

J. POYSER.
SHUTTLE MOTION FOR LOOMS.

(Application filed Oct. 10, 1902.)

(No Model.)

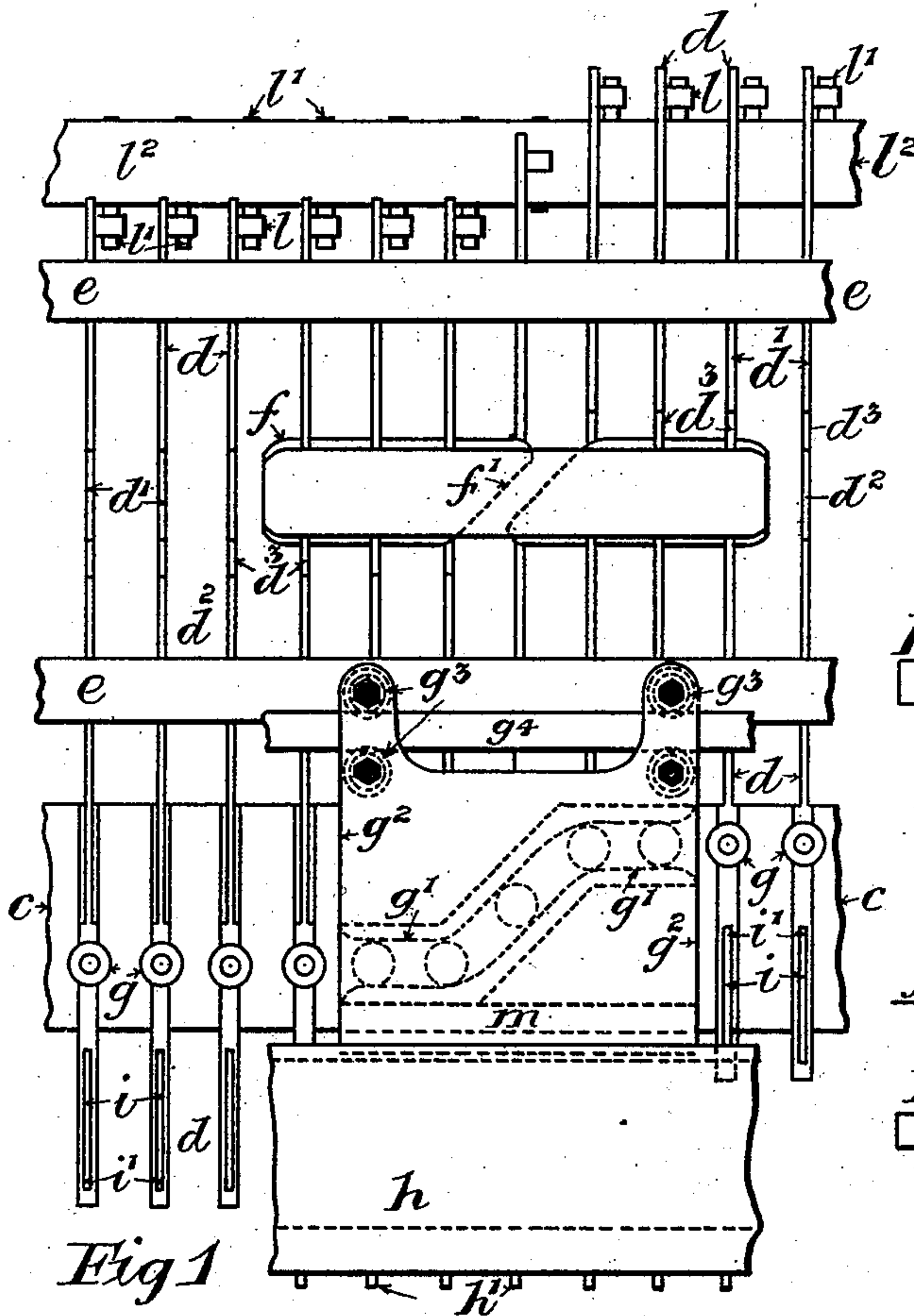


Fig 1

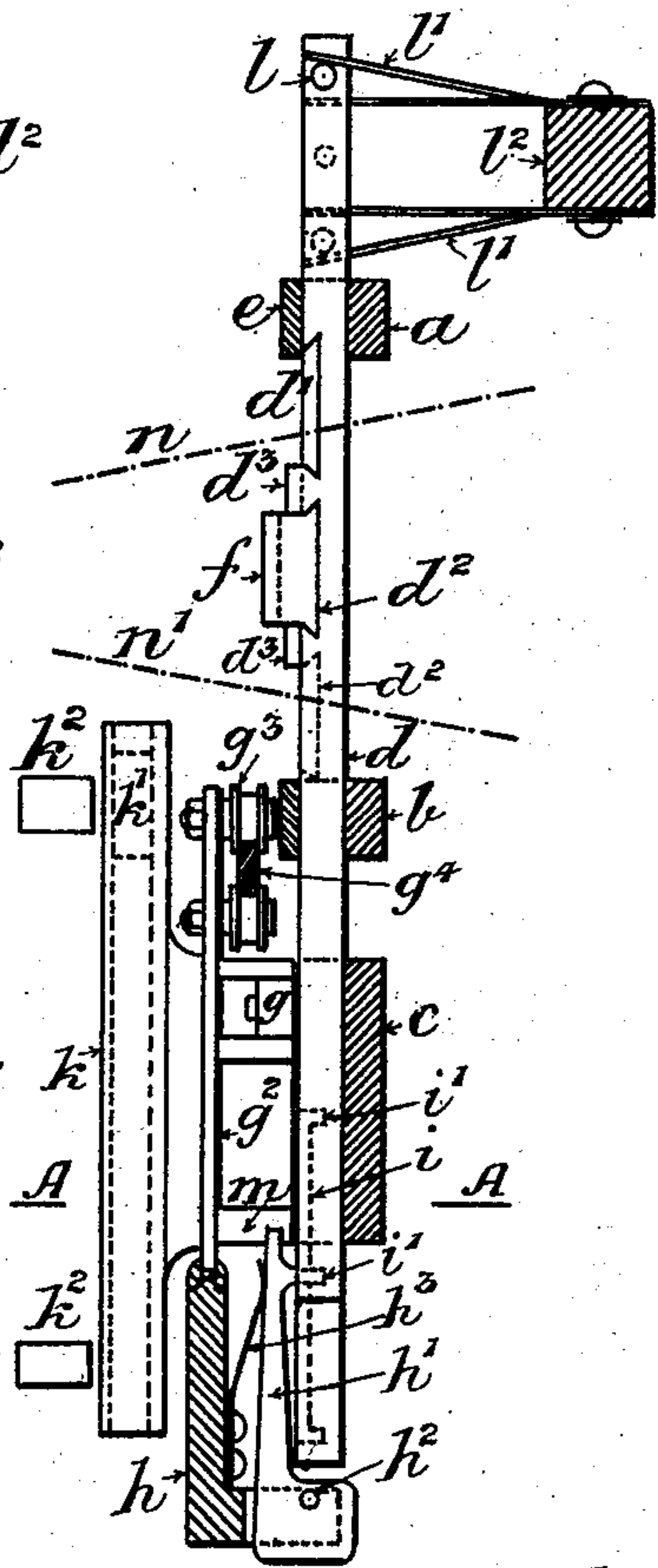


Fig 2

