

F. TOGGENBURGER.

Sewing Machine.

No. 28,920.

Patented June 26, 1860.

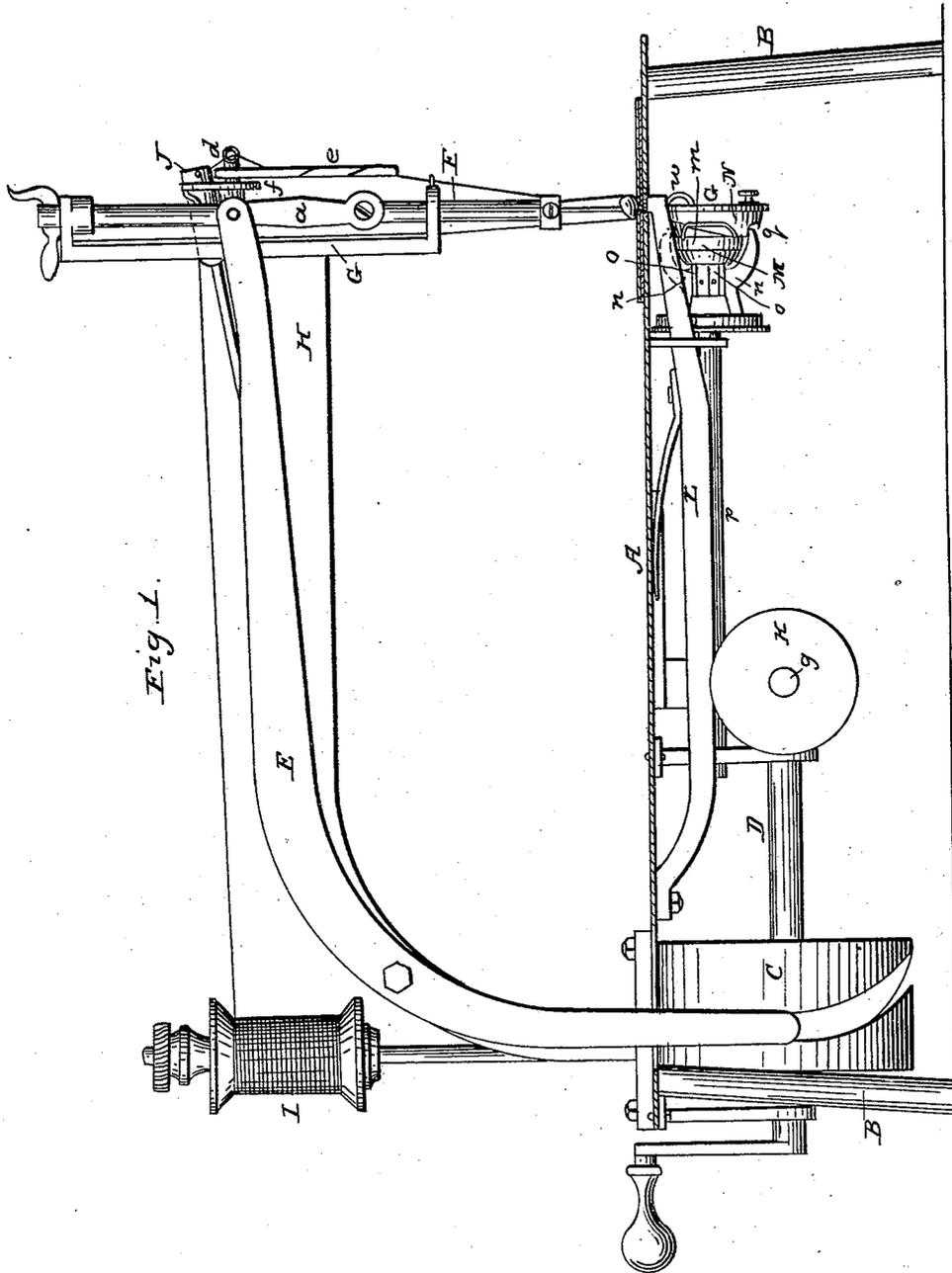


Fig. 1.

