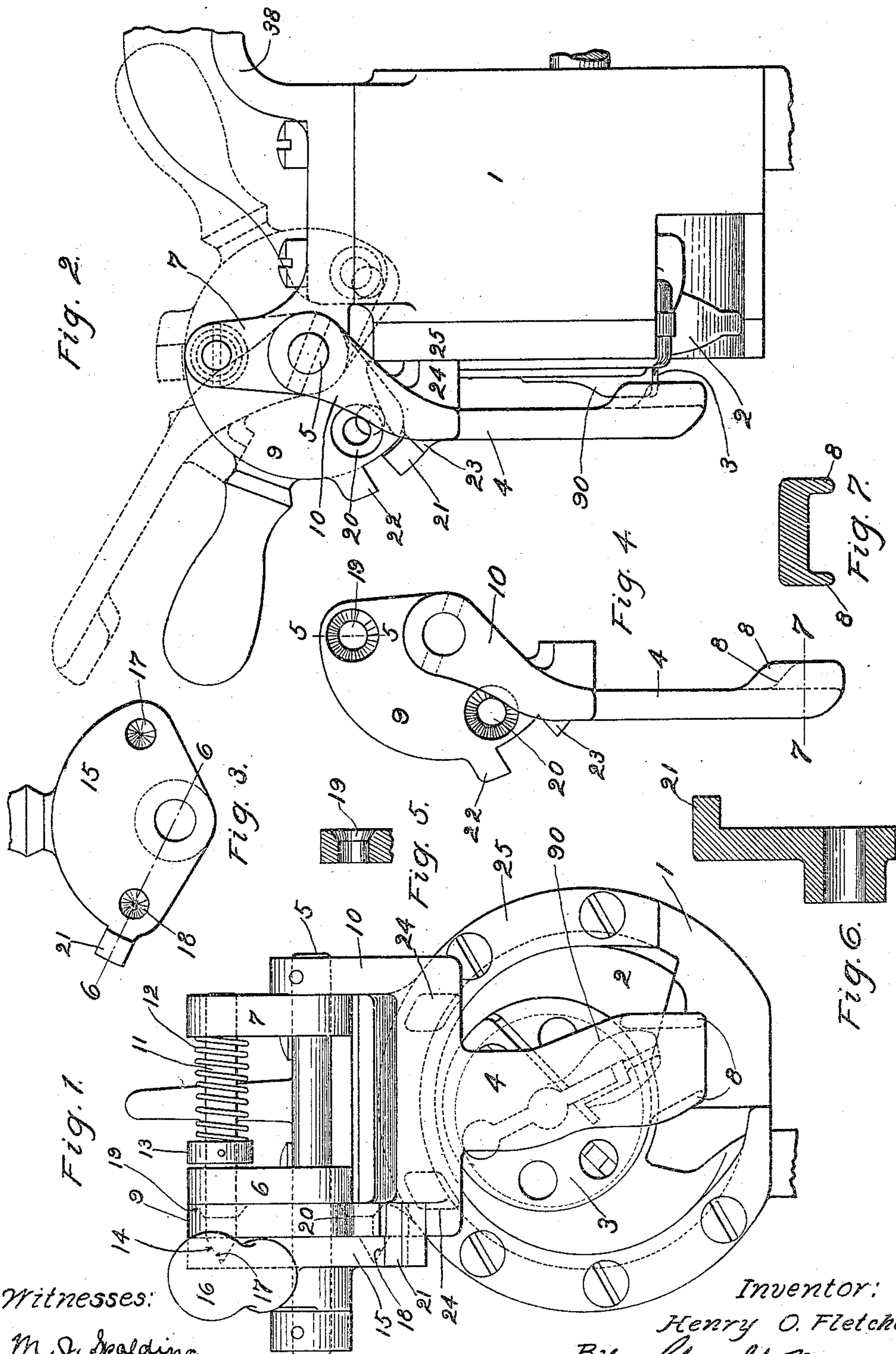


H. O. FLETCHER.
SHUTTLE LOCKING DEVICE FOR SHOE SEWING MACHINES.
APPLICATION FILED JUNE 25, 1908.

962,206.

Patented June 21, 1910.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY O. FLETCHER, OF HYDE PARK, MASSACHUSETTS.

SHUTTLE-LOCKING DEVICE FOR SHOE-SEWING MACHINES.

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Specification of Letters Patent. Patented June 21, 1910.

Original application filed December 10, 1907, Serial No. 405,939. Divided and this application filed June 25, 1908. Serial No. 440,215.

To all whom it may concern:

Be it known that I, HENRY O. FLETCHER, a citizen of the United States, residing at Hyde Park, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Shuttle-Locking Devices for Shoe-Sewing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This is a division of my original application Serial No. 405,939, filed December 10, 1907, and relates more particularly to the latch or locking device for coöperating with the shuttle and shuttle box in retaining the bobbin case and bobbin in proper operative position when the machine is running and permitting the quick removal of the bobbin and bobbin case. To this end, I have provided an automatic locking mechanism in connection with a latch or holding arm and handle, so arranged that the parts can be moved instantly from one position to the other simply by operating the handle.

The constructional details of my invention will be pointed out more at length in the following description taken with reference to the accompanying drawings in which I have shown a preferred embodiment of my invention.

In the drawings; Figure 1 shows the locking device in front elevation, in operative relation to the parts held locked thereby; Fig. 2 is a view thereof in side elevation; Fig. 3 is a side view of a portion of the handle member, the handle itself being broken away; Fig. 4 is a similar view of the latch member or arm and adjacent plate; Fig. 5 is a sectional detail on the line 5—5, Fig. 4; Fig. 6 is a sectional detail on the line 6—6, Fig. 3; and Fig. 7 is a transverse section taken on the line 7—7, Fig. 4.

