

No. 782,541.

PATENTED FEB. 14, 1905.

E. L. BOWERS.
BOBBIN CASE LATCH FOR SEWING MACHINES.

APPLICATION FILED OCT. 16, 1903.

Fig. 3

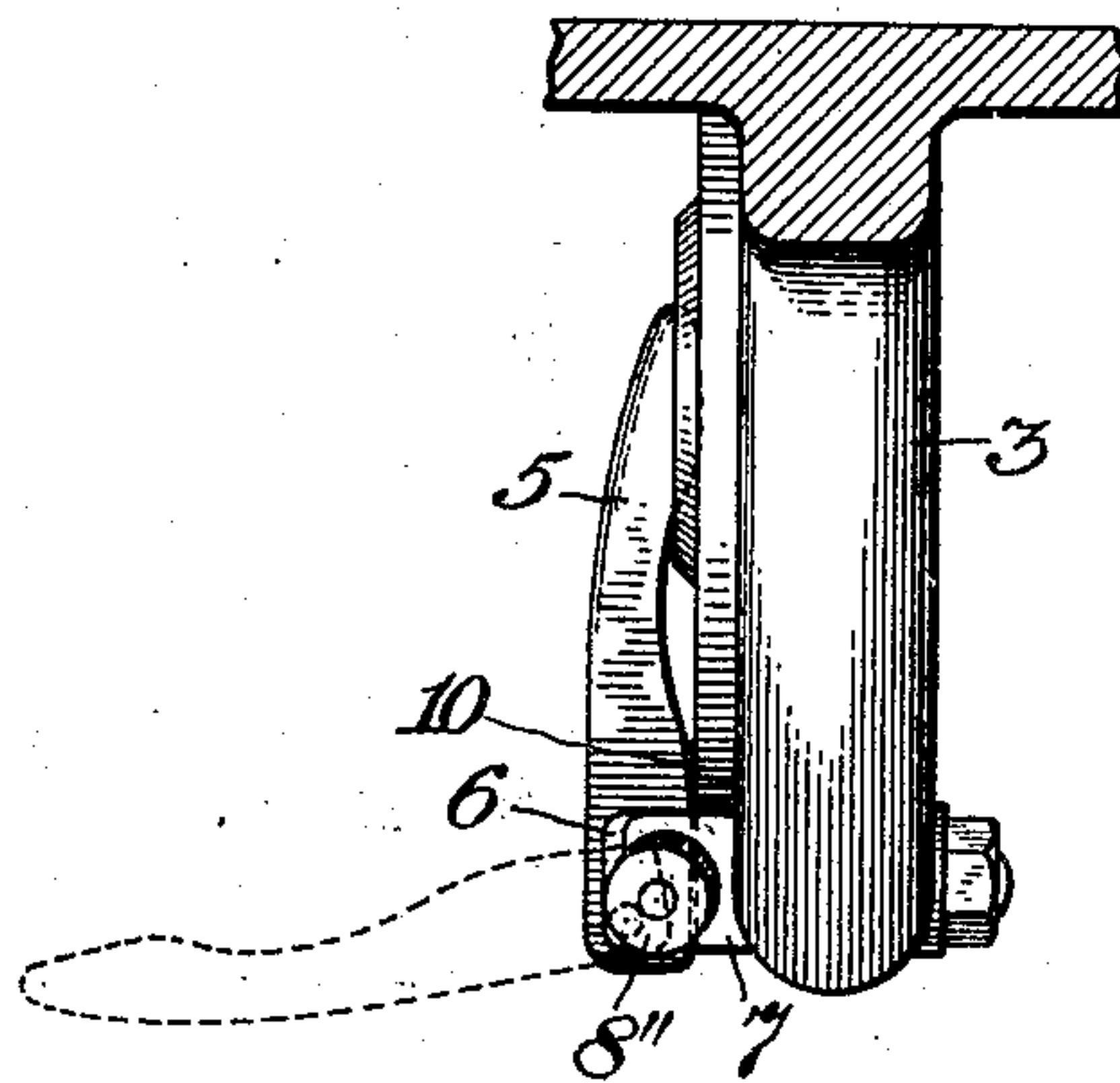


Fig. 1

