

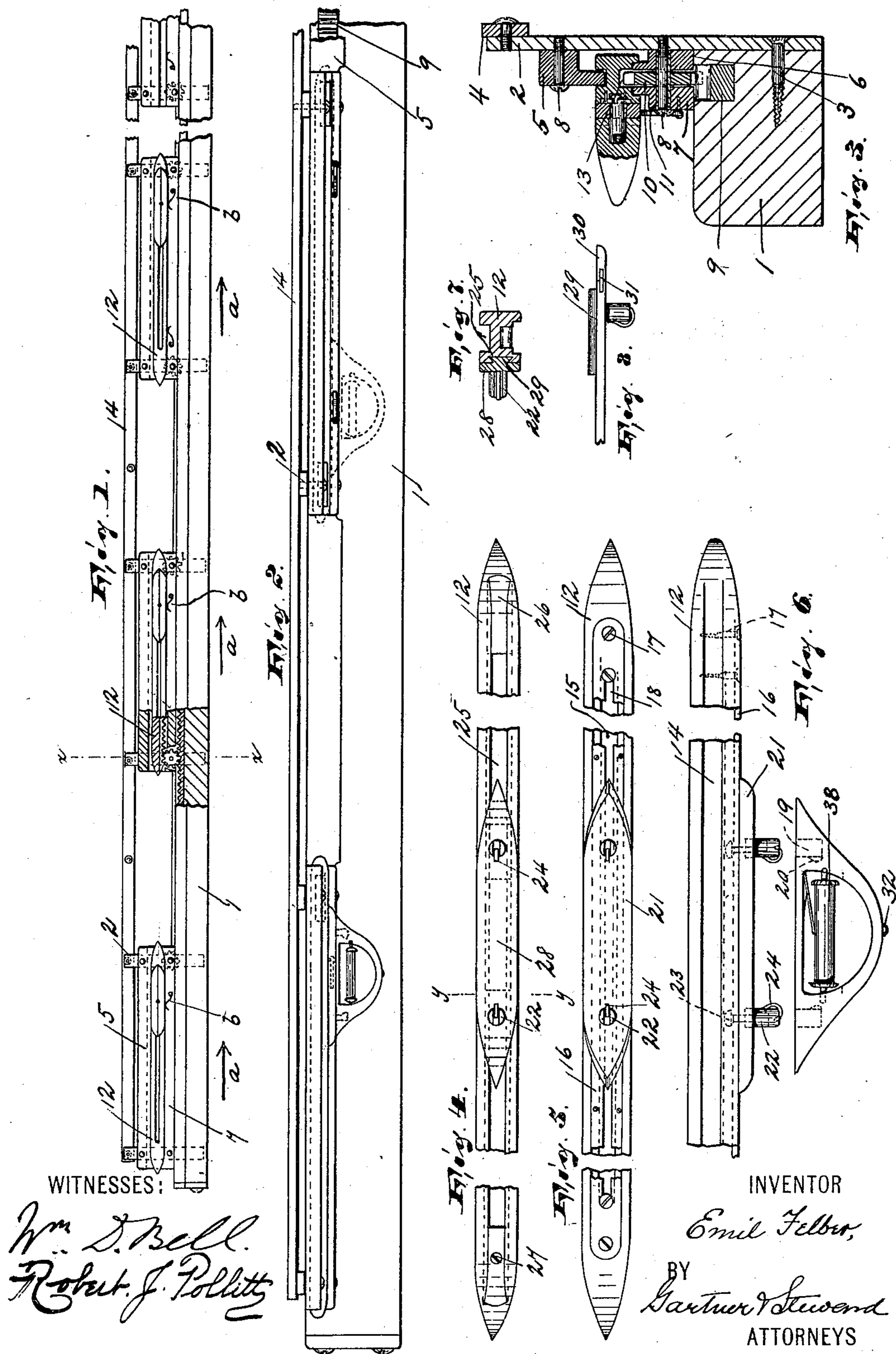
No. 621,644.

Patented Mar. 21, 1899.

E. FELBER.
SHUTTLE.

(Application filed Nov. 17, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

EMIL FELBER, OF HALEDON, NEW JERSEY.

SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 621,644, dated March 21, 1899.

Application filed November 17, 1898. Serial No. 696,659. (No model.)

To all whom it may concern:

Be it known that I, EMIL FELBER, a citizen of the United States, residing in Haledon, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Shuttles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to shuttles for narrow-ware looms; and its object is to provide an improved shuttle of the kind above referred to which is so constructed as to carry the thread through and clear of the shed, but not to an undesirable or unnecessary extent past the same, at the same time being capable of jumping or bridging the space between the shuttle-boxes the same as ordinary shuttles. A further desideratum is the reduction of the unevenness of the tension on the thread, caused by the more or less sudden starting and stopping of the shuttle, to a minimum, thus making said tension approximately uniform.

The invention consists in the improved shuttle and in the combination and arrangement of its various parts, substantially as will be hereinafter pointed out, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, Figure 1 is a front view of a portion of a batten, showing several of my improved shuttles in their respective shuttle-boxes. Fig. 2 is a top plan view of what is shown in Fig. 1. Fig. 3 is an enlarged sectional view taken on the line *x x* of Fig. 1. Fig. 4 is a front view of one form of my improved shuttle with its nose proper removed. Figs. 5 and 6 are front and top plan views, respectively, of a preferred form of the shuttle, the nose not being shown in the first of these figures, but being illustrated as detached in the other figure; and Figs. 7 and 8 are detail views, the former being taken on the line *y y* of Fig. 5 and the latter showing the construction of the end portion of a modified form of a carrying-shoe for the shuttle-nose.

