

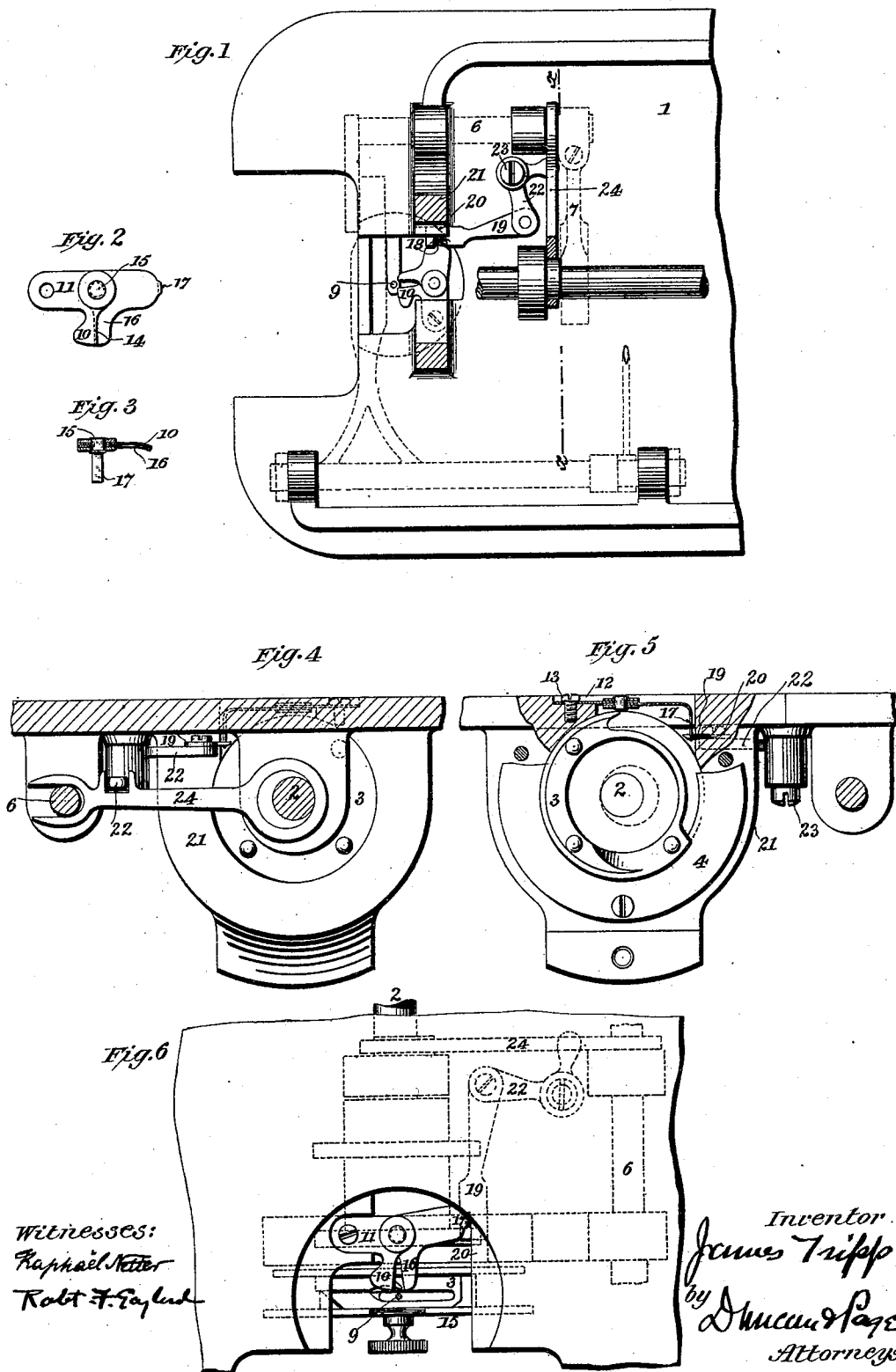
(No Model.)

2 Sheets—Sheet 1.

J. TRIPP.
SEWING MACHINE.

No. 460,454.

Patented Sept. 29, 1891.



(No Model.)

2 Sheets—Sheet 2.

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SEWING MACHINE.

