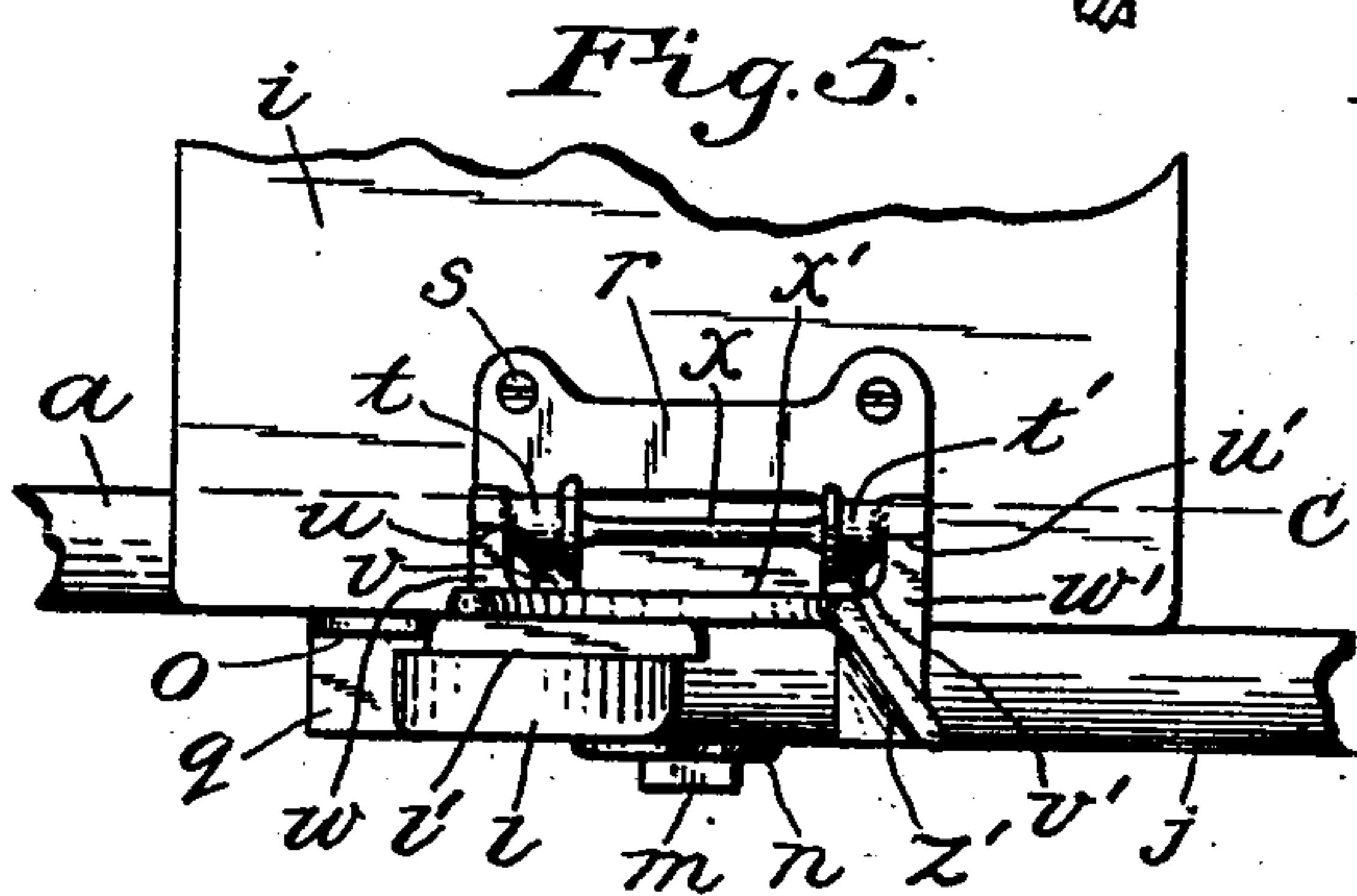
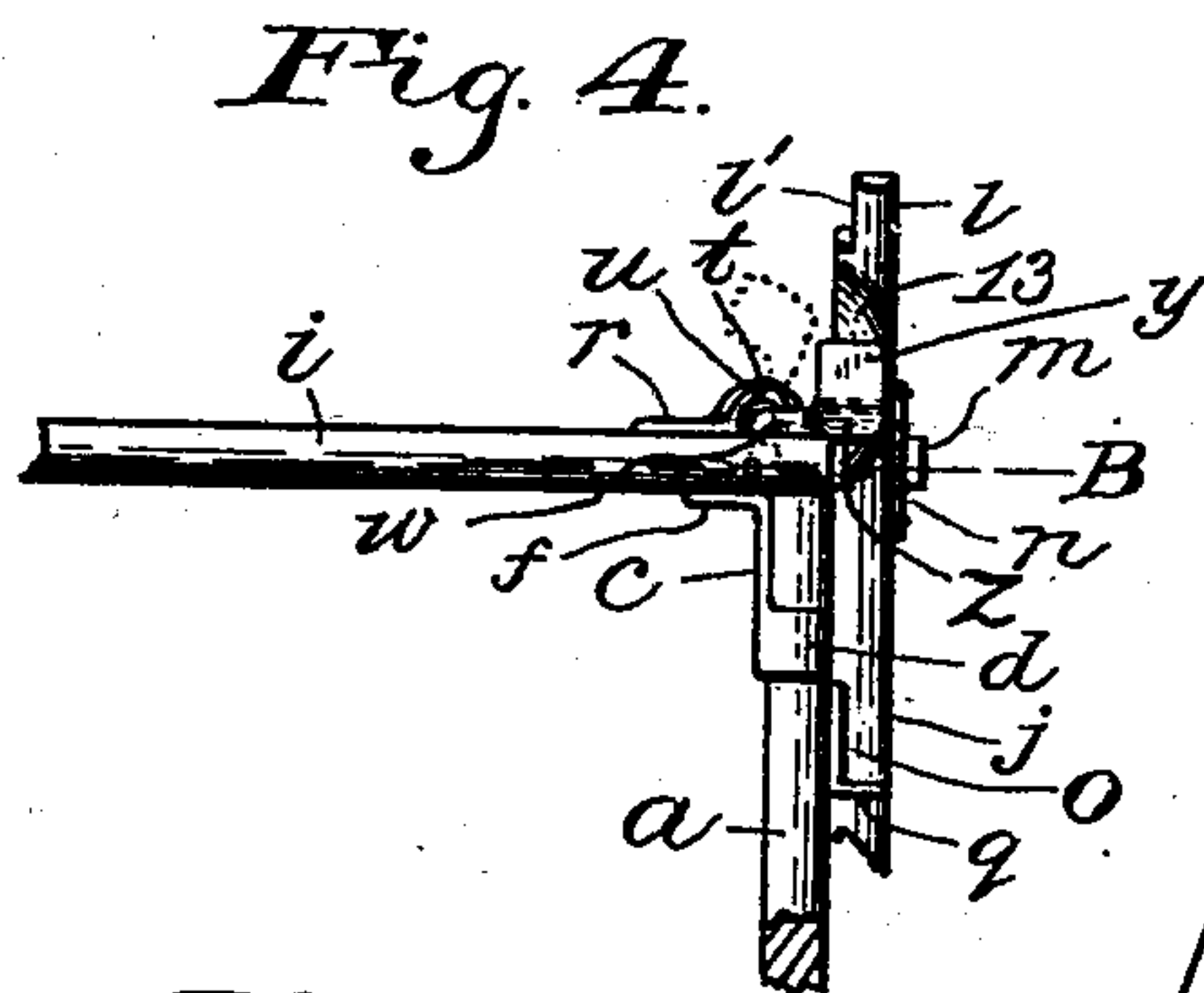
