

V. RAINVILLE.
FEELER MOTION FOR LOOMS.
APPLICATION FILED JULY 25, 1910.

1,040,409.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1.

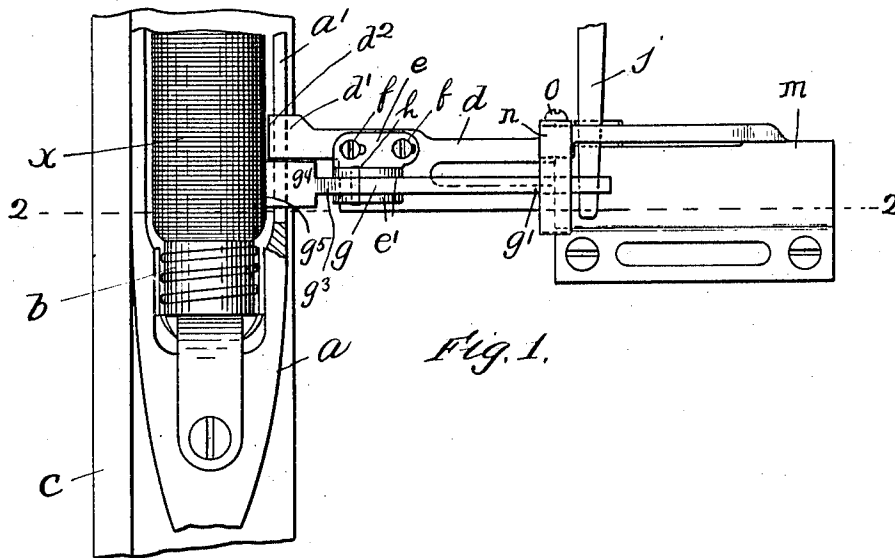


Fig. 1.

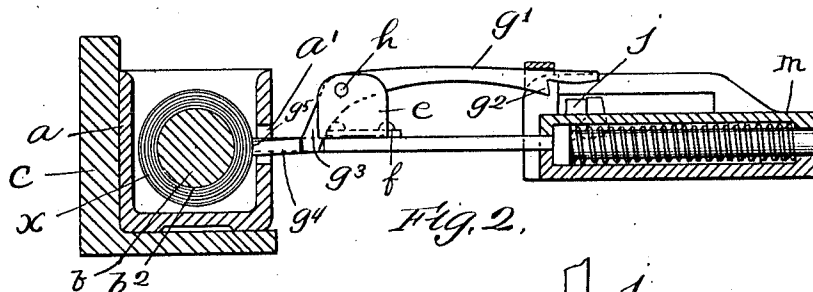


Fig. 2.

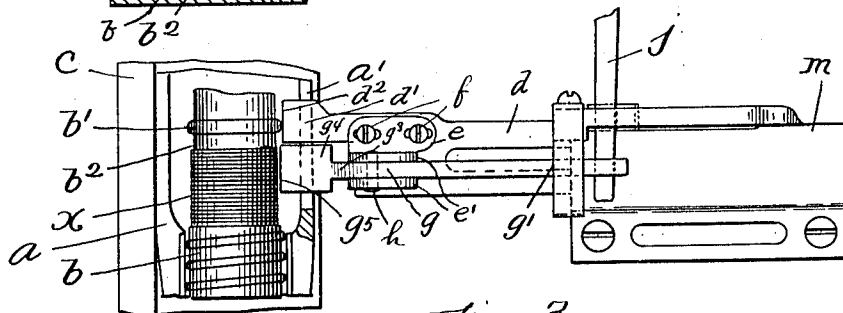


Fig. 3.

Witnesses:
H. B. Davis,
W. A. Best

Inventor
Victor Ravnille
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Att'y

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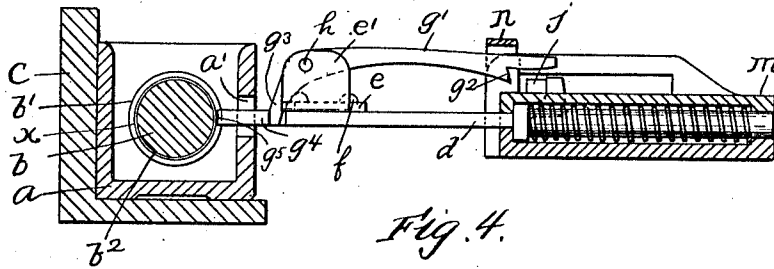


Fig. 4.

