

No. 607,486.

Patented July 19, 1898.

O. W. SCHAUUM.

BATTEN, SHUTTLE BLOCK, AND SHUTTLE FOR LOOMS.

(Application filed Oct. 20, 1897.)

(No Model.)

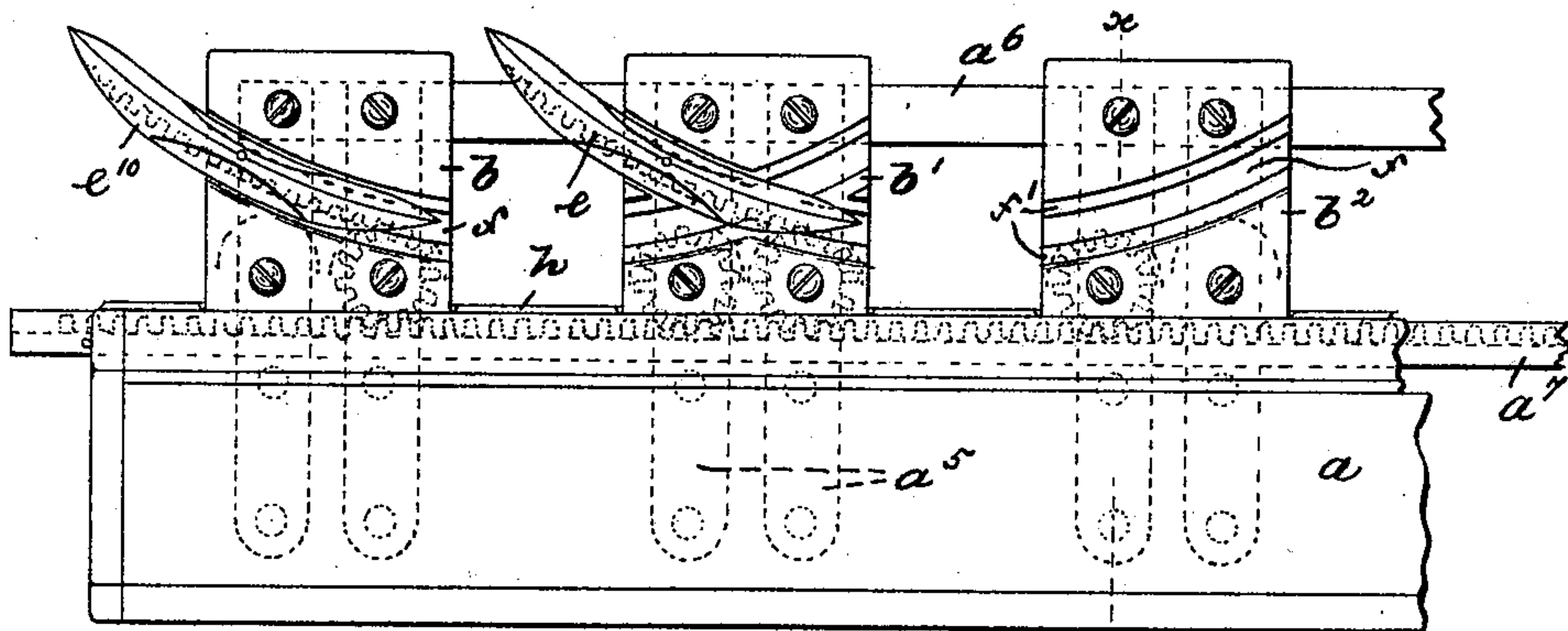


Fig. 1.

