

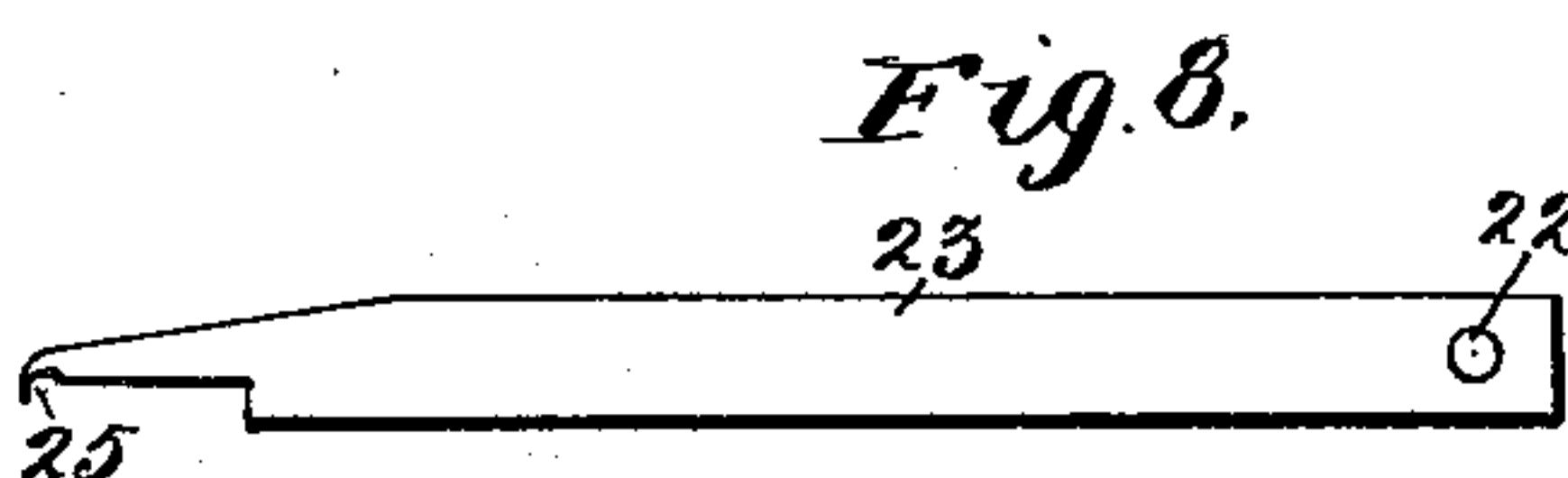
