

(No Model.)

J. H. NASON.  
TENSION DEVICE FOR SHUTTLES.

No. 560,741.

Patented May 26, 1896.

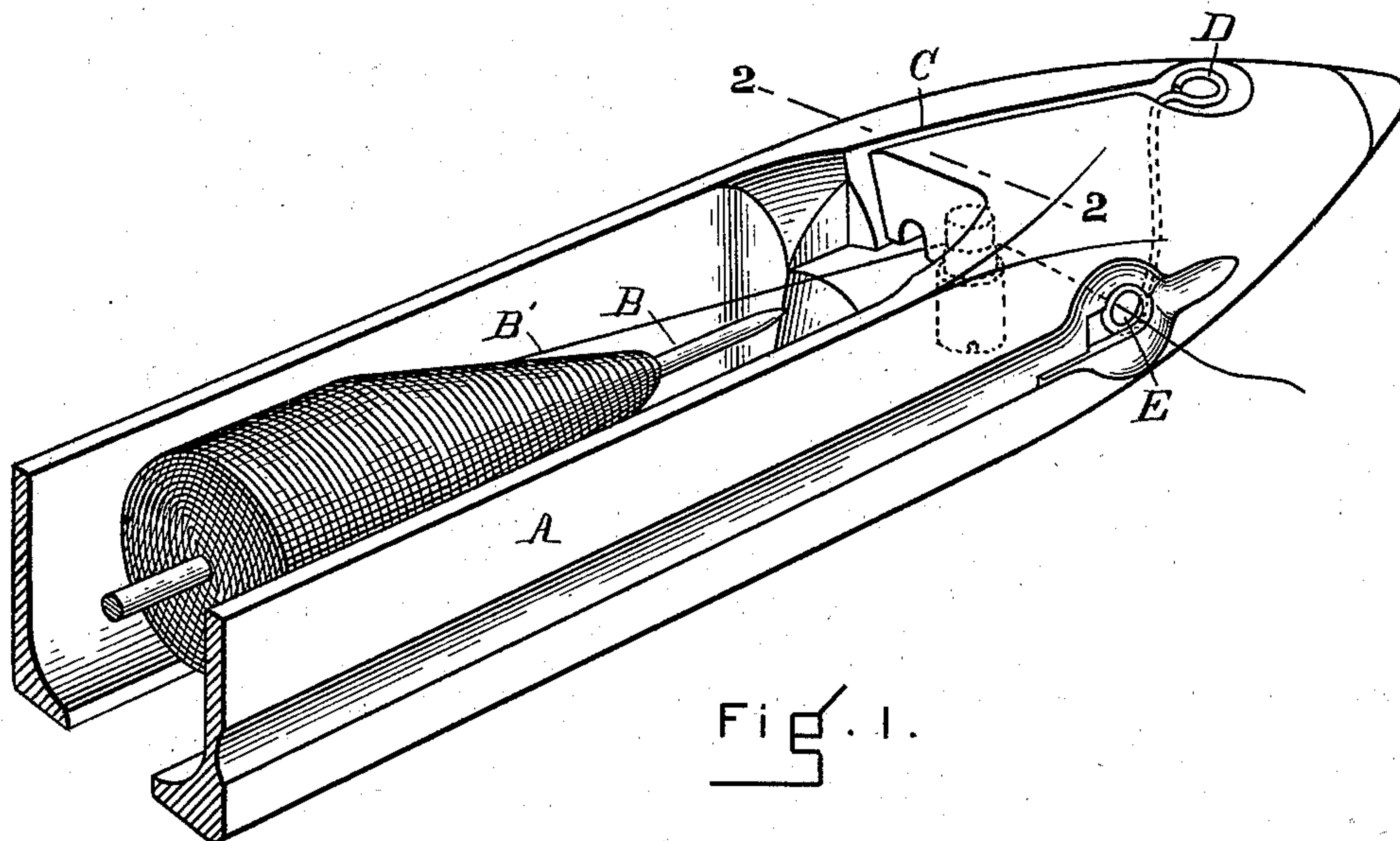


Fig. 1.

