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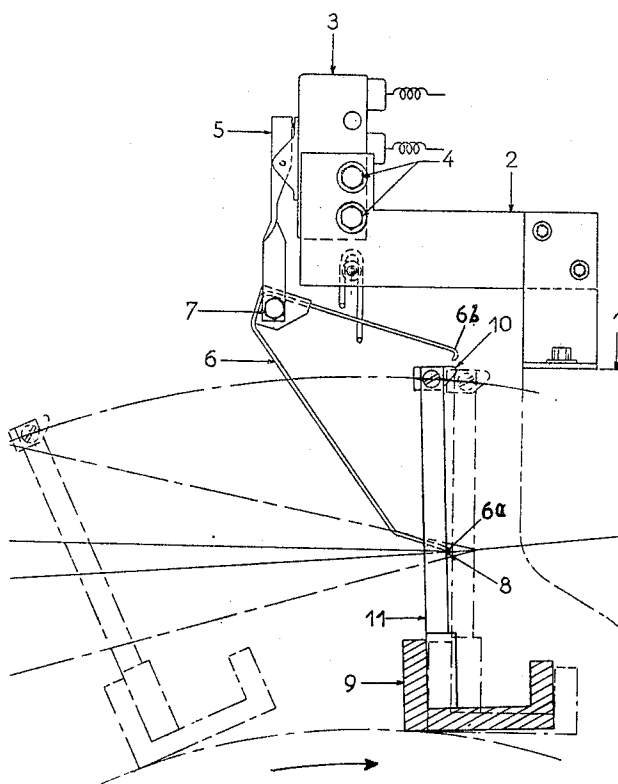
[54] **WEFT STOP-MOTION FOR SHUTTELESS LOOMS**
 5 Claims, 2 Drawing Figs.

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 [51] Int. Cl. D03d 51/34
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 370, 374, 375, 377

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ABSTRACT: A weft stop-motion device is provided for a shuttleless loom with a continuous weft feed not requiring any positioning member for positioning of the weft. The control of the weft is effected from the opposite side of the feed without necessitating any cyclically operating electrical device. The weft stop-motion device is positioned at a fixed point on the loom frame and comprises a freely pivotable unrestrained needle which is bent at the middle to form two arms. The pivot of the needle is fixed to a lever arranged to actuate a microswitch. The end of one arm of the needle constitutes a feeler to contact the weft thread. The end of the other arm has a hook arranged to be engaged by a beak attached to a support on the sley, at the end of the stroke of the sley. If the feeler is not held in raised position due to the absence of weft thread, the hook is drawn by the beak, which tilts the lever, actuates the microswitch and so stops the loom.



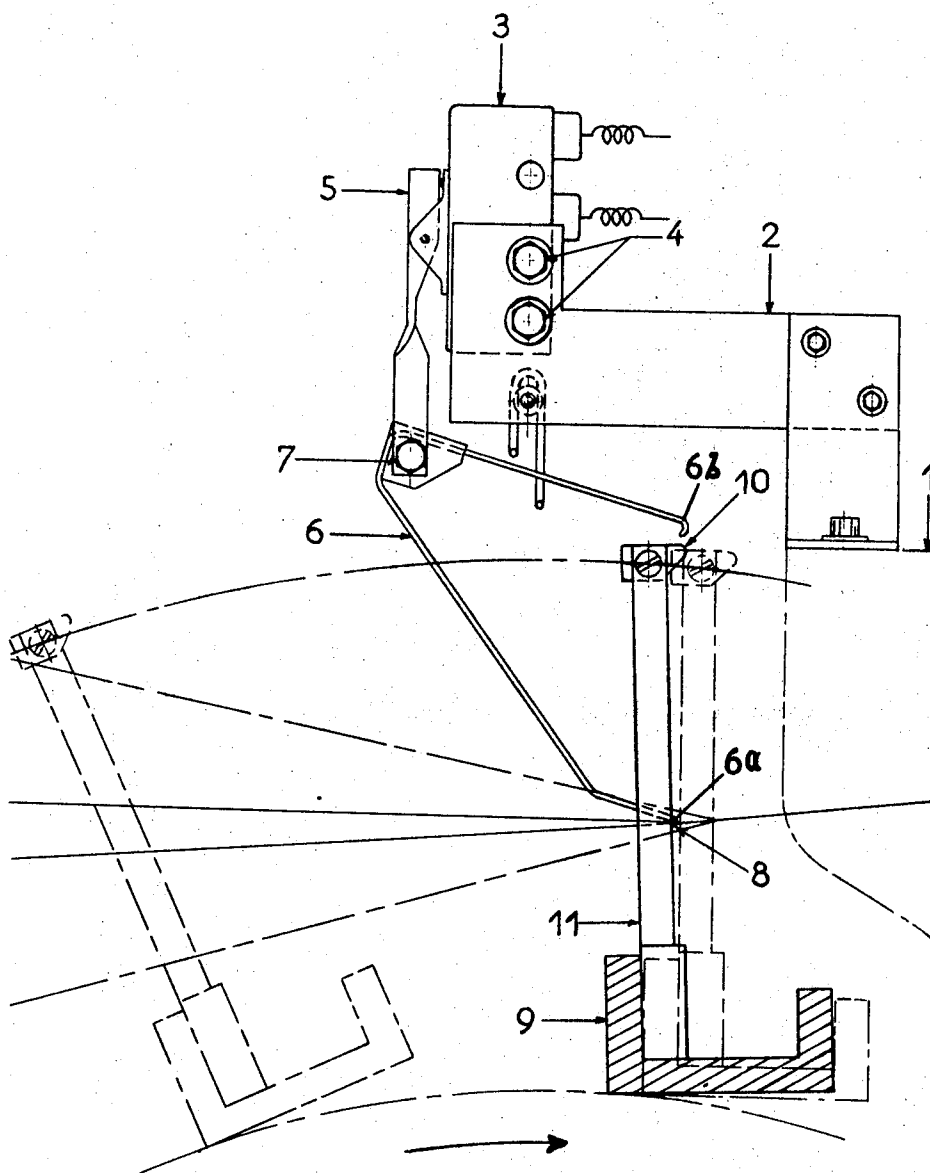


fig.1

WEFT STOP-MOTION FOR SHUTTELESS LOOMS

The present invention relates to a weft stop-motion device for shuttleless looms or looms operating with a stationary weft supply.