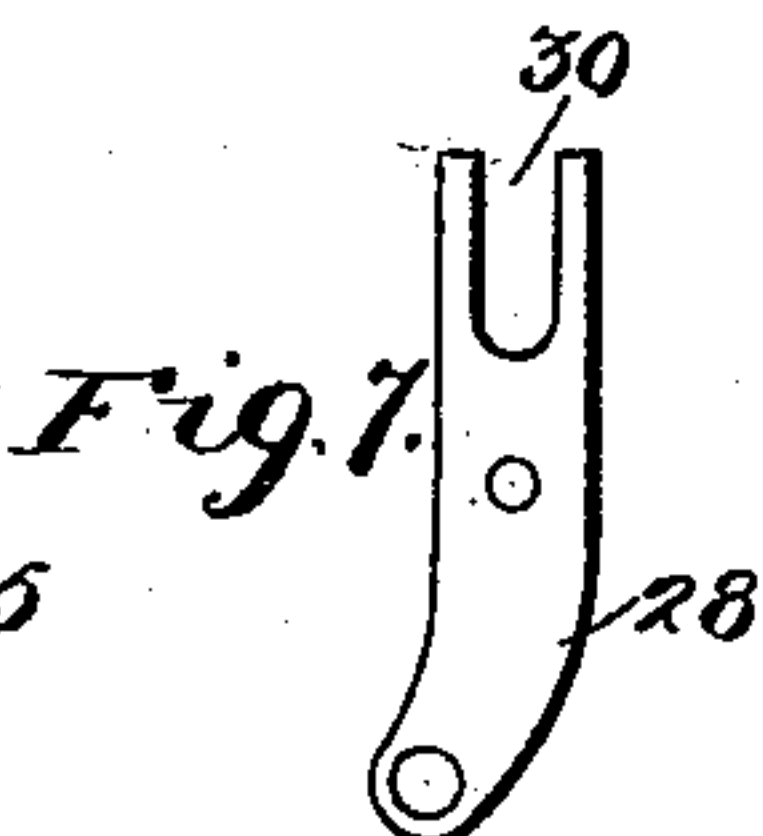
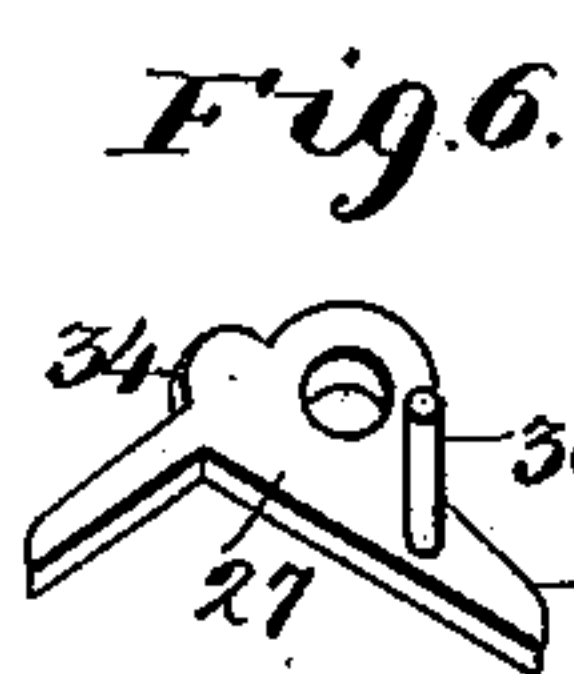
