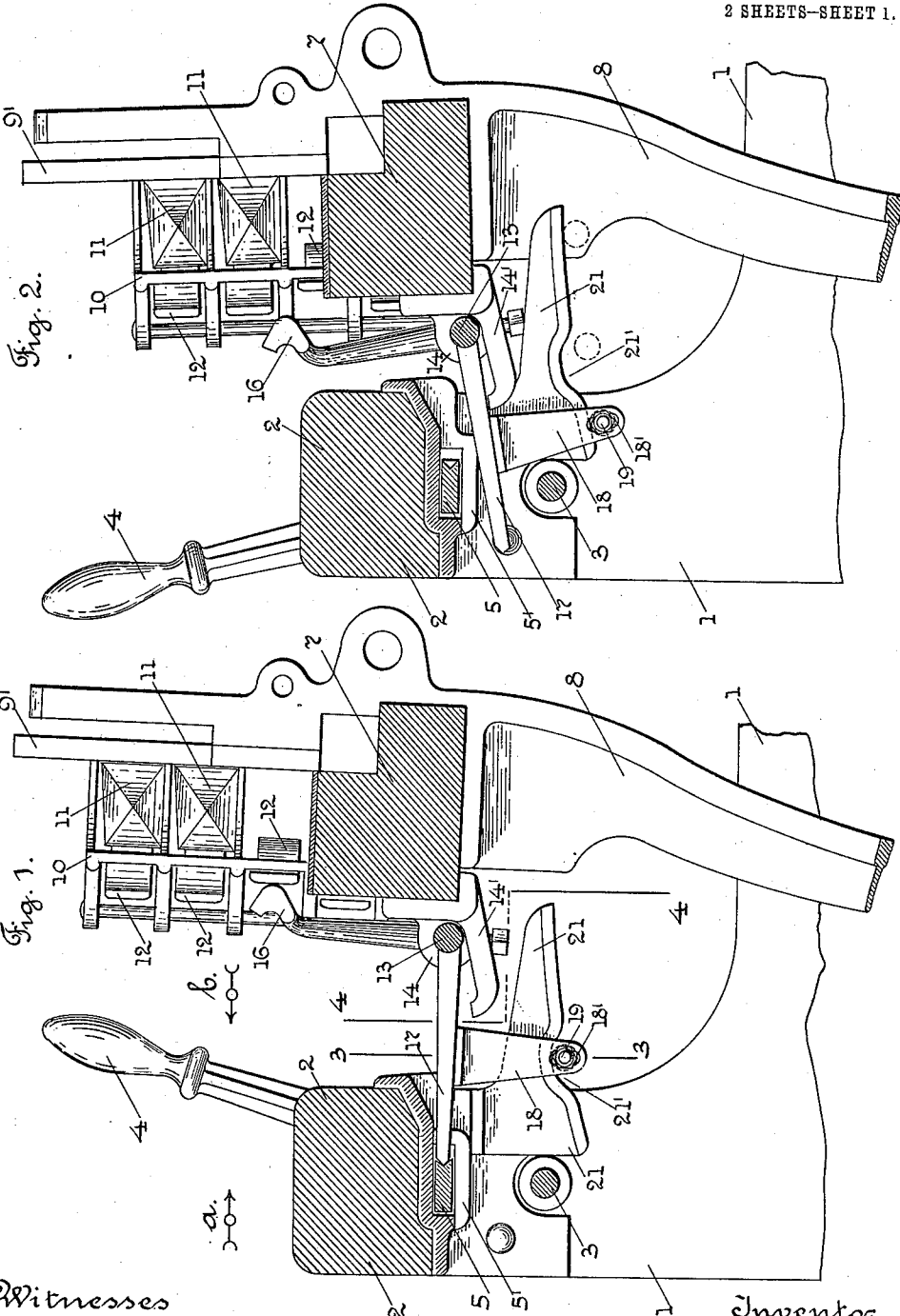


B. F. McGUINNESS.
 LOOM PROTECTING MECHANISM.
 APPLICATION FILED AUG. 1, 1906.

1,029,937.