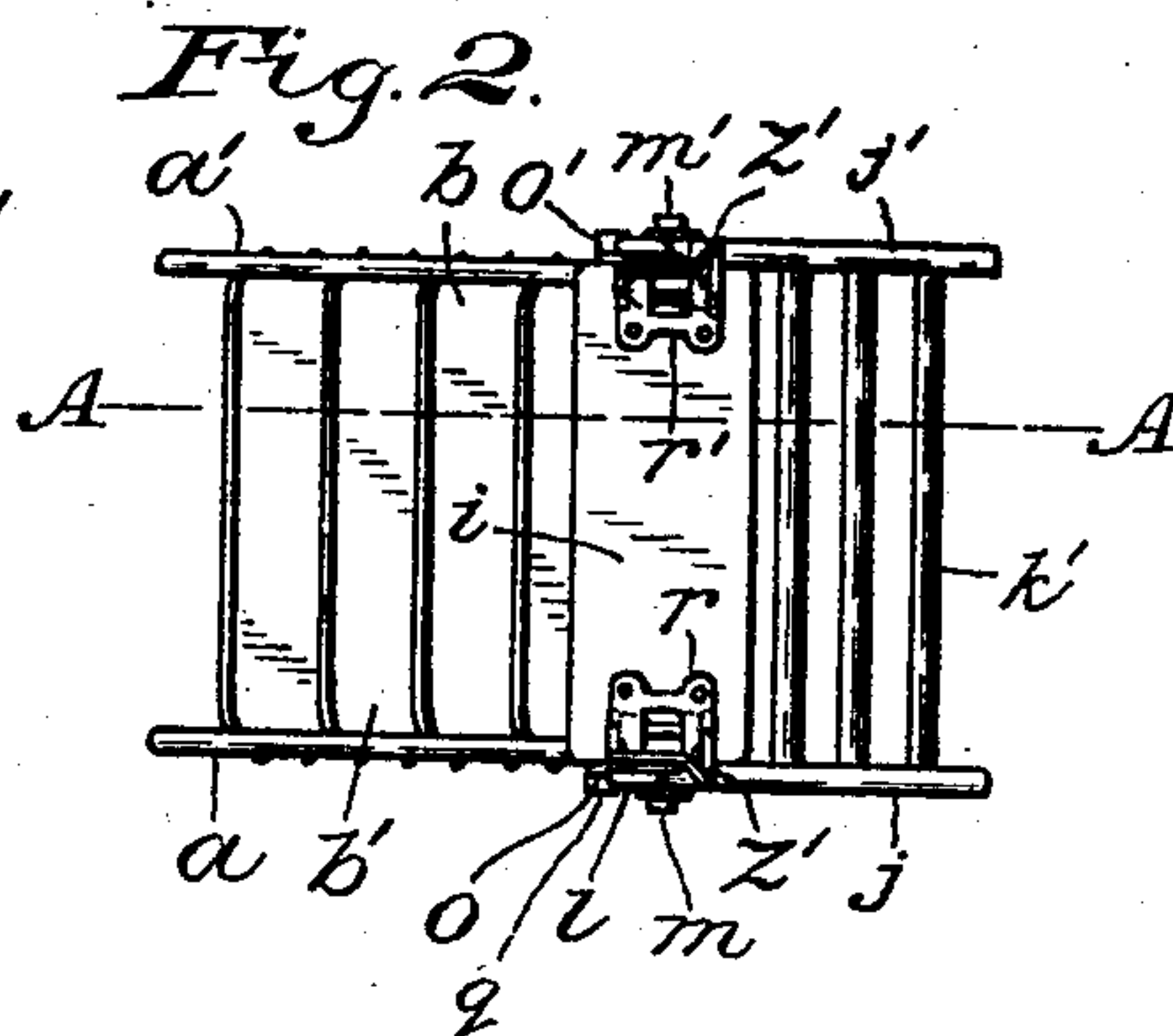
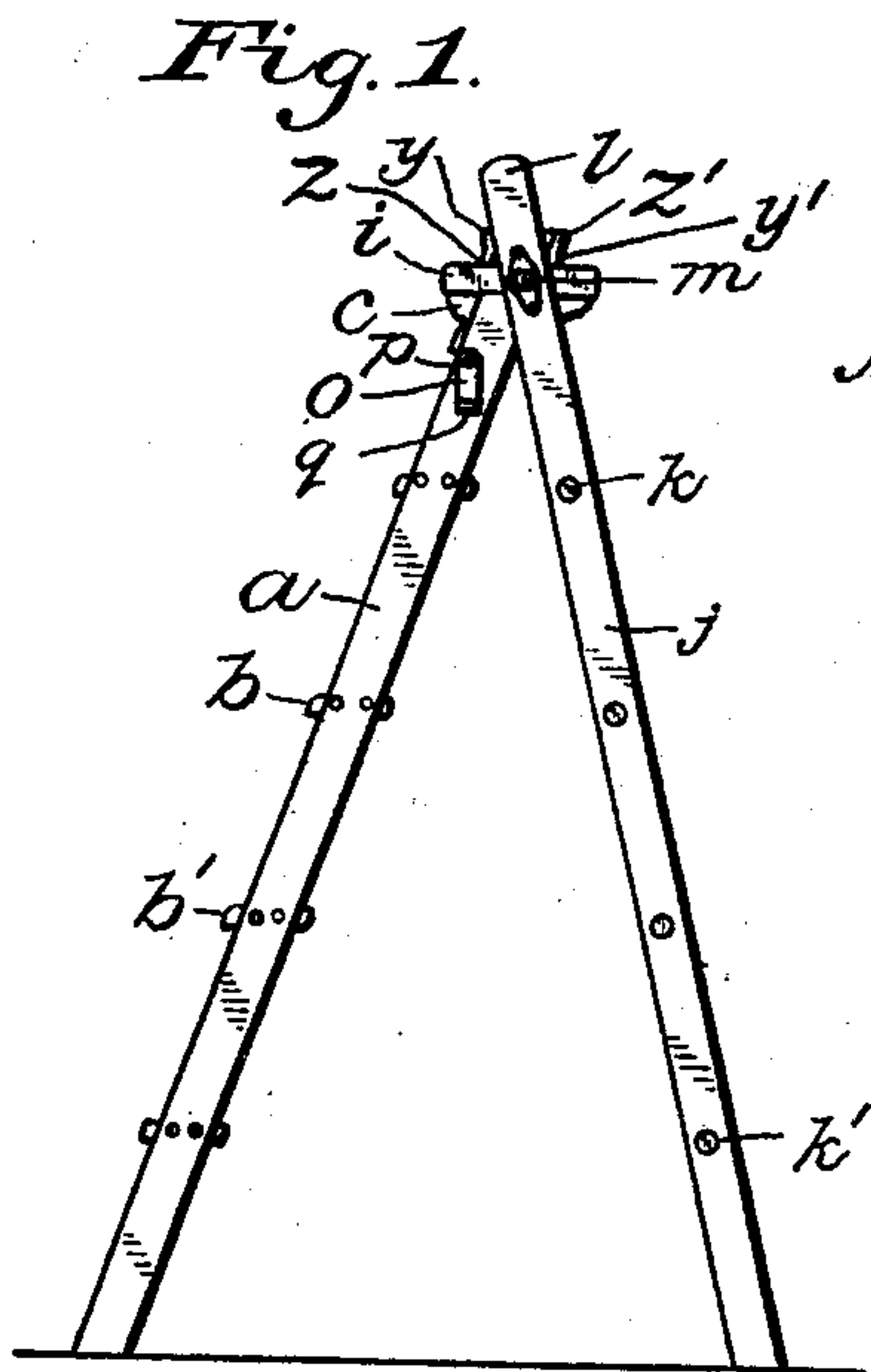


