

Aug. 25, 1925.

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1,551,118

STOP MOTION FOR GILL BOX AND DRAWING FRAMES

Filed Oct. 16, 1924

2 Sheets-Sheet 1

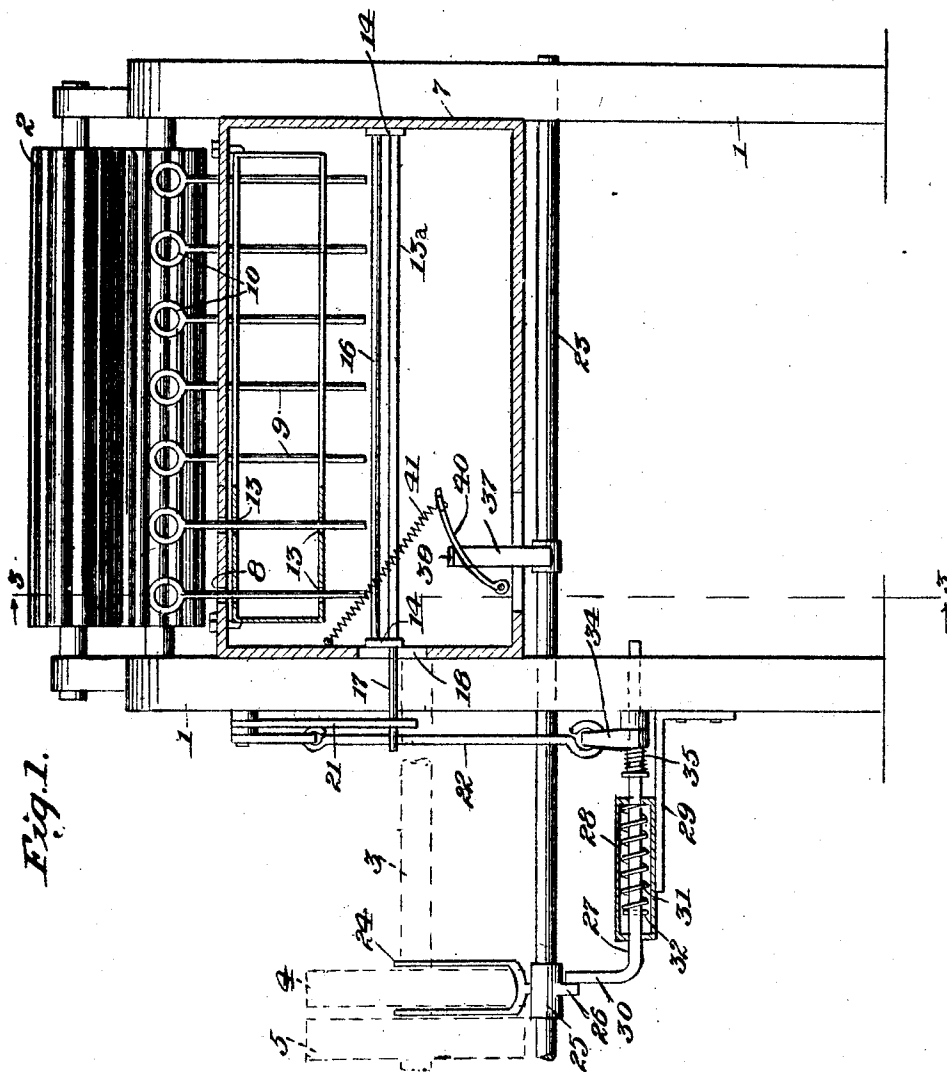


Fig. 1.

