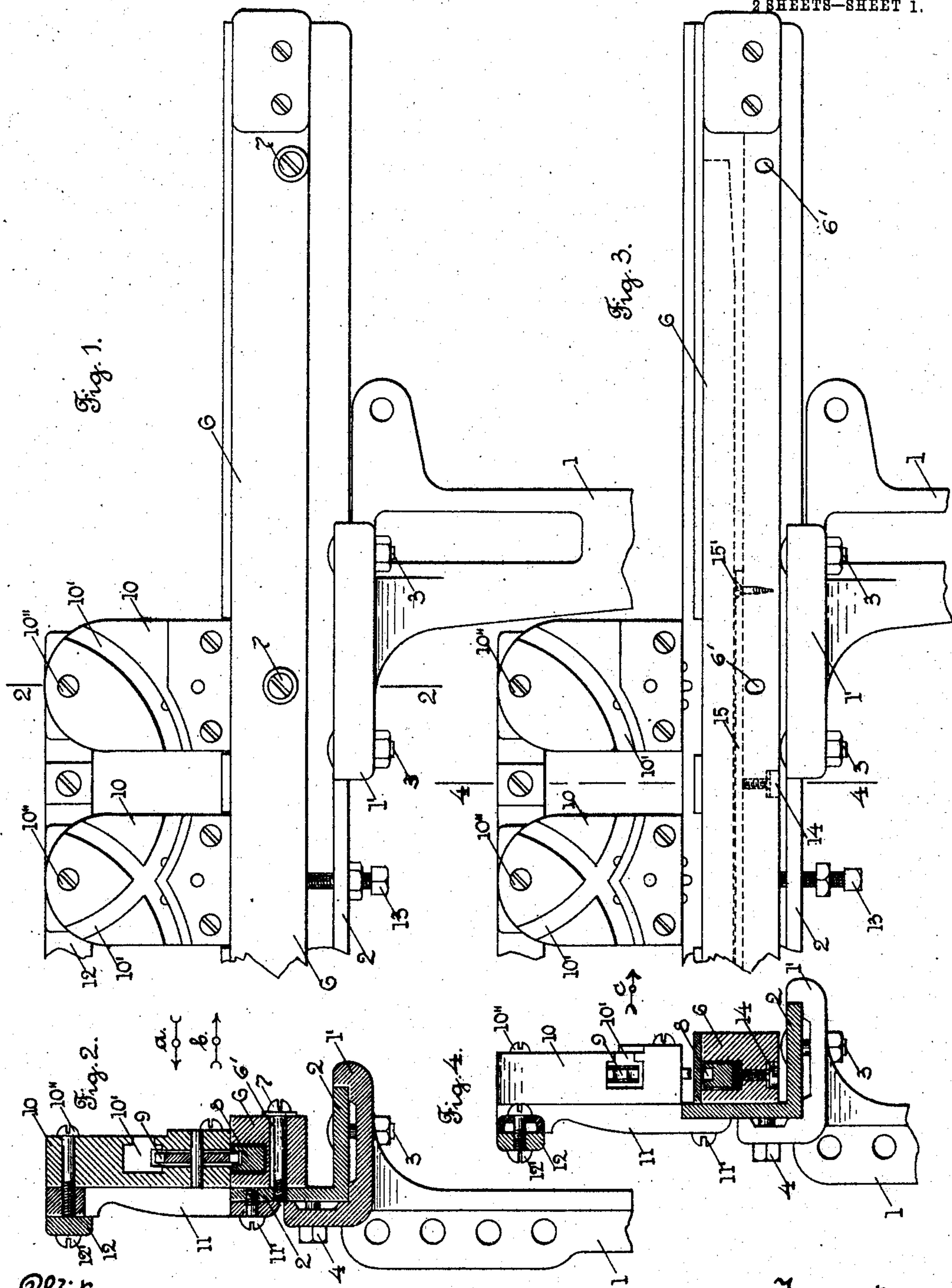


No. 790,235.

PATENTED MAY 16, 1905.

