piece of sheet metal bent into shape. Fig. 3 shows the vibrator partially completed, the left-hand side showing the shape of the blank before bending, and the right-hand side showing the completed form. The vibrator blank is slotted centrally at its upper portion for the passage of the type in making the impressions, and is provided with lateral wings each having at its top and bottom small extensions *f*, and centrally between these a T-shaped lateral projection *f'*. The central projections *f'* are bent to the rear and the upper and lower extensions *f* are bent respectively downwardly and upwardly to the rear, as shown at the right-hand side of the guide in Fig. 3, thus providing two ribbon guide openings, one above the other, at each side of the vibrator with central slots for the insertion and removal of the ribbons. The vibrator as thus formed is adapted to hold two narrow ribbons edge to edge, or one above the other in the same plane. In addition to the guide openings thus formed, the wings of the vibrator are provided with two upright guide openings *f''* extending nearly the full height of the wings. These openings or slots are adapted to properly guide a single wide ribbon threaded therethrough, as indicated at the right-hand side of Fig. 2. It will be understood that when the wide ribbon is to be used the narrow ribbons are left off, and when the narrow ribbons are to be used, the wide ribbon is not used. The vibrator could be of different construction and yet provided with guides for holding the ribbons in the same relation.

The vibrator normally stands below the printing point at the front side of the platen and is suitably mounted to vibrate up and down to carry the ribbon to and from the printing position. In the machine illustrated, the vibrator slides vertically in suitable ways on the rear side of an upright slotted support *g* which is attached to a front central extension *g'* of the shift frame

D, see Fig. 1. The invention does not, however, relate to the manner of mounting the vibrator and it could be differently mounted.

G represents an operating lever for the vibrator. This vibrator lever is suitably connected at its front end to the vibrator, and is fulcrumed on the shift frame extension *g'*. A link *g³* is pivoted to the rear end of the vibrator lever, inclining upwardly and rearwardly therefrom, and is pivoted at its upper end to an arm or lever *g⁴* which is fixed to and projects upwardly and forwardly from a rocking universal bar *H* which extends horizontally of the machine in rear of the vibrator lever and is journaled in suitable bearings on the main frame. This universal bar is rocked by mechanism, not shown, each time a type bar is operated to make an impression, and actuates the vibrator through the described connections to vibrate the ribbon to and from the printing position.

The vibrator and vibrator lever, being mounted on the shift frame, move up and down with the same in shifting the platen, and the vibrator lever *G*, link *g³* and lever *g⁴* are so arranged as to produce substantially like movements of the vibrator in both positions of the shift frame. The vibrator lever and vibrator always move from the same normal position below the printing point, and a shorter movement of the vibrator lever is required to vibrate the upper narrow ribbon, or the upper portion of the wide ribbon, than is necessary to vibrate the lower ribbon or lower portion of the wide ribbon. These different movements of the vibrator are effected without changing the normal position thereof, or of the lever, by shifting its fulcrum point relative to the operating link *g³* in the following manner: The vibrator lever has a fulcrum arm extending into a vertical slot in a lug *i* on the rear side of the shift frame extension, and is provided with two pivot holes which register with holes passing through said fulcrum lug *i*. A fulcrum yoke or support *I*, Fig. 10, which rests on and is adapted to slide laterally of the machine on the fulcrum lug, has legs depending at opposite sides of the lug, and pivots *i'* *i''* extend laterally toward each other from these legs into the holes in the lug. When the yoke is moved to the right, to the position shown in Fig. 10, the left-hand pivot *i'* extends through one pivot hole in the vibrator lever, while the other pivot *i''* is withdrawn from its hole in the lever, and the lever can then swing on the pivot *i'* as a fulcrum. By shifting the yoke to the left, the pivot *i''* is withdrawn from its hole in the lever and the other pivot *i'* is engaged in its hole in the lever, when the lever can swing on this pivot as a ful-

crum. Thus by shifting the yoke the vibrator lever, without being itself moved from the normal position, has its fulcrum point shifted farther from or nearer to its connection with its operating link, and the throw of the lever, and the vibrator connected thereto, is shortened or lengthened accordingly. In the normal operation of the machine, when the upper narrow ribbon or upper portion of the wide ribbon is used, the vibrator lever swings on the pivot i' , and when it is desired to use the lower narrow ribbon or lower portion of the wide ribbon, the yoke I is shifted and the vibrator lever swings on the other pivot i'' . As shown, the yoke is attached to a horizontal shifting rod K which slides in holes in bearing lugs k on the underside of the shift frame.

