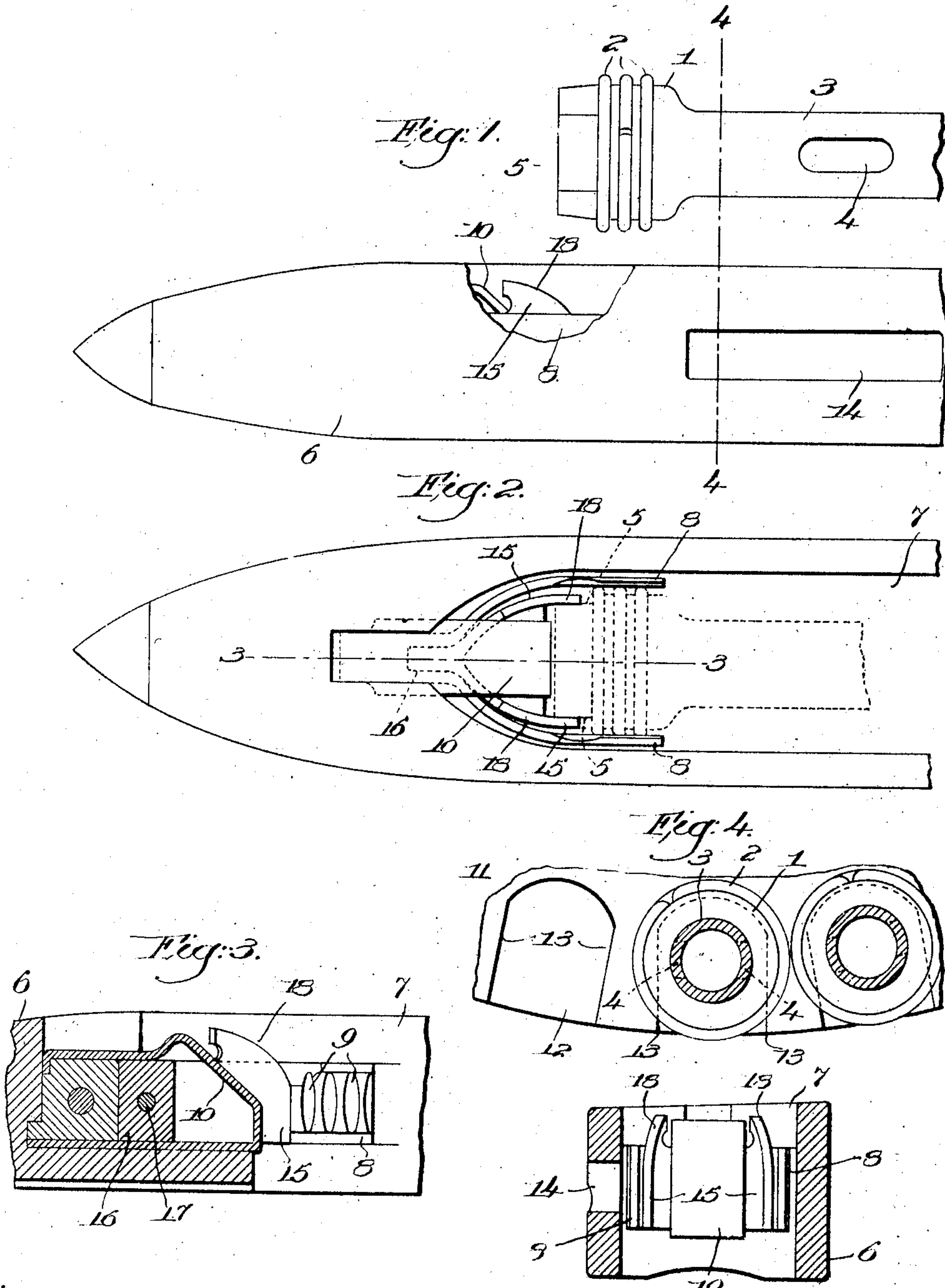


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 LOOM SHUTTLE AND FILLING CARRIER THEREFOR.
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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE AND FILLING-CARRIER THEREFOR.

No. 906,748.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM PARKER STRAW, a citizen of the United States, and resident of Manchester, county of Hillsboro, State of New Hampshire, have invented an Improvement in Loom-Shuttles and Filling-Carriers Therefor, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates more particularly to looms provided with means to effect automatically a change in the operation of the loom before the filling in the active shuttle is completely exhausted, such looms being usually termed "feeler" looms because of the operation of a device which intermittently enters the shuttle and feels the filling therein. The change in the operation of the loom may be stoppage, or it may be an automatic replenishment of the filling in the active shuttle, both operations being well known in the art. Various forms of filling-carriers have been used in such feeler looms, among others one in which the barrel of the filling-carrier is provided with a longitudinal recess or slot over which the filling is so wound as to cover or conceal it until a predetermined amount of the filling is woven off. Thereupon the feeling device is permitted to enter the recess or slot, and the desired change in the operation of the loom is effected automatically. It will be apparent to those skilled in the art that if the filling-carrier is not angularly positioned within the shuttle so as to bring the recess or slot directly opposite the feeler the latter will not operate properly when the determined filling exhaustion is reached.