W. WATTIE.
LAY OF NARROW WARE LOOMS.
APPLICATION FILED NOV. 3, 1904.

2 SHEETS—SHEET 1.



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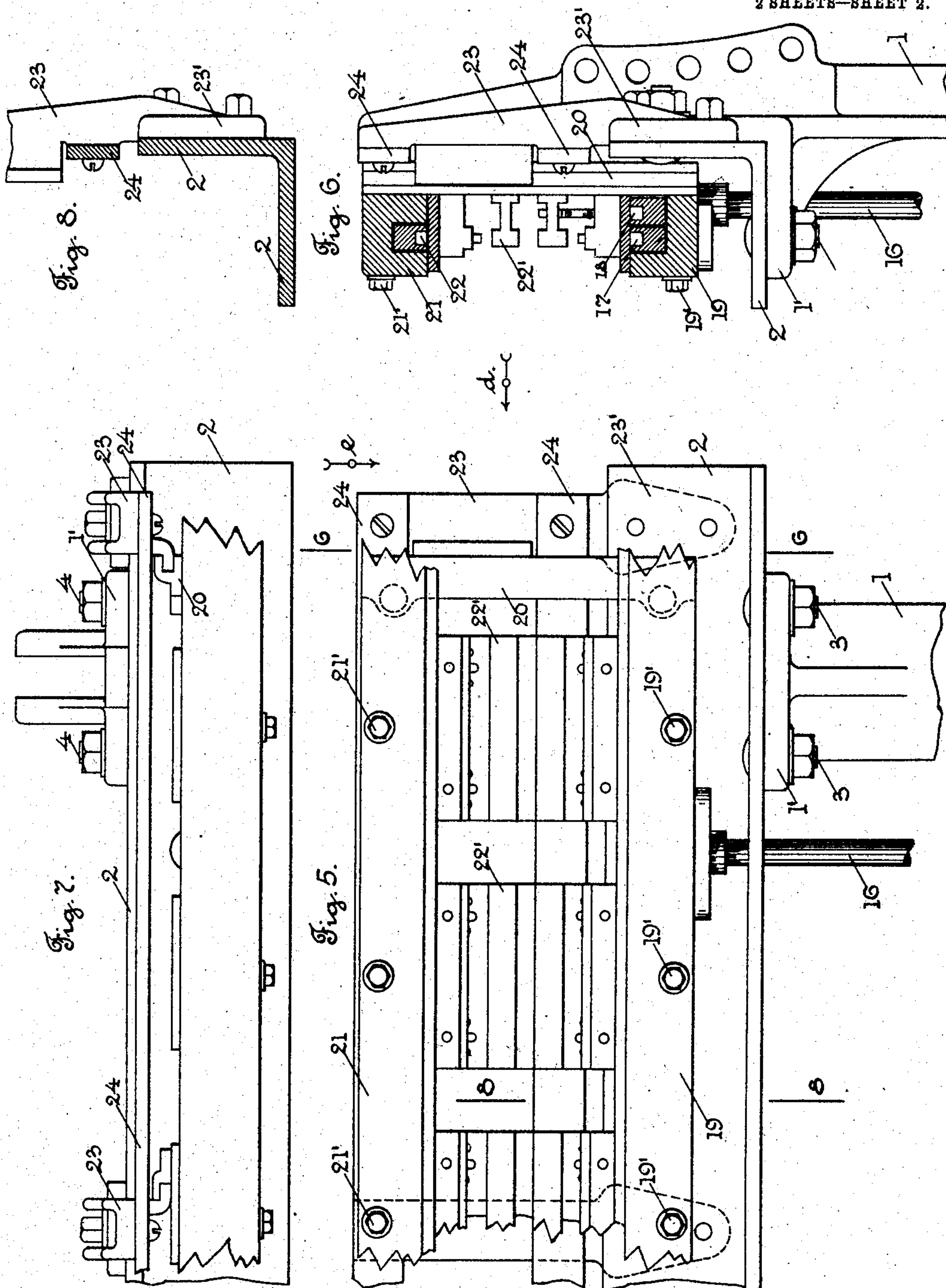
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UNITED STATES PATENT OFFICE.

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LAY OF NARROW-WARE LOOMS.

SPECIFICATION forming part of Letters Patent No. 790,235, dated May 16, 1905.

Application filed November 3, 1904. Serial No. 231,181.

To all whom it may concern:

Be it known that I, WILLIAM WATTIE, 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 Lays of Narrow-Ware Looms, of which the following is a specification.

My invention relates to improvements in looms, and more particularly to improvements in the lay of a narrow-ware or ribbon loom; and the object of my invention is to improve upon the ordinary construction of the lay in a narrow-ware or ribbon loom.