Referring to the drawings, I have indicated a shuttle box or case 1 (the rear or main portions of the sewing machine being broken away Fig. 2 and not shown) containing a shuttle 2 which carries a bobbin case 3 and its usual bobbin (not shown). The securing means consists of a retainer or locking arm 4 pivoted at 5 to ears 6, 7, in the outer end of a bracket 38, said arm having separating lips 8 to limit the movement of the bobbin case 3 by straddling a lug 90 of the bobbin case. The upper end of the

arm 4 is forked at 9, 10, the former having a plate-like extension, shown best in Fig. 4, and between the forks I have mounted a locking bolt 11 normally held toward the left, Fig. 1, by a spring 12 bearing against the ear 7 at one end and against a collar or shoulder 13 on the bolt at the other end. The forward end of said bolt 11 is beveled as indicated at 14 and normally projects through the fork 9 into a correspondingly beveled aperture in a plate 15 operated by a handle 16. There are two of the beveled apertures 17, 18, in the plate 15 as best shown in Fig. 3, and two similarly beveled holes 19, 20, for said bolt in the fork 9, as best shown in Figs. 4 and 5.

The plate 15 is provided with a projecting lug or dog 21 in position to engage a corresponding lug 22 on the fork 9, sufficient loose motion being provided for between the lugs 21, 22, see Fig. 2, to permit the plate 15 to move sufficiently to crowd the bolt 11 back before the two lugs strike together, whereupon the partially retracted bolt is moved entirely back by the unlocking impulse of the fork 9 as the arm 4 is lifted. When the arm 4 has been raised sufficiently out of the way of the shuttle, the pin 11 locks it in raised position by springing into the hole 20 of the fork 9 and the recess or aperture 18 of the plate 15. The holes in the fork 9 are slightly nearer to each other than the holes in the plate 15, so that the relative movement due to the loose motion between the lugs 21 and 22 will bring them alternately into line with each other to receive the locking bolt for its subsequent locking movement. For unlocking the lifted arm 4 so as to permit it to be restored to the full line position shown in the drawings, the lug 21 strikes against a lug 23 on the fork 9. On the underside of the bobbin case retainer arm 4 adjacent its upper end are two presser studs or blocks 24 in position to bear against the shuttle retaining ring 25 (held in fixed position by screws, Fig. 1) when the retainer 4 is swung down into locked position, thereby always maintaining a sufficient open space between the lug 90 of the bobbin case and the lips 8 of said retainer to permit the free movement of the thread loop in the rotation of the shuttle when a loop is pulled down by the take-up (not shown).

In the course of the foregoing description,

I have set forth the general operation of the device. In order to remove the bobbin, the operator swings up the handle 16 which automatically retracts the bolt 11, first from
 5 engagement with the handle plate 15 and then from the fork 9, thereby permitting the engagement of the lugs 21 and 22. This latter engagement swings the locking arm 4
 10 upwardly into approximately horizontal position, raised sufficiently to be entirely out of the way as shown in dotted lines in Fig. 2. Here the arm 4 is automatically locked
 15 by the springing of the bolt 11 into the aligning holes 20 and 18, which are respectively in the fork 9 and the plate 15. After the depleted bobbin has been removed and a full bobbin put in place, the locking arm 4 is
 20 swung down into locking position by a reverse movement of the handle 16 which first retracts the bolt 11 from the recess or opening 18 and then from the hole 20, whereupon
 25 the lug 21 of the handle plate 15 engages the lug 23 of the fork 9 and positively moves the fork 9 and arm 4 downwardly until aligned openings 19 and 17 come opposite the
 bolt 11 which thereupon springs into locking engagement therewith and holds the arm 4 locked.

It will be understood that I am not limited
 30 otherwise than as expressed in the claims, to the details herein set forth as constituting the preferred embodiment of my invention and that my invention is not restricted to shoe sewing machines, but is
 35 applicable to various kinds of sewing machines.

Having described my invention, what I claim as new and desire to secure by Letters
 Patent of the United States is:

40 1. The herein described locking device for a shuttle box and its shuttle and bobbin case, consisting of a pivoted locking arm normally depending in position to retain the bobbin case in place, a spring actuated locking bolt
 45 extending transversely of the plane of piv-

otal movement of said locking arm eccentrically of its pivot, and an operating handle provided with means for automatically releasing said bolt and thereafter swinging the arm into unlocked position.

2. The combination with a shuttle box and its shuttle and bobbin case, of a pivoted locking arm normally depending in position to retain the bobbin case in place, a spring
 55 actuated locking bolt extending transversely of the plane of pivotal movement on said locking arm eccentrically of its pivot, and an operating handle provided with means for automatically releasing said bolt and swinging the arm into unlocking position,
 60 and thereafter permitting the bolt to spring into locking position to lock the arm raised.

3. The combination with a shuttle box, of a locking arm pivoted to swing adjacent the
 65 end of said box, said arm having a wide forked upper end, one of the forks thereof having a plate-like extension provided with separated beveled holes, and projecting lugs, and a cooperating plate and handle mounted
 70 coaxially of said arm next to said plate-like extension and provided with beveled apertures slightly farther apart than said openings and adapted at times to aline therewith, said handle plate having a lug in position
 75 to engage said lugs, one at a time according to the direction of movement of the handle, and a spring impelled locking bolt mounted in position to cooperate with said holes in locking and unlocking their
 80 respective parts according to the position into which said handle and locking arm are moved.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HENRY O. FLETCHER.

Witnesses:

M. J. SPALDING,
 EDWARD MAXWELL.