

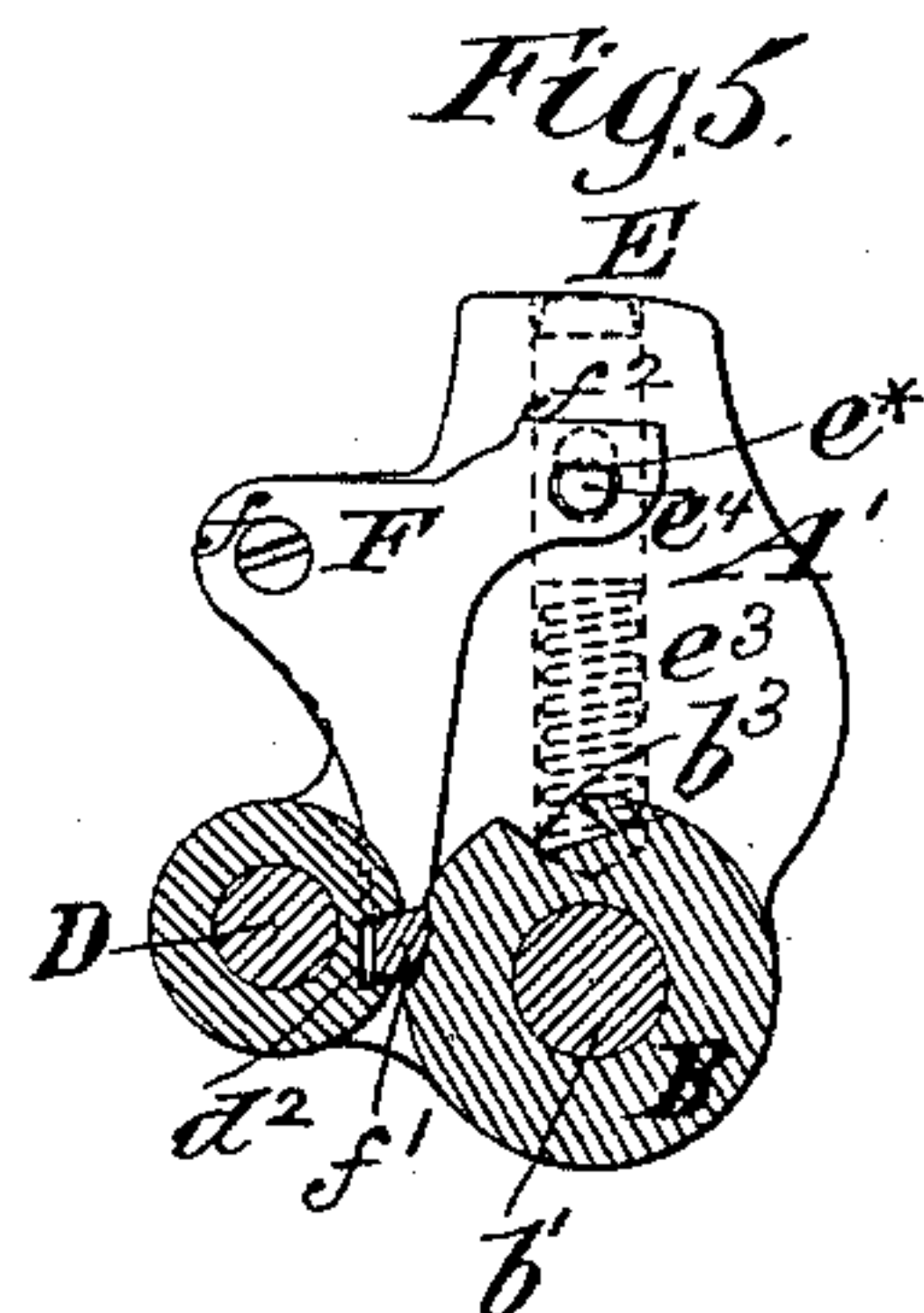