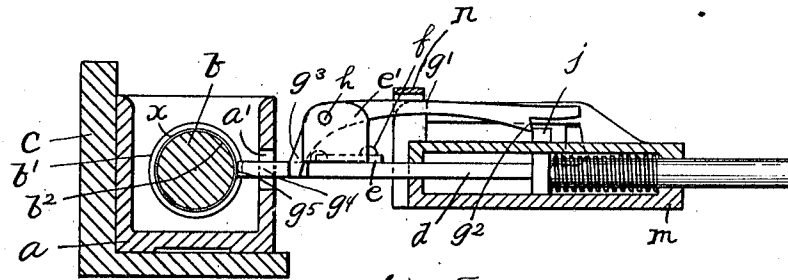


Fig. 5.

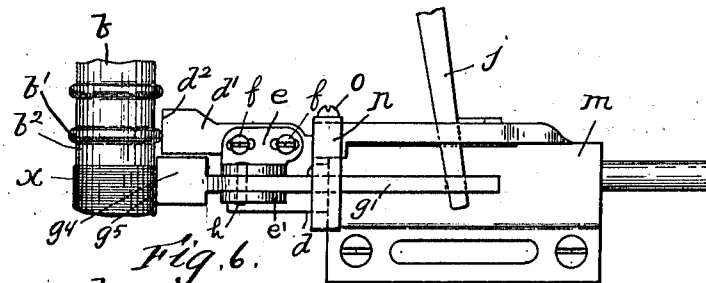


Fig. 6.

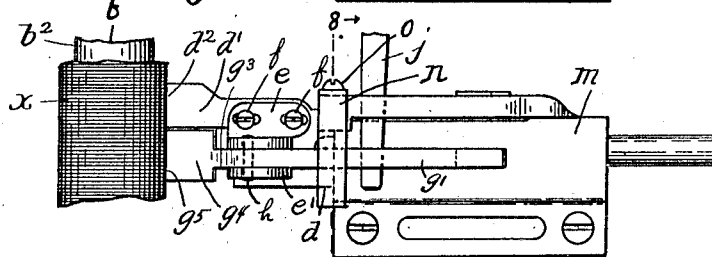


Fig. 7.

Witnesses:
H. B. Davis.
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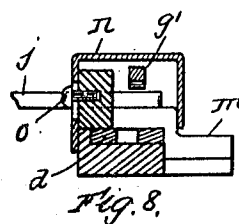


Fig. 8.

Inventor:
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UNITED STATES PATENT OFFICE.

VICTOR RAINVILLE, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

FEELER-MOTION FOR LOOMS.

1,040,409.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed July 25, 1910. Serial No. 573,781.

To all whom it may concern:

Be it known that I, VICTOR RAINVILLE, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented an Improvement in Feeler-Motions for Looms, of which the following is a specification.

This invention relates to certain improvements in feeler motions for weft-replenishing looms of the "Draper" type, in which the actuation of the bobbin-changing mechanism is permitted by the engagement of the shuttle or filling carrier, as it is moved toward the fell, with a controlling device, through the medium of a feeler slide which directly engages the filling on the bobbin. It has been found difficult to adapt devices of this character to the various conditions which are encountered in practice, so that the changing of the bobbin is insured without undue waste of the filling, and one of the most serious objections to looms of this type is the waste of filling caused by the ejection of the bobbins while there is yet a considerable, or unnecessary quantity of filling thereon. The labor cost for removing the filling which is left on the bobbins is also a matter of expense which varies in direct proportion to the amount of filling which must be removed. Devices of this character comprise a feeler and a feeler-carrier or controller, one of which has a face arranged to engage the filling on the bobbin in the shuttle and the other a face to engage an abutment carried by the shuttle, so that the filling-changing operation may take place when these faces are held during the forward movement of the lay, in a certain relative position, induced by the exhaustion of the filling from the bobbin. Inasmuch as the conditions of use are likely to vary, on account of variations in sizes of the bobbin and shuttle, it is desirable to have means for varying this relative position according to these variations, so that the operation may be caused to take place at the time desired under the different conditions which are encountered. Prior devices of this character, which have been generally used, are so arranged that the operating means for the bobbin-changing mechanism, which is moved to an inoperative position on each alternate forward movement of the lay, is engaged by either the side of the shuttle, or the base of the bobbin, and the repeated engagement,

during a portion, at least, of the time when the filling is being drawn from the bobbin, causes the wood to become worn away, so that unless frequent readjustments are made, imperfect results are secured, for the reason that the bobbin changing operation is caused to take place too late, or not until after the filling has been completely drawn from the bobbin, or undue waste is caused for the reason that said operation is caused to take place too soon.

