

(Model.)

F. BECKER.
SEWING MACHINE SHUTTLE.

No. 257,204.

Patented May 2, 1882.

Fig. 1.

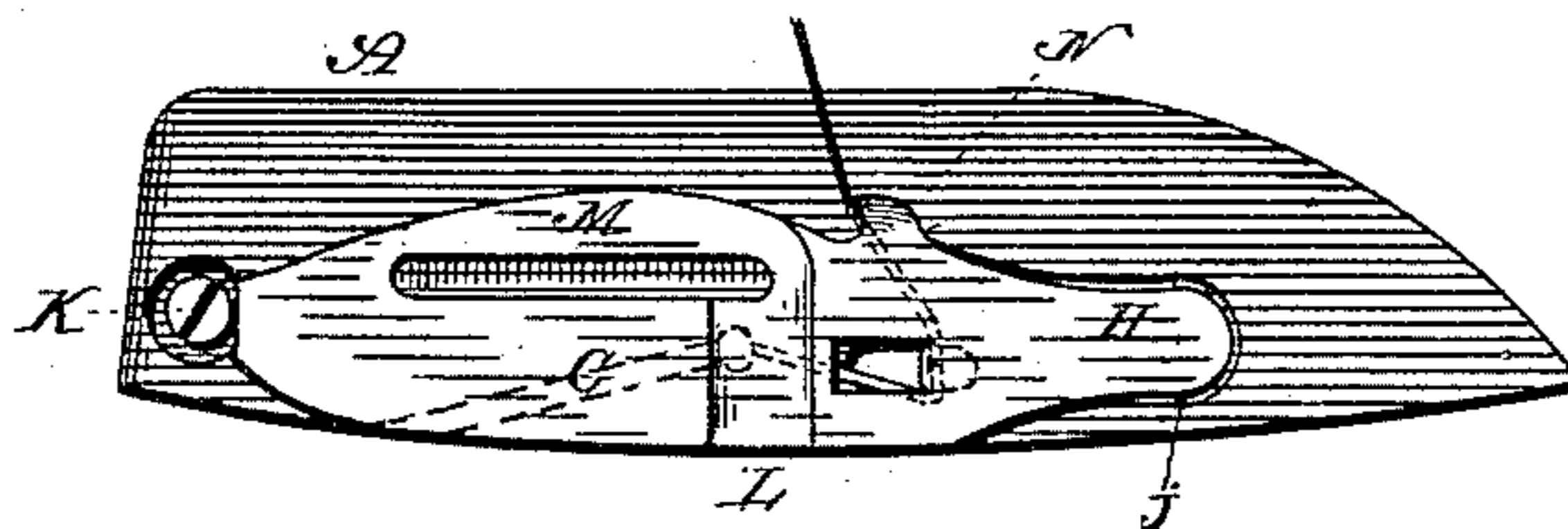


Fig. 2.

