E. H. RYON.

SHUTTLE CHECK FOR LOOMS.

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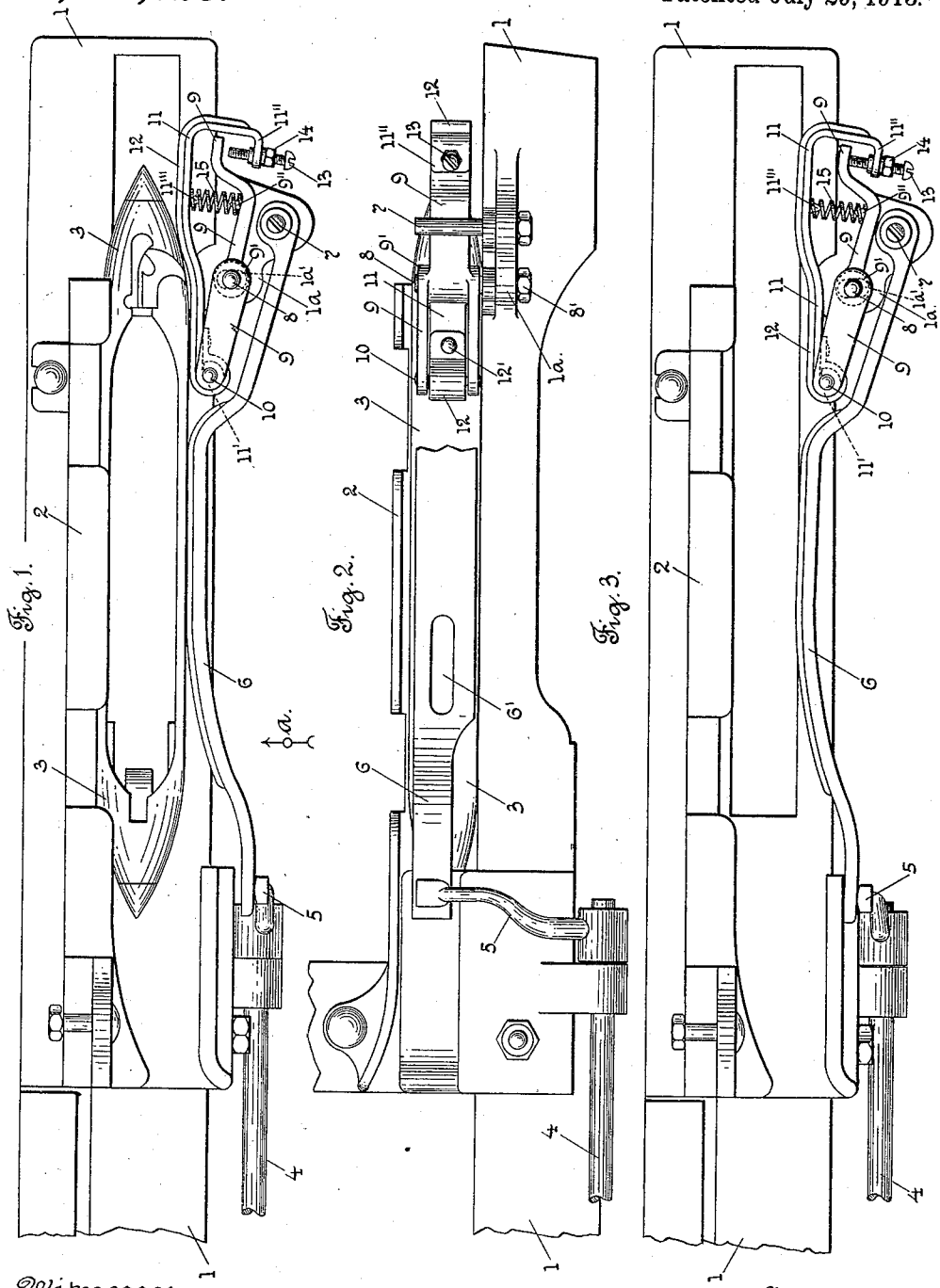

Fig. 1.

Fig. 2.

Fig. 3.

Witnesses

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SHUTTLE-CHECK FOR LOOMS.

1,068,823. Specification of Letters Patent. **Patented July 29, 1913.**

Application filed October 14, 1912. Serial No. 725,571.