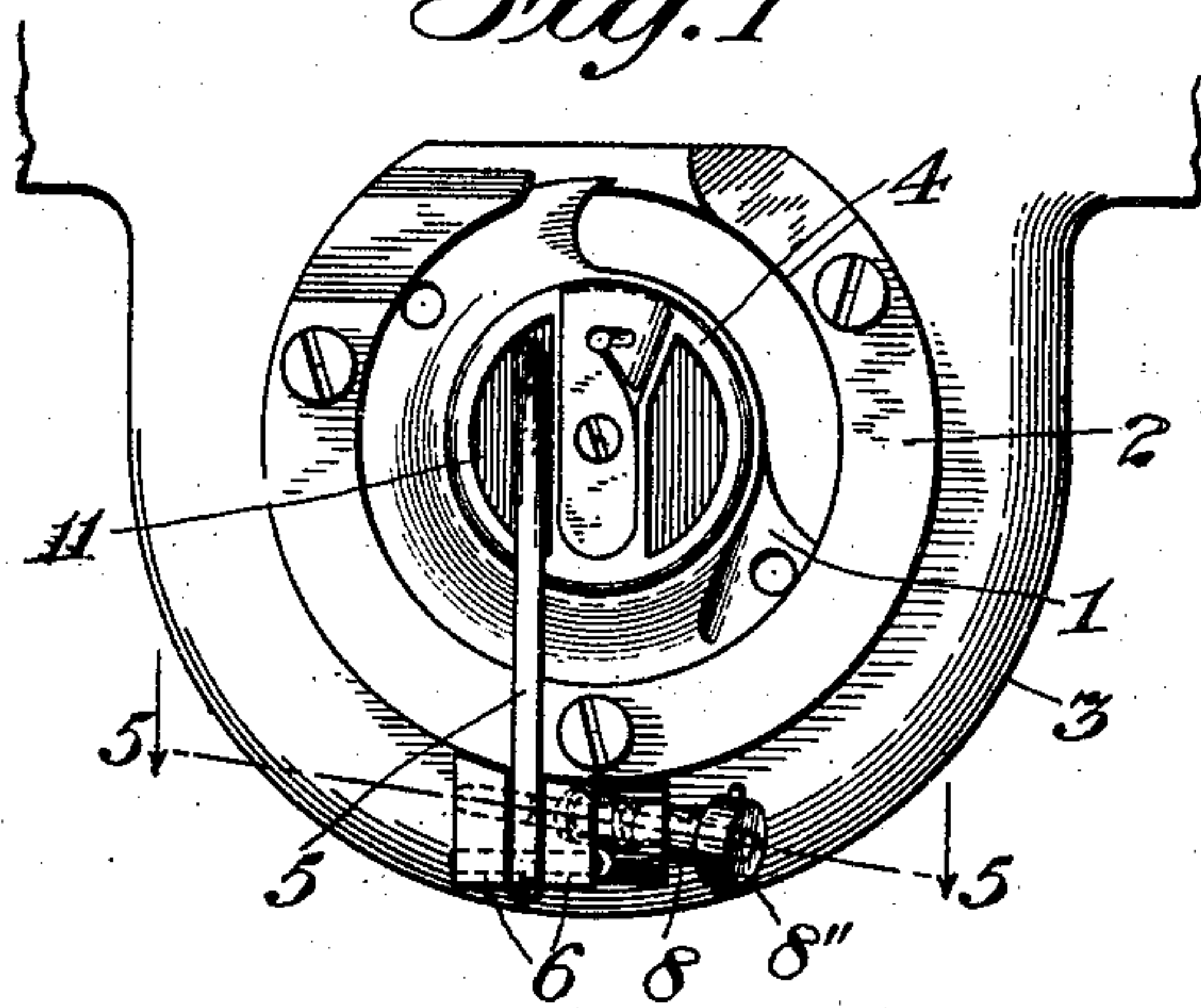


Fig. 2

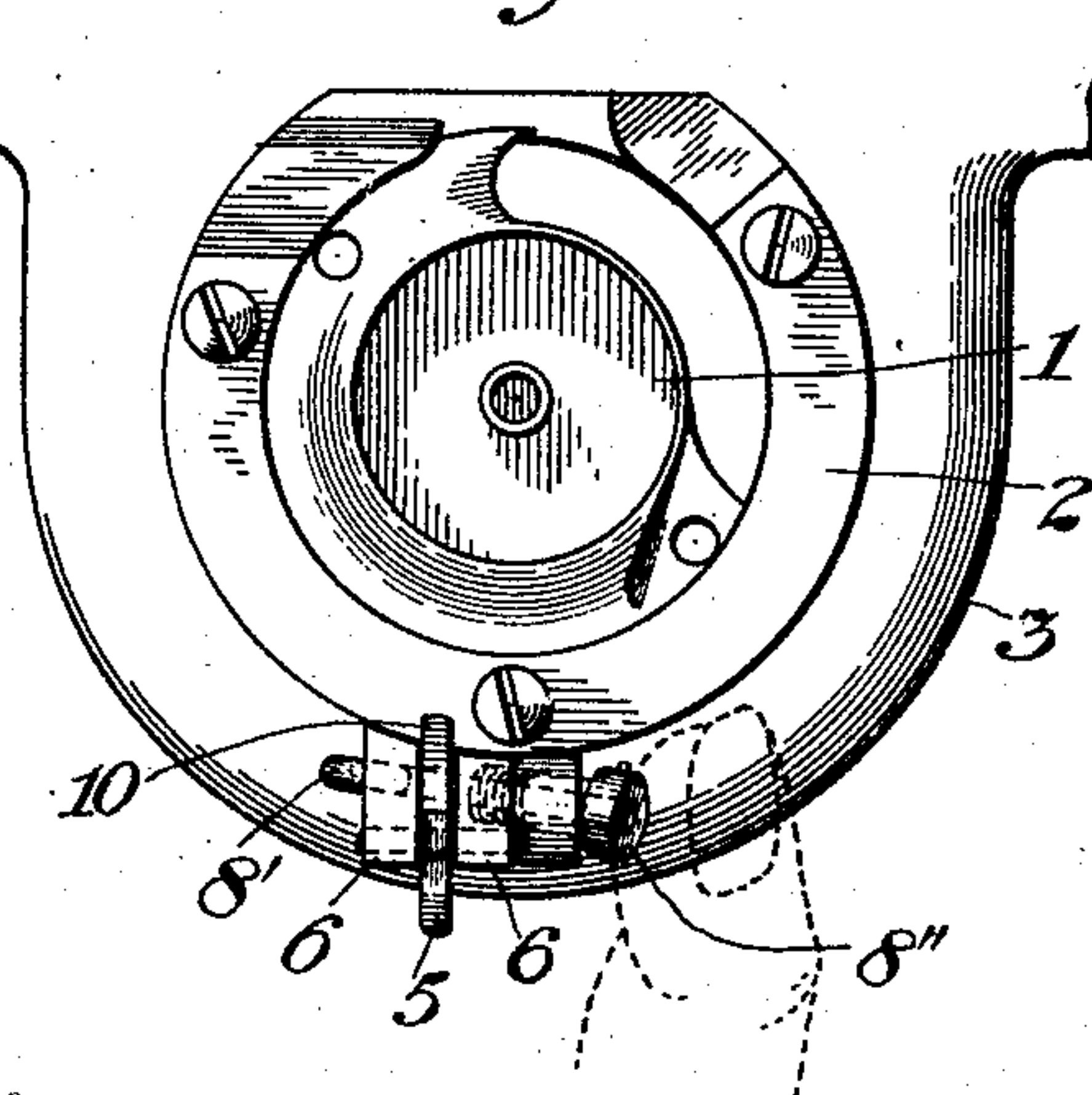