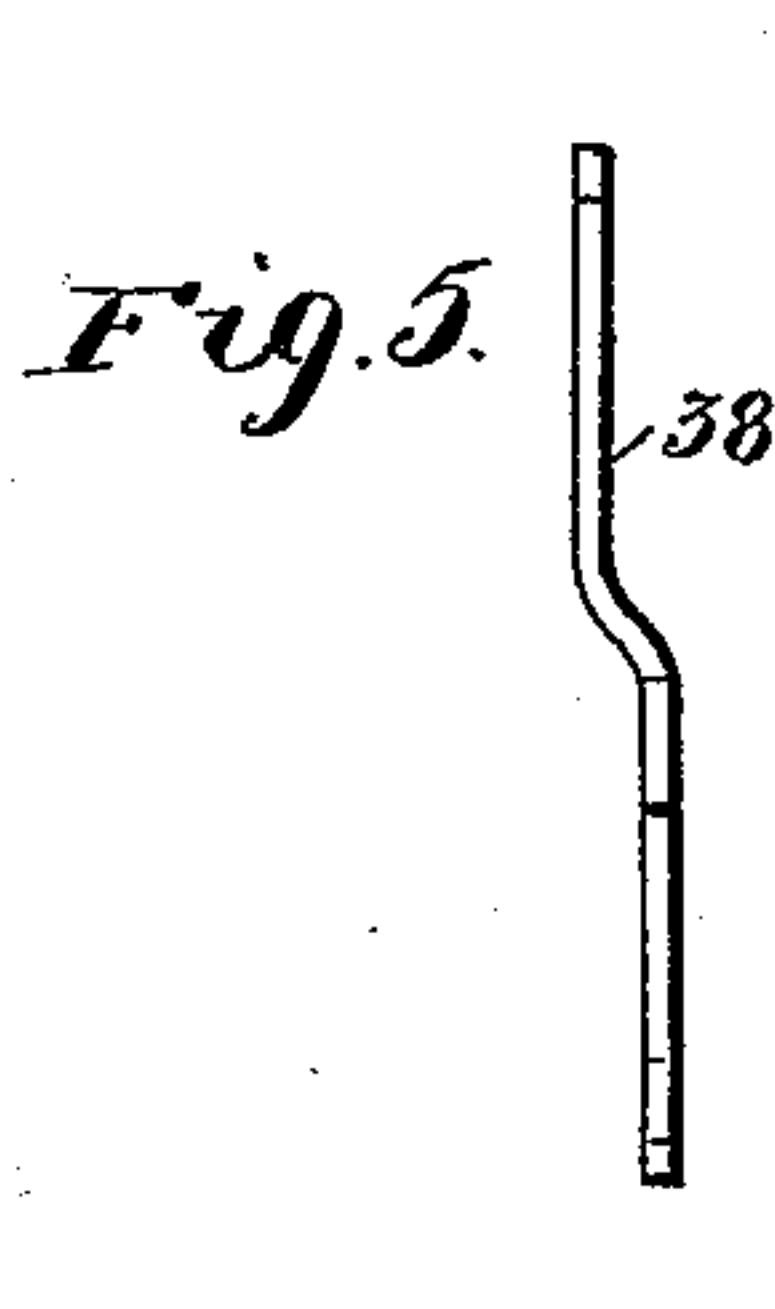
