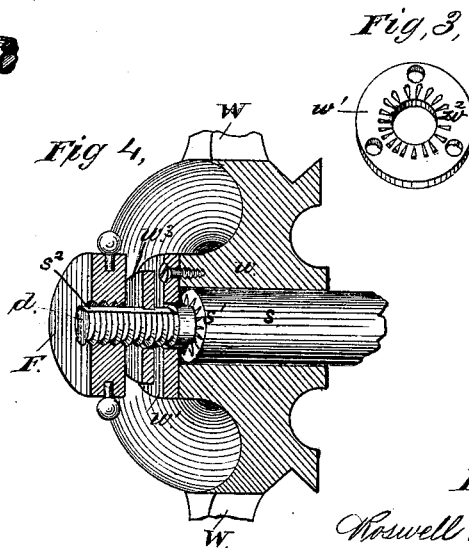
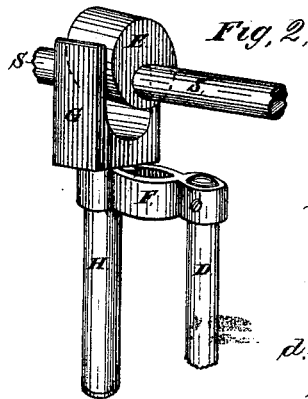
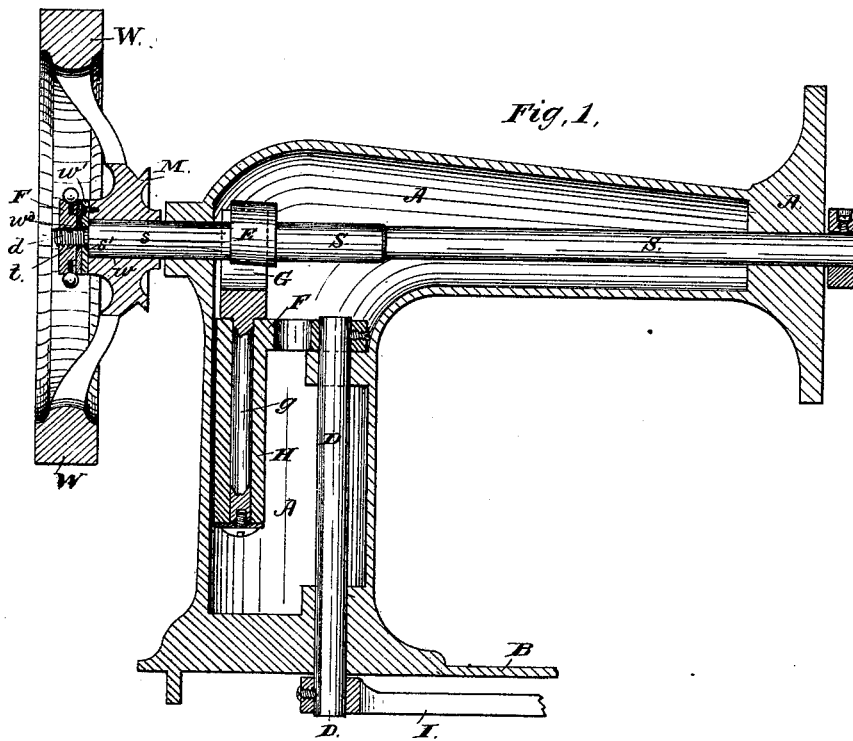


R. H. St. JOHN.
Sewing-Machine.

No. 219,780.

Patented Sept. 16, 1879.



Attest:
Geo. T. Smallwood, Jr.
Walter Allen

Inventor:
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attys

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **219,780**, dated September 16, 1879; application filed May 10, 1879.

To all whom it may concern:

Be it known that I, ROSWELL H. ST. JOHN, of Springfield, in the county of Clarke and State of Ohio, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

The invention relates to a combination of parts for transmitting motion from an eccentric on the main shaft to the shuttle-lever. Instead of using on the head of the vertical rock-shaft of the shuttle-lever a rigid forked lever, I employ a rigid horizontal arm, with a fork pivoted thereto, having a central shaft or pivot extending vertically downward from it within a sleeve or extended box fixed rigidly to the aforesaid horizontal arm in order to afford an extended bearing to the pivot of the fork, and thus steady the fork in its movement, while it is permitted by its vibration on its own vertical axis to compensate for the angle of motion of the eccentric relatively to the horizontal arm of the shuttle-lever shaft.

My invention further consists in a combination of devices for locking the driving-wheel to the main shaft at the will of the operator, or readily disconnecting it, so that it may run loosely thereon, for the purpose of winding bobbins, &c.

