Feb. 28, 1939. E. J. WENTZ 2,148,597

LOOM SHUTTLE FEELER

Filed Dec. 17, 1937

FIG-2

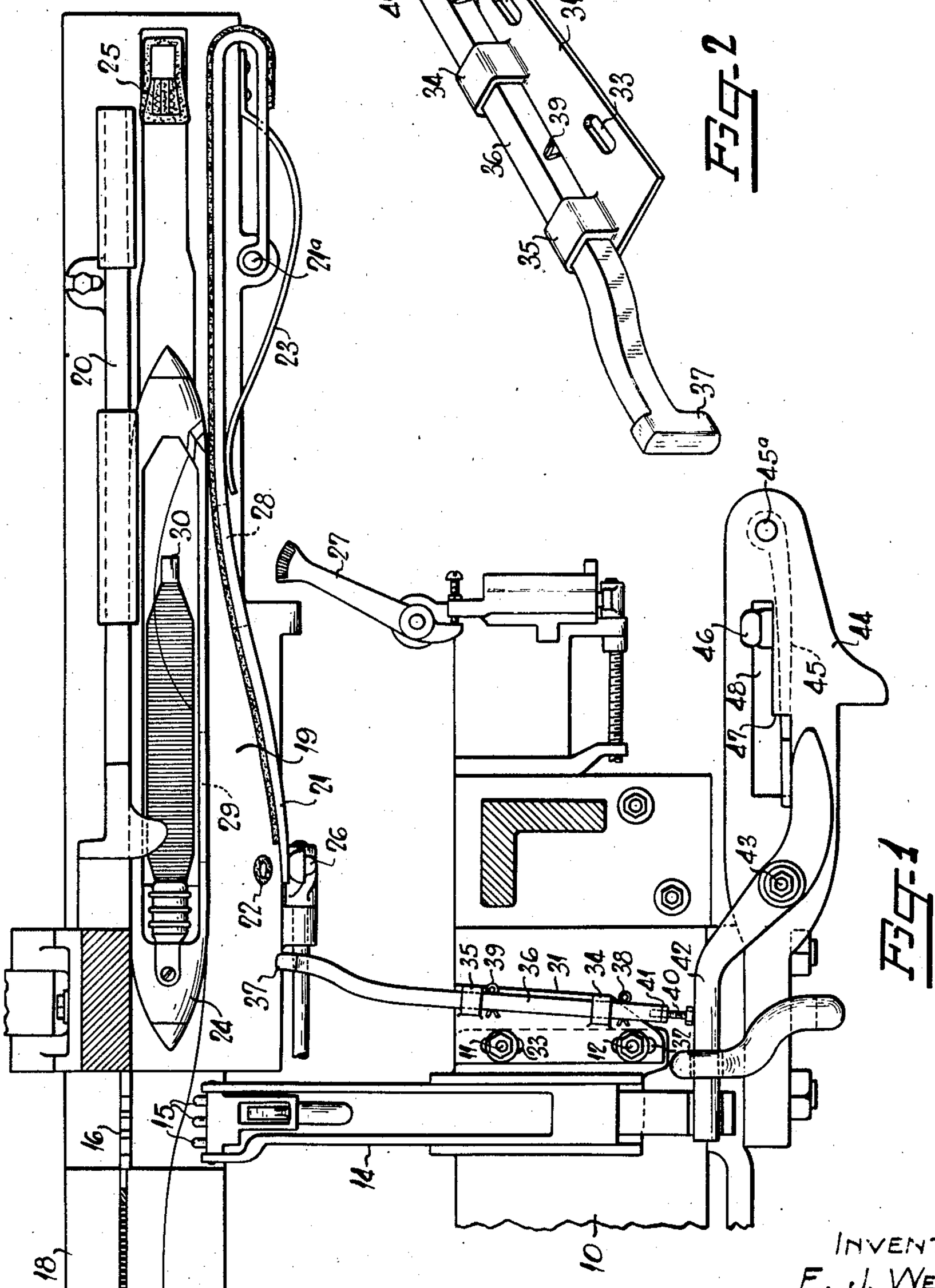

FIG-1

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Patented Feb. 28, 1939 2,148,597

UNITED STATES PATENT OFFICE

2,148,597

LOOM SHUTTLE FEELER

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Application December 17, 1937, Serial No. 180,391

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 **21***a* 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 **21***a* 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**, tnen 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 **45***a* 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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