

R. H. St. JOHN.
Sewing-Machine.

No. 132,332.

Patented Oct. 15, 1872.

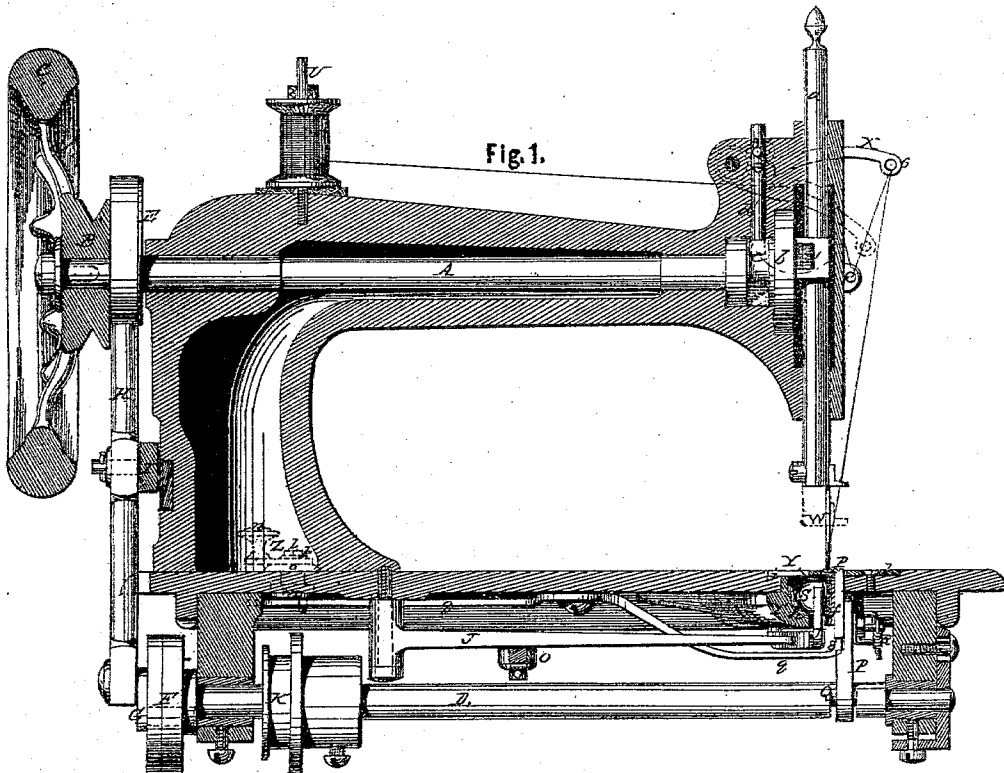
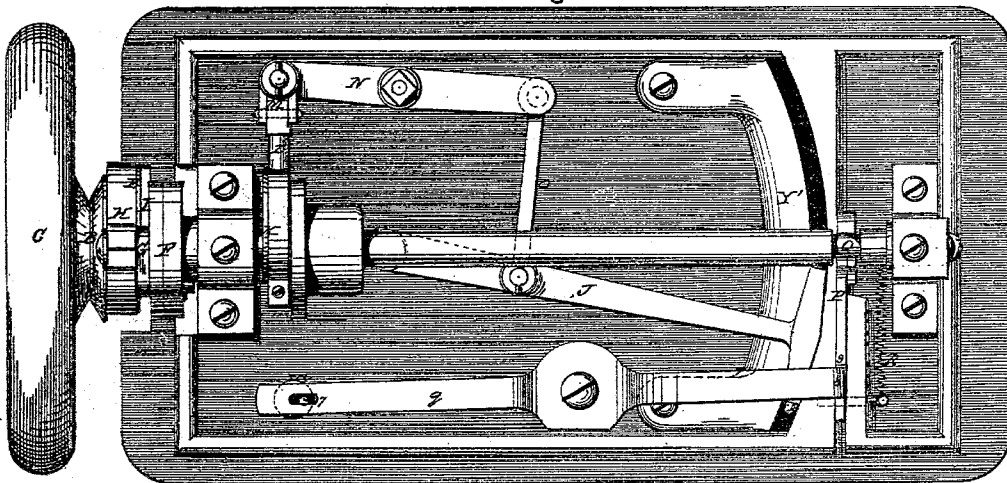


Fig. 2.



Inventor.