In said drawings the batten is indicated by the reference-numeral 1 and is shown as supporting a series of vertical standards or up-rights 2, secured thereto at their lower ends by screws 3, projecting into said batten, and connected together at their upper ends by a bar or rail 4. Connecting pairs of said up-rights or standards 2 are the shuttle-boxes, each of which consists of an upper flanged guide-bar 5 and a lower pair of flanged guide-bars 6 7, respectively, said upper guide-bar and the lower pair of guide-bars being secured to the up-rights by screws 8. Beneath said lower pair of guide-bars is an actuating rack-bar 9, which is set into a groove in the upper face of the batten and is adapted to be reciprocated therein in the usual manner, its teeth engaging the teeth of pinions 10, journaled on sleeves 11, each of which surrounds one of the lower screws 8, and which pinions, furthermore, are disposed between the lower guide-bars 7.

The above description covers a construction well known and constituting no part of my invention. Said description has been presented merely for the purpose of better showing the operation and relative arrangement of the shuttles with respect to the parts covered by said description.

My improved shuttle consists of an elongated runner 12, having in its lower face a longitudinal groove, wherein is arranged a rack 13, with which the teeth of the pinions are adapted to engage and having in its upper face a similar groove 14, which receives the flange of the flanged guide-bar 5. It might be added that the lower face of the runner is cut away both sides of the groove in said face to admit the flanges of the pairs of lower guide-bars 6 7. The front face of the runner is also provided with a longitudinal groove, which groove 15 is covered by an elongated metallic strip 16, secured to the runner by screws 17 and having a longitudinal slot 18, extending nearly its entire length.

The nose of the runner may be described as follows: The nose proper is similar to those at present commonly in use, with the exception that it has in its lower face a pair of sockets 19, situated one near each end of said nose and provided with a recess 20 in its side wall.

21 designates a shoe provided upon its upper face—that is to say, the one adjacent to the lower face of the nose proper—with pins 22, projecting a short distance into and secured to the same by screws 23 and each having a spring-clip 24, which extends alongside of the pin down into the shoe and which is curved laterally and then around over the top of the pin at its free end. The curved portion of each of said clips is adapted to be received by a corresponding recess 20 in the sockets 19. The construction just described renders the two portions of the nose separable.

The heads of the screws 23 are spaced from the shoe sufficiently so that they act to prevent the displacement of said shoe from the runner, on which it is guided for longitudinal movement by said screws, the same projecting into the groove 15 and through the slot 18 of the strip 16, covering said groove.

The shuttle shown in Fig. 4 involves a slight modification of my invention. In this shuttle a dovetailed groove 25 is provided in the front face thereof, the ends of said groove being closed by stops 26, one of which may be secured in place so as to be removable by means of a screw 27. The shoe 28 of the nose is in this case substantially like the shoe hereinbefore described, with the exception that in lieu of the screws 23, which extend through the slot of the strip 16, so as to guide the shoe, the latter is provided with an integral longitudinal dovetailed tongue 29, which engages said groove 25. In the view now being referred to and also in Fig. 8 the shoe is shown as being provided at each end with a piece 30, separate from the body of the shoe and secured thereto by an intermediate block or transversely-extending strip 31, let into corresponding grooves in said piece and the body of the runner. This piece is composed of a harder and more durable wood than is the body of the shoe.

A curved flat metallic spring *b* may be secured to the batten beneath each shuttle-box, its function being to bear against the shuttle-nose to retard the movement of the same until the distance which it is movable on the runner has been traversed. It also acts to sustain the protruding or nose portion of the runner.

Referring to Figs. 1 and 2, it will be seen that whenever the shuttles therein shown are

driven by the actuating rack-bar and pinions from one shuttle-box to the other—say in the direction of the arrows *a* shown in Fig. 1—each nose of the shuttle will take a position at the end opposite to that which it is shown as occupying in Fig. 1, (or, in other words, as shown in dotted lines in Fig. 2,) this result being produced by the retarding effect of the spring *b*, the inertia of the nose, as well as—though of course to a very slight extent—by the action of the thread. Hence though a comparatively wide web is to be produced, and consequently a correspondingly long runner must be provided which will jump or bridge the spaces between the shuttle-boxes, the feed-eyellet 32, through which the thread is fed from the bobbin 38, journaled in the usual manner in the nose proper of the shuttle, is not carried to an undesirable distance past the shed.

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

1. In a shuttle, the combination of a runner and a freely-reciprocating bobbin-carrying nose mounted thereon; substantially as described.

2. In a shuttle, the combination of a runner and a freely-reciprocating bobbin-carrying nose mounted thereon, said runner being provided with a guiding-groove for said nose, substantially as described.

3. In a shuttle, the combination of a runner and a freely-reciprocating bobbin-carrying nose mounted thereon, said runner having a guiding-groove for said nose, and means for preventing separation of said nose, and runner, substantially as described.

4. In a shuttle, the combination of a runner and a freely-reciprocating bobbin-carrying nose mounted thereon, said runner having a guiding-groove for said nose, and means for preventing separation of said nose and runner, said nose comprising a shoe and a nose proper removably secured to said shoe, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of May, 1898.

EMIL FELBER.

Witnesses:

ALFRED GARTNER,
FRED B. LUCHS.