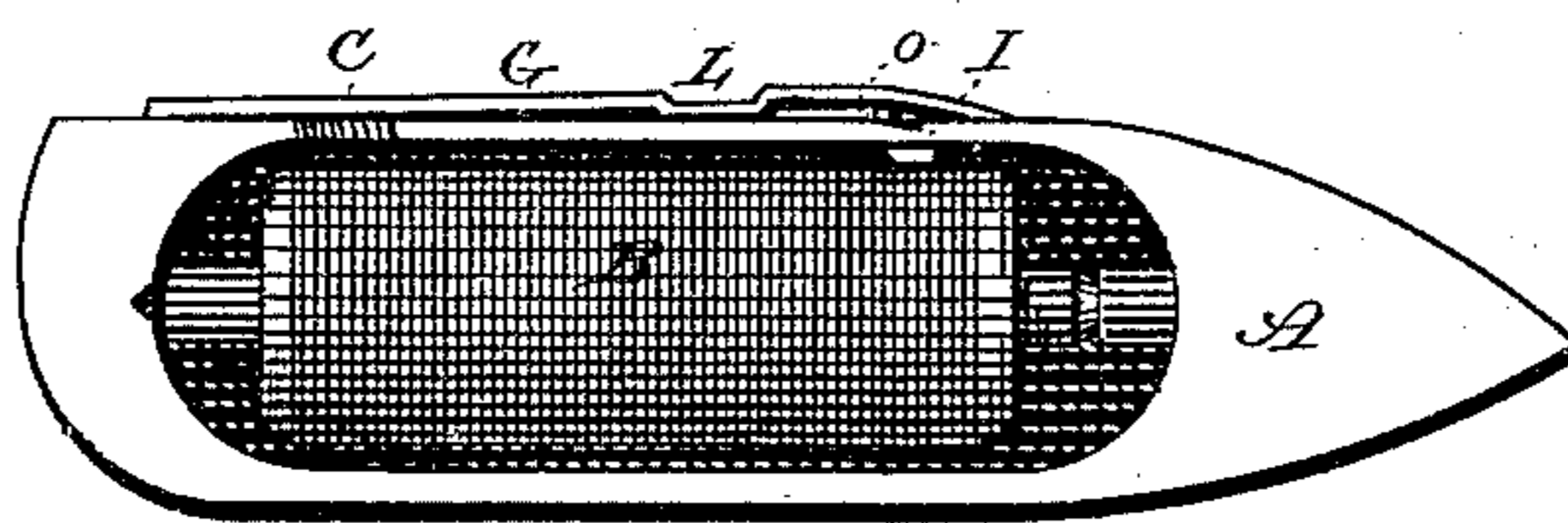


Fig. 3.

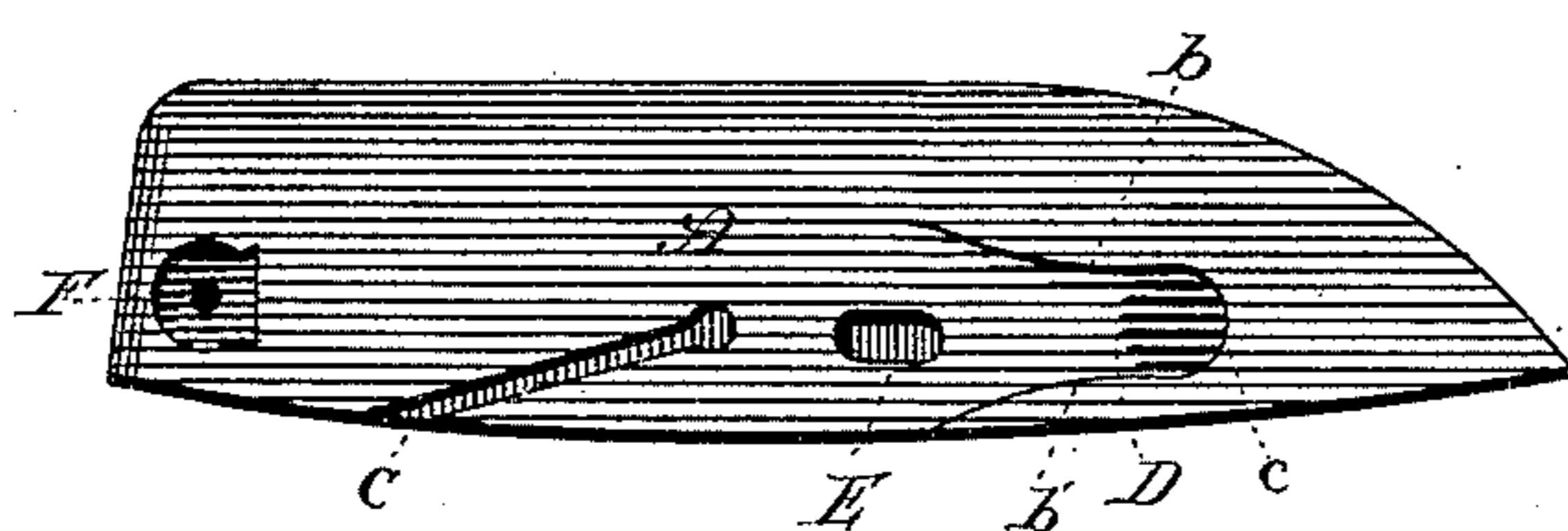


Fig. 4.