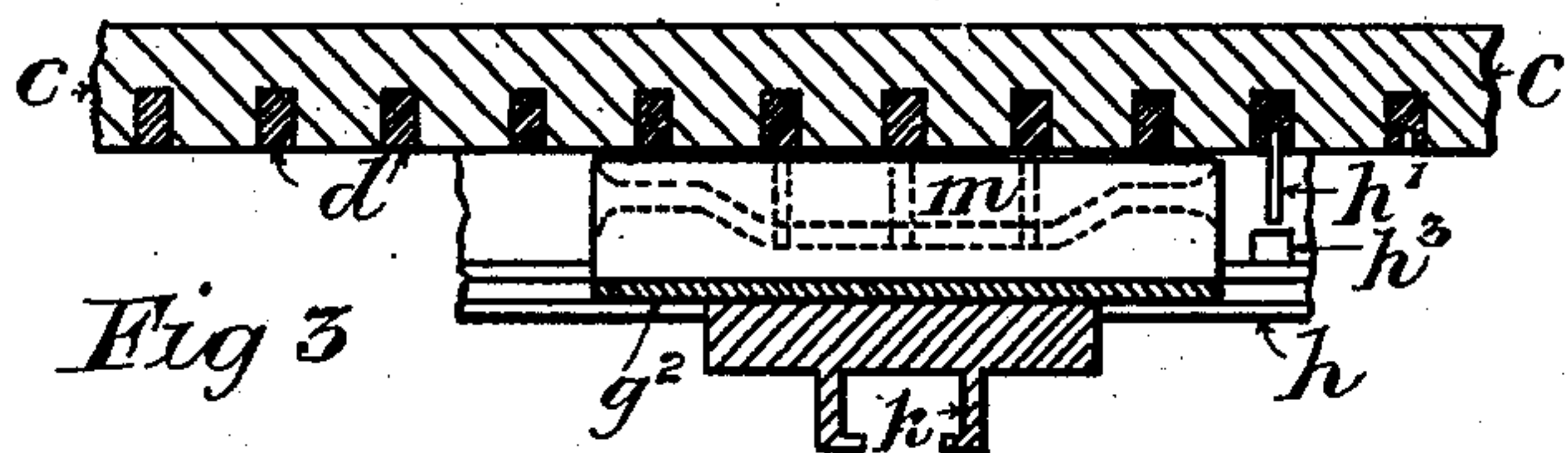


Fig 3

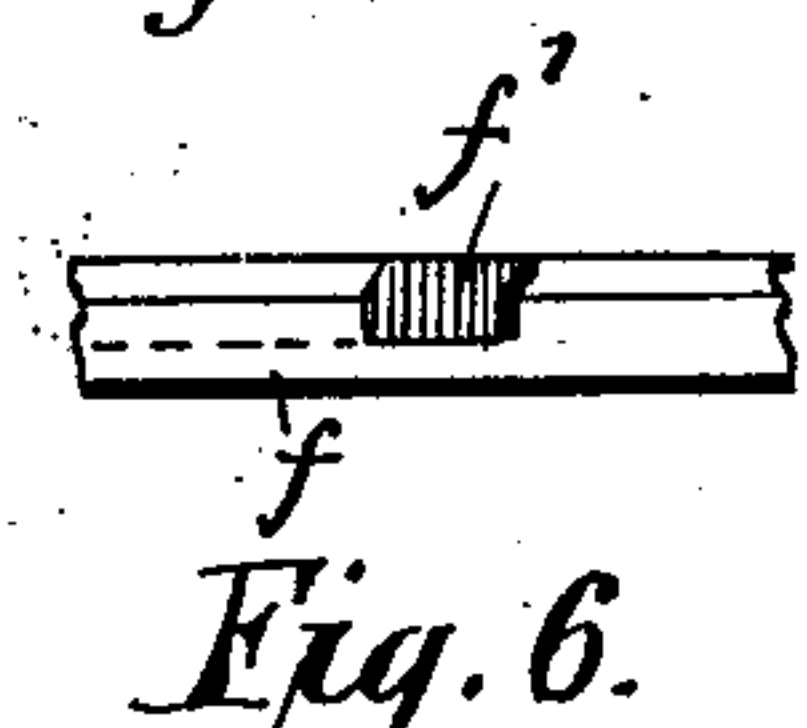


Fig 6.