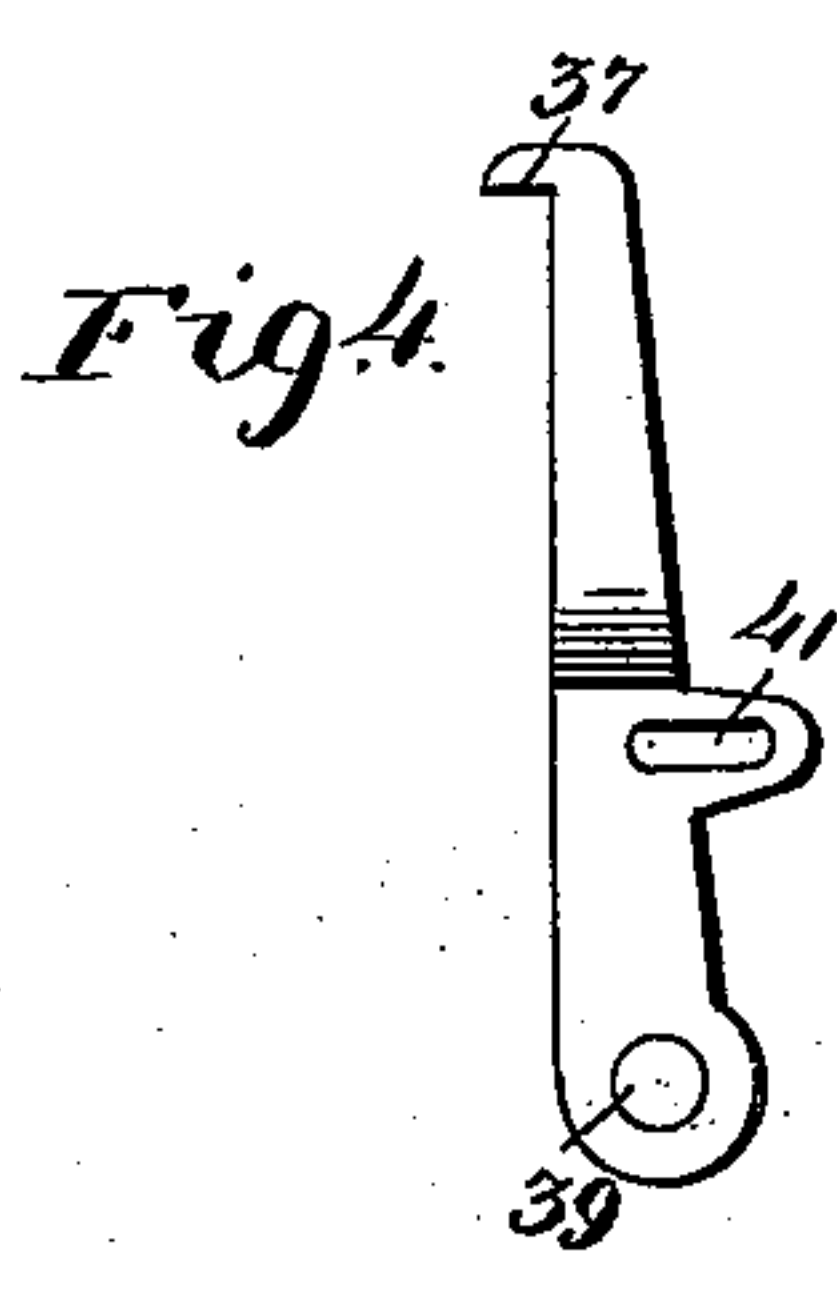
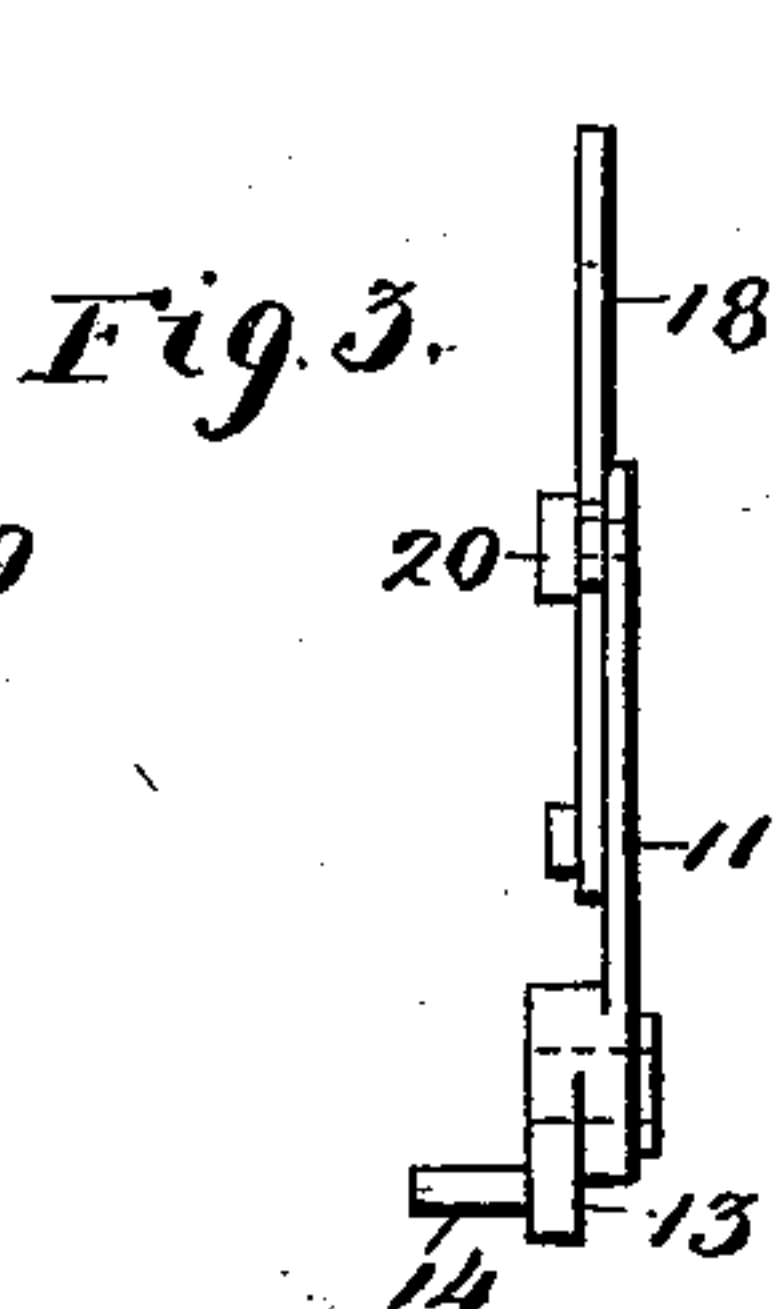
