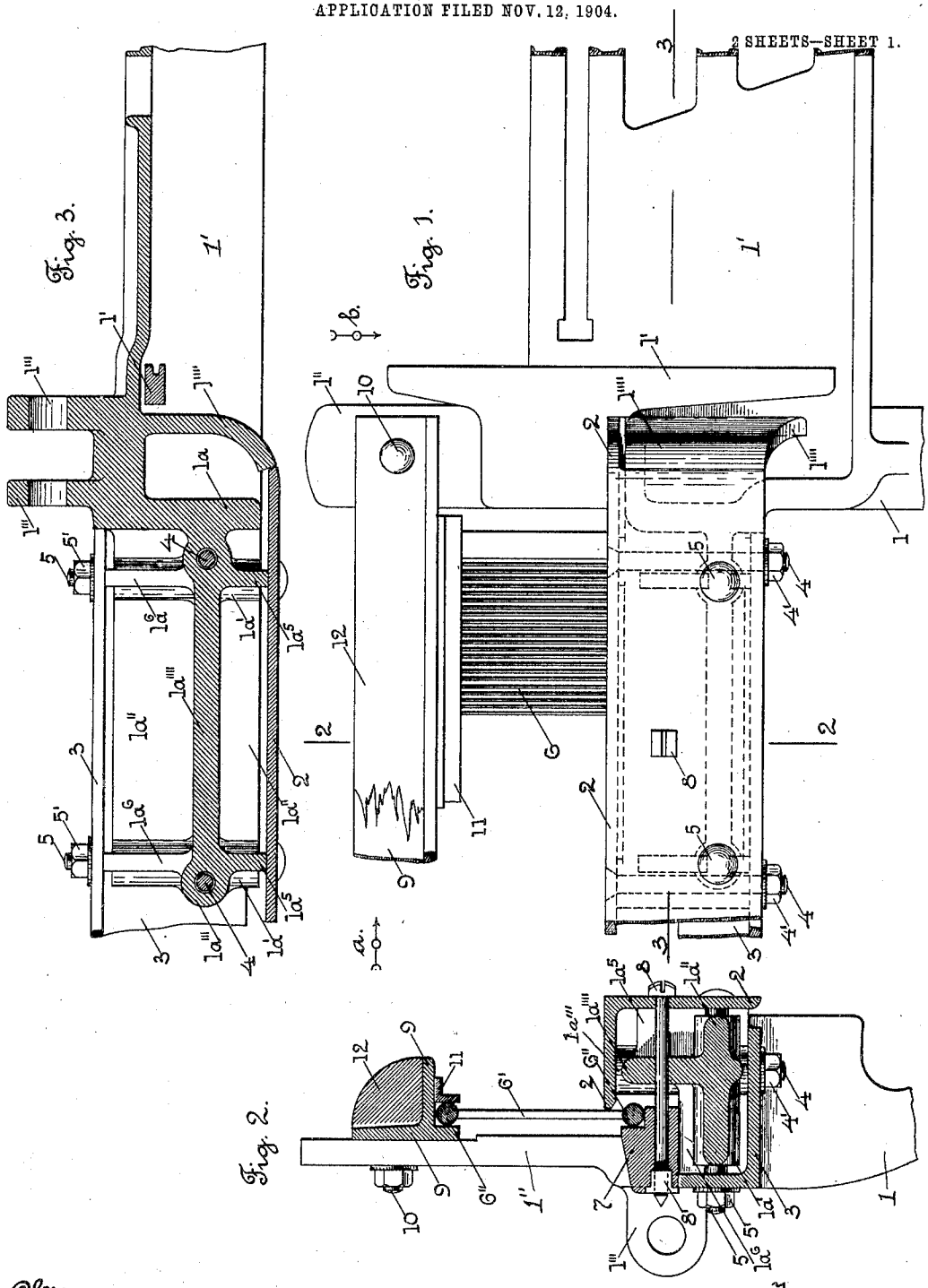
No. 789,343. PATENTED MAY 9, 1905.

W. WATTIE.

LAY OF LOOMS.

APPLICATION FILED NOV. 12, 1904.