Patented June 18, 1912.

2 SHEETS-SHEET 1.

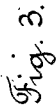
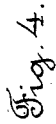


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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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LOOM PROTECTING MECHANISM.

1,029,937.

Specification of Letters Patent.

Patented June 18, 1912.

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To all whom it may concern:

Be it known that I, BENJAMIN F. McGUINNESS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Loom Protecting Mechanism, of which the following is a specification.

My invention relates to loom protecting mechanism, and particularly to that class of protecting mechanisms in which there is a protector rod carried on the lay, and spring actuated, and a binder finger fast on each end of said rod, which presses against the shuttle binder on the shuttle box or cell on the line of the race-way, and also a dagger fast on said rod, which is adapted to engage a bunter, to move the shipper lever and stop the loom in case a shuttle fails to be properly boxed at either end of the loom.

I have found in practice, that in the class of protecting mechanisms referred to, and particularly on looms for making heavy material, as sail cloth, or belting, there is unnecessary pressure of the binder finger against the shuttle binder, when the shuttle is to be picked across the lay, requiring greater power to pick the shuttle, and also unnecessary vibration and movement of the binder finger, and the dagger on the protector rod in the normal operation of the loom. And when the lay is at its forward position, and the attendant wishes to remove or insert a shuttle, it is necessary to move out and hold out the binder finger, to release the pressure of the same on the shuttle binder.

The object of my invention is to provide a supplemental device or attachment, preferably secured to the breast beam, and connected with the dagger, which engages and moves the bunter to move the shipper lever and stop the loom, and by means of which device the binder finger, which presses against the shuttle binder on the shuttle box, is positively held in its outer or inoperative position when the lay is moving through the rear part of its stroke, either in a backward or forward direction, and when the shuttle is to be picked across the lay, and is also held in its outward or inoperative position when the lay is moving through the forward part of its stroke and arrives at the extreme forward part of its stroke, to relieve the pressure on the binder

finger. Said attachment or device is so made, that it will not interfere with the proper movement of the binder finger and of the protector rod, to cause the dagger fast on said rod to engage the bunter and move the shipper lever to stop the loom, in case a shuttle fails to be properly boxed.

My invention consists in certain novel features of construction of my improvements, and more particularly in providing a plate or stand, preferably secured to the breast beam, and in vertical alinement with a dagger, or an arm on the rock shaft carrying the binder finger, and provided with a recess intermediate its engaging surface or edge, or so shaped on its engaging surface or edge as to cause the binder finger to be held in its outward or inoperative position, during the rear stroke of the lay, and also the forward stroke and at the extreme forward movement of the lay, but allow the binder finger to be moved inwardly to bear against the binder intermediate these two positions, to cause the stopping of the loom in case a shuttle fails to be properly boxed.

In my improvements my protecting mechanism is so constructed and arranged that the dagger will be maintained normally in an inoperative position during the normal running conditions of the loom, and the adjustment or change in the action of the shuttle checking or binding means, in no way varies the operation or adjustment of the protecting mechanism, the function of the latter being separated from that of the shuttle checking means. And in my improvements the dagger is normally inoperatively positioned, that is it moves in such a position that it will not stop the loom, and it is moved from this position only when the shuttle is improperly boxed and the loom is to be stopped, consequently the raising and lowering of the dagger on each lay movement is avoided, and the dagger is normally maintained in a fixed inoperative position during the entire lay movement.

I have only shown in the drawings detached portions of a loom protecting mechanism of the class referred to, with my improvements applied thereto, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a cross sectional view of a lay with four drop shuttle boxes, and of the breast beam; 110

and of the protecting mechanism, with my improvements combined therewith; the protecting mechanism is shown in its operative position. Fig. 2 corresponds to Fig. 1, but shows the lay in its front position, and the shuttle boxes in their intermediate position, and the protecting mechanism in its inoperative position. Fig. 3 is a section, on line 3, 3, Fig. 1, looking in the direction of arrow *a*, same figure, and, Fig. 4 is a section, on line 4, 4, Fig. 1, looking in the direction of arrow *b*, same figure.