Fig. 4

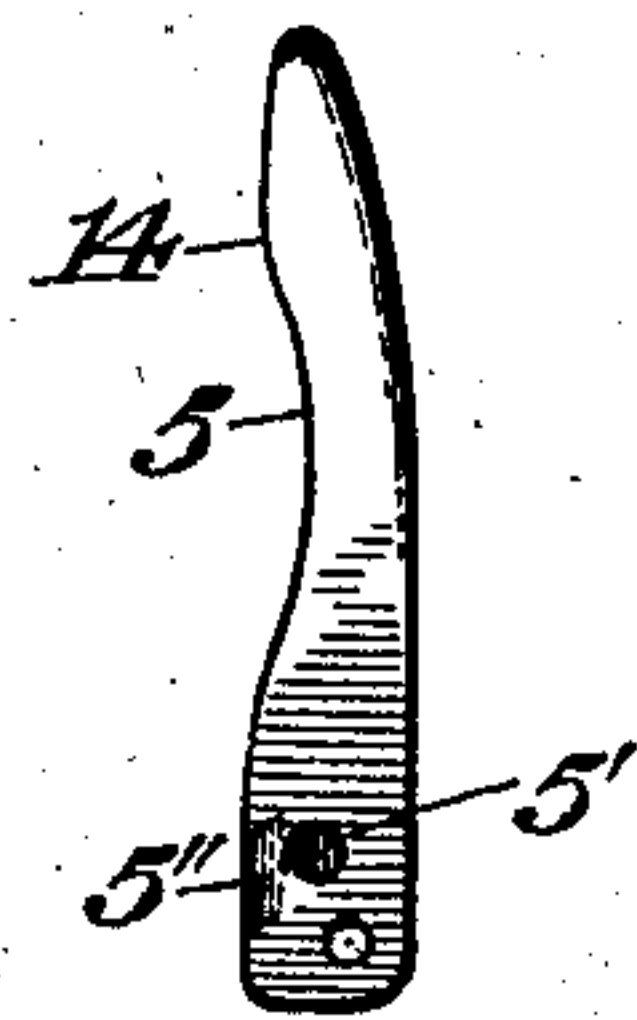
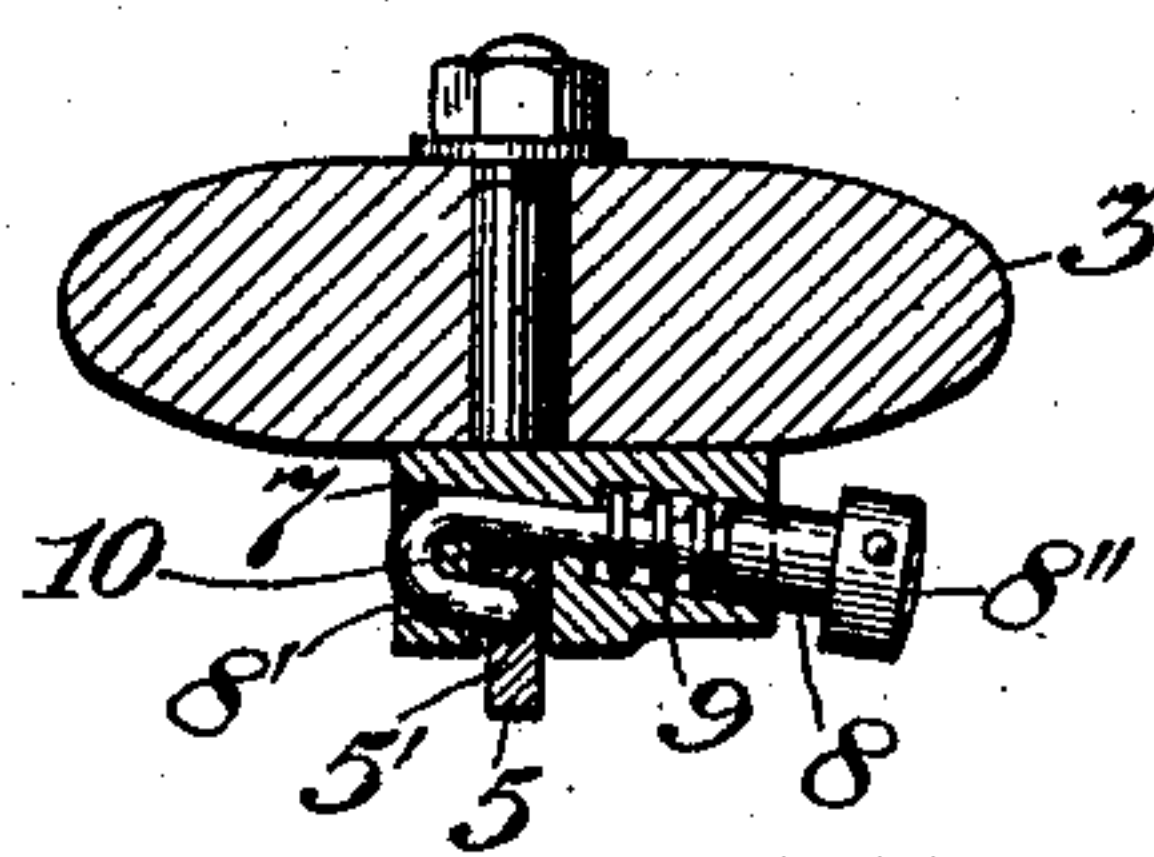


Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

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BOBBIN-CASE LATCH FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 782,541, dated February 14, 1905.

Application filed October 16, 1903. Serial No. 177,279.

To all whom it may concern:

Be it known that I, EDWARD L. BOWERS, a citizen of the United States, and a resident of Orange, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Bobbin-Case Latches for Sewing-Machines, of which the following is a specification.

In that class of sewing-machines employing a rotary or oscillating shuttle the bobbin and bobbin-case are located in operative position within a seat or opening in the face side of the shuttle and are removably retained therein, so as to be capable of being readily removed for the purpose of resupplying the bobbin with thread or otherwise by means of a latch.

My present invention has for its object to provide an improved latch of the character referred to which will be simple in construction and effective in operation; and to this end the invention consists in the novel features of construction and combinations of parts, as hereinafter set forth in detail and pointed out in the claims.

Referring to the accompanying drawings, forming part of this specification, Figure 1 is a face view of a portion of a sewing-machine embodying my invention, showing the latch in closed or operative position relative to the bobbin-case. Fig. 2 is a similar view showing the latch in its opened or inoperative position and the bobbin and bobbin-case removed from the shuttle. Fig. 3 is a side or edge view of the construction shown in Figs. 1 and 2, showing the latch in its closed or operative position in full lines and in its opened or inoperative position in dotted lines. Fig. 4 is a detail view of the latch removed from its connection with the machine; and Fig. 5 is a sectional view on line 5 5 of Fig. 1, showing the connection between the latch and the catch for holding it in closed position.

In the drawings, 1 indicates a rotary shuttle, 2 the shuttle raceway-frame, and 3 the bracket or hanger at the under side of the sewing-machine bed-plate adjacent to its front end, within which the said raceway-frame is

secured, these several parts being of usual construction and arrangement.

The bobbin-case (indicated at 4) is adapted to be seated within the shuttle 1 in the usual manner and be removably retained therein by means of the latch 5, this latch in accordance with my invention being pivoted at one end between two ears 6 6 on a block 7, secured to the bracket 3 and at its opposite or free end being movable to and from an operative position relatively to the bobbin-case for retaining the latter in the shuttle. As a means for holding the latch in its said operative or closed position I have provided a catch device 8, as most clearly shown in Fig. 5, which is supported to slide within an opening in the block 7, with one end, 8', arranged to engage the latch within a seat or opening 5' therein and its opposite or operating end 8'' arranged to project beyond one side of the block 7 in a convenient position to be reached by the operator, a suitable spring, such as the coiled spring 9, being arranged to yieldingly hold the catch in a normal position for locking engagement with the latch, as clearly shown in Figs. 1 and 5. With such described arrangement of parts when it is desired to release the latch for the purpose of permitting the removal of the bobbin-case and bobbin from the shuttle the operator simply presses against the operating end 8'' of the catch 8 to move its inner end 8' from engagement with the latch, as shown in Fig. 2, a suitable spring, such as 10, being preferably employed to normally exert an outward pressure against the latch and cause it to automatically move to its open or inoperative position when so released by the catch 8, this spring 10 in the present case being the form of a flat spring attached to the block 7 in a position behind the latch, as shown in Figs. 2 and 5. In returning the latch to its operative or closed position after the bobbin-case and bobbin have been replaced in the shuttle it engages with the end 8' of the catch and forces the same laterally out of its path until its seat or opening 5' comes opposite or registers with the end of the catch, when the

