

No. 636,617.

Patented Nov. 7, 1899.

H. A. BATES.  
SHUTTLE FOR SEWING MACHINES.

(Application filed Apr. 5, 1895.)

(No Model.)

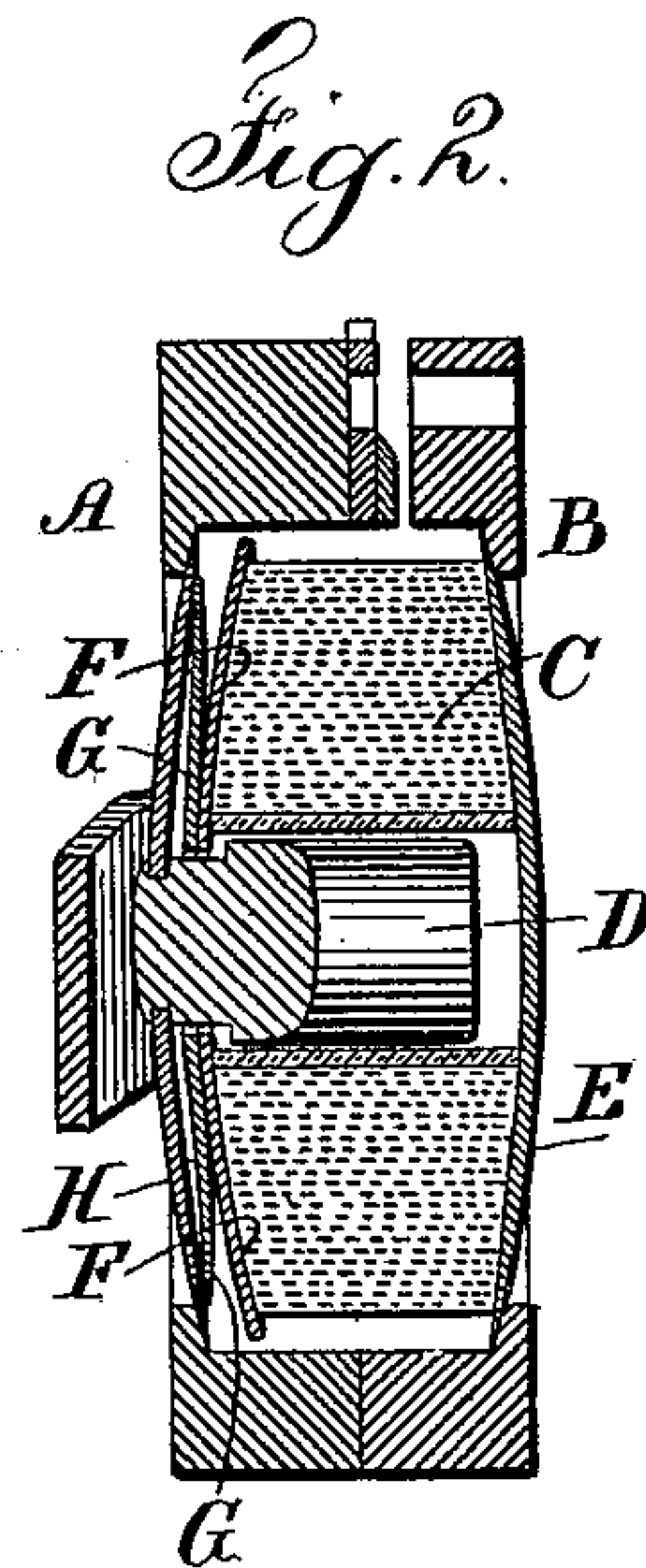
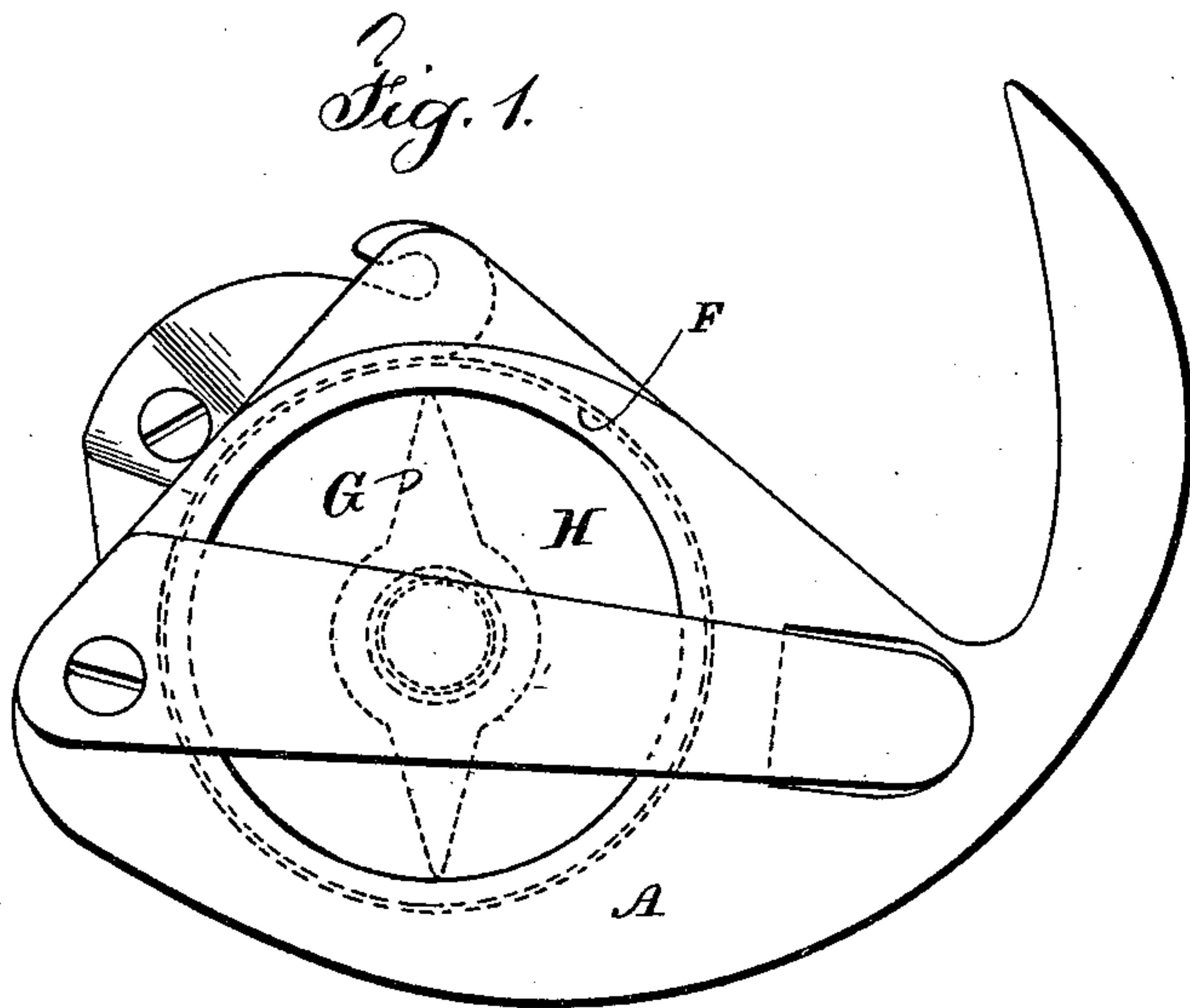