In the ordinary construction of the lay in a narrow-ware or ribbon loom the lay consists of a heavy wooden beam supported upon and attached to the upper ends of two or more swinging lay-swords, according to the width of the loom. This wooden beam is recessed or grooved upon its upper surface to receive the reciprocating rack which moves the rotary pinions which communicate motion to the swivel-shuttles in the well-known way. In the ordinary narrow-ware or ribbon loom the lay is of considerable length, varying from ten to twenty feet or more. By reason of the length of the lay and its required rigidity it has been necessary to use a solid wooden beam of considerable size, some five inches or more in thickness and in height. This wooden beam is liable to warp or get out of shape in the direction of its length, so that the longitudinally-moving rack carried thereon and having a sliding motion therein will not operate accurately and communicate accurate movement to the pinions which move the swivel-shuttles, and, further, in order to remove the pinion-operating rack from the beam for any purpose after the loom has been put together and into operation it is necessary to draw the rack out from one end of the beam. This requires a large amount of space and is not a convenient way of removing the rack, and, further, by reason of the height of the wooden beam forming the lay it has been necessary to have the hand-rail extend at a considerable height above the lay.

The object of my invention is to improve

upon the ordinary construction of the lay above described.

In my improved construction of the lay I do away entirely with the wooden beam forming the lay, as above described, and substitute therefor a metal bar of angle shape in cross-section. I thus obtain a greater rigidity of the lay and prevent its getting out of line. I combine with the angle metal bar a wooden bar, detachably secured thereto by screws or otherwise upon its front side and which has a longitudinal recess or groove therein to receive the reciprocating rack. In order to remove the rack it is only necessary to remove the screws which attach the wooden bar carrying the rack to the angle metal bar and allow said bar to drop down onto the lower surface of the angle metal bar, so that it can be moved outwardly and the rack be raised out of it instead of removing it endwise, as above described. I also provide means for adjusting the vertical position of the rack as desired.

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 detached portions of one end of a lay and a lay-sword embodying my improvements with some parts thereon sufficient to illustrate the nature of my invention.

Referring to the drawings, Figure 1 is a front view of the right-hand end of the lay and the upper part of a lay-sword embodying my improvements and looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a section on line 2 2, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 corresponds to Fig. 1, but shows the bar carrying the rack dropped down to allow of the removal of the rack and also shows an adjusting-screw for the rack. Fig. 4 is a vertical section on line 4 4, Fig. 3, looking in the direction of arrow *c*, same figure. Fig. 5 corresponds to Fig. 1, but shows my improvements applied to a loom having drop-shuttles, in this instance three banks of shuttles. Fig. 6 is an end view and partial section on line 6 6, Fig. 5, looking in the direction of arrow *d*, same

figure. Fig. 7 is a top view of the lay shown in Fig. 5 looking in the direction of arrow *c*, same figure; and Fig. 8 is a detached view of the angle metal bar, taken on line 8 8, Fig. 5.

5 I will first describe the construction shown in Figs. 1, 2, 3, and 4 of the drawings. In said figures, 1 is the upper part of the lay-sword, which may be of the ordinary and well-known construction in this class of looms
10 and which is pivotally supported at its lower end, (not shown,) so as to have a pivotal or swinging motion in the ordinary way, and is connected to and operated by the crank-shaft (not shown) in the ordinary way. Two or
15 more lay-swords are employed, according to the width of the loom. The upper part of the lay-sword 1 has upon its upper end at its front side an extension or bracket 1', forming a surface to receive a metal bar 2 of angle
20 shape in cross-section, which forms the lay-beam of the loom. The angle metal bar 2 is rigidly secured to the bracket 1' on the upper end of the lay 1, in this instance by bolts 3 through its lower surface and bolts 4 at its
25 rear side. The angle metal bar 2 extends the full width of the loom and forms the lay-beam, taking the place of the wooden beam, which ordinarily forms the lay-beam. Extending along the front side of the vertical
30 portion of the angle metal bar 2 is a bar 6, which is preferably detachably and adjustably connected to the vertically-extending portion of the angle metal bar 2 by screws 7, extending through elongated openings 6' in the bar
35 6 and screwed into the vertical portion of the angle metal bar 2. The upper side of the bar 6 is recessed or cut out to receive the longitudinally-moving rack 8, which is operated in the usual way by straps passing over rolls
40 or sheaves carried on the lay. (Not shown.) The rack 8 engages with and drives a series of pinions 9, and the pinions 9 engage and operate the swivel-shuttles (not shown) to cause them to move in the guides 10' of the
45 guide-blocks 10 in the usual and well-known way. The guide-blocks 10 are secured at their upper ends by screws 10'' to the upper end of vertically-extending stands 11, which are secured at their lower ends by screws 11'
50 to the upper part of the vertically-extending part of the angle metal bar 2. A rail 12, secured to the upper part of the stands 11 by screws 12', extends transversely across the loom and forms a hand-rail. To adjust the
55 vertical position of the bar 6, carrying the rack 8, I may employ adjusting-screws 13, turning through a threaded hole in the horizontal part of the angle metal bar 2 and bearing at their upper ends against the lower side
60 of the bar 6. In order to adjust the vertical position of the bar 6, the holding-screws 7 are turned out, and after the bar 6 is adjusted they are turned in to secure the bar in its adjusted position. In Figs. 3 and 4 are shown means for
65 adjusting the vertical position of the rack 8