The means above described for vibrating the ribbon and changing the throw of the vibrator for changing from one to the other of the narrow ribbons or parts of the wide ribbon, are not claimed herein as they form the subject of an application filed by Oscar C. Kavle, July 1, 1907, Serial No. 381,762.

The single wide ribbon can have upper and lower fields of different colors or kinds of ink, or it can have the same ink throughout its width. In using the latter kind of ribbon with the changeable throw vibrator, its upper portion can be used until exhausted and its lower portion then used, with considerable economy in the cost of ribbons, as the wide ribbon costs but a trifle more than a narrower one. Two narrow ribbons with different inks are preferable to a single wide ribbon having different inks on two fields, because if one ribbon is exhausted before the other it can be replaced without the loss of the other ribbon, whereas the two field ribbon is useless when one field only is exhausted. With the vibrator described, however, the operator who does not care to use two separate ribbons can use one wide one. The vibrator can be used whether the two ribbons are arranged on a single pair of spools, as described, or otherwise.

The fulcrum yoke I for the vibrator lever is shifted by mechanism preferably constructed as follows: L, Figs. 4, 7, 9-11 represents a shifting lever or plate which is pivoted at its rear end on the underside of the top plate of the machine, by a screw or the like l , and is provided at its front end with an upright portion, the upper end of which is connected by a link or links l' to the shifting rod K. The link l' is pivoted to the lever L at a point above the line of the shift rod K so that when the shift frame is raised the rod K is moved as far above said pivot as it is normally below it, and consequently the movements

of the fulcrum yoke are the same in both positions of the shift frame. A horizontal shaft M extending fore and aft of the machine at one side thereof and journaled in suitable bearings m projecting from the adjacent side of the machine, is provided at its rear end with a crank or eccentric pin m' , Fig. 11, which extends into a vertical slot in the upright portion of the shifting lever or plate. The pin normally occupies a dead center position at one side of the axis of the shaft in the horizontal plane thereof and holds the plate from movement in one position. By turning the shifting shaft M one-half of a revolution, the shifting lever or plate will be swung laterally and the shifting rod and yoke moved to change the fulcrum pivots of the vibrator lever, and the shifting lever or plate will be locked in the shifted position by the crank pin which will then occupy a dead center position at the opposite side of the shaft M. By turning the shaft M successive half revolutions in the same direction, the fulcrum yoke is alternately shifted in opposite directions to change the narrow ribbons or the parts of the wide ribbon regardless of which ribbon or portion is in use.

The shaft is preferably provided at its front end with an indicator or handle N having beveled upper and lower faces upon which appear the words "Upper" and "Lower" or other indicia to designate which of the narrow ribbons or portions of the wide ribbon is in use. This indicator can also be used to turn the shaft for changing the ribbons, and for less expensive machines no other means need be provided for turning the shaft. Preferably, however, the following operating means for the shaft are employed: A ribbon changing key or lever O is provided in a convenient position, preferably at the upper side portion of the keyboard of the machine. An upright rack bar p pivoted at its lower end to the key lever extends upwardly therefrom at one side of the shifting shaft M, and is provided with teeth p' to cooperate with a ratchet pinion p'' secured to the shifting shaft. The teeth of the rack bar and pinion have beveled and abrupt faces so that the rack bar will turn the pinion when moved downwardly and can ride over the teeth of the pinion without turning it when moved upwardly. Q, Figs. 4 and 7, represents a detent or dog which is pivoted to a lug on the side of the main frame or other suitable part of the machine, and is provided at its free end with a tooth q adapted to engage in either of two diametrically opposite notches q' in a stop wheel or disk q'' fixed to the shifting shaft M, to hold said shaft with the eccentric pin in one or the other of its two dead center positions.