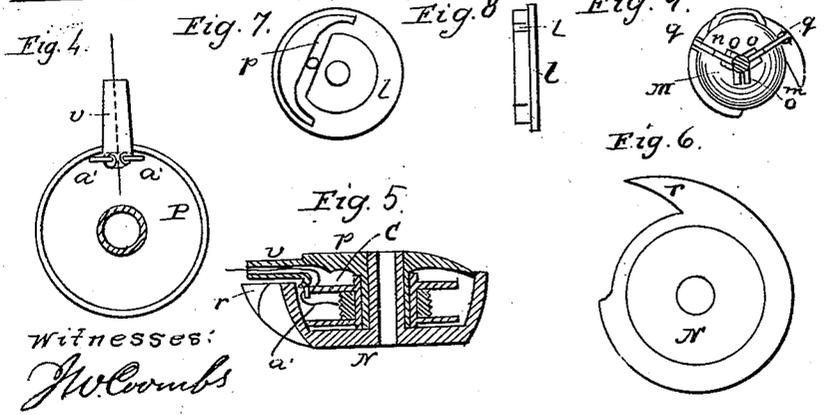
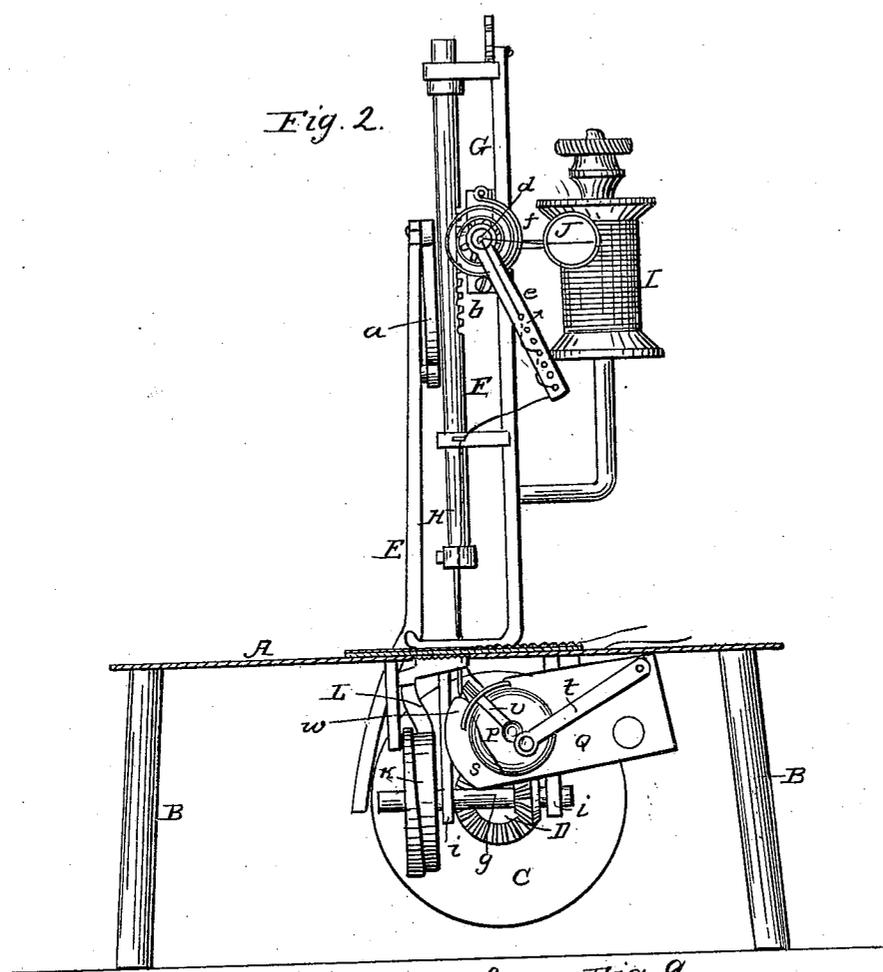
Witnesses:
J. O. Coombs.

