No. 724,769. PATENTED APR. 7, 1903.

H. WYMAN.

WARP STOP MOTION FOR LOOMS.

APPLICATION FILED APR. 12, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig 2.

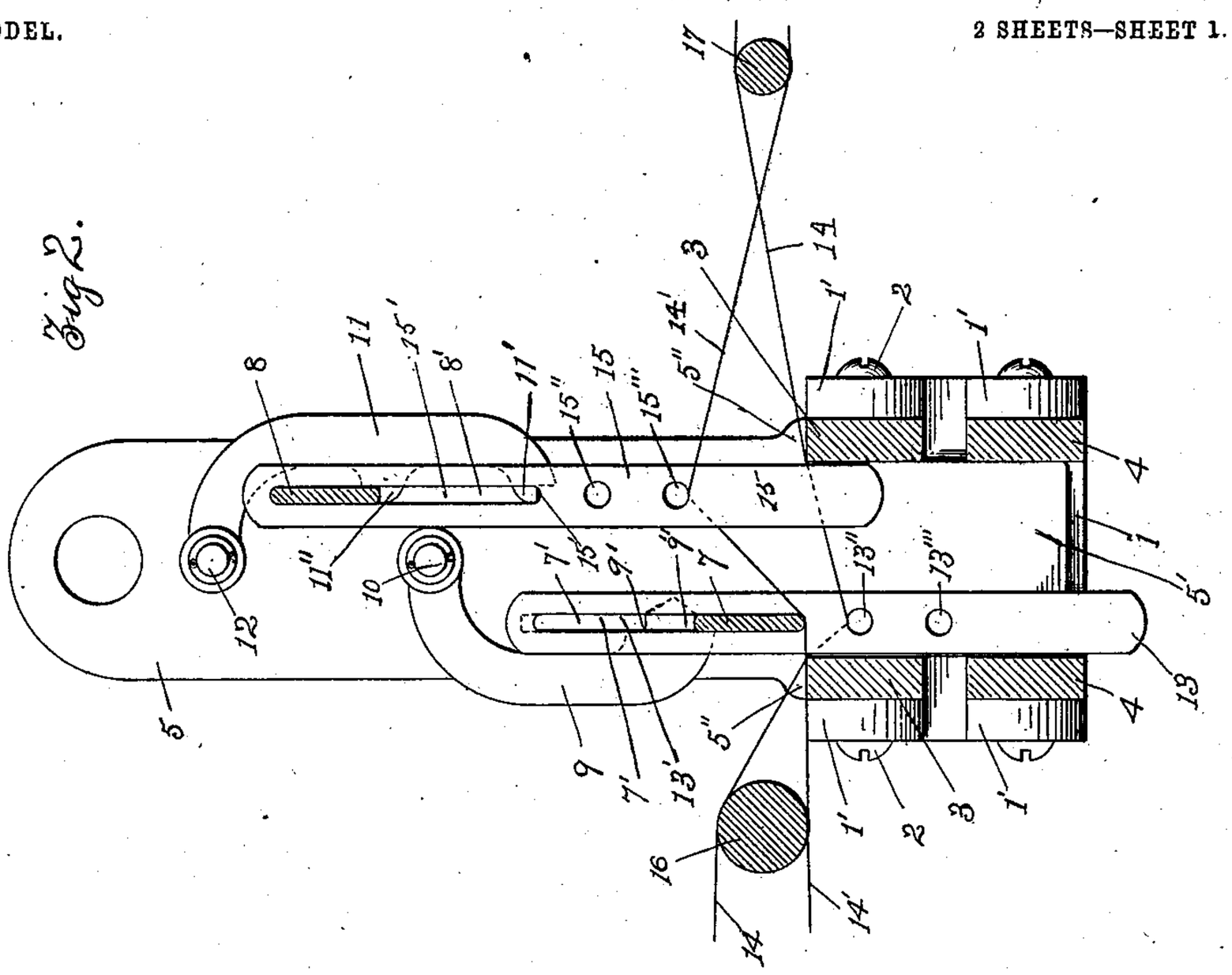
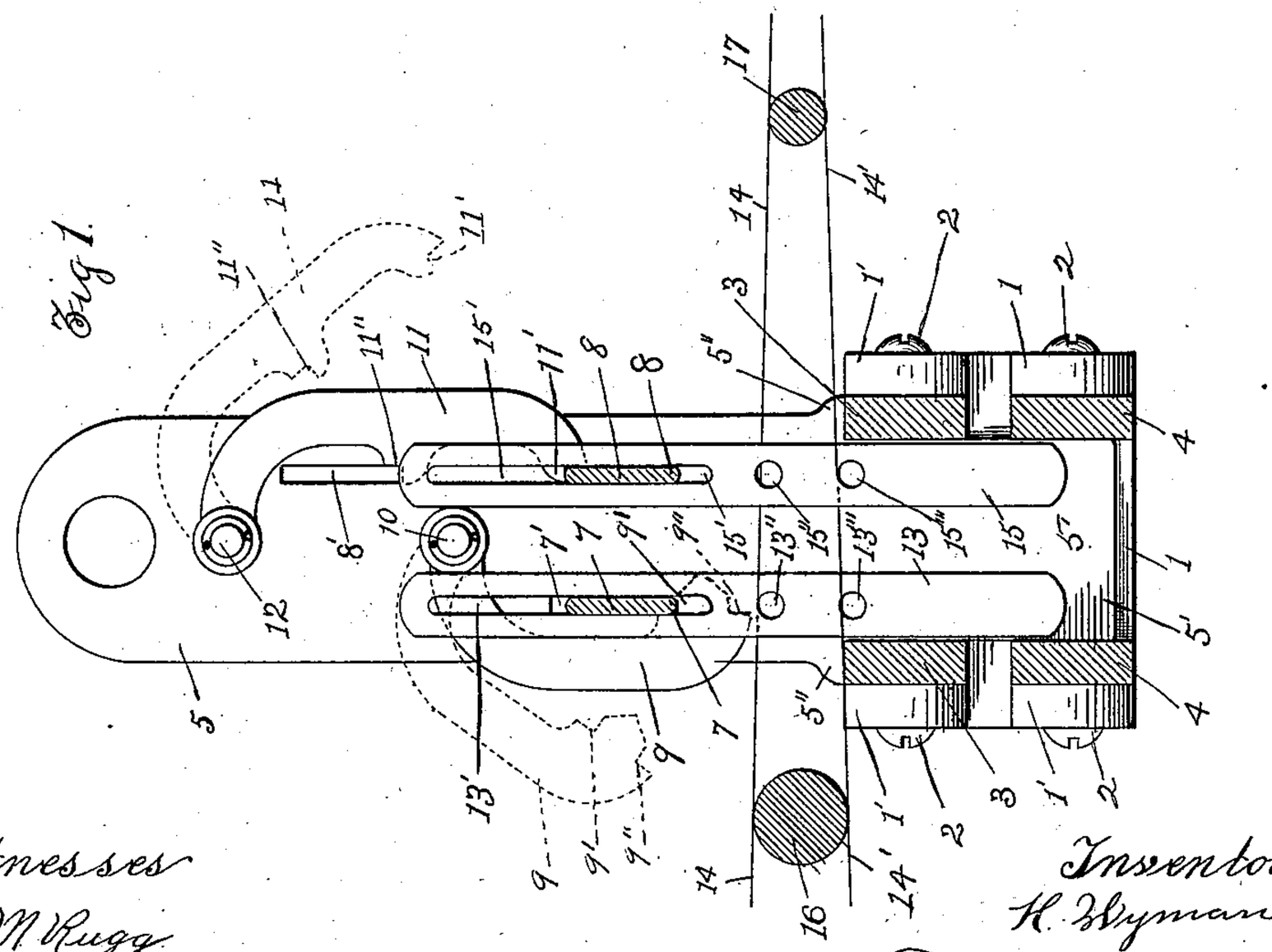


