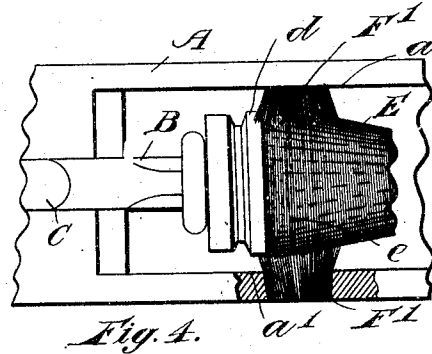
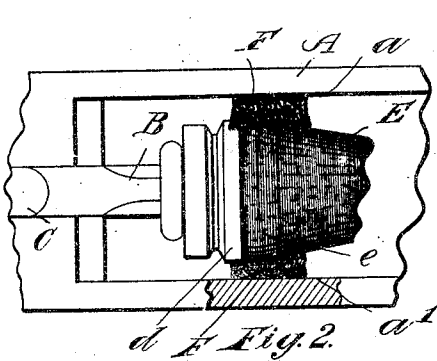
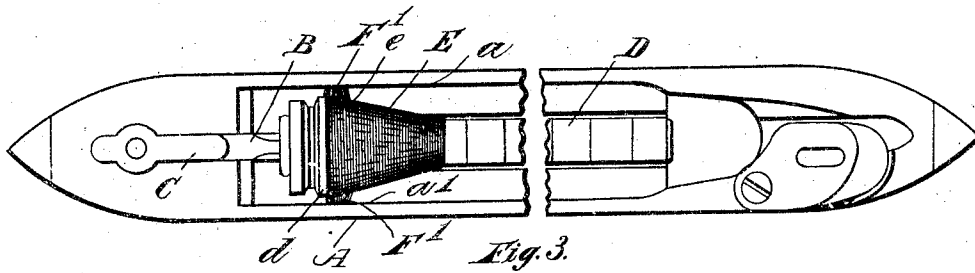
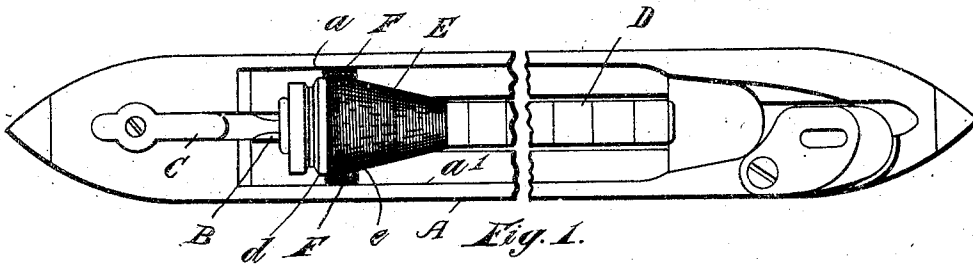


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APPLICATION FILED FEB. 13, 1909.

937,963.

Patented Oct. 26, 1909.
2 SHEETS—SHEET 1.



WITNESSES:

Ludger A. Nicol.

Grace Browley.

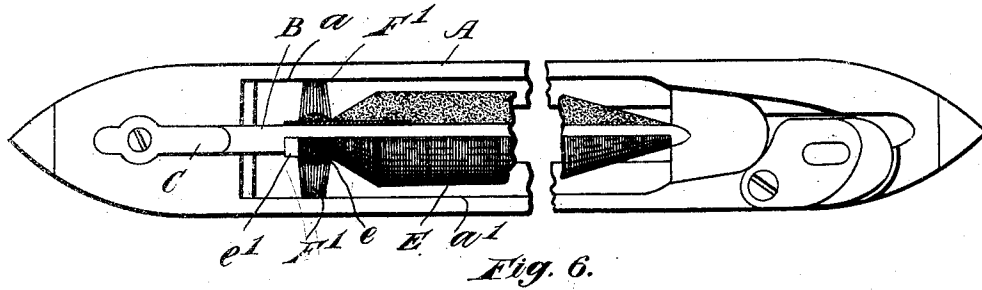
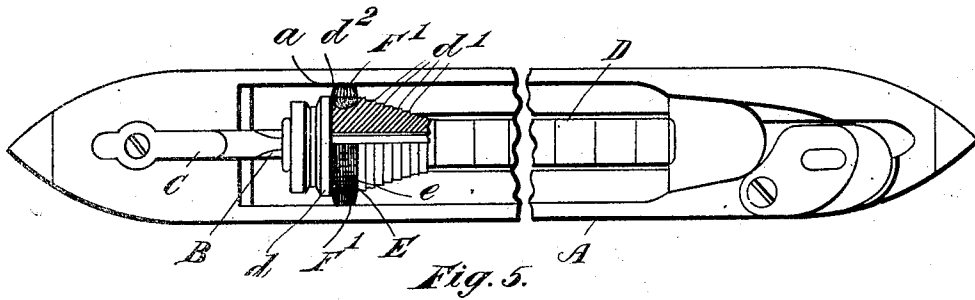
INVENTOR:

Oren A. Sawyer.
By Albert M. Moore,
His Attorney.