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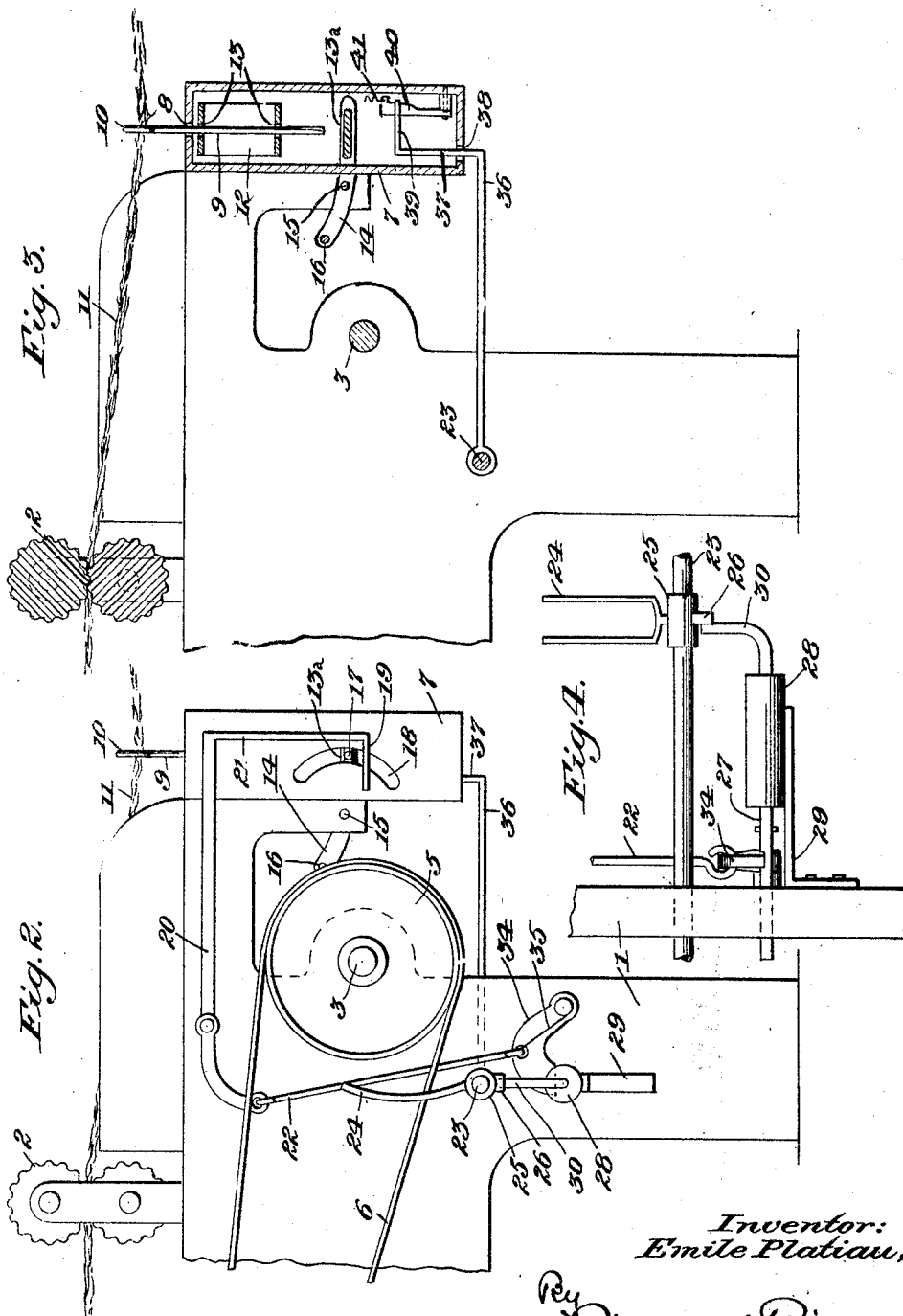
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

EMILE PLATIAU, OF WOONSOCKET, RHODE ISLAND.

STOP MOTION FOR GILL BOX AND DRAWING FRAMES.

Application filed October 16, 1924. Serial No. 743,881.

To all whom it may concern:

Be it known that I, EMILE PLATIAU, of Woonsocket, in the county of Providence and State of Rhode Island, a citizen of France, have invented certain new and useful Improvements in Stop Motions for Gill Box and Drawing Frames, of which the following is a specification.

This invention has for its object the provision of a simple, direct-acting, and efficient mechanism whereby the operation of a drawing frame will be automatically arrested when a sliver breaks, and the actuating element will be automatically returned to normal position as the motion of the machine is stopped.

One embodiment of the invention is illustrated in the accompanying drawings and will be hereinafter fully described, the novel features being particularly pointed out in the appended claims.

In the drawings, Fig. 1 is a view partly in front elevation and partly in transverse section showing my improved stop-motion mechanism mounted on a drawing frame.

Fig. 2 is a side elevation,

Fig. 3 is a longitudinal section on the line 3—3 of Figure 1,

Fig. 4 is a fragmentary rear view.

The main frame 1 of the machine may be of any approved construction, and the drawing rolls 2 are mounted thereon in the usual manner and driven from the main shaft 3 by any convenient arrangement of gearing (not shown). The main shaft 3 is equipped with fast and loose pulleys, indicated at 4 and 5, respectively, and the action of the mechanism of my invention is to ship the belt 6 from the fast pulley 4 to the loose pulley 5.

In carrying out my invention, there is secured across the front of the machine, a box 7 having openings 8 in its top each of which receives a stem 9 having a sliver-engaging ring 10 at its upper end. A sliver, indicated at 11, passes through each ring to the drawing rolls and, under normal working conditions, the rings are suspended by the slivers in the positions shown in the drawings. Secured within the box 7 at the top thereof, is a guide frame 12 which includes upper and lower plates provided with openings 13 aligned vertically with the openings 8 to receive and guide the stems 9 in rectilinear paths. Extending across the front of the main frame within the box 7