Fig. 4.

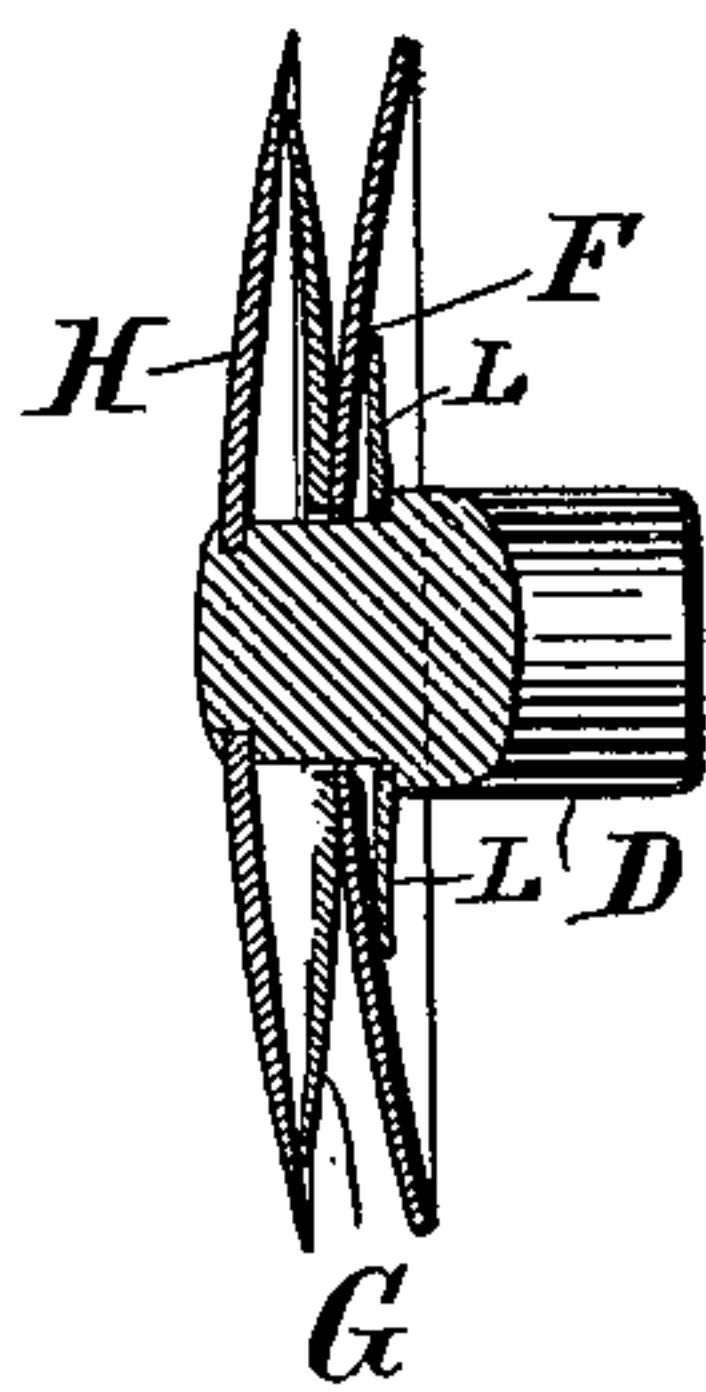


Fig. 3.