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Fig. 7

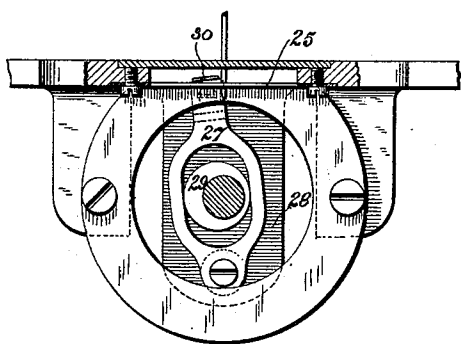


Fig. 8

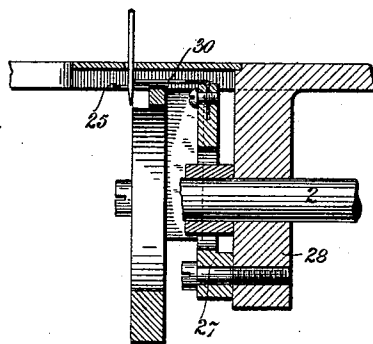
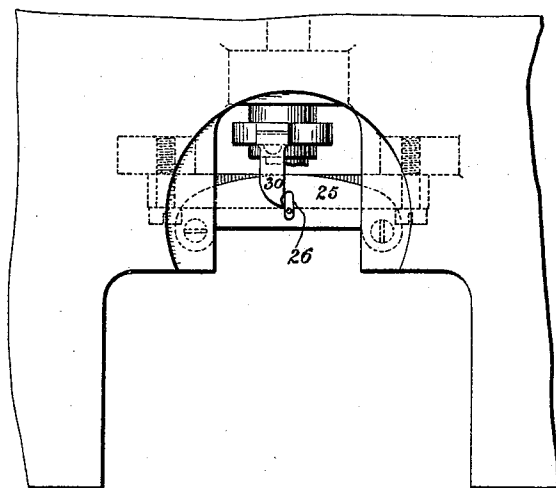


Fig. 9



Witnesses:

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JAMES TRIPP, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 460,454, dated September 29, 1891.

Application filed April 29, 1891. Serial No. 390,971. (No model.)

To all whom it may concern:

Be it known that I, JAMES TRIPP, of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

The present improvements relate to thread-retaining mechanism—that is, to mechanism whereby the needle-thread is seized and held at the time the loop is being formed by passing over the shuttle and then is freed—the particular function of this mechanism being to hold the loose end of the needle-thread at the time sewing is begun.

The invention consists of new and improved means whereby the needle-thread is at the desired intervals seized and retained between two pieces or jaws, one of which jaws has a vibrating motion relative to the other jaw and is arranged and operated so that its thread-engaging edge reciprocates across the path of the needle-thread and also across the thread-engaging edge of the other jaw.

Figure 1 is a plan view of the bottom face of a sewing-machine base, showing one form of my thread-retainer. Fig. 2 is a plan detail view of the retainer-jaws. Fig. 3 is a cross-section of the same through the pivot, looking from left of Fig. 2. Fig. 4 is a cross-section of the base in normal position on plane $x x$ of Fig. 1, but on a larger scale. Fig. 5 is a front elevation view of the same parts, the shuttle being shown in place and the scale being as shown in Fig. 4. Fig. 6 is a plan view from top of base-plate of the same parts, the scale being as for Fig. 1. Fig. 7 is a front view of the shuttle-race and adjacent parts and of another form of thread-retaining mechanism also embodying the invention. Fig. 8 is a vertical section in the plane of the shuttle-shaft. Fig. 9 is a plan of the same parts.

Referring to the views in detail, 1 is the base of the machine, 2 is the shuttle-shaft, 3 is the shuttle, 4 is the shuttle-race, 5 is a bobbin-holder, 6 is a shaft for vertically operating the feed-plate and is connected to shaft 2 by the usual form of eccentric-rod 7, (all shown in dotted lines,) and 9 is the needle or the needle-hole.