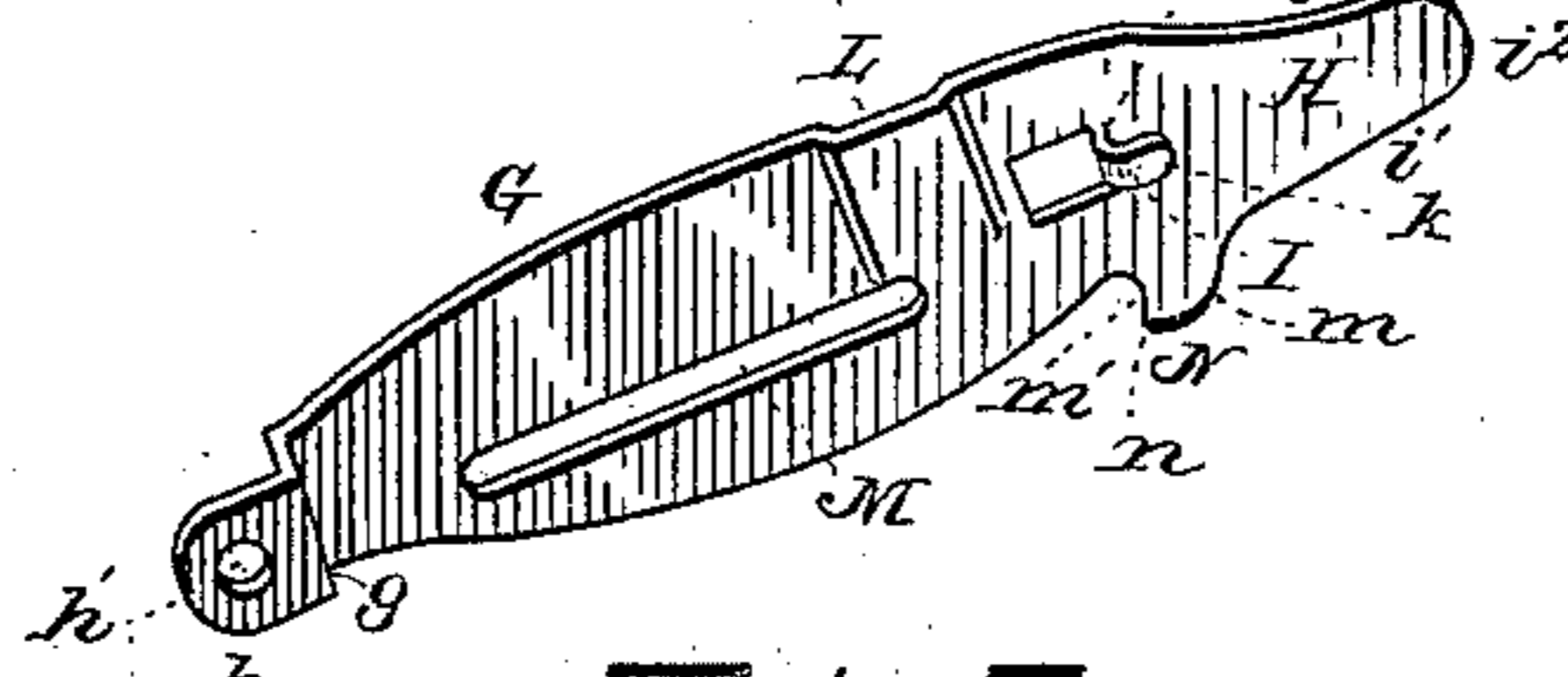
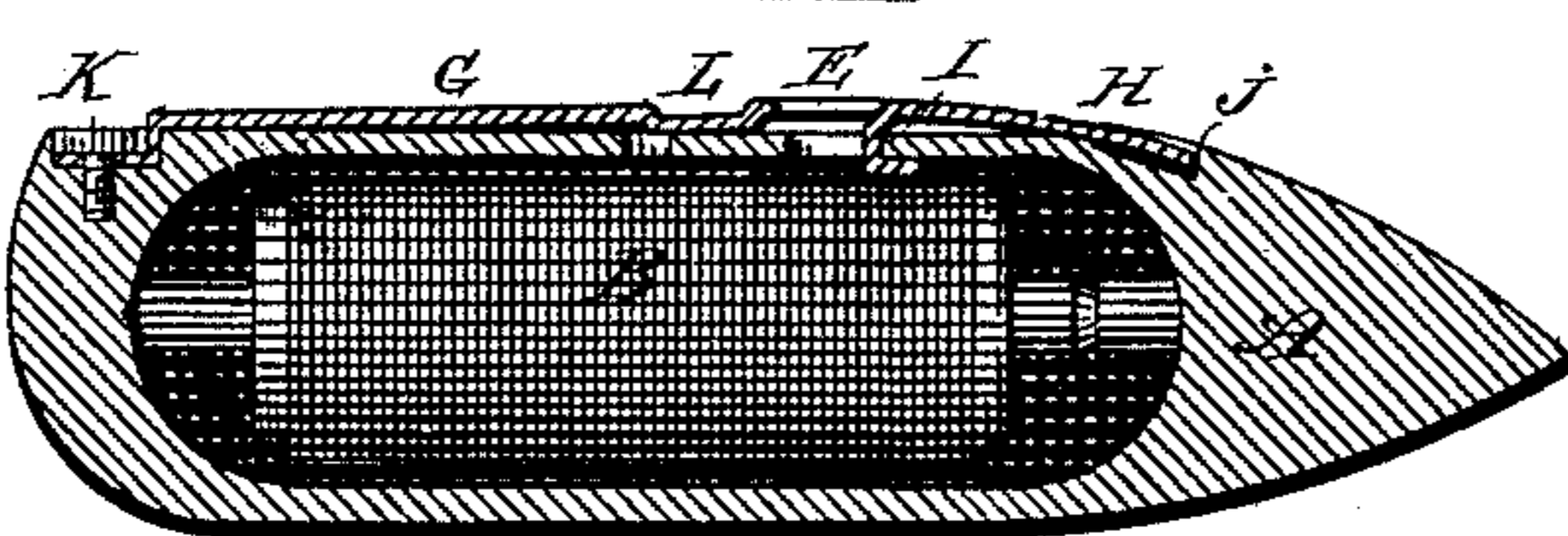