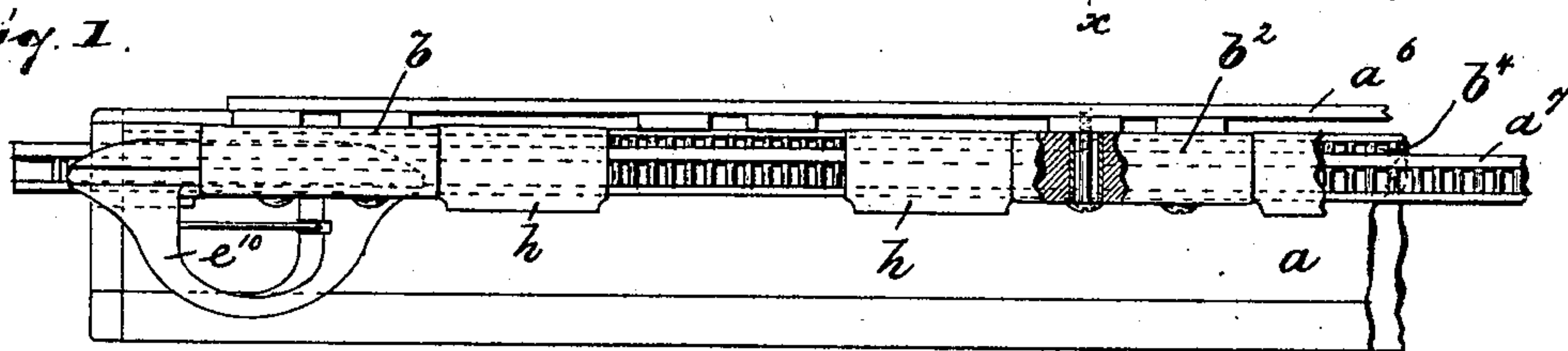


Fig. 2.