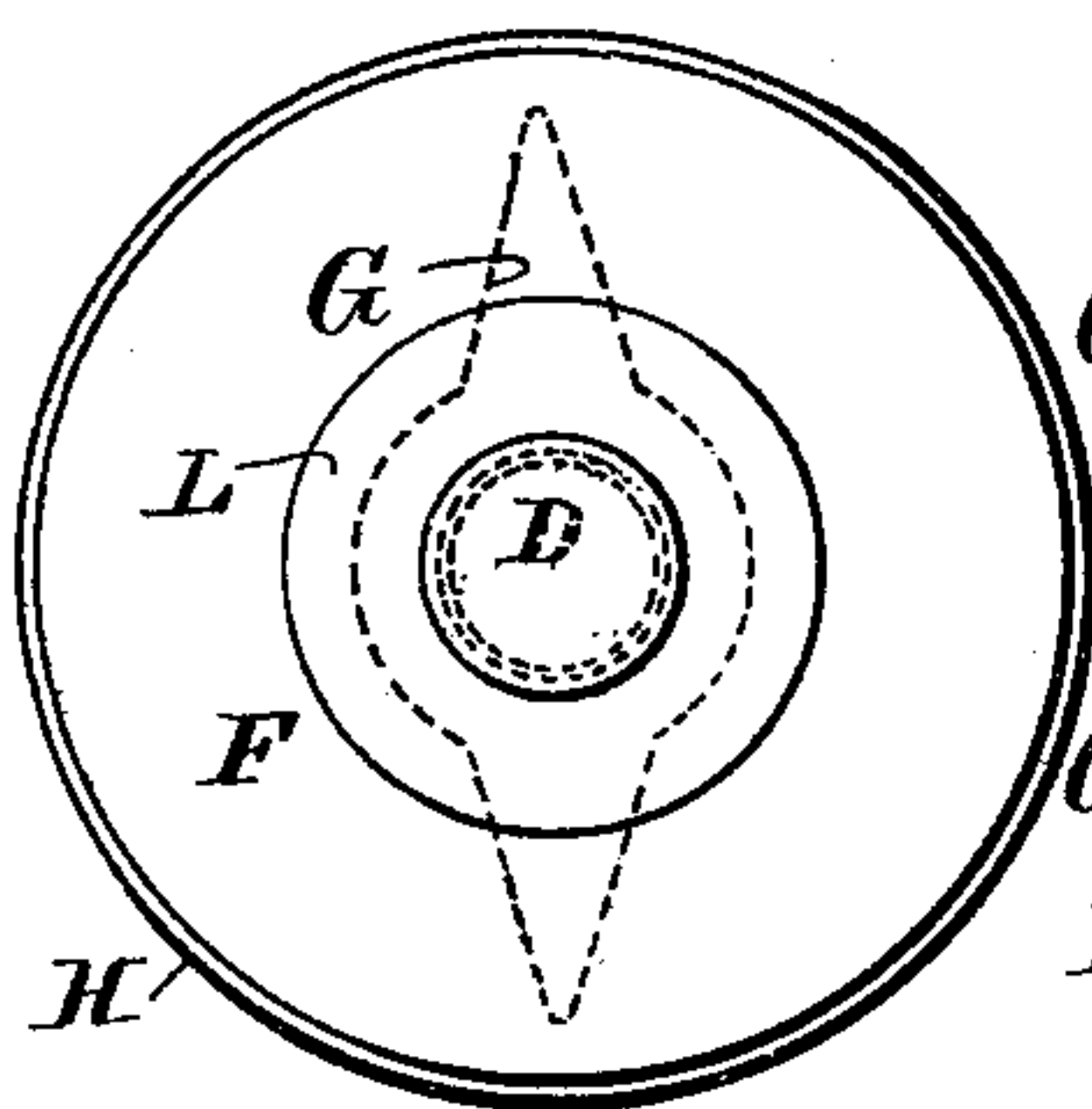


Fig. 5.