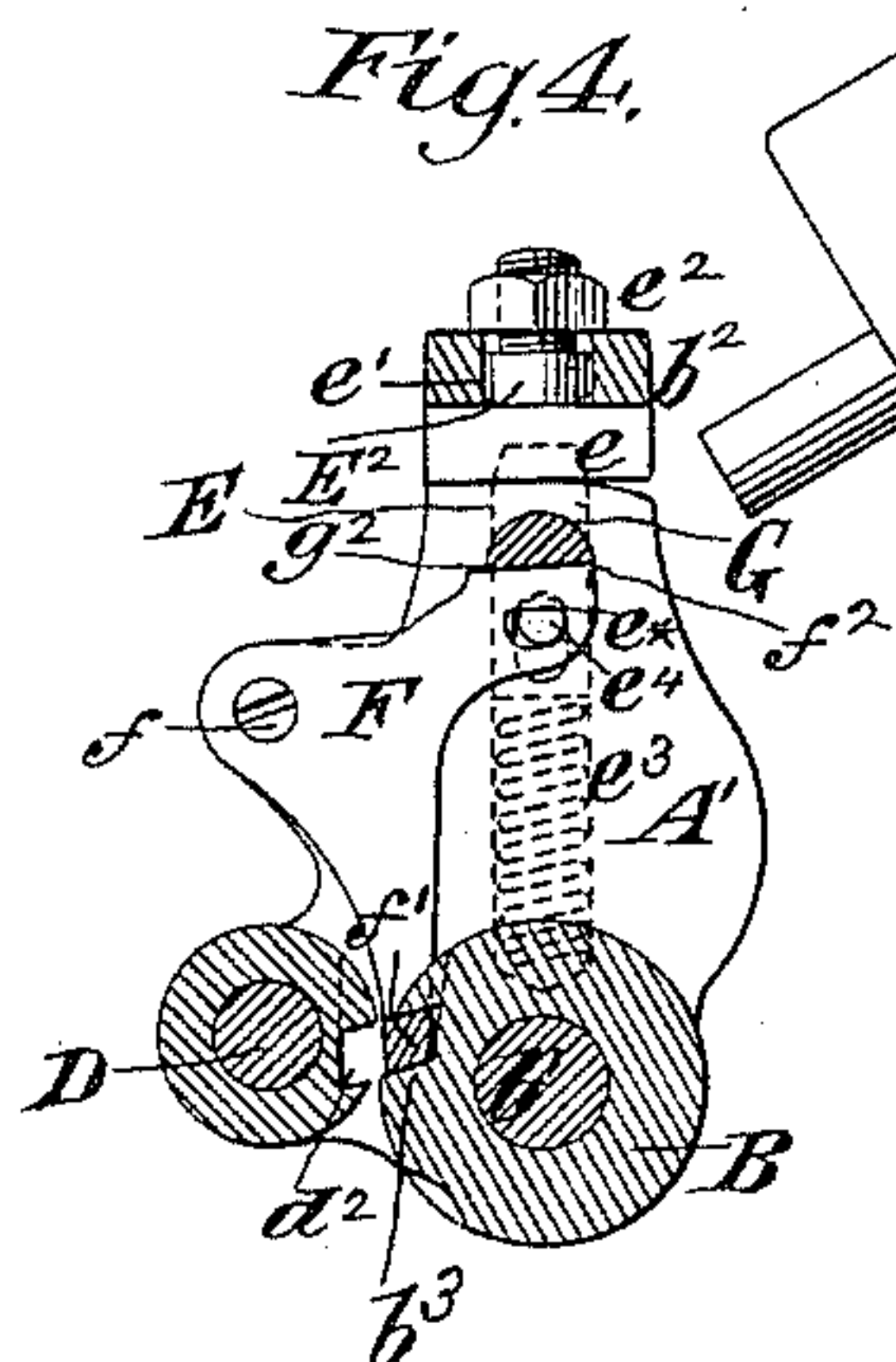