Fig 1.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig 4.

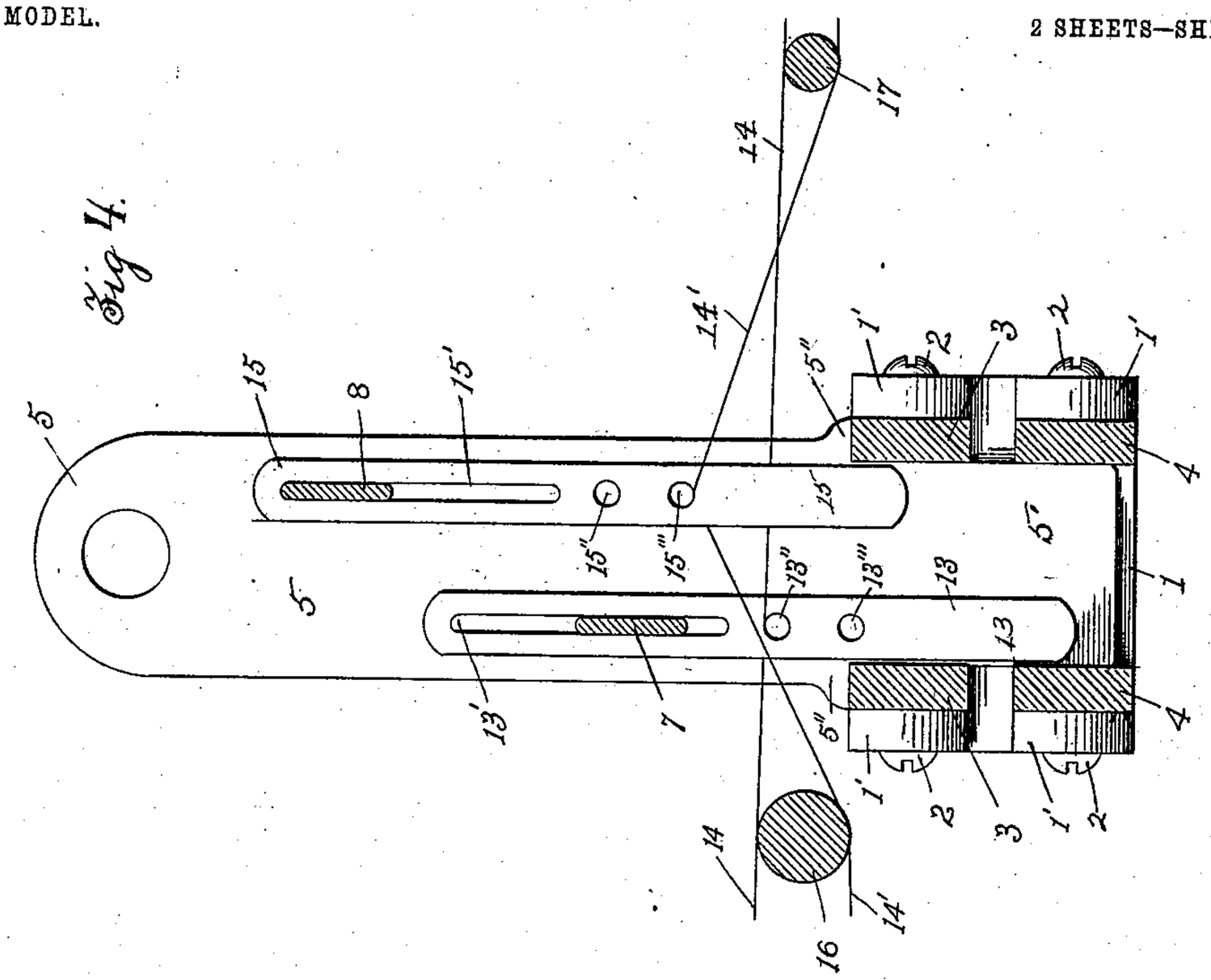
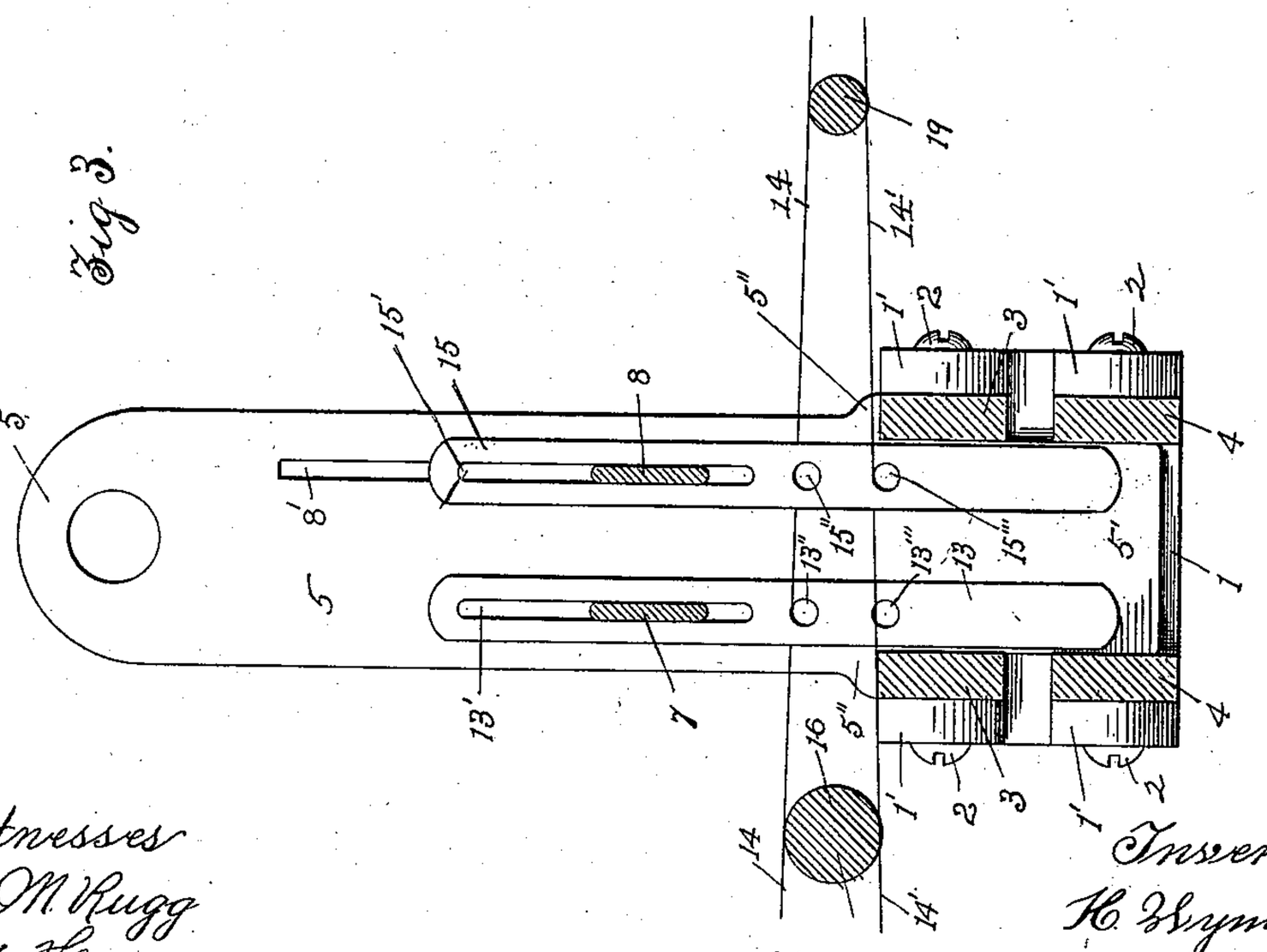


