

(No Model.)

G. C. MOORE.

TENSION REGULATING DEVICE FOR LOOM SHUTTLES.

No. 407,411.

Patented July 23, 1889.

FIG. 1.

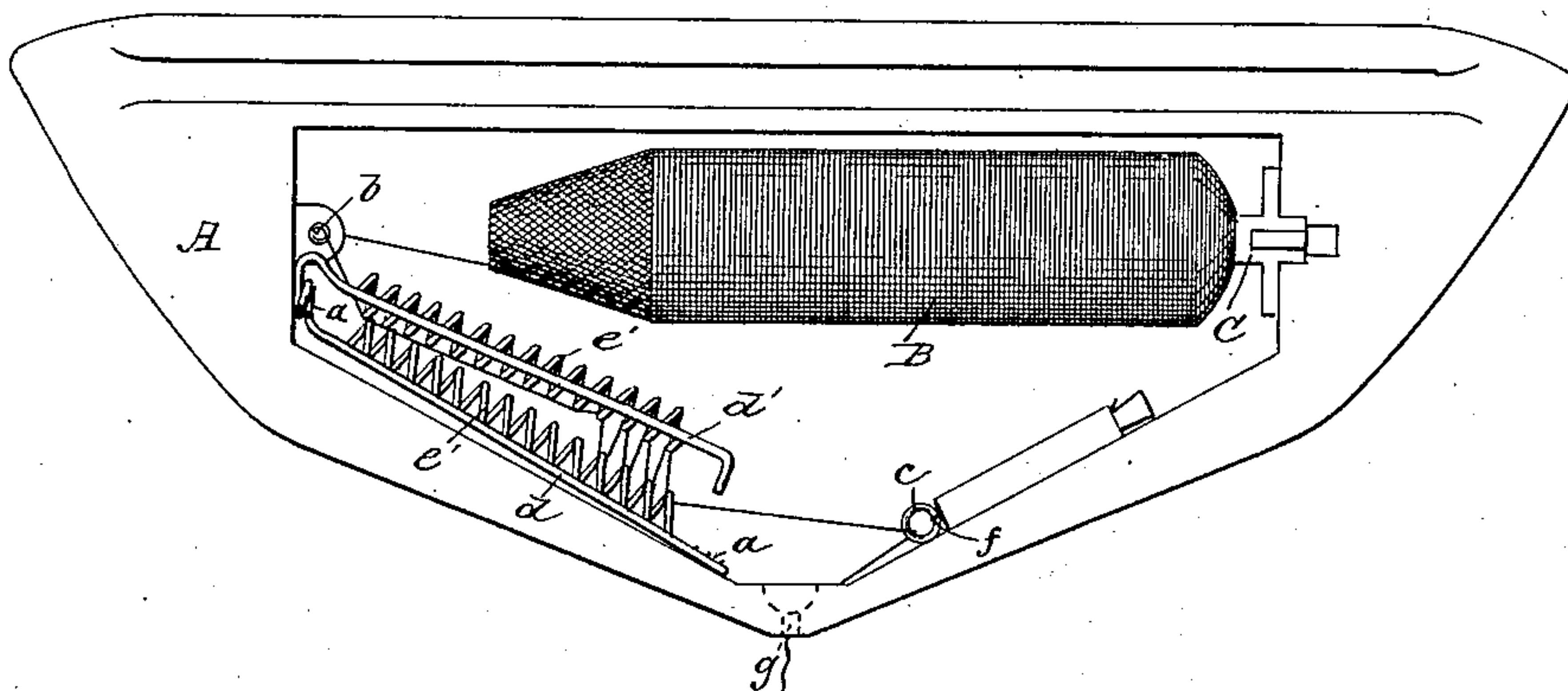


FIG. 2.

