

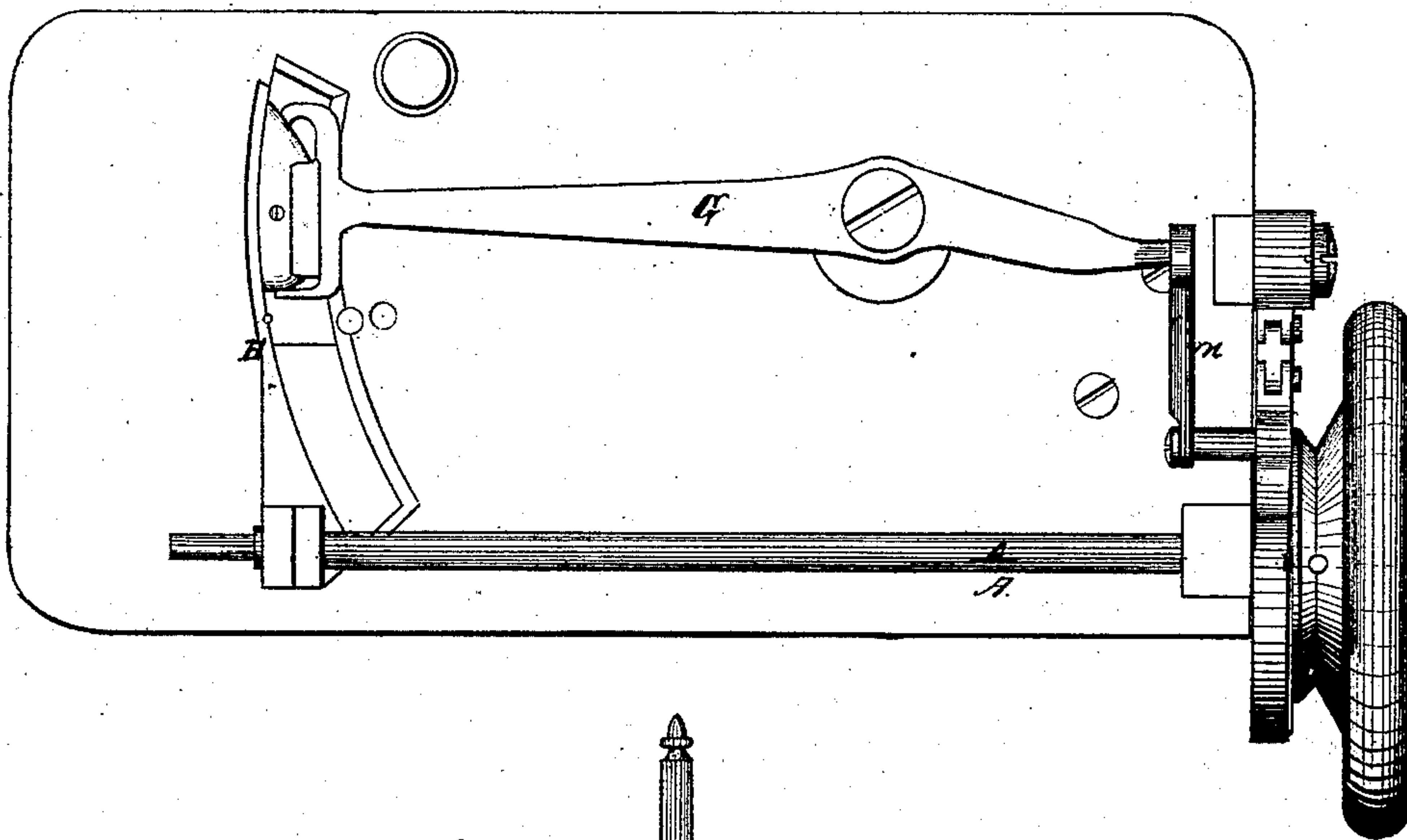
M. M. BARNES.

Sewing Machine.