R. H. St. John
By John H. St. John
Attorney.

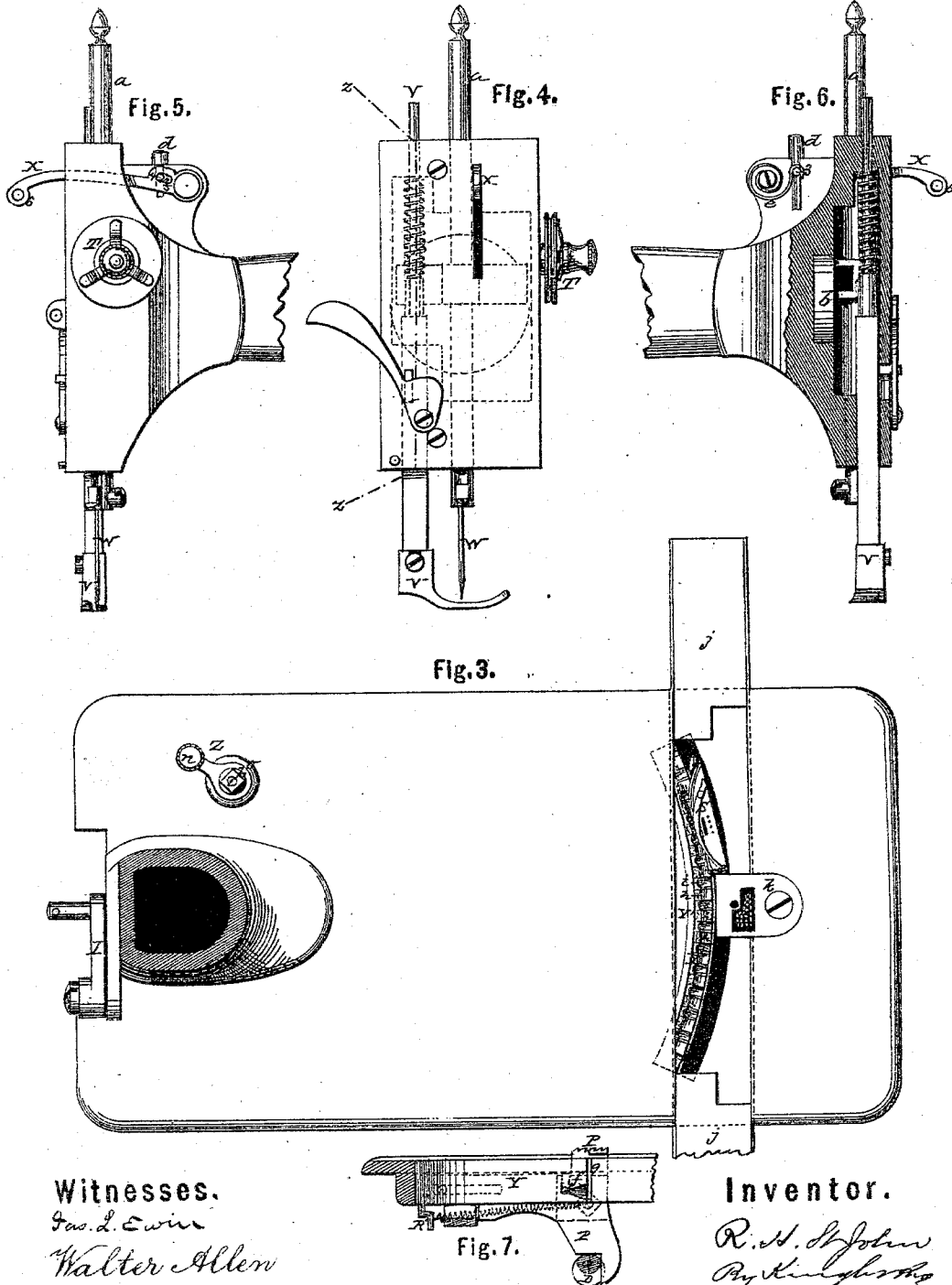
Witnesses.

Geo. L. Swin
Walter Allen

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Jas. L. Swin

Walter Allen

Inventor.

R. H. St. John
By *[Signature]*
[Signature]

UNITED STATES PATENT OFFICE.

ROSWELL H. ST. JOHN, OF BELLEFONTAINE, OHIO.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 132,332, dated October 15, 1872.

To all whom it may concern:

Be it known that I, ROSWELL H. ST. JOHN, of Bellefontaine, in the county of Logan and State of Ohio, have invented an Improved Sewing-Machine, of which the following is a specification:

Nature and Objects of the Invention.

This invention relates to sewing-machines employing the shuttle and straight needle. The first part of the invention relates to a "take-up" actuated independently of the needle-bar by cam and spring, and so as to give the requisite rest or slack to the thread during the passage of the shuttle without the needle resting. The needle-bar is thus adapted to receive a simple reciprocation by crank and slot or their equivalent. The second part of the invention consists in rawhide strips or blocks in transverse grooves in the shuttle-race, and in concave dust-spaces between the same, to reduce friction, wear, and noise at this point.

Description of the Drawing.