Fig 3.



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WARP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 724,769, dated April 7, 1903.

Application filed April 12, 1902. Serial No. 102,519. (No model.)

To all whom it may concern:

Be it known that I, HORACE WYMAN, 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 Warp Stop-Motions for Looms, of which the following is a specification.

My invention relates to warp stop-motions for looms, and particularly to that class of warp stop-motions in which the warp-threads are divided into two sets, one above the other, intermediate the back roll and the harnesses, extending in substantially parallel horizontal planes without any crossing of the warp-threads or the employment of any lease-rods and in which two sets of drop-bars are used arranged in parallel rows, one set of drop-bars supported in their normal position on one set of warp-threads, as the upper set, and the other set of drop-bars supported in their normal position on the other set of warp-threads, as the lower set, each set of warp-threads passing through perforations or openings in the drop-bars supported on said warp-threads. The drop-bars also have elongated openings therein through which transverse guide-bars extend to guide the drop devices in their vertical movement and to limit their downward movement.

The object of my invention is to improve upon the construction of warp stop-motions of the class above referred to as ordinarily made, and more particularly to provide for the maintaining of the two sets of warp-threads in two separate planes without lease-rods, the transverse rods or bars extending between the two sets of warp-threads in front of and back of the drop devices acting as supports or rests for the upper set of warp-threads, and also to provide for the raising or lowering of the guide-bars of the drop-bars to raise or lower simultaneously all the drop-bars on said guide-bars and the warp-threads connected therewith to raise the lower set of warp-threads or lower the upper set of warp-threads and cross the two sets of warp-threads between said two transverse rods or warp-rests to form a lease between said transverse rods or warp-rests.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

I have only shown in the drawings sufficient portions of a warp stop-motion embodying my improvements to enable those skilled in the art to which my invention belongs to make and use the same.