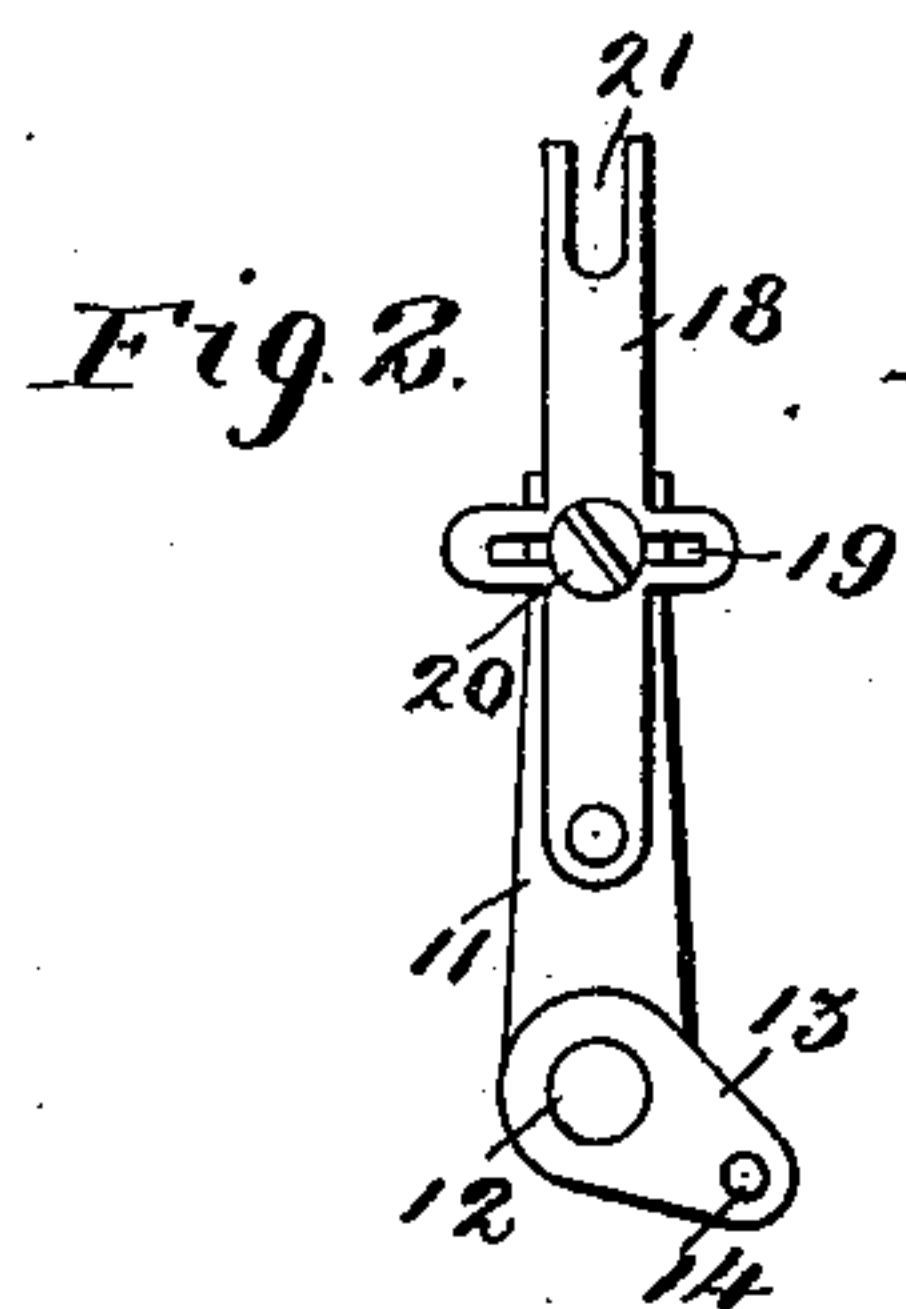