To this end I construct the driving-wheel with a cylindrical hub to turn on the projecting end of the shaft, and with an inwardly-projecting notched or corrugated flange to engage with a notched or corrugated shoulder on the shaft; and I provide the smaller part of the shaft beyond the shoulder with a flat surface, to adapt it to receive a non-rotating washer, and with a screw-thread to receive a hand-nut, so that when the hand-nut is turned forward the internal flange of the wheel will be securely clamped between the shoulder of the shaft and the non-rotating washer, and when the nut is turned back the wheel will be released and permitted to turn freely in either direction without imparting its rotation to the shaft or to the nut thereon.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a vertical section of a portion of a sewing-machine illustrating the invention.

Fig. 2 is a perspective view of the parts for communicating motion from the main shaft to the vertical rock-shaft. Fig. 3 is a perspective view of a corrugated plate forming the end of the wheel-hub. Fig. 4 is a perspective view, on a larger scale, showing the rear end of the shaft, and, in section, the wheel-hub and its connections separated, as when the wheel is permitted to run freely on the shaft.

A represents the stationary hollow arm, mounted rigidly on the bed-plate B, and constituting together therewith the frame in which the main shaft and vertical rock-shaft of the machine have their bearings. S is the main shaft, running within the hollow arm A, and driven by a band and fly-wheel, W. D is a vertical rock-shaft, to which is imparted a reciprocating motion by means of an eccentric, E, on the main shaft S, through the medium of a lever or arm, F, on the head of the shaft D, and a fork, G, which, instead of being rigidly connected to or formed on the arm F in customary manner, is cast with a vertical pivot, *g*, turning in a sleeve or extended box, H, which projects vertically downward from the extremity of the arm F. The freedom of motion thus afforded to the fork G on its vertical axis permits the working-faces of the fork to retain their parallelism with the axis and working-surfaces of the eccentric E, while the fork is moved horizontally by said eccentric, and while the arm F, to which it communicates motion, vibrates on a vertical axis.

I represents the shuttle-lever, keyed on the lower end of the vertical shaft D, in customary manner.

To adapt the hand-wheel W to be run loosely on the shaft when it is desired to use it for winding bobbins, or for other purposes, without operating the sewing mechanism, the hub of the said wheel is fitted to turn on the projecting rear portion of the shaft, and is provided with an inwardly-projecting flange, which I prefer to form of a separate plate, *w*¹. The inner margin of this flange is notched or corrugated, as shown at *w*², Fig. 3, and bears against a similarly notched or corrugated shoulder, *s*¹, on the shaft. The reduced projecting end *d* of the shaft is formed with a flat surface, *s*², as represented in Fig. 4, to receive a washer, *w*³, and prevent it from turning thereon,

and is screw-threaded to receive a hand-nut, F, for the purpose of forcing the washer w^3 against the face of the wheel-hub. The flange w^1 of the wheel is thus securely clamped between two members, s^1 and w^3 , which are non-rotating relatively to the shaft. When thus clamped it imparts its rotary motion to the shaft without possibility of slipping. When released it may be turned freely in either direction without moving the shaft, and the interposition of the non-rotating collar w^3 prevents any effect on the nut from the rotation of the wheel in either direction.

For convenience of manufacture, I prefer to make the flange w^1 of a separate plate, attached to the hub by screws, as represented; but it may be made in one piece with the wheel, if preferred.

I am aware that the jaws for operating the vertical rock-shaft of the shuttle lever have been made with spherical faces to embrace a spherical strap or yoke extending around a spherically-formed eccentric on the main shaft, and I do not claim any such device.

My mode of operating the rock-shaft from a cylindrical eccentric, through the medium of a pair of parallel jaws on a stem fitted to turn in an elongated box on the extremity of the rock-shaft arm, possesses the advantage of dispensing entirely with the aforesaid strap-yoke, and providing a simple connection, which will

transmit motion freely from the horizontal to the vertical shaft without requiring nice or accurate adjustment.

By the terms "corrugated shoulder," referring to the shoulders formed by the hub-plate w^1 and the shoulder on the end of the shaft, I mean any suitable roughened surfaces adapted to lock the wheel to the shaft when said surfaces are brought together by a longitudinal movement imparted by a clamp-nut, T, or any equivalent device, to move the wheel endwise on the shaft. A simple key, working in a slot in the shaft, may be employed for this purpose; but the thumb-nut is deemed the best.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by Letters Patent:

1. The combination of the main shaft S, eccentric E, fork G, vertical box H, vibrating arm F, and vertical rock-shaft D, substantially as and for the purposes set forth.

2. The combination of the shaft S, having a shoulder, s^1 , and flat surface s^2 , the wheel W, having internal flange w^1 , the washer w^3 , non-rotating relatively to the shaft, and the clamp-nut F, substantially as and for the purposes set forth.

ROSWELL H. ST. JOHN.

Witnesses:

J. H. RABBITS,
F. W. WILLISS.