

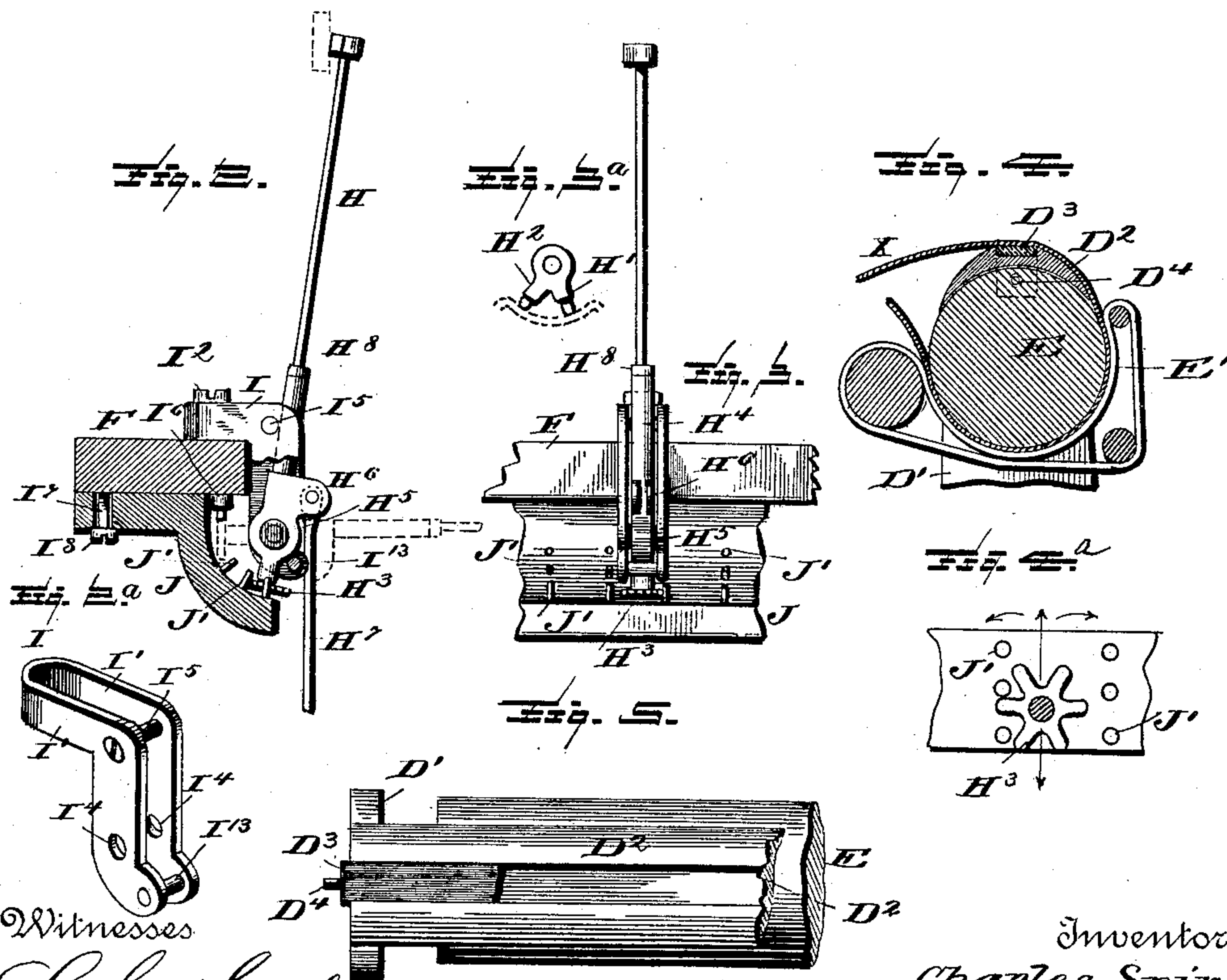
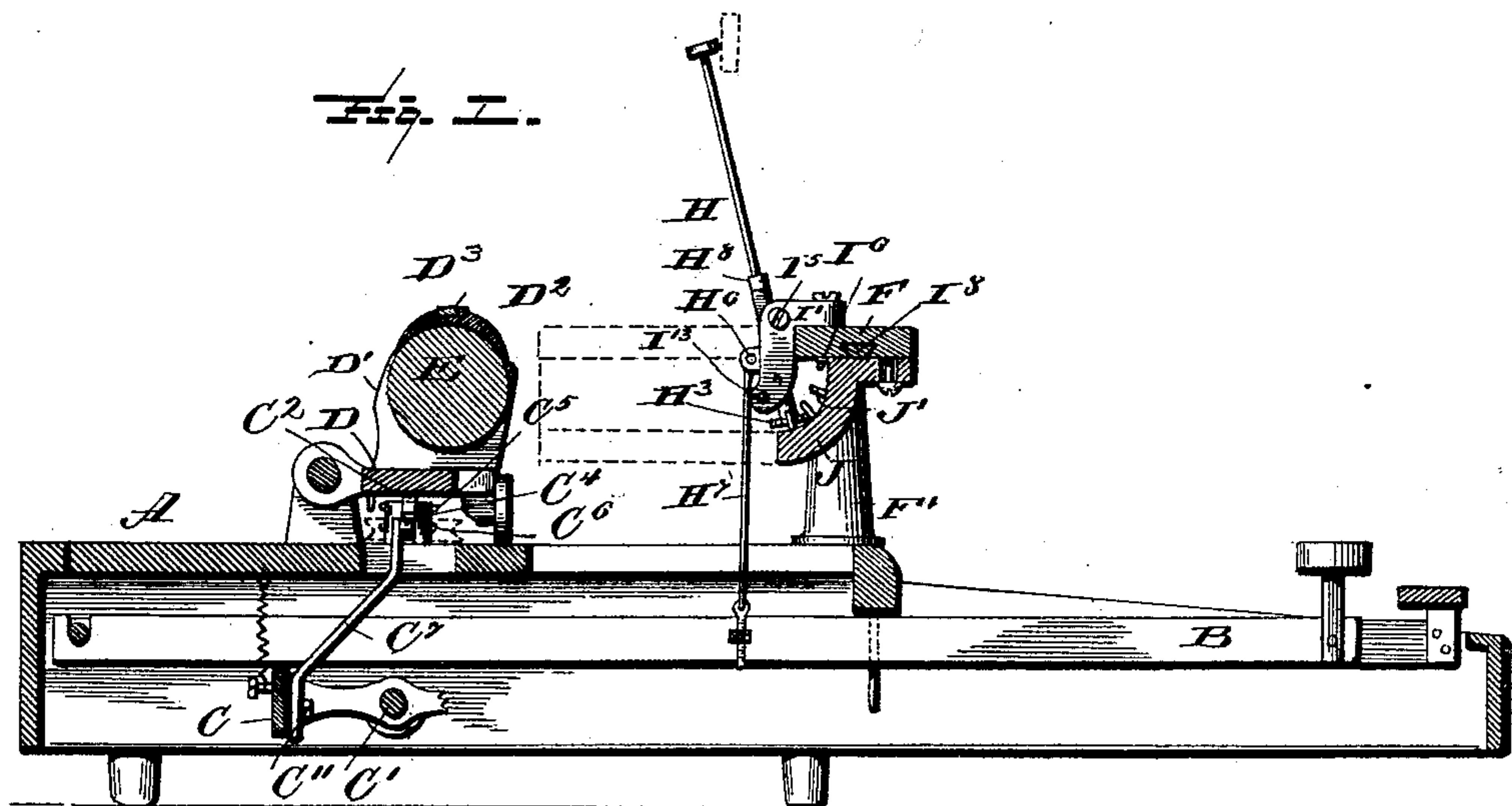
(No Model.)

