M. CAMAGNI.

SHUTTLE.

APPLICATION FILED APR. 8, 1915.

1,166,742.

Patented Jan. 4, 1916.

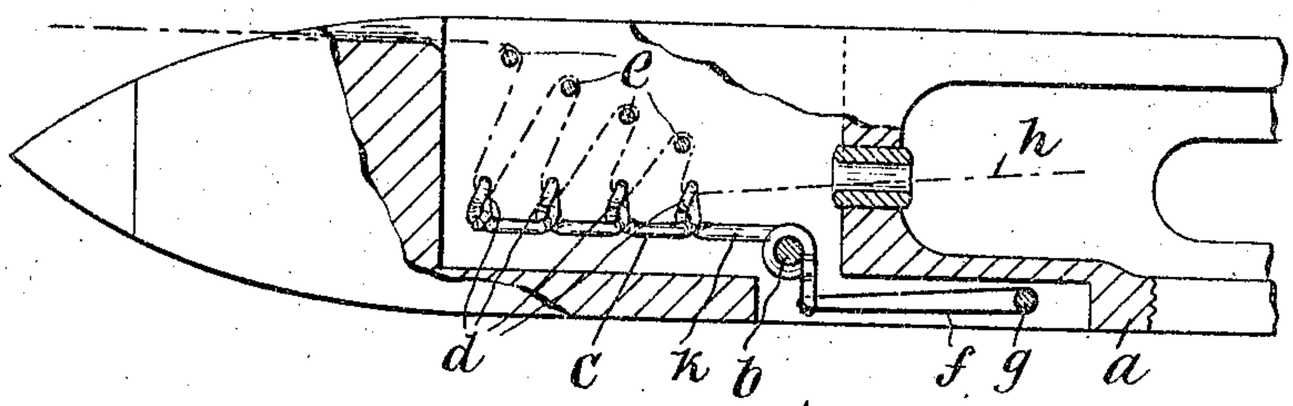

Fig. 2.

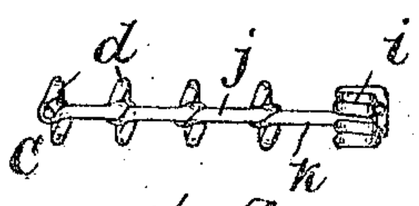

Fig. 2.

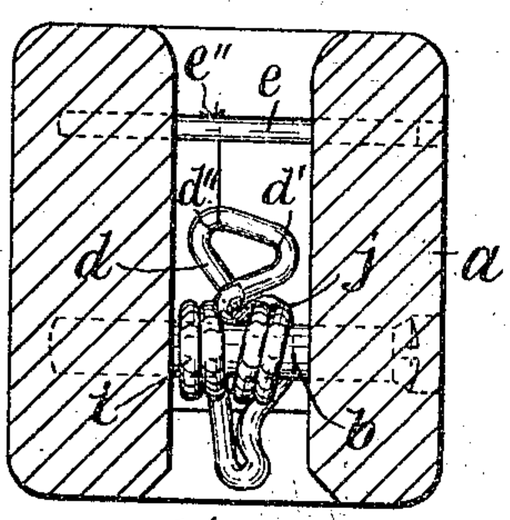

Fig. 4.

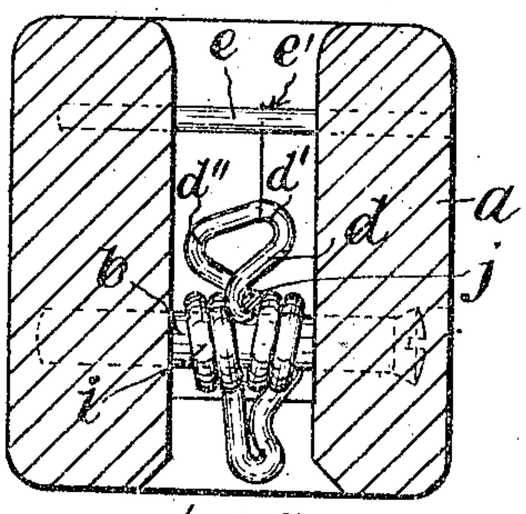

Fig. 3.