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Witnesses:
J. W. Combs

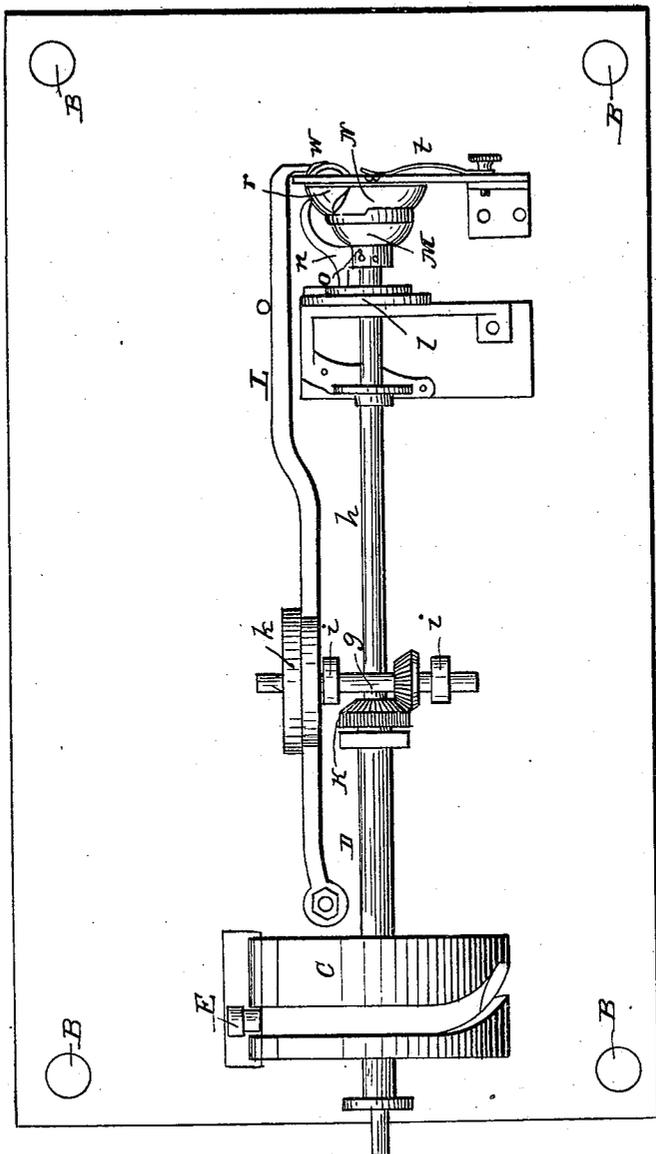
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Fig. 3.



Witnesses:
J. W. Coombs.

UNITED STATES PATENT OFFICE.

FR. TOGGENBURGER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 28,920, dated June 26, 1860.

To all whom it may concern:

Be it known that I, FREDERICK TOGGENBURGER, of Chicago, in the county of Cook and State of Illinois, 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 a part of this specification, in which—

Figure 1 represents a side elevation of my invention partly in section. Fig. 2 is a front elevation of the same. Fig. 3 is an inverted plan of the same. Fig. 4 is a detached enlarged view of the cap of the shuttle, together with the guarding-tube of the lower thread. Fig. 5 is an enlarged central section of the revolving shuttle with the bobbin and cap. Fig. 6 is a detached elevation of the revolving shuttle. Fig. 7 is a detached face view of the cam for operating the shuttle-driver. Fig. 8 is a side elevation of the same, and Fig. 9 is an end view of the shuttle-driver and shuttle.

This invention consists in the arrangement of a tube projecting from the cap of the shuttle, in combination with a suitable loop or projection attached to the shield to keep the lower thread in the proper direction and prevent it turning.

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

A represents the table of the machine, supported by legs B, or in any other convenient manner. On its under side is the grooved cam C, secured on the driving-shaft D for the purpose of imparting motion to the arm E, which connects, by means of a link, *a*, with the needle-bar F, imparting to the same a rectilinear intermittent reciprocating motion. Said needle-bar is guided in the frame G, that is attached to the end of the standard H, which also supports the spool or bobbin I, carrying the upper or needle thread. This thread, in passing from the bobbin to the needle, runs through a tube, J, attached to the side of the standard H, and fitted with a small piece of oiled cloth or cotton, so as to make it (the thread) run easy through the material to be sewed.