2 SHEETS—SHEET 1.



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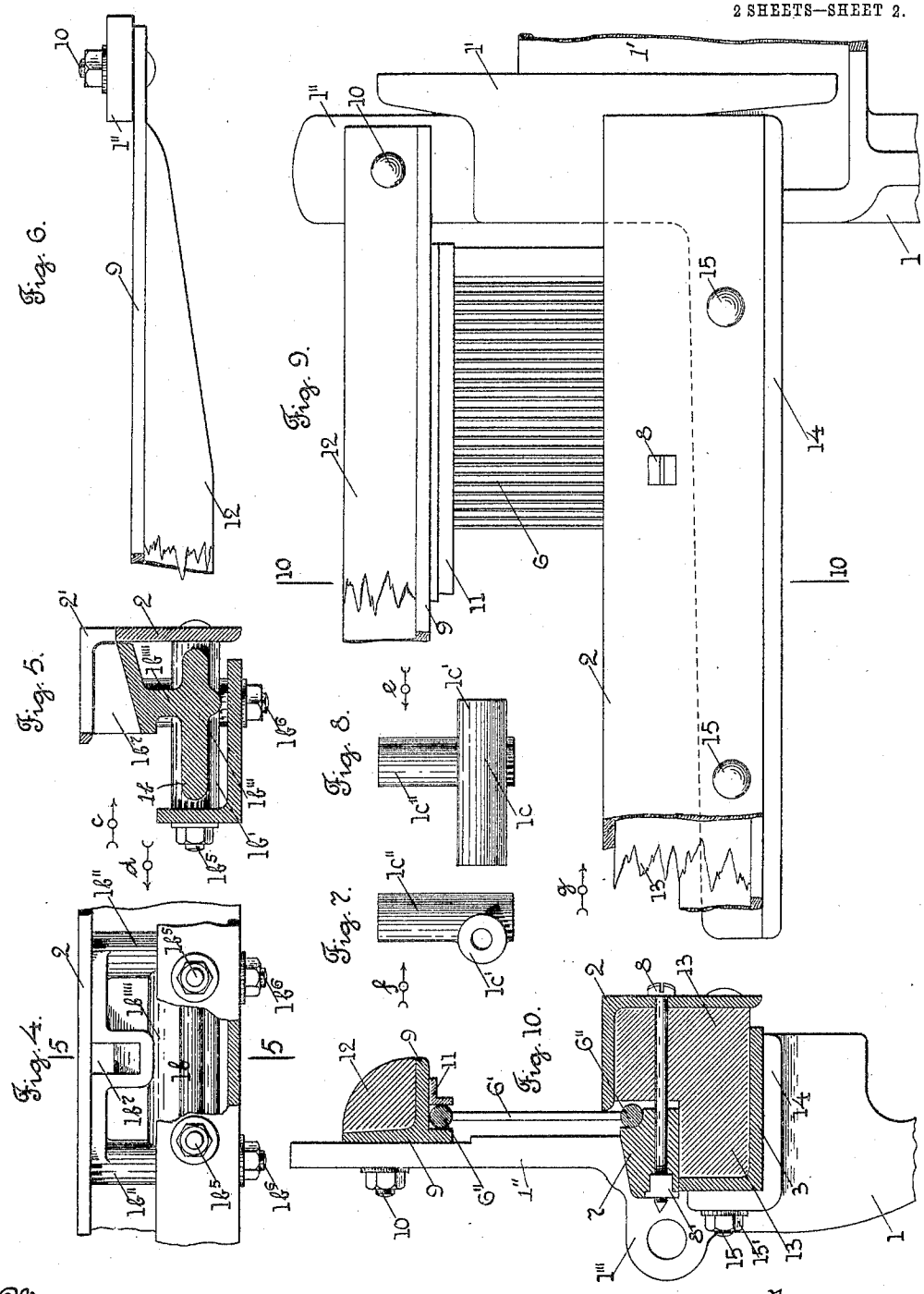
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM WATTIE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

LAY OF LOOMS.

SPECIFICATION forming part of Letters Patent No. 789,343, dated May 9, 1905.

Application filed November 12, 1904. Serial No. 232,410.

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 Looms, of which the following is a specification.

My invention relates to the lay of a loom, and more particularly to an improved construction of the lay-beam in a heavy loom.

In the ordinary construction of a lay the lay-beam consists of a wooden beam. In order to obtain sufficient rigidity and strength, it is necessary to use a beam of large diameter in cross-section, and even in the case of heavy beams the same are liable to warp and get out of shape, and thus interfere with the proper throw of the shuttle through the shed.