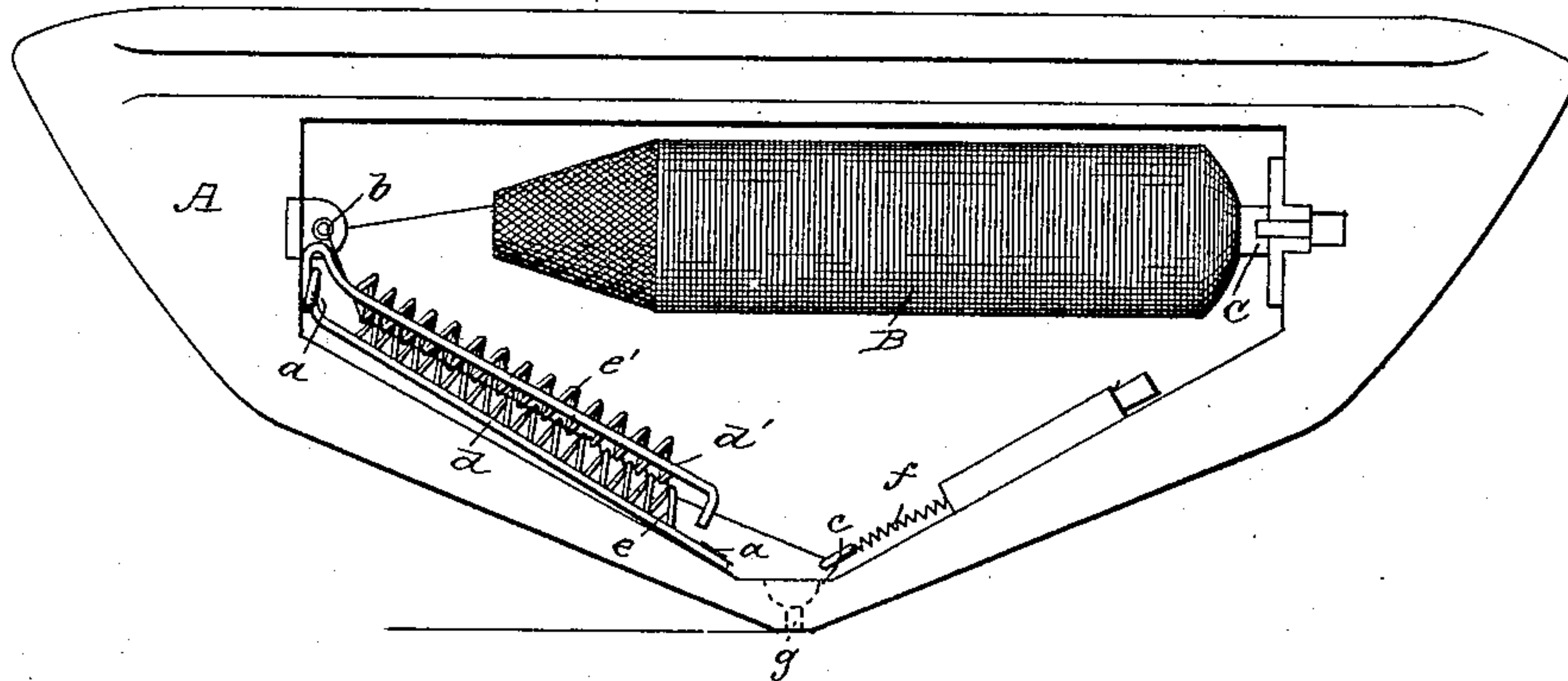
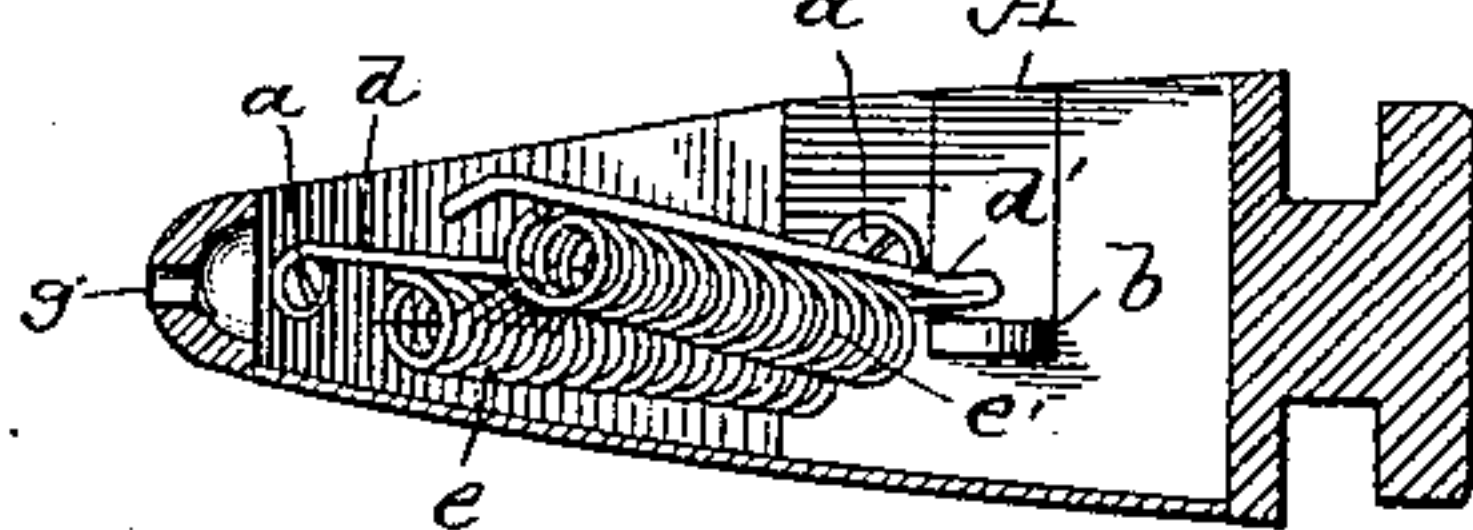


FIG. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE C. MOORE, OF EASTHAMPTON, MASSACHUSETTS, ASSIGNOR TO JOSEPH W. GREEN, JR., AND THE GLENDALE ELASTIC FABRICS COMPANY, BOTH OF SAME PLACE.