In automatic filling-replenishing looms of the type illustrated in United States Patent No. 529,940, granted November 27, 1894, to Northrop, the filling-carriers are transferred automatically from a feeder or hopper to the running shuttle, and there is at times a tendency of the filling-carrier to turn during transfer. As a result, after it has been inserted in the shuttle the recess or slot in the barrel will not be directly opposite the feeler-opening in the side wall of the shuttle, and hence the feeler when it passes through such opening cannot operate properly at the required time.

The present invention has for its object the production of means whereby a filling-carrier of the type referred to is always properly positioned in the shuttle, and the inven-

tion is shown arranged for use in connection with an automatic filling-replenishing loom of the before mentioned "Northrop" type.

The novel features of the invention will be fully described in the following specification and particularly pointed out in the claims annexed thereto.

Figure 1 is a side elevation of a portion of a shuttle and a filling-carrier embodying one form of the present invention, the filling-carrier being shown as in position to be transferred while a part of the nearer wall of the shuttle is broken out; Fig. 2 is a top plan view of the portion of the shuttle illustrated in Fig. 1, with the base and adjacent portion of the filling-carrier in position therein indicated by dotted lines; Fig. 3 is a longitudinal sectional detail on the line 3—3, Fig. 2; Fig. 4 is a transverse section on the line 4—4, Fig. 1, looking toward the left, showing also a portion of the filling-feeder or hopper.

The filling-carrier or bobbin comprises a base 1 provided with a series of annular projections or rings 2, of well-known structure, and a barrel 3 which is shown in Fig. 1 as provided with a longitudinal recess, preferably a slot 4 extended directly through the barrel at a part thereof to properly cooperate with the feeler, not shown and which is well known in the art. Herein the base 1 is shown as slabbed off to present two opposite and parallel flat faces 5, located on the same sides of the filling-carrier as are the openings of the slot 4, the faces being located between the series of rings and the outer end of the base.

It will be understood that in practice the filling is so wound as to cover the slot 4 until woven off to a predetermined extent, to permit the feeler device to enter the slot, hence the importance of properly positioning the filling-carrier in the shuttle.

The shuttle in its main characteristics is of well known construction, the body 6 having an opening 7 for the reception of the filling-carrier, and at one end of such opening are located usual spring-jaws 8 having their inner faces grooved at 9 to receive the rings 2 and hold the same when the filling-carrier is transferred to the shuttle from the feeder.

An inclined guide 10 is located between the bases of the jaws, to direct the filling-carrier longitudinally at the time it is inserted in the shuttle so that the grooved jaws 8 may properly cooperate with the rings 2.

Referring to Fig. 4 a portion of the filling-feeder is shown, viz: the inner plate which

sustains the bases of the filling-carriers, and said plate 11 is shown provided with peripheral pockets 12 having parallel sides 13 to cooperate with the faces 5 and thereby properly position the filling-carriers prior to transfer. As the filling-carrier may turn slightly during transfer the shuttle has been provided with means to correct such angular movement and to insure the positioning of the slot 4 directly opposite the feeler-opening 14 in the side wall of the shuttle, Figs. 1 and 4. To this end the shuttle is provided with two upright metallic guides 15, diverging from a common stem or base 16, Fig. 3, secured between the jaw bases in any suitable manner, as by a stud 17, the guides being located within the jaws and in parallelism with each other at their free ends and at such a distance apart that the faces 5 of the base of the filling-carrier will snugly enter between them, see Fig. 2. When the base 1 is so positioned between the guides the latter positively retain it from any angular displacement and insure the proper positioning of the slot 4 with relation to the feeler-opening 14 of the shuttle. The upper edges of the guides are inclined and form cam surfaces 18, to cooperate with the faces 5 and turn the filling-carrier on its axis into proper angular position should it be turned in its passage from the filling-feeder to the shuttle during transfer. That is, if the faces 5 are not properly presented they will be engaged by the inclined edges 18 of the guides and the filling-carrier will be turned on its axis, by such engagement, as the rings 2 are brought into cooperative relation with the jaws 8.

It will be seen that the angular positioning of the filling-carrier in the shuttle is effected and maintained by means separate from the holding jaws; the latter holding the filling-carrier in the shuttle and positioning it longitudinally but having no control over its angular position.

Having fully described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. The combination, with a filling-carrier having a longitudinally-slotted barrel and a base provided with opposite, parallel, flat faces on the same sides as the openings of the slot, of a shuttle having an opening in its side wall, jaws to engage and hold the filling-carrier, and means to cooperate with the opposite flat faces of the base of said filling-carrier and insure its position in the shuttle with the openings of the slot in the barrel opposite the opening in the shuttle wall.

2. The combination, with a shuttle having holding jaws, and oppositely-located positioning members having parallel engaging portions, of a filling-carrier having its base provided with opposite parallel faces and with means to be engaged and held by said jaws, the parallel engaging portions of the positioning members engaging the opposite faces on the base and cooperating therewith to insure a predetermined angular position of the filling-carrier in the shuttle.

3. A filling-carrier having its base provided with opposite and parallel flat faces, and rings surrounding the base adjacent said faces, combined with a shuttle having jaws to engage and hold the rings, and parallel guides arranged within the jaws and having inclined upper edges, to cooperate with the flat faces on the base of the filling-carrier and angularly position the same in the shuttle, the inclined edges of the guides assisting in turning the filling-carrier, when necessary, to bring the flat faces into position between the guides.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WM. PARKER STRAW.

Witnesses:

V. ELMER PRINCE,
ALLAN M. WILSON.