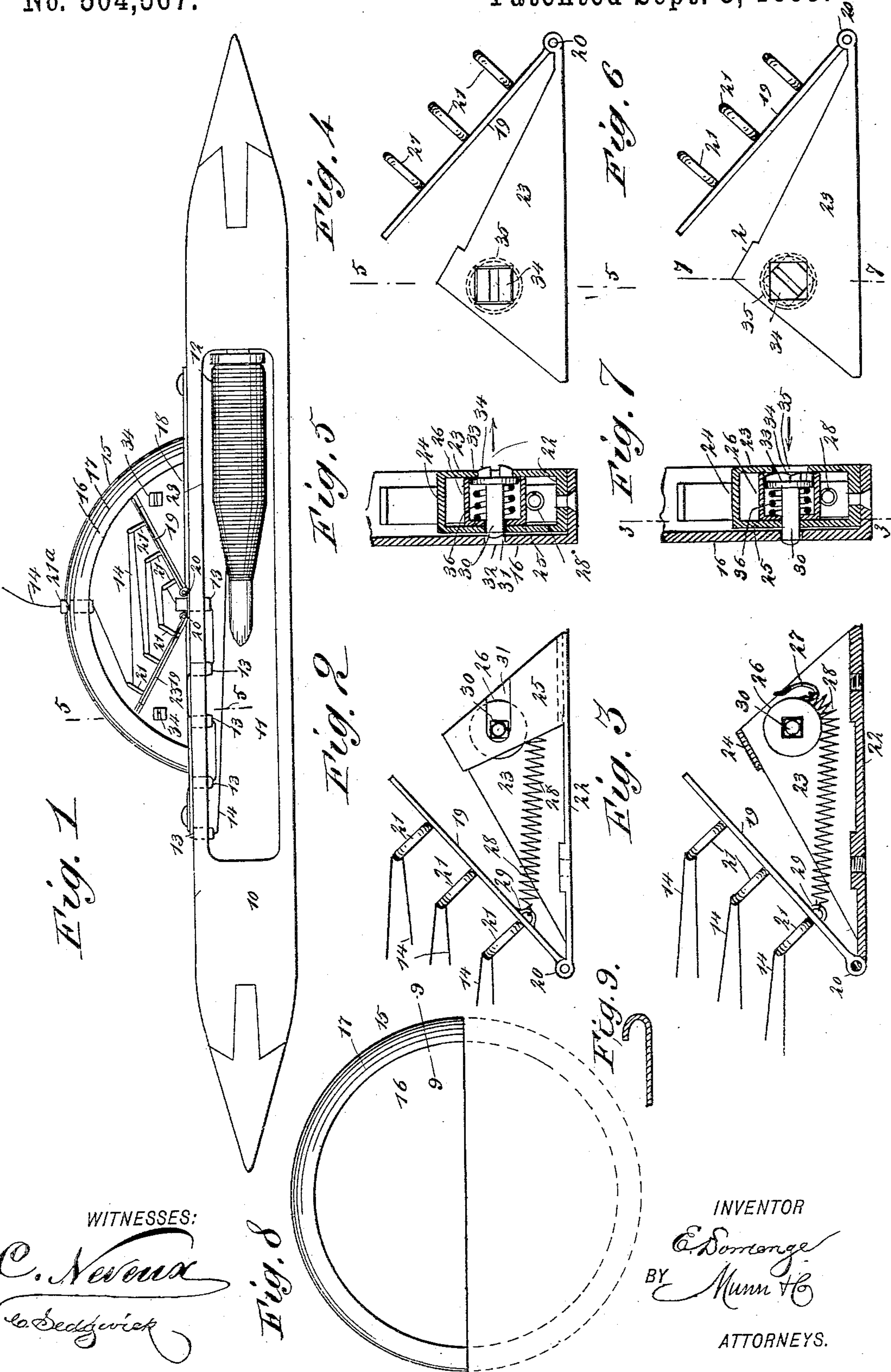


(No Model.)

E. DOMENGE.
TENSION DEVICE FOR LOOM SHUTTLES.

No. 504,567.

Patented Sept. 5, 1893.



WITNESSES:
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ETIENNE DOMENGE, OF PATERSON, NEW JERSEY.

TENSION DEVICE FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 504,567, dated September 5, 1893.

Application filed April 13, 1893. Serial No. 470,176. (No model.)

To all whom it may concern:

Be it known that I, ETIENNE DOMENGE, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Tension Device for Loom-Shuttles, of which the following is a full, clear, and exact description.

My invention relates to improvements in tension devices for shuttles and especially for such devices as are used in connection with shuttles used in weaving silk.