The object of my invention is to improve upon the construction of a lay-beam, particularly in a heavy loom of the cotton-duck or woolen type, and to provide a lay-beam made of metal, preferably steel or iron, and preferably comprising two independent metal bars of angle shape in cross-section, secured together or secured to intermediate blocks in such a manner that one of the angle metal bars will form the raceway and the front of the lay-beam and the other will form the bottom and the rear of the lay-beam. The bottom reed-supporting bar will extend below and at the rear of the upper side of one metal angle-bar.

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 a detached portion of one end of a lay embodying my improvements, sufficient to enable those skilled in the art to understand the construction and operation of the same.

Referring to the drawings, Figure 1 is a front view of the right-hand end of a lay detached embodying my improvements and showing a portion of the shuttle-box stand and guide. Fig. 2 is a section on line 2 2, Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 3 is a horizontal section taken at a point indicated by line 3 3, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 4 is a rear view of the central portion of a lay broken away and showing the recess for the filling feeler-fork looking in the direction of arrow *c*, Fig. 5. Fig. 5 is a section on line 5 5, Fig. 4, looking in the direction of arrow *d*, same figure. Fig. 6 is a plan view of the end of the hand-rail shown in Fig. 1 looking in the direction of arrow *b*, same figure. Fig. 7 is an end view of one of the blocks or braces detached looking in the direction of arrow *e*, Fig. 8, which form a part of the lay. Fig. 8 is a side view of the brace shown in Fig. 7 looking in the direction of arrow *f*, same figure. Fig. 9 corresponds to Fig. 1, but shows a modified construction of the lay-beam; and Fig. 10 is a section on line 10 10, Fig. 9, looking in the direction of arrow *g*, same figure.

In the accompanying drawings, 1 is the upper end of the lay-sword, which in this instance has connected with it a shuttle-box stand and guide-plate 1′ and the lay-horn 1″ and the rearwardly-extending ears 1‴ for the connector to the crank-shaft and the forwardly-extending projection 1⁗, inwardly curved at its front end to form the end of the lay-beam, and also the support 1^a, extending inwardly.

The support 1^a is preferably made as shown, having at each end the horizontal tubular parts $1^{a\prime}$, connected by a web $1^{a\prime\prime}$, and also at each end a vertically-extending tubular part $1^{a\prime\prime\prime}$, connected by a vertical web $1^{a\prime\prime\prime\prime}$. Extending out from the front of the vertical tubular parts $1^{a\prime\prime\prime}$ are the web portions 1^{a5}. Extending from the horizontal tubular parts $1^{a\prime}$ are the vertical web portions 1^{a6}, the height of which are about one-half the height of the front web portions 1^{a5}. (See Fig. 2.)

Extending upon the top and front side of the support 1^a is a metal bar 2, made of iron or steel and of angle shape in cross-section, which forms the top or race of the lay and also the front side of the lay. The end of the front side of the angle-bar 2 meets and butts against the front edge of the projection 1⁗,

and the top of said bar 2 extends over said projection, as shown in Fig. 1.

Upon the under side and rear part of the support 1^a extends a second metal angle-bar 3, corresponding to the metal angle-bar 2 and forming the under side and rear side of the lay-beam. The angle metal bar 2 and the angle metal bar 3 extend the full length of the lay, and the opposite ends thereof (not shown) are attached to a support corresponding to 1^a on the lay-sword on the other end of the lay.

The angle metal bar 2 is attached at its upper side to the support 1^a and also to the angle metal bar 3 and held in position thereon in this instance by a bolt 4 extending through each of the vertical tubular parts $1^{a'''}$ and secured therein by a nut 4′ on its lower end. The front side of the angle metal bar 2 is secured to the support 1^a and also to the rear side of the angle metal bar 3 by a bolt 5 extending through each of the horizontal tubular parts $1^{a'}$ and secured therein by a nut 5′ on the inner end of said bolts.

At the central part of the lay, where the filling feeler-fork is ordinarily placed, the angle metal bar 2 has an opening 2′ therein through its upper part and front side for the filling feeler-fork.