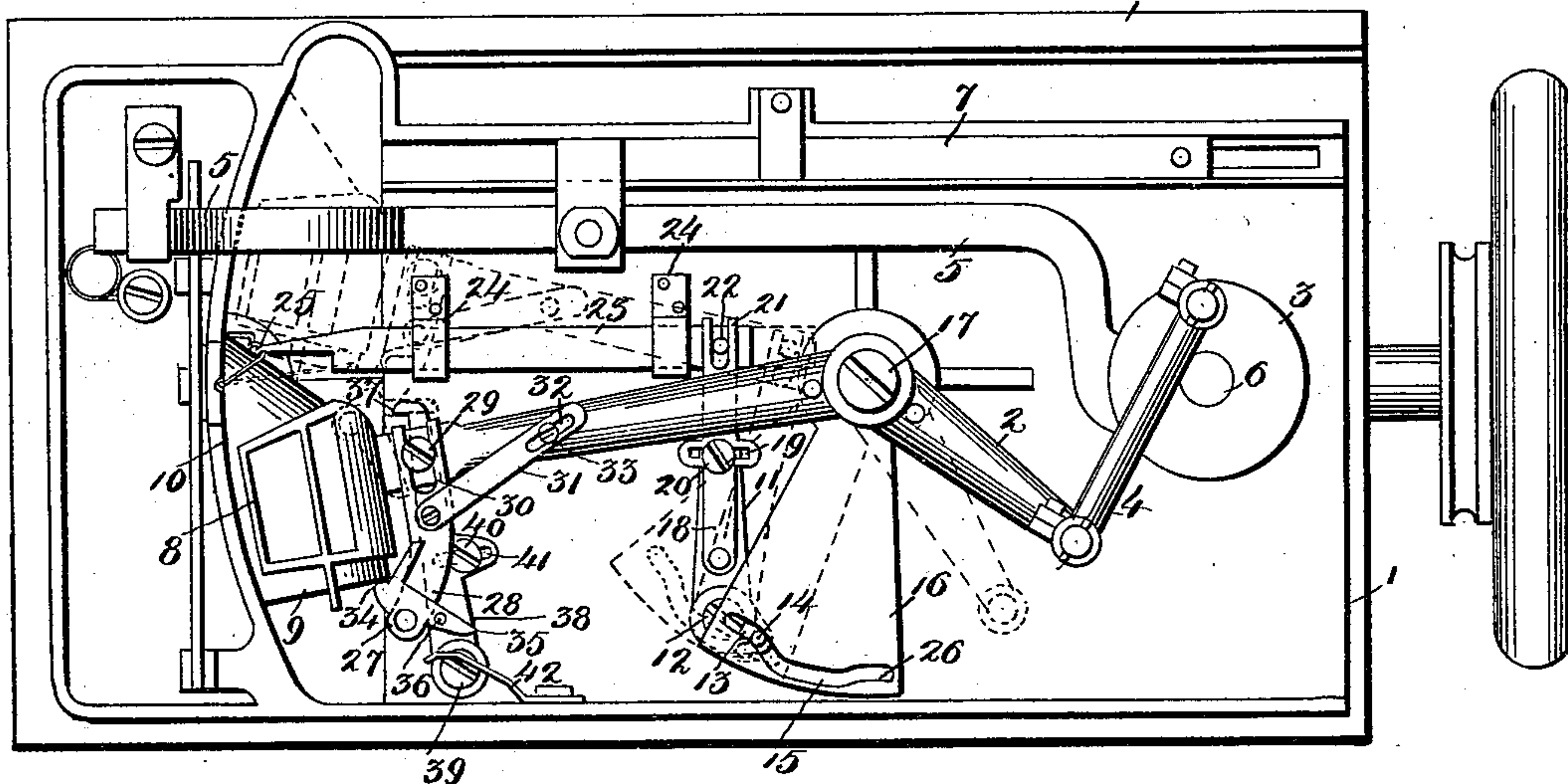
(No Model.)

