

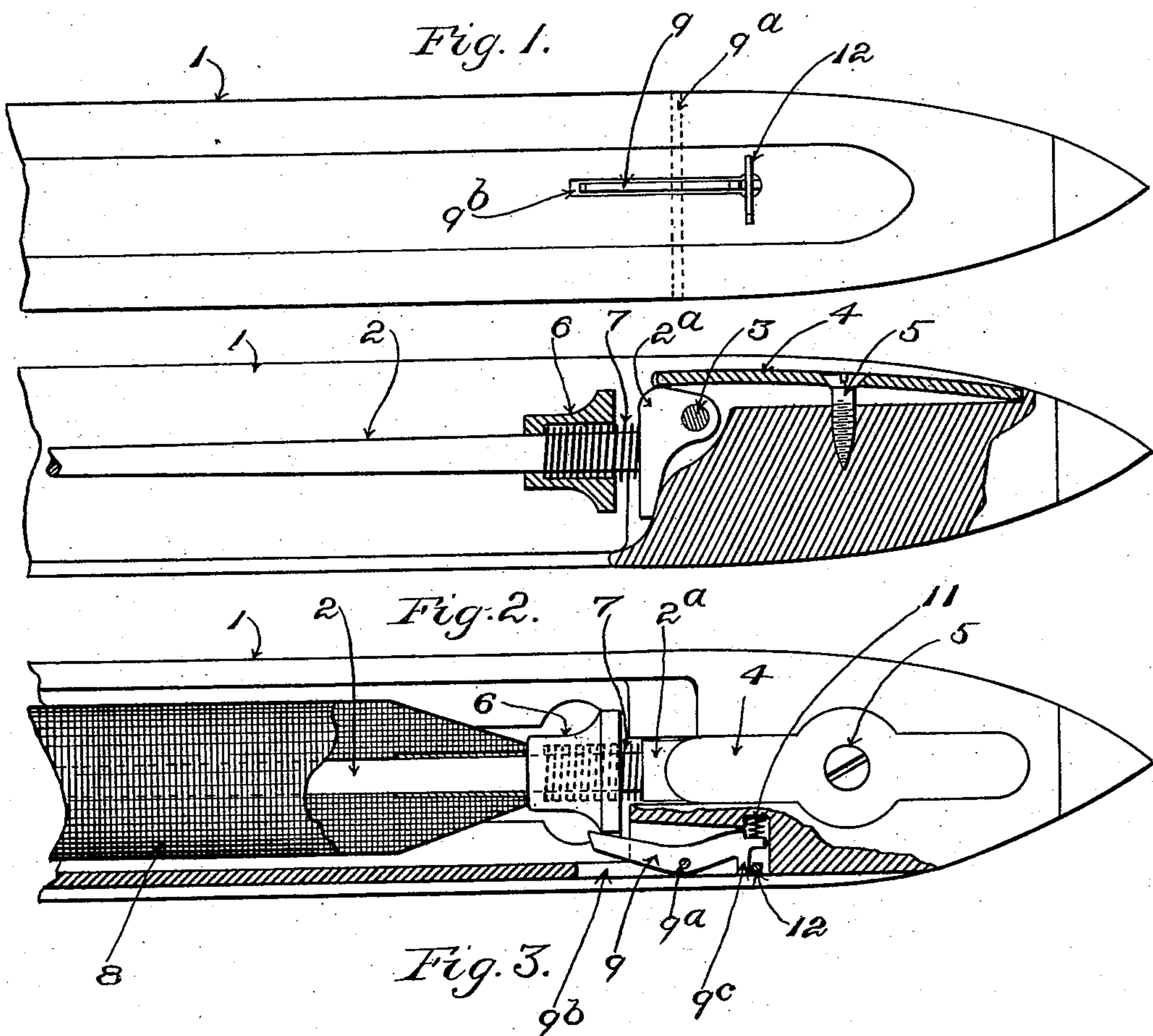
No. 705,898.

Patented July 29, 1902.

H. BARDSLEY.
LOOM SHUTTLE.

(Application filed Nov. 18, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 705,898, dated July 29, 1902.

Application filed November 18, 1901. Serial No. 82,617. (No model.)

To all whom it may concern:

Be it known that I, HENRY BARDSLEY, a citizen of the United States, residing at Providence, in the county of Providence, State of Rhode Island, have invented a certain new and useful Improvement in Loom-Shuttles, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to the devices which are employed in loom-shuttles for the purpose of ascertaining when the yarn-load which is carried by the working shuttle of a loom has become exhausted or depleted to the predetermined extent and for calling into action instrumentalities for bringing about a prearranged change in the working of the loom.

The invention consists in improved devices of the said class and will first be described with reference to the drawings, in which latter is represented an embodiment of the invention, after which the characteristic and essential features thereof will be particularly defined in the claims at the close of this specification.

In the drawings, Figure 1 shows in side elevation a portion of a shuttle having the invention applied thereto. Fig 2 shows the same mainly in central longitudinal section, the shuttle-spindle, however, being in elevation. Fig. 3 shows the same in plan, partly in horizontal section.

In carrying the invention into effect I employ in a loom-shuttle, in connection with the receiver on which is placed the working weft-supply, a follower that is mounted to move in the direction of the length of the weft-receiver, the said follower being governed as to such movement by the mass of yarn constituting the working weft-supply and a movable trip or controller suitably mounted upon or within the shuttle, held in abnormal or inoperative position by the said follower until released by the movement of the follower lengthwise of the weft-receiver, which is permitted by the depletion of the working weft-supply within the shuttle to the predetermined extent, the said trip or controller then

assuming its normal position, in which it is capable of bringing about the special operation by means of which the prearranged result in the working of the loom is brought about.

