

C. H. WATERS & W. ORR, Jr.
LOOM SHUTTLE.

No. 121,830.

Patented Dec. 12, 1871.

Fig. 1.

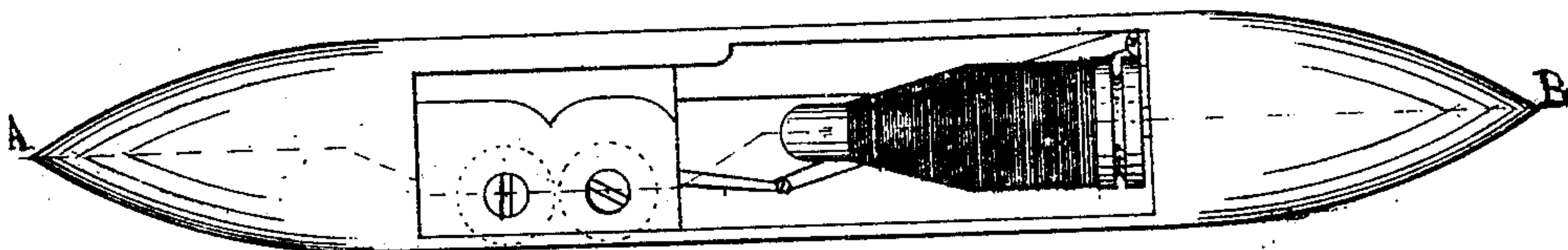
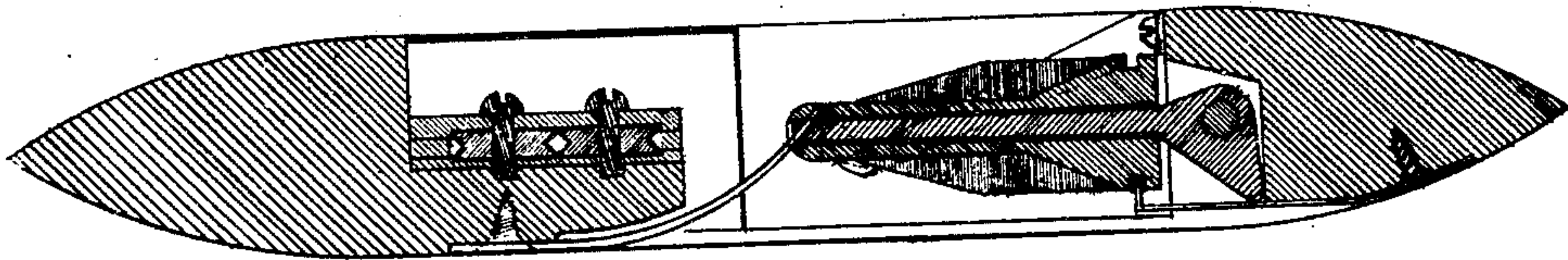


Fig. 2.



Inventors:

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Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES H. WATERS, OF GROTON, AND WILLIAM ORR, JR., OF CLINTON, ASSIGNORS TO CLINTON WIRE-CLOTH COMPANY, OF CLINTON, MASS.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. 121,830, dated December 12, 1871.

To all whom it may concern:

Be it known that we, CHARLES H. WATERS, of Groton, and WILLIAM ORR, JR., of Clinton, Massachusetts, have invented an Improved Shuttle for Weaving Wire, of which the following is a specification:

Figure 1 is a plan view of our improved shuttle. Fig. 2 is a longitudinal sectional view of the same through the line A B.

Heretofore the shuttle used in power-looms for weaving wire-cloth has been carried through the warp by positive motion, and the filling wire has been thus drawn from the bobbin by the movement of the shuttle; or the shoot of filling-wire has been first drawn from the shuttle while in its box by special device. In either case the bobbin has been constructed with a head on each end, and the shoot of filling-wire has been drawn off by revolving the bobbin, the momentum of the revolution having to be overcome for every shoot of filling drawn. The speed of the loom has thus been made to depend upon the rapidity with which the loaded bobbin could be made to deliver the filling-wire by an intermittent revolution.

In our improved shuttle for weaving wire-cloth, as represented in the accompanying drawing, the bobbin is constructed with only one head, and with a stem enlarged in the form of a cone next to the head and slightly enlarged at its outer end, further from the head, the better to retain the wire in its place and withstand the throw of the shuttle. The bobbin is mounted upon a spindle in the ordinary manner of fly-shuttles. Just in front of the bobbin is a pair of iron wheels, with their peripheries grooved, around and between which the wire is made to pass as it is drawn from the bobbin. These wheels are run on vertical axes between a seat and cap, both the seat and cap being countersunk so that their faces come near together, covering a large part of the depth of the wheels. By the use of rolls thus placed the wire is made to receive the proper direction in leaving the shuttle; while by the peculiar construction above described the filling-wire is forced to run over the grooves in the wheels, thus avoiding any tendency to unequal working. The shuttle is thrown through the warp by means similar to those employed in

other fly-looms. The filling-wire is drawn from the bobbin over its end by the flight of the shuttle through the warp; but in so running off it receives a turn or twist at each revolution, and, being rigid in character, and set in a spiral form by winding upon the bobbin, it has a strong tendency to kink and thus to make imperfect work. To remedy these difficulties we apply to the wire on the bobbin a frictional brake, which arrests the tendency to kink, and also prevents the running off of more wire than is necessary to complete the shoot. As the bobbin is wound in a conical form, which is constantly varied as the filling is drawn off, the brake is constructed to constantly bear upon the continually-changing cone of filling-wire. The brake which we have found most effective for this purpose is made of flexible material, and is fastened positively on the inside of the shuttle, near the head of the bobbin, thence passing partially or wholly around the cone of filling-wire in a spiral line toward the end of the stem. It is attached to a leaf-spring, which is graduated so as to produce a greater or less pressure of the brake upon the filling-wire, thus allowing the wire to be drawn off easily, while it controls the tendency to kink due to the twist. The use of this shuttle enables the wire-loom to attain great speed, for the reason that the shoots of filling-wire are delivered from the shuttle-bobbin with great rapidity and accuracy of length, and without loss of power. The form of the wire-brake may be varied in great variety of ways, provided it shall be made to constantly press upon the wire at such point as to control the tendency to kink due to the twist.

What we claim is—

1. The combination of the bobbin, the brake, and the delivery-rolls, substantially as described.
2. The grooved delivery-rolls, constructed and set substantially as described, for the purpose specified.

In testimony whereof we have hereunto subscribed our names.

CHARLES H. WATERS.
WILLIAM ORR, JR.

Witnesses:

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