WITNESS

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UNITED STATES PATENT OFFICE.

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SHUTTLE.

1,166,742. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed April 8, 1915. Serial No. 19,873.

To all whom it may concern:

Be it known that I, MARIO CAMAGNI, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Shuttles, of which the following is a specification.

This invention relates to the class of tension devices for shuttles in which a spring-actuated lever is employed having a longitudinal series of eyelets which in the position which the lever normally tends to assume coact with other devices, as transverse pins, to maintain a series of back-and-forth bends in the filling.

Heretofore the eyelets have been so formed and related to the shank of the lever that when under the continual wear of the thread or filling nicks formed in them and in the pins, and in turn cut the filling, the immediate replacement of the eyeleted lever and the pins by new ones was necessary.

My object is to provide a tension device of this class so constructed that its life, so far as the indicated kind of wear is concerned, will be doubled. This object I accomplish by forming each eyelet of the lever with two distinct bends substantially equidistant from the point at which the eyelet joins the shank of the lever, the eyelet portion of the lever being adapted to be twisted or torsionally turned so as to bring first one and then the other into working proximity to the coöperating series of pins.

In the accompanying drawing, Figure 1 is a fragmentary longitudinal sectional view of a shuttle provided with my improved tension device; Fig. 2 is a plan view of the lever member; and, Figs. 3 and 4 are transverse sectional views showing how the lever is twisted to bring the corresponding ends at one or the other side of the series of eyelets next to the thread guiding devices afforded by the fixed transverse pins.

In the shuttle *a* there is fulcrumed on the transverse pin *b* a lever *c* having eyelets *d*, and formed of wire as is usual in devices of this kind. Alternating with the eyelets *d* are the pins *e* having their ends fixed in the side walls of the shuttle. An elastic band or other spring *f*, engaged with pin *g*, normally tends to hold the lever more or less in the position shown in Fig. 1, so that the part of the thread or filling *h* which is made to alternately engage the devices *d* and *e* assumes a zig-zag form, as shown.

The lever *c*, as usual, is a piece of wire bent to form the spiral transverse bearing portion *i* and a shank *j*, portions of the wire at intervals of the shank being twisted to form the eyelets *d*, the said eyelets being alined with each other.

Usually the eyelets are circular in cross-section, in consequence of which when the thread cuts a nick in one or more of them and the pins *e* the tension device soon becomes useless and in order to prevent breakage of the thread or filling has to be removed from the shuttle and replaced with a new one. In the improved tension device, however, two distinct bends *d'* and *d''* are formed in each eyelet substantially equidistant from the point of connection thereof with the shank *j* of the lever. At the outset, the series of eyelets *d* are tilted when seen in the end elevation of the lever so that all the bends at the one side of the series of eyelets are nearer the line of pins *e* than the bends at the other side of the series of eyelets. The shuttle is at first used with the eyelets in the disposition just described. Sooner or later the filling will begin to wear the eyelets at the point *d'* in Fig. 3 and the pins *e* at the point *e'*. When the wear becomes sufficient to be troublesome, the eyelet portion of the lever is torsionally turned or twisted to bring the portions *d''* of the eyelets the nearer to the pins *e*. The thread will now bear at the points *d''* of the eyelets and *e''* of the pins. Thus the tension device may be used twice as long as ordinary tension devices of this character.

The wire of the lever is usually tempered, so that the eyelets will resist the wear of the thread. To make it possible to torsionally turn or twist the eyelet portion of the lever, I anneal the part *k* of its shank.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

In a shuttle, the combination of a spring-pressed lever having a series of alined thread eyelets arranged in planes transverse to the lever, and coöperating devices around

which to extend the thread alternating with said eyelets, each eyelet having substantially equidistant from the point of connection thereof with the shank of the lever relatively sharp thread-receiving bends, and the eyelet-including portion of the lever being adapted to be twisted to bring the corresponding bends at the one or the other side of the series of eyelets next to the fixed thread-guiding devices.

In testimony whereof I affix my signature.

MARIO CAMAGNI.