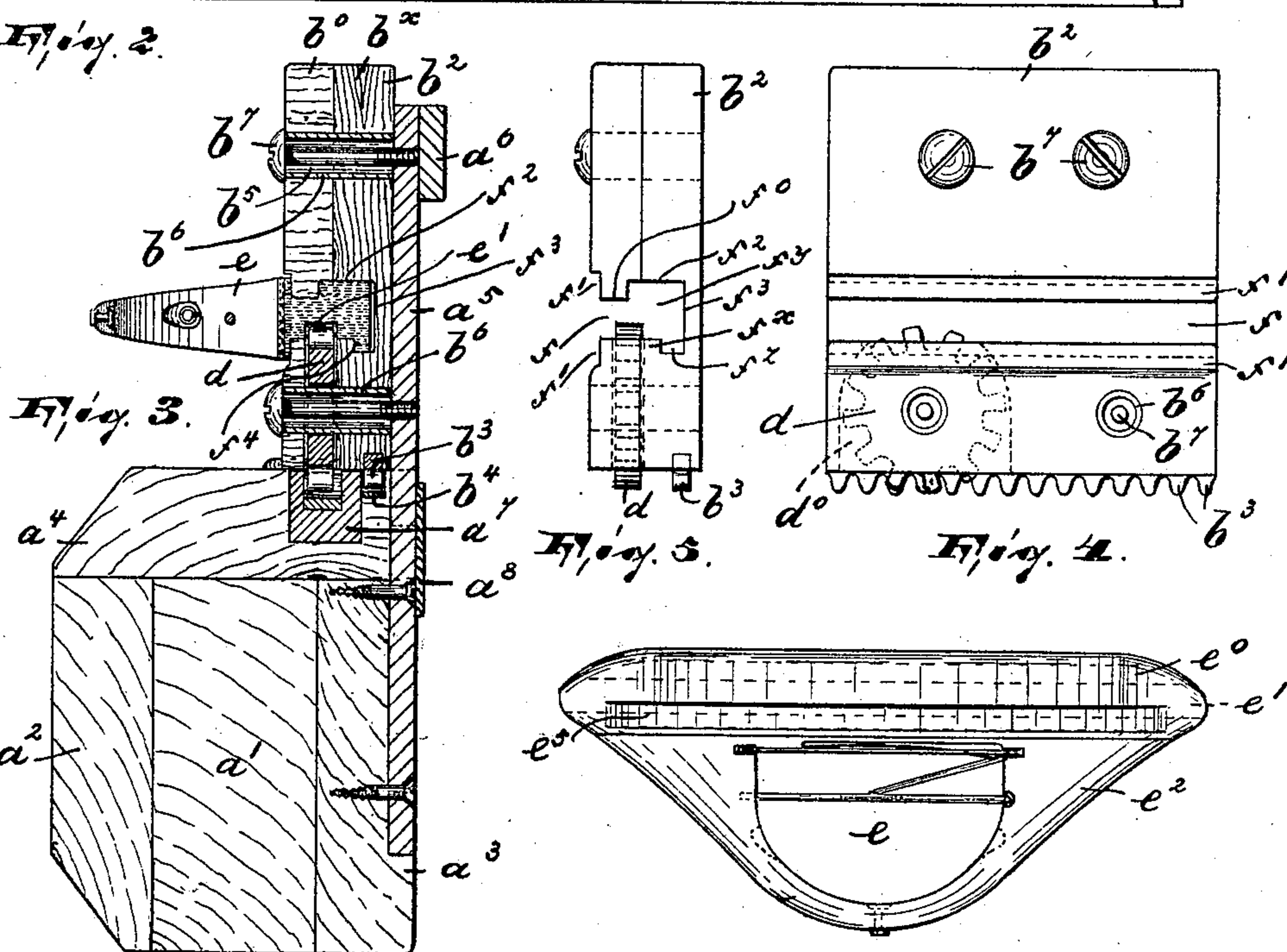


Fig. 3.

