

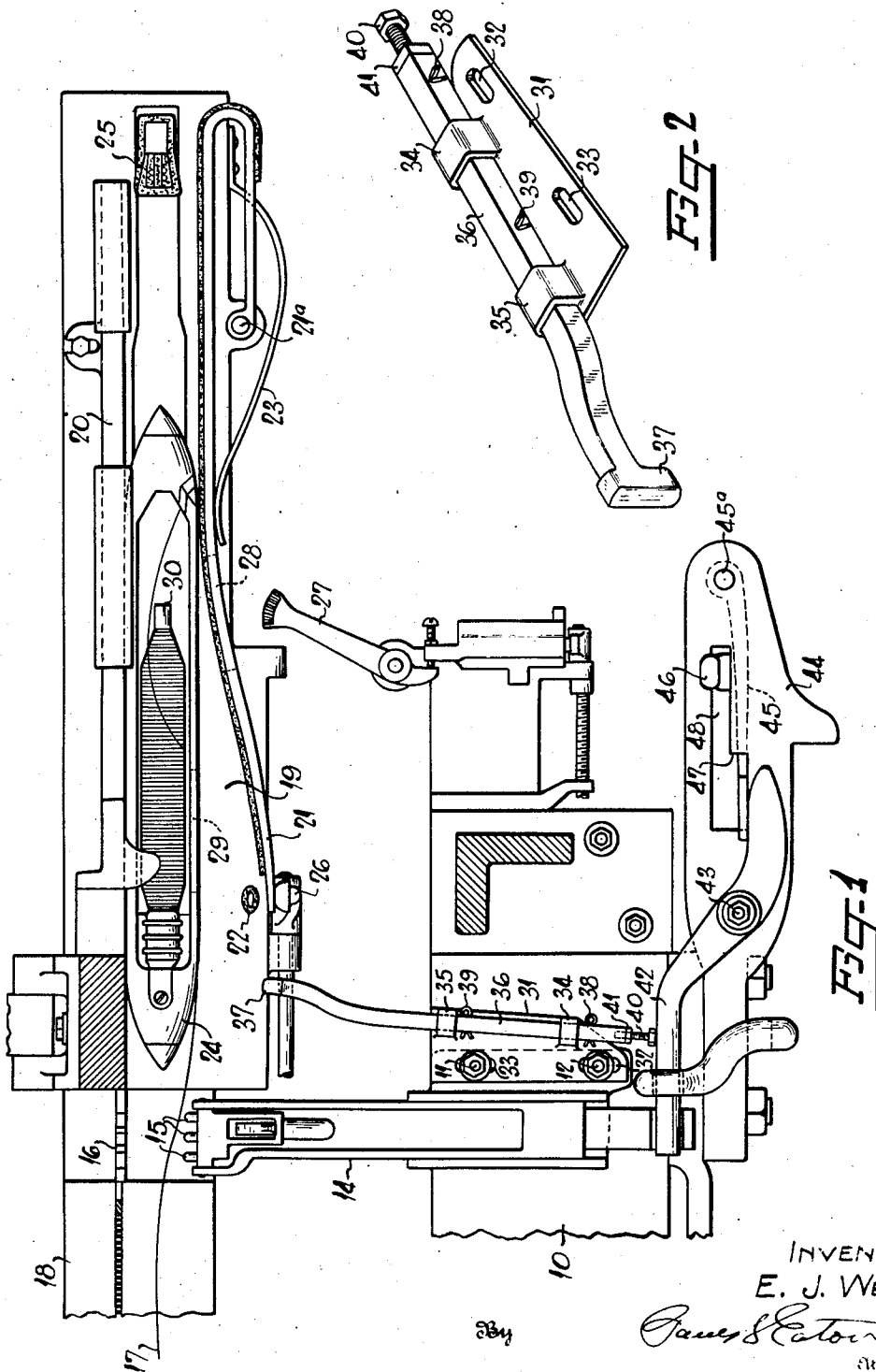
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LOOM SHUTTLE FEELER

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## LOOM SHUTTLE FEELER

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1 Claim. (Cl. 139—341)

This invention relates to a loom, and more particularly to a shuttle feeler motion for an automatic loom such as the Crompton and Knowles looms which have a mechanism for automatically replenishing the filling in the shuttle in the event of exhaustion of the yarn on the bobbin. In these looms one or more detectors are usually employed which are adapted to feel the filling and in absence of such filling the loom is automatically stopped or in case it is a battery loom, the filling is replenished. Very often when the bobbin is transferred into the shuttle a perfect transfer is not effected, thereby causing the shuttle in the shuttle box to stall when it is only partially removed therefrom. If it is a box loom and it is time for the change of another shuttle, this shuttle will cross the path and make a smash, resulting in damage to the loom and also to the warp through which the shuttle is thrown.

It is therefore, an object of this invention to provide a shuttle feeling mechanism disposed at the inside entrance of the shuttle box and which is adapted to engage the shuttle in case it has stalled due to a faulty transfer, and operate the shipper handle to stop the loom. The shuttle feeler has one end projecting toward the lay and at a slightly higher elevation, and its other end normally engaging one end of the knock-off lever. As the lay oscillates back and forth the top thereof passes beneath the end of the feeler. Should the shuttle become stalled in the shuttle box at a point opposite the feeler, then the shuttle will engage the shuttle feeler and operate the knock-off lever which, in turn, will stop the loom.