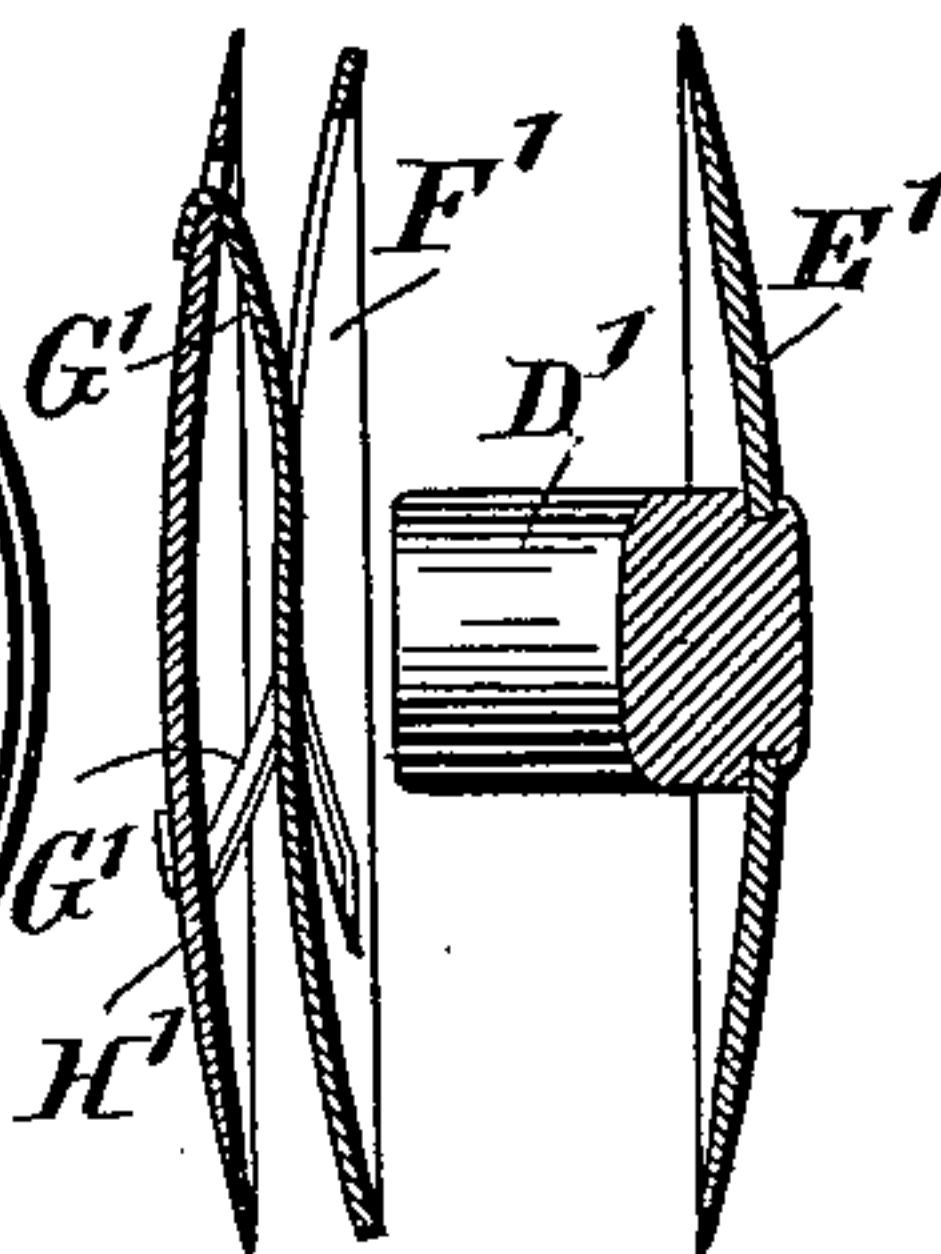


Fig. 7.