2 Sheets—Sheet 1.

C. SPIRO.
TYPE WRITING MACHINE.

No. 481,376.

Patented Aug. 23, 1892.



Witnesses

L. C. Mills
H. Sutherland.

Inventor;
Charles Spiro.
By E B Stocking
Attorney

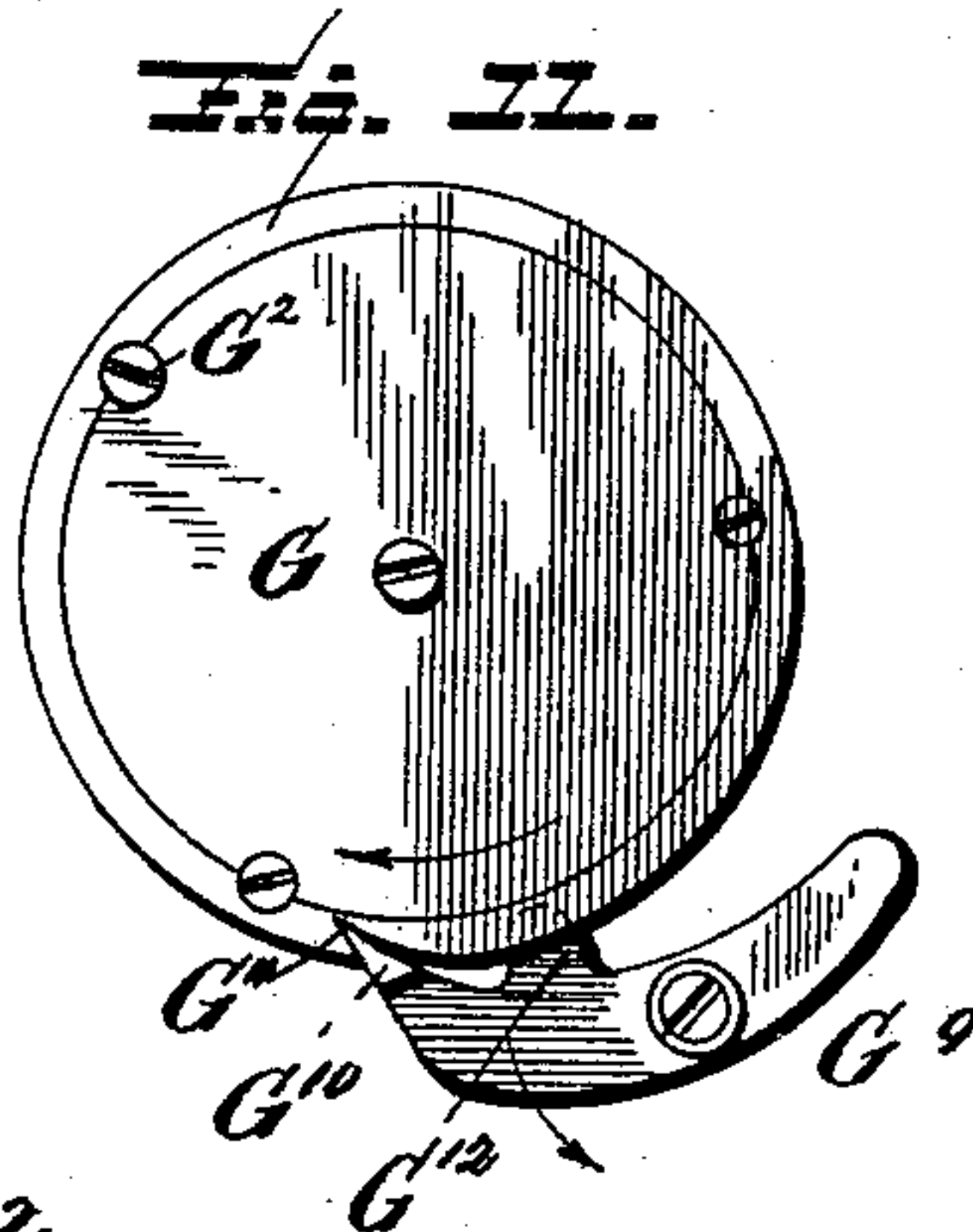
