Feb. 28, 1939. W. W. GRAICHEN 2,148,810

SMASH PREVENTER FOR LOOMS

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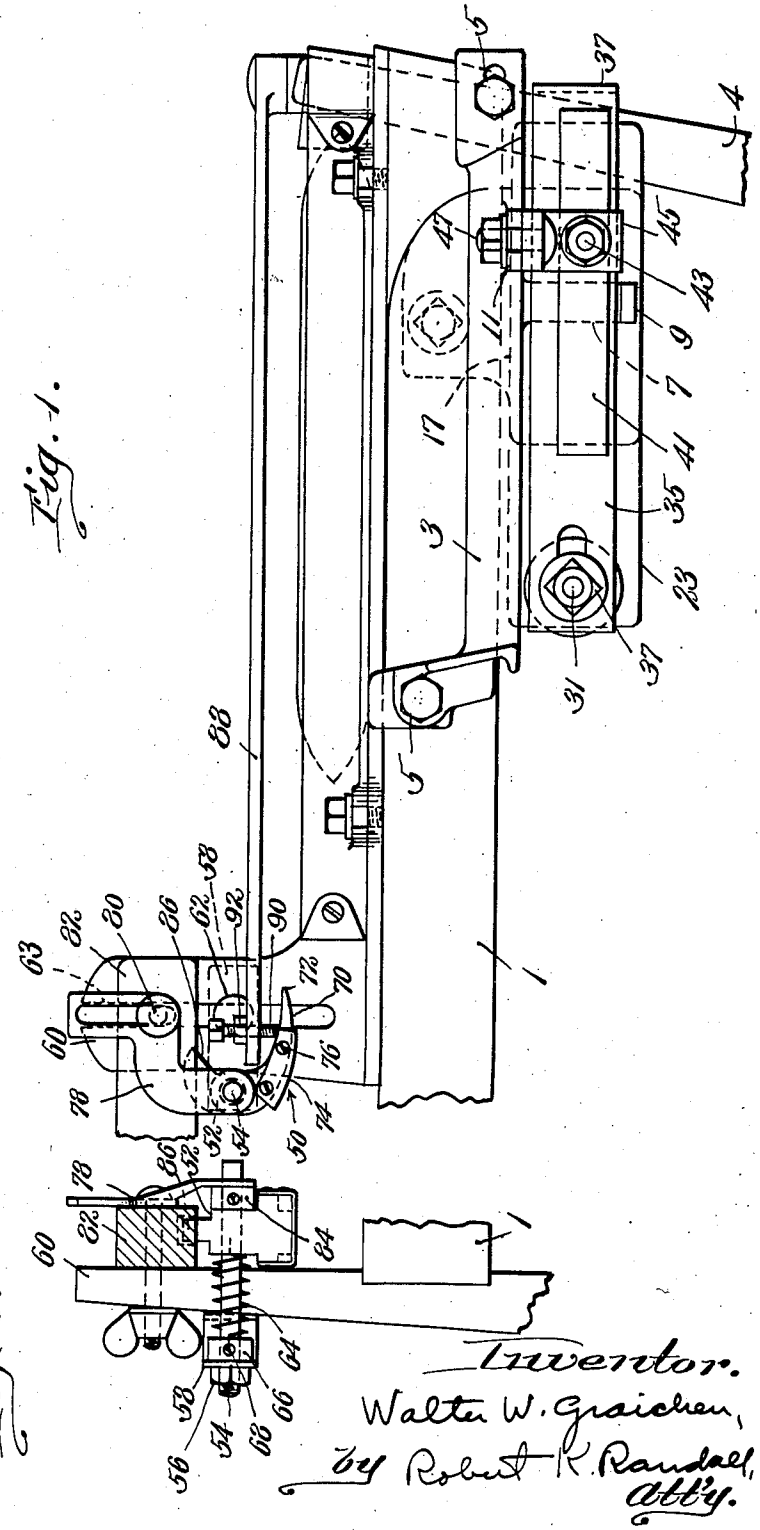

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Fig. 3.

