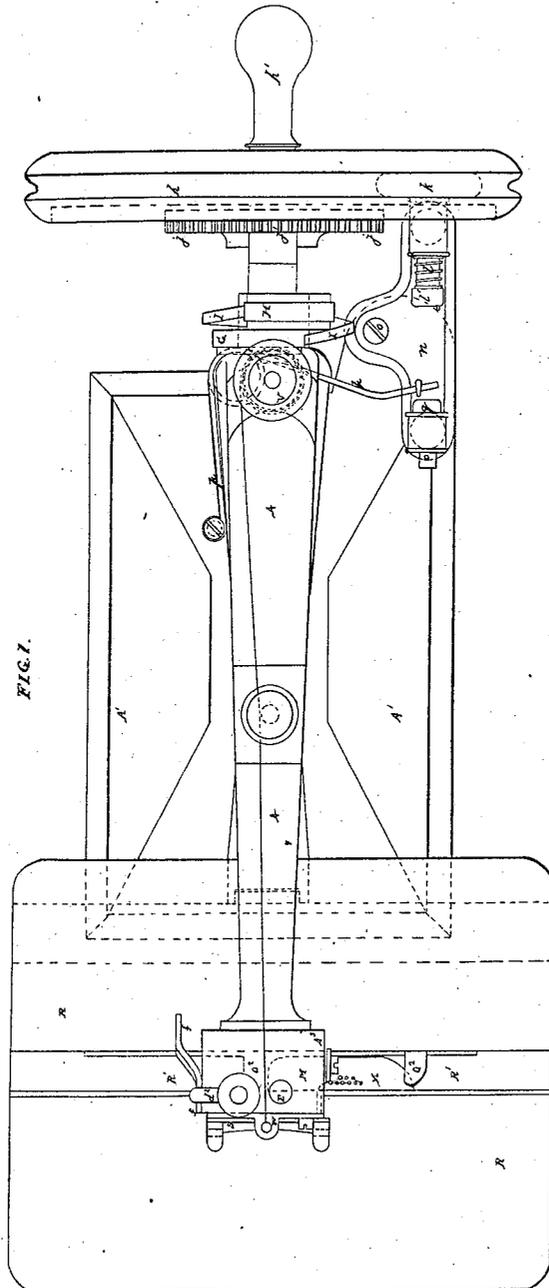


G. SLATER.
Sewing Machine.

3 Sheets—Sheet 1.

No. 77,665.

Patented May 5. 1868.



Witnesses.