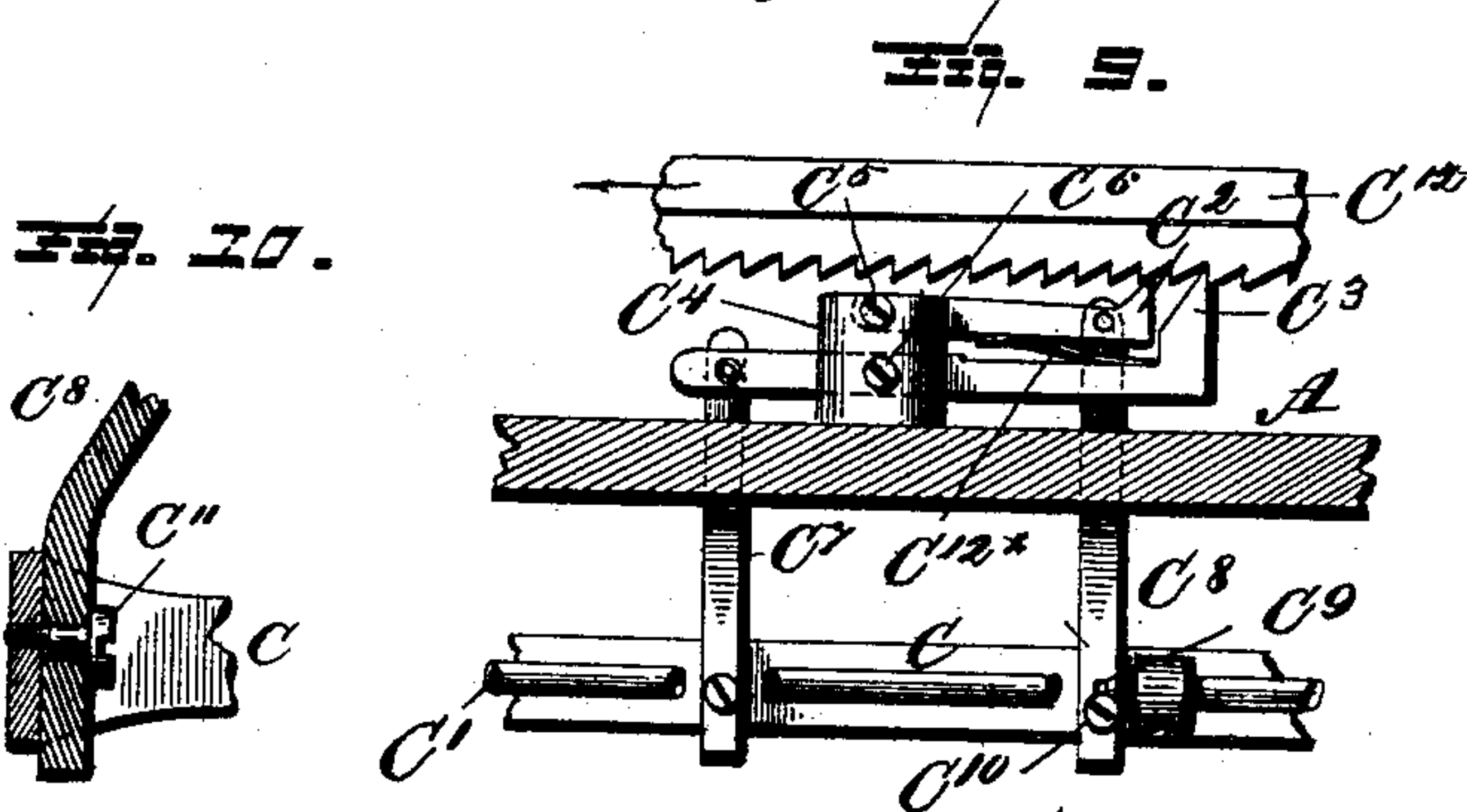
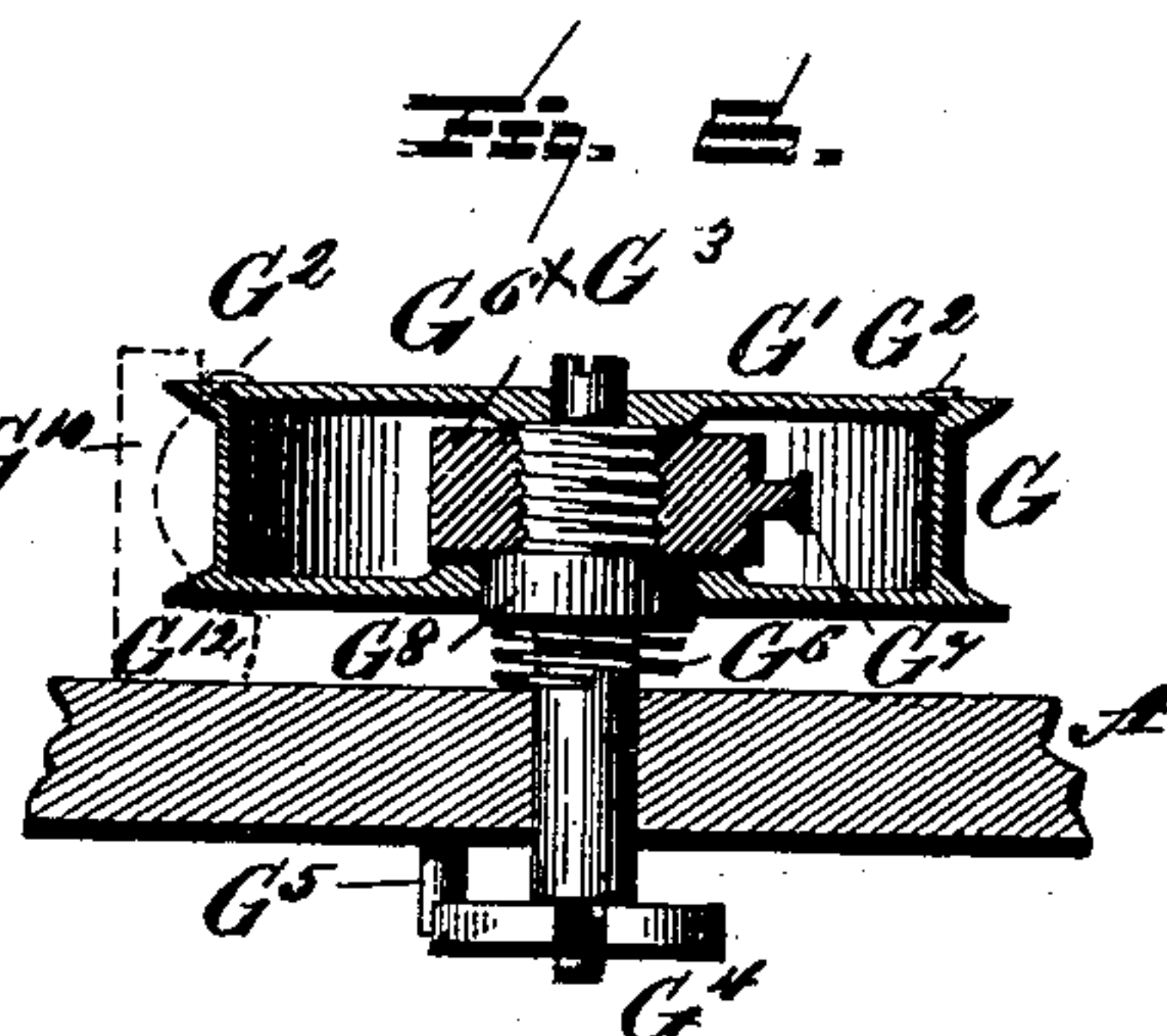
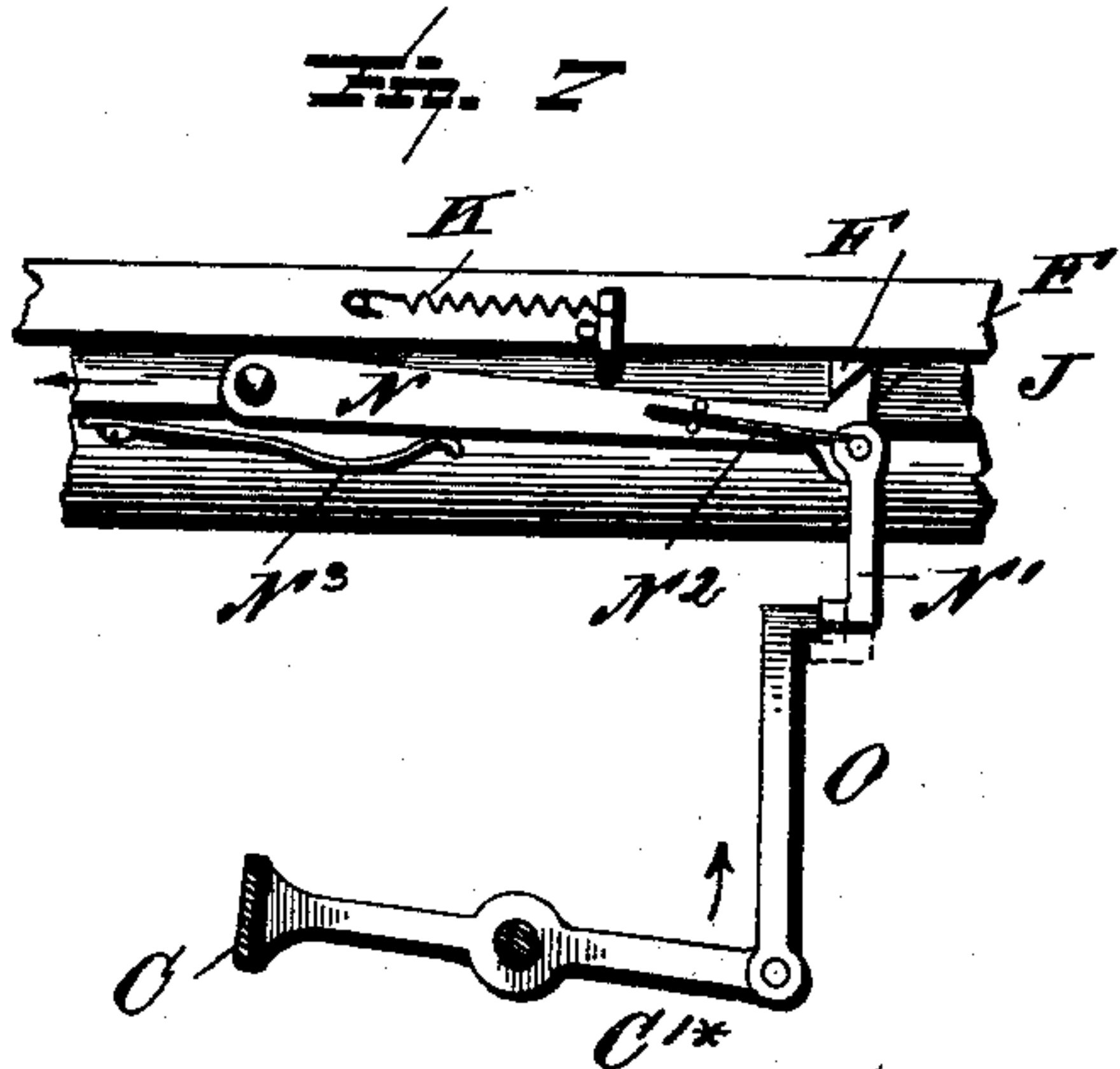
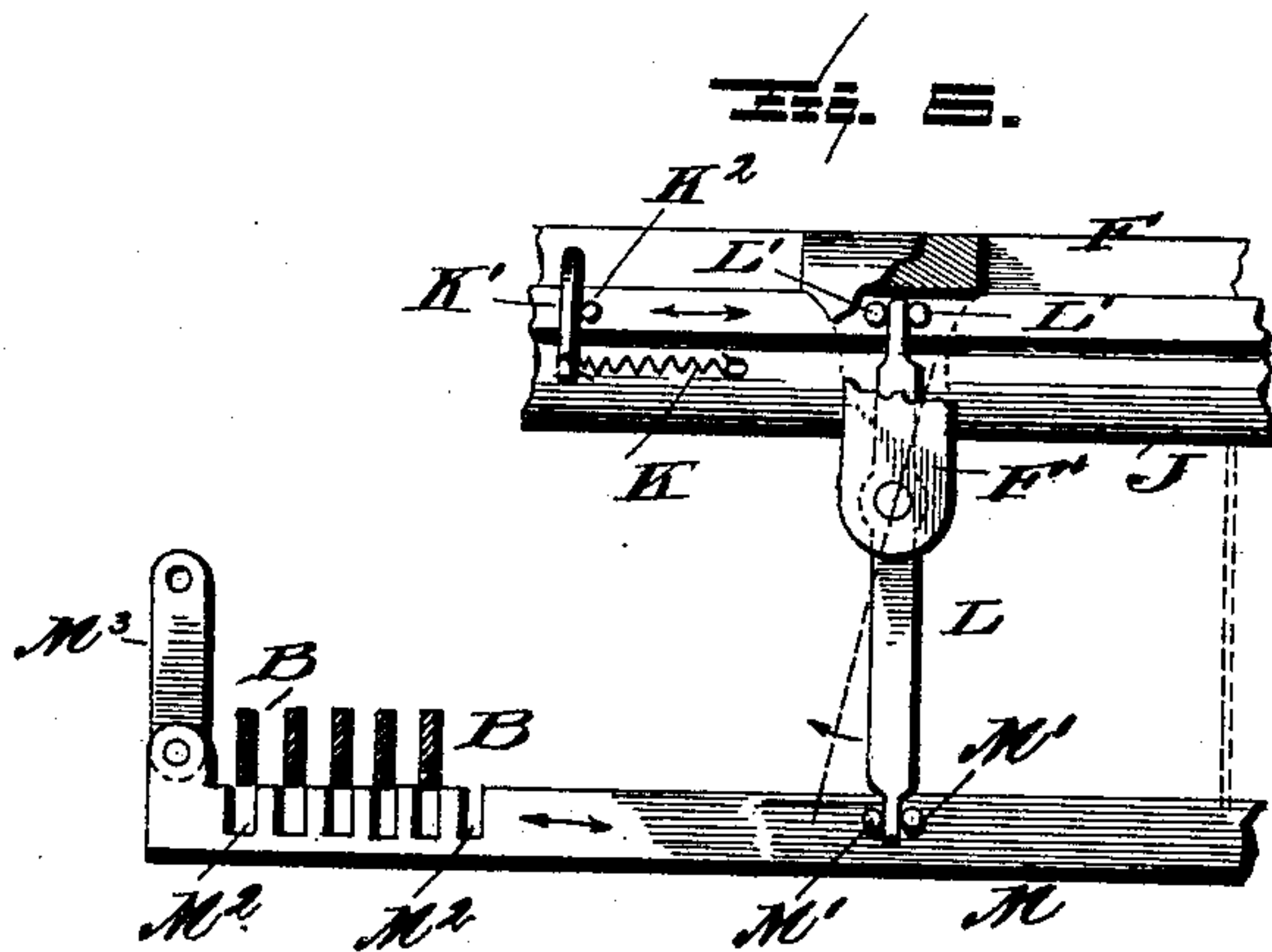
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2 Sheets—Sheet 2.