J. OTT.
SEWING MACHINE.

No. 547,499.

Patented Oct. 8, 1895.

Fig. 1.



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UNITED STATES PATENT OFFICE.

JOHN OTT, OF ST. LOUIS, MISSOURI.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,499, dated October 8, 1895.

Application filed August 31, 1894. Serial No. 521,833. (No model.)

To all whom it may concern:

Be it known that I, JOHN OTT, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in sewing-machines; and it consists in the novel arrangement and combination of parts more fully set forth in the specification, and pointed out in the claims.

In the drawings, Figure 1 is a bottom plan view of the bed-plate of the machine with my improvements attached. Fig. 2 is a plan view of the bar with its extension which operates the hooked bar which passes the loop around the shuttle. Fig. 3 is a side view of the same. Fig. 4 is plan view of the hooked bar which operates the tripping-plate. Fig. 5 is a side view thereof. Fig. 6 is a perspective view of the tripping-plate which acts as a supplemental support for the shuttle. Fig. 7 is a plan view of the curved bar to the end of which the tripping-plate is pivoted, and Fig. 8 is a plan view of the hooked bar passing the loop around the shuttle.

The object of my invention is to construct a sewing-machine in such a manner that the oscillating shuttle may accommodate a spool of thread of ordinary size in place of the bobbin usually employed, which holds only a small quantity of thread, and thus dispense with the inconvenience of frequently winding the bobbin.

In general the invention consists of an oscillating arm pivoted beneath the machine, to the free end of which is secured a holder which carries the shuttle containing a spool of thread, of a suitable tripping device or supplemental holder for the rear end of the shuttle, of suitable means for actuating the tripping device and releasing the same from the shuttle to allow at the proper moment for the free passage of the loop from the needle around the shuttle, of suitable means for restoring the tripping device to its normal position after said loop has passed, of an oscillating hook for passing the loop around the shuttle as the latter is advancing or oscillating during the operation of the machine, of

special means for actuating the hook which passes the loop around the shuttle, and of other details to be now described.

Referring to the drawings, 1 represents the bed-plate of the machine, having pivoted at its under surface the bell-crank or oscillating arm 2, receiving motion from a disk 3 through the medium of a link 4. The feed-lever 5 is actuated by a cam (not shown) on the vertical shaft 6, the motion of the feed-lever being governed by a stitch-regulator bar 7, which moves in longitudinal ways beneath the bed-plate. These parts are old and well known and need no further description. The free end of the arm 2 carries a skeleton-holder 8, which receives the shuttle 9, whose curved surface 10 is normally in contact with the corresponding curved surface of the shuttle-race and is held loosely within its holder to allow for the free passage of the loop around the shuttle. The tapering end of the shuttle passes into the loop formed by the thread when the needle is in its lowest position. (See Fig. 1.) By reason of the large size of the shuttle it becomes necessary to assist this loop in its passage around the tapering portion of the shuttle, and for this purpose I devise the following mechanism: Pivoted to the bed-plate of the machine is a bar 11, from the pivotal point 12 of which extends a short arm 13, from the outer surface of which projects a pin 14, adapted to ride and operate in the path of a compound slot 15, formed along the outer edge of a segmental plate 16, secured to and oscillating with the rock-shaft 17, which oscillates the arm 2. Pivoted to the bar 11 and projecting therefrom is an extension-bar 18, which has a lateral slot 19, through which the said extension can be rigidly secured to the bar 11 by means of the screw-bolt 20 after the extension has once been properly adjusted as to direction through the medium of said slot and bolt. The free end of the extension 18 carries a fork 21, which receives a pin 22, projecting from the under or outer surface of a hooked bar 23, reciprocating within guides 24 on the bottom of the bed-plate. The bar 23 carries at its free end a hook 25 for grasping the loop and passing it around the shuttle as the latter advances. The full lines in Fig. 1 show the position of the parts when the needle is in its lowest po-

sition. The dotted lines show the relative position of the parts after the hook 25 has assisted the loop partially around the shuttle.

From the above it is obvious how the assistance of the loop around the shuttle is accomplished. As the shuttle advances and the plate 16 oscillates, the slot 15 will depress the pin 14 according to the contour of the slot, and by the depression of the pin 14 will oscillate the arm 13 about the pivotal point 12 and thus tilt the bar 11 with its extension 18, the free forked end of the latter drawing the hooked bar 23 backward by the action of the fork on the pin 22 of said arm. After the hooked bar has assisted the loop around the shuttle and has reached the limit of its backward stroke, it is desirable and essential that the hook 25 shall release the loop to allow the latter to pass freely around the enlarged rear portion or body of the shuttle during the completion of its stroke, it being understood, of course, that the hook 25 can only assist the loop as far as the holder, the passage of the loop over the rear part of the shuttle being dependent on the further oscillation of the shuttle through the distended loop thus formed. To accomplish this release of the loop it will be seen that the rear end of the slot 15 is slightly curved inward, as at 26, and while the pin 14 is riding over this inwardly-curved end, the action of the latter is to slightly tilt the arm 13 in a reverse direction to which it was tilted during the passage of the pin 14 along the remaining portion of the slot, thus rocking the bar 11 and extension 8 forward and throwing the hooked bar 23 forward. This forward throw of the hooked bar at the limit of its stroke is very slight and almost imperceptible; but it is sufficient to cause the hook 25 to positively throw off the loop at the proper moment and release itself therefrom. The loop is now ready to pass around the rear body portion and the rear end of the shuttle; but as the shuttle has at the rear end a supplemental support in the form of a tripping-plate 27 means must be devised to disengage the tripping device from the shuttle at the proper moment to allow for the uninterrupted passage of the loop around the same. This mechanism is as follows: Adjustably secured to the arm 2, adjacent to the holder 8, is a curved bar 28, fastened at one end by a screw-bolt 29, passing between the forked end 30 of the bar. From the medial portion of the bar 28 and pivotally secured thereto extends an adjusting-bar 31, having a slot 32 at its free end whereby the same can be adjustably secured to the arm 2 by means of a screw-bolt 33. By the connections just described it is obvious that a perfect adjustment of the bar 28 is possible. To the opposite end of the bar 28 is pivoted the tripping-plate 27, which has a bearing-surface or rounded elbow 34, normally supporting the rear edge of the shuttle. From the arm 35 of the tripping-plate projects inwardly a pin 36. Now, as the arm 2 with its shuttle