Figure 1 is a vertical longitudinal section of a sewing-machine (unmounted) illustrating the invention. Fig. 2 is a bottom view of the same. Fig. 3 is a top view with the arm and its appurtenances removed and the shuttle-race slides partially withdrawn to expose the interior. Fig. 4 is a face view of the end of the arm and its appurtenances. Fig. 5 and Fig. 6 are elevations of the same from opposite sides, the latter partly in vertical section on the line $z z$, Fig. 4, illustrating the construction and arrangement of the take-up. Fig. 7 is a sectional view, illustrating the holding-notch in the shuttle-race and the operation of the stitch-regulator.

General Description.

The main shaft A of this sewing-machine is journaled in suitable bearings in the horizontal portion of the arm of the machine and furnished at the back of the arm with the usual band, pulley, and fly-wheel B C. The shuttle and feed movement shaft D beneath the cloth-plate is driven from the main shaft A (in opposite directions) through an eccentric, E, and crank-disk F, connected by link G and lever-rod H with shifting fulcrum I. The piv-

oted shuttle-carrier J is vibrated by means of an eccentric, K, through rod L, knuckle M, rock-lever N, and connecting-rod O. The four-motion feed-bar P is operated in usual manner by a cam crank-wrist, Q, and spring R. The machine is completed by a shuttle, S, upper tension-regulator T, spool-spindle U, presser-foot V, and appurtenances of any approved form, and a straight needle, W, a take-up, X, a shuttle-race, Y, a stitch-regulating crank, Z, and appurtenances to be hereinafter described, with suitable supports, guides, and bearings for the several parts. The needle-bar a is extended at a proper point by arms to receive a long transverse groove, 1. This is traversed by a slide, 2, swiveled on the wrist or pin of a crank-disk, b , on the front end of the main shaft A. The needle thus receives a simple reciprocation by the rotation of the driving-shaft, not resting as in other shuttle machines. Behind the needle-bar crank-disk b on the front end of the main shaft is a cam, c , formed by cutting a groove of varying depth partially around the hub of the crank-disk. This cam receives the lower end of a vertical rod, d , with lateral arms 3 4 at its upper end, by the first of which it is pressed down by a spring, e , and by the other (4) it engages with a slot, 5, in the pivoted take-up X and imparts its motion to the latter. The take-up thus receives its movement independently of the needle-bar. The thread is conducted from the spool through the upper tension-regulator to an eye, 6, at the outer end of the take-up and thence to the needle in the usual manner. As the needle descends the take-up, as above described, falls from the position represented by full lines in Figs. 1, 5, and 6 to the position represented by dotted outline in Fig. 1, keeping the thread properly taut while the needle is performing the first part of its movement and then slackening it to accommodate the traverse of the shuttle, the needle continuing its motion uninterruptedly. The take-up remains in this position until the shuttle has passed through the loop of the needle-thread, thus accomplishing the object of the rest in the motion of the needles of other shuttle-machines. The take-up is now rapidly elevated, so as to pull the thread in the cloth. There is no strain on the thread at any other time. To catch and hold the needle-thread so as to

assist in forming the loop a notch, *f*, (Figs. 1 and 7,) is formed in the face of the shuttle-race *Y* adjoining the needle-way *g*. The bottom and back of the shuttle-race are formed, as usual, by a casting, *Y'*, bolted to the bottom of the cloth-plate, space being left between the front edge of the same and the face of the race to accommodate the shuttle-carrier, and which serves also to prevent any accumulation of dust in the race. The effective surface of this casting *Y'* is grooved transversely to receive strips or blocks *h* (Fig. 3) of rawhide, and the spaces *i* between the rawhide fillings are made concave to receive dust. A superior anti-friction surface is thus formed, serving also to prevent or reduce the usual noise of the shuttle. The shuttle-race is closed by slides *j*. A plate, *k*, contains the needle and feed-apertures. The stitch-regulating crank *Z* is composed of a stem, *l*, with crank-disk *m* below the table and screw-thread above, a thumb-crank, *n*, on the table with a washer, *o*, beneath it, and a clamping-nut, *p*, on the upper end of the stem. The pin of the crank-disk *m* works in a straight slot, *7*, (Fig. 2,) in

the rear end of a lever-bar, *q*, on the under side of the cloth-plate; and the front end *8* of this bar is turned up to engage with a shoulder, *9*, at the rear end of the feed-bar *P*. The lever-bar *q* thus acts as an adjustable stop to vary the retraction of the feed-bar by its spring *R* and thus to vary the stroke of the feed-bar and the length of stitch produced.

The following is claimed as new—

1. The combination of the cam *c*, vertical rod *d* with the lateral arms *3 4*, spring *e*, and pivoted take-up *X*, as and for the purpose set forth, and operating in connection with a needle having a regular reciprocating motion.

2. The rawhide strips or block *h* in the surface of the shuttle-race, as and for the purpose specified.

3. The dust grooves or depressions *i* in the shuttle-race bottom *Y'*, as and for the purpose specified.

ROSWELL H. ST. JOHN.

Witnesses:

PHILANDER JONES,
JOHN SHAW.