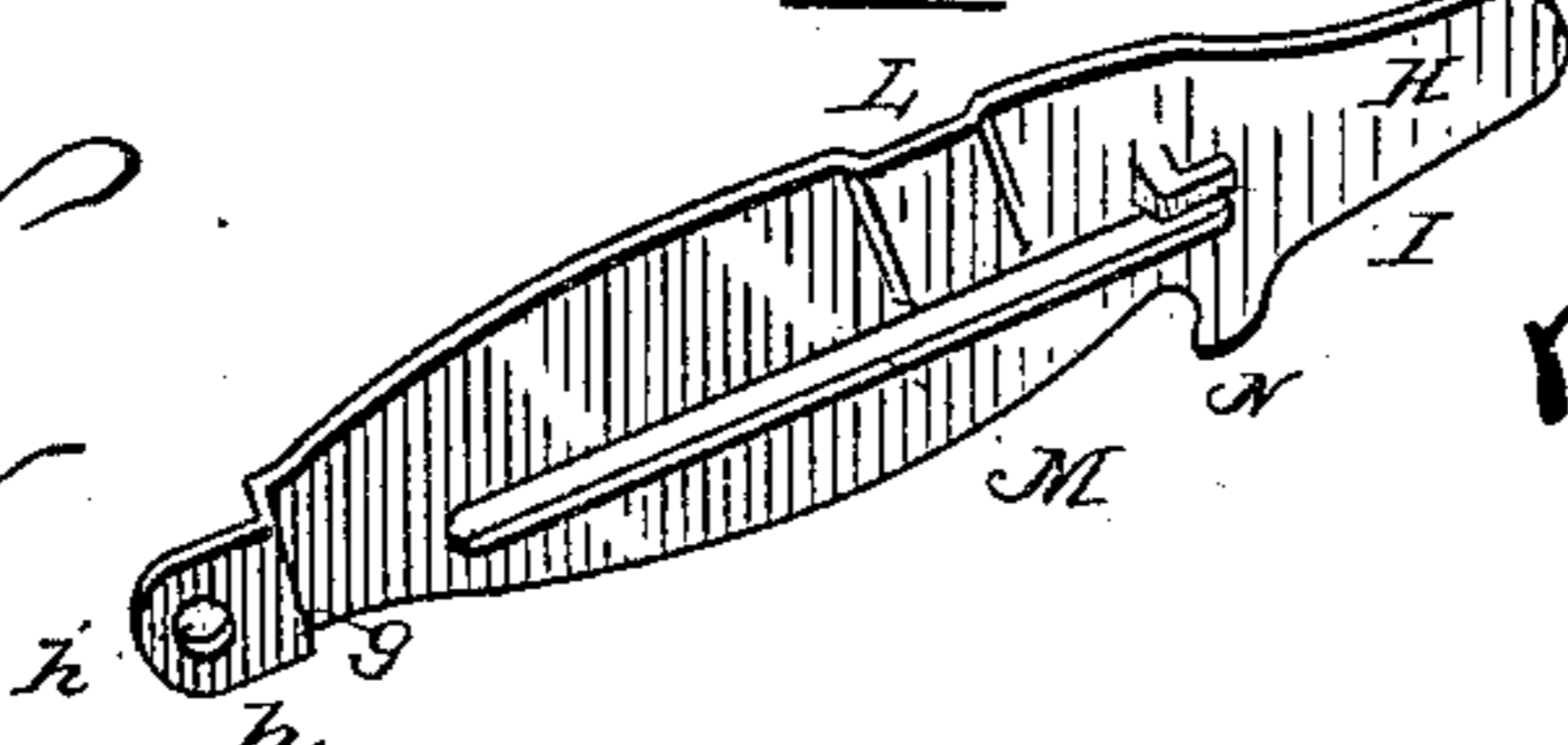
Fig. 5.