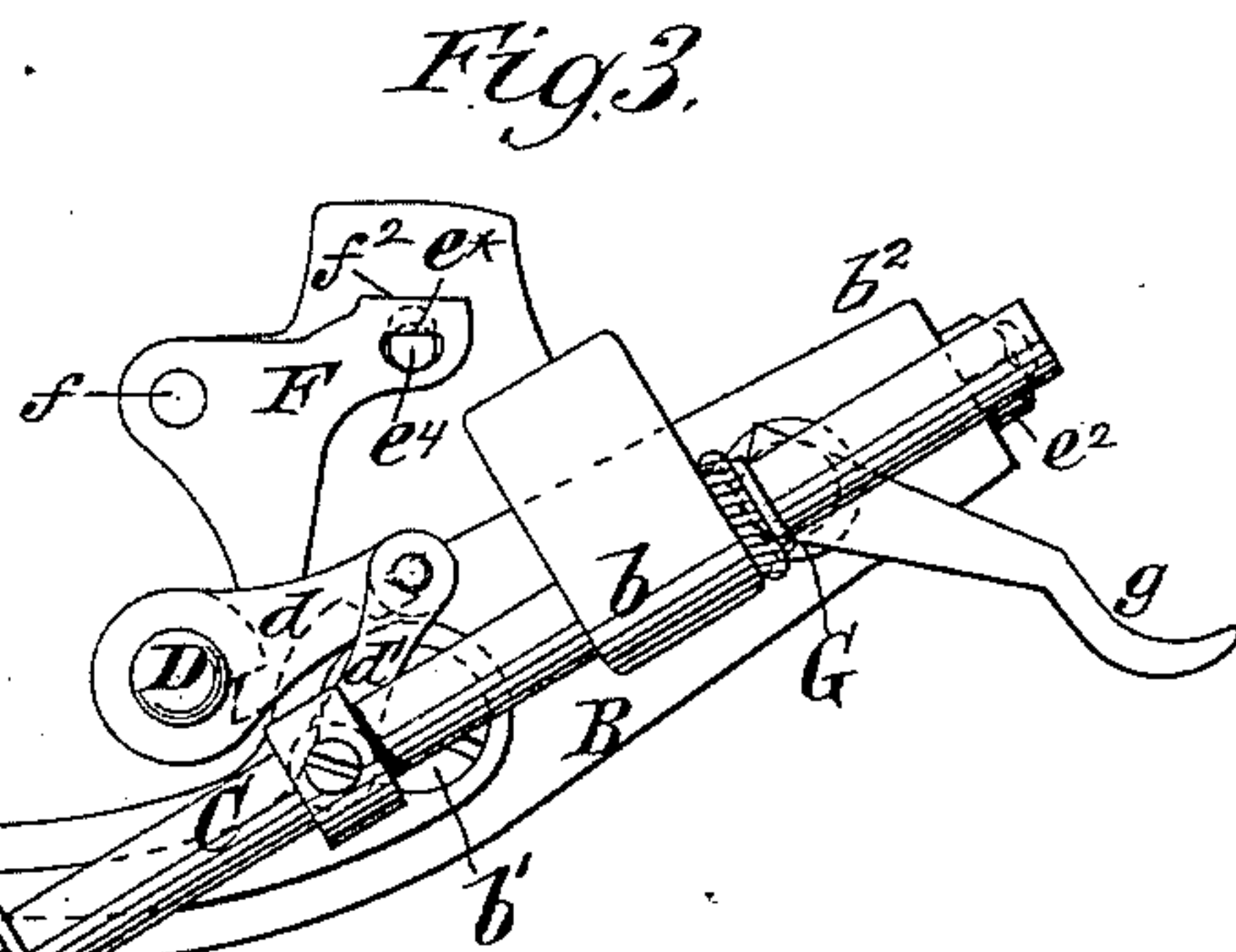