The needle-bar is furnished on one side with a toothed rack, *b*, which meshes into a pinion, *c*, that is firmly secured to an axle, *d*, which

carries a perforated lever, *e*. A helical spring, *f*, exerts a certain tension on the lever *e*, having a tendency to turn the same in the direction of the arrow marked on said lever in Fig. 2. The needle-thread, after it has left the tube J, passes through a loop in the center of the axle *d*, and through several of the perforations in the lever *e*. This lever serves to take in the slack and to tighten the stitch. It must be remarked that the toothed rack *b* extends over a short portion of the length of the stroke of the needle-bar only so that the lever *e* remains stationary during a considerable portion of the up-and-down stroke of the needle. In order to take in the slack, the lever *e* is turned up by a positive motion imparted to it by means of the rack and pinion at the time the needle-bar ascends, and as the needle-bar descends the lever *e* turns down and remains in this position until the revolving shuttle has caught into the loop of the needle-thread and the needle-bar begins to ascend again.

The driving-axle D carries a cog-wheel, K, which imparts motion to the transverse axle *g*, and to a longitudinal shaft, *h*. The axle *g* has its bearings in two pendants, *i*, and secured to it is a cam, K, that actuates the feeder L. The shaft *h* extends to the front of the table A, and through the stationary disk *l*, and secured to its end is the shuttle-driver M. This shuttle-driver consists of a cup, *m*, with two or more dogs, *n*, hinged to lugs *o*, close behind the cup *m*. The rear ends of these dogs extend into a cam-groove, *p*, in the stationary disk *l*, the shape of which is shown in Figs. 7 and 8. The cam-groove *p* has the shape of a circle, with about one third cut away, so as to form a straight line. As the rear ends of the dogs *n* pass into the straight portion of the cam-groove *p*, their hooked front ends are raised, and as they pass on the circular portion of the cam-groove their front ends are depressed.

The spherical cup *m* of the shuttle-driver embraces a portion of the revolving shuttle N, a section of which, together with the bobbin O and cap P, is shown in Fig. 5. The surface of the shuttle is indented with recesses *q*, corresponding in number to the dogs *n*, and sufficiently large to allow the hooked ends of said dogs to penetrate into the same. By these means the rotary motion of the shuttle-driver is imparted to the shuttle, and the dogs *n*, together with the cam-groove *p*, are so ar-

ranged that one of said dogs is in contact with the shuttle when the other one is released from the same by the action of the straight portion of the cam-groove.

The shuttle N is provided with a hook, *r*, and it is covered by a cap, P, which fits into a circular aperture, *s*, on the shield Q. A spring, *t*, forces the cap, together with the shuttle, toward the shuttle-driver. The cap P is prevented from turning by a tubular projection, *v*, passing through a loop, *w*, in the shield Q.

The bobbin O is arranged in the interior of the shuttle N, as clearly shown in Fig. 5, and it fits loosely on the hub of the cap P, so that it can be turned independently of the shuttle. The thread from the bobbin O passes several times around loops *a'*, arranged in the interior of the cap P, in order to obtain the required tension, and from these loops it passes out through the tubular projection *v*, as clearly shown in Figs. 4 and 5.

The operation will be readily understood by referring to the drawings. The needle passes down through the material to be sewed and forms the loop in the usual manner. The hook *r* of the shuttle catches into the loop, and it carries the needle-thread down with it, forcing one side of the same down between the shuttle and the cap *m* of the shuttle-driver. As the thread arrives at one of the dogs *n* said dog is raised by the action of the cam-groove *p* and the thread is allowed to pass under it. The other side of the loop passes over the cap P, and as the needle rises it is drawn close up to the material to be sewed.

By thus passing around the shuttle N and cap P the needle-thread is caused to embrace the lower thread as the same passes out of the tubular projection *v*, and the needle-thread is thereby prevented from slipping up through the material, and the stitch produced by my machine is equal in every respect to the stitch made by Wheeler & Wilson's or Singer's sewing-machines.

The work to make and fit my shuttle is considerably less than that required to make other revolving hooked shuttles—such as Wheeler & Wilson's—and its operation is quite as sure.

The needle-thread, by being kept well greased through the agency of the oiled cloth or cotton in the tube J, is made to pass easy through the material to be sewed, and the stitch can be drawn up perfectly tight without causing the thread to break; and by arranging the bobbin in the shuttle on the hub of the stationary cap P, whereby it is prevented from turning, the lower thread is always kept in good order from beginning to end.

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

The arrangement of a tubular projection, *v*, on the cap P, in combination with a loop, *w*, or its equivalent on the shield Q, constructed and operating substantially as and for the purpose described.

FR. TOGGENBURGER.

Witnesses:

H. MENSCHING,
JOHN TAIUB.