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Patented Mar. 21, 1899.

G. A. DRAPER & C. F. ROPER.

LAY FOR LOOMS.

(Application filed Apr. 4, 1898.)

(No Model.)

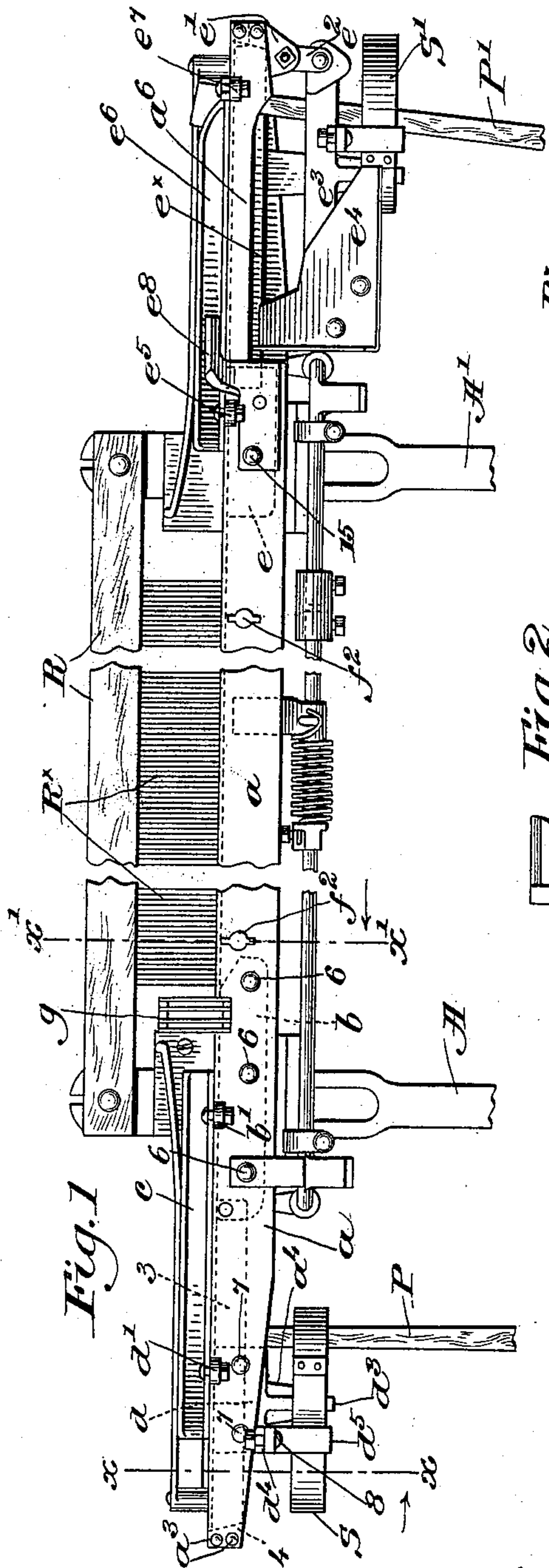


Fig. 1

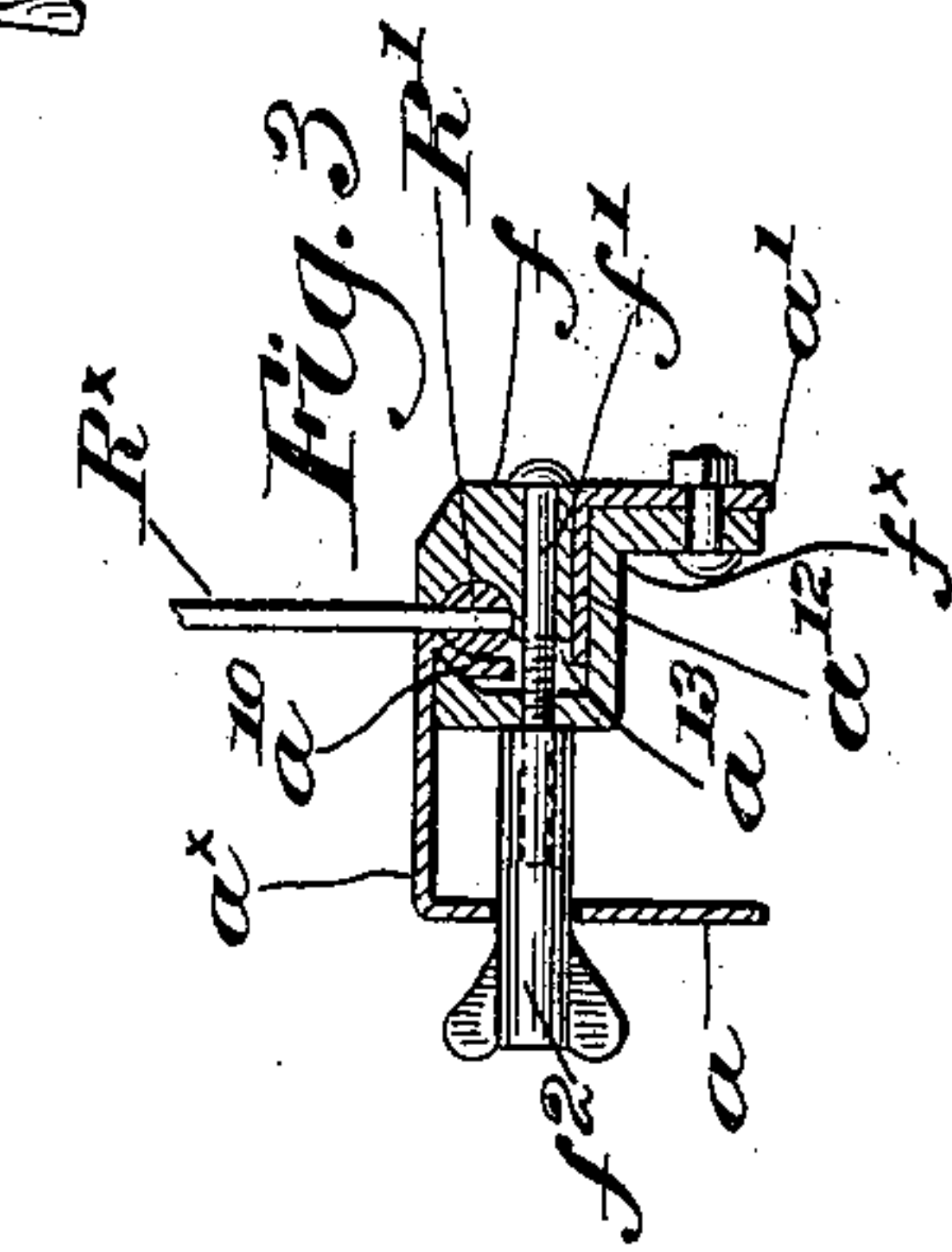


Fig. 2

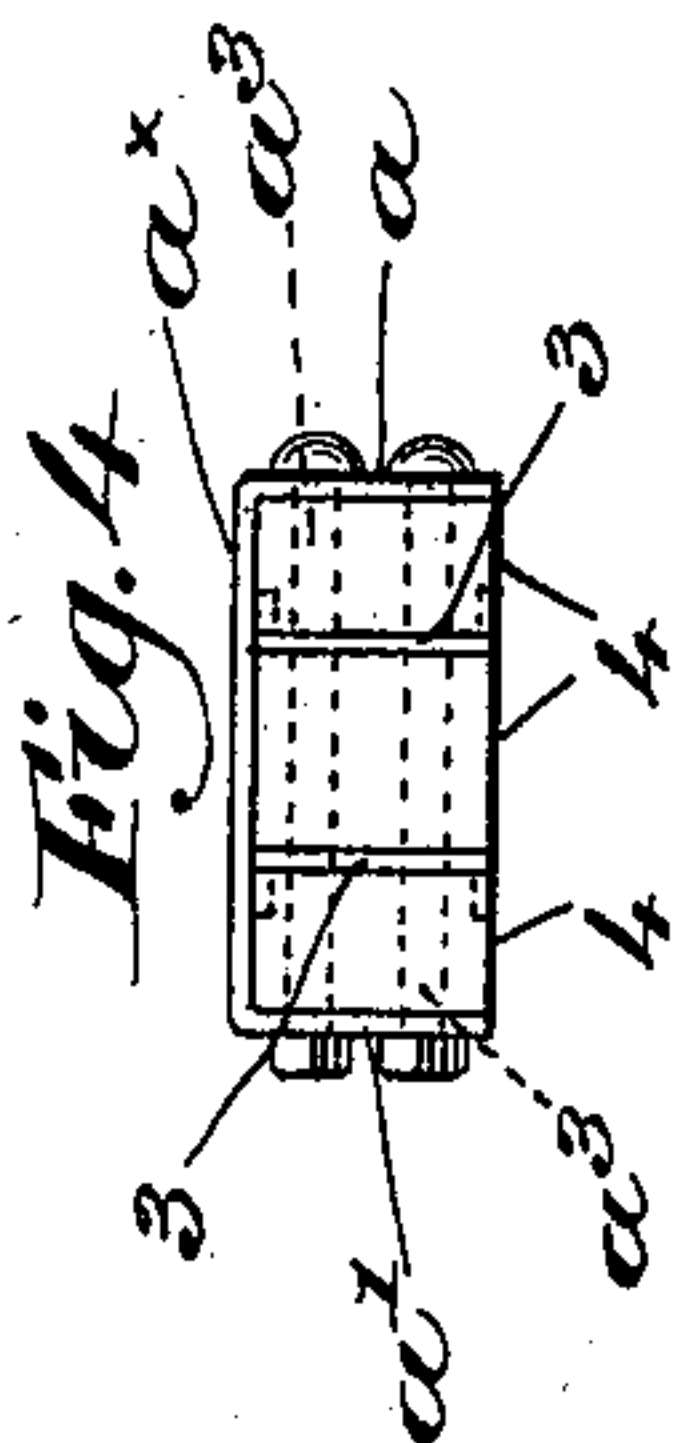


Fig. 3