P. C. PLASTERER.
COMBINATION EXTENSION AND STEP LADDER.
APPLICATION FILED MAR. 14, 1908.

912,409.

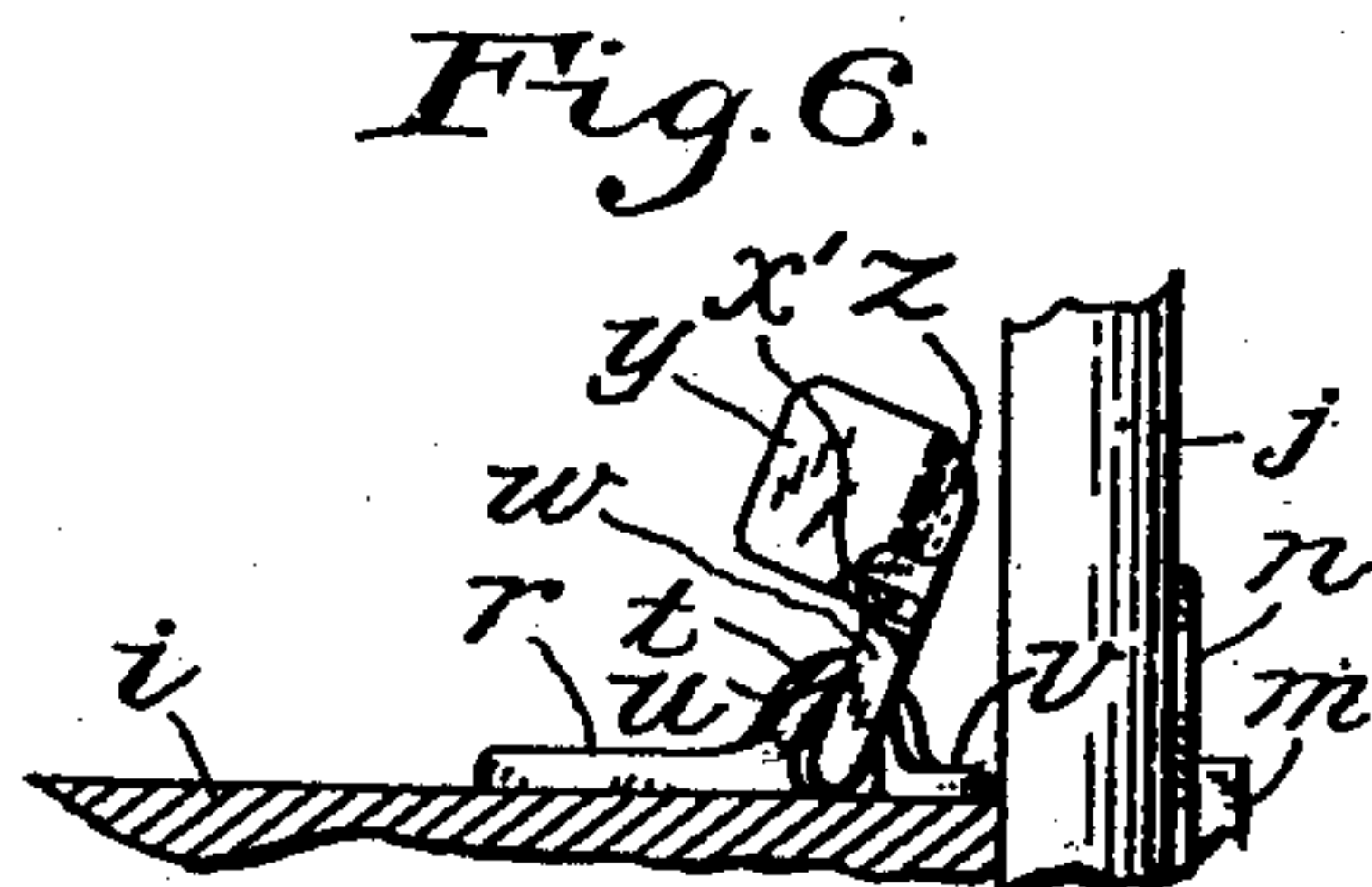
Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 7.