In the accompanying drawings, 1 is a detached portion of a loom side or end frame, 2 is the breast-beam, 3 is the shipper rod, having a shipper lever or handle 4 fast on each end thereof, and operated in the usual way by the bunter 5, supported in the bunter stand 5', when the bunter is engaged by the dagger of the protecting mechanism. 7 is the lay, 8 the lay-sword, 9 the drop shuttle box frame at one end of the lay, having the guide 9' thereon for the drop shuttle boxes 10, in this instance four in number, carrying shuttles 11, only two shuttles being shown. At the front of the shuttle boxes 10 are the usual shuttle binders 12, actuated by binder springs, not shown, in the usual way.

The protector rod 13 is mounted in bearings 14 on the front of the lay-beam, only one bearing being shown. A spring 15 actuates the protector rod 13 in the usual way. Fast on each end of the protector rod 13, only one end being shown, is a protector or binder finger 16, adapted to engage with its upper end the inner end of the binder 12 of the shuttle box in line with the race-way. Fast on the protector rod 13 is the dagger 17 which, by the rocking movement of the protector rod 13, is adapted to be moved into the path of and engage the bunter 5, as shown in Fig. 1, to move the shipper lever 4 and the shipper rod 3 to stop the loom. An arm 14', extending out from the bearing 14, under the dagger 17, limits the downward movement of said dagger.

All of the above mentioned parts are of the usual and well known construction in protecting mechanisms of the class referred to.

I will now describe my improvements. The dagger 17 has in this instance secured thereto in any suitable manner the downwardly extending arm 18, which has in this instance an elongated slot 18' in its lower end, to receive and have adjustably secured therein a stud 19, on which in this instance is loosely mounted a roll 20, see Figs. 3 and 4. Secured, in this instance, on the underside of the bunter stand 5', is a plate or stand 21 extending inwardly and in the path of and adapted to be engaged, in this instance on its lower edge, by the roll 20 on the stud 19. The lower or engaging edge of the plate or stand 21 has two substantially straight portions at the ends thereof, and a

recessed or cam-shaped portion intermediate these straight portions, into which the roll 20 may enter, as shown in Fig. 1, to allow the binder finger 16 to move inwardly.

From the above description in connection with the drawings the operation of my improvements will be readily understood by those skilled in the art.

When the lay starts on its forward movement, the roll 20 on the stud 19 on the arm 18 secured to the dagger 17, will be in the position shown by broken lines at the right in Fig. 2, and in engagement with the lower edge of the plate or stand 21. As the lay moves forward the roll 20 will travel on the lower edge of the plate 21, and will positively hold down the dagger 17, and hold the binder finger 16 away from the binder, and at the same time prevent any vibration or movement of the binder finger 16 and the dagger 17.

In case the shuttle is not properly boxed in its cell, to hold the shuttle binder 12 in its outward position, the spring 15 on the protector rod 13 will act to rock the protector rod 13 and move inwardly the upper end of the binder finger 16, and raise the dagger 17, the recess 21' in the lower edge of the plate 21 receiving the roll 20 as the lay moves forward and allowing the dagger 17 to be raised and engage the bunter 5, as shown in Fig. 1, to knock off the loom. In case the shuttle is properly boxed, the shuttle binder 12 will hold out the binder finger 16, and the continued forward movement of the lay will cause the roll 20 to pass by the recess 21' in the plate 21, and travel on the lower edge of said plate, on the outer end thereof, to keep the dagger 17 in its lowered position, and hold the binder finger 16 away from the shuttle binder, as shown in Fig. 2, when the lay is in its forward position, thus enabling the attendant to remove and replace the shuttle, if desired, without the necessity of holding out the binder finger. The same operation will take place on the backward movement of the lay. The binder finger 16 is held away from the shuttle binders when the shuttle boxes are changing, as shown in Fig. 2, to prevent any pressure of the binder fingers on the binders.