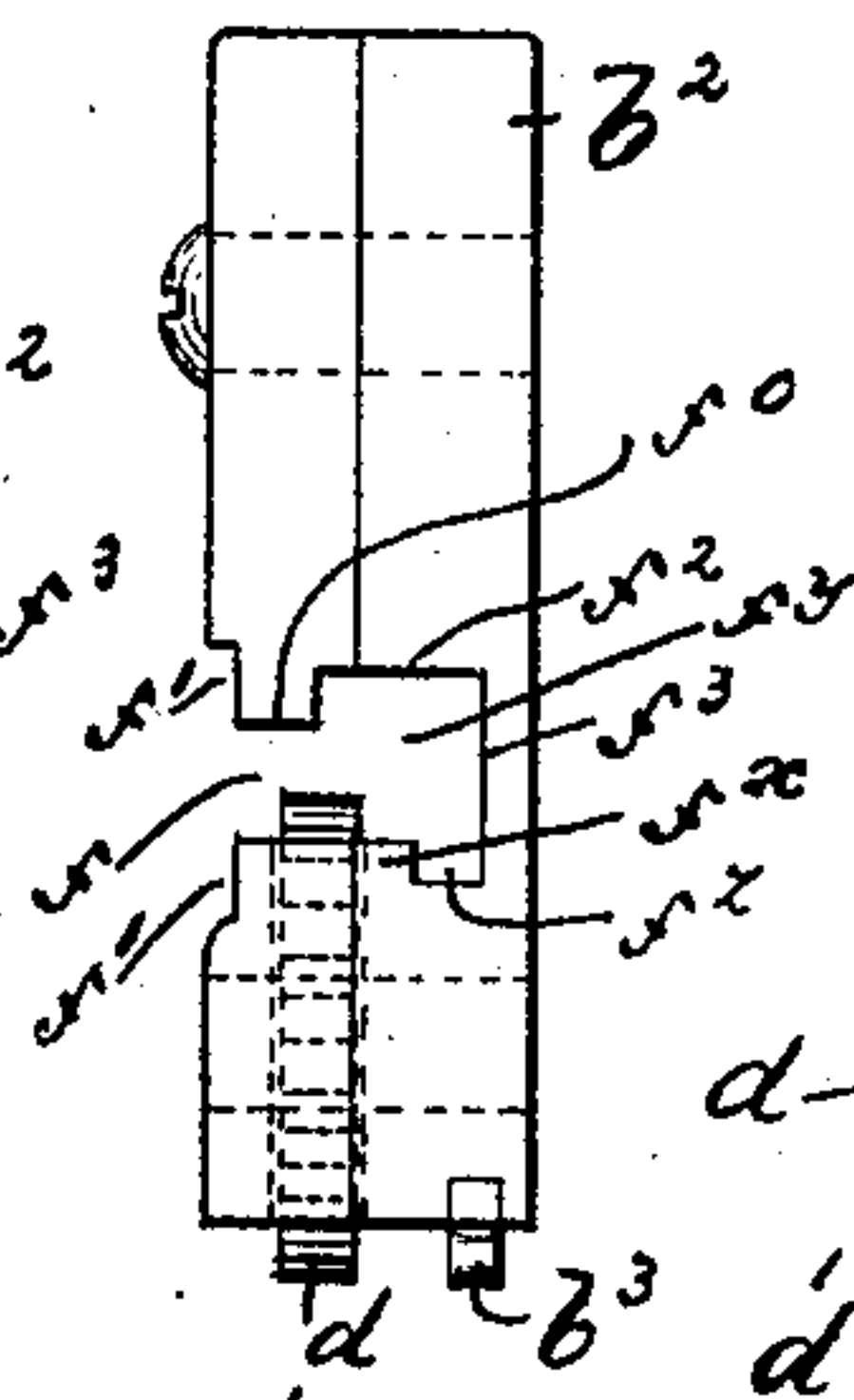


Fig. 4.

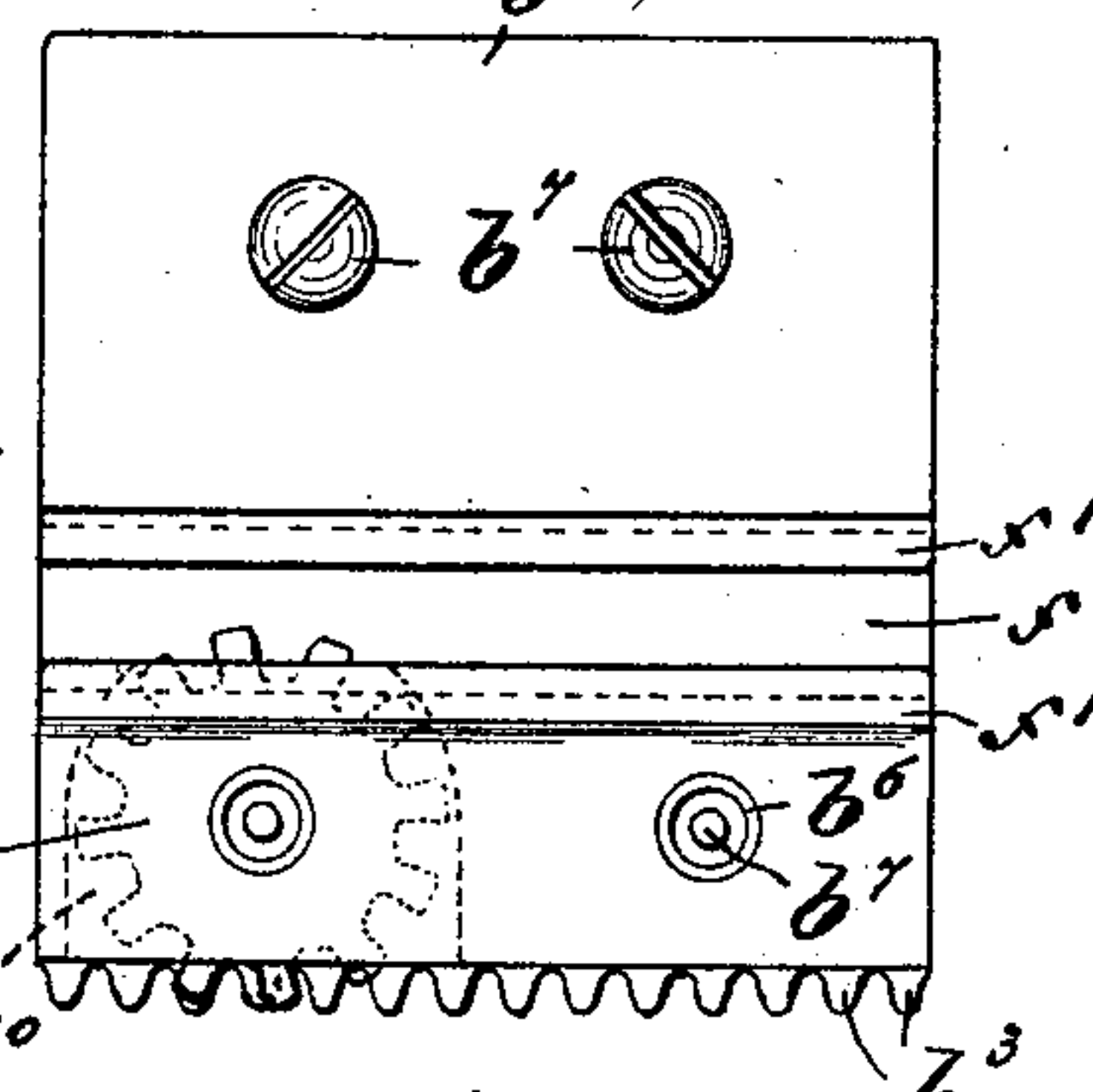


Fig. 5.