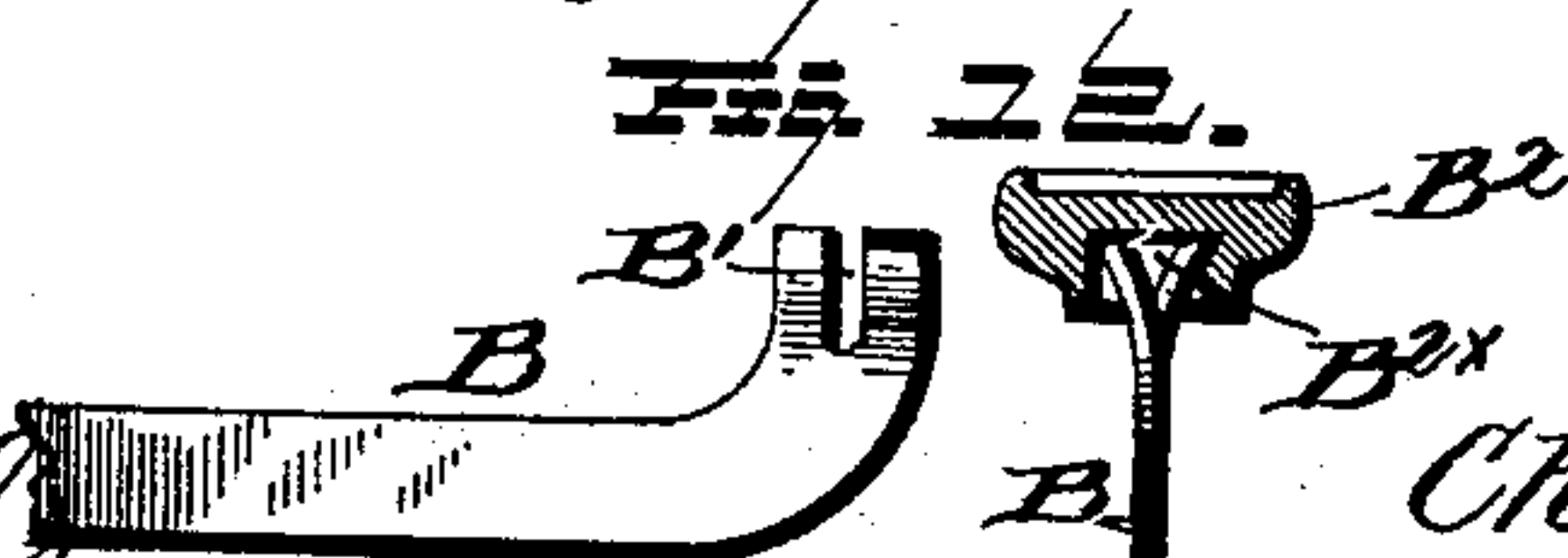
C. SPIRO.
TYPE WRITING MACHINE.