The invention is capable of being variously embodied and applied in practice. It has been designed more especially for utilization in connection with weft or filling wound in the form of cops instead of upon bobbins, although it is not necessarily restricted in this particular. It will therefore be understood that while I have represented in the accompanying drawings, and have herein described with reference to the said drawings, an embodiment of the invention suitable for use in connection with yarn in cop form the invention is not in all cases limited to application to shuttles employing weft or filling in such form. In the said embodiment the weft-receiver is constituted by the usual shuttle-spindle 2.

Having reference to the drawings, 1 designates the shuttle-body; 2, the shuttle-spindle; 3, the pin upon which the head of the said spindle 2 is mounted pivotally, as indicated in Fig. 2; and 4, the usual spindle-spring, the said spring being held in place by the screw 5 and bearing upon the head of the shuttle-spindle 2 in customary manner.

The follower is shown at 6. It is located upon the base portion of the spindle 2, closely adjacent the head 2^a thereof, and is fitted to the spindle-blade with capacity to move lengthwise thereon. The said follower 6 is backed up by a spring 7, which latter is compressed between the said follower and the spindle-head 2^a, the follower having an internal chamber, as shown in Fig. 2, which receives the said spring. A cop 8 of weft or filling is shown in place upon the spindle 2 in Fig. 3. In applying the said cop to the spindle 2 the cop is pushed along the said spindle until the base thereof has been forced against the follower 6 and the latter has been moved toward the spindle-head 2^a, so as to compress the spring 7 and place the latter in a state of increased tension.

At 9 is represented a trip or controller,

which is pivoted to the shuttle-body 1 at 9^a in the manner which adapts the same to swing horizontally, the said trip or controller 9 occupying a slot 9^b, which is formed in one side of the shuttle-body, at the end of the latter at which the shuttle-spindle is pivoted. The said trip or controller is backed up by a spring 11, the latter being located between one arm of the trip and the wood of the shuttle-body.

The trip or controller may in practice be variously constructed, arranged, and combined in order to bring about the predetermined special action or operation in the working of a loom. In the illustrated embodiment of the invention it is formed or provided with an engaging end 9^c, which normally is caused to project outward beyond the side of the shuttle-body by the action of the spring 11. The outward movement of the said engaging portion of the trip or controller 9 is limited by means of a stop-pin 12, with which the trip engages. It is intended that the engaging portion of the trip or controller 9 shall be allowed to project, as referred to, only after the supply or load of weft or filling which is contained in the shuttle shall have become used up to the predetermined extent. To this end, so long as the quantity of yarn contained in the cop upon the spindle 2 is sufficient to keep the follower 6 in the position in which it is shown in Fig. 3, the said follower 6, by its engagement with the tail of the trip or controller 9, will retain the said trip or controller in its retracted abnormal position, which is shown in Fig. 3. The trip or controller is retained in this position during the working of the shuttle until, as the weft or filling issues from the shuttle, the base portion of the cop becomes sufficiently unwound to permit the follower 6 to move lengthwise of the spindle-blade, under the action of the spring 7, far enough to clear or escape from the tail of the trip or controller 9. As soon as the follower has thus cleared or escaped from the said tail of the trip or controller 9 the spring 11 acts to project the engaging portion 9^c of the said trip or controller into position to engage in the flight of the shuttle with the instrumentalities which are provided for the purpose of bringing about the required change in the working of the loom in which the shuttle is being employed.

A shuttle having my invention applied thereto is equally well adapted to cooperate with instrumentalities for effecting automatically the replenishment of the working weft-supply in a loom and with instrumentalities for bringing about a stoppage of the loom without effecting replenishment. Instrumentalities for both purposes are well known, and the manner of utilizing the invention in connection therewith will be obvious without further explanation to those who are skilled in the art.

It will be perceived that in the present embodiment of the invention the arrangement

of the trip or controller at the side of the shuttle-body cooperates with the rounded shape of the follower in permitting the spindle, with the follower thereon, to be raised and lowered freely in the usual manner without hindrance through the engagement of the follower with the trip or controller. The movement of the spindle into its elevated position carries the follower away from the trip or controller, so that the latter, under the action of its spring 11, assumes its normal or operative position. When, however, the spindle is depressed into the cavity of the shuttle, the rounded periphery of the follower on coming in contact with the tail of the trip or controller operates to press the said tail to one side, thereby moving the trip or controller into its inoperative position. (Represented in Fig. 3.)

What I claim is—

1. In a loom-shuttle, in combination, the receiver for the working weft-supply, a follower mounted to move in the direction of the length of the weft-receiver and controlled as to such movement by the mass of yarn constituting the said weft-supply, and a movable trip or controller held in abnormal position by the said follower and released to assume its normal position by the movement of the follower lengthwise of the weft-receiver, which is permitted by depletion of the said working weft-supply to the predetermined extent.

2. In a loom-shuttle, in combination, a weft-receiver to hold a cop of weft or filling, a spring-actuated follower to coact with the base of the said cop, movable lengthwise of the said weft-receiver, and adapted to be held in an abnormal position by the said base, and a trip or controller movably connected with the shuttle-body, having an engaging portion adapted to occupy a position in which to cooperate with outside instrumentalities, the said follower engaging with the said trip or controller to hold the latter in abnormal position until permitted by the unwinding of the cop to become disengaged from the trip or controller.

3. In a loom-shuttle, in combination, the spindle, the follower applied thereto, the spring acting in connection with the said follower to press the same against a cop of weft or filling on the said spindle, and the spring-actuated trip or controller engaged by the said follower and thereby held in an abnormal position, the said trip or controller moving into its normal position when by the unwinding of the cop the follower is permitted to release the same.

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

HENRY BARDSLEY.

Witnesses:

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