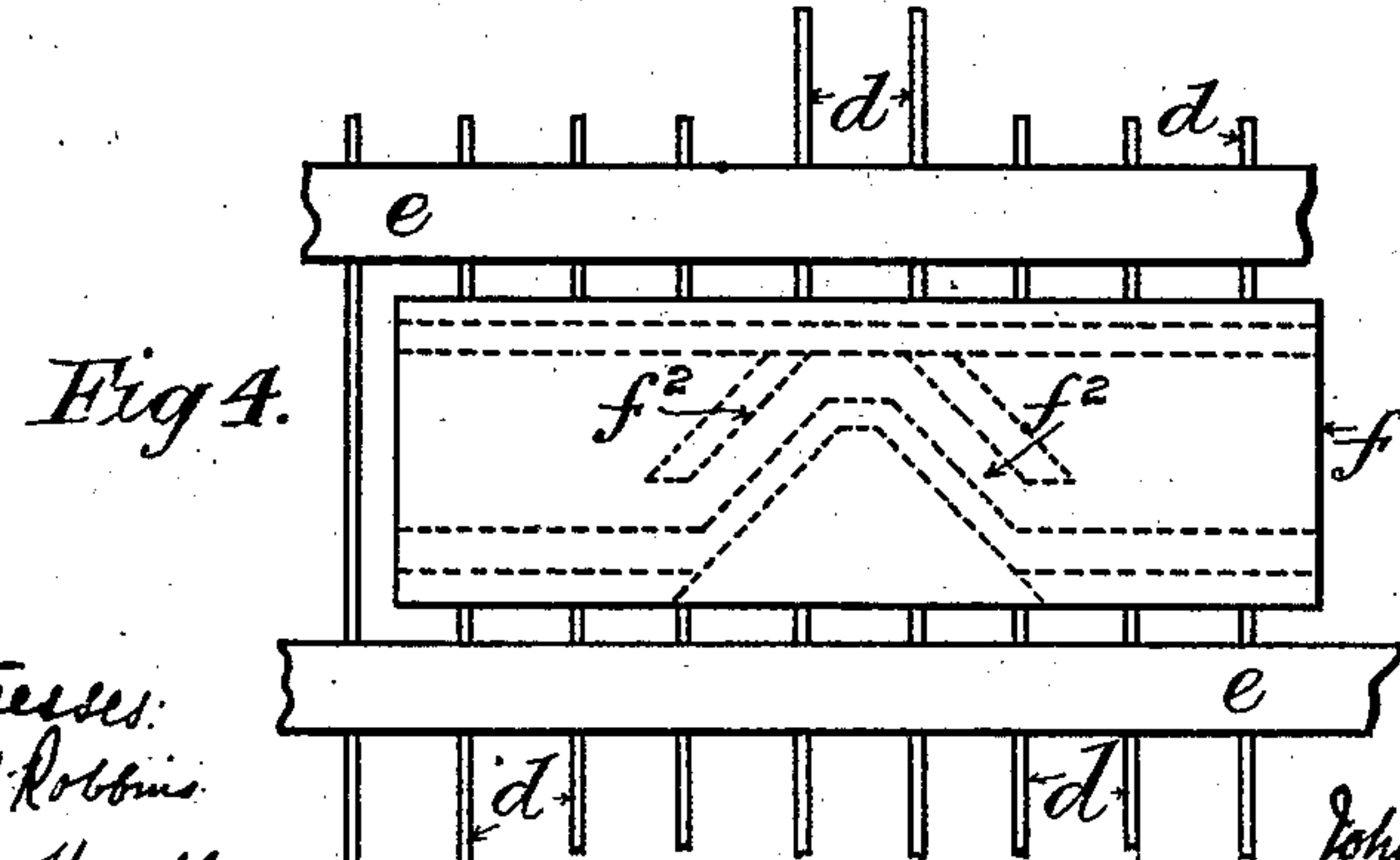


Fig 4.