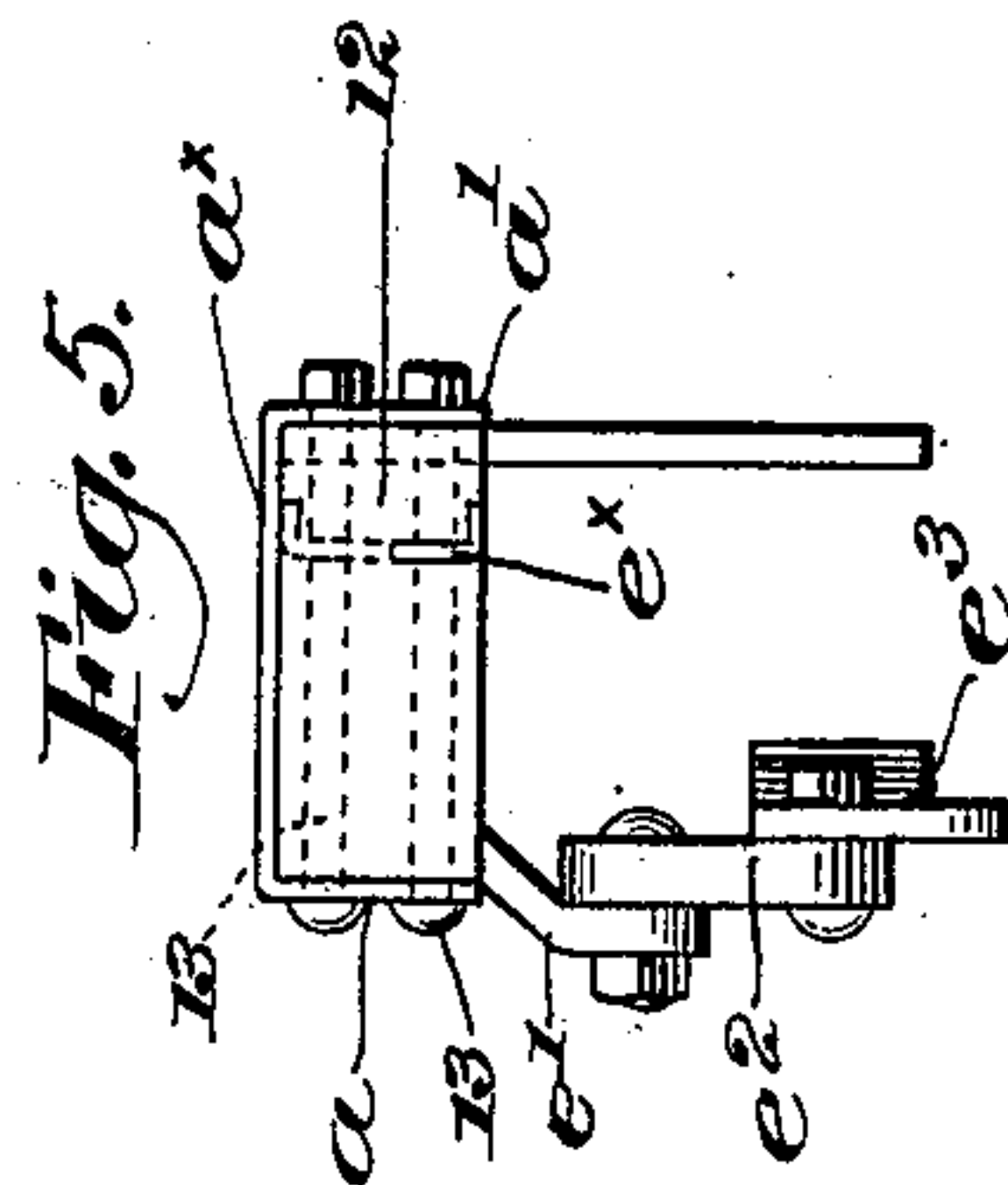


Fig. 4

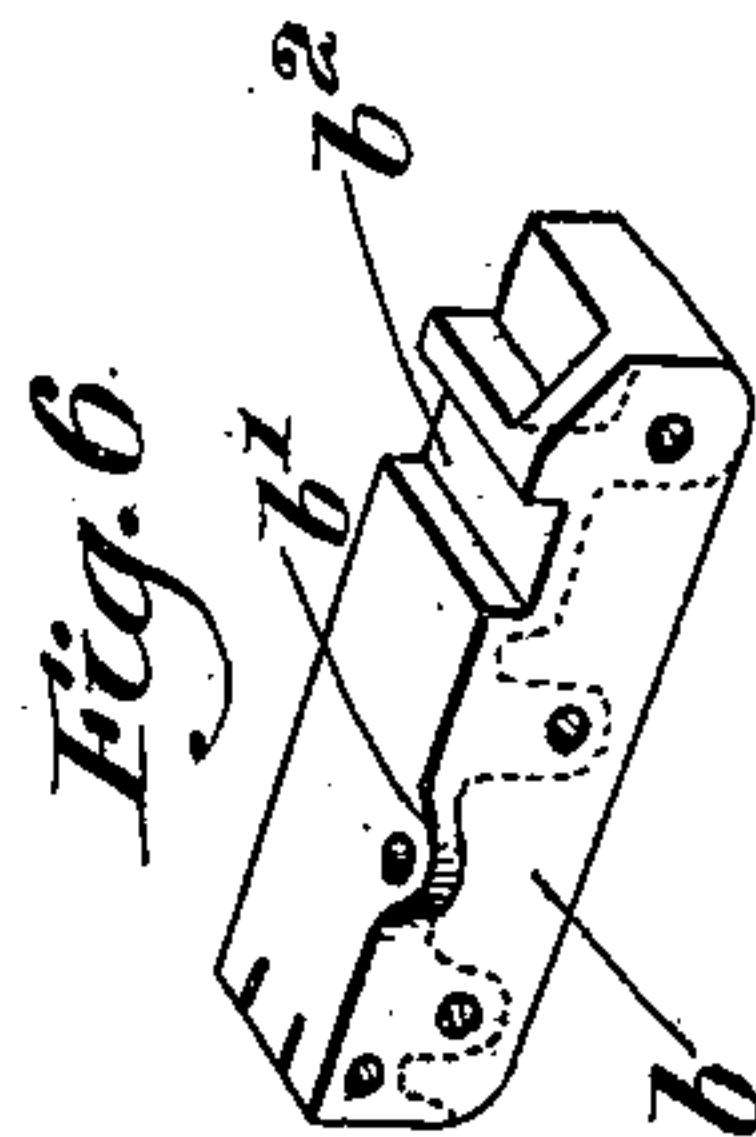


Fig. 5

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# UNITED STATES PATENT OFFICE.

GEORGE A. DRAPER AND CHARLES F. ROPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNORS TO THE DRAPER COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

## LAY FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 621,751, dated March 21, 1899.

Application filed April 4, 1898. Serial No. 676,325. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE A. DRAPER and CHARLES F. ROPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Sheet-Metal Lays for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention has for its object the production of a lay of improved construction for use in looms for weaving, whereby the wooden beam usually employed is dispensed with and the lay made much lighter in weight without decreasing the stiffness and rigidity thereof.