A lateral extension q^3 at the upper end of the rack bar p is adapted to strike said detent to stop the rack bar when it has been lowered far enough to turn the shaft M one half revolution and to press the detent against the stop to positively hold the shaft from over movement. Any other suitable stop could, however, be used. The detent or dog is also provided with a laterally projecting arm or part q^4 which is connected by a spring q^5 to the rack bar p . This spring acts to lift or return the rack bar and the ribbon changing key and also to hold the rack bar in yielding engagement with the ratchet pinion and the detent in one of the notches of the stop wheel when the rack bar is raised to prevent the accidental turning of the shaft M. This ratchet mechanism acts to turn the shifting shaft M one-half revolution and effect the changing of the ribbon in the manner described, each time the ribbon changing key or lever O is depressed, so that like movements of the same part always effect a change no matter which narrow ribbon or part of the wide ribbon is in use. Similarly like movements of the shaft M, when the ratchet-operating mechanism is omitted, always produce the desired change of the ribbons.

30 R R, Figs. 1, 2, 4 and 6, represent stationary ribbon guides adjacent to the spools. The guides shown consist of L-shaped pieces having horizontal parts secured to the bottoms of the spool seats, and upright portions provided with vertical ribbon guide slots joined centrally at one side by openings through which the ribbons can be inserted and removed sidewise. The guide slots are long enough for the passage of the two narrow ribbons edge to edge in the same plane. r represents ribbon separators having horizontal feet pivoted to the lower ends of the guides R, and upright portions at the sides of the guides provided with lateral extensions r' , Fig. 4, adapted to extend into the guide slots between the two ribbons through the inserting openings to prevent the ribbons from overlapping and interfering in the guide slots. When the single wide ribbon is to be used, the separators r are swung outwardly to withdraw their extensions r' from the guide slots, as shown at the right-hand side of Fig. 4, or as shown in Fig. 6, where the extension of the separator closes the inserting opening of the guide.

55 The guides and ribbon separators could be of other construction.

The described arrangement of the vibrating and stationary guides and spools permits either two narrow ribbons or one wide ribbon to be used on the same machine without the use of any extra or detachable parts that can be lost or mislaid, and it enables

the dealer to supply the same machine with either one or two ribbons as required, and the purchaser to change from the use of a single ribbon to the two ribbons, or vice versa, quickly and without expense.

I claim as my invention:

1. In a typewriting machine, a ribbon guide or vibrator having guiding parts for holding two separate ribbons edge to edge, and guiding parts for a single ribbon of greater width than one of said two separate ribbons, whereby either two narrow ribbons or one wide ribbon may be used with the same guide or vibrator, substantially as set forth.

2. In a typewriting machine, a ribbon guide or vibrator having guiding parts for three ribbons arranged for guiding two ribbons edge to edge or a single ribbon without change in the guide or vibrator, substantially as set forth.

3. In a typewriting machine, a ribbon guide or vibrator having guiding parts arranged for holding two separate ribbons in substantially the same plane, and guiding parts for holding a single ribbon in a different plane from the two ribbons, substantially as set forth.

4. In a typewriting machine, a ribbon guide or vibrator having guiding parts for a single ribbon, and having guiding parts for two separate ribbons of less width than that of the single ribbon, said guiding parts for the two ribbons overlapping the guiding parts for the single ribbon, substantially as set forth.

5. In a typewriting machine, the combination of a ribbon vibrator having guides for holding two separate narrow ribbons edge to edge, and a guide for holding a single wide ribbon in a corresponding relation to the printing position, and means for operating said vibrator to vibrate either of said narrow ribbons or either of different portions of said wide ribbon to and from the printing position without change in the normal position of the vibrator, substantially as set forth.

6. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating said guide, and means for changing the fulcrum point of said lever comprising a movable fulcrum-changing part, and a rotatable shaft operatively connected to said fulcrum-changing part and acting by successive rotary movements of the shaft in the same direction to move said part to, change the fulcrum, substantially as set forth.

7. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating the guide, a movable part for changing the throw of said lever, and a rotatable shaft extending fore and aft of the machine to the

front part thereof and operatively connected to said movable part and acting each time it is turned to change the throw of said lever, substantially as set forth.

8. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating the guide, a laterally-movable part for changing the throw of said lever, a rotatable shaft extending fore and aft of the machine to the front part thereof and operatively connected to said laterally-movable part and acting each time the shaft is turned a half revolution in the same direction to shift and lock said laterally-movable part to change the throw of said lever, and means for holding the shaft in either of two positions, substantially as set forth.

9. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating the guide, a movable part for changing the throw of said lever, a key at the keyboard of the machine, and connections between said key and said movable part whereby successive depressions of the key act to shift said movable part alternately in opposite directions to change the throw of said lever, substantially as set forth.

10. In a typewriting machine, the combination of a vibrating ribbon guide, a movable part for changing the throw of said guide, and a manually movable part connected to said first mentioned movable part and acting with successive movements in the same direction to shift said first mentioned movable part alternately in opposite directions to change the throw of said guide, substantially as set forth.

11. In a typewriting machine, the combination of a ribbon vibrator, a rotatable eccentric, means operated by successive half-revolutions of said eccentric for changing the throw of said vibrator, and means acting by successive movements in the same direction to turn said eccentric successive half revolutions, substantially as set forth.

12. In a typewriting machine, the combination of a vibrating ribbon guide, a laterally movable part for changing the throw of said guide, a normally stationary rotatable shaft arranged at right angles to the direction of movement of said laterally movable part, and connections between said shaft and said laterally movable part whereby the turning movement of the shaft acts to change the throw of said guide, substantially as set forth.

13. In a typewriting machine, the combination of a main frame, a platen shift frame supported thereby, a vibrating ribbon guide supported by the shift frame, a part movably supported by the shift frame for changing the throw of said ribbon guide, an operating part supported by the main frame, and

flexible connections between said operating part and said movable part on the shift frame whereby the movement of said operating part acts to change the throw of said guide in different positions of said shift frame, substantially as set forth.

14. In a typewriting machine, the combination of a main frame, a platen shift frame supported thereby, a ribbon guide, and a lever for vibrating the guide both supported by the shift frame, a rotatable shaft supported by the main frame and extending forwardly from a point under the shift frame, and connections between said lever and said shaft, whereby the rotation of said shaft changes the throw of said lever, substantially as set forth.

15. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating the same, a shiftable part for changing the throw of said lever, a rotary shaft having an eccentric movable from one dead center position to another to shift and lock said part, and means for releasably holding said eccentric in its dead center positions, substantially as set forth.

16. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating the guide, a part for changing the throw of said lever, a movable device connected to said part, an eccentric engaging said movable device, and means for holding said eccentric in either of two positions for holding said movable device, and means for turning said eccentric from one to the other of said holding positions, substantially as set forth.

17. In a typewriting machine, the combination of a ribbon guide, a lever for vibrating the guide, a movable device having a slot, a rotatable shaft having an eccentric seated in the slot, means operated by said device for changing the throw of said lever, means for holding said shaft in either of two positions, and a rack and pinion acting with each working movement of said rack to turn said shaft from one to the other of said positions, substantially as set forth.

18. In a typewriting machine, the combination of a vibrating ribbon guide, a rotatable device, means operated by said device for changing the throw of said guide, a detent for releasably holding the rotatable device in either of two positions, a rack and pinion acting with each working movement of the rack to turn said device from one to the other of the detent holding positions and to positively lock said detent at the limit of movement of said rotatable device, substantially as set forth.

19. In a typewriting machine, the combination of a vibrating ribbon guide, a rotatable device, means operated by said device

for changing the throw of said ribbon guide, a detent for holding said rotatable device in either of two positions, a rack and pinion acting with each working movement of the rack to turn said device from one to the other of the detent holding positions, and a spring acting to return the rack to its normal position and hold said detent in holding position, substantially as set forth.

20. In a typewriting machine, the combination of a ribbon vibrator, a rotatable shaft, means operated by successive half revolutions of said shaft for changing the throw of said vibrator, and means acting by successive movements in the same direction to turn said shaft successive half revolutions, substantially as set forth.