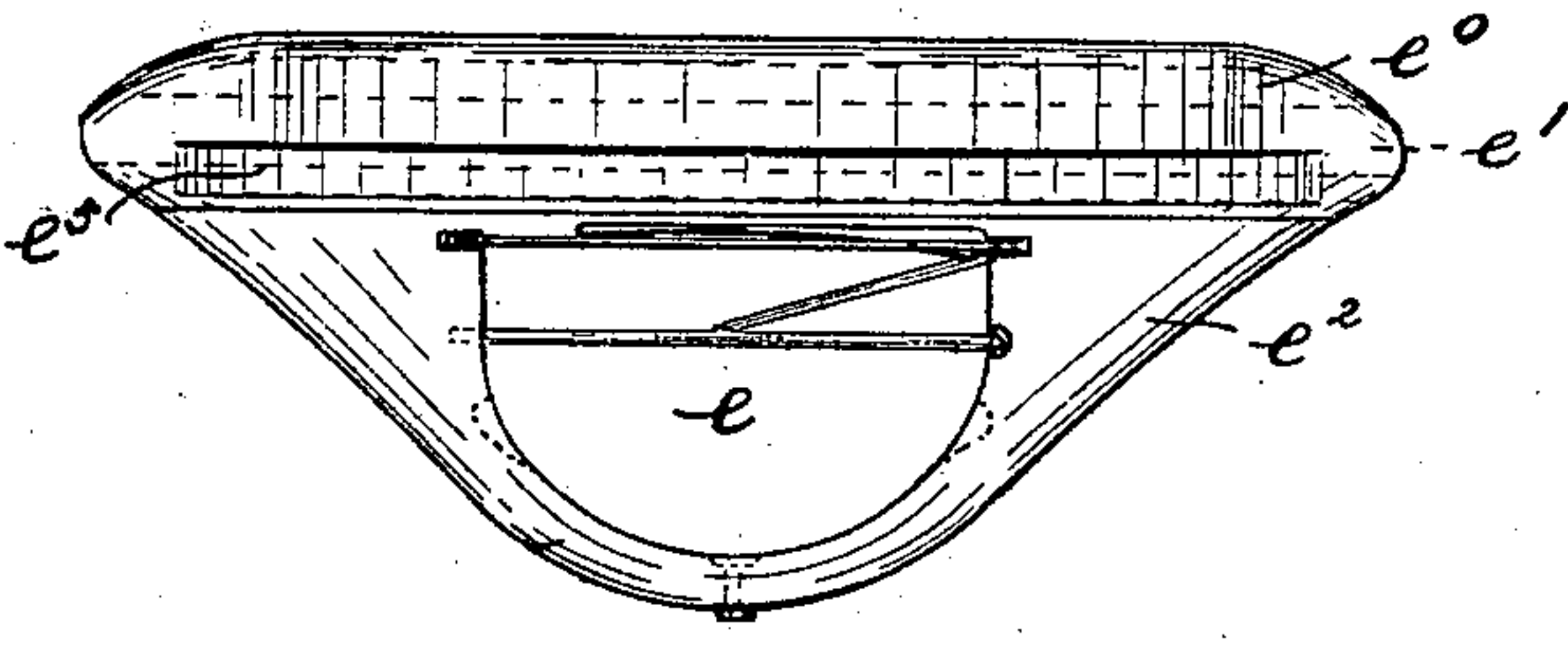


Fig. 6.

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OTTO W. SCHAUM, OF PHILADELPHIA, PENNSYLVANIA.

BATTEN, SHUTTLE-BLOCK, AND SHUTTLE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 607,486, dated July 19, 1898.

Application filed October 20, 1897. Serial No. 655,775. (No model.)