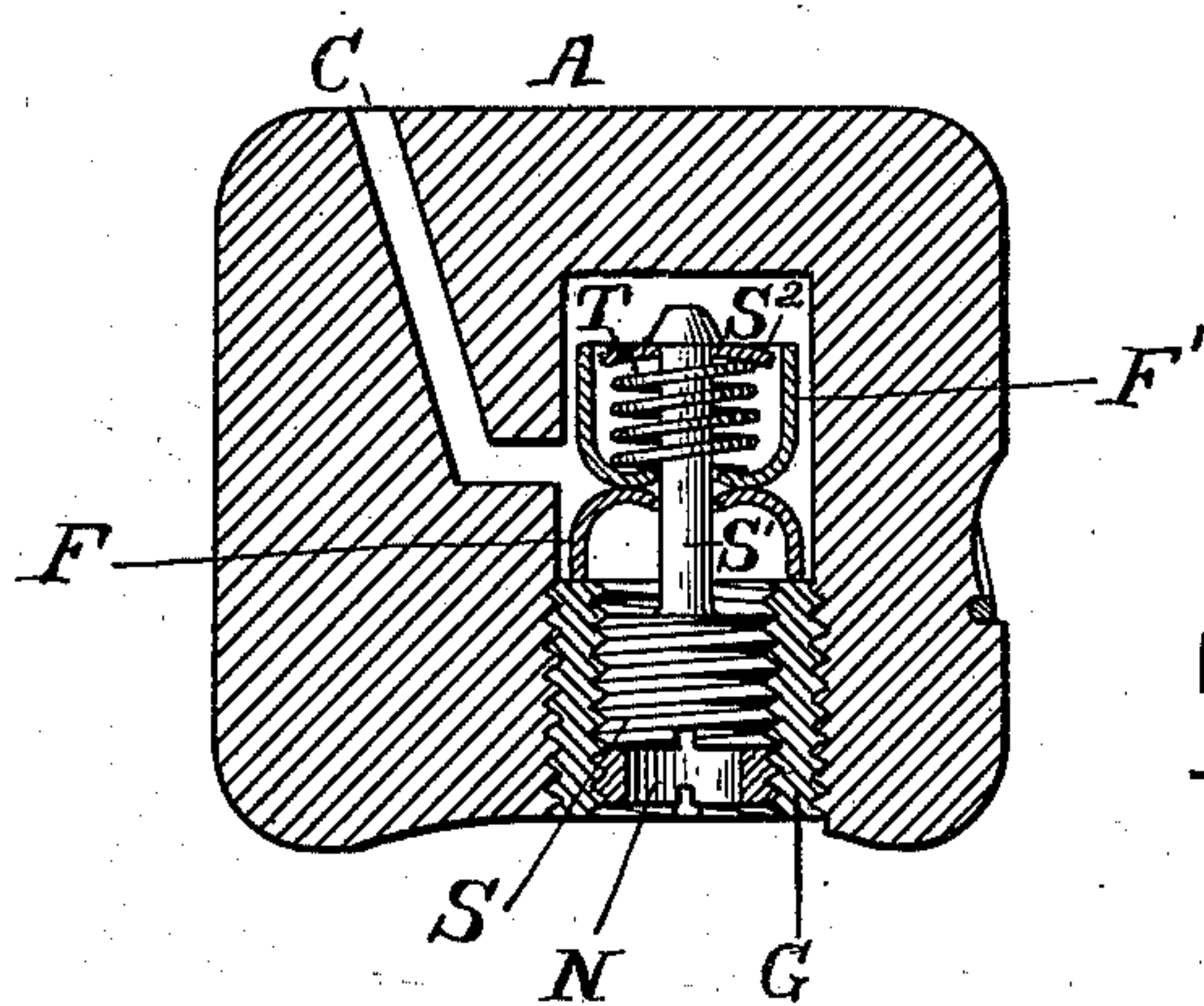


Fig. 2.

