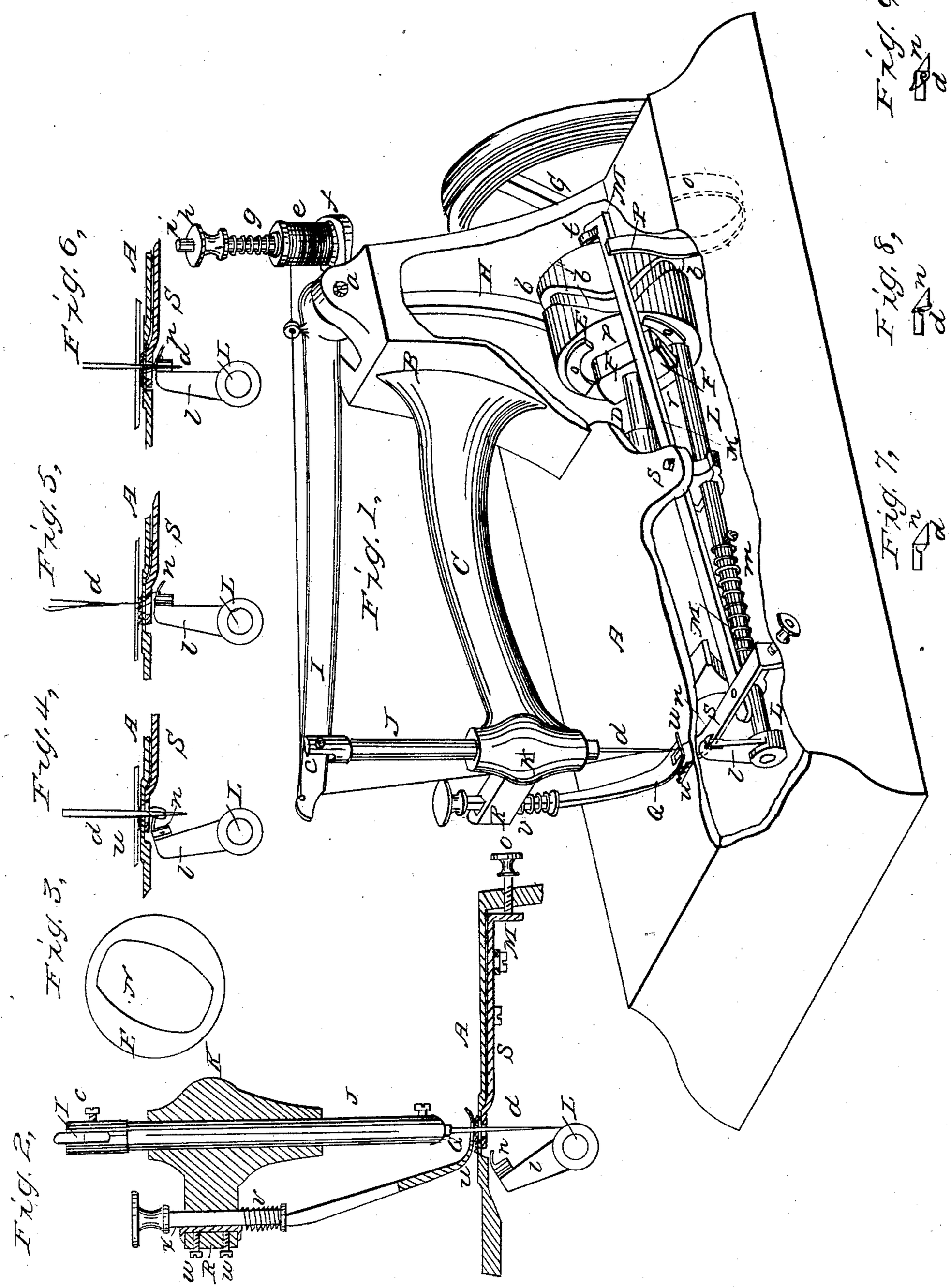
J. WHITE.

Sewing Machine.

No. 21,713. Patented Oct. 5, 1858.



UNITED STATES PATENT OFFICE.

JOSEPH WHITE, OF TROY, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **21,713**, dated October 5, 1858.

To all whom it may concern:

Be it known that I, JOSEPH WHITE, of Troy, in the county of Rensselear and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the machine, with a portion of the stand represented as broken away to show the parts behind and under it. Figs. 2, 3, 4, 5, 6, 7, 8, 9 represent detached portions of the machine, that will be referred to in the description.

Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all of them.