and below the guide frame 12 is a bed 13, which is arranged in the path of the stems 9 to be struck by any one of them which may be released. The bed is carried by 60 and between arms 14 which are pivoted between their ends, as at 15, to the side members of the main frame and have their inner ends, connected by a rod 16 whereby they are prevented from spreading. From 65 one end of the bed, a tapper 17 projects through a slot 18 in the adjacent end of the box to extend over the heel 19 of a trip lever or rocking arm 20, the slot 18 describing an arc concentric with the pivot 15. 70 The rocking arm or lever 20 is fulcrumed between its ends upon the side of the main frame and the heel 19 is formed at the lower end of a hanger 21 depending from its front end, while a link 22 is pivoted to 75 and depends from its rear end. A shipper bar 23 is slidably mounted transversely in the main frame below and to the rear of the main shaft 3, and a belt-shifting fork 24 is secured on said bar near the outer end 80 thereof to engage the driving belt 6. The fork is provided with a head 25 which encircles and is secured to the shipper bar and is provided with a depending lug 26 on its under side. Below the shipper bar, a knock- 85 off rod 27 is slidably mounted in a sleeve or casing 28 which is supported by a bracket 29 secured upon the side of the main frame. The knock-off rod extends through both ends of the casing 28 and its outer end is 90 turned up to form a finger 30 bearing against the inner side of the lug 26. Within the casing 28, a spring 31 is coiled around the knock-off rod and bears at its ends against the inner end of the casing and an 95 abutment 32 on the rod, the spring tending constantly to expand so that the finger 30 will be held in contact with the lug 26 and the rod will be under a constant tendency to move outwardly. To restrain the knock- 100 off rod, a notch 33 is formed in its upper side to be engaged by the free end of a dog 34 which is pivotally mounted on a pin 34, at the side of the main frame adjacent the knock-off rod and to which the lower end 105 of the link 22 is pivoted, a torsion spring 35 being coiled around the pivot of the dog and having one end attached to the dog and its opposite end attached to the pivot whereby the dog will be normally held to the 110 knock-off rod and in engagement with the notch 33 therein.

Secured to the shipper bar between the side members of the main frame, is a keeper arm 36 which extends from the bar to a point below the box 7 where it is upturned, as at 37, to pass through a slot 38 in the bottom of the box, the upturned arm 37 terminating in a forwardly projecting finger 39. Pivotaly mounted in the box 7 below the finger 39, is a bed-lifter 40 which extends upwardly and inwardly from its pivot across the path of and in contact with the under side of the keeper finger. A retractile spring 41 is attached at one end to the free end of the lifter and at its opposite end to the end of the box 7.

Normally, the tension of the slivers will hold them taut so that the rings 10 and stems 9 will be suspended in the positions shown in the drawings. Should a sliver break, the ring suspended thereon will at once drop so that the lower end of its stem will strike the bed 13_a and rock the same downward. The tapper 17 will thus be brought against the heel 19 so as to depress the same and thereby rock the lever 20 and exert an upward pull on the link 22, the dog 34 being released from the knock-off rod against the force of the spring 35. When the dog is disengaged from the knock-off rod, the spring 31 at once expands and forces the knock-off rod outwardly, the movement being transmitted immediately and directly to the shipper bar so that the belt will be unshipped and the operation of the machine stopped. When the shipper bar is shifted outwardly through the operation just described, the keeper arm 36, of course, moves with it so that the lifter 40 is freed to rise under the influence of the spring 41. The upward movement of the lifter carries it against the under side of the bed 13_a and returns the latter to its normal position. Then, after the sliver has been repaired, the shipper rod is pushed manually inward so that the belt will be returned to the fast pulley and the machine set in operation, the dog 34 automatically engaging the knock-off rod under the influence of the spring 35.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. The combination, in a stop-motion mechanism, of a shipper-bar, a rocking bed, a sliver-suspended stem above the bed, and operative connections between the bed and the shipper-bar whereby upon a break in the

sliver the stem will be dropped upon the bed and rock the same and effect movement of the shipper bar to inoperative position, and means controlled by the shipper bar to return the bed to normal position.

2. The combination of a shipper-bar, a knock-off rod acting constantly on the shipper-bar, yieldable means acting on the knock-off rod whereby to effect movement of the shipper-bar to inoperative position, a dog normally engaging the knock-off rod to hold the same against movement, a lever disposed above the dog, a link connecting one end of the lever with the dog, and sliver-controlled means to engage the opposite end of the lever and actuate the same.

3. The combination of a shipper-bar, a knock-off rod acting constantly on the shipper-bar, yieldable means acting on the knock-off rod whereby to effect movement of the shipper-bar to inoperative position, a dog normally engaging the knock-off rod to hold the same against movement, a lever disposed above the dog, a link connecting one end of the lever with the dog, a heel suspended from the opposite end of the lever, a rocking bed, a tapper extending from the bed over the heel, and sliver-controlled means for rocking the bed.

4. The combination of a shipper bar, a rocking bed, means controlled by the bed to move the shipper bar to inoperative position, a lifter to raise the bed, and means carried by the shipper bar to hold the lifter normally lowered.

5. The combination of a shipper bar, a rocking bed, means whereby depression of the bed will effect movement of the shipping bar to inoperative position, a lifter arranged below the bed to raise the same when the shipper bar is moved to inoperative position, and a keeper carried by the shipper bar and normally maintaining the lifter in a lowered position.

6. The combination of a shipper bar, a rocking bed, means whereby depression of the bed will effect movement of the bar to inoperative position, a lifter pivotally mounted at one end below the bed, a spring acting on the free end of the lifter to urge it against the bed, and a keeper arm secured to the shipper bar and projecting therefrom over the lifter.

In testimony whereof I hereunto affix my signature.

EMILE PLATIAU.