It will thus be seen, that in the normal operation of the loom, by means of the plate 21 and the arm 18 carrying the roll 20, the binder finger of the protecting mechanism will be positively held away from the shuttle binder, during the rear stroke of the lay, and also during the forward stroke to allow free movement of the boxes, and at the extreme forward position of the lay to prevent it from pressing against the same by the action of the spring 15 on the protector rod 13, except at a predetermined time, when in case a shuttle is not properly boxed, the binder finger 16 will be free to be moved,

and the dagger 17 will be raised into a position to engage the bunter 5, and at the same time the binder finger and dagger are positively held, and prevented from vibrating or moving, during the normal operation of the loom.

It will be understood that the details of construction of my improvements may be varied if desired, and they may be used on looms with a single box at each end, or on looms with one or more boxes at each end, or at both ends. The arm 18 may be attached to the protector rod 13, instead of to the dagger 17, or to some other part of the protecting mechanism, if preferred.

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

1. In a loom protecting mechanism, the combination with the protector rod, a binder finger fast thereon, and a dagger fast thereon, which is adapted to be moved to engage a bunter to knock off the loom, of means for positively relieving the pressure of the binder finger on a shuttle binder, said means comprising a stationary plate having an engaging surface with a recess or offset therein intermediate its ends and an arm connected to the dagger, and carrying a stud or roll to engage said plate.

2. In a loom protecting mechanism, the combination with the protector rod, a binder finger fast thereon, and a dagger fast thereon, which is adapted to be moved to engage a bunter to knock off the loom, of means for positively relieving the pressure of the binder finger on a shuttle binder, said means comprising a stationary plate having an engaging surface with two substantially straight portions, and a recessed portion intermediate said straight portions and an arm connected with the protecting mechanism, and carrying a stud or roll to engage said plate.

3. In a loom protecting mechanism, the combination with a protector rod, a binder finger fast thereon, a dagger fast thereon, to be moved to engage a bunter to knock off the loom, and said bunter, of means for positively relieving the pressure of the binder finger on a shuttle binder, said means comprising a stationary plate or stand extending inwardly toward the lay, and having an engaging surface, comprising two substantially straight portions with a recessed portion intermediate said straight portions, a downwardly extending arm se-

cured to the dagger, and a roll on said arm adapted to travel on said engaging surface.

4. In a loom protecting mechanism, the combination with the protector rod, a binder finger fast thereon, and a dagger fast thereon, which is adapted to be moved to engage a bunter to stop the loom, of means for holding the binder finger in its inoperative position, and positively relieving its pressure on the shuttle binder, when the lay is in its rear position, and also when it is in its extreme forward position.

5. In a loom protecting mechanism, the combination with the protector rod, a binder finger fast thereon, and a dagger fast thereon, which is adapted to be moved to engage a bunter to stop the loom, of means for holding the binder finger in its operative position, and positively relieving its pressure on the shuttle binder when the lay is in its rear position, and also when it is in its extreme forward position, said means comprising a stationary plate or stand having an engaging surface with two substantially straight portions, and a recess or indentation intermediate said straight portions, said engaging surface adapted to be engaged by means on the dagger, for the purpose stated.

6. In a loom, a lay, a dagger carried by the lay, a shuttle binder, a finger connected to the dagger and extending in the path of movement of the binder as it is moved by a shuttle, and means for positively relieving the pressure of said binder finger on a shuttle binder, said means comprising a stationary plate having a recess or offset therein, intermediate its ends, and an arm connected to the dagger, and carrying a stud or roll to engage said plate.

7. In a loom, protecting mechanism, including a protector rod carried by the lay, a binder finger fast thereon, and extending in the path of movement of the shuttle binder as it is moved by a shuttle, and said shuttle binder, a dagger fast on the protector rod, and means for positively relieving the pressure of the binder finger on a shuttle binder, said means comprising a stationary plate having an engaging surface, with a recess or offset therein, intermediate its ends, and an arm, connected with the protecting mechanism, to engage said plate.

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