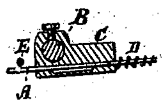
2 Sheets--Sheet 1.

T. ISHERWOOD.

Weft-Stop Mechanism,

No. 168,158. Patented Sept. 28, 1875.

Fig. 4.



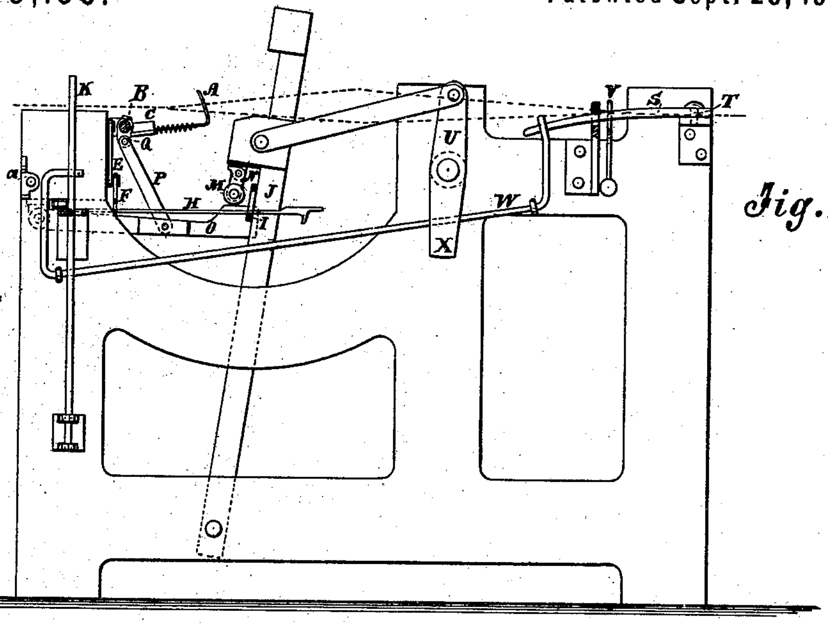


Fig. 1.

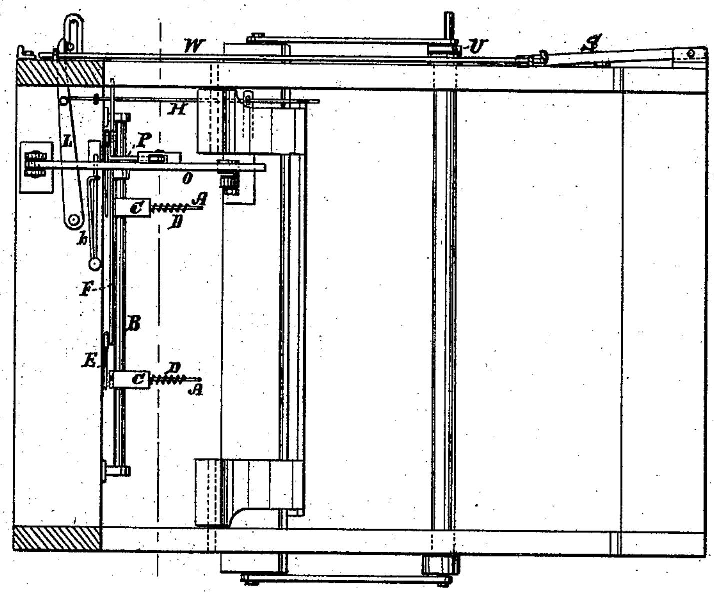
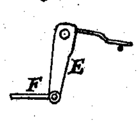


Fig. 2.

Fig. 5.



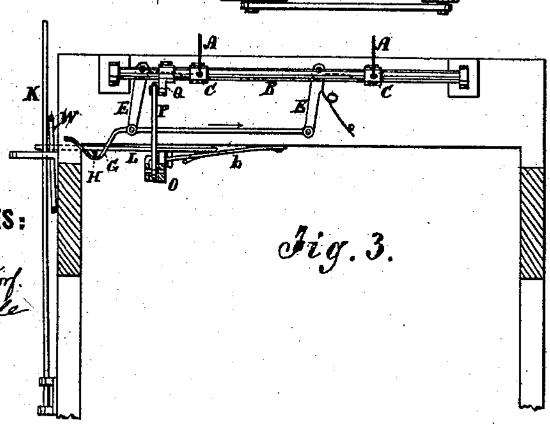


Fig. 3.

WITNESSES:

A Rennewendorf.
F. McArdle

INVENTOR:

T. Isherwood

BY Munn & Co

ATTORNEYS.

2 Sheets--Sheet 2.

T. ISHERWOOD.

Weft-Stop Mechanism,

No. 168,158. Patented Sept. 28, 1875.

Fig. 7.