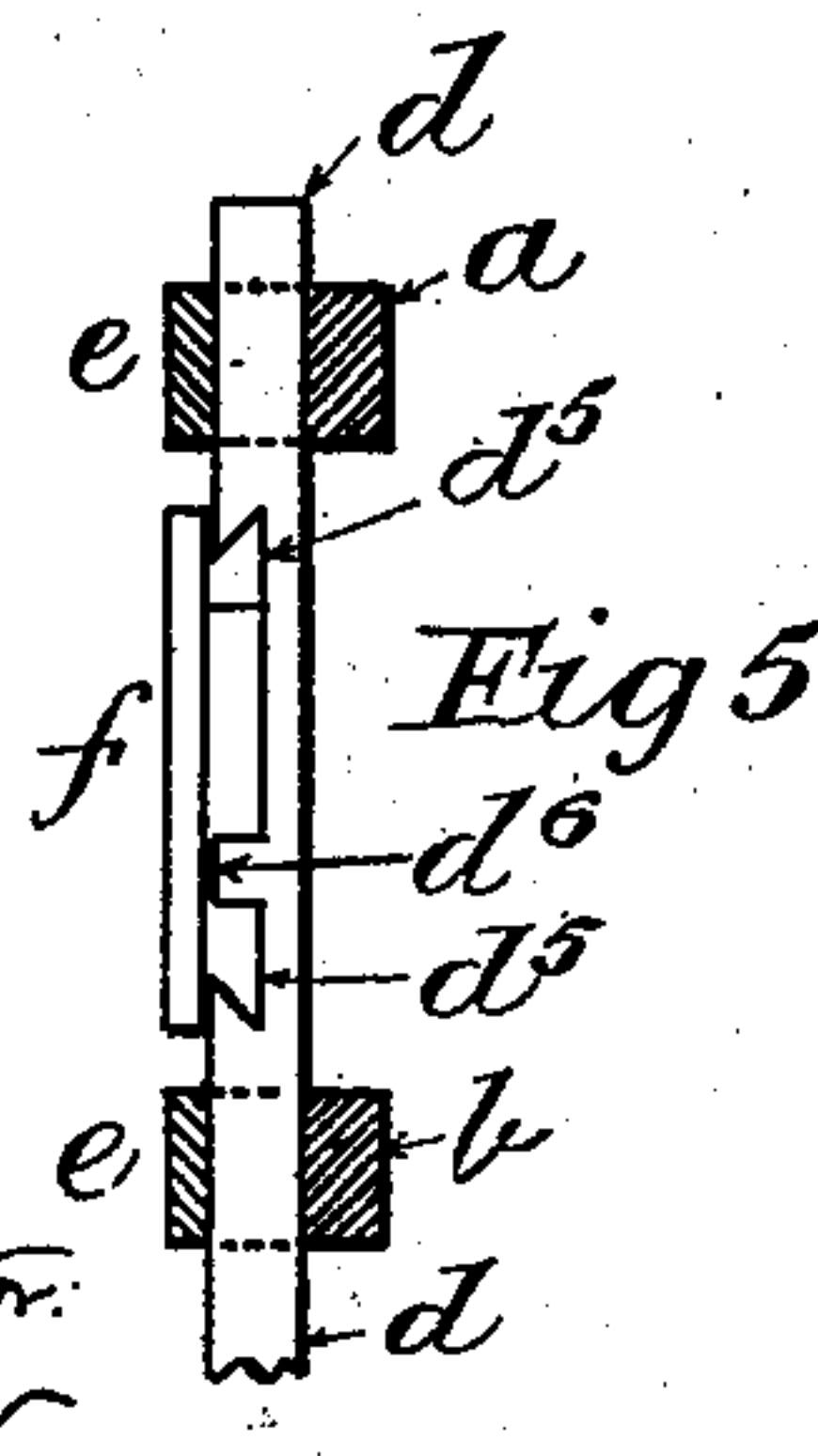


Fig 5

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN POYSER, OF MANSFIELD, ENGLAND.

SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 715,602, dated December 9, 1902.

Application filed October 10, 1902. Serial No. 126,747. (No model.)

To all whom it may concern:

Be it known that I, JOHN POYSER, a subject of the King of Great Britain, and a resident of Mansfield, in the county of Nottingham, England, have invented new and useful Improvements in Shuttle-Motions for Looms, of which the following is a specification.

This invention relates to improvements in looms provided with a divided batten of the kind described in the specifications of Patents Nos. 566,222 and 635,805, granted to me, the object of the present invention being the provision of means for positively propelling the shuttle.

In the drawings which accompany this specification, Figure 1 is a front elevation of part of a loom, showing the shuttle and the means for propelling the same. Fig. 2 is a sectional end elevation of the mechanism shown in Fig. 1. Fig. 3 is a sectional plan on the line A A, Fig. 2. Fig. 4 is a front elevation of a shuttle and a modification in the means for driving it, and Fig. 5 is a sectional end elevation of Fig. 4. Fig. 6 is a plan view of the shuttle, showing the cam groove or slot.

According to this invention the loom is provided with suitable end standards, to which cross-bars *a*, *b*, and *c* are attached. These bars are provided with grooves or tricks, which form guides for the shuttle-propellers *d*, and these latter are held in the tricks of the bars *a* and *b* by cover-plates *e*. The propellers shown in Fig. 2 have an upper recess *d'*, a lower recess *d''* and a butt or projection *d'''*. The recesses are shaped to correspond with the cross-section of the shuttle *f* and form a guide or raceway for it. At any convenient position, but preferably near the center, the shuttle is provided with a cam groove or slot *f'*, with which the butts *d'''* of the propellers engage when the propellers are moved from one position to another and by vertical pressure on the inclined sides of the groove *f'* propel the shuttle in a horizontal direction. The propellers are also provided with a lower butt or cam-roller *g*, and these are engaged in succession by a cam-groove *g'* on a cam-plate *g''*, which has rollers *g'''*, running on a guide-bar *g''''*, and at the lower edge is fitted to slide in a groove formed in an angle-bar *h*, which is suitably attached to a fixed part of the standard. The cam-plate *g''* may be recip-