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L. C. Hills
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Inventor:
Charles Spiro,
By E. B. Stocking
Attorney

UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 481,376, dated August 23, 1892.

Application filed May 26, 1891. Serial No. 394,159. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to type-writing machines; and it has for its object, among others, the provision of a type-writer which shall print directly from the type, presenting a flat impression-surface in connection with the usual platen and paper-feed mechanism, possess serviceable type-bar brackets and bearings, a reduced number of parts proportioned to the characters which can be imprinted, a simplified means of attaching the keys to their respective levers, a simple feed-escapement, and other improved features, elements, and combinations particularly pointed out in the claims.

For more particular description of such features of a type-writer, in which the present invention may be embodied, which features are not fully described herein, reference is made to patent of March 3, 1891, No. 447,438.

Referring to the drawings, Figure 1 is a substantially central longitudinal vertical section of a type-writing machine embodying my improvements. Fig. 2 is an enlarged side elevation with parts in section of the type-bar, its bracket, and adjacent parts. Fig. 2^a is a perspective of a type-bar bracket. Fig. 3 is a front elevation of Fig. 2. Fig. 3^a is an end elevation of a type-bar with one concave section of the inking-pads shown by dotted lines. Fig. 4 is a transverse section of the platen and the improved pad, together with the feeding-tapes. Fig. 4^a is an elevation of the pin-arc with the type-bar pinion in mesh with one of the series of pins, the type-bar being shown in section. Fig. 5 is a plan of a portion of the platen and the improved bar. Fig. 6 is a rear elevation of the hanger-arc, pin-arc, and adjuncts for locking the pin-arc. Fig. 7 is a modification of devices for locking the pin-arc. Fig. 8 is a vertical section with parts in elevation of the carriage-feed spring-drum. Fig. 9 is an elevation of the carriage-

feed escapement mechanism. Fig. 10 is a vertical section showing the manner of attachment of one of the dogs with the universal bail. Fig. 11 is a plan of the spring-drum with the drum-holding pawl connected therewith, and Fig. 12 is an illustration in side and also in end elevation of the manner of applying the keys to the key-levers.

Like letters represent like parts in all the figures.

A represents the base, B the key-levers, C the universal bail mounted on the shaft C', D the carriage, E the platen, F the hanger-arc, and F' the hanger-arc supports, which are all of a construction similar to that disclosed in my prior patent above referred to.

From one riser D' to the other of the carriage there extends a crescent-shaped bar D², having arranged upon or embedded therein a strip D³ of rubber, cloth, or other suitable material which is neither too hard nor too soft and which is flat upon its upper face for giving a suitable surface upon which the paper rests at the time a type makes its impression. One of the principal objects of this device is to present a flat impression-surface in contradistinction to the circular surface of the ordinary platen E, and another object is to employ such material in the strip D³ as will best serve the production of a perfectly-clear impression of the type. The ends of the strip D³ may be perforated and caused to embrace pins D⁴ at the ends of the carriage for simple connection; but it is apparent that any other well-known manner of connecting the strip with the bar or the carriage may be employed. By giving the bar D² a crescent form its edges are thin and the feeding of the paper X thereupon is facilitated, while the old form of platen E, in connection with the rubber or other bands E', serves its well-known feeding function.

The improvements in connection with the carriage-feed spring, barrel, or drum have for their object the facility with which access is gained to the interior of the barrel for the purpose of cleansing or repair. For this purpose the cap G' of the spring-drum G is removable upwardly by a withdrawal of the screws G². Any other well-known cap-connecting construction can be substituted for

the screws. The central slotted standard G^3 extends through the base A and is provided with the slotted disk G^4 , and together with the drum is depressible, so as to disconnect the disk G^4 from the pin G^5 , for the purpose of turning the standard, with a screw-driver inserted in the slot of the standard to tighten or loosen the spring—that is, to increase or decrease the tension of the feed-spring within the drum. The coil or other spring-cushion G^6 is for the purpose of maintaining the drum in an elevated position in order that the central spindle shall be held by the pin G^5 and disk G^4 in an adjusted position. The upper portion of the standard G^3 is threaded in such a direction, either right hand or left, that the interiorly-threaded collar G^{x6} , mounted thereon to the lug G^7 , of which is attached one end of the feed-spring, shall be turned in that direction which shall bind it against the enlarged portion G^8 of the spindle. Threading the collar on the spindle permits the removal of the drum without taking the spindle from the base. The remaining end of the spring is attached to the inner wall of the drum, as is usual.