10 is one of the retaining-jaws. It consists of a thin plate-like piece of metal. Its arm 11 is secured to the base 1 in a suitable depression 12, Fig. 5, by screw 13, and in such position that its thread-engaging edge 14 is just back of and nearly in line with the needle-hole 9. On the under side of this jaw is secured by pivot 15 another similar jaw 16. This jaw vibrates, so that its straight edge passes from its open position of Figs. 1 and 6 to and under the jaw 10 and slightly beyond the edge 14 of the same, as seen in Fig. 2. The length of the movable jaw is such as to just pass the needle without touching it, or at least very slightly, when it is down, and either jaw may be flexible. The outer end of the arm 17 of the movable jaw is bent down and passes through a slot 18 in the end of the link 19, and this end of this link is supported in a slot 20, Figs. 1 and 5, cut in the shuttle-bracket 21, depending from the under face of the base-plate. The other end of link 19 is pivoted to one arm of the angle-lever 22, which is pivotally supported in the base-plate 1 by screw 23. The other arm of this lever enters a slot in the pitman-arm 24, which is forked to slide on shaft 6, and is eccentrically mounted at its other end on the shuttle-shaft 2. It will now be seen that as the shuttle-shaft rotates the edge of the movable thread-retaining jaw is reciprocated across the edge of the other jaw. The parts are so timed to the shuttle that after the needle reaches the end of its downward excursion and has commenced to rise the movable jaw comes into contact with and forces the needle-thread between its upper flat face and the lower face of the fixed jaw, whereby the thread is held until the loop has passed about half-way around the shuttle. Thus at the beginning of sewing the free end of the thread is retained long enough to be secured by the shuttle-thread, and it is not required to hold it by hand.

In Figs. 7, 8, and 9 I show another and the preferred way of pivotally supporting and vibrating the movable thread-retaining plate or jaw, and also I show another form of fixed plate or jaw.

25 is the fixed jaw. It consists of a narrow plate of thin metal secured in proper position

at each end and on opposite sides of the needle to the bed-plate. This plate is pierced by the needle hole or slot 26, one edge of which corresponds to the edge 14 of the jaw 10 of Figs. 1 to 6.

27 is a rocking arm pivotally mounted on the shuttle-shaft bracket 28, and is slotted to receive the eccentric cam 29 on the shuttle-shaft. From the upper end of the arm projects forward and across the upper face of the plate 25 to the needle the movable thread-retaining jaw 30. This jaw is rounded off at its end next the needle and preferably it is slightly hooked. It is also sufficiently elastic to properly hold and to yield to threads of different thickness. As the shuttle-shaft rotates, the movable jaw is caused to vibrate by the needle and over the needle-slot, thus engaging the needle-thread at the proper time and holding the same between its under face and the upper face of the fixed plate. It is to be noted that each of these forms of thread-retaining devices grasps the thread between the adjacent faces of the two plate-like pieces or jaws, one of which has a vibrating motion relative to and across the edge of the other with a shear-like action. This is essential to the successful operation of such mechanism, as by this action are the jaws cleared of lint and other material and collections tending to interfere with the proper thread-retaining action of the jaws are prevented; also, the thread is frictionally retained by an extended slight grasp of the parts as contrasted with firmly pinching or nipping the thread by parts that abut and compress the thread at one point. In mechanisms heretofore proposed, where the thread-nipping parts abut, the lint and floss and other like matter are collected and compacted by such abutting parts, causing clogging and ineffectual working of the mechanism. Furthermore, so far as I am informed, such abutting parts depend upon spring ac-

tion for producing the nipping pressure, and, by reason of this yielding pressure, as collections occur the moving nipper is gradually prevented from closing on its companion and the very purpose of the parts is defeated. With my thread-retainer, however, the moving jaw is positive in action, and the jaws are thereby and by the motion of one across the edge of the other forced to clear themselves of any collections.

It is of course obvious that the movable jaw of the thread-retaining parts may be variously operated from any suitably-moving part of the sewing-machine mechanism.

The mechanism of Figs. 7, 8, and 9 is preferred by me to the modification thereof shown in Figs. 1 to 6; but I have successfully adapted and use in full size practically-working sewing-machines both forms of mechanism shown.

What is claimed as new is—

1. The combination, in a sewing-machine, of thread-retaining jaws arranged one above the other and located close to the needle-path, one of the jaws being vibrated relatively to the other, with its thread-engaging edge reciprocating across the path of the needle-thread and the thread-engaging edge of the other jaw and being operatively connected with the driving mechanism of the machine, substantially as and for the purpose set forth.

2. The combination, in a sewing-machine, of the plate 25, having the needle-hole 26, the thread-retaining jaw 30, arranged and operated to reciprocate across the needle-hole and the thread-engaging edge of said plate, the vibrating arm 27, carrying said jaw, and the shuttle-shaft and cam thereon for operating said arm, substantially as and for the purpose set forth.

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