To all whom it may concern:

Be it known that I, OTTO W. SCHAUM, a citizen of the United States, residing in Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Battens, Shuttle-Blocks, and Shuttles for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a swivel-shuttle or ribbon loom with a batten and shuttle-blocks of simple, strong, and durable construction and wherein the shuttle-blocks can be readily and quickly removed from and readjusted on the batten even by the most inexperienced operator.

A further object is to provide said shuttle-blocks with grooves or races furnishing increased bearing-surfaces for the shuttles to be operated therein, whereby all further dropping or depressing of the noses of the shuttles is prevented and the latter are at all times in proper alinement, yet said grooves or races allow the shuttles a clearance in all directions in case of any roughness which may occur through the ordinary wear and tear of the batten.

A further object is to provide a shuttle with an increased bearing-surface conforming in shape to the increased bearing-surface in the shuttle-blocks.

The invention consists in the improved batten and its removable shuttle-blocks, in the peculiar construction of the shuttle adapted to operate in the races thereof, and in the combination and arrangement of the various parts, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a front elevation of my improved batten, partly broken away and having two shuttles arranged in the shuttle-blocks; Fig. 2, a top plan view of Fig. 1, partly in section, the central shuttle-block

and the shuttle arranged therein being removed; Fig. 3, an enlarged sectional view on the line $x x$ of Fig. 1, the shuttle being shown in engagement with its actuating-pinion; Figs. 4 and 5, a front and end elevation, respectively, of one of the shuttle-blocks, showing the same provided with a straight shuttle-race; and Fig. 6, an enlarged top plan view of one of the shuttles detached.

In said drawings, a represents the batten, consisting of a series of vertical strips $a^1 a^2 a^3$, glued together and also glued to the horizontal top strip a^4 , the growth (the increasing size of the wood in a concentric direction) of which latter runs at an angle to the top surface of the batten, while the direction of the respective grain of the vertical strips preferably runs in alternate or opposite direction to each other, by which arrangement the warping of the batten is reduced to a minimum and the shrinkage of the top strip a^4 , if any, will be in a vertical direction.

The top strip a^4 is provided near its rear portion with an elongated groove, into which is glued a rack-bar b^4 . Adjacent to said rack-bar and slidingly arranged in an elongated groove is the actuating rack-bar a^7 , adapted to operate a series of pinions d , arranged in recesses d^0 of the shuttle-blocks b^2 and revolvably mounted on the sleeves or bushings b^6 , which latter penetrate the vertical holes b^5 . Screws b^7 , of smaller diameter than the internal diameter of said bushings, secure said shuttle-blocks to the vertical braces a^5 . Said vertical braces are secured to the rear portion of the batten by screws or in any desired manner and are connected at or near their top portions by a horizontal brace or connecting bar a^6 .

Each shuttle-block is composed of two wooden plates; the growth of the rear one b^x being at substantially right angles to the growth of the front one b^0 . Said plates are glued together, and thus furnish a shuttle-block of great strength and durability, having its shrinkage and warping reduced to a minimum.

In the shuttle-blocks b^2 are arranged the curved or straight shuttle-races, each of which consists of the groove f and the adjoining recesses f' (on the front portion of the block) and of the elongated channel or chamber f^y ,

the back f^3 of which is parallel with the back of the shuttle-block and at right angles to the top f^2 of said channel and forms with said top a sharp edge or corner. In the lower portion of said channel is arranged an elongated groove f^z , which latter, together with the lower recess f' , forms a bridge or shoulder f^x , while the top portion of the channel f^y , together with the upper recess f' , forms a bridge or shoulder f^o , all as clearly illustrated in Figs. 3 and 5 of the drawings.

The shuttle-races are adapted to be engaged by the runners e^o of the shuttles e , which runners for that purpose conform in shape to that of the shuttle-races. Each runner is provided in its lower portion with an elongated rack-bar e' , adapted to be engaged by the teeth of the pinions d , as will be manifest.

It must be remarked that each shuttle is constructed of two pieces—that is to say, of the runner e^o and of the nose or front portion e^2 —which are glued together, the runner having been previously bent to the proper circle from a piece of straight-grained wood. The nose or front portion of the shuttle is also of straight-grained wood, and thus furnishes, together with its runner, a shuttle which is very durable and strong, (as there is no cross-grain to it,) especially on the points which are apt to chip off.