Whenever it is desired to gain access to the interior of the spring-drum and to retain the drum from rotation, the dog G^9 , which is pivoted to the base in proximity to the drum, is turned upon its pivot, so as to bring its tapered and grooved end G^{10} (see dotted lines, Fig. 8) inwardly toward the drum, which is provided with a notch G^{11} to receive said end. At the same time a lug G^{12} is introduced between the lower face of the drum and the base of the machine, so that in the application of a screw-driver to the screws G^2 and the downward pressure by the driver thereon the drum and spindle are prevented from being depressed and from turning, as it would be in the absence of the dog G^9 . By simply turning the dog on its pivot it is disconnected from the drum, so as to permit the adjustment of the tension of the feed-spring, as before described.

The carriage-feed escapement comprises two dogs or pawls C^2 C^3 , each of which is pivoted in a standard C^4 , seated on the base A. This standard is slotted vertically, so that the dogs are in a common vertical plane, the one C^3 projecting beyond the other C^2 in both directions, while their pivots C^5 C^6 , respectively, are in substantially a common vertical line, although this particular location is not essential. One end of the dog C^3 is extended beyond the standard and is pivotally connected with a link C^7 , which in turn is connected with the universal bail C. The other dog C^2 is near its free end pivotally connected with a link C^8 , which is also in turn connected with the universal bail C, but with a connection which permits slight independent movement with relation to the bail. In this instance said independence of movement is provided for by the slot C^9 , through which the

connecting-screw C^{10} passes and is seated in the bail. The connection with the link C^7 to the bail may be rigid and by any means; but it is preferred to provide a means of connection which shall admit of adjustment, whereby the length of the link may be, in effect, adjusted—that is to say, that the link may be adjusted on the surface of the bail, so as to project for a greater or less distance above the bail. This adjustable connection is in this instance found in the eccentric-screw C^{11} , the body of which is sufficiently out of line with the screw-threaded portion thereof to act as an eccentric and to elevate or depress the link in accordance with the position of the eccentric with relation to the center of rotation of the screw. The object of this adjustment of the screw C^{11} in the link C^7 is to determine the depth to which the free end of the pawl C^3 shall take into the teeth of the carriage-feed rack-bar C^{12} , and in this instance the length of the dog from its pivot to its free end being much greater than from its pivot to the point of connection with the link C^7 that the slightest variation of the length of the link or the distance from the screw C^{11} to the pivot connecting it with the dog causes a comparatively great elevation or depression of the free end of the dog, and therefore of its depth of entrance into the feed-rack.

C' represents the pivot-rod of the universal bail, which is broken away in Fig. 9 to more clearly represent the parts in rear of the rod. A spring C^{12x} is secured to the hanger-dog C^3 and bears upwardly against the shorter dog C^2 , as shown.

The operation of the escapement is as follows: Upon the depression of a key-lever the universal bail is depressed and draws downwardly upon the link C^7 , throwing the dog C^3 upwardly and in front and in practice a slight distance in advance of the contact-face of a tooth of the rack-bar. By reason of the slot C^9 in the link C^8 this is accomplished before the downward movement of the bail, and is communicated through the link C^8 to the shorter dog C^2 , whereby to withdraw it from in front of and in contact with the working face of a tooth on the rack-bar, which is one or more teeth in distance from that in front of which the longer dog has already been placed. As soon as the shorter dog is released from the rack-bar, the carriage-feed spring draws it in the directions indicated by the arrows so that the longer dog acts as an abutment against the working face of the teeth before which it has been placed. At this instant the spring C^{12} raises the shorter dog C^2 into the path of the next tooth of the rack-bar ready for the next forward step-by-step movement of the same.

The improved manner of attaching the keys to the key-levers is shown in Fig. 12. The middle of the lever B is spring-tempered and is slotted at the end, as at B', and the portions at each side are bent in opposite directions. The

key B² has a simple recess, the vertical walls of which may be either tapered or straight and adapted to fit the bifurcations on the end of the bar when under tension.

5 In applying a key the bifurcations are, by means of pliers or other suitable device, brought to or near to a common vertical plane and then the key is simply set upon the bar, the pliers or other device removed and the resiliency of the bifurcations causes them to spread and take a retaining hold of the key and also to provide a substantial and broad bearing-surface for the key on the bar.

10 In my prior application above specified, I disclosed an oscillatory and reciprocative type-bar and means for operating the same, in order to bring either one of two printing-characters on the bar to the printing-point during the oscillation of the bar. In this present invention I provide a rotative type-bar 15 H, carrying two, or it may be more, printing-characters H' H² at one end and a pinion H³ at the other end. The type-bar holder H⁴ is tubular and is provided with a comparatively large, strong, and serviceable pivot H⁵ and with ears H⁶ for the pivot connection of the ligament H⁷, which connects the holder with the key-bar B. A collar H⁸ may be rigidly connected with the bar and bearing upon the end 20 of the holder, while the hub of the pinion H³ forms a bearing at the opposite end of the holder.

The type-bar holder is supported by its opposite pivot H⁵ in the bracket I. This bracket 25 consists of a plate of metal bent to form two parallel sides I', between which the bracket-attaching screw I² passes into the arc F for securing the bracket in position. A rivet I³ rigidly and positively connects the lower ends 30 of the plate, so that it is practically a closed bracket and therefore more rigid and serviceable than it would otherwise be.

I⁴ represents the bearings of the type-bar pivot H⁵, and I⁵ represents a screw passing 35 through both sides and serving the purpose to take up the wear of the parts constituting the pivot-bearing of the type-bar by drawing the sides toward each other.

By carrying two or more characters on each 40 type-bar and bringing a desired character to the printing-point by a greater or less rotation of the bar, the number of parts and bar-brackets required in a machine is materially reduced, while the number of characters capable of being imprinted by the machine may 45 be all that can be practically desired, so that the brackets may be comparatively large and strong and therefore more serviceable without increasing the size of the machine as a whole or diminishing the number of its characters.

Adjacent to the bracket-arc F of the machine, and in this instance, for convenience' sake, movably connected thereto and beneath 50 the same, is what I denominate a "pin-arc" J, which is semicircular, and transversely-

curved plate-carrying pins J', in this instance in series of three each, the series being so located that by a reciprocation of the arc one or another of the series may be caused to 55 mesh with the pinion on the type-bar in accordance with the direction it is desired to rotate the same. As is apparent by reference to Fig. 4^a, if the right-hand series of pins J' are in mesh with the pinion H³ said pinion 60 will rotate with its top moving to the left, while if the pin-arc J is reciprocated to the right, so as to bring the pins J' on the left of the pinion in mesh therewith, said pinion will rotate with its top moving in the opposite direction. By this principle of construction 65 and mode of operation of these parts either one of the characters H' H² may be brought to the printing-point. Practically one of said characters may be the upper while the other 70 is of the lower case, and thus the machine be provided with capitals and lower-case printing characters.