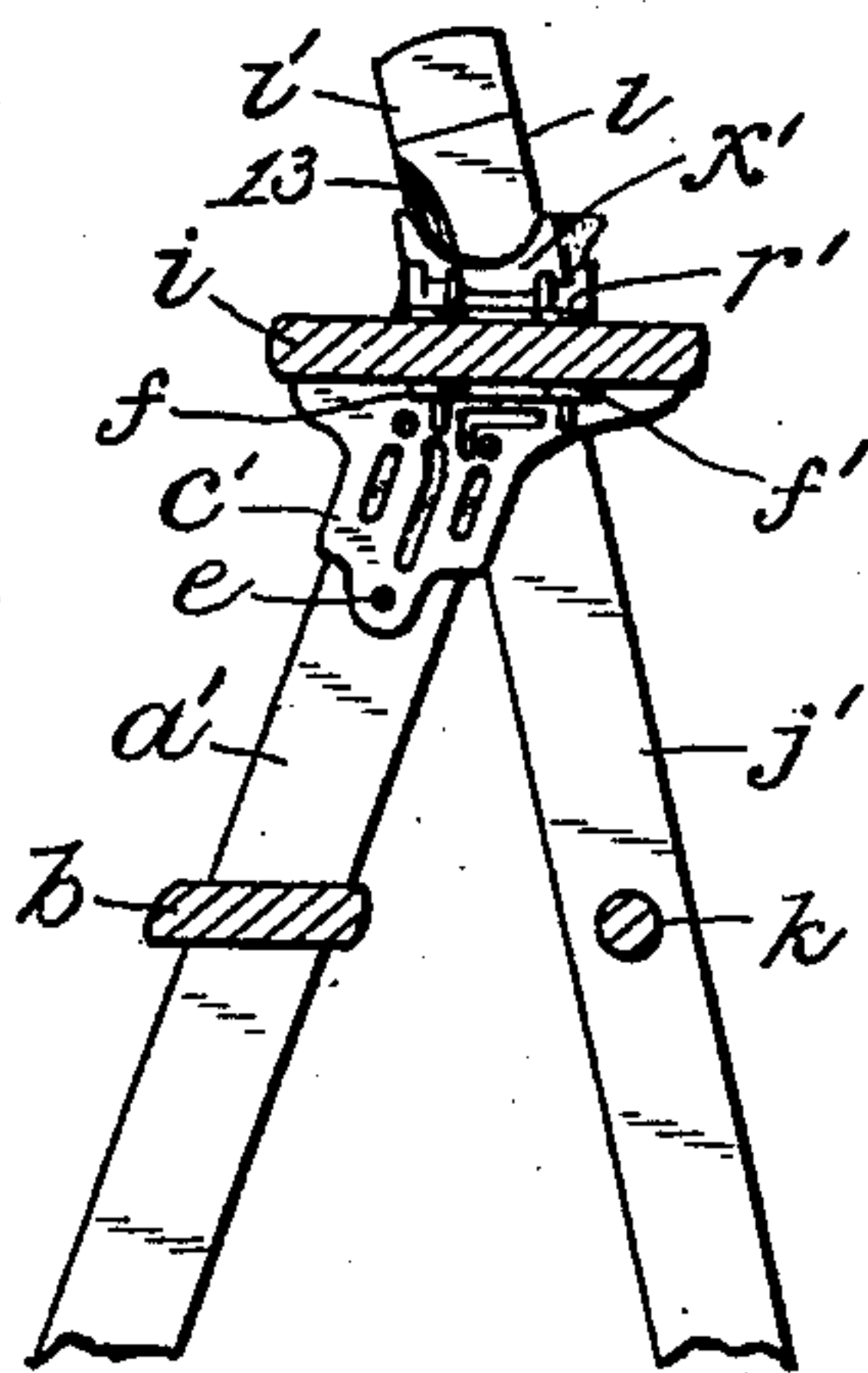


Fig. 8.

