

T. J. HALLIGAN.

Sewing Machine.

No. 38,740.

Patented June 2, 1863.

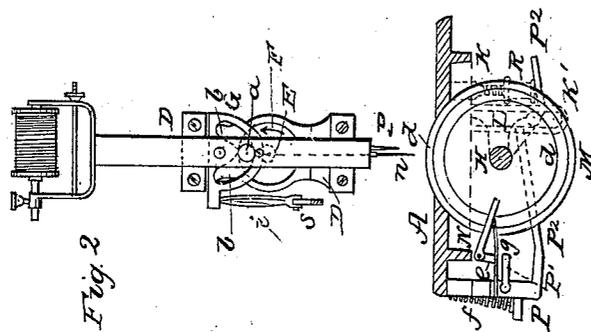


Fig. 2

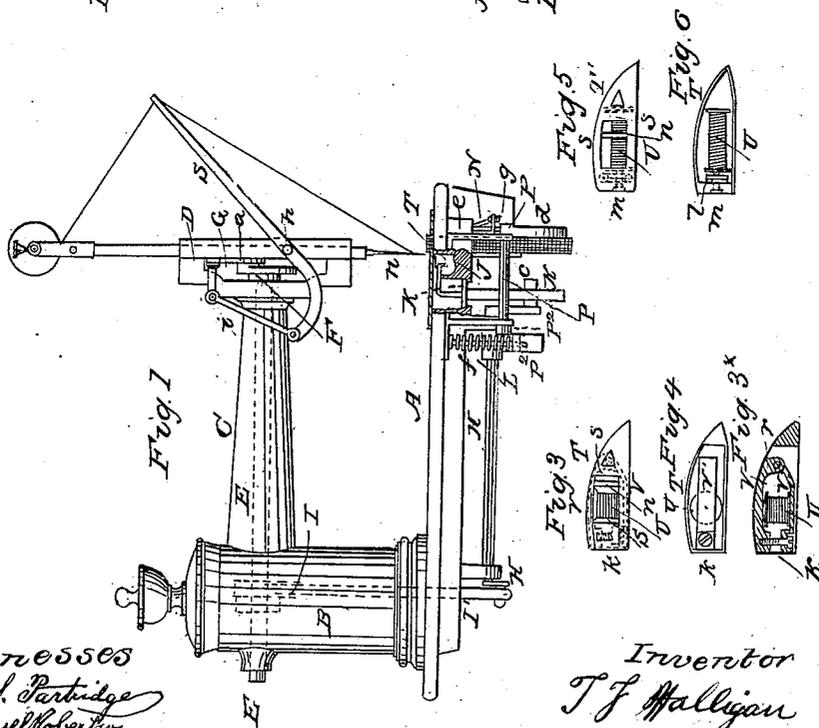


Fig. 1

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Witnesses
W. S. Partridge
Daniel Robertson

Inventor
T. J. Halligan

UNITED STATES PATENT OFFICE.

THOMAS J. HALLIGAN, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 38,740, dated June 2, 1863.

To all whom it may concern:

Be it known that I, THOMAS J. HALLIGAN, of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a back view of a machine with my improvements. Fig. 2 is a vertical section of the same at right angles to Fig. 1. Fig. 3 is a top view of a shuttle. Fig. 3* is a horizontal longitudinal section of the same. Fig. 4 is a face view of the same. Fig. 5 is a top view of another shuttle, illustrating a modification of my improvement in that part of the machine. Fig. 6 is a face view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to sewing-machines in which a shuttle is used; and it consists, first, in an improved combination of mechanism for driving the shuttle and feed mechanism, whereby the machine is much simplified.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the bed-plate, and B a hollow post erected thereon to support the hollow stationary arm C, which sustains the needle-bar guide D.

E is the main shaft of the machine, extending horizontally through the post B and arm C, and having at its front end a crank, *a*, for driving the needle-bar F, the wrist of the said crank working in a slot, *b*, in a plate, G, attached to the said bar. The needle-bar, besides carrying the needle *n*, carries an awl, *p*, which in sewing leather is employed to make holes for the passage of the needle, the said awl being arranged in front of the needle and making the holes in that portion of the leather which has not yet been brought to the needle by the feed-motion.