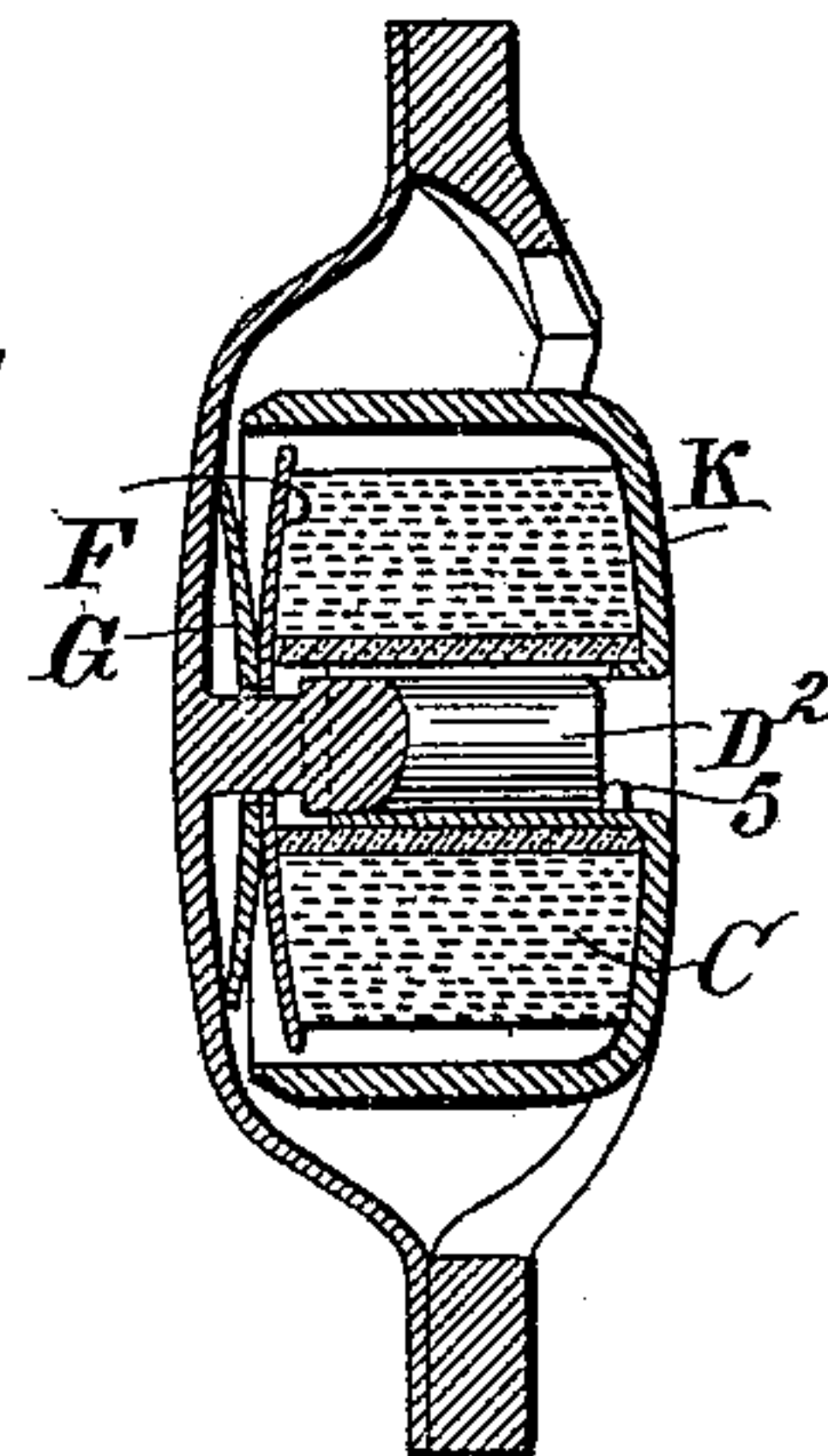