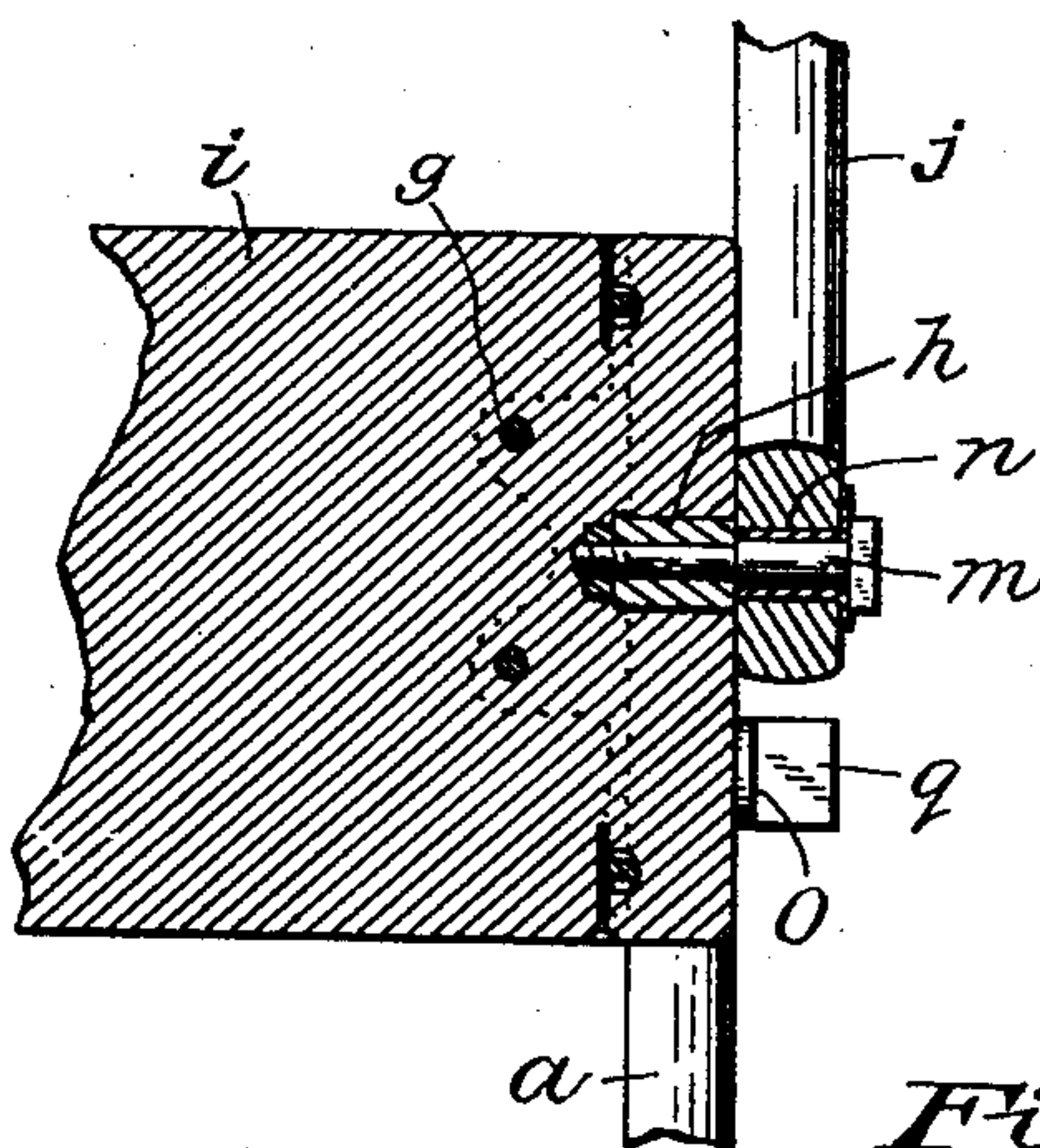


Fig. 9.

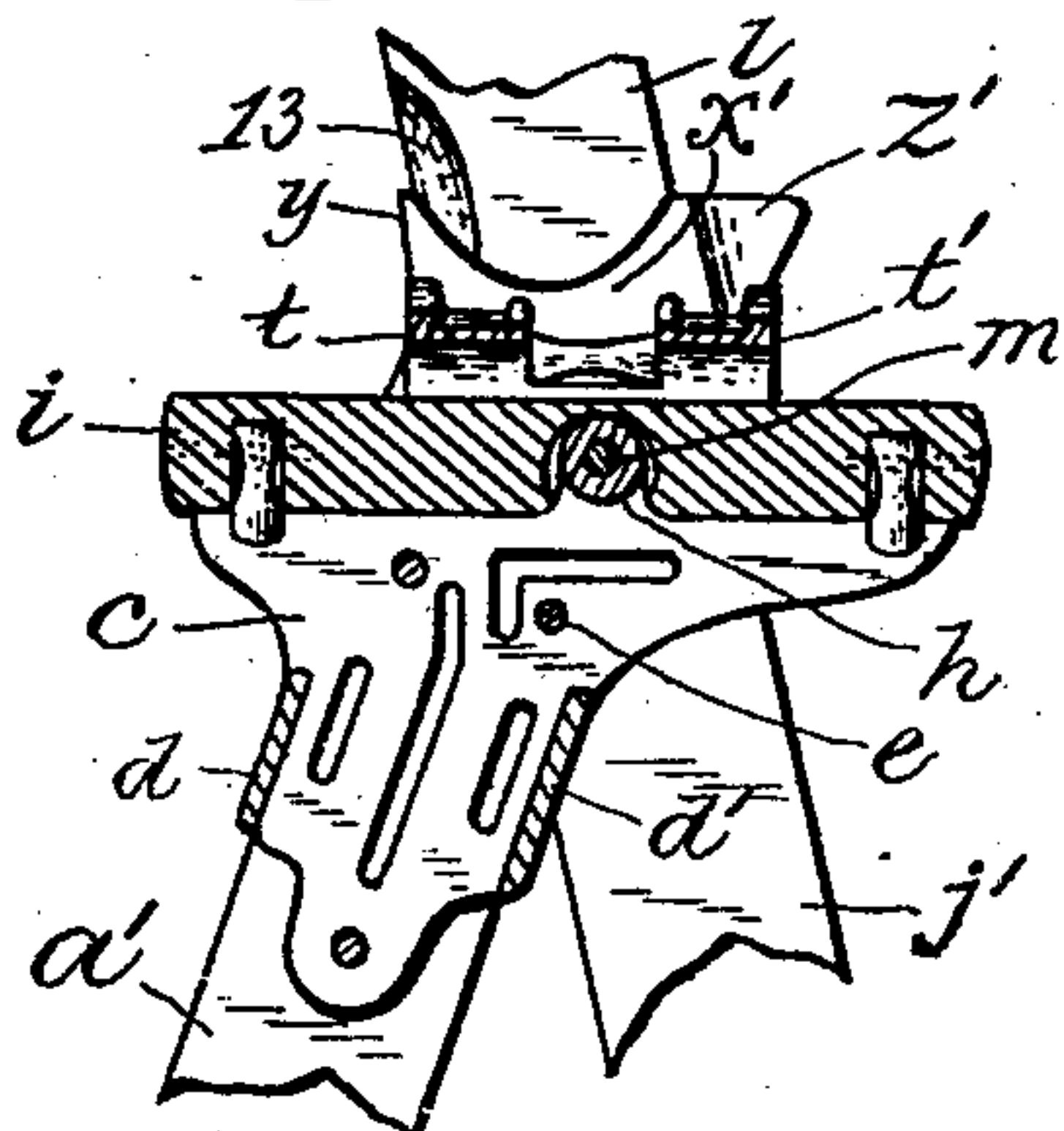


Fig. 10.