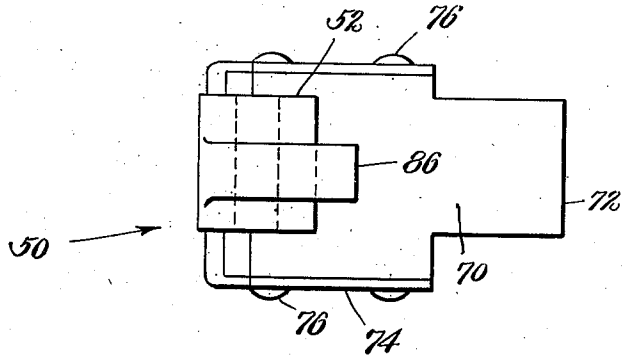
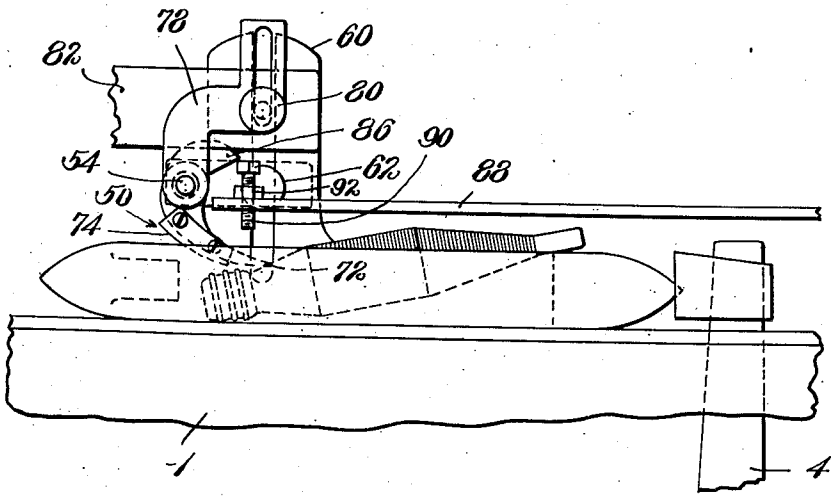


Fig. 4.



Inventor.
Walter W. Graichen,
by Robert K. Randall,
Atty.

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SMASH PREVENTER FOR LOOMS

Walter W. Graichen, Methuen, Mass.

Application July 15, 1936, Serial No. 90,648

3 Claims. (Cl. 139—254)

The present invention has to do with looms, and in particular to automatic bobbin-changing looms, and has as its general object the provision of improved devices for preventing the occurrence of the extensive and costly breakage of the warps which results from a shuttle being caught within the shed by the advancing reed to cause a shuttle smash, as it is termed, caused by a shuttle being thrown into the shed with the bobbin loose in the shuttle or protruding therefrom, the bobbin itself sometimes ripping out the warps or being driven through them by the reed to cause what is termed a bobbin smash.

The invention provides means guarding against the production of a smash of either sort, commonly resulting from the failure of the replenishing mechanism to seat the new bobbin properly in the shuttle, in the form of a shuttle check located at the mouth of the shuttle-box and above the shuttle, to be engaged by any surface in connection with the bobbin which protrudes above the top of the shuttle. This device in its preferred form is in the nature of a pawl, pivotally mounted above the mouth of the shuttle-box, so that when caught by a protruding part of the bobbin it will be forced into powerful engagement therewith and will even enter within the shuttle, as a result of the shuttle's motion toward the cloth, pinning the bobbin the harder against the shuttle race the faster the shuttle happens to be going. It jams the bobbin firmly against the shuttle race, absolutely preventing the complete emergence of the shuttle or the bobbin or both from the shuttle-box to get into the shed to cause a smash.

An illustrative embodiment of the invention is shown in the accompanying drawings in which,—

Fig. 1 is a front view of certain parts at the bobbin-changing end of the lay of an automatic loom, showing the invention applied thereto.

Fig. 2 is an elevation taken from the left-hand end of Fig. 1, showing the preventer device.

Fig. 3 is a plan view of the preventer alone.

Fig. 4 is a front elevation showing one manner of operation of the preventer.

At 1 is indicated the lay, to the cut-away outer end of which the usual guide-bar 3 for the front surface of the pickerstick 4 is affixed by cap-screws 5. This guide-bar 3 has the usual depending finger 7 with forwardly extending foot 9 to support and frictionally engage the strap 35 of the pickerstick-check, and the frontwardly extending slotted bracket 11 to which is customarily bolted a strap-guide.