An advantageous adjunct to the parts thus far described is provided in the locking-pins 75 I⁶, which depend beneath the hanger-arc F and in the path of the pinion, so as to project between two teeth of the pinion slightly before it has left the uppermost of the series of pins J. This, either in or not in connection 80 with the bar-lock shown and described in my patent above referred to secures a perfect alignment of the printed work of this machine.

A shifting-key and proper connections for 85 the pin-arc—such, for example, as is shown in my application above referred to—may be provided to move the pin-arc in one direction, while a spring K, connected at one end with the pin-arc and at the other end with the hanger-arc or with a downwardly-bent pin K', projecting therefrom, may be the means for 90 moving the pin-arc in the opposite direction. Any suitable stop-pin, with a device K², may serve to limit the distance which the spring shall move the arc or any one form of connection of the pin-arc with the hanger-arc shown 95 in Fig. 2. The slots I', in which the screws I⁸ are located, may determine the length of the movement of the pin-arc. If desired, instead of the screws I⁸ the pin-arc may be provided with a dovetailed or other rib, (see dotted lines, Fig. 1,) fitting in a groove formed in the hanger-arc. In fact, many of the minor details of construction of this my invention 100 may be varied to any degree or extent within the skill of the mechanic without departure from my invention, and I therefore do not limit my invention to the same.

It is advantageous to employ in connection 105 with the pin-arc some means for locking it in position after it has been shifted to bring a new series of pins in mesh with the pinion of the type-bar, so that the operator's hand or finger need not be retained upon the shifting-key while the impression of the printing character which has been selected by the shifting 110 115 120 125 130

of the arc has been made. In other words, while I do not limit my invention in such a manner as to compel the inclusion of pin-arc-locking devices of any kind, still to secure the advantage above indicated I have provided and shall claim hereinafter particularly, as well as broadly, devices for locking the parts after being shifted to select a printing character, and also such devices when of a character which permits of an automatic unlocking of themselves in order to relieve the hand or finger of the operator during said unlocking operation.

In Fig. 6 I have illustrated one form of pin-arc-locking device. In this instance there projects downward from the hanger-arc F an arm F', which serves as a pivotal support of a lever L. From the rear of the pin-arc J there extends two pins L' and from the rear of a bail M there extend two pins M'. Between these pins the opposite ends of the lever L rests, so that when the pin-arc is moved in one direction the bail M is moved in the opposite direction. The bail is provided with a series of slots M², each being a distance from the other equal to that between the key-bars B. A link M³ at each end of the bail supports it pivotally beneath the keys and is connected pivotally with the base. Now it will be seen that when the pin-arc is moved in one direction to shift the pins so as to bring a new series in connection with the pinions of the series of type-bars in the machine, that a slot M² will be beneath each of the key-bars, and the depression of a key of the series into one of said slots holds the pin-arc in the shifted position during the depression of the key-bar and until the latter returns to its normal position. At that time the spring K returns the pin-arc to its normal position. This device, as thus far described, insures the retention of the type-bar pinion in mesh with a series of pins, which causes the rotation of the bar in such a direction as to bring a desired character—for instance, a capital letter—to the printing-point. It is understood that without shifting the pin-arc the character brought to the printing-point would be the lower-case.

Another form of device for locking the shifting or pin arc is shown in Fig. 7, and involves an automatic unlocking somewhat different in construction, but the same in principle, as it is automatic. In this form the pin-arc J carries with it a locking-lever N, having at its free end a pivot-pawl N' and a spring N², connected with the pawl and lever, so as to permit of a yielding oscillation of the pawl. Another spring N³ serves to throw the free end of the lever N upwardly and toward the hanger-arc F, which is provided with a tooth F². The free end of the lever N is tapered to ride over the tooth when the pin-arc is shifted, and the spring N³ forces the lever upwardly back of the tooth, so as to hold and lock the pin-arc in its shifted position. Attached to the universal bail C, to an extension C'^x, is an up-

right O. When the pin-arc is shifted, the pawl N' bears against the upright O yieldingly by reason of the spring N². When a key-lever B is depressed, the bail C is depressed at one side, and at the side on which the upright O is located, and is elevated so that the pawl N' is caused to take under the hooked end of the upright O, as shown by dotted lines in Fig. 7.

Remembering now that the shifting of the pin-arc was for the purpose of selecting a character—for instance, a capital—and that such shifting has been produced by a shifting-key, it will be seen that as the lever N abuts against the tooth F' (see dotted lines, Fig. 7) the pin-arc will remain shifted, even if the operator's finger is removed from the shifting-key. Now comes the depression of the key-lever to print the character thus selected, which depresses the bail, elevates the upright so that the pawl N' is hooked thereto as the key-lever, which has been depressed to print the selected character, is released from pressure and returns to its normal position. The universal bail C is elevated, and this movement depresses the opposite projection and upright O, which in turn pulls down the locking-lever N by means of the pawl N', permitting the spring K to return the pin-arc to its normal position by reason of the depression of the free end of the lever N, as stated. Only one locking-lever and pawl and upright is required for the entire series of type-bars and key-levers of the machine.

In the construction shown in Fig. 6 there is contact of the pawl M with each of the key-levers of the machine when used to bring the desired character to the printing-point, and the connection is of such form as to possibly produce more friction than is desired, while in the form shown in Fig. 7 the connection and leverage is at such point in the machine (the universal bail) as to affect the depression of the keys in the slightest manner and requiring a minimum force to accomplish the automatic unlocking of the pin-arc.

Instead of tempering the bifurcations of the key-levers B they need only be capable of being bent and after being introduced into the key B², so that they are spread to embrace the inclined walls of the recess B^{2x} therein, and thus serve the purpose of retaining the key in position without depending upon the resiliency of the material.

The bracket I may be made of cast material as well as by being bent from plate material. In either event the rivet I⁸ will render the same a solid frame-like structure in which the action of the adjusting-screw will be more positive than if it were open at the end.

What I claim is—

1. A crescent-shaped grooved impression-bar and a rubber or other material arranged in the groove of the bar, in combination with and placed over a cylindrical rotary platen, substantially as specified.