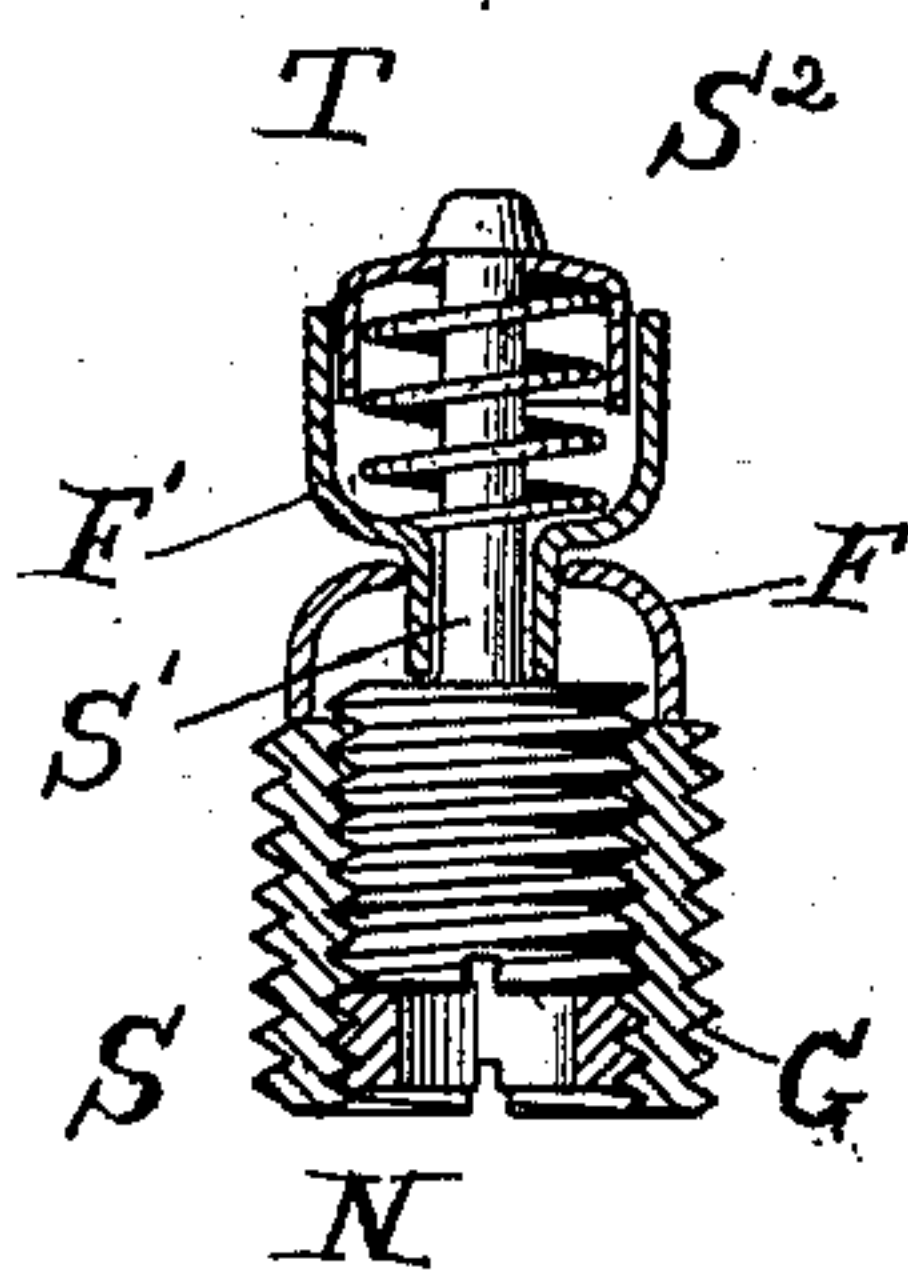


Fig. 4.