Witnesses:

J. B. Garner.
H. L. Haines.

Fig. 6.



Inventor:

Frank Becker.
By H. A. Symons.

UNITED STATES PATENT OFFICE.

FRANK BECKER, OF NORWALK, OHIO.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 257,204, dated May 2, 1882.

Application filed February 9, 1882. (Model.)

To all whom it may concern:

Be it known that I, FRANK BECKER, of Norwalk, in the county of Huron and State of Ohio, have invented certain new and useful
5 Improvements in Shuttles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

10 My invention relates to an improvement in shuttles, the object being to provide a shuttle with a thread-tension-regulating device of such construction that the thread may be readily inserted therein without removing or disturbing the tension-spring.

15 A further object is to simplify the construction of the tension device and render it easy of attachment and removal from the shuttle.

20 With these ends in view my invention consists in the combination, with a shuttle provided with an open thread-slot and a recess in the upper side of its forward end, of a tension-spring adapted to be adjustably secured to the shuttle at its rear end, and provided
25 with a projection that enters an opening in the shuttle and retains the forward end of the spring against displacement, said projection serving as a thread-bearing, the forward end of the spring being constructed to fit in the recess in the upper side of the shuttle.

30 My invention further consists in certain other features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

35 In the accompanying drawings, Figure 1 is a plan view of my improved shuttle. Fig. 2 is a view in side elevation. Fig. 3 is a plan view with the tension-spring removed. Fig. 4 is a view in perspective of the rear side of the tension-spring. Fig. 5 is a longitudinal
40 section, and Fig. 6 is a modified construction, of the tension-spring.

A represents a shuttle, and B the bobbin, journaled therein in any desired manner. The
45 upper side of the shuttle is provided with an open thread-slot, C, through which the thread is inserted, said slot extending from the rear end of the shuttle in an inclined direction toward its forward end. A recess, D, is formed
50 in the upper side of the shuttle near its forward end. This recess is formed with con-