We will now describe one form of lay embodying our invention and will particularly point out the novel features thereof in the claims.

Figure 1 is a front elevation centrally broken out to save space of a loom-lay embodying our invention. Fig. 2 is an enlarged transverse sectional view thereof on the line  $x x$ , looking toward the right. Fig. 3 is a sectional view on the line  $x' x'$ , Fig. 1, looking toward the left. Fig. 4 is a left-hand end elevation of the lay. Fig. 5 is a right-hand end elevation thereof; and Fig. 6 is a perspective detail of one of the brace members of the lay, to be referred to.

The main or body portion of the lay is composed of sheet metal bent longitudinally to form parallel stiffening-flanges  $a a'$ , with a connecting-web  $a^x$ , the latter forming a continuous running surface or raceway for the shuttle, the body of the lay being substantially like an inverted trough. At each end the web  $a^x$  is longitudinally slotted for the picker-stick  $P P'$ , Fig. 1, and at the left-hand end two upright parallel channel-plates 3 3 are mounted beneath the raceway, one at each side of the picker-slot  $a^2$ , (see Fig. 2,) said plates being herein shown as  $\sqcap$ -shaped in cross-section. The outer ends of the plates, which form the sides of the picker-opening, are held securely in place by metal distance-blocks 4, (see Fig. 4,) through which and the flanges of the lay-body are extended bolts  $a^3$ , closing the end of the lay and strengthening

it at the same time. At their inner ends the plates 3 are supported by the recessed end of a brace-block  $b$ , preferably a casting, and shown separately in Fig. 6, interposed between the flanges  $a a'$  at the point of attachment of one of the lay-swords  $A$ , said brace-block having a suitable buffer or cushion  $p$  mounted thereon between the plates 3 for the picker-stick  $P$  on its inward stroke. The block  $b$  has transverse holes therein for attaching-bolts 6, Fig. 1, which pass through the flanges  $a a'$  and firmly connect the lay-body and brace-block, and also securing the lay to the sword  $A$ . A laterally-extended ear  $b'$  projects from the front side of the block, passing through a slot in the flange  $a$  to support the inner end of the front wall  $c$  of the left-hand shuttle-box, (see Fig. 1,) the other end thereof being supported by and attached to an ear  $d'$ , extended through flange  $a$  from a bracket  $d$ , attached to the inner face of the flange  $a$  by bolts 7 and located between the brace  $b$  and the end of the lay. The bracket  $d$  has a depending foot  $d^2$ , recessed to receive the picker check-strap  $S$  in usual loop form and secured to a hanger  $a^4$ , bolted to the rear flange  $a'$ , the foot  $d^2$  having its end outwardly extended at  $d^3$ , Figs. 1 and 2, beneath the edge of the strap. A lug  $d^4$  on the bracket has attached thereto by a bolt 8 an arm  $d^5$ , which acts frictionally on the strap to prevent too free movement thereof under the impact of the picker-stick.

The flanges  $a a'$  and the web  $a^x$  are cut away to register with a transverse depression  $b^2$  in the top of the brace-block  $b$  to receive the usual grating  $g$ , with which the filling-fork coöperates.

At the left-hand end of the lay the flanges  $a a'$  are reduced in width, as shown in Fig. 1, and at the other end of the lay the flange  $a'$  is similarly shaped; but the flange  $a$  is cut away, as at  $a^6$ , to facilitate the discharge of a spent filling-carrier from a shuttle in the adjacent shuttle-box.

Back of the path of the picker-stick  $P'$  a guide-plate  $e^x$  is inserted, held at its outer end in a block 12, Fig. 5, inserted between the flanges  $a$  and  $a'$  at the extreme end of the lay and rigidly secured thereto by bolts 13, the inner end of the guide-plate being attached



to a brace-block  $e$ , (see dotted lines, Fig. 1,) bolted to and between the flanges of the lay-body and to the lay-sword  $A'$  by suitable bolts 15. The guide-plate  $e^x$  has formed thereon a depending lip  $e'$ , to which is connected by a link  $e^2$  a bar-like casting  $e^3$ , which supports a filling-guide chute  $e^4$  and the picker check-strap  $S'$ , substantially as shown in United States Patent No. 596,448, dated December 28, 1897.