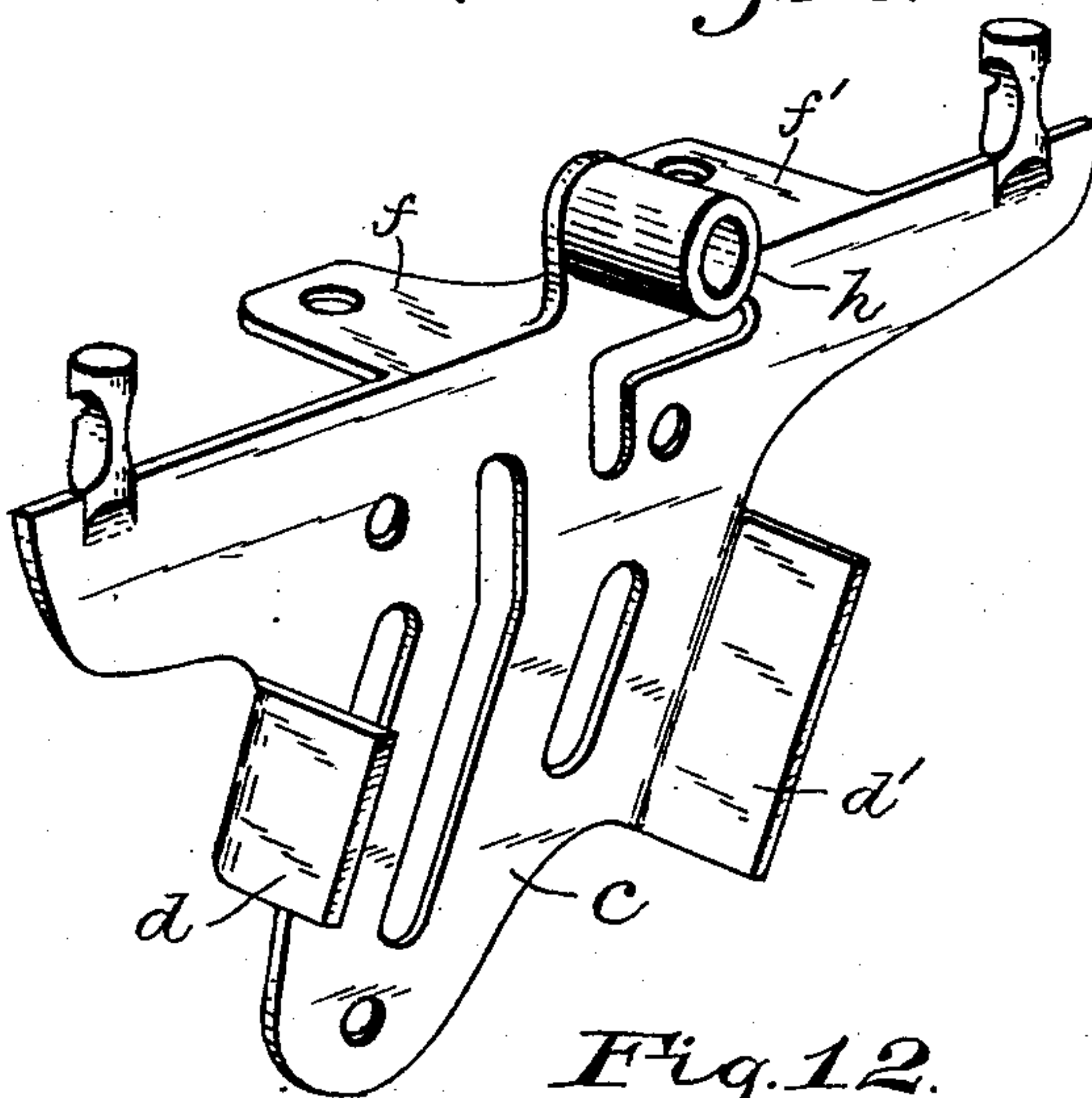


Fig. 11.