TENSION-REGULATING DEVICE FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 407,411, dated July 23, 1889.

Application filed August 20, 1888. Serial No. 283,259. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. MOORE, a citizen of the United States, residing at Easthampton, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Tension-Regulating Devices for Loom-Shuttles, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide an improved self-compensating tension device for loom-shuttles of such construction that when there is a sudden jerk on the yarn the tension will be lessened, so that danger of breaking the yarn will be lessened or altogether avoided. To this end I provide two coils of wire, one of which is attached to the inside of the shuttle, so as to be stationary, and the other of which is carried by a spring arm or rod, so as to have a limited movement relative to the stationary coil. These coils are spread slightly and are so arranged that the convolutions of one coil will not be directly opposite the convolutions of the other coil, so that if forced together the convolutions of one coil will come between the convolutions of the other. The tension device is threaded by drawing the yarn back and forth through several of the convolutions of the coils, the tension being effected by the drag on the yarn incidental to its irregular or zig-zag passage through the coils, and the tension may be increased or diminished by threading the yarn through a greater or less number of the bends or convolutions of the coils. If the draft on the yarn be an even or steady one, the spring rod or arm, by which one of the tension-coils is carried, will hold the coils separated, so as to keep the tension even, but if there comes a sudden jerk on the yarn said spring rod or arm will yield and allow the movable coil to approach the stationary coil, so that the path traversed by the yarn in passing through the convolutions of the coils will be more direct, thus suddenly lessening the tension to compensate for the sudden extra strain on the yarn, and thereby automatically avoiding breakage of the yarn.

In the drawings, Figure 1 is a plan view of a shuttle provided with my improved tension device, with the coils separated as they will normally be when the draft on the yarn is but slight. Fig. 2 is a similar view with the coils in the position which they will assume when there is considerable strain or draft on the yarn; and Fig. 3 is a cross-section of the shuttle, showing the tension-coils in perspective.

A denotes the body of the shuttle, and B a cop of yarn carried by a spindle C. To the inside of the shuttle or within the cavity thereof is a wire frame consisting of two arms d and d' , said frame being attached to the inner wall of the shuttle by screws a , or in any other suitable manner. To the arm d (which is attached at both ends to the inner wall of the shuttle by the screws a , and which is therefore stationary) is soldered or otherwise suitably secured a coil e , while to the free or spring arm d' is likewise secured the coil e' . The convolutions of the coils e and e' are somewhat spread or separated and the two coils are so arranged relatively to each other that the convolutions of one coil will come between the convolutions of the other coil when the draft on the yarn forces the spring or movable coil toward the stationary coil, as shown in Fig. 2.

The yarn passes from the cop B through a guide-eye b , and thence back and forth through as many of the convolutions of the coils e and e' as may be necessary to secure the desired tension. The yarn is drawn into the coils by an ordinary weaver's hook in threading the tension device. Ordinarily the yarn will be drawn through four or five convolutions of each coil, and to increase or lessen the tension it is threaded through a greater or less number of these convolutions. From the tension-coils the yarn passes through an eye c , carried by a light take-up spring f , and thence outward through the delivery-eye g .

From the foregoing it will be apparent that I provide a cheap and efficient self-compensating tension device which will slacken its frictional hold on the yarn when sudden jerks or strains occur, so that danger of breakage

of the yarn carried by the shuttle is reduced to a minimum.

Having thus described my invention, I claim and desire to secure by Letters Patent—

- 5 1. The combination, with a loom-shuttle body, of a tension device consisting of two coils of wire, one of said coils being stationary relative to the body of the shuttle, and a spring-arm by which the other of said coils is carried, whereby the latter coil is free to move
10 toward and from the said stationary coil, substantially as set forth.

2. The combination, with the shuttle-body, of the frame consisting of the fixed and movable arms d and d' , the latter being a spring-arm, and the coils e and e' , attached to the said arms, substantially as set forth. 15

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE C. MOORE.

Witnesses:

JOS. W. GREEN, Jr.,

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