As shown in Fig. 1, the block  $e$  has a lug  $e^5$  extending through the flange  $a$ , to which one end of the shuttle-box wall  $e^6$  is attached, the other end of the wall being attached to a lug  $e^7$  on the guide-plate  $e^x$ .

A bunter  $e^8$  is bolted to the front of the lay in front of the brace-block  $e$ , said bunter serving to operate filling-changing mechanism at the proper time to eject a spent filling-carrier from the shuttle when in the right-hand shuttle-box and to insert a fresh supply of filling therein—as, for instance, in United States Patent No. 529,940, dated November 27, 1894.

The reed-cap  $R$  is attached to the upwardly-extended ends of the lay-swords  $A A'$ , and the lower ends of the reed-dents  $R^x$  enter a bar  $R'$ , Fig. 3, which is firmly held in the lay in a peculiar manner.

For a portion of its length between the brace-blocks  $b$  and  $e$  the sheet-metal web or raceway  $a^x$  is not extended rearwardly for the entire width of the web, but is bent downward, as at  $a^{10}$ , Fig. 3, and then rearwardly at  $a^{12}$  to the flange  $a'$ , the depth of which at such portion is correspondingly decreased. A seat is thus made at the back of the lay for a clamp-bar  $f$ , which may be made of metal or wood, having a longitudinal semicylindrical recess for the reed-bar  $R'$ , the downturned and slightly-concaved part  $a^{10}$  of the web bearing against the opposite side of the bar  $R'$ . Two threaded studs  $f'$ , mounted in the clamp-bar, are extended forward through openings  $a^{13}$  in the wall  $a^{10}$  and enter the threaded shanks of clamp-nuts  $f^2$ , extended through the front flange  $a$ , the inner ends of the nuts bearing on a brace  $f^x$ , L-shaped in cross-section, which is bolted to the flange  $a'$ . It will be seen that by tightening the nuts  $f^2$  the reed-bar  $R'$  will be clamped between the downturned part  $a^{10}$  of the web and the clamp-bar  $f$ , holding the reed firmly in place, yet permitting its ready removal, if necessary, the brace  $f^x$  taking up the thrust of the clamp-bar  $f$ .

From the foregoing description it will be obvious that the lay comprises, essentially, a sheet-metal body portion presenting a continuous raceway for the shuttle strengthened and stiffened at its ends and at the points of attachment to the lay-swords by brace-blocks interposed between the front and rear flanges of the sheet-metal body and rigidly attached thereto.

Below the reed the body of the lay is shaped to form a seat for a clamp-bar, which cooperates with a portion of the seat to rigidly hold the bottom of the reed firmly in place.

Our invention is not restricted to the exact construction and arrangement shown, as the same may be modified without departing from the spirit and scope of our invention.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A lay for looms, comprising a sheet-metal body portion having longitudinal, downturned flanges and a connecting-web forming a continuous raceway, said web having longitudinal slots for the picker-sticks, parallel channel-plates beneath the raceway, one at each side of a picker-slot, and transverse brace-blocks interposed between and secured to the flanges, the inner ends of the channel-plates being supported by the brace-blocks.

2. A lay for looms, comprising a sheet-metal body portion bent to form front and back flanges with a connecting-web presenting a continuous shuttle-raceway, longitudinal slots in said web for the picker-sticks, the web being reduced in width between its ends and bent in a curve downward, and rearwardly parallel to the main portion of the web, to form a seat in the body portion for the bottom of the reed, and a clamp-bar in said seat having a longitudinal, concave recess opposed to the curvature of the sheet-metal body portion, to clamp the bottom of the reed in place.

3. A lay for looms, comprising a sheet-metal body portion bent to form front and back flanges with a connecting-web presenting a continuous shuttle-raceway, the web being reduced in width and bent downward and rearwardly between its ends to form a seat, a clamp-bar in said seat, to engage the bottom reed-bar, and means to move the clamp-bar and retain it in adjusted position.

4. A lay for looms, comprising a sheet-metal body portion bent to form front and back flanges with a connecting-web presenting a continuous shuttle-raceway, longitudinal slots in the web for the picker-sticks, guide-plates extended longitudinally below the slotted portions, at the side of the picker-stick paths of movement, and brace-blocks interposed between and secured to the flanges of the body portion, the guide-plates being attached to the brace-blocks and supported thereby.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE A. DRAPER.  
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Witnesses:

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