2. The combination of the rotary platen E, bar D², bands E', and impression-strip D³, placed over the platen and terminating at one side near the feed-bands, substantially as specified. 5
3. The combination, with the platen E and risers D', of the crescent-shaped bar D², strip D³, and pins D⁴, substantially as specified.
4. A spring-drum having a removable cap, 10 a centrally-screw-threaded spindle, and an interiorly-threaded collar having a lug, substantially as specified.
5. In a spring-drum of the character described, a spindle having an enlarged body 15 portion, a reduced adjacent screw-threaded portion, and an interiorly-threaded collar having a lug, substantially as specified.
6. The combination, with a spring-drum, of a spindle having a disk at its lower end, a stationary pin, a base supporting the pin and spindle, an interposed spring, and a movable device for insertion beneath the drum, substantially as specified. 20
7. The combination, with the rack-bar of a platen-carriage, of two pawls arranged in a common vertical plane, one longer than the other and each connected at different points with relation to their pivots with a universal bail, substantially as specified. 25
8. An escapement for a carriage-feed, comprising a pawl fixedly connected with the universal bail and a companion pawl movably connected with said bail by a single link, substantially as specified. 30
9. The combination, with a bail, of two pawls, one connected with the bail at a point beyond its pivot and the other connected with the bail at a point between its pivot and its free end, substantially as specified. 35
10. The combination of two pawls and a bail to which both are directly connected at points at opposite sides of their pivots, and a spring interposed between the pawls, substantially as specified. 40
11. The combination, with two pawls operating with a common rack-bar, of two links, the one fixedly connecting one of the pawls with the bail and the other adjustably connecting the other pawl with the bail, substantially as specified. 45
12. The combination, with the carriage feed-rack of a type-writing machine, of a pawl pivotally mounted on a fixed part of the machine, a link extending from the point on the pawl beyond its pivot to a bail, and means for fixedly connecting said link to the bail, substantially as specified. 50
13. The combination, with the carriage feed-rack of a type-writing machine, of a pawl pivotally mounted on a fixed part of the machine, a link pivotally connected with the pawl between its pivot and the free end and extending to a bail, and means for connecting the pawl to the bail, to permit of a slight relative independent movement of the link on the bail, substantially as specified. 55
14. The combination, with the universal bail 60 of a type-writing machine, of two links and two pawls, the links extending directly from the bail to the pawls, one of said links being fixedly connected with the bail and the other movably connected with the bail, substantially as specified. 70
15. A key-lever having a V-shaped bifurcated end, in combination with a key resting 75 on the ends of the bifurcations, substantially as specified.
16. A key-lever having resilient bifurcations at its ends, substantially as specified.
17. The combination, with a bifurcated key-lever, of a key having a recess adapted to receive the ends of the bifurcations, substantially as specified. 80
18. A type-bar provided with a pinion at one end, in combination with relatively-fixed 85 means in the path of the bar for rotating or partially rotating said bar, substantially as specified.
19. A type-bar having a pinion at its end, in combination with relatively-fixed means 90 in the path of the bar for rotating or partially rotating the pinion and bar in opposite directions, substantially as specified.
20. A type-bar having a pinion at its end and relatively-fixed means in the path of the 95 bar for rotating or partially rotating the said pinion in either direction, substantially as specified.
21. A type-bar having a pinion at its end and means for rotating the pinion, located on 100 opposite sides of the pinion and capable of moving into and out of mesh therewith.
22. A type-bar having a pinion at one end, a printing character at the other end, and an intermediate pivot, whereby a pivotal move- 105 ment of the type-bar moves the pinion bodily and renders it capable of rotation by contact with a fixed pinion-rotating mechanism arranged in the path of said bar, substantially as specified. 110
23. A type-bar carrying a printing character at one end, a rotating mechanism at the other and intermediately pivoted, in combination with a relatively-fixed pinion-rotating mechanism arranged in the path of the bar, where- 115 by the printing character at one end of the bar is bodily rotated to be presented at one end of the movement of the bar to an inking-pad and at the opposite end to a printing-point, substantially as specified. 120
24. The combination, with a rotatable type-bar and means for partly rotating the same, of a movable pinion-rotating mechanism arranged in the path of said bar and on opposite sides of its pinion, substantially as specified. 125
25. The combination, with a rotatable type-bar and with movable mechanism arranged in the path of said bar and on opposite sides 130 of its pinion for rotating the same, of locking devices for maintaining the movable rotating mechanism in a shifted position, substantially as specified.
26. The combination, with a rotatable type-

bar and its rotating mechanism arranged in the path of said bar and on opposite sides of its pinion, of a locking mechanism for preventing the rotation of the type-bar at the end of its movement, substantially as specified.

27. The combination, with a rotatable type-bar and its pinion and with the pinion-rotating mechanism arranged in the path of said bar and on opposite sides of its pinion, of locking mechanism for preventing the rotation of the bar as and after it leaves its rotating mechanism, substantially as specified.

28. A type-bar bracket consisting of a bent plate riveted together at its ends, having an adjusting-screw connecting the sides, and intermediate type-bar bearings, substantially as specified.

29. A type-bar bracket connected at its ends by a rivet provided with type-bar bearings and with an adjusting-screw, said bearings being between the rivet and the adjusting-screw, substantially as specified.

30. The combination, with a rotatable type-bar and with the mechanism arranged in the path of said bar, comprising a pinion and pins arranged at opposite sides thereof for causing its rotation, of a lever connected with the rotating mechanism and a locking device for securing the lever in a desired position, substantially as specified.

31. The combination, with a key-lever and the type-bar-rotating mechanism, which is movable, of a lever actuated by the movement of said mechanism for the purpose of producing a locking of said mechanism against return movement, substantially as specified.

32. The combination, with a rotatable type-bar, of mechanism for rotating the same in opposite directions and a lever for locking the rotating mechanism, substantially as specified.

33. The combination, with a rotatable type-bar, movable rotating mechanism arranged to

be projected into the path of the bar at either side thereof, and mechanism for locking the rotating mechanism operatively connected with the key-levers of the machine, substantially as specified.

34. The combination, with a rotary type-bar and with means arranged in the path of said bar for rotating the same, of locking mechanism controlled by a key-lever, substantially as specified.

35. The combination, with a rotary type-bar and with the mechanism for rotating the same, of locking devices operatively connected with the universal bail of the machine, substantially as specified.

36. The combination, with a bar-rotating mechanism, of a lever mounted on an adjacent fixed part of the machine and adapted to lock said movable mechanism against movement, substantially as specified.

37. The combination, with the movable character-selecting and bar-rotating mechanism, of a lever pivoted to an adjacent fixed part of the machine, the key-bars, and intermediate connecting devices, which, through the operation of the key-bars, serve to lock movable mechanism against movement, substantially as specified.

38. The combination, with a rotatable type-bar having a pinion, positively-arranged pinion-operating devices mounted on a movable part, of an adjacent fixed part having a toothed locking-lever carried by the movable part and provided with a pawl, a universal bail, and a device connecting the bail with the pawl, substantially as specified.

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

CHARLES SPIRO.

Witnesses:

JULIUS FREUDENTHAL,
JULIUS E. LEVY.