H is a horizontal rock-shaft for operating the shuttle, and arranged in suitable bearings under the bed-plate parallel with the main shaft E and deriving motion from an eccentric, I, on the main shaft E, the said eccentric being connected by a rod, I', with an arm, H', on the end of the rock-shaft farthest from the shuttle-raceway J, to which the rock-shaft is arranged transversely. At the end of the rock-shaft next

the raceway J there is another arm, H², carrying a wrist, *c*, which works in a vertically-slotted piece, K', attached rigidly to the shuttle-carrier K, and so drives the shuttle by the oscillating movement of the rock-shaft. At a short distance from the arm H² the rock-shaft H carries the cam L, by which the operation of the feed is produced. The feed is what is known as a "wheel" feed.

M is the feed-wheel, having a projecting rim, *d*, on its outer side to be operated upon by a gripping-dog, N, which has a notch cut in it to fit easily upon the said rim. This dog is attached by a link, *e*, to the short arm P' of a rock-shaft, P, which is arranged parallel with the rock-shaft H in suitable bearings at the back of the machine. This rock-shaft P carries, also, a longer arm, P², situated under the cam L on the rock-shaft H, and the said arm P² has applied to it a spiral spring, *f*, which acts to raise it after it has been depressed by the cam L, such depression taking place once in every revolution of the main shaft E, and causing at the same time the depression of the arm P' and the dog N, and by that means causing the dog to grip the rim *d* of the feed-wheel and turn it in the direction of the arrow shown in Fig. 2.

g is a spring attached to one of the fixed bearings of the rock-shaft P and pressing up against the dog N for the purpose of making the dog slip freely upon the rim *a* when it is raised by the action of the spiral spring *f* on the arm P² as the face of the cam recedes from the said arm. The length of the feed is regulated by a screw, R, screwed into the bottom of the bed-plate A in such position as to serve as a stop to the arm P² as it is raised by the spring *f*.

S is the take-up lever, attached to the back of the needle-bar guide D by a fixed fulcrum, *h*. The needle-thread passes through an eye in the longer arm of the lever, and the shorter arm is connected by a rod, *i*, with a rigid stud, *j*, attached to the plate G on the needle-bar, and the necessary movement of the said lever to take up the slack of the needle-thread as the needle rises is produced by the movement of the needle-bar.

T, Figs. 3, 4, 5 and 6, is the body of the shuttle, made of the usual form, except that in its upper side there is a wide opening, *s*, across which there is arranged a round bar or roller, *n*, oc-

copying a fixed position transverse to the length of the shuttle.

U is the bobbin, represented in Figs. 3, 3*, and 4 as arranged with its axis transverse to and in Figs. 5 and 6 with its axis parallel with the length of the shuttle. In both applications of the bobbin friction is produced upon the journals or male centers at the end of the bobbin. The transversely-arranged bobbin has the bearings for its journals in two stout springs, V V', which are hinged together at one end, as shown at *r* in Figs. 3 and 3*, and secured together at the other by a clamping-screw, *k*, passing through the end of one and screwing into the other. The spring V is firmly secured to the inside of the back of the body A; but the other one, which is next the open face of the shuttle, is free to open when the screw *k* is taken out to permit the insertion and removal of the bobbin. By screwing in the screw more or less after the bobbin has been put in place the springs V V' are made to press upon the journals in a greater or less degree, and produce a greater or less degree of friction thereon for the purpose of producing tension on the shuttle-thread. The screw *k* is arranged with its head opposite the open face of the shuttle, that it may be reached by a screw-driver to adjust the tension of the shuttle-thread. The longitudinally-arranged bobbin has one of its journals arranged in a fixed bearing in the inside of the body of the shuttle and the other in a bearing in a piece, *l*,

which is hinged within the body, and which is pressed against the journal to produce friction upon it to regulate the tension of the thread by means of a screw, *m*, screwing through the end of the shuttle. In both of these shuttles the thread passes from the bobbin over and once around the bar or roller *n*, which guides it in such a manner as to allow it to be delivered freely from the shuttle, the necessary tension being almost entirely produced upon the journals. The object of the openings *s* is to expose the bar or roller *n* and enable the thread to be easily placed around the bar *n*. The longitudinal arrangement of the bobbin will serve very well for sewing cloth; but for the use of waxed thread for sewing leather I prefer the transverse arrangement, which allows the thread to pass off more freely.

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

The combination of the rock-shaft H, carrying an arm, H², and a cam, L, the rock-shaft P, carrying arms P² P' and a dog, N, and the springs *f* and *g*, the whole arranged and applied in relation to each other and in connection with the shuttle-carrier and feed-wheel, substantially as and for the purpose herein specified.

T. J. HALLIGAN.

Witnesses:

M. S. PARTRIDGE,
DANIEL ROBERTSON.