verging sides $b\ b'$ and rounded end c . In rear of the recess D an opening, E, is formed in the upper side of the shuttle. At the rear end of the shuttle is formed a deep depression, F. The tension-spring G is formed at its rear end with a shoulder, g , having a rearward extension, h , provided with a screw-hole, h' . The forward end, H, of the tension-spring is bent toward the shuttle and formed with converg- 60 ing sides $i\ i'$ and rounded end i^2 , whereby it is adapted to fit within the recess D in the shuttle and form a narrow space, j , for the passage of the thread between the converging sides or walls $b\ j$ of the recess and forward end of the spring. The forward end of the tension-spring 65 is bent toward the shuttle, so that it will extend below the surface of the upper side thereof to prevent it from catching the needle-loop as the shuttle passes through it. The tension-spring has a hook, I, punched therefrom. The 70 arm k of the hook projects toward the nose of the shuttle and is parallel with the tension-spring, and is inserted through the opening E in the shuttle, whereby the forward end of the tension-spring is retained in place. The 75 arm k of the hook is first inserted through the opening E in the shuttle, and the spring then moved forward longitudinally until the perforated extension h registers with the depression F in the rear end of the shuttle. The 80 screw K is then inserted through the opening h' and into the screw-threaded hole l in the heel of the shuttle. By tightening the tension-screw K the tension may be regulated as de- 85 sired.

The tension-spring is provided with a depressed portion, L, which rests against the upper side of the shuttle, and between which and the side of the shuttle the thread passes. 90 The tension on the thread is proportioned to the force with which this portion L of the tension-spring is drawn against the upper side of the shuttle by the tension-regulating screw K. The tension-spring is provided with an 95 elongated slot, M, to permit the easy bending of the spring lengthwise without adding to its stiffness, the curvature of the spring regulating its tension capacity.

On the under side of the tension-spring is formed a projection, N, which is bent inwardly, so that its point n will rest against the upper

side of the shuttle and prevent the displacement of the thread in the return movement of the shuttle. The projection N is formed with its forward edge, *m*, curved rearwardly to permit the thread to be readily drawn under the curve, while its rear edge, *m'*, is straight or slightly hook shaped to prevent the thread from being drawn in the opposite direction beneath this projection. The tension-spring having been secured in place, as explained, the thread is first inserted in the open slot C in the shuttle, sufficient space for this purpose being provided between the side of the shuttle and the tension-spring. The thread is then drawn forward into the narrow passage *j* and around the converging point of the tension-spring that is situated in the recess D. The thread is then drawn rearwardly between the point of the projection N and the shuttle, so that the thread will be located in rear of the projection N. In drawing the thread around and beneath the tension-spring, as described, it is drawn between the upper side of the shuttle and the tension-portion L of the spring, and also around the shank portion *o* of the hook I, whereby the latter serves as a thread-bearing, as well as a means for securing the tension-spring to the shuttle.

The shank portion *o* is rounded at its edges, so as to afford a smooth bearing for the thread.

From the foregoing it will be observed that the tension-spring remains a fixture on the shuttle, it not being necessary to detach or in anywise disturb it in order to thread the shuttle, and to regulate the tension it is only necessary to tighten or loosen the screw provided for that purpose. In Fig. 6 I have shown a tension-spring having a hook riveted thereto instead of being punched from the spring.

It is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit of my invention, and hence I do not restrict myself to the exact construction of parts shown and described; but

Having fully described my invention, what

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

1. The combination, with a shuttle provided with an open thread-slot and with a recess near its forward end, of a tension-spring adapted to be adjustably secured at its rear end to the shuttle and provided with a projection near its forward end that enters an opening in the shuttle, said projection serving as a thread-bearing, the forward end of the tension-spring being constructed to enter a recess in the upper side of the shuttle, substantially as set forth.

2. The combination, with a shuttle provided with a passage for the thread, of a tension-spring arranged to cover the thread-passage in the shuttle and removably secured to the shuttle by a tension-screw and a hook, said tension-spring being constructed and arranged to allow the thread to be drawn around and beneath its forward end without loosening the spring, substantially as set forth.

3. The combination, with a shuttle provided with an open thread-slot in its upper side, of a tension-spring provided with a hook intermediate its ends, said hook being constructed to be inserted through an opening in the shuttle by a longitudinal movement of the tension-spring, and a tension-screw for securing the rear end of the tension-spring to the shuttle, substantially as set forth.

4. The combination, with a shuttle, of a tension-spring provided with a projecting portion, L, that fits against the upper side of the shuttle, substantially as set forth.

5. A tension-spring having a combined attaching-hook and thread-bearing punched from the spring, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANK BECKER.

Witnesses:

J. W. FOSTER,
N. S. C. PERKINS.