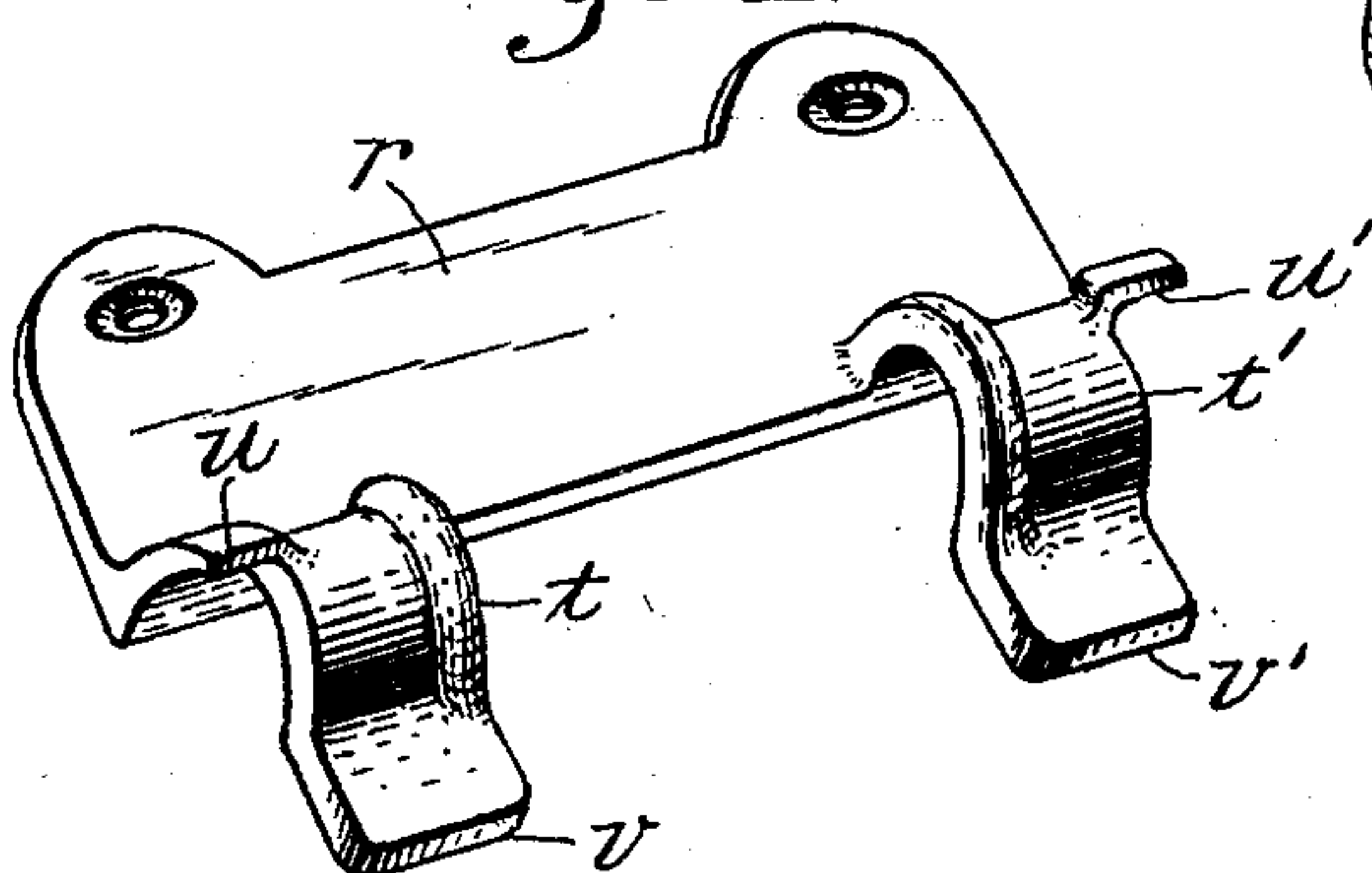
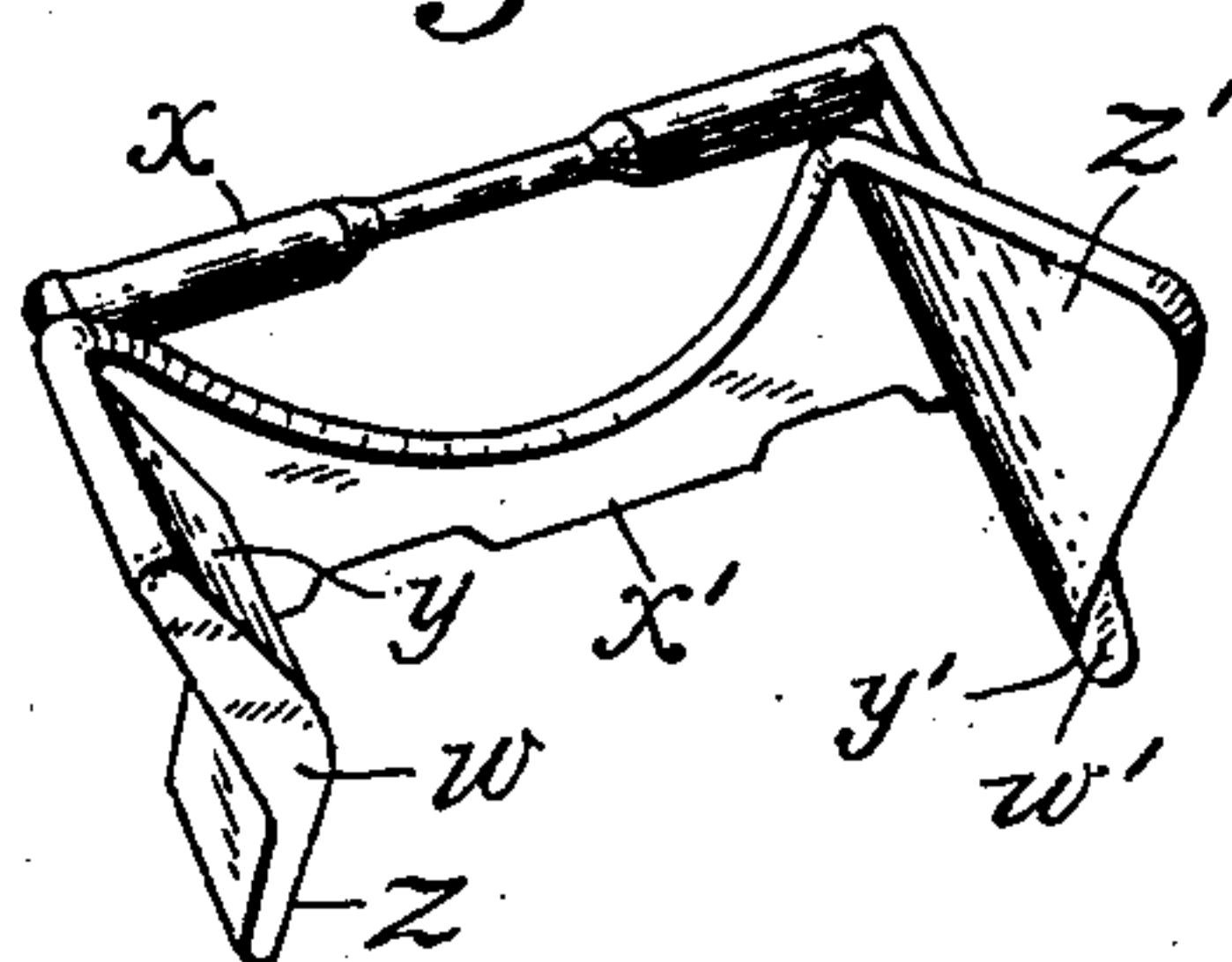


Fig. 12.