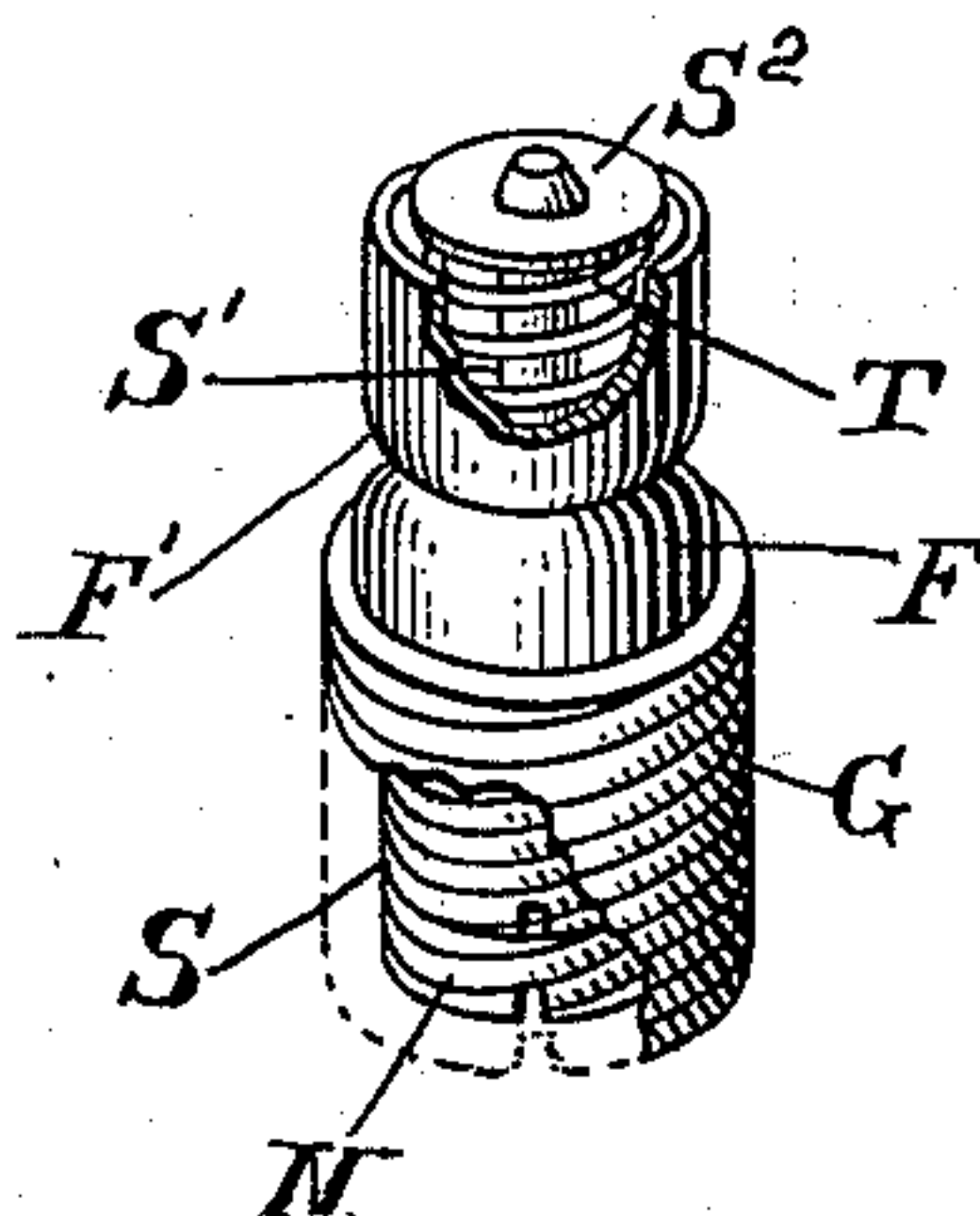


Fig. 3.

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## TENSION DEVICE FOR SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 560,741, dated May 26, 1896.

Application filed August 27, 1894. Serial No. 521,374. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH HERBERT NASON, of Somerville, in the county of Middlesex and State of Massachusetts, have invented an Improved Tension Device for Shuttles, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of one end of a self-threading shuttle with my improved device. Fig. 2 is a sectional elevation on line 2 2 of Fig. 1, enlarged for clearness. Fig. 3 is a perspective view of the tension device, broken away in parts and enlarged for clearness. Fig. 4 is a sectional elevation of a modified form of my tension device.

