

(No Model.)

H. W. HAKES.
HARNESS FRAME FOR LOOMS.

No. 570,926.

Patented Nov. 10, 1896.

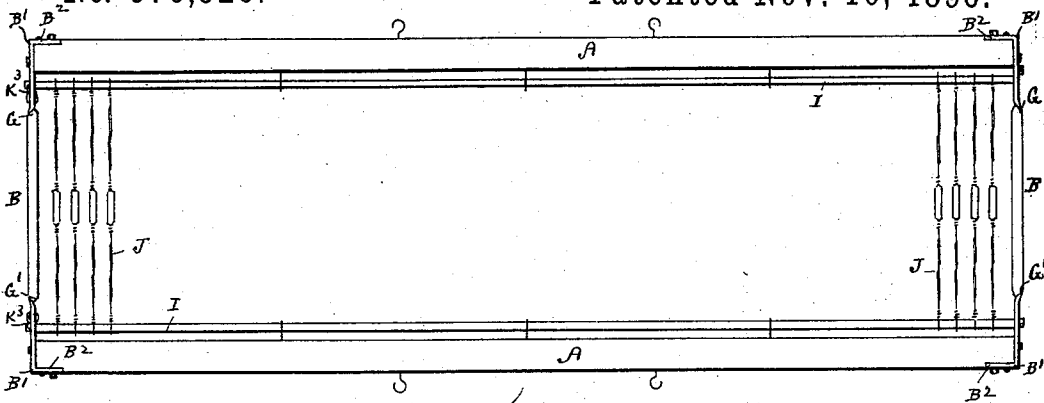


Fig. 1.

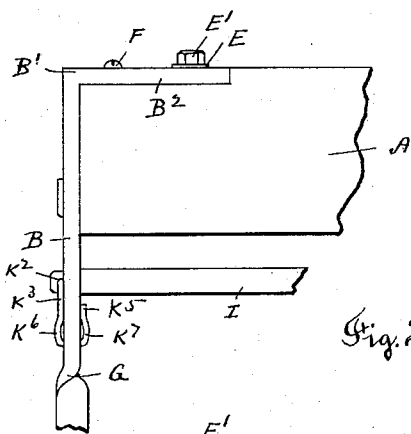


Fig. 2.

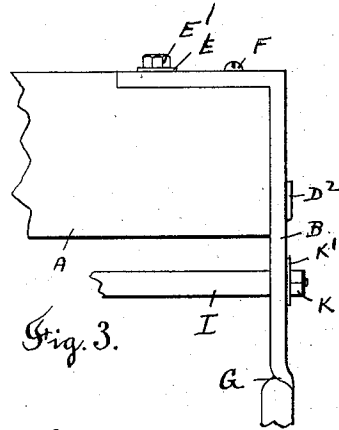


Fig. 3.

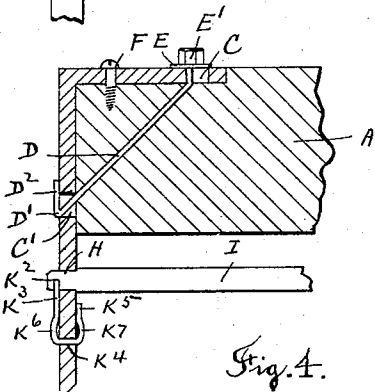


Fig. 4.

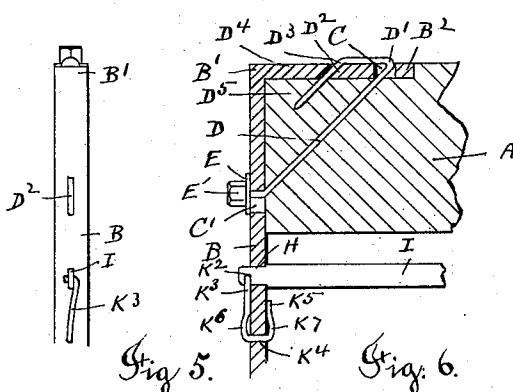


Fig. 5.

Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

HUDSON W. HAKES, OF MILLBURY, MASSACHUSETTS.

HARNESS-FRAME FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 570,926, dated November 10, 1896.

Application filed March 6, 1894. Serial No. 502,600. (No model.)

To all whom it may concern:

Be it known that I, HUDSON W. HAKES, a citizen of the United States, residing at Millbury, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in a Harness-Frame for Looms, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, and in which—

Figure 1 represents a harness-frame embodying my invention. Figs. 2 and 3 represent, on a larger scale, the two upper corners of the frame. Fig. 4 represents in central sectional view one of the corners of the harness-frame. Fig. 5 represents an end view of the corner shown in sectional view in Fig. 4; and Fig. 6 represents a central sectional view of one of the corners of the frame, the section being that shown in Fig. 4, but representing a slight modification in the method of applying the diagonal attaching-wire, by which the metallic end is connected to the wooden side rail of the frame, the construction shown in Fig. 6 being that preferably employed by me in the construction of my improved harness-frame.