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UNITED STATES PATENT OFFICE.

ORREN A. SAWYER, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO EARL A. THISELL, OF LOWELL, MASSACHUSETTS.

SHUTTLE OR FILLING-CARRIER FOR LOOMS.

937,963.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed February 13, 1909. Serial No. 477,504.

To all whom it may concern:

Be it known that I, ORREN A. SAWYER, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Shuttles or Filling-Carriers for Looms, of which the following is a specification.

This invention relates to shuttles or filling-carriers for looms and its object is to provide means for producing an increased tension on the filling just before the exhaustion of said filling.

In carrying out this object, I arrange a frictional device in the shuttle-chamber near the pivoted end of the spindle and arrange the same to press upon the first few turns of filling wound upon the bobbin or cop-tube in such a manner as to retard the unwinding of said yarn just before these turns are completely unwound. A filling-carrier provided with such tension-producing means may be used to operate controlling means for stop-motion devices or weft-replenishing devices, as by tilting a weft-fork in the manner shown in other applications filed by me herewith.

In the accompanying drawing, on two sheets, Figure 1 is a plan of the shuttle with filling-holder or bobbin and my improved tension devices represented as consisting of pieces of cloth secured to the inner faces of the walls of the filling-chamber; Fig. 2, an enlarged plan of said tension devices and adjacent parts of the shuttle-body and bobbin; Fig. 3, a plan similar to Fig. 1, except that brushes are shown instead of cloth; Fig. 4, an enlarged plan of the brushes shown in Fig. 3 with adjacent parts of the filling-carrier and filling-holder; Fig. 5, a plan of a shuttle and bobbin similar to what is shown in Fig. 3, except that the bobbin is provided with an annular groove near the base to receive the first turns of yarn wound upon the bobbin; Fig. 6, a plan of a shuttle in which a cop-tube takes the place of the bobbin and shows a bunch of filling wound upon the cop-tube before commencing to build the cop.

The shuttle herein shown has a body A; pivoted spindle B; held in operative position by a spring C and adapted to carry a

bobbin D on which the cop E of filling is held,—all in the usual manner.

The bobbins shown in the first five figures are provided with approximately conical heads d having steps or stages d^1 of gradually decreasing diameter. When the filling is wound thereon, starting from the base, the largest step will be first covered with filling which should be wound back and forth on said cop before beginning to build the cop to form a bunch e of several yarns of filling or enough filling to make several picks.

It will be understood that the conical stepped base d of the bobbin forms no part of the invention, it being necessary only that a sufficient length of the filling should be wound upon the filling-holder before the building of the cop commences and in Fig. 5 I have shown how the bunch e or part of the filling to be acted upon by the tension devices hereinafter described may be in the form of a narrow ring wound in a groove d^2 in order that the upper side of the groove may increase the tension of the yarn by friction when the yarn is being drawn therefrom toward the point or top of the bobbin, and in Fig. 6 I have shown a bunch e of filling wound on the cop-tube e^1 just below the cop E or mass of filling-yarn, the object of the bunch in this case being to cause a greater friction and tension of the filling as drawn from the side of the bunch adjacent to the base of the bobbin. In all these cases, additional tension on the part of the filling first wound upon the filling-holder may be caused by the pressure or friction of pieces of cloth F F secured as by glue to the inner sides of the walls $a a^1$ of the shuttle-chamber in contact with said first wound filling, or brushes or bristles $F^1 F^1$ may be used, as shown in Fig. 4, said brushes being secured as by glue in holes formed in the walls of the shuttle-chamber.

If the groove d^2 which receives the bunch or first winds of the filling, similar to what is shown in Fig. 5, is made deep enough, sufficient friction may be caused on the filling when the filling is drawn out of said groove over the side of said groove farthest from the base to enable the brushes to be dispensed with.

I claim as my invention:—

1. The combination in a filling carrier, of

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a shuttle-body, a filling holder, means for supporting said holder in said body and means for producing an increased tension on the filling just before the exhaustion of said filling from said holder.

5 2. The combination in a filling carrier, of a shuttle-body, a filling holder, means for supporting said holder in said body and friction creating devices arranged in said

shuttle-body and adapted to produce an in- 10
creased tension on the filling just before the
exhaustion of said filling from said holder.

In witness whereof, I have affixed my
signature in presence of two witnesses.

ORREN A. SAWYER.

Witnesses:

ALBERT M. MOORE,
GRACE CROWLEY.