May 10, 1932. L. E. BLACKMAN 1,857,837

COMBINED STOP MOTION AND FLOAT PREVENTER FOR LOOMS

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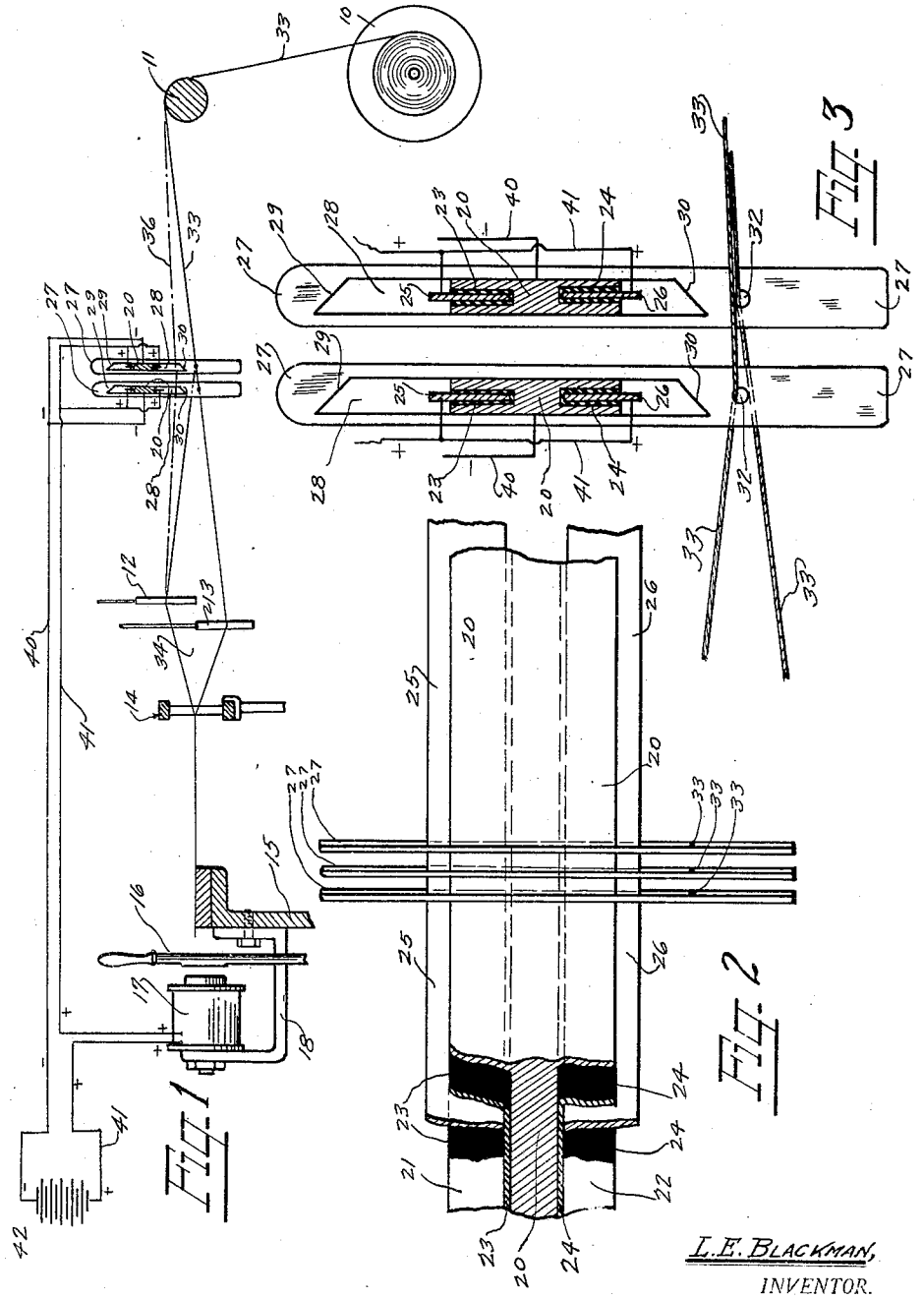


FIG. 3

FIG. 1

FIG. 2

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COMBINED STOP MOTION AND FLOAT PREVENTER FOR LOOMS

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This invention relates to a combined stop motion and float preventer for looms and provides means whereby if the warp threads of a loom become too taut or too loose the loom will be automatically stopped.

An object of my invention is to provide a combined electrical stop motion and float preventer for looms and the like which will automatically stop the loom when the thread becomes too taut, due to the fact of any intanglement taking place in the warp or if the take-up roll and the let-off roll do not operate properly so as to cause too great a tension in the warp thread, so that the loom will be automatically stopped when any one or more of the warp threads in the warp becomes too taut.

Another object of my invention is to provide the combined stop motion and float preventer for looms which will automatically stop the loom when a warp thread becomes too taut due to any intanglement of the warp in the harness mechanism and also is adapted to automatically stop the loom when the tension of the warp becomes too loose. It is a well known fact that when certain of the warp threads become too taut in a loom due to the fact that there is some intanglement in certain of the warp threads that it will cause the shuttle to fail to go between the proper warp threads and will produce imperfect cloth having what is termed as floats therein, and it is an object of this invention to automatically stop the loom to prevent such floats from occurring when any one or more of the warp threads become too taut to cause the shuttle to ride over or under the same when it should do otherwise, and in combining with this automatic float preventer I provide stop motion means whereby the loom will be stopped when the threads become too loose in the same.

When any foreign substance is woven into the fabric, it causes certain of the warp threads to become tauter than the other threads and, therefore, will raise the stop wires to stop the loom.

When the take-up roll has foreign substances wound thereinto such as bunches of loose threads and the like, it will cause a tautness to occur in a portion of the warp threads and, therefore, stoppage of the loom will also occur, due to the raising of certain of the drop wires.