and holder and with the connections just described oscillates and reaches that point in its sweep where the loop has passed to the rear end of the shuttle, then at this moment the pin 36 of the tripping-plate strikes the tripping end 37 of the tripping-bar 38, pivoted at 39, at the bottom of the bed-plate, but made adjustable and firmly secured by reason of a screw-bolt 40 passing through the slot 41. When the pin 36 strikes the end 37, the tripping-plate becomes disengaged from the shuttle, as seen by the dotted lines in Fig. 1, and the loop readily and freely passes around the rear end of the shuttle. Of course it becomes necessary to restore the tripping-plate back to its engaging position with the shuttle on the return stroke of the arm 2, and this is accomplished by the free end of the yielding plate or spring 42, secured along the edge of the bed-plate on the under side thereof, striking the free end of the arm 35 of the tripping-plate. The elbow 34 being rounded, the friction between it and the shuttle is reduced to a minimum.

Any convenient and approved form of take-up mechanism may be used in connection with the loop-forming mechanism here described; but none is here shown or described, as the specific form used is immaterial.

Having described my invention, what I claim is—

1. In a sewing machine, the combination with a machine frame of an oscillating arm, a holder secured to said arm, a shuttle carried by the holder and accommodating a spool of thread, a hooked arm for partially passing the loop around the shuttle, means co-operating with the hooked arm for causing the latter to release its hold on the loop and permit the latter to pass around the full length of the shuttle, a suitable tripping plate for temporarily holding and subsequently releasing the rear end of the shuttle to allow the loop to pass around the same, and suitable complementary stitch-forming mechanism, substantially as set forth.

2. In a sewing machine, the combination with a machine frame of an oscillating arm, a holder secured to said arm, a shuttle carried by the holder and accommodating a spool of thread, a plate having a slot of compound curvature moving with the oscillating arm and rigidly secured thereto, a longitudinally moving hooked bar on the under surface of the bed plate, intermediate mechanism between said bar and slotted plate for reciprocating the bar, and suitable complementary stitch forming mechanism, substantially as set forth.

3. In a sewing machine, a suitable oscillating arm, a holder secured to said arm, a shuttle carried by the holder, a slotted plate in connection with the oscillating arm, a bar pivoted to the bed plate of the machine, an arm extending from the pivotal point of said bar, a pin at the free end of said arm operat-

ing within the slot of the plate, an adjustable extension secured to said bar, a forked end on said extension, a reciprocating hooked bar suitably guided on the bottom of the bed plate, and a pin on said hooked bar operating within the forked end of the extension, substantially as set forth.

4. In a sewing machine, an oscillating arm, a shuttle holder carried by the free end thereof, an adjustable curved bar secured to said oscillating arm adjacent to the holder, an ad-

justing bar between said curved bar and oscillating arm, and a pivoted tripping plate or supplemental holder for the rear edge of the shuttle, substantially as set forth.

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

JOHN OTT.

Witnesses:

JAMES J. O'DONOHUE,
EMIL STAREK.