21. In a typewriting machine, the combination of a vibrating ribbon guide, a reciprocatory part, means operated by said part for changing the throw of said ribbon guide, a rotary shaft for reciprocating said part, means for holding said shaft in either of two positions, and a finger key acting with its working movement to turn said shaft from one to the other of its two positions, substantially as set forth.

22. In a typewriting machine, the combination of a ribbon vibrator, a rotatable shaft and connections for producing different movements of said vibrator, said shaft having an operating handle at the front of the machine bearing indicia for designating the different motions of the vibrator, the proper indication being brought to view by turning said shaft for changing the movement of said vibrator, substantially as set forth.

23. In a typewriting machine, the combination of a guide having a slot for a ribbon or ribbons, and a movable separator which is adjustable to divide said slot into two parts, substantially as set forth.

24. In a typewriting machine, the combination of a ribbon guide having a guide slot and a connecting opening in one side to admit the ribbon laterally, and a movable separator adjustable to close said opening and divide said slot into two parts, substantially as set forth.

25. In a typewriting machine, a ribbon spool having end plates connected by a hub, and a movable separator disk arranged on the hub between the end plates, substantially as set forth.

26. In a typewriting machine, a ribbon spool having end plates connected by a hub, and a disk of substantially the same diameter as the end plates mounted on the hub between the end plates and adjustable thereon, substantially as set forth.

27. In a typewriting machine and in a ribbon mechanism, means for changing from one inking field to another, said means comprising a single ribbon-changing key and

means for retaining said key when at rest in the same position regardless of which inking field is in service.

28. In a typewriter machine and in a ribbon mechanism, means for changing from one inking field to another, said means comprising a single ribbon-changing key and means for returning said key after each operation automatically to the same invariable position regardless of which inking field is brought into service.

29. In a typewriting machine and in a ribbon mechanism, means for changing from one inking field to another, said means comprising a single downwardly operating ribbon-changing key and means for restoring it to the same normal position regardless of which inking field is brought into service.

30. In a typewriting machine and in a ribbon mechanism, means for changing from one inking field to another, said means comprising a single field-changing key and means whereby said key is caused to operate always from the same normal position for each inking field.

31. In a typewriting machine and in a ribbon mechanism, means for changing from one inking field to another, said means comprising a single key, automatic restoring means therefor, and means whereby said key is caused to have the same operation for each inking field to be brought into service.

32. In a typewriting machine, the combination of a ribbon carrier; means for actuating said carrier; and means including a single key for varying the actuating means to change the operative field of the ribbon, and means whereby said key is depressible at one operation to render one ribbon field operative and at the next succeeding operation to render another ribbon field operative.

33. In a typewriting machine, the combination of a ribbon carrier; means for actuating said carrier; and means including a single key for varying the actuating means to change the operative field of the ribbon, said key being depressible from a single normal position and means whereby said key operates at alternate depressions to render the same ribbon field operative and at depressions intermediate said alternate depressions to render another ribbon field operative.

34. In a typewriting machine, the combination of a ribbon carrier; means for actuating said carrier; and means for varying said actuating means to change the operative field of the ribbon, said last named means including a key and means whereby said key is movable from normal position to render one ribbon field operative and also is movable to the same extent from the same

normal position in the same direction to render another ribbon field operative.

35. In a typewriting machine, the combination of a ribbon carrier; means for actuating said carrier; and means for varying the actuating means to change the operative field of the ribbon, said last named means including a movable part, a key, and means whereby said key is operative to move said movable part alternately in opposite directions, said key being movable always in the same direction from a single normal position.

36. In a typewriting machine, the combination of a ribbon carrier; means for

actuating said carrier; and means for varying the actuating means to change the operative field of the ribbon, said last named means including a movable member, a key, and devices operated by said key for setting said member in one or another of a plurality of normal positions, said key always moving in a fixed path from a single normal position.

Witness my hand, this 3d day of September, 1907.

EMMIT G. LATTA.

Witnesses:

FRANK E. REID,
GEORGE F. RANSOM.