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

Figure 1 is a plan view of a portion of an automatic loom with my invention secured thereto and showing the lay with a shuttle in a stalled position therein;

Figure 2 is an isometric view of my improved shuttle feeler.

Referring more specifically to the drawing, the numeral 10 denotes a breast beam of a loom which has secured thereon by any suitable means such as bolts 11 and 12, a filling detector 14. This detector has prongs 15 pivotally secured to one end thereof which are adapted to penetrate the grate 16 and at the same time engage the filling strand 17 during the oscillation of the lay of the loom. This grate is installed in lay 18 and this lay has a shuttle box 19 in the end thereof. In the absence of the strand 17 between prongs 15

and grate 16 the shipper handle will be actuated to cause the loom to stop.

The shuttle box comprises a fixed sidewall 20 and a pivoted sidewall or binder 21, said binder being pivoted as at 21a to the top of the lay. A leaf spring 23 normally forces the free end of the binder 21 against the upstanding projection 22. But when the shuttle 24 is thrown to the extreme right-hand portion of the shuttle box 19 against the picker 25 the binder 21 will be rotated slightly in a counter-clockwise manner about pivot point 21a so that the free end thereof will engage the upstanding protector lever 26. If the shuttle should not be present in the box at the proper time, then the binder 21 will not be rotated and therefore, the lever 26 will not be actuated. Hence the parts which are operated by the lever 26 will be actuated to cause the loom to stop.

The loom is also equipped with a conventional filling feeler detector 27. The end of this feeler is adapted to penetrate slot 28 in the pivoted binder and the slot 29 in the side of the shuttle upon the forward oscillation of the loom, and if there is no yarn present upon the bobbin 30, then the loom will be stopped. The parts thus far described are conventional, however, it is deemed necessary to disclose this much of the old structure in order to more clearly show the operation of my invention.

As previously stated, a faulty transfer of a bobbin into the shuttle 23 causes the shuttle to stall in the box substantially in the position shown in Figure 1. It should be noted that when the shuttle is stalled in the position shown, the free end of the pivoted binder 21 is held against protector lever 26 which will prevent the stop motion associated with lever 26 from stopping the loom. Also, since strand 17 will be present between prongs 15 and grate 16 the stop motion associated with this detector will not be operated. In either event, the loom will not protect, and if it is time for change of another shuttle in the other end of the box loom, the same will cross the path and cause a smash-up.

I have, therefore, provided a feeler mechanism disposed between the two filling detectors at the entrance of shuttle box 19 so that the end thereof will engage a stalled shuttle and operate the knock-off lever and stop the loom. This shuttle feeler comprises a flat plate 31 which has slots 32 and 33 therein, said slots being adapted to fit over the bolts 11 and 12. Integral with the upper side of plate 31 are loops or collars 34 and 35 in which is slidably mounted a square bar 36, said

bar having a T-shaped head portion 37 integral therewith which projects toward the lay 18. Suitably spaced cotter pins 38 and 39 are adapted to penetrate the bar 36 to prevent the same from sliding out of the collars 34 and 35.

Threadably secured in the other end of bar 37 is a stud bolt 40 which has a lock nut 41 secured therearound to hold the stud bolt 40 in an adjusted position. The head of this stud bolt normally contacts one leg of knock-off lever 42 which is pivotally secured as at 43 to holding plate 44. The other end of lever 42 contacts spring lever 45 which is pivoted as at 45a beneath the holding plate 44.

As the lay 18 oscillates back and forth, away from and toward the observer in Figure 1, the top of the lay will pass beneath the T-shaped portion 37 of the shuttle feeler. If the shuttle 23 happens to be in a stalled position as shown in Figure 1, then the side of the shuttle will be moved against the end of this head portion and thereby move the shuttle feeler bar 36 toward the observer in Figure 1 to cause the knock-off lever 42 to be rotated in a counter-clockwise manner about point 43. This movement will rotate lever 45 in a clockwise manner and thereby cause the shipper handle 46 to be moved from out of engagement with notch 47, so that the same will be

allowed to move longitudinally of slot 48 to the position as shown. This operation of the shipper handle 46 will automatically stop the loom and prevent a smash-up.

In the drawing and specification there has been set forth a preferred embodiment of the 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 claim.

I claim:

In a loom having a shuttle box at each end of the lay of the loom in which the shuttles are boxed, a filling feeler, a stop motion lever engageable by the filling feeler, a filling feeler slide, a pair of bolts for securing the filling feeler slide to the loom, a shuttle feeler comprising a bracket having a pair of holes adapted to be penetrated by the bolts which secure the filling feeler slide to the loom, a slidable member mounted in said bracket and adapted to clear a properly boxed shuttle, but being adapted to be engaged by the shuttle which has not moved far enough into the shuttle box to thereby move said stop motion means to stop the loom.

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