(No Model.)

C. E. TIBBLES.

SEWING MACHINE.

No. 383,924. Patented June 5, 1888.

Fig. 1.

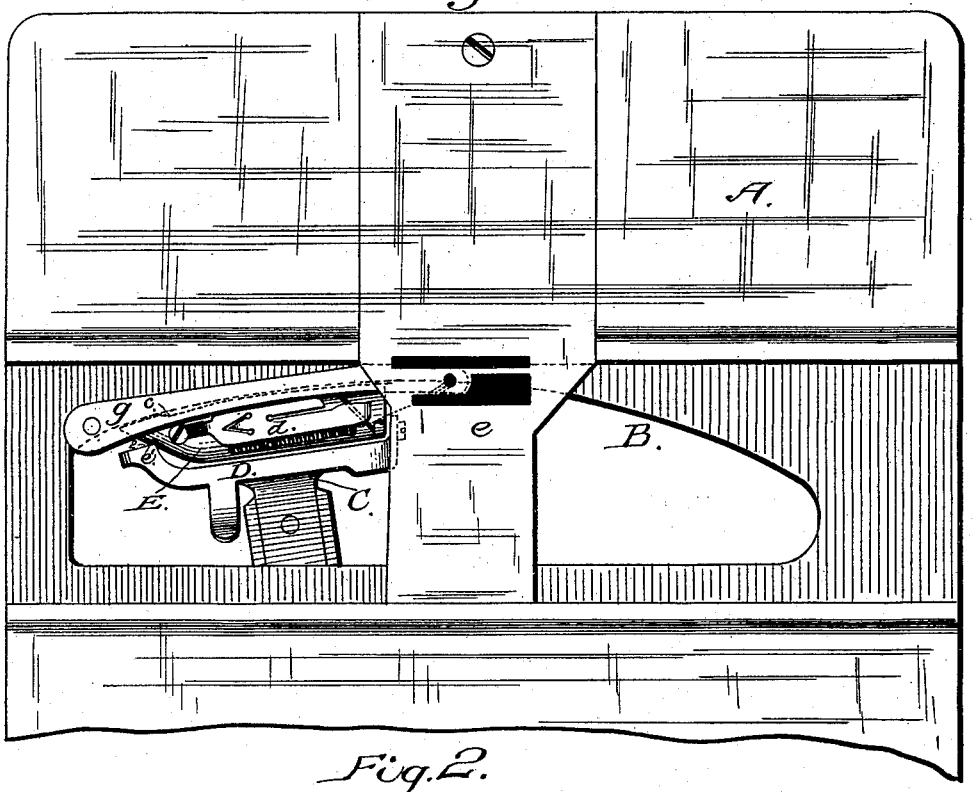


Fig. 2.

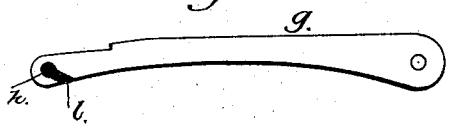


Fig. 5.

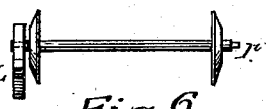


Fig. 3.

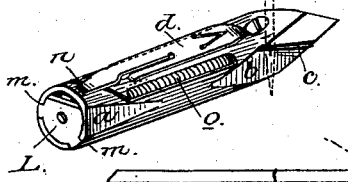


Fig. 4.

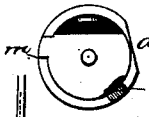


Fig. 6.

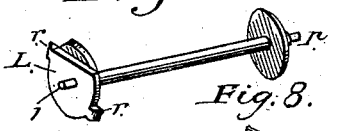


Fig. 8.

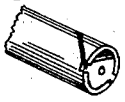
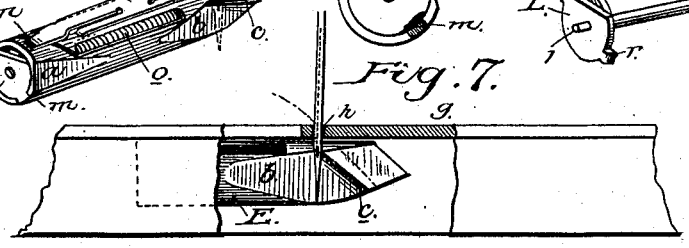


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES E. TIBBLES, OF CHICAGO, ILLINOIS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,924, dated June 5, 1888.

Application filed August 30, 1886. Renewed December 28, 1887. Serial No. 259,276. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. TIBBLES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, 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 part of this specification, in which—

Figure 1 represents a plan view of a portion of the bed-plate with the slide-plates that cover the shuttle-raceway removed, showing the shuttle-race, the shuttle, the latch on the shuttle-carrier and the shuttle-guard for retaining the shuttle in the race and holding the thread. Fig. 2 is a detached view of the shuttle-guard, showing the groove in the under face of the same. Fig. 3 is a perspective view of the shuttle, showing the groove in its side, within which the thread lies during the period the point of the shuttle is passing through the loop, and showing the disk on the end of the bobbin against which the shuttle carrier strikes. Fig. 4 is an end view of the shuttle. Figs. 5 and 6 represent views of the bobbin with its disk or plate. Fig. 7 is a detail illustrating a portion of the shuttle-race broken away and showing the groove in the side of the shuttle, the eye of the needle being at the top of the groove. Fig. 8 is a detail showing the slot intersecting one of the notches in the heel of the shuttle.

My invention relates to certain improvements in sewing-machines; and it consists in the peculiar construction and combination of elements which I will hereinafter fully describe and claim.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction, and indicate the manner in which the same is carried out.