It is necessary in weaving silk to provide tension devices by which the tension of the threads may be regulated to a nicety; and the object of my invention is to produce a very simple device of this kind which is applicable to the ordinary shuttles and shuttle guards, and by which the tension may be adjusted as nicely as desired and in a very expeditious manner.

To this end my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a top plan view of a shuttle provided with my improved tension device. Fig. 2 is an enlarged detail bottom plan view of the tension regulating device. Fig. 3 is a longitudinal section of the same on the line 3—3 in Fig. 7. Fig. 4 is a top plan view of the tension regulating device with the stud of the spring drum locked in place. Fig. 5 is a cross section on the line 5—5 in Figs. 1 and 4. Fig. 6 is a top plan view of the tension regulating device, but with the stud of the spring drum in position to be turned. Fig. 7 is a cross section on the line 7—7 in Fig. 6. Fig. 8 is a side elevation of the guard; and Fig. 9 is a section on line 9—9 of Fig. 8.

The shuttle body 10 is of the usual kind, having the customary recess 11 in which the bobbin 12 is held, and the usual eyelets 13 arranged in series, through which the thread 14 passes. It is also provided on one side with a guard 15 which is of the usual kind and shape, but is made somewhat different from the usual way. As here shown, the guard is of the customary semi-circular shape and

is made by spinning out a circular piece of metal 16, as shown in Fig. 8, forming an in-turned flange 17 on the metal plate thus made, and then cutting the plate in two in the center, thus forming two guards. By making the guard of a single piece a very cheap, strong, and durable guard is produced. The guard 15 is secured to a base plate 18 which is fastened to the shuttle in the usual way. Within the guard are the oppositely arranged tension flies 19, which are of the customary kind and are hinged, as shown at 20, in the inner central portion of the guard and are adapted to swing toward and away from each other; the flies have the customary loops 21 to receive the thread 14. The thread also passes in the usual way through an eyelet 21^a in the outer portion of the guard. The flies 19 are hinged to the base plates 22 of the tension frames 23, which are held within the guard near opposite ends, and each of these frames has a cross piece 24 at the top which is extended downward, as shown at 25, this part 25 lying parallel with the main frame 23 and a bearing for the tension spring drum is thus formed. A tension spring drum 26 is journaled in each of the frames 23, the drum having on its outer side or face a hook 27 to which the flexible spiral tension spring 28 is secured, and this spring extends inward within the frame 23 and is secured at its outer end to one of the flies 19, as shown at 29. Each drum 26 is open at its outer end and is carried by a revoluble square stud 30, the inner end of which is circular in cross section, and the stud is held at its inner end in a slot 31 in the side piece 25 of the frame 23, and this inner end is also adapted to enter a hole 32 in the back of the guard 15. Near its outer end the stud is provided with a collar 33 which is pressed normally against the face of the frame 23 and the stud has a square head 34 with a slot therein to receive a screw-driver, this head being adapted to fit snugly in a hole 35 in the frame 23.

Within the drum 26 and coiled around the stud 30 is a spiral spring 36, which normally presses against the collar 33, and the tension of the spring is such as to hold the head 34 in the hole 35 in the frame 23. When in this position, the drum cannot turn and if it is desired to turn the drum so as to increase or de-

crease the tension of the spring 28, the stud 30 is pushed inward against the tension of the spring 36 and as soon as the head 34 leaves the hole 35, the stud may be turned, after
5 which the head is again brought into registry with the hole and the spring permitted to force the head out into its normal position, thus fastening the drum.

It will be seen that by turning the drum 26, the spring 28 may be wound upon it, if desired, so as to increase the tension on the thread 14 to any necessary extent, or by turning the drum in the opposite direction the spring may be slackened so as to decrease the
15 tension.

The tension regulating device works in the same general way as the usual tension regulating device, the flies 19 playing back and forth under the strain of the thread 14.

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

1. The combination, with the shuttle body and the guard, of the swinging tension flies

having the usual thread loops, the revoluble 25 spring drums arranged behind the flies, and springs connecting the drums and flies and adapted to be wound upon the drums, substantially as described.

2. The combination, with the swinging flies 30 having the usual thread loops, of the revoluble drums arranged behind the flies, a locking device to hold the drums from turning, and a flexible spiral spring connecting the flies and drums, substantially as described. 35

3. The combination, with the swinging flies having the usual thread loops, the revoluble spring drums, the springs connecting the drums and flies, the spring-pressed studs serving as supports for the drums, adjacent supports for the studs, having squared holes as specified, and squared heads on the studs to enter the said holes, substantially as described. 40

ETIENNE DOMENGE.

Witnesses:

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