The objects of my invention are to provide a device of above described character which is of simple and durable construction, and is unlikely to get out of order, or to become clogged so that it will not operate satisfactorily, and which may be so adjusted that nearly all of the filling may be drawn from the bobbin before the bobbin changing operation takes place, but which will cause such operation to take place before the filling is entirely exhausted from the bobbin.

A further object of my invention is to provide means whereby engagement of the device with any portion of the shuttle is obviated, and engagement with the wood of the bobbin for more than a short time is prevented, so that the necessity of readjustment by reason of the wearing of the wood is avoided.

Another object of my invention is to provide a device of the above described character in which ready and efficient means for adjusting the relative positions of the feeler and feeler-controller is provided, so that the device may be accurately adjusted to varying conditions and the filling-changing operation may be made to take place when the filling is practically, but before it is actually exhausted.

I accomplish these objects by means shown in the accompanying drawings in which;

Figure 1 is a plan view of a feeler motion made according to my invention. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Figs. 3, 6 and 7 are views similar to Fig. 1, showing the parts in different positions. Figs. 4 and 5, are views similar to Fig. 2, also showing the parts in different positions. Fig. 8 is a cross-section on line 8—8 of Fig. 7.

In the drawing *a* indicates a shuttle having the usual bobbin *b* therein, the shuttle being shown in position on the lay *c*. A spring-pressed feeler carrier or controller *d*

is mounted to slide horizontally on a casing *m*, fixed on the loom, said controller having a bunter head *d'* on its front end, which is adapted to extend through a slot or opening *a'*, in the side of the shuttle, said head being provided with a bobbin-engaging face *d²* at its front end. A clip or bracket *e* is mounted on the controller and is secured thereto by means of screws *j*, which pass through slots in the clip, so that said clip may be clamped to the controller and may be adjusted longitudinally thereof to a limited extent. Said clip is provided with a pair of ears *e'* between which a feeler lever *g* is mounted on a pivot *h*. Said lever *g* is of approximately bell-crank form, and comprises a horizontally disposed operating arm *g'* having an engaging shoulder *g²*, at its end, and a depending feeler arm *g³*, having a horizontally extending feeler, or filling engaging head *g⁴*, at its end, said head *g⁴* being provided with a bobbin-engaging face *g⁵* at its extreme end. The heads *d'* to *g⁴* are arranged with their side edges closely adjacent each other, and the arm *g'* counterbalances the arm *g³* and head *g⁴*, so that head *g⁴* is normally held at the same level, by gravity, as head *d'*, but extends a short distance beyond the same. The face *g⁵* is thus normally held slightly closer to the bobbin than the face *d²*.

A bobbin-changing controlling arm *j* is arranged to extend over the casing *m* directly beneath the arm *g'*, and in position to be engaged by the shoulder *g²* thereof under certain conditions to be explained.

The bobbin is provided with a rib or abutment *b'*, which is merely the rib next the bobbin base of the series of filling retaining ribs with which bobbins are usually provided, see Fig. 6, said rib *b'* being located opposite the head *d'* and the portion *b²*, between said rib and the bobbin-base, being located opposite the head *g⁴*, so that when the bobbin is carried toward the slide, said rib *b'* will, when the filling has been nearly removed from the bobbin, engage the face *d²*, while the head *g⁴* will engage the filling on the portion *b²*, which in practice is of the normal diameter of the bobbin. Under some conditions it is desirable to have the head *d'* of sufficient length to engage more than one of the retaining ribs *b'*.

