I. M. SINGER.

Sewing Machine.

No. 22,517. Patented Jan'y 4, 1859.

Fig. 1.

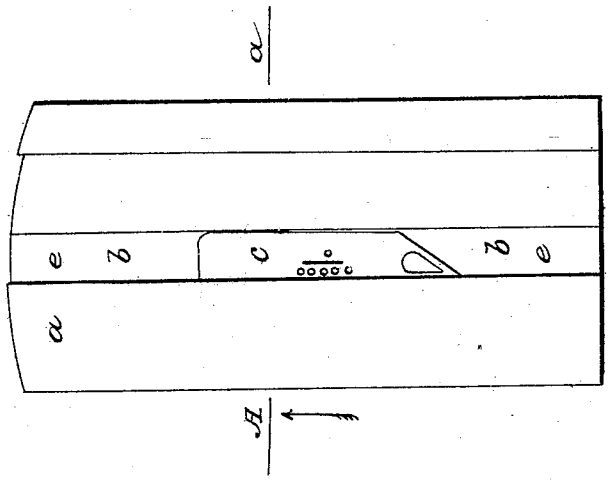


Fig. 3. B. b

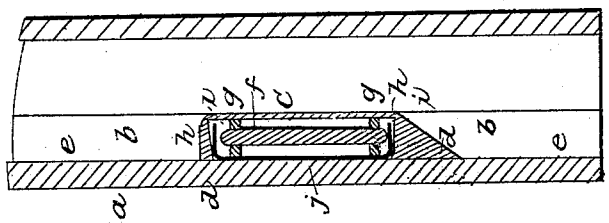


Fig. 4

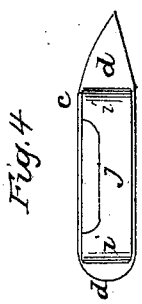
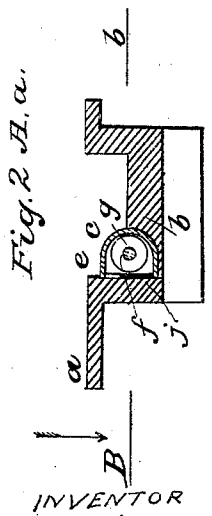


Fig. 2. A. a.



WITNESSES

Andrew De Lacy

Geo D Sargent

INVENTOR

Isaac M Singer

UNITED STATES PATENT OFFICE.

ISAAC M. SINGER, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **22,517**, dated January 4, 1859.

To all whom it may concern:

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

Figure 1 is a plan of a portion of the table of a sewing-machine with the cover of the shuttle-race and shuttle removed; Fig. 2, a cross vertical section at the line A *a* of Fig. 1; Fig. 3, a horizontal section taken at the line B *b* of Fig. 2, and Fig. 4 an elevation of the flat face of the shuttle.

The same letters indicate like parts in all the figures.

In that class of sewing-machines in which a reciprocating shuttle is employed the usual practice has been to hang the spool which carries the thread by journals on the ends of its spindle or barrel mounted in boxes in the shuttle-case, and as such shuttles are necessarily small, the spool carrying but a small amount of thread, it has frequently to be taken out to renew the spool, which is attended with inconvenience. It is necessary, when the shuttle is mounted in this or any equivalent manner, to put a drag upon it to prevent it from turning and giving out the thread too freely. If this be not done, there is danger of tangling the thread inside the shuttle and between the spool and the shuttle-case, where the final drag is put upon the thread by causing it to pass through a series of holes in the case.

The object of my invention is to facilitate the operation of taking out and putting in the spool, to simplify the construction of the parts and at the same time render them more durable, and with this view the spool is formed without journals or any other connection with the shuttle, and is simply dropped into the shuttle-race, so that the operations of taking out an empty and putting in a full spool requires no detachment or attachment of any kind, the change being effected by simply dropping out the empty spool and dropping in a full one. The spool is held in place in the shuttle-case by a loose plate, with both ends bent at right angles to enter between the ends of the shuttle-case and the pivots of the spool to form spring-bearings for the said pivots, the said plate being held in place to inclose the spool and keep it in place by running in contact with the face of the shuttle-race.

In the accompanying drawings, *a* represents a portion of the table of a sewing-machine, with the shuttle-race *b*, in which the shuttle *c* travels in the usual manner in what is known as the "Singer sewing-machine." The case of the shuttle *c* is hollow and of the form represented, with one face, *d*, flat, and when in place running in contact with the vertical face *e* of the shuttle-race. The spool *f*, which carries the shuttle-thread, and which is placed inside of the shuttle, instead of being provided with journals running in boxes or fitted to turn on a stem, is dropped loosely into the shuttle-case, and the circumference of its heads correspond in curvature with and run in contact with the inner curved face of the said shuttle-case, as at *g*. The spindle of this spool projects at each end beyond the heads to form rounded pivots, as at *h h*. These pivots do not bear against any part of the shuttle-case, the spindle being shorter than the hollow part of the case. After the spool so constructed is put into the case loosely it is inclosed by means of a thin plate, *j*, the two ends *i i* of which are bent at right angles, and when put in place enter the pivots and the ends of the case, the outer face of the said plate being flush with the flat face of the shuttle, so as to be held in place by the vertical face of the shuttle-race. In this way, and without any attachment of the parts, the plate *j* holds the spool within the shuttle, and the plate is held in place by the vertical face of the shuttle-race. The spindle of the spool is a little shorter than the space between the ends of the plates *j*, so that both pivots are not at any one time in contact with the ends of the plate, and the ends of the shuttle-case inside are slightly beveled, that the ends *i i* of the plate *j* may spring when they strike the pivots of the spool when the motion of the shuttle is reversed.

From the foregoing it will be seen that I avoid the use of anything like journal or spindle connections or other attachment of the spool with the shuttle, which is unavoidably attended with inconvenience to the operator, who is required every time the thread gives out to take out the spool and put in another. I

also avoid the necessity of applying a drag to the spool, as the means which I employ for inclosing the spool produces the required drag, to prevent the thread from being given out too freely, by causing the heads of the spool to run in contact with the shuttle-case; and by reason of the elasticity of the bent ends of the plate which form the bearings for the pivots of the spool, and which yield slightly at every change of motion as the shuttle reciprocates, I avoid in a great measure the wear and tear heretofore experienced in the connections of the spool with the shuttle.

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

1. Placing the spool within the shuttle without any attachment, so that the heads thereof shall run in contact with the case of the shuttle to give the required drag, substantially as described.

2. In combination, with the shuttle-case and the spool placed therein without any connection, substantially as described, the employment of the spring-plates, substantially as described, to form spring-bearings for the pivots of the spool, as set forth.

3. The shuttle-case and spool placed therein without any attachment, as described, in combination with the inclosing-plate and the face of the shuttle-race, substantially as described, by means of which combination the spool is held in place by simply placing the shuttle in its race, substantially as described.

ISAAC M. SINGER.

Witnesses:

ANDREW DE LACY,

GEO. D. SARGEANT.