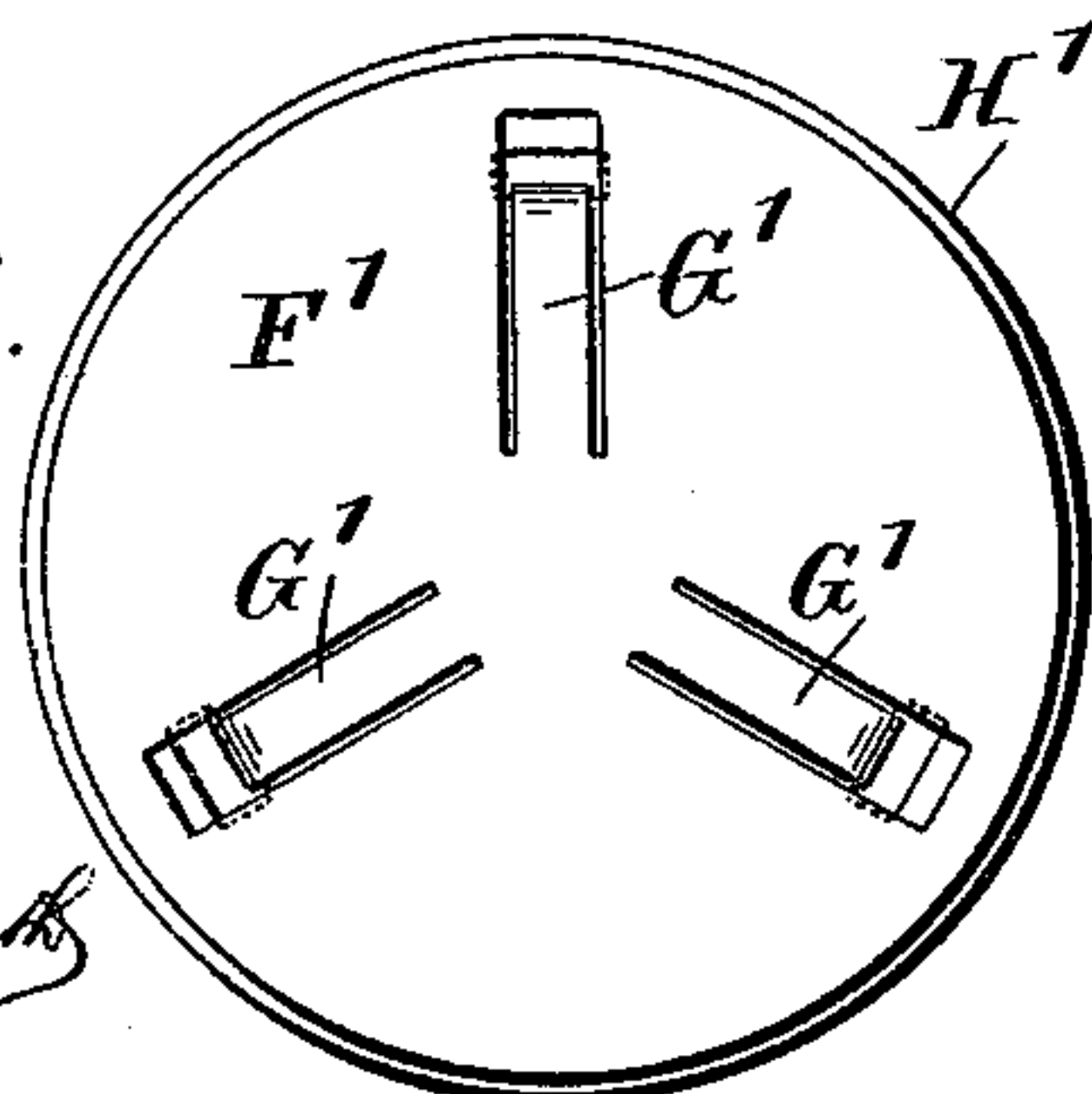