In the normal operation of the loom, when the bobbin is full, or nearly full of filling, as indicated in Fig. 1, as the bobbin is moved toward the faces *d²* and *g⁵*, the filling *x* on the bobbin will first engage the face *g⁵*, and the pressure thereagainst will cause the lever *g* to be swung on its pivot, and the arm *g³* to be swung rearwardly and the arm *g'* upwardly out of engaging position, as shown in Fig. 2, so that, on the further forward movement of the lay, the controller *d* will engage the filling and thereby

be pushed back while the arm *g'* is held at such an elevation that the shoulder *g²* will not engage the arm *j*, but said arm *g'* will pass thereover. When the filling is nearly exhausted, so that the filling which covers the rib *b'* has been drawn off, and the filling between the rib *b'* and the bobbin-base is being exhausted, the time of engagement of the face *g⁵* with the filling will, only slightly precede the engagement of the rib *b'* with the face *d²*, and this interval will grow less and less, until the arm *g'* is not raised to a sufficient extent to avoid engagement of the shoulder *g²* with the arm *j*, so that, as the slide *d* is pushed back, said shoulder will engage said arm *j* and cause the bobbin-changing operation to take place, as shown on Figs. 5 and 6.

A stop arm *n* is secured to the side of casing *m* by screws *o*, which pass through vertical slots in said arm, and extends over the arm *g'* in position to limit the upward swinging movement of said arm, and thus prevent the head *g⁴* from being swung down to such an extent as to permit the same to strike the side of the shuttle, or from being so moved that its face *g⁵* will be carried in the rear of the face *d²*, under any conditions, thereby enabling the head *g⁴* to act on the controller or to push it back, as does the head *d'* in the normal operation of the device. By adjusting the vertical position of the arm *n*, the upward movement of the arm *g'* may be limited at different points as conditions may require.

By adjusting the clip *e* longitudinally of the controller the distance which the head *g⁴* protrudes beyond the head *d'* may be adjusted so that it will correspond to the radial distance between the surface of the rib *b'* and the surface formed by the filling on the portion *b²* when the bobbin changing operation is to take place. By this means the quantity of filling to be left on the bobbin when the changing operation takes place, may be varied.

What I claim as my invention and desire to secure by Letters Patent is as follows:—

1. In a loom having filling-replenishing mechanism, a shuttle having a slotted side, and a bobbin in the shuttle having an abutment, in combination, a yieldingly sustained feeler-controller, a bunter-head on said controller to enter said slot and engage the abutment upon predetermined filling exhaustion, a lever mounted on said controller to swing vertically and comprising a horizontally disposed operating arm for the filling-replenishing mechanism, normally held by gravity in an operative position, a rigidly connected feeler arm depending from the axis, and a horizontally projecting feeler-head fixed on the feeler arm at one side of said bunter-head and normally sustained by gravity adjacent the level thereof

in position to enter the slot in the shuttle and engage the filling at one side of said abutment, the filling-engaging face of the feeler-head being maintained by gravity normally in advance of the face of the bunter-head and movable downwardly as it is moved rearwardly by engagement with the filling, to swing said operating arm upwardly to inoperative position prior to actuation of the controller by engagement of the bunter-head with the filling in the shuttle until the filling is substantially exhausted.

2. In a loom having weft-replenishing mechanism, a shuttle, and a bobbin carried thereby having an abutment, the combination of a yieldingly sustained feeler-controller having a forwardly extending bunter-head provided with an abutment-engaging face, a longitudinally adjustable bracket on the controller having an upright ear, a vertically swinging lever pivotally mounted on the ear and comprising a horizontally extended operating arm for the weft-replenishing mechanism, normally held by gravity in an operative position, and a rigidly connected arm depending

from said pivot and extended forward horizontally at its lower end to form a fixedly connected feeler-head, said extended head having a face to be engaged by the filling on the bobbin in the shuttle, normally to swing the operating arm to an inoperative position prior to movement of the controller in unison with the lay, and means to clamp the bracket in adjusted position on the controller, adjustment of the bracket varying the normal projection of the face of the feeler-head beyond the face of the bunter-head, the engagement of the latter with the abutment prior to engagement of the feeler-head with the filling effecting bodily movement of the controller while the operating arm thereon is in its operative position, to thereby operate the weft-replenishing mechanism.

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

VICTOR RAINVILLE.

Witnesses:

L. H. HARRIMAN,
H. B. DAVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."