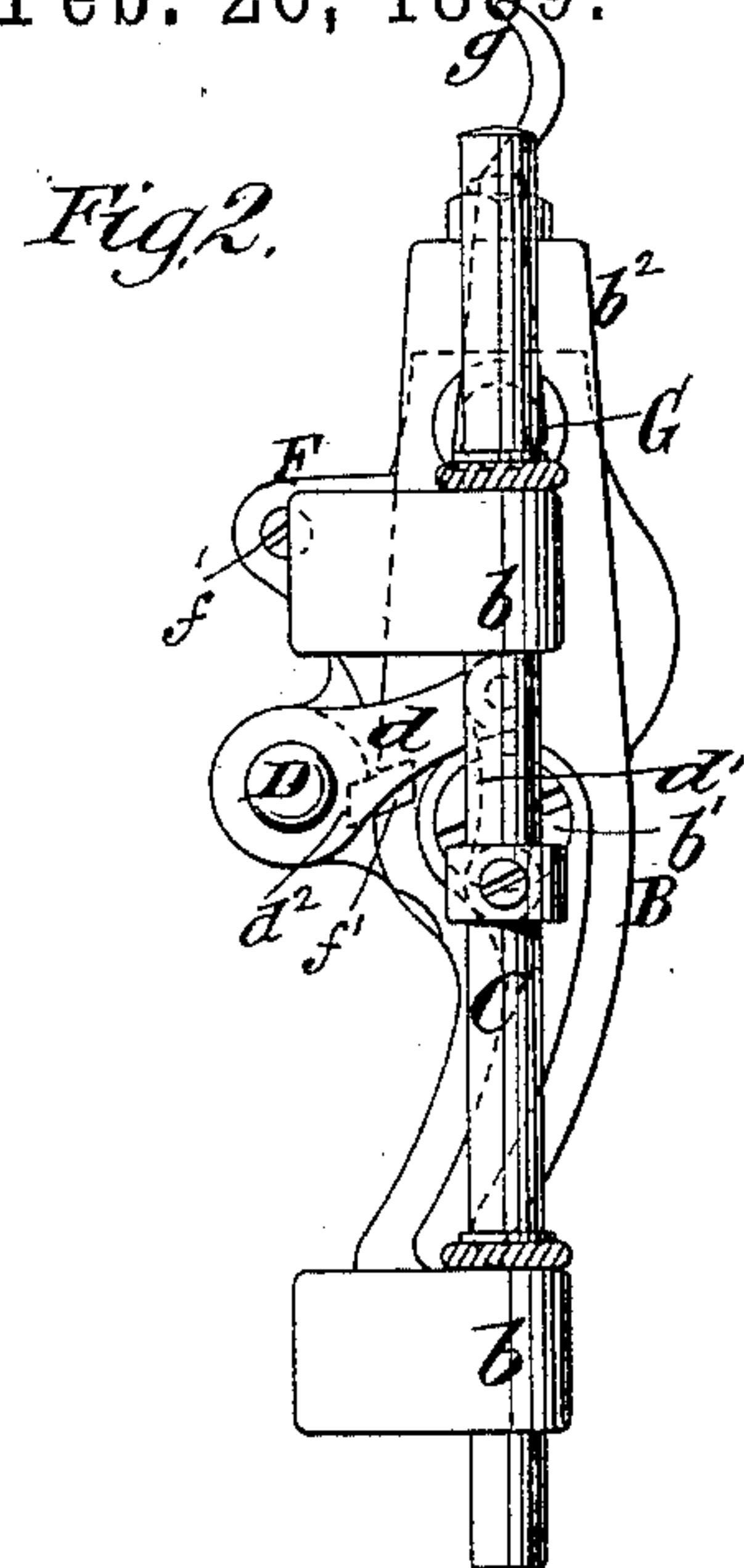