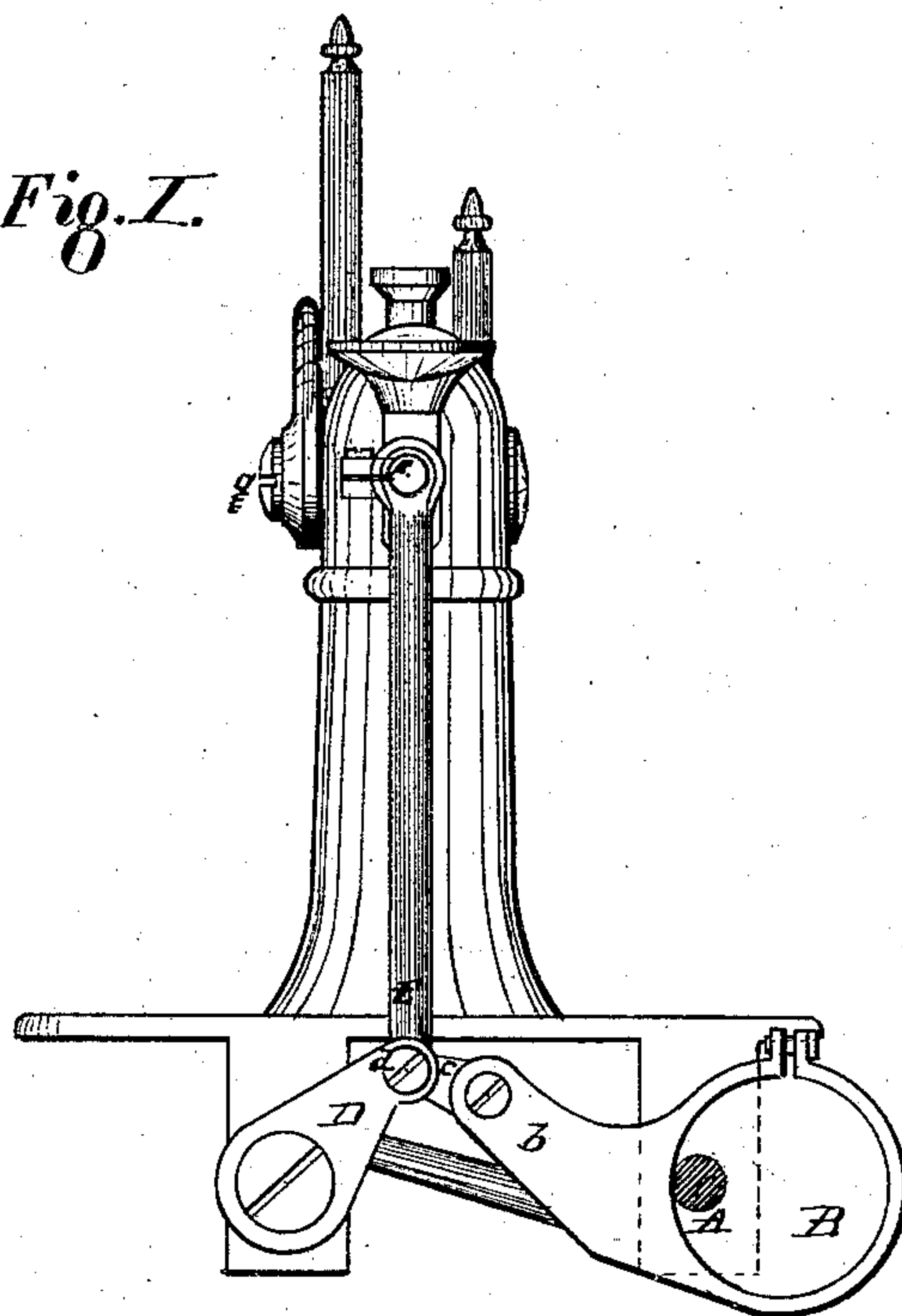
No. 106,307.

Patented Aug. 16, 1870.

*Fig. 2.*



*Fig. 1.*



Witnesses.

Villette Anderson  
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# UNITED STATES PATENT OFFICE.

MERRICK M. BARNES, OF NORTH ADAMS, MASSACHUSETTS.

## IMPROVEMENT IN SEWING-MACHINE.

Specification forming part of Letters Patent No. **106,307**, dated August 16, 1870.

*To all whom it may concern:*

Be it known that I, MERRICK M. BARNES, of North Adams, Berkshire county, Commonwealth of Massachusetts, have invented a new and Improved Sewing-Machine; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

In the drawing, Figure I is an end view. Fig. II is a plan view.

My invention consists, first, in an improved arrangement of operating devices for the needle-arm; second, an improved arrangement of a shuttle-moving device, in combination with the needle-moving device.

I will first describe the arrangement for driving the needle-arm in the proper manner.

A is the driving-shaft; B, an eccentric attached thereto. From this eccentric projects an arm, *b*, which is pivoted to the end of the short projection *c*, forming part of link E, which link is jointed at *d* to the part D', and also at its upper end. The part D is pivoted at its lower end to the bed of the machine. The needle-arm F swings on a center at the screw *g*, and has the needle-bar attached to its front end. The result of this arrangement is to give the needle the proper motion relatively to the motion of the shuttle, as will be hereinafter described. The vibrating shuttle-arm G is also operated from the eccentric B through the connecting-link *n*.

Both movements of the shuttle and needle, as mentioned, being derived from the same eccentric B, the parts being in the position shown in Fig. I, the needle at the highest part of its movement, and the shuttle at the outer end of its movement, we will suppose the eccentric to be turned until the needle is brought down, carrying the thread with it. The shuttle is, by the same motion, brought over to its opposite reversing-point. It is now desired that the needle rise slightly to form the loop, and stand still for a time, or, better, pass a little downward while the shuttle is passing

into the loop. This is accomplished by the arrangement of the parts D E, for the knee-joint *d*, being forced over its center, raises the needle slightly directly after the close of its first downward movement, thus forming the loop, and during this rise of the needle the shuttle is brought forward ready to enter the loop.

The reverse movement of these parts D E depresses the needle a second time to the same lowest point, and during this slight fall of the needle the shuttle passes into the loop, the needle receiving its motion and rising to its first position after the shuttle has passed.

The shuttle-guiding face H is curved in the arc of a circle, and the shuttle-carrying arm is pivoted at a point outside of the center from which the said arc is described, and owing to this arrangement of carrier and face of race, the shuttle, when the carrier has reached its extreme forward movement, is brought in close contact with the race-face, and such contact causes the shuttle to be pressed firmly over within the grasp of the horns and bottom of the carrier, so that the shuttle as it draws on the thread will not be raised from its carrier.

The advantages of this machine are simplicity, compactness, and freedom from noise, the latter advantage being especially apparent, there being no cams or loose parts to rattle, and the shuttle being arranged to be held firmly the greater part of the time.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The needle-arm F, link E, connections D, eccentric B, and arm *b*, all constructed and arranged substantially as set forth.

2. In combination with the above, the shuttle-arm G and link *n*, when arranged and operating in combination substantially as described.

M. M. BARNES.

Witnesses:

J. B. GARDINER,  
R. F. HYDE.