rocated by any convenient means; but in the arrangement shown the cam-plate is fitted with a guide *k* for a sliding block *k'*, which is carried by an axle which projects from a link of an endless chain represented by the blocks *k''*. The chain is carried by chain-wheels at both sides of the loom and is driven from any convenient rotating part of the machine. The lower part of the bar *h* is provided with tricks, which are cut at the same pitch as the propellers, and each trick is provided with a catch *h'*, which is pivoted at *h''* and held toward the propellers by a spring *h'''*. The front edge of the propellers has a recess *i*, in which the nose of the catch rests, and at the ends of this recess there are deeper recesses *i'*, into which the catch is forced and holds the propeller in the position left by the cam. In connection with the catches *h'* there is a cam *m*, which is attached to the cam *g''* and is designed to separate the catches and propellers just before the cam-rollers enter into engagement with the inclined portion of the cam-groove *g'* and to positively force the catches into the recesses *i'* just after the propellers leave the inclined portion of the cam-groove *g'*.

At the upper end of the propeller or at any other convenient position there is a pin *l*, which is arranged in conjunction with springs *l'* on a fixed bar *l''*, this arrangement aiding the propellers to start their movement and checking them at the end of such movement.

In the arrangement shown the propellers toward the left hand are positively held in their lowest position, and the recesses *d'* form the raceway or guide for the front end of the shuttle. The center propeller or propellers is or are being raised by the cam-groove *g'*, and the upward pressure of the butt or butts *d'''* on the groove *f'* propels the shuttle, while the propellers toward the right are positively held in their highest position, and the recesses *d''* form the raceway or guide for the back end of the shuttle. At the reverse traverse toward the right the recesses *d''* form the raceway or guide for the front end of the shuttle and the recesses *d'* the raceway or guide for the back end of the shuttle, which is propelled by the downstroke of the propellers. The pitch of the propellers and the length of the groove in the shuttle are so arranged relatively to each other that at least one propeller

is always in engagement with such groove. The propellers extend beyond the width of the fabric being woven, so that the shuttle when outside the shed is still engaged by one
 5 or more of the propellers, and these end propellers may be stronger and closer together than those in the warps to better resist the motion of the shuttle and bring it to rest.

The shuttle is fitted with a cop or bobbin
 10 and with a finger or guide for laying the weft in front of the batten, and there is any desirable tension arrangement, the shuttle and its connected parts being so arranged that they will pass between the upper and lower
 15 warps u and u' when the shed is fully open.

In the modification shown in Figs. 4 and 5 the propellers d are formed with a single recess d^5 and with a butt or projection d^6 within
 20 f^2 , which is inclined in opposite directions, as shown, and it is propelled by an up-and-down motion of the propeller instead of an up or down motion, as in the first arrangement, the cam actuating the propellers being shaped to
 25 correspond with the shape of the groove f^2 on the shuttle. The other parts of the shuttle-actuating mechanism and the action of the same are arranged and operated in the same manner as the corresponding parts in the first-
 30 described arrangement.

In addition to the parts herein described the loom is provided with a warp-beam, healds, and other usual and necessary parts.

What I claim is—

35 1. In a loom of the kind herein referred to, the combination of a shuttle, having a cam-groove therein, reciprocating propellers which support and propel the shuttle, said propellers having a projection which takes in the said
 40 cam-groove, and a reciprocating cam, actuat-

ing such propellers, substantially as herein set forth.

2. In a loom of the kind herein referred to, the combination of a shuttle, having a cam-groove therein, reciprocating propellers hav- 45 ing recesses therein forming guides for the shuttle, butts on the propellers adapted to engage with the shuttle cam-groove and propel the shuttle, cam-rollers on the propellers and a positively-driven cam-plate adapted to en- 50 gage with the cam-trucks on the propellers substantially as herein set forth.

3. In a loom of the kind herein referred to, the combination of a shuttle, having a cam-groove therein reciprocating propellers adapt- 55 ed to engage with and propel the shuttle, a reciprocating cam actuating such propellers, catches for holding the propellers in the position in which they are left by the cam, and a cam or cams for positively actuating the 60 said catches substantially as herein set forth.

4. In a loom of the kind herein referred to the combination of a shuttle, having a cam-groove therein reciprocating propellers hav- 65 ing a raceway for the shuttle, and a projection or butt which engages with and propels the shuttle, guide-bars carrying the said propellers, a positively-driven cam actuating the said propellers, positively-actuated catches 70 for holding the propellers in position, buffer-springs acting upon the propellers, and chain-driving mechanism substantially as herein set forth.

In testimony whereof I have signed my name to this specification in the presence of 75 two subscribing witnesses.

JOHN POYSER.

Witnesses:

JOHN ARCHER,
 WILLIAM H. POTTER.