In many of the shuttle-machines now in use the shuttle has been arranged to closely hug the curved race within which it travels, whereby it often happened that the thread confined between the side of the shuttle and shuttle-race was held with such friction as to bind itself between the parts mentioned, thereby interfering with the formation of a perfect stitch and sometimes abrading the thread to such an extent that it was often broken during the passage of the shuttle through the loop. Again, in shuttle carriers the ordinary construction has been such that the point of the carrier simply holds the shuttle from "jumping" and drives the shuttle.

In the present case the point of shuttle-latch engages a notch in the point of the shuttle and drives said shuttle, while the shuttle-guard, by lying close to the shuttle, prevents said shuttle from jumping. At the same time the point of the shuttle is not in contact with the point of the carrier, but is so arranged that the loop readily passes over said point and between the contacting-points of the carrier and shuttle. To obviate these difficulties, and further to attach to one end of the bobbin a loose disk or plate, which is designed to receive the impact of the heel of the carrier caused by the lost motion of the shuttle, and to permit said disk and not the heel of the shuttle to come squarely against the heel of the shuttle-carrier are the essential objects of my present invention.

To make more clearly manifest the constructions for carrying out these objects, I would refer to the accompanying drawings, wherein A represents the bed-plate of a sewing-machine; B, the shuttle-race; C, the shuttle-carrier, and D the latch for retaining the shuttle in the carrier, all of which may be of any well-known construction.

E represents the shuttle to which my improvements have been applied, the said shuttle being cut away at its front and heel at *a b*, Fig. 3, so that the side having the cut-away portions approximates the curvature of the shuttle-race. Near the point of the shuttle and on one side is formed an inclined depression or groove, *c*, within which the thread lies during the time the shuttle is passing through the loop, the eye on its upward stroke following the line of the groove. By thus locating the depression or groove in the side of the shuttle it will be manifest the thread lies loosely within said groove while the needle-bar is making its upward and downward strokes, and remains in said groove without actual frictional contact between the shuttle and shuttle-race during the period the loop is passing over the point of said shuttle.

As the thread does not come in actual contact with the side of the shuttle or its race, it

is clearly evident there can be no binding. Therefore the thread remains free while passing over the shuttle.

To overcome the possibility of the shuttle having vertical movement, and thereby bringing its tension-spring *d* against the sliding plate, and also to keep the floor of the notch *e'* from striking the point of the carrier, and thereby closing the thread-aperture, I insert in the bed-plate a supplemental plate or guard, *g*, having a curved inner face corresponding with the curve of the shuttle-race. This guard *g* slightly overlaps the curve of the race, and its under surface is so arranged with relation to the top of the shuttle that there remains just space enough sufficient for the passage of the shuttle. This guard prevents the shuttle from being raised by the thread while the point is passing through the loop, the thread lying in the groove *l* in the guard, and allowing the shuttle-point to pass through the loop without causing any friction on the thread between the point 2 of shuttle-latch and the shuttle, and between the shuttle and race.

The inner end of the guard *g* has an eye, *h*, through which the needle passes, and its under surface is provided with the groove *l*, within which the free end of the thread lies while the loop is passing over the shuttle.

As soon as the needle commences to move upward, the shuttle point passes into the loop, and by its passage through the same carries the thread into the groove *l*, where it loosely remains during the time the shuttle is passing through the loop.

From the foregoing description it is manifest that both ends of the thread are loosely held to prevent the abrading effect heretofore mentioned. At the same time the shuttle is snugly held against the shuttle race and guard *g*, so as to provide against the rattling noise incident to the movement of many shuttles.

Another feature of my invention is forming the heel of an open shuttle with notches *m*, said shuttle having a slot, *n*, extending from one of these notches to the usual thread-guide, *o*, in the body of the shuttle. This slot *n* serves to automatically guide the thread, and is of great assistance in threading the shuttle.

The bobbin is of the usual construction, having a small journal, *p*, which fits into a corresponding socket in the point of the shuttle, and it has loosely mounted on the rear end of its spindle a disk or plate, L, having lugs *r*, which fit within the notches *m*, as shown in Figs. 3 and 4, this plate serving also as a bearing for the rear end of the bobbin-spindle.

The object of the disk L, with its lugs *r*, is that said disk becomes practically the heel of the shuttle and receives the impact of the shuttle-carrier. Therefore the latter is not marred or injured by striking the heel-plate of said carrier. At the same time the construction specified insures the bobbin being properly held and absolutely prevents the wrong end of the bobbin being inserted, as the disk is of such diameter that it will not enter the shuttle.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sewing-machine having slide-plates, the combination, with a bed-plate, a shuttle, and a shuttle-race, of a curved guard between said shuttle and one of the slide-plates, said guard having an eye, *h*, for the passage of the needle, substantially as described.

2. In a sewing-machine, the combination, with a shuttle and shuttle-race, of a shuttle-guard, *g*, located in close proximity to the top of said shuttle, having an eye, *h*, for the needle, and a groove, *l*, within which the thread loosely lies during the passage of the loop, substantially as and for the purpose described.

3. The combination, with an eye-pointed needle and means for reciprocating the same, of a shuttle having upon the flattened surface upon its outside, near the nose thereof, a depression or groove inclining upward and backward from a point near its lower front portion, and means for reciprocating said shuttle, whereby the eye of said needle during its upward movement follows the line of the groove, substantially as described.

4. In a sewing-machine, the shuttle having notches in its heel and a slot connecting one of said notches with the thread-guide, in combination with a bobbin having a disk or plate provided with lugs fitting the said notches, substantially as herein described.

5. In a sewing-machine, a shuttle having a notched heel, in combination with a bobbin having a disk or plate loosely mounted on its spindle permanently attached thereto and provided with lugs fitting the notches in the heel of the shuttle, substantially as herein described.

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