Fig. 6.



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## SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 636,617, dated November 7, 1899.

Application filed April 5, 1895. Serial No. 544,522. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. BATES, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented an Improvement in Shuttles for Sewing-Machines, of which the following is a specification.

In Letters Patent No. 505,305, granted to me September 19, 1893, a sewing-machine shuttle is represented having a cavity for the reception of the cop of thread and such cavity in the shuttle as constructed is adapted to receive a metallic spool or cop upon which the thread is wound.

In my said patent disks are represented as adapted to be pressed into the cavity and held by the friction of the thin edges as such disks set against inwardly-projecting flanges or shoulders around the openings in the two sides of the shuttle, and one of these disks is provided with a pin for the reception of a cop of thread, which usually is wound upon a paper tube.

In Patent No. 515,187, granted February 20, 1894, the pin is shown with a neck and a spring having a ring-shaped center through which the pin passes, and the spring acts against the side of the cop to apply a friction that produces a tension upon the thread as drawn off from the said cop, and in some instances a spring-pressure has been applied to the metallic spool or cop holding the thread for regulating the tension thereof.

In my present improvement I provide a spring-actuated disk that acts against the side of the thread as the same is supported upon a paper or other tube, so that the spring-actuated disk presses the cop of thread against the opposite side of the shuttle-case, and in so doing holds the cop of thread with the desired friction and pressure to apply tension to the shuttle-thread, and the disk being concave acts against the thread at or near the outer coils thereof, so as to prevent the thread drawing off at the side of the cop and becoming entangled around the pin or support for such cop, and this spring-disk remaining in position in the shuttle does not interfere with the insertion of a fresh cop of thread and as soon as the shuttle is closed the spring-disk

yields and acts in the manner before mentioned as the thread is drawn off.

The present improvement is available with any size or character of shuttle, and it may be made a part of the shuttle when originally constructed or it may be applied to the shuttle when the ordinary metal bobbin or spool has been removed.

In the drawings, Figure 1 is a side view of a shuttle adapted to the present improvement. Fig. 2 is a cross-section of the same. Fig. 3 is an elevation representing the disks as removed. Fig. 4 is a section through the devices shown in Fig. 3, and Fig. 5 is a modification in the position of the respective parts. Fig. 6 shows the spring-disk of Fig. 5. Fig. 7 shows the improvement with a different shuttle from that in Fig. 1.