When the take-up roll stops operating, the warp and cloth becomes loose and the movement of the lay of the loom and the harness mechanism will cause the stop wires to fly upward on account of inertia and close the circuit to stop the loom, as these members will fly upward quickly and cause the circuit to be closed in the same manner as if the warp threads were stretched too tautly.

Some of the objects of my invention having been stated other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a diagrammatic side elevation of a portion of a loom showing my invention applied thereto;

Figure 2 is an enlarged end elevation with a portion in cross-section of the bar and a few of the drop wires of my mechanism;

Figure 3 is an enlarged cross-sectional view showing my invention.

Referring more specifically to the drawings the numeral 10 indicates the let-off roll of a loom with a resiliently mounted roll 11 and the harness mechanism is indicated by the reference characters 12 and 13 and the lay of the loom by the reference character 14, the framework of the loom by the reference character 15, the shipper lever by reference character 16 and a magnet for releasing the shipper lever is indicated by the reference character 17 which magnet is supported by a conventional bracket 18. The parts thus far described are the conventional parts in an ordinary loom, and it is with these conventional parts of a loom that I desire to associate my invention therewith.

It has heretofore been old to provide a plurality of transversely disposed bars with an insulated transversely disposed bar disposed in the top of the first named bars with a drop wire for each thread of the warp adapted to be allowed to fall and close a contact between the main supporting bar and the insulated bar to automatically stop the loom. In my invention I use this principle but apply the same principle to the bottom side of the

main supporting bars and I carry out my invention by placing a plurality of transversely disposed bars 20 across the loom, and these bars 20 have channels 21 and 22 in the upper and lower sides thereof with insulating materials 23 and 24 placed on each side of these channel portions and also in the bottom portion thereof, and in these channels 21 and 22 after having placed the insulating materials therein I mount the bars 25 and 26 and this combination of elements is adapted to support a plurality of drop wires 27. These drop wires 27 have a slot 28 therein, and in the upper end of this slot I provide the sloping surface 29, and at the bottom of these slots I provide a similar sloping surface 30. These slots 28 permit the drop wires 27 to be mounted on the bar 20 and associated parts, and each of these bars 27 in the lower portion thereof has a hole 32 through which the warp threads 33 are adapted to be passed.

The warp threads 33 lead through the harness mechanism and through the loom and onto a take-up roll, not shown, onto which the woven cloth is wound by means of the take-up mechanism after the shuttle has passed through the space 34 in front of the lay of the loom while the lay of the loom is back next to the harness.

The tension of the warp threads 33 is normally such that the weight of the drop wires 27 will sag the same so as to cause the drop wires to occupy the position normally as shown in the drawings, but when a tangled place occurs in any portion of the warp or for any reason anything occurs which would cause a tightening of the warp and in stretching of the same to cause a float to occur, and to cause the warp or any portion thereof to become stretched and rise up toward the dotted line 36, and this will raise the drop wires and cause the surface 30 to press against the bars 22 and due to the sloping surface 30 the left-hand side of the drop wires as shown in the figures will press against the side of bar 20 and complete an electric circuit through the drop wire and connect bars 20 and 26 together to form an electric circuit to the magnet 17 to automatically release the shipper lever and stop the loom. I provide these wires 40 and 41, the wire 40 being connected to one side of the source of electric energy 42, and is led to the bars 20 while from the other side of the source of electrical energy the wire 41 is led which has the magnet 17 in series therewith, and this wire 41 leads to the bars 25 and 26 as shown in the drawings, so that it is evident that when a portion of the warp thread or all of the warp threads become too taut for any reason, as for example when the take-up roll and let-off roll do not function in unison or when any intanglement occurs in certain of the warp threads to cause a function thereof this will cause the drop wires 27 to raise upwardly and stop the loom, and thereby prevent the formation of floats.

It is likewise evident that when a thread breaks in the warp or should the entire warp become too loose for any reason that this will allow the drop wire 27 to drop downwardly to cause the surface 29 to engage the bars 25 and likewise form an electrical circuit between bars 20 and 25 and automatically stop the loom. This therefore is a combined stop motion and float preventer and is adapted to operate at any time the warp threads do not occupy approximately a normal position and do not have a normal tautness thereon, as when a sub-normal or super-normal tautness is applied to the warp or any portion thereof it will automatically stop the loom, the downward movement being due to a broken thread or to a looseness of the warp, and the upward movement due to being due to any cause which will cause a warp thread or a plurality of warp threads to become too taut which will result in the formation of floats, and by the use of my invention I accomplish a double purpose of providing a combined stop motion and float preventer.

In the drawings and specification I have set forth a preferred embodiment of my invention, and although specific terms are employed they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claims.

I claim:

1. In a float preventer for looms, a plurality of transversely disposed bars, other transversely disposed bars mounted in the top and bottom edges of said first named bars and being insulated therefrom, a plurality of drop wires mounted on said bars, electrical connections between the two portions of each bar and a magnet on the shipper lever of the loom, the dropping or raising of any of the drop wires being adapted to complete the electric circuit between the two portions of said bars to automatically stop the loom.

2. In a combined stop motion and float preventer for looms, a transversely disposed bar having a plurality of drop wires thereon, each drop wire being adapted to be supported in normal position by the normal tension of the warp passing therethrough, insulated bars mounted in the top and bottom portion of said first named bar, electrical connections between the insulated bars and a magnet associated with the shipper lever, electric connections between the other side of the magnet and the first named bar, said drop wires being adapted to form an electrical connection between the two sets of bars when the drop wire is allowed to assume a position other than normal when the warp assumes a position other than normal.

In testimony whereof I affix my signature.

LAURENCE E. BLACKMAN.