In accordance with the provisions of the invention for guarding against a bobbin or shuttle smash if any part whatever of the bobbin protrudes above the top of the shuttle as the latter leaves the box, a preventer 50 is mounted at the mouth of the shuttle-box above the path of the shuttle. This member is rotatably mounted by means of its hub 52 on a stud 54 fixed by means of nut 56 in an offset bracket 58 fixed to the back of the lay-sword 60 by bolt 62 passing through slot 63 therein, and normally held in the position of Fig. 1 by a torsion spring 64, surrounding stud 54 with one end located in a hole in the proximate end of hub 52 and its other end in a hole in the proximate face of collar 66 fixed by set-screw 68 on the stud just in front of bracket 58. The spring holds the preventer 50 rotated yieldingly counter-clockwise as viewed in Fig. 1, and in the position shown in that view, during all normal operation of the shuttle with its bobbin well down inside thereof. When, however, a shuttle emerges from the box with its bobbin in any way protruding from the top thereof, the free end 72 of the preventer engages therewith, swinging about stud 54 to enter the shuttle and pin the bobbin to the shuttle race, as shown in Fig. 4, and because it acts on the same principle as a pawl its effectiveness is in direct proportion to the force and speed of the shuttle. The device will of course stop both shuttle and bobbin, though without jamming the bobbin against the shuttle race, if either end of the bobbin flies up so that the latter sticks straight up out of the shuttle; the bobbin will in this event lodge in the eye-end of the shuttle, and both will be checked by the preventer. To assure engagement, the extremity 72 of the relatively narrow tongue 70 may be provided with teeth to catch in the yarn on the bobbin. To prevent wear of shuttles through striking the device in its necessary position at the mouth of the shuttle-box, the intermediate portion is made of substantially the full width of the shuttle and covered with a leather surfacing 74 secured at its upturned sides by screws 76. Equally important, this wide portion keeps a shuttle which rises when picked from hooking the eye-end of its bobbin-cavity on the end of the tongue 70. The forward end of stud 54 is supported by a bracket 78 the slotted upper end of which is held beneath the head of bolt 80 securing the reed cap 82 to lay sword 60, a collar 84 clamped to stud 54 being interposed between the preventer and the bracket and serving to align the preventer with the bobbin and shuttle.

A tail 86 is provided on hub 52 to engage the stop surface of the box top 88 to limit the down-

ward and inward swing of the working end of the preventer. A set-screw **90**, threaded through the box top **88** and provided with a lock-nut **92**, serves to adjust the waiting position of the end **72** to the desired height with respect to the path of the top of the shuttle.

While I have illustrated and described a certain form in which the invention may be embodied, I am aware that many modifications may be made therein by any person skilled in the art, without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to the particular form shown, or to the details of construction thereof, but

What I do claim is:—

1. In a loom, in combination, a lay, a shuttle-box and other parts carried by the lay, a shuttle in the shuttle-box, a bobbin in the shuttle, and a pawl pivoted on a part carried by the lay above the path of the shuttle, pointing outwardly of the loom to intercept a surface on the bobbin protruding from the top of the shuttle and swinging downwardly with limited movement with capacity to enter the shuttle bodily to arrest the inward travel of the shuttle and of the surface thus intercepted.

2. In a loom, in combination, a lay, a shuttle-box and other parts carried on the lay, a shuttle in the shuttle-box, a bobbin in the shuttle, a pawl pivotally mounted on a lay-carried part at the shuttle-box mouth above the path of the shuttle to engage a bobbin protruding from the top of the shuttle in its travel inwardly of the loom, and by such engagement to be forced downwardly into the shuttle to arrest the latter, a stop adjustably determining the waiting position of the engaging end of the pawl with respect to the course of the shuttle, and a spring yieldingly maintaining the said end of the pawl in such position.

3. In a loom, in combination, a lay, a shuttle-box and other parts carried on the lay, a shuttle in the shuttle-box, a bobbin in the shuttle, a swinging finger pivotally mounted on a part carried by the lay and above the path of the shuttle positively engaged by the bobbin and surfaces thereon and thus forced downward to enter bodily within the shuttle to block the progress thereof, means yieldingly holding such finger retracted above the path of normal travel of the shuttle, and stop means limiting the swing of the finger.

WALTER W. GRAICHEN.