It will be manifest that the shuttles may be machined out of one piece of straight-grained wood after the same has been bent into the proper shape or curve.

It must also be remarked that by the peculiar construction of the shuttle-blocks the greatest bearing-surface for the shuttles is furnished by the rear plate b^x . In other words, the shuttles are run on the end grain of the wood, which knowingly is the hardest wearing-surface in any piece of wood.

Each shuttle-block b^2 is provided at its lower rear portion with a rack-bar b^3 , preferably glued into a groove in said block, adapted to engage the rack-bar b^4 in the top of the batten a , whereby the shuttle-blocks are held in proper position, which is a very important feature, as the grooves or races for the shuttles are then always in true and proper alinement. This alinement is made possible by the screws b^7 penetrating holes b^5 in the shuttle-blocks, which holes are of larger diameter than said screws.

From the foregoing it can be seen that looms provided with battens, shuttle-blocks, and shuttles of the construction above described are rendered more durable, stronger, and more efficient, and the getting out of order of said parts is almost entirely obviated.

In a copending application filed April 11, 1898, I have described and claimed the shuttle shown in Fig. 6 of the accompanying drawings of this application and also herein described. I therefore make no claim to said shuttle in this my present application.

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

1. A batten consisting of a series of vertical wooden strips, and of a wooden top strip glued to said vertical strips and at right angles thereto and having its growth at an angle to the top surface of the batten and to the grain thereof, substantially as and for the purposes described.

2. A batten consisting of a series of wooden strips glued together and having their respective grain in alternate or opposite direction to each other, and of a wooden top strip glued to said vertical strips and at right angles thereto and having its growth at an angle to the top surface of the batten, substantially as and for the purposes described.

3. A shuttle-block consisting of two wooden plates glued together, the back plate having its growth at right angles to the growth of the front plate and its grain substantially at right angles to the base of said shuttle-block, and having the shuttle-race penetrating the front plate and extending into the said back plate, substantially as and for the purposes described.

4. A shuttle-block consisting of two wooden plates glued together, the back plate having its growth at right angles to the growth of the front plate and its grain substantially at right angles to the base of said shuttle-block and having the shuttle-race penetrating the front plate and extending into the said back plate, the top of said shuttle-race being arranged at right angles to the back thereof and forms with said back a sharp edge or corner, substantially as and for the purposes described.

5. The combination with a batten, of a rack-bar secured in said batten, a series of shuttle-blocks adjustably arranged on said batten, a toothed rack carried by each shuttle-block and adapted to engage the rack-bar in the batten, and means for removably securing said shuttle-blocks to the batten, substantially as and for the purposes described.

6. The combination with a batten, of a rack-bar secured in the said batten, a series of vertical braces upwardly projecting from said batten, one or more shuttle-blocks adjustably secured to said braces, and a toothed rack carried by each shuttle-block and adapted to engage the rack-bar in the batten, substantially as and for the purposes described.

7. The combination with a batten, of a rack-bar secured in the top portion of said batten, a series of braces upwardly projecting from said batten, one or more shuttle-blocks carried by said braces and each provided with one or more horizontal holes, a screw penetrating its respective hole and engaging its respective brace and having its body of smaller diameter than the diameter of the hole which it penetrates, and a toothed rack carried by each shuttle-block and adapted to engage the rack-bar in the batten, substantially as and for the purposes described.

8. The combination with a batten, of a toothed rack secured in the top portion of said batten, a rack-bar slidably arranged in

said batten and adjacent to the toothed rack,
one or more shuttle-blocks carried by said
batten, a toothed rack on each of said shut-
tle-blocks and engaging the toothed rack in
5 the batten, the shuttle-race in said batten,
one or more pinions in each of said shuttle-
blocks and extending into the shuttle-race
and in engagement with the sliding rack-bar,
and shuttles slidingly arranged in said shut-
10 tle-race and adapted to be operated by said

pinions, substantially as and for the purposes
described.

In testimony that I claim the foregoing I
have hereunto set my hand this 18th day of
October, 1897.

OTTO W. SCHAUM.

Witnesses:

ALFRED GARTNER,
NELLIE PARKER.