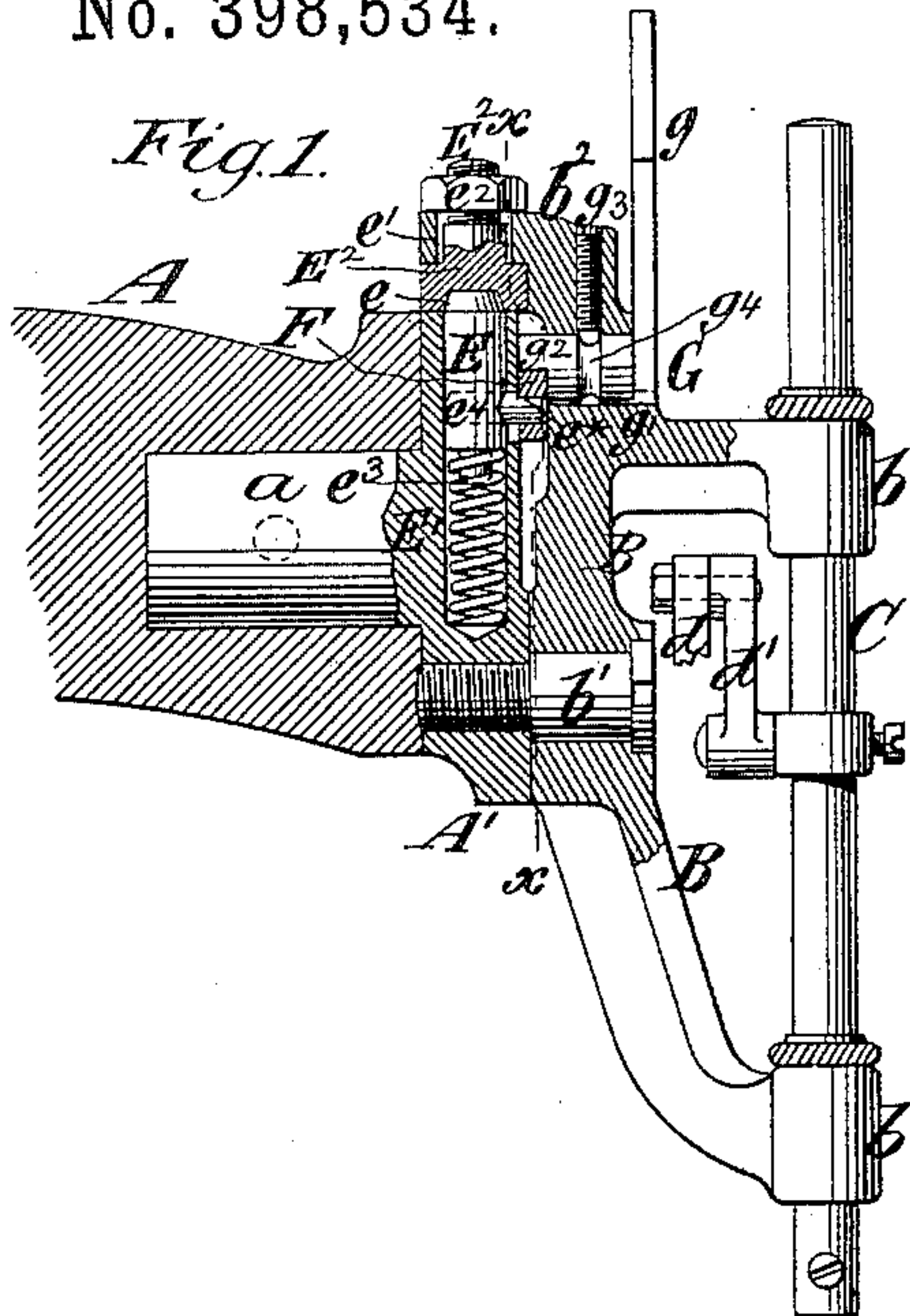
(No Model.)