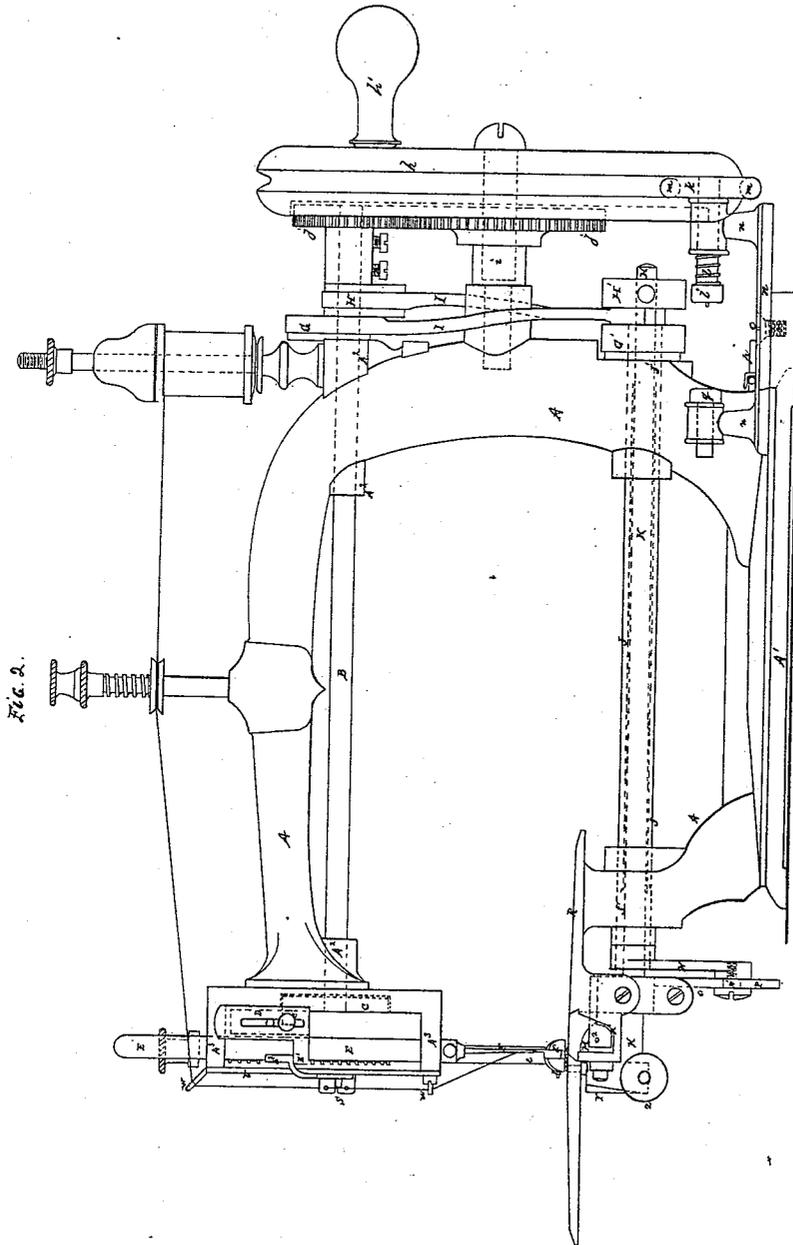
Wm Robt Lake.
Thos A Palmer

Inventor.
George Slater

G. SLATER.
Sewing Machine.

No. 77,665.

Patented May 5, 1868.



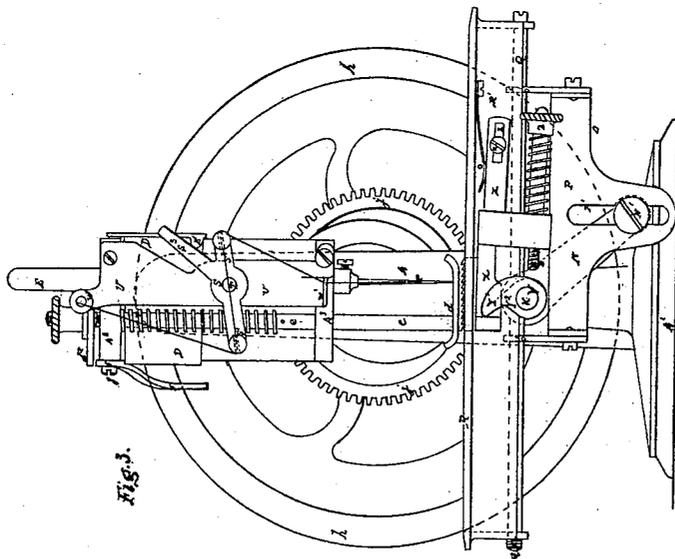
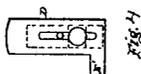
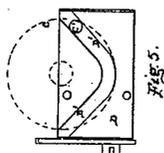
Witnesses.
Wm. Robt. Latta.
Thos. H. Palmer.

Inventor.
George Slater.

G. SLATER.
Sewing Machine.

No. 77,665.

Patented May 5, 1868.



Witnesses.
Wm. Robt. Ladd.
Jr. & Palmer.

Inventor.
George Slater.

United States Patent Office.