The central block or support 1^b, made of metal, preferably a casting, corresponds to the end support 1^a and has the two horizontal tubular parts $1^{b'}$ and the two vertical tubular parts $1^{b''}$ and webs $1^{b'''}$ and $1^{b''''}$ connecting them. Bolts 1^{b5} and 1^{b6} are used to secure the angle metal bar 2 and the angle metal bar 3 to the block or support 1^b.

The central portion of the block or support 1^b is cast or made with a guide or recessed portion 1^{b7}, adapted to receive the filling feeler-fork. (Not shown.)

Intermediate the end supports 1^a and the central support or block 1^b are arranged separate metal supports or blocks 1^c, (see Figs. 7 and 8,) the horizontal tubular part $1^{c'}$ of which corresponds to the horizontal tubular part $1^{a'}$ of the support 1^a, and the vertical tubular part $1^{c''}$ corresponds to the vertical tubular part $1^{a'''}$ of the support 1^a. Each block 1^c is secured in position between the angle metal bar 2 and the angle metal bar 3 by a vertical bolt and a horizonal bolt corresponding to the bolts 4 and 5.

At the rear part of the lay-beam extends the reed 6, which may be of the ordinary construction and composed of the vertically-extending teeth 6′ and the upper and lower bar or rod 6″, to which the teeth are secured. The lower bar 6″ of the reed 6 extends in a groove or recess in the front upper side of the transverse bar 7, preferably made of wood, which rests upon the rear vertically-extending web portions 1^{a6} of the support 1^a and is secured in position by the bolt 8, having the nut 8′ on its inner end. The lower part of the reed 6 is confined and held in position between the grooved portion or recess in the bar 7 and the rear edge of the upper side of the angle metal bar 2. The upper bar 6″ of the reed 6 extends within a recessed portion on the lower side of a transversely-extending metal bar 9, preferably of angle shape in cross-section and secured at its ends by a bolt 10 to the upper end of the lay-horn 1″. An angle-strip 11 extends in front of the upper bar 6″ of the reed and is secured to the metal bar 9 to hold the reed in place.

Extending along the front surface of the metal bar 9 is preferably a wooden bar 12, rounded on its front side to form the hand-bar of the lay.

In Figs. 9 and 10 I have shown a modified construction of the lay-beam shown in the other figures. In said Figs. 9 and 10 I have substituted for the metal supports or blocks 1^a, 1^b, and 1^c a wooden beam or bar 13, which preferably extends the full length of the lay and has extending upon its top and front side the angle metal bar 2, forming the race and front side of the lay-beam, and extending upon its lower and rear part the lower angle metal bar 3. A side extension or foot 14 is formed on the upper end of the lay-sword 1 to receive the metal angle-bar 3. The metal angle-bar 2, beam 13, and metal angle-bar 3 are all secured together and are secured to the rear side of the foot or extension 14 by bolts 15, having nuts 15′ on their inner ends. (See Fig. 10.) The other parts shown in Figs. 9 and 10 correspond to the parts shown in the previous figures and have the same letters of reference thereon.

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

I produce a lay-beam of simple and inexpensive construction and of great strength and very rigid, which will not warp or get out of shape.

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 loom, a lay-beam comprising two independent rigid angle metal bars, one forming the top and front, and the other the bottom and rear of the lay-beam, and means for holding them in position and securing them together, substantially as shown and described.

2. In a lay-beam of a loom, the combination with two independent rigid angle metal bars, one forming the top and front, and the other the bottom and rear of the lay-beam, of intermediate means for holding said bars in position and securing them together, substantially as shown and described.

3. In a lay of a loom, the combination

with two independent rigid angle metal bars, one forming the top and front, and the other the bottom and rear of the lay-beam, of a metal support on the lay-sword, extending within and forming means of support and attachment for the ends of said metal bars, and braces or supports intermediate the ends, located within and secured to said metal bars, substantially as shown and described.

4. In a lay of a loom, the combination with two rigid angle metal bars, one forming the top and front, and the other the bottom and rear of the lay-beam, of a metal support on the lay-sword, extending within and forming means of support and attachment for the ends of said metal bars, and a central block or support extending within said bars and secured thereto, and having a guide or recessed portion therein for the filling feeler-fork, substantially as shown and described.

WILLIAM WATTIE.

Witnesses:
J. C. DEWEY,
M. HAAS.