The weft stop-motion device is a safety device indispensable for the efficient operation of any loom; and it consists of means for stopping the machine mechanically or electrically, when the weft thread breaks.

On looms with shuttles and pirns, the control of the weft is effected, either in the middle of the sley by a horizontal fork which may or may not be held back by the weft, or on the outside of the breadth of the cloth by a vertical fork which may or may not be pushed back by the weft.

On shuttleless looms with direct feed from a laterally placed bobbin, approaches are equally possible:

1. to control the weft over the length of the latter which is between the bobbin and the member called the "weft feed"; or
2. to control the weft at its end which is opposite the distributor.

The first approach cannot be suitable for a shuttleless loom of the "Gabler" type, that is to say for the development of a loop of which one end is held at the feed side. In fact, in this case, the weft is only controlled at the moment of unwinding on the spool and, due to this fact, the part of the loop which is developed is not controlled. It is hence indispensable to control the end of the loop which is developed.

This control is operated generally by presenting before the weft a vertical fork pivoting around its upper end, this fork, pushed back by the weft, causing a stop device to operate. However, this fork must be mounted on a device enabling it to descend to be presented before the weft and to reascend after the control to free the separator comb.

In order to avoid a permanent arrest of the machine, the electrical current necessary on the arrest actuation must be distributed only at the moment of the control of the weft, which necessitates a cyclic contactor actuated by a cam.

It is an object of the present invention to provide a weft stop-motion device which obviates these drawbacks.

It is a further object of the invention to provide a weft stop-motion device which does not comprise, in fact, any displacement of the assembly nor of the cyclic control, for the arrest of the machine.

The weft stop-motion device according to the invention is essentially characterized in that it is composed of a needle mounted to pivot at the end of the lever of a microswitch fixed on the frame of the machine, this needle being sent to bent to comprise two reeds of which one forms a feeler and the other constitutes, at its end, a hook which, in the case of the breakage of the weft, is at the end of the stroke of the sley, drawn by it, which causes actuation of the microswitch.

In order that the invention may be more fully understood, one embodiment of a weft stop-motion device according to the invention is described below, purely by way of an illustrative example, with reference to the accompanying drawing in which:

FIG. 1 is a side view in elevation of the said embodiment showing the relationship between the microswitch, the weft, the sley, and the means for actuating the microswitch; and

FIG. 2 is a front view, also in elevation, of the embodiment

of FIG. 1.

On the frame 1 of the loom is fixed a support 2 on which is mounted a microswitch 3 held on the said support 2 by means of bolts 4.

The lever 5 of the microswitch showing the relationship between the microswitch, the weft, the sley, and means for actuating the microswitch 3 supports at its end a needle 6 pivotally mounted freely around an axle 7 rigidly attached to the lever 5. This needle 6 is formed by two sides one, of which is directed downward and bent at its end at 6a to facilitate its support on the weft 8 to be controlled, while the other is nearer to the horizontal position and its end 6b forms a hook to cooperate with the beak 10 of a support 11 which is clamped on the sley 9. When the weft is deposited in the shed, the sley 9 advances along the direction of the arrow and causes the end of the weft 8 to pass under the lower side 6a of the needle 6. Due to this fact, the hook 6b of the horizontal reed of the needle is held raised and passes above the beak 10 by pivoting around the axle 7.

On the contrary, if for any reason, the weft 8 cannot reach the side 6a of the control needle, the latter is not deflected and its beak 10, which follows the advancing movement of the sley 9, engages and draws the lever 5 of the microswitch by means of the hooked side 6b of the needle 6. The electrical stop circuit is thus actuated and the machine is stopped.

It will be apparent that various changes and modifications may be made in the embodiment described without departing from the essential concept of the invention.

I claim:

1. In a loom having a sley and in which successive wefts are inserted into successive warp sheds, the improvement comprising control means for arresting the operation of the loom upon sensing the absence of a weft, said control means comprising switching means for stopping said loom, and sensing means controlling said switching means in response to the presence or absence of said weft in said sheds, said sensing means including a first portion freely connected pivotally to said switching means, a second portion of for sensing each inserted weft to determine its presence in a shed, and a third portion for contacting said sley upon failure of said second portion to sense a weft and, through said first portion, causing said switching means to arrest the operation of the loom.

2. In a loom as claimed in claim 1, wherein said switching means includes a microswitch and a lever pivotally supported opposite said microswitch and a lever pivotally supported opposite said microswitch, said lever including a pair of arms, one of said arms being engageable with said microswitch, the other of said arms pivotally supporting said first portion of said sensing means.

3. In a loom as claimed in claim 1, wherein said sensing means includes a pair of arms constituting said second and third portions thereof respectively, said first portion thereof being intermediary a said two arms.

4. In a loom as claimed in claim 1, wherein said sensing means is substantially U-shaped.

5. In a loom as claimed in claim 1, wherein said sley includes a projection, said arm constituting said third portion of said sensing means including a hook-shaped gripping portion adapted for contracting said projection of said sley to be pulled thereby.