The shuttle shown in Figs. 1 and 2 is made in two parts A and B, hinged together, so that they can be opened, and in this shuttle is a recess or cavity for the reception of the cop of thread. I have shown a cop of thread at C wound upon a paper tube, such thread-cops being well-known articles of commerce, and there is a pin D, over which the paper tube of the thread-cop can be passed, and at E is a stationary side to the shuttle-cavity, and F is a disk that is spring-actuated and pressed against the side of the cop of thread by any suitable spring.

I have represented a spring at G as between the disk F and the disk H, such spring G having an eye around the neck upon the pin D and projecting points similar to that shown in Patent No. 515,187, and the disk F is also shown as having a central hole surrounding the neck on the pin D, the shoulder of such neck holding the disk upon the pin, so that the two cannot separate; but the parts are sufficiently loose to allow the disk F and spring G to yield as the shuttle is closed, so that the spring-pressure acts on the disk F to press the same with the desired force directly against the thread of the cop, and in consequence of this disk F and the stationary side E of the shuttle both being concave the pressure and contact are principally around the outer coils of thread of the cop, and hence there is not a space between the thread and



the disk for the thread to draw off and become entangled around the pivot-pin.

In Fig. 5 the pin D' is shown upon the disk E', which is to be stationary in the shuttle, and the disk F' is represented as made with spring-arms G', either integral or separate, acting against the disk H', and it is to be understood that with shuttles already constructed the disk H is advantageously separate from the shuttle, so as to be slipped into the same and to hold by the friction of its edge, and the stationary side or disk E is similarly made; but with shuttles specially constructed the disk H and the stationary side E may be integral or permanently connected in any suitable manner with the rest of the shuttle.

In Fig. 7 I have shown the present improvement in connection with a shuttle having a cavity and a center pin D<sup>2</sup> and with a removable case K, adapted to receive within it the cop of thread. In this form the disk F and spring G are applied to the pin in a similar manner to those in Figs. 2 and 3, and the case K is made with a split tube to be thrust over the pin D<sup>2</sup> and hold thereon by friction and in so doing the spring G is compressed to the proper extent to apply friction through the disk F to the side of the thread-cop. There may be a stop, as at 5, to determine the place to which the split friction-tube may be thrust over the pin D<sup>2</sup>, and the interior of the case K is concave and receives against it the thread of the thread-cop in the same way and for the same purpose as the disk E, Fig. 2, and is, in fact, similar to the disk E with the rim or cylinder around it.

The washer L at the concave side of the disk F serves to lessen the frictional action against the side of the cop of thread when the thread has been drawn off so that the disk F does not touch the same.

This improvement is available in connection with the ready-wound cop of thread and in the various sewing-machines where the shuttle has a hook (illustrated in Fig. 1) or where the cop is received into a suitable case,

shuttle, or holder, around which the loop of needle-thread passes, Fig. 7 being a general illustration of such a case, shuttle, or holder.

I claim as my invention—

1. The combination with a shuttle having a cavity for the cop of thread and inwardly-projecting flanges or shoulders around the opening, of a removable disk adapted to set into the cavity and against the shoulder, a second removable disk held in the shuttle by the friction of its edges, and a third disk and a spring acting to press the said third disk against the surface of the thread at one side of the thread-cop, the other side of the thread-cop resting against one of the removable disks, and a pin within the cavity and entering the thread-tube of the cop, substantially as set forth.

2. The combination with the shuttle having a cavity and inwardly-projecting flanges or shoulders, of two concave removable disks adapted to be held in the shuttle by the friction of the edges, a pin carried by one of said disks, a loose concave disk and a spring acting to press the loose disk against one side of the thread of the thread-cop, the other side of such thread resting against one of the disks that is held by friction within the cavity of the shuttle, substantially as set forth.

3. The combination with the shuttle having a cavity and inwardly-projecting flanges or shoulders, of two concave removable disks adapted to be held in the shuttle by the friction of the edges, a pin within the cavity, a loose concave disk and a spring acting to press the loose disk against one side of the thread of the thread-cop, the other side of such thread resting against one of the disks that is held by friction within the cavity of the shuttle and a washer within the concave side of the loose disk, substantially as specified.

Signed by me this 30th day of March, 1895.

HENRY A. BATES.

Witnesses:

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