GEORGE SLATER, OF LONDON, ENGLAND, ASSIGNOR TO GEORGE WASHINGTON BELDING, OF SAME PLACE.

Letters Patent No. 77,665, dated May 5, 1868.

IMPROVEMENT IN SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE SLATER, of London, England, have invented a certain new and useful "Improvement in Sewing-Machines;" and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The said improvement relates to that class of sewing-machines in which a thread, carried by a needle, descends through the cloth or other fabric, and is secured therein by a second thread, carried by a shuttle thrown to and fro below the said fabric, the two threads being interlaced or combined in the fabric, in the form of stitch known as the "lock-stitch."

The said improvement consists chiefly in the employment, in such a machine, of two vibrating-shafts, one of which is provided with an arm or lever to operate the shuttle-carrier, and the other with a cam for operating the feed-bar. Each of these vibrating-shafts is operated by a separate eccentric on the driving-shaft, and that one which operates the shuttle is made hollow or tubular from end to end, the other shaft being passed through the same.

Description of the Drawings.

Figure 1 is a plan or top view of my improved sewing-machine.

Figure 2 is a side elevation of the said machine.

Figure 3 is a front elevation of the same.

Figures 4 and 5 represent detached portions of the said machine.

Like letters indicate the same parts in each figure.

The frame A of the machine is made of cast iron or other suitable material, and of any convenient form and size, and is provided with a base or foot, A¹, by which the machine may be secured to a table or bench. Bearings A² are formed in the upper part of the said frame, to support the driving-shaft B. The front end of the latter carries a crank, C, which is provided with a pin or stud, C', at its outer extremity. This pin is fitted to work in a v-shaped groove, D', formed in a block, D, attached to the needle-bar E, the point or apex of the said groove being downward, and rounded or curved to correspond with the radius of the crank, C. The object of forming the said groove in this manner is to cause a slight stoppage and return movement of the needle F immediately after the commencement of its upward stroke, which return movement produces a loop or bow in the needle-thread under the fabric, and allows the shuttle to pass freely across the same. The form of the groove D' may be varied in any way which will cause it to impart this peculiar motion to the needle F, by the action of the pin of the crank C in the said groove.

The rear end of the driving-shaft B is furnished with two eccentrics, G H, each of which, by means of a suitable rod, I, operates one of the rocking-shafts J K, the said shafts being provided with cranks or disks G' H', which have pins for the eccentric-rods I to take hold upon. The rocking-shaft J, for operating the shuttle M, is supported in suitable bearings formed in the frame A. This shaft is made hollow or tubular, and large enough to allow the other shaft, K, to pass freely through its centre. The outer shaft, J, is bushed or swaged down at each end, J', and bearings are formed therein for the inner shaft, K. The arm or lever N, for operating the shuttle-carrier O, is provided with a pin or stud, N', which is fitted to work freely in a vertical aperture or slot, P', formed in the plate P, projecting downward from the said carrier. The latter is formed with two arms, O¹, on its upper portion, and holes are formed in the said arms to fit a guide-rod, Q, which extends across the under side of the cloth-plate R, parallel with the shuttle-race R'. The said shuttle-race is a groove or channel, extending from side to side, below the surface of the cloth-plate R. A longitudinal aperture is formed on one side of this channel, to admit two fingers or claws, O², extending from the shuttle-carrier O, and the shuttle M lies between these fingers, and is carried by them as the carrier is thrown to and fro by the vibration of the crank-arm N.

The device for taking up the needle-thread is clearly shown in fig. 3. The lever S, which has two arms,

S^2 is supported to vibrate freely upon a pivot or fulcrum, T, about midway between the said arms, this pivot being secured in a plate, U, attached to the end of the frame in front of the needle-bar guide A^3 . One of these arms, or a third arm, S^3 , is arranged to come in contact with an adjustable projecting stud or finger, E' , attached to the needle-bar E, or to the block D on the same. The thread is brought from a reel or bobbin, V, through tension-device of the usual construction, and is passed through a guide, W, attached to the frame just above the needle-bar guide A^3 . From this guide the thread passes through an eye in each arm, $S^1 S^2$, of the vibrating-lever S, and thence through another guide, W' , to the needle. The vibrating-lever S, and stud E' , for operating the same, are so arranged that the arm S^3 is thrown up by the said stud as each stitch is formed, the thread at the same time passing freely through the eyes in the two arms, $S^1 S^2$, of the said lever.