To all whom it may concern:

Be it known that I, EPPA H. RYON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Shuttle-Checks for Looms, of which the following is a specification.

My invention relates to a shuttle check for looms, and the object of my invention is to provide a shuttle check of simple construction, which is adapted to be combined with a stationary shuttle box of ordinary construction, and which check is entirely independent of the ordinary shuttle binder.

My shuttle check consists preferably of an arm or lever, which is pivotally mounted, intermediate its ends, on a stud, preferably located on the inner side of the shuttle binder, near its pivot point, and preferably on the inner side of said pivot point, and in front of the shuttle box; said pivoted arm or lever has combined therewith a second arm or lever, which is pivotally mounted at one end on one end of said first mentioned arm or lever. The second mentioned arm or lever is preferably faced with leather or other suitable material, which forms the engaging surface for the shuttle. Combined with the two levers is a cushion surface, preferably in the form of a spring, which acts to form a yielding surface between said levers. Means are provided for limiting the inward movement of the first mentioned lever, at its inner end, and means are provided for limiting the inward movement of the second mentioned lever, at its outer end.

I have shown in the drawing a stationary shuttle box at one end of the lay, with my improvements in shuttle check combined therewith.

Referring to the drawing:—Figure 1 is a plan view of the right hand end of the lay of a loom with a stationary shuttle box thereon, and a shuttle therein, with my improvements applied thereto. Fig. 2 is a front view of the part shown in Fig. 1, looking in the direction of arrow *a*, same figure. The shuttle binder, shown in Fig. 1, is partially broken away, and, Fig. 3 corresponds to Fig. 1, but the shuttle is not shown, and the parts of the shuttle check shown in Fig. 1, are shown in the position they occupy when no shuttle has entered the shuttle box.

In the accompanying drawing, 1 is the right hand end of the lay of the loom, carrying a stationary shuttle box 2, with a shuttle 3, in the usual way. 4 is a rock shaft at the front of the lay, carrying the protector finger 5, which is adapted to bear at its upper end against the inner free end of the shuttle binder 6, which is pivoted at its outer end on a stud 7 at the front side of the shuttle box. The shuttle binder 6 is provided in this instance with an elongated opening 6′ therethrough for the passage of the filling feeler or detector, not shown. All of the above mentioned parts may be of the usual and well known construction.

I will now describe my improvements. At the front of the stationary shuttle box 2, and in this instance inside of the pivot point 7 of the binder 6, is a lug or projection 1^a, which has a bolt 8 adjustably secured thereon, said bolt extending through a slot in said projection 1^a, see broken lines $1^{a\prime}$, Figs. 1 and 3, so that it may be moved toward and away from the shuttle box, in the direction of the width of the shuttle, and secured in place by a nut 8′, see Fig. 2. The bolt 8 has pivotally mounted thereon the hub 9′ of a pivotally mounted lever 9, see Fig. 2, said hub being located intermediate the ends of said lever. The inwardly extending portion of the lever 9 is in this instance of yoke shape, and carries at its end a pin 10. On the inner side of the lever 9 is a second lever 11, preferably of flat metal, which has in this instance a hub 11′ at its inner end, through which the pin 10 passes, to pivotally connect the inner end of said lever 11 with the lever 9. The lever 11 has upon its inner face in this instance, a strip of leather, or other flexible material 12, which in this instance extends around the hub 10′, and is secured to the outer side of the lever 11 by a rivet 12′, see Fig. 2. The outer end of the lever 9 in this instance may engage with the pivoted end of the binder 6 when there is no shuttle in the shuttle box, and the lever 9 is free to swing on its pivotal stud 8, see Fig. 3, which prevents the inner end of said lever 9 from projecting too far into the shuttle box, and into the path of the shuttle. If preferred a stop

may be located on the inner end of the lever 9 to engage the lay, and limit the inward movement of the inner end of said lever 9. The inner end of the lever 9 may in this instance come in contact with or engage the inner surface of the shuttle binder 6, to limit the outward movement of said end, when there is no shuttle in the shuttle box. It will thus be seen that the oscillatory movement of the lever 9 on its pivot stud 8 is limited in both directions. The lever 11 has in this instance, its outer end bent outwardly and then inwardly, making it of hook shape, and its extreme hook end 11″ extends upon the outer side of the outer end of the lever 9. The outer end of the leather facing 12 on the lever 11 is secured to the outer hook end 11″ of the lever 11 in any suitable way. Turning in the hook end 11″ of the lever 11 is in this instance an adjusting screw 13, which may be turned out or in, in a threaded hole in said end, and secured in place by a nut 14. The inner end of the screw 13 is adapted to engage the outer end of the lever 9, to limit the inward movement of said lever 11.