independently of any adjustment of the bar 6, in which it is supported, to regulate the meshing of the teeth of said rack with the teeth of the pinions 9. Said means consists in this instance of an adjusting-screw 14, turning in a threaded hole in the lower part of the bar 6 and bearing at its upper end against a yielding strip 15, which extends under the lower part of the rack 8 and is secured at each end by a screw 15' to the bar 6. (See
70 Fig. 3.) By turning the screw 14 in or out the strip 15 is raised or lowered to raise or lower the rack 8, as desired. When it is desired to remove the rack 8 for any purpose, the screws 7 are removed to allow the bar 6
75 to drop down, as shown in Fig. 3, the adjusting-screws 13 being also turned down. When the bar 6 is in its lowered position, as shown in Fig. 3, it may be readily removed from the front of the lay to remove the rack 8, if
80 desired, or for any other purpose. 85

In Figs. 5, 6, 7, and 8 I have shown my improvements applied to a narrow-ware loom having drop swivel-shuttles, in this instance three banks of swivel-shuttles. In said figures the same letters of reference are used to designate the same parts shown in Figs. 1, 2, 3, and 4. In addition to said parts the part
90 marked 16 is the operating-rod of the shuttle-rails. 17 and 18 are reciprocating moving racks for the two lower banks of shuttles and are carried in a bar 19, which is secured by screws 19' to the lower ends of the vertically-moving stands 20. The stands 20 are
95 adapted to have a vertical up or down motion between suitably-arranged guides through the up-and-down motion of the rod 16, and they have at their upper ends a bar 21, secured thereto by screws 21', which bar carries the rack 22 for the upper set of shuttles.
100 Intermediate the upper bar 21, carrying the rack 22, and the lower bar 19, carrying the racks 17 and 18, are arranged the guideways or tracks 22' for the longitudinally-moving swivel-shuttles. (Not shown.) All of said
105 parts may be of the ordinary and well-known construction. The lower ends 23' of stands 23 are secured to the rear vertical part of the angle metal bar 2, which forms the lay-beam. The stands 23 have secured thereto the trans-
110 versely-extending bars 24, which support and form guides for the vertically-moving shuttle-racks and other parts. 115

It will be understood that the details of construction of my improvements may be varied, if desired, and they may be adapted to be applied to narrow-ware looms with one set of swivel-shuttles or to narrow-ware looms with two or more sets of swivel-shuttles arranged in rows or banks. The bar 2, of angle shape
120 in cross-section, is of iron or steel, forming a very rigid bar, which may be termed an "angle-iron." 125

I have shown in the drawings and described herein my improvements applied to narrow- 130

ware looms; but it will be understood that I do not limit my improvements to narrow-ware or ribbon looms, as they may be adapted to be used on other classes of looms.

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

10 1. In a loom, the combination with an angle metal bar forming the lay-beam, of a bar attached to the vertical portion thereof, to form a way for a reciprocating rack, and said way and reciprocating rack, substantially as shown and described.

15 2. In a loom, the combination with an angle metal bar forming the lay-beam, of a strip or bar detachably and adjustably attached to the vertical portion thereof, to form a way for a reciprocating rack, and said way and reciprocating rack, substantially as shown and described.

3. In a loom, the combination with an angle metal bar forming the lay-beam, of a bar detachably and adjustably attached to the vertical portion thereof, to form a way for a reciprocating rack, and said way and reciprocating rack, and means for adjusting the vertical position of said bar, substantially as shown and described. 25

4. In a loom, the combination with an angle metal bar forming the lay-beam, of a bar detachably and adjustably attached to vertical portion thereof, to form a way for the reciprocating rack, and said way and reciprocating rack, and means for adjusting the same in said bar, substantially as shown and described. 35

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Witnesses:

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