My invention relates to improvements in self-threading tensions for shuttles; and the object of my improvement is to provide means whereby the tension of the yarn carried by the shuttle may be accurately controlled, the tension-clamp being so constructed that the thread is drawn into it by the same movement that threads the shuttle.

Another object of my invention is to provide a tension which will yield at need to permit small knots in the yarn to pass through without breaking the yarn, and my device, with its friction-surfaces not positively adjusted in their relations the one to the other, but controlled by means of a spring which tends constantly to press them together, serves this purpose admirably, the spring yielding more or less readily, according to the position of the adjusting-screw, to permit the passage of the knot between the friction-surfaces.

In the drawings, A is the body of the shuttle, of a form well known to those skilled in the art and fully described in United States Letters Patent No. 452,614, dated May 19, 1891, and No. 494,879, dated April 4, 1893, so that a detailed description will be unnecessary.

B is the spool, and B' the yarn upon the spool.

C is the slot, and D the pin which carries the yarn B' to the eye E.

The tension-clamp consists of two friction-surfaces F F', relatively adjustable by means of a screw S, working in the body of the shuttle, which controls the pressure of a spring

which presses upon the back of one of the friction-surfaces, and a side pin S' prevents the yarn from drawing from between the friction-surfaces, the tension device being held within a recess formed within the shuttle.

In the preferred form illustrated in the drawings, G is a socket of metal screwing into the body of the shuttle in which work the adjusting-screw S and the check-nut N for locking the screw S. The adjusting-screw S carries pin S', which projects into the cavity formed in the body of the shuttle for the tension device, and serves, among other uses, as a side pin to keep the yarn in its proper position between the friction-surfaces. The friction members F F' are hemispherical in form, the poles being slightly flattened or indented and having a hole through the flattened part through which the pin S' passes, the flattened surfaces upon the two hemispheres being opposed. A spring T surrounds the upper end of pin S', one end being in contact with the inside of F' and the other end being in contact with a disk S<sup>2</sup>, fast to the end of pin S', or the upper end of the spring may be attached to the upper end of pin S'.

The operation of my tension device is as follows: The yarn B' is laid in the slot C about the upper end of the guide-pin D and back again in the slot C. It is then drawn back and slips downward along the slanting guide-pin D to the eye E, the movement drawing it into the tension device between the two friction-surfaces F F' to one side of the pin S'. By a wiping motion of the finger of the operative over the eye E the loop of yarn is drawn out of the eye. The eye E being upon the opposite side of the shuttle from the slot C, the pin S' serves to cause the yarn to draw between the friction-surfaces F F' near their center. To adjust the tension the screw S is turned in the required direction, the pin S' and disk S<sup>2</sup> upon the screw S putting more or less pressure upon spring T, which in turn presses upon F'. The requisite pressure having been secured the check-nut N is turned to place, securely holding screw S.

The modification shown in Fig. 4 is more especially adapted for woolen yarns, the side pin being in that modification a sleeve fast



to the upper friction-surface and passing through the other. This modified form is also preferable in all cases where very fine yarn whether woolen or cotton is used, as it  
5 has the advantage of preventing a groove being worn by the yarn in the side pin, for the friction member F' will turn more or less, when adjusted for the very light friction required for fine yarns, and the sleeve fast to  
10 F' will never be grooved by the friction of the yarn, for it can move about its axis, not of course revolving rapidly, but simply moving somewhat about its axis from time to time. By screwing the adjusting-screw upward the  
15 sleeve and the top of the screw will be brought in contact and the upper friction member being fast to the top of the sleeve will be raised until not even the weight of the upper fric-

tion member will rest upon the yarn to produce tension. 20

What I claim as my invention is—

A shuttle tension device consisting of sleeve G screw-threaded both externally and internally; screw S in sleeve G; pin S' carried by screw S and projecting from sleeve G; friction 25 member F, resting on sleeve G and with pin S' through it; friction member F' resting on friction member F, and with pin S' through it; spring T in friction member F', and about pin S'; and head S<sup>2</sup> on pin S' and confining 30 spring T; all arranged substantially as set forth.

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Witnesses:

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