W. H. PALMER, Jr.

LOCKING DEVICE FOR SEWING MACHINE HEADS.

No. 398,534.

Patented Feb. 26, 1889.



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UNITED STATES PATENT OFFICE.

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LOCKING DEVICE FOR SEWING-MACHINE HEADS.

SPECIFICATION forming part of Letters Patent No. 398,534, dated February 26, 1889.

Application filed January 30, 1888. Serial No. 262,401. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PALMER, Jr., of Norwich, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Sewing-Machines, of which the following is a specification.

In my Letters Patent, No. 364,769, granted June 14, 1887, I have shown and described a sewing-machine head carrying a presser-foot and needle-bar, and which is pivoted upon the end of the sewing-machine arm, so as to swing in a plane transverse to the length of said arm. In that patent one of the two said parts carries a locking-bolt which engages a recess formed directly in the other part for holding the turning head in proper position for working, and it also comprises an unlocking-lever or finger-piece, which is fulcrumed in the part with which the bolt engages, and acts directly upon the end of the bolt for retracting the same. There is also included in said patent a bell-crank lever, which is pivoted upon the end of the sewing-machine arm and connected with the spring-actuated locking-bolt, so that when said bolt is retracted to unlock the head and permit it to be turned said lever will engage the driving-shaft and prevent its rotation, and consequently prevent any movement of the needle-bar in the head. When the locking-bolt is in its locking position, to prevent the turning of the head the aforesaid bell-crank lever is withdrawn from the locking-notch in the driving-shaft, and does not therefore interfere with the operation of said shaft. When, as in my former patent, the recess or socket for receiving the end of the locking-bolt when it is projected into locking position is formed directly in the cast-iron of which the turning head is usually made, such socket after a considerable time becomes worn and enlarged laterally, and it cannot be renewed without throwing away the whole turning head and substituting a new one. Neither is there any opportunity for lateral adjustment in this socket, so as to bring the point of the needle directly over the opening in the work-plate when the parts are new.

Another defect which I have found, after long practical use, to exist in my former ma-

chine is that the unlocking-lever or finger-piece which bears directly on the end of the locking-bolt soon wears the latter, as not enough contact-surface can be secured with this construction to prevent wear.

The objects of my invention are to obviate the objections aforesaid; and one feature of the invention consists in the combination, with a sewing-machine arm and a head pivoted thereto, (one of said parts having a lip overhanging the other,) of a locking-bolt in one of said parts and a socket-piece for receiving the locking end of the bolt, made separate from and made laterally adjustable on the other of said parts. This socket-piece, being a separate part, may be made of steel and hardened, so that it will not be worn readily by the action of the bolt entering it, and may be readily adjusted in the part to which it is applied and in a direction lateral to the locking-bolt, so as to bring it accurately to the position necessary for the safe working of the needle.

The invention also consists in the combination, with a sewing-machine arm and a head pivoted thereto, and having a lip or portion overhanging the end portion of the arm, of a locking-bolt and a locking-lever connected with the bolt and pivoted upon the arm, and a rocking unlocking-trigger journaled in the head and having its end portion cam-shaped to act upon said locking-lever.

In the accompanying drawings, Figure 1 is a sectional elevation illustrating the end portion of the arm and the turning head fitted thereto. Fig. 2 is an end elevation of the parts, the head being adjusted to working position. Fig. 3 is an end elevation of the parts, the head being swung out of working position. Fig. 4 is a sectional view upon about the plane indicated by the dotted line *xx*, Fig. 1, showing the parts as in the position which they occupy when the turning head is locked; and Fig. 5 is a similar section showing the parts in the position which they occupy when the turning head is unlocked.

Similar letters of reference designate corresponding parts in all the figures.

A designates the arm, and A' a disk or plate having a stem, *a*, which is secured in a suit-

able bore in the part A, and which may be considered as forming a part of the arm, although made separate therefrom, inasmuch as it is secured in fixed position on the arm.

5 B designates the head of the machine, which carries the needle-bar C and also the presser-bar. (Not here shown.) The needle-bar C is fitted to reciprocate in guides or bearings *b* upon the head B, and is operated
10 from the needle-operating shaft D by means of an arm, *d*, and a link, *d'*.

The head B is mounted upon the end of the arm A A' by the pivot *b'*, the location of which relatively to the needle-operating shaft
15 D is seen in the several figures 2 to 5, and upon this pivot *b'* the head B may be turned in a plane transverse to the length of the arm A, so as to bring it into operative position, as shown in Fig. 2, or into an inoperative posi-
20 tion, as shown in Fig. 3; and when the head B is turned to the inoperative position shown in Fig. 3 ample room is afforded beneath it for the introduction of the cloth over the work-plate without any interference from the
25 needle.

It will be understood that the sectional view, Fig. 4, corresponds to the operative position of the turning head B, as shown in Fig. 2, and the position of parts in Fig. 5 corresponds to the inoperative position of the turning head B, as shown in Fig. 3. The turning head B has a lip or portion, *b²*, which overhangs the arm A A'; and in the part A' of the arm I have represented a locking-bolt, E,
35 which slides vertically in a suitable socket, E', and engages a locking socket or recess, *e*, which is in a part connected with the turning head B. In my former patent the locking socket or recess *e* was formed directly in the turning head B; but I here form it in a piece which is made separate from the head, and is secured thereto in such manner as to provide for its lateral adjustment. As here
40 represented, the socket or recess *e* is formed in the head of the bolt E², which is inserted through a hole, *e'*, in the overhanging lip *b²* and secured fast in said lip by a nut, *e²*. The hole *e'* is larger than the body of the bolt E², which passes through it, thus providing for the lateral adjustment of the bolt in the lip *b²*,
45 and after it is laterally adjusted to proper position it may be secured in that position by tightening the nut *e²*.