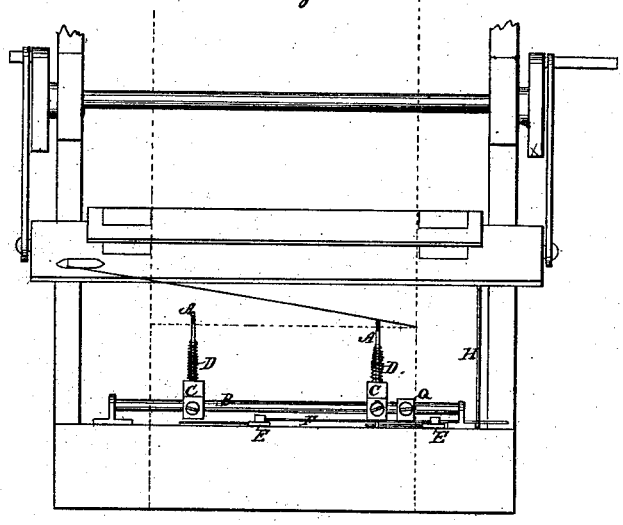


Fig. 8.

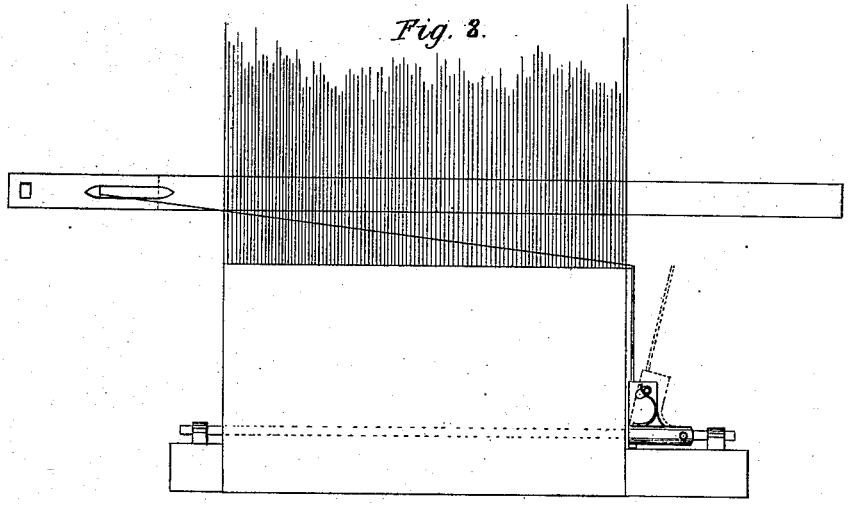
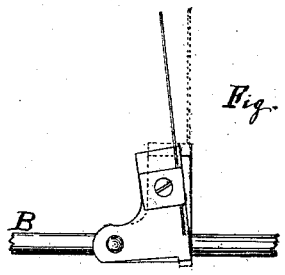


Fig. 6.



WITNESSES:

Chas. A. Pettit

Edwd W. Byrn

INVENTOR:

Thos. Isherwood

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS ISHERWOOD, OF WESTERLY, RHODE ISLAND.

IMPROVEMENT IN WEFT-STOP MECHANISMS.

Specification forming part of Letters Patent No. **168,158**, dated September 28, 1875; application filed March 6, 1875.

To all whom it may concern:

Be it known that I, THOMAS ISHERWOOD, of Westerly, in the county of Washington and State of Rhode Island, have invented a new and Improved Weft-Stop Motion, of which the following is a specification:

The object of this invention is to contrive a simple and efficient weft-stop motion, whereby the tension of the weft against the feelers, when the shuttle flies from box to box, and during the time the latter is going back, will actuate them, and, in the absence of the weft, cause the shipper to be thrown off a half a revolution sooner than when the action is caused by the weft being carried against the feelers by the reed, thereby stopping the loom in the same pick in which the weft breaks, and saving loss of time and waste of yarn, as all the picks made in fancy-looms using two or more shuttles, after the break, have to be taken out by the weaver. It is also designed to be so contrived that it will not be in the way of the weaver in taking out and putting in the shuttles.

The invention consists essentially of a couple of feelers on a rock-shaft, along the inside of the front beam, and preferably below the cloth, (but they may be above it,) which feelers are swung up (or down) half an inch, or thereabout, from the cloth, just before the shuttle comes out of the box, and when the latter is moving back, by a tilting roller-cam on the lathe, and when the weft is properly delivered the feelers are pushed back lengthwise, to prevent stopping the loom, against light springs by the pressure of the weft-thread, caused by the drag of the shuttle as it approaches the end of its flight. The feelers swing down and back out of the way as soon as the weft is delivered, and lift, by means of elbow-levers, a hooked tripping-rod, which is so arranged that when it is not lifted up it will be caught by one of the swords of the lathe, and will pull off the shipper; but when so lifted the shipper is not tripped. There is also a secondary stop, which consists of a spring that is released and thrown out in front of the crank, or an arm on the crank-shaft, when the shipper is thrown off, and arrests the crank-shaft in a half-revolution after the shipper is thrown, to stop the lathe about one inch from the cloth, and before the harness-motion and box-motions change.