The feeding-device consists of a reciprocating plate or bar, X, which is operated by a cam, Y, and regulated by a screw, z, in the usual manner. The said lever is supported at one end by a pin or stud, a, which passes through a longitudinal slot, b, in the plate or bar X, and is secured in the side of the shuttle-race R'. The cam has two projections, one of which, Y^1 , imparts a longitudinal motion, and the other, Y^2 , a vibrating motion to the feed-bar X, which is kept down upon the cam by a spring, c, attached to the under side of the cloth-plate. The presser-foot d is formed with an aperture, d' , through which the needle works. The rod e of the said foot has a projection, d^2 , which extends over the edge of the cam f, and by turning the said cam on its axis or rot g, the foot is raised or lowered as desired.

The shuttle M is, preferably, provided with a curved cushion, attached to a spring, and arranged to bear upon the thread on the reel or bobbin, and assist in producing the proper tension on the same. This shuttle does not form part of my invention, as a similar one has been previously used in sewing-machines. The wheel pulley h may be fitted to turn upon a pin or stud, i, and provided with a toothed pinion, j, as shown, geared to another pinion, j', on the driving-shaft B, or the pulley h may be fixed upon the end of the driving-shaft. The pulley h is provided with a handle, h', and may be turned either by hand, or by means of a belt passing over the said pulley.

The winding-apparatus for filling the reel or bobbin of the shuttle M is shown in figs. 1 and 2. The small pulley k, on the end of the short spindle l, is furnished with a ring, m, of India rubber or other similar material, which, when the device is properly adjusted, runs in contact with the wheel h, and causes the said spindle to revolve rapidly. The bracket n, which carries the short spindle l, is pivoted at o to the frame A. The spring which is secured to this frame, is so formed and arranged as to hold the bracket n, when the pulley l is adjusted either in or out of contact with the wheel h, and no other locking means are required to keep the said bracket in either of such positions. When the winding-device is used, the bobbin is placed between the centres p and q, and the said device is adjusted as shown in fig. 1, and the wheel h being caused to rotate, the said bobbin is quickly filled with thread.

To hold my improved machine firmly while at work, without clamps, screws, or other similar means, I employ pieces or feet, of cork, which are placed in small sockets, or otherwise attached to the base of the machine. The friction between the surface of the cork and that of the table or bench is sufficient to hold the machine, and prevents its shifting while in operation, but will allow it to be easily removed when desired. Instead of these pieces of cork, I sometimes make use of pneumatic pressure to hold the machine upon its table stand, and I prefer to obtain this pressure by means of a disk or number of disks, or washers, of India rubber or other similar substance, attached to the base, A^1 . The said disks or washers may be provided with screws, or other means whereby they can be pressed firmly in contact with the surface on which they rest, and this surface should be made smooth and true, to insure the perfect adhesion of the disks. These cork feet or pneumatic supports greatly diminish the noise of the machine in working.

What I claim as my invention, and desire to secure by Letters Patent, is—

A simple rocking-shaft, K, and an encircling, tubular rocking-shaft, J, combined with each other, and respectively, at one end, with a cam, Y, operating the feed-plate X, and lever N, operating the shuttle-carrier, and at the other, with the eccentrics G H, upon the driving-shaft of a sewing-machine, all substantially in the manner and for the purpose herein set forth.

GEORGE SLATER.

Witnesses:

WM. ROBT LAKE,
THOS. N. PALMER.