latter will be caused to automatically snap into the said seat or opening under the action of the spring 9 and securely lock the latch in its closed position.

5 In order to permit the ready movement of the latch past the catch when being returned to its closed position, the latch is provided with a tapering or cam surface 5", as most clearly shown in Fig. 4, which operates to
10 gradually force the catch laterally from the path of the latch in the manner described.

The catch 8 is operated to release the latch, as hereinbefore described, by an inward pressure against the operating end 8" of the catch.
15 This is permitted in the construction shown by forming the catch with a return-bend therein adjacent to its inner end, so that the latter may engage with the latch on that side thereof opposite that on which the operating end
20 8" of the catch is located. It will of course be understood that the catch might be made in the form of a straight pin and engage with the catch on that side thereof adjacent to the operating end of the catch; but in such case
25 the catch would have to be drawn outwardly to release the latch, and as this would usually require the use of the thumb and forefinger I do not consider it as desirable a construction as that shown, in which the mere
30 pressure of the thumb or finger or other suitable tool only is required to operate it.

When the bobbin-case is located within the shuttle, it is not sufficient that it be merely retained therein, but it is also necessary that it
35 should be held in a stationary or non-rotatable position. To effect this in the present case, I have cut away part of the face-wall of the bobbin-case, as at 11, so as to form an opening into which the latch may be received to
40 loosely engage with the bobbin-case and hold it against rotation, the inner edge or side of the latch where it extends into the opening of the bobbin-case being rounded, as at 14, so as to permit the free passage of the needle-
45 thread loop between the latch and the bobbin-case when being carried around the latter by the shuttle.

What I claim is—

1. In a sewing-machine, the combination

with the shuttle and the bobbin-case, of a bob- 50
bin-case latch, a slidably-mounted catch movable to and from a position for locking engagement with said latch and being provided with an operating part and a latch-engaging part, the said latch-engaging part being ar- 55
ranged to engage with the latch on that side thereof opposite that on which the operating part is located whereby it may be moved under a pushing pressure by the said operating part to release the latch, and means for automat- 60
ically opening the latch when released by its said catch.

2. In a sewing-machine, the combination with the shuttle and the bobbin-case, of a piv- 65
oted bobbin-case latch, a slidably-mounted catch movable to and from a position for locking engagement with said latch and being provided with an operating part and a latch-en- 70
gaging part, the said latch-engaging part being arranged to engage with the latch on that side thereof opposite that on which the oper- 75
ating part is located whereby it may be moved under a pushing pressure by the said operating part to release the latch, and means for automatically opening the latch when re-
leased by its said catch.

3. In a sewing-machine, the combination with the shuttle and the bobbin-case, of a bobbin-case latch, a slidably-mounted catch 80
movable to and from a position for locking engagement with said latch and being provided with an operating part and a latch-engaging part, the said latch-engaging part being formed by a return-bend in the catch and being arranged to engage with the latch on 85
that side thereof opposite that on which the operating part is located whereby it may be moved under a pushing pressure by the said operating part to release the latch, and means yieldingly holding the catch in a normal po- 90
sition for locking engagement with the latch.

Signed at New York, in the county of New York and State of New York, this 30th day of September, A. D. 1903.

EDWARD L. BOWERS.

Witnesses:

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