The bolt E², being separate from the turning head B, may be made of tool-steel and hardened, so that its locking socket or recess *e* will not be subject to lateral wear from the locking-bolt E, and in adjusting the parts when new the nut *e²* may be slackened, the
55 head B turned to operative position and locked by the bolt E, engaging the locking socket or recess *e*, and the turning head B may then be moved slightly, as permitted by the loose fit of the bolt E² in the hole *e'* and
60 until the needle (not here shown) comes to the exact position required over the work-

plate. The nut *e²* may then be tightened, and will hold the bolt E², and therefore the locking socket or recess *e*, in exactly the proper position relatively to the other parts. 70

The bolt E is projected by a spring, *e³*, applied below it and in the socket or recess E', and has a pin, *e⁴*, projecting transversely from its side and beyond the end of the part A'. The projecting portion of this pin *e⁴* is flattened, as shown at *e⁴* in Figs. 4 and 5, and enters a corresponding opening in one arm of the bell-crank lever F, fulcrumed at *f* to the part A' of the sewing-machine arm. Inasmuch as the projecting end portion of the
75 pin *e⁴* is flattened, and as the lever F has a correspondingly-shaped hole to receive it, it will be seen that the lever F without other means serves to hold the pin *e⁴* in place in the bolt without screwing or otherwise securing the pin therein, and hence the ready assemblage of parts is provided for. 80 85

The lower arm of the lever F carries a locking-tooth, *f'*, which when the head B is turned to an inoperative position (shown in Fig. 3) engages a locking-notch, *d²*, in the driving-shaft D, or in the hub of the arm *d*, which is fast upon said shaft, and thus holds said shaft against turning and prevents any operation of the needle-bar C. When the parts are in
90 operative position, as shown in Figs. 2 and 4, the locking-tooth *f'* is received in the notch *b³* in the turning head B, and, being withdrawn from the locking-notch *d²*, does not interfere at all with the operation of the needle-operating-shaft D. 95 100

For retracting the bolt E and moving the locking-lever F, I have represented a rocking trigger, G, having an upwardly-projecting finger-piece, *g*, whereby it may be operated, and fitting a cylindric bore, *g'*, in the turning head B. The end of the journal portion of this trigger is cut away, as shown at *g²*, to form a flat or cam-shaped surface bearing upon the lever F at the point *f²*, and when the trigger
105 G is rocked by the finger applied to its arm or part *g* the cam-shaped surface *g²*, acting upon the surface *f²*, operates the lever F, and through the pin *e⁴* retracts the bolt E and leaves the head B free to turn, and, indeed, the head may then be turned by pulling still
110 more upon the trigger G, the first movement of such trigger serving to retract the bolt E, and a further pull upon the trigger serving to turn the head B. The unlocking-trigger G is held in place by a pin, *g³*, inserted in the head B and entering a circumferential groove, *g⁴*, in the journal portion of the trigger, as shown in Fig. 1. 115 120

What I claim as my invention, and desire to secure by Letters Patent, is— 125

1. The combination, with a sewing-machine arm and a head pivoted thereto, one of said parts having a lip overhanging the other, of a locking-bolt in one of said parts and a socket-piece for receiving the locking end of the bolt made separate from and laterally adjust- 130

able on the other of said parts, substantially as herein described.

2. The combination, with a sewing-machine arm and a head pivoted thereto and having
5 a lip or portion overhanging the end portion of the arm, of the locking-bolt E, the locking-lever F, connected with the bolt, and the rocking unlocking-trigger journaled in the head,

and having its end portion cam-shaped to act upon the said locking-lever, substantially as herein described.

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Witnesses:

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