Referring to the drawings, Figure 1 is a vertical section through a warp stop-motion embodying my improvements, showing the parts in their normal position. The broken lines show some of the parts in their opposite position. Fig. 2 corresponds to Fig. 1, but shows the guide-bars and the drop-bars in their raised and lowered position and the warp-threads crossed to form a lease. Fig. 3 shows a modified construction of the parts shown in Fig. 1 with the guide-bars, the drop-bars, and the warp-threads in their normal position; and Fig. 4 corresponds to Fig. 3, but shows one guide-bar and one set of drop-bars in their raised position and the warp-threads crossed to form a lease.

In the accompanying drawings, 1 is the end plate of a warp stop-motion, which is secured to the loom-frame and has side flanges 1′ thereon, to which are secured, in this instance by screws 2, the ends of the parallel transverse bars 3 3, which act as warp rods or supports for the lower set of warp-threads. A second pair of transverse parallel bars 4 4 extend below the warp-supports 3 3 and are secured at their ends to the lower flanges 1′ on the plate 1.

5 is the end plate, preferably removable, the lower end 5′ of which is adapted to extend between the parallel bars 3 3 and 4 4, and the shoulders or projections 5″ on the plate 5 rest on the upper pair of parallel bars or warp-supports 3 3 in the usual way.

Two transverse guide-bars 7 and 8 extend between the plate 5 and the plate at the other end of the warp stop-motion, (not shown,) and the ends of said guide-bars 7 and 8 extend loosely in vertical slots 7′ and 8′ in the

end plate 5, and one guide-bar, as 7, is adapted to be lowered, and the other bar, as 8, is adapted to be raised in the slots 7′ and 8′, respectively, into which the ends of the bars loosely extend.

The guide-bars 7 and 8 are prevented from moving longitudinally in any suitable manner.

The guide-bar 8 is normally held in its raised position at each end by a latch 9, which is pivoted at its upper end on a pin 10, fast in the end plate 5, and has a notch 9′ at its lower end to extend under the lower edge of the guide-bar 7 at its end and hold it in its raised position, as shown in Fig. 1, and a second notch 9″ to extend over the upper edge of the guide-bar 7 and hold it in its lowered position. (See Fig. 2.) A second latch 11 is pivoted at its upper end on a stud 12, fast in the end plate 5, and has a notch 11′ at its lower end adapted to extend over the upper edge of the guide-bar 8 at its end and hold the guide-bar in its lowered position in the lower end of the slot 8′, as shown in Fig. 1. The latch 11 also has a second notch 11″ intermediate its ends on its inner edge to extend under the lower edge of the guide-bar 8 at its end, as shown in Fig. 2, and hold said guide-bar in its raised position in the upper end of the slot 8′.

On the guide-bar 7 are a series of drop-bars 13, having elongated slots 13′, in this instance in their upper ends, through which extends the guide-bar 7. There are also in this instance two perforations or openings 13″ and 13‴ in the drop-bars 13, through one of which (the upper one, 13″) the upper set of warp-threads 14 pass.

The guide-bar 8 has thereon the drop-bars 15, corresponding to the drop-bars 13 and having an elongated opening 15′ and two perforations or openings 15″ and 15‴ therein, through one of which (the lower one, 15‴) the lower set of warp-threads 14′ pass.

A rod or bar 16 extends transversely between the upper set of warp-threads 14 and the lower set of warp-threads 14′ on one side of the drop devices and is secured at its ends to the loom-frame or other stationary part (not shown) and acts to hold the two sets of warp-threads 14 and 14′ apart and also acts as a warp rest or support for the upper set of warp-threads 14. A second rod or bar 17 extends upon the opposite side of the drop devices transversely between the upper set of warp-threads 14 and the lower set of warp-threads 14′ and is secured at its ends to the loom-frame or other stationary part (not shown) and acts to hold the two sets of warp-threads 14 and 14′ apart and also acts as a warp rest or support for the upper set of warp-threads 14.