Combined with the levers 9 and 11 is a cushion surface, in this instance in the form of a helically coiled expansion spring 15, which extends between the lever 9 and the lever 11, and is held in place in this instance by an extension 9″ on the lever 9 extending within one end of said spring 15, and an extension 11‴ on the lever 11 extending within the other end of said spring 15. The spring 15 acts as yielding means intermediate the levers 9 and 11.

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

When there is no shuttle in the shuttle box, the parts of the shuttle check mechanism will be in the position shown in Fig. 3, with the adjusting screw 13 engaging the end of the lever 9, to limit the inward movement of the lever 11, and the lever 9, at its free end, engaging the pivoted end of the binder 6. When the shuttle enters the shuttle box, as shown in Fig. 1, the outer curved end of the shuttle will come in contact with the curved portion of the free end of the lever 11, and will move said end outwardly, and through the spring 15 will move the outer end of the lever 9 outwardly, and consequently move the inner end of said lever 9 inwardly, and cause the inner end of the lever 11, mounted on said lever 9, to bear against the front side of the shuttle, to press the same against the back of the shuttle box, independently of any pressure of the shuttle binder 6 on the shuttle, and yieldingly check the shuttle and prevent its rebounding.

It will be understood that the details of construction of my improvements may be varied if desired.

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

1. In a shuttle check mechanism for looms, a lever separate from and independent of the shuttle binder and pivotally mounted intermediate its ends, a second lever pivotally attached at one end to one end of said first mentioned lever, and yielding means intermediate said two levers, and means to limit the action of said yielding means, said second mentioned lever forming an engaging face or surface to bear against the side and beveled end of the shuttle, to hold the shuttle in position.

2. In a shuttle check mechanism for looms, a lever separate from and independent of the shuttle binder and pivotally mounted intermediate its ends, a second lever pivotally attached at one end to one end of said first mentioned lever, and free at its other end, and yielding means intermediate said two levers, and manually operated means to limit the oscillatory movement of said second mentioned lever in one direction, said second mentioned lever forming an engaging face or surface to bear against the side and beveled end of the shuttle, to hold the shuttle in position.

3. In a shuttle check mechanism for looms, a lever separate from and independent of the shuttle binder and pivotally mounted intermediate its ends, and means to limit the oscillatory movement of said lever on its pivot, a second lever pivotally attached at one end to one end of said first mentioned lever, and free at its other end, and yielding means intermediate said two levers, and means to limit the oscillatory movement of said second mentioned lever in one direction, said second mentioned lever forming an engaging face or surface to bear against the side and beveled end of the shuttle, to hold the shuttle in position.

4. In a shuttle check for looms, a shuttle binder pivotally mounted at its outer end, and adapted to bear against the side of the shuttle, a lever separate from and independent of the shuttle binder and pivotally mounted intermediate its ends on the inner side of the shuttle binder, a second lever pivotally attached at one end to one end of said first mentioned lever, and free at its other end, and yielding means intermediate said two levers, and means to limit the oscillatory movement of said first mentioned lever in both directions, and means to limit the rotary movement of the second mentioned lever in one direction, said second mentioned lever forming a yielding engaging face or surface to bear against the side and beveled end of the shuttle, to hold the shuttle in position.

5. In a shuttle check mechanism for looms, a shuttle binder pivotally mounted at its outer end, and adapted to bear against the side of the shuttle, a lever separate from and independent of the shuttle binder and pivotally mounted intermediate its ends on the inner side of the shuttle binder, and adjustable toward and away from the shuttle box in the direction of the width of the shuttle, a second lever pivotally attached at one end to one end of said first mentioned lever, and free at its other end, and a spring intermediate said two levers, and means to limit the oscillatory movement of said first mentioned lever in both directions, and the second mentioned lever in one direction, said second mentioned lever forming a yielding engaging face or surface to bear against the side and beveled end of the shuttle, to hold the shuttle in position.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."