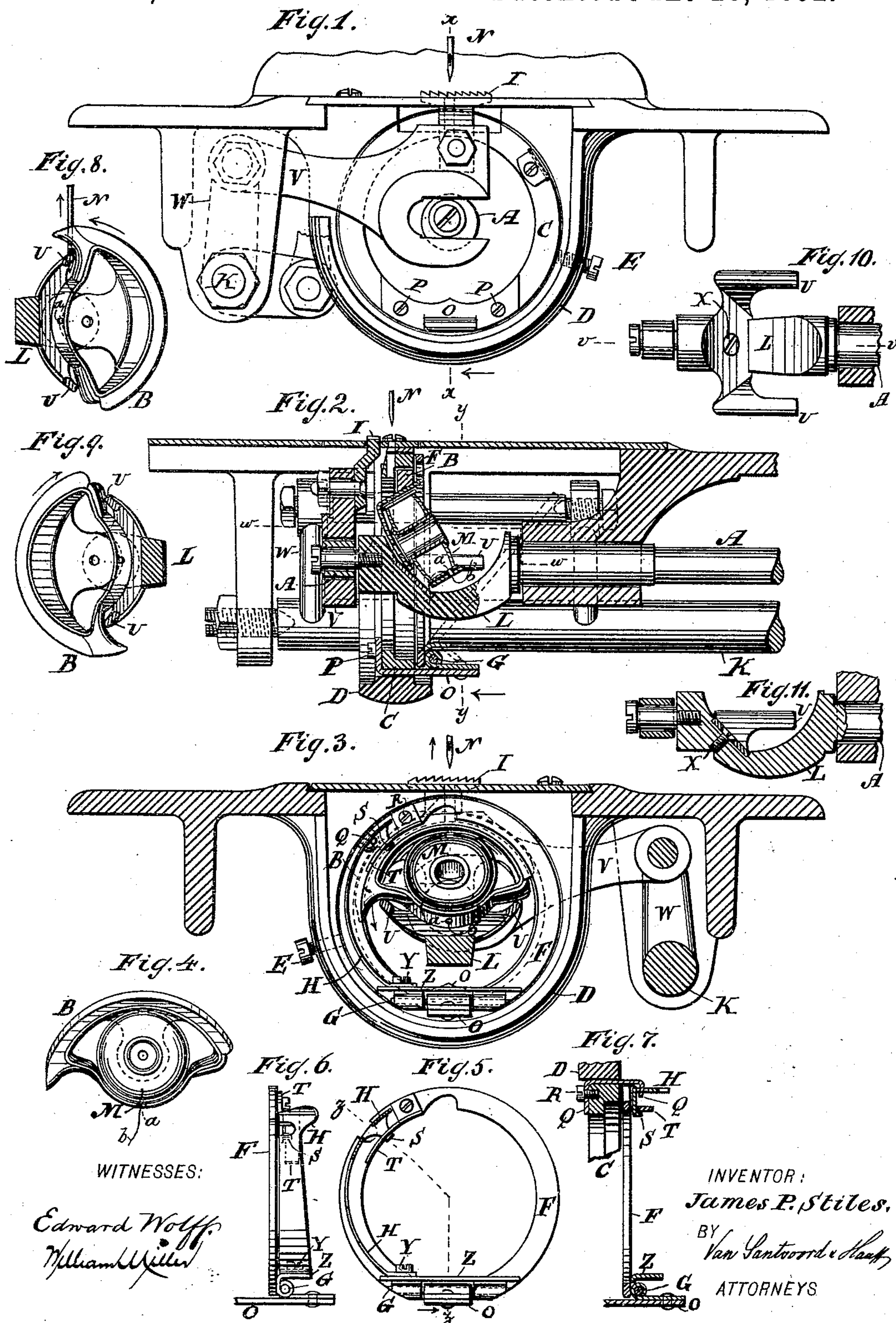


(No Model.)

J. P. STILES.  
SEWING MACHINE.

No. 478,030.

Patented June 28, 1892.





# UNITED STATES PATENT OFFICE.

JAMES P. STILES, OF NEW YORK, N. Y.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 478,030, dated June 28, 1892.

Application filed May 21, 1891. Serial No. 393,606. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES P. STILES, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to an improvement in sewing-machines; and it consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is an end view of a sewing-machine containing my invention. Fig. 2 is a front view of the machine sectioned along  $xx$ , Fig. 1. Fig. 3 is a section along  $yy$ , Fig. 2, looking at the right-hand side of the needle. Fig. 4 is a detail view of a shuttle in a horizontal position or at the center of its throw. Fig. 5 is a detail face view of a locking-ring. Fig. 6 is an edge view of Fig. 5. Fig. 7 is a section along  $zz$ , Fig. 5. Fig. 8 shows the shuttle at one end of its throw. Fig. 9 shows the shuttle at the other end of its throw. Fig. 10 is a plan view of that part of the shuttle-driving shaft which carries the shuttle. Fig. 11 is a section along  $vv$ , Fig. 10.