The operation of my improvements shown in Figs. 1 and 2 will be readily understood. When it is desired to cross the warp-threads or form a lease between the rods 16 and 17, the latch 11 is moved outwardly, as shown by broken lines in Fig. 1, and the guide-bar 8 is raised until it engages the upper ends of the openings 15′ in the drop-bars 15, and the continued raising of the guide-bar 8 to the upper end of the slot 8′ will raise all the drop-bars 15 on the guide-bar 8, and with them the lower set of warp-threads 14′, extending through the lower perforations 15‴ in the drop-bars 15, as shown in Fig. 2. The lowering of the latch 11 will cause the notch 11″ thereon to engage the lower edge of the guide-bar 8 and hold the guide-bar in its raised position. If it is desired to lower the upper set of warp-threads 14, connected with the drop-bars 13, the latch 9 is moved outwardly, as indicated by broken lines in Fig. 1, and the guide-bar 7 is moved downwardly in the slot 7′ and engaging the lower ends of the slots 13′ in the drop-bars 13 will move down said drop-bars and the warp-threads 14 passing through the upper openings 13″ therein until the guide-bar 7 reaches the lower end of the slot 7′, as shown in Fig. 2. The moving inwardly of the latch 9 will cause the notch 9″ thereon to engage the upper edge of the guide-bar 7 and hold it in its lowered position, as shown in Fig. 2. The crossing of the warp-threads, as above described, and shown in Fig. 2, will form a lease, and a rod may be readily inserted to hold the warp-threads crossed between the rods 16 and 17.

I have shown in Figs. 3 and 4 a modified construction of the improvements shown in Figs. 1 and 2, above described. The similar parts in Figs. 3 and 4 have the same reference-numbers as the parts in Figs. 1 and 2.

The latches 9 and 11 are dispensed with and only one guide-bar, as 8, is adapted to be raised or lowered, the ends of said guide-bar extending loosely in the slot 8′ in the plate 5.

In order to cross the warp-threads in the construction shown in Figs. 3 and 4, the guide-bar 8 is raised, as shown in Fig. 4, and held in its raised position to cross the warp-threads and allow the insertion of a rod to hold the warp-threads crossed.

The advantages of my improvements will be readily appreciated by those skilled in the art.

By making each drop-bar with two perforations or warp-eyes the drop-bars will be interchangeable and may be used on either guide-bar 7 or 8.

It will be understood that the details of construction of my improvements may be varied, if desired. For example, instead of having the slots 7′ and 8′ in the end plates extending through the plates and forming openings or perforations therein they may be made as recesses or vertical grooved ways on the end plates for the ends of the guide-bars 7 and 8 to extend loosely into and move in a vertical plane therein.

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

1. In a loom, the combination with the warp-

threads extending in two planes, and two transverse rods or bars extending between the two sets of warp-threads and acting as warp-rests for the upper set of warp-threads, of guide-bars for the two sets of drop-bars, one guide-bar having its ends extending loosely in a slot or recess in the end plates of the warp stop-motion and the drop-bars on the guide-bars having an opening or openings therein for the warp-threads, and movable with the guide-bar on which they are mounted, to cross the two sets of warp-threads intermediate said two transverse rods or bars, substantially as shown and described.

2. In a loom, the combination with the warp-threads extending in two planes, and two transverse rods or bars extending between the two sets of warp-threads and acting as warp-rests for the upper set of warp-threads, of the end plates of the warp stop-motion, having a vertical opening or recess therein, and a guide-bar for the drop-bars, with its ends extending loosely into said opening or recess, and said drop-bars on the guide-bar, and movable therewith and having an opening or openings therein for one set of warp-threads, substantially as shown and described.

3. In a loom, the combination with the warp-threads, extending in two planes, and two transverse rods or bars extending between the two sets of warp-threads, and acting as warp-rests for the upper set of warp-threads, of the end plates of the warp stop-motion, having a vertical opening or recess therein, and the guide-bar carrying the drop-bars and having its ends extending loosely into said opening or recess to be raised or lowered therein, and means for holding the guide-bar in its raised, or lowered position, substantially as shown and described.

4. In a warp stop-motion for looms, the combination with the end plates having a vertical opening or recess therein, and the guide-bar carrying the drop-bars and having its ends extending loosely into said opening or recess to be raised or lowered therein, and means for holding the guide-bar in its raised or lowered position, comprising a pivoted latch having projections thereon to engage the guide-bar, substantially as shown and described.

5. In a warp stop-motion for looms, the combination with the end plates having a vertical opening or recess therein, and a guide-bar having its ends extending loosely in said opening or recess, and having a vertical motion therein, and drop-bars mounted on said guide-bar, and having one or more openings therein for the warp-threads, of means for holding the guide-bar in the upper or lower part of the vertical opening in the end plates, substantially as shown and described.

6. In a warp stop-motion for looms, the combination with the end plates having a vertical opening or recess therein, and a guide-bar having its ends extending loosely in said opening or recess to be raised or lowered therein, and drop-bars mounted on said guide-bar and having one, or more openings therein for the warp-threads, of means for holding the guide-bar in the upper or lower part of said vertical opening, substantially as shown and described.

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