Figure 1 is a side elevation of a loom having my improved weft-stop motion applied to it. Fig. 2 is a horizontal section. Fig. 3 is a sectional elevation taken on the line *x x* of Fig. 2. Fig. 4 is a detail of the feeler arangement in section. Fig. 5 is a detail of the elbow-lever contrivance for raising the tripping-hook in side elevation; and Figs. 6 and 8 show a modification of the feeler contrivance, adapting it for being arranged outside of the cloth. Fig. 7 is a detail view, showing the lay-race, shuttle, weft-thread, breast-beam, and feeler when the shuttle reaches the point on the race where the weft begins to bear on the end of the feeler to press it toward the beam.

Similar letters of reference indicate corresponding parts.

A represents the feelers, which are arranged on the rock-shaft B, so that they can slide lengthwise in the blocks C, and they have a light spring, D, for pushing them out toward the end. The power of these springs is intended to be less than the tension of the weft produced by the drag of the shuttle, by which it is designed that the feelers shall be pressed back when the weft is delivered all right, the weft-thread, as the lathe moves back and the shuttle approaches the end of its flight, pressing against the upright end of the feeler. When so pressed back the end of the feeler next to the beam will catch under an elbow-lever, E, pivoted on the beam, and connected with the rod F, having the V-shaped bend G, in which the tripping-hook H rests, and when the feelers A descend they will raise one end of the elbow-lever, and thereby move the rod F, so that it will raise the hook up in the slotted plate I on the lathe-sword J, and hold it so that it will not be pulled back, and thus will not throw off the shipper-lever K by pulling the lever L, to which it is attached; but when the weft breaks and fails to push the feeler back the rod F will remain at rest, and the hooked rod H will remain down, so that the slotted plate I will catch it when the lathe goes back, and thereby pull off the shipper. The rock-shaft is turned to throw up the feelers into the warp by the tilting roller-cam M in the swinging block N on the lathe pressing down the cam-

lever O when the lathe runs back, the lever being connected to the rock-shaft by rod P and the short arm Q. The lever O is thrown up and the feelers swung down again by a spring, *b*. The feelers, instead of sliding lengthwise, as described, may be loosely pivoted on the shaft B, so as to swivel in a horizontal plane when acted upon by the weft, (see Figs. 6 and 8,) and bring a pin, R, on the opposite end of the feeler, under the horizontal arm of the elbow-lever E, and adapted to operate on the elbow-lever precisely as the end of the feeler operates when constructed to slide lengthwise, as heretofore shown. When so constructed to turn horizontally on a pivot or shaft, B, the feelers may be placed, if desired, on the outside of the cloth, at the selvage. (See Fig. 8.)

The secondary stop, for arresting the momentum of the loom after the shipper has been thrown off, consists of a strong spring, S, pivoted to the loom-frame at one end, T, and contrived at the other end to be thrown into the path of the crank U by a small spring, V, which is let free when the shipper is thrown off by the cranked rod W. The shipper is thrown off just as the crank-pin passes the stop S, which then swings into the path of the crank, and catches the arm X and stops the loom in the next half-revolution. The cranked rod W is held up by the shipper-lever, so as to keep the stop S out of the way of the crank when the loom is running all right.

It will be seen that by having the feelers and the rock-shaft on which they work arranged under the cloth they are entirely out of the way of the putting in the shuttle when it is thrown out, and so do not interfere with the weaver at all, as when arranged above; but they may be arranged above, if preferred.

By having delicately-adjusted springs D the feelers may be arranged very near to the cloth, as the tension of the filling will be capable of pressing them back.

a is a button to lock the rod W fast, and prevent the stop S from coming into action in case of turning the loom by hand for putting in the warp, and the like, when the shipper is off.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with the stopping mechanism of a loom, the feeler A, arranged upon a rock-shaft upon the breast-beam, and adapted to be presented to the weft-thread and withdrawn during the back movement of the lathe, and to be actuated by the tension of the weft-thread caused by the drag from the shuttle in its passage through the shed.

2. The combination of the secondary stop S, and a releasing contrivance adapted to be let free when the shipper throws, with the crank and the crank-shaft of a loom, substantially as specified.

3. The feelers A, rock-shaft B, elbow-levers E, bent rod F, and hooked tripping-rod H, combined and arranged in the loom, substantially as specified.

4. The tilting roller-cam M on the lathe, and the cam-lever O on the front beam, combined with the rock-shaft and feelers, and arranged to present the feelers to the weft when the lathe goes back, substantially as specified.

THOMAS ISHERWOOD.

Witnesses:
T. B. MOSHER,
ALEX. F. ROBERTS.