Similar letters refer to similar parts in the different figures.

My invention relates to the construction of a harness-frame for looms, represented in front view in Fig. 1 of the drawings, in which A A denote the upper and lower side rails of the frame, made of wood and connected at their ends by the metallic end straps B B, which are bent at right angles at B', forming at the ends of the strap B short arms B², extending over the edge of the side rails A A and forming right-angled corners inclosing the ends of the rails.

Holes C C' are punched through the end straps to receive a wire D, which passes through the holes C C' and also through a hole in the side rail A, diagonally across the corner formed by the bending of the end strap B. One end of the wire D is bent at an acute angle at D', so as to lie against the arm B², as at D², and the wire is again bent at an oblique angle at D³ and passes through a hole D⁴ in the arm B² and enters the rail A, as at D⁵. The opposite end of the wire D is passed

through the hole C' and is screw-threaded and provided with a washer E and nut E', thereby firmly attaching the end of the side rail A to the metallic end strap B, the end D⁵ of the wire D entering the body of the rail, thereby effectually preventing any rocking motion of the rail upon that section of the wire extending diagonally through the rail. The hole through the side rail A is made of the size of the wire D, but the holes C C' in the metallic strap are elongated in order to allow the wire to be passed diagonally through the metallic strap and side rail, and after it is inserted to be bent at an oblique angle to itself as it leaves the side rail and enters the metallic strap to bring the end at right angles to the side of the metallic strap in order to receive the nut bearing squarely against the metallic strap.

The specific method of attachment shown in the remaining figures of the drawings, by which the nut and washer are applied at the side instead of the end of the frame and the diagonal attaching-wire has its acute-angled bend at D' at the end of the frame instead of the side, I consider substantially equivalent to the method of fastening shown in Fig. 6; but the method shown in Fig. 6 possesses the added advantage that the rocking motion of the side rail A upon the diagonal wire is prevented by the end D⁵ of the wire, whereas by the construction shown in Fig. 4 this rocking of the side rail is restrained by means of a screw F, taking the place of the wire, which requires an extra piece and an additional expense in construction.

The end straps B B are as wide as the thickness of the side rails A A, and the thickness of the end straps is considerable less than their width, so they may be easily bent at the corners B' and not add unduly to the weight of the frame, and as the employment of a thin strap lying in the same vertical plane does not afford sufficient stiffness to the end of the frame I form two twists G G in the end strap as near the side rails as may be, thereby bringing the central section of the end strap in a plane at right angles to its original position in order to afford increased resistance against an endwise strain upon the harness-frame.

The mortises II are formed in the end straps to receive the bars I I, upon which the heddles J are strung in the usual manner. One end of the bars I is provided with nuts K and washers K', but the opposite ends of the heddle-bars are provided with holes K² to receive the latch K³, pivoted in a hole K⁴ in the end strap, provided with an elastic prong K⁵, arranged to bear against the inner side of the end strap with sufficient friction to hold the latch K³ from being jarred out of position by the motion of the harness-frame. The elastic prong K⁵ and latch K³ are formed integrally from an elastic wire bent into proper shape, as described, and its elastic action against the inner side of the end strap is secured by bending the latch K³ in order to carry it away from the end strap, as shown at K⁶, and again bending the end of the wire forming the latch, as shown at K⁷, to carry it away from the inner side of the end strap, and at the same time bringing the prong K⁵ nearer the body of the latch K³ than the thickness of the end strap B, so that when the latch K³ is carried into engagement with the hole K² so that the end strap will be pinched between the latch K³ and prong K⁵, thereby producing sufficient friction to prevent the rotation of the latch in the hole K⁴.

If desired, the nuts K can be omitted and both ends of the heddle J can be held by latches in the manner already described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a harness-frame for looms, the combination of side rails A, A, metallic end straps B, B, bent at B' to inclose the ends of said side rails, said side rails having diagonal holes and said metallic straps having elongated holes C and C' and wires D passing diagonally through said side rails and said metallic straps and bent at one end to bring said wire at right angles with the metallic strip and bent at the opposite end to reënter said strap and rail, as at D⁵ and hold said rail from rocking on said wire, substantially as described.

2. In a harness-frame, the combination with side rails A, A, end straps B, B, and bar I held by said end straps, and provided with a hole K², of a latch K³, adapted to engage the hole K², and consisting of a bent elastic wire pivotally held in the end strap as at K⁴, and bearing against the outer side of said end strap, and an elastic prong K⁵ bearing against the inner side of said end strap and opposite to said latch, whereby said end strap is pinched between said latch and said elastic prong, substantially as described.

Dated this 20th day of February, 1894.
HUDSON W. HAKES.

Witnesses:

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HENRY W. FOWLER.