My invention relates to the particular operation of the looper or looper-shaft for the purpose of catching, spreading, holding, and releasing the loop at proper intervals during the process of sewing without putting any twist in the thread, and thus making a neater and more finished seam.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents the stand, upon which is placed the hollow pillow-block B, said pillow-block having cast or wrought upon it an arm, C, through the end of which the needle-bar plays. Underneath the stand is hung in suitable bearings a shaft, D, having upon it two cams, E F, and on its projecting end a pulley-wheel, G, which may be driven by a belt worked by a treadle or otherwise, said wheel G also serving as a balance-wheel. On the top of the pillow-block B is hung by a shaft, *a*, a lever having two arms, H I, the one, H, working in the groove *b*, which is cut in a zigzag line around the periphery of the cam E, and thus receives a reciprocating movement from it in the line of the shaft D, while the other arm, I, at its point, moves in a line at nearly right angles to said shaft D. The needle-bar J is pivoted at *c* to the arm I of the lever, and passes through a guide or support, K, formed on the end of the arm C, so as to carry and work the needle *d* immediately over the sewing-point. The eye of the needle is near its point, as usual in sewing-machines, and the thread, as shown in red lines, is furnished from a bobbin, *e*, that is held on a projection, *f*, of the two-armed lever by a spring, *g*, and set-screw *h* and screw-shaft *i*, to give it the necessary friction for properly straining the thread, which passes from thence through guides on and in the arm I, as represented, to the needle.

In bearers *k k*, suspended from the under side of the stand, is supported the looper-shaft L, that carries on its front end the looper *n*, said looper being wrought on or attached to an arm, *l*, on the looper-shaft. This looper-shaft L can move longitudinally through its bearings *k*, but is held or drawn back by a coiled spring, *m*, against the end of the cam E, where a series of inclined and curved planes, *o*, are arranged, which, as they strike against the end of said looper-shaft, move it forward, while the spring *m* continues to draw it back after the planes have passed by. There is a dead-space, *p*, between the cam-planes *o*, at which points or spaces the shaft L is not moved in the line of its long axis, and consequently there is a momentary rest at this point, during which the needle rises and forms the top, which the looper *n* catches the moment the looper is acted upon by the other cam, F, as follows: An arm, *r*, projects from the looper-shaft, which the cam F strikes against, and rocks or turns partially said shaft in its bearings. This rocking on its short axis takes place simultaneously with the moving of the shaft forward in the line of its long axis, and the spring *m* is coiled and compressed, both by these double movements and when the cam-plane *o* and the throw of the cam F (for it has two throws—one at each end of it) cease, for the moment, to act. The expanding and uncoiling of the spring *m* brings the shaft back into proper position for the next similar operation, each one of which forms a stitch. The material that is being sewed is fed up to or under the needle as follows:

M is a lever pivoted to the under side of the stand at *s*. At its rear end it has a friction-roll, *t*, against which a cam, N, Fig. 3, on the rear end of the cam-wheel E, works, and which vibrates said lever on its pivot or fulcra *s*. To the front end of the lever is connected a feeder-bar, S, provided with points or teeth *u*, that project up through the table, and every time the needle is raised up out of the material

that is being sewed the feeding apparatus is operated, which moves the material the length of one stitch, and which distance can be adjusted by the set-screw O. As the lever M is forced out by the cam N at that end of it next the rear of the stand, it compresses a spring, P, which returns it again or, rather, holds it to the said cam.

Q is the presser-bar, which holds the material to the table and prevents it from following the needle. It is held down by a spring, *v*. The presser-bar is arranged in an arm, R, projecting from the guide K, and can be made to move more or less free therein by the set-screws *w* pressing against a key-follower, *x*, as shown in Fig. 2.

Figs. 4, 5, 6 represent in section the relative positions of the needle, looper, and thread in forming the stitch, and Figs. 7, 8, and 9 represent a top plan of the same. As the needle vibrates over a fixed point, it is obvious that the looper must take the loop at that point, and then remove itself, with the thread, out of the way of the next downward motion of the needle, though still near enough for the needle to pass through the loop again, and that the loop must be held open, so that the needle may pass into it. This must be done on all machines of this kind; but in doing it heretofore the motions or parts for producing them have been complicated, and, what is more objectionable still, a twist has been given to the thread in forming the loop, which leaves a ridge on the under side of the cloth. The motion which I give to my looper opens and holds open the loop; but when it gives up the loop to the needle again, it returns by the same path which it traversed in catching and carrying away the loop to spread it, and consequently if even the slightest twist were put into the thread by forming the loop, it is run out again by the reverse movement in delivering the loop to the needle again. The simplicity and efficiency of the devices for giving the looper-shaft its two motions are of themselves very important, as they make the machine, by reducing its number of parts, less liable to become deranged.

Having thus fully described the nature and object of my invention, I would state that I am aware that two motions have been given to a looper and its shaft, but not simultanously. This I do not claim; but

What I claim therein as new, and desire to secure by Letters Patent, is—

Giving the looper its motions for catching, spreading, and holding open the loop, and then delivering it up to the needle without putting any twist in the thread, by means of a shaft having two motions at the same time, and given to it by mechanism substantially such as herein described.

JOSEPH WHITE.

Witnesses:

F. W. PARMENTER,

R. M. WINNIE.