In the drawings, the letter A indicates a rock-shaft, which can be actuated by any suitable mechanical movement—such, for example, as that shown in United States Patent No. 408,546, granted to me August 6, 1889. This shaft A forms the driving-shaft for the shuttle B. The shuttle-race C is made in the form of a bushing, and said race is supported in an annular shuttle-race seat D in such manner that the shuttle-race stands perpendicular in a plane parallel or coincident with the vertical plane, in which the needle N reciprocates. Said seat is cast or suitably fixed to the under side of the work-plate, as seen in Fig. 1. A screw E serves to hold the race in position in the seat. The shuttle is held in place in its race by a locking-ring F, hinged or jointed at G to the race C. A spring or spring-catch H holds the ring F in its locking position, while leaving said ring free to be released whenever required for lifting the shuttle out of its race. The shuttle-driving shaft A passes through the race C and said shaft is connected to the feed I, so that said shaft, in connection with

the shaft K, imparts to the feed the proper movement of the well-known four motions. The shaft A is formed with a crank bend or offset L, which supports the shuttle. The crank bend or offset is so formed that the thread  $b$  can be delivered from the thread-hole  $a$  of the shuttle-bobbin M at the center of oscillation of the shuttle-driving shaft, whereby the shuttle-thread is saved from unnecessary motion or unraveling. The shuttle is given a secure seat on the shaft A by means of the crank bend or offset L and prongs or arms U, onto which the shuttle can be readily dropped or placed by the operator. As the shuttle runs loosely in its race C, said shuttle can be readily lifted out of place on moving the locking-ring F to its releasing position. The prongs or arms U are secured to the crank bend or offset L of the shaft A in any suitable way. By making the prongs in the form of a fork or bracket said prongs can be readily secured by a screw X, Figs. 10 and 11. The shuttle, it will be noticed, is removable and replaceable at the right-hand side of the needle N, so as to be conveniently reached by the operator, while if said shuttle were on the left-hand side of the needle the operator might be obliged to shift his position to get proper access and inspection of the shuttle. When the operator is in position for working and faces the machine, the parts appear as in Fig. 2, and the right-hand side of the needle is that side thereof lying or facing toward the right hand of the operator or that side of the needle facing toward the shuttle B. The shuttle B is supported in its race in a vertical position, while the shuttle-bobbin M is supported at an angle or in an inclined position by the shuttle. This angle or inclination may be somewhat varied; but in practice I have found satisfactory results to be obtained by supporting the bobbin at an angle of about sixty degrees to the long axis of the shuttle-driving shaft. The hinge or joint G is formed on a plate or support O, secured by a screw or fastening P to the race C. The catch H consists of a strip of spring metal secured or fixed at one end by a screw Y to the ring F or to a plate Z, secured to said ring, the other end of the spring-strip being left free. This free end when in the locking position engages a suitable shoulder or lug Q, secured by a screw



or fastening R to the race C. The catch H is moved to the releasing position by simply pressing or bending its free end inward or toward the center of ring F until said free end has moved clear of the lug Q. By releasing the catch its elasticity carries said free end outward or back to the locking position, the stop S stopping said free end of the catch against further movement outward than is necessary for bringing the free end of the catch to said locking position. The stop S extends from the catch H and moves in a slot or way in the arm T, extending from ring F.

The feed-dog I extends from or is secured to a link V, jointed to the arm W, extending from rock-shaft K, so that said shaft K imparts the forward and backward motion to the feed. The link V is forked or slotted for the reception of shaft A, said shaft being cam-shaped or provided with a cam at the place of its engagement with link V, so as to give a rising-and-falling motion to the feed.

Having thus described my invention, what I claim is—

1. In a sewing-machine, the combination, with an annular shuttle-race seat and an annular shuttle-race provided with a needle-opening, both arranged in a vertical plane at right angles to the longitudinal axis of the shuttle-driving shaft, of an oscillating shuttle-driving shaft having a crank bend or offset and extending at right angles to the race-seat and race, a shuttle arranged in the shuttle-race, engaged by the crank bend or offset of the shuttle-driving shaft, a bobbin inclined relatively to the shuttle and arranged at an obtuse angle to the longitudinal axis of the shaft, and a locking-ring carried by the race for retaining the shuttle therein, substantially as described.

2. In a sewing-machine, the combination, with an annular shuttle-race seat, of a shuttle-race, a shuttle in the race, an oscillating shut-

tle-driving shaft extending through the shuttle-race and formed with a crank bend or offset having arms or prongs which engage the shuttle, the said shuttle carrying a bobbin provided with a delivery-opening in the axial line of the shuttle-driving shaft, whereby twisting of the thread is avoided, and a feed connected with the extremity of the oscillating shaft extending through the shuttle-race, substantially as described.

3. In a sewing-machine, the combination, with an oscillating shuttle-driving shaft, of the annular shuttle-race C, having the catch-lug Q, the shuttle B, moving in the race, the shuttle-retaining ring F, hinged to a part of the shuttle-race and having the slotted plate T, and the elastic plate H, secured at one end to such ring and having its opposite end movable to and from the center thereof to engage and disengage the catch-lug and provided with the stop projection S to abut the slotted plate, substantially as described.

4. The combination, with the vertically-arranged shuttle-race and a shuttle oscillating in a vertical plane in said race, of a horizontal oscillating shuttle-driving shaft provided with a crank bend or offset in which the shuttle is sustained so as to receive its motion directly from the shaft and a bobbin arranged in the shuttle in an inclined position relatively to the shuttle and at an obtuse angle to the longitudinal axis of the shaft, the said bobbin provided with a delivery-opening in the axial line of the shuttle-driving shaft, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES P. STILES.

Witnesses:

WM. C. HAUFF,  
E. F. KASTENHUBER.