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UNITED STATES PATENT OFFICE.

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COMBINATION EXTENSION AND STEP LADDER.

No. 912,409.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed March 14, 1908. Serial No. 421,078.

To all whom it may concern:

Be it known that I, PURL C. PLASTERER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in a Combination Extension and Step Ladder; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to folding ladders that are designed to be used either as propped step ladders or as leaning ladders, the invention having reference particularly to the means whereby step ladder props are connected to the ladders proper, so as to be converted into extensible portions thereof for quickly converting a relatively short ladder into a longer leaning ladder.

The objects of the invention are to provide improvements in folding step ladders that will enable manufacturers to produce them at relatively small cost and whereby they may be adapted to wide ranges of usefulness and be durable and economical in use, a further object being to improve the connections between the ladder proper and the prop thereof, so as to be reliable in use either as an extension ladder or as an ordinary propped step ladder.

The invention consists in a step ladder having a ladder form of prop pivoted thereto in a novel manner, and provided with positive latching apparatus for securing the prop against movements relatively to the step ladder proper, the invention consisting further in the novel parts and the combinations and arrangements of parts as hereinafter particularly described and referred to in the claims appended hereto.

Referring to the drawings Figure 1 is a side elevation of the improved ladder arranged as a propped step ladder; Fig. 2, a top plan thereof; Fig. 3, a side elevation of the ladder extended as when leaning against a wall or other object; Fig. 4, a fragmentary front elevation thereof; Fig. 5, a fragmentary top plan; Fig. 6, a fragmentary sectional view showing one of the latches retracted so as to release the prop; Fig. 7, a

fragmentary vertical sectional view as on the line A A in Fig. 2; Fig. 8, a fragmentary horizontal sectional view on the line B B in Fig. 4; Fig. 9, a fragmentary vertical sectional view on the line C in Fig. 5; Fig. 10, a perspective view of the right-hand one of the two frame members whereby the two principal parts of the ladder are connected together; Fig. 11, a perspective view of one of the housings for the prop latches; and, Fig. 12, a perspective view of one of the prop latches.

Similar reference characters in the various figures of the drawings designate like elements or features of construction.

Practically embodied, the step ladder proper comprises two side pieces *a* and *a'* to which are attached a suitable number of steps as *b b'* arranged at suitable angles as is customary with respect to the side pieces. A pair of metallic frame members *c* and *c'* are provided which are substantially alike except that one is designed as a right-hand member and the other one as a left-hand member and are arranged at the inner sides of the side pieces *a* and *a'* at the upper ends thereof. Each frame member has a pair of flanges *d* and *d'* to engage the side pieces *a* or *a'* against the front and rear portions thereof, screws *e* or similar devices being employed for fastening the frame members to the side pieces. The upper portion of each frame member has a pair of lateral flanges *f* and *f'* to which a suitable platform may be connected by fastening devices *g*, such as screws, each frame member having also a boss *h* on the top thereof and extending laterally over the upper ends of a side piece *a* or *a'*. The platform *i* is placed on the tops of the frame members and on the flanges thereof and extends to the outer sides of the side pieces *a* and *a'*.

The prop comprises two side pieces *j* and *j'* to which are attached a suitable number of rounds as *k* and *k'*, the side pieces *j* and *j'* being connected pivotally near their upper ends to the bosses *h* so that arms *l* extend somewhat beyond the pivots, the inner side of the extremity of each arm having a recess *l'*, suitable pivot bolts *m* or *m'* extending through suitable openings in the side

pieces j and j' and secured in the bosses h , the openings in the side pieces preferably having bushings n to prevent the wood from wearing away about the pivots when the side pieces j and j' are composed of wood. The side pieces a and a' have lugs o and o' respectively connected to the outer sides thereof, each lug being connected to the side piece by a pivot p and having a lateral arm q , so that when the prop swings on its pivot to form an extension ladder as in Fig. 3, the recesses l' will clear the body portions of the lugs, and the extremities of the arms will engage the arms q of the lugs and swing the lugs so that the arms q will be brought to the rear portions of the side pieces a and a' to prevent the prop from folding forward over the top of the step ladder proper. When the prop is used as in Fig. 1 for propping the step ladder portion, or when the prop is folded against the step ladder portion, the lugs swing freely out of the way of the prop side pieces.

For latching the prop portion of the ladder, a pair of housings r and r' are secured on the top of the platform i by screws s , the housings being cast from one pattern. Each housing has a pair of journal caps t and t' at the sides of which are stop shoulders u and u' , the caps having projections v and v' thereon. A pair of right and left-hand latches are provided, each latch having two arms w and w' connected together by a journal x adapted to normally rest on the platform i with the journal under the caps t and t' , so that the arms extend outwardly at opposite sides of the side pieces j and j' , the latches being adapted to swing upwardly against the stop shoulders u and u' in such angles as will permit of the latches to drop by gravity when released, and when in normal positions the arms are supported by means of a cross bar x' that extends between the arms w and w' and rests on the projections v and v' . The arm w has an inclined portion y adapted to fit against the forward portion of either prop j or j' when adjusted as in Fig. 1, and the arm w' has an inclined portion y' to engage the rear part of the prop to prevent the prop from swinging on its pivots. The lower portion of the arm w has an inclined portion z , and the upper portion of the arm w has an inclined portion z' to engage the side pieces of the prop when swung on its pivots to form an extension ladder as in Fig. 3, so as to latch the prop portion in such position. The inner sides of the arms l have beveled portions 13 at the inner side of the forward parts thereof to provide clearance when lifting the latches.

In practical use, the prop part of the ladder may freely swing against the rear of the

step ladder part so that the platform i may be placed against a wall for support, or the prop part may be swung away from the other part as in Fig. 1, and will be held at the desired angle by the latches. In order to move the prop part, the latches will be lifted by hand against the stop shoulders u and u' while the arms l are being brought nearly to the proper positions when, by slight movements of the prop part on its pivots, the arms will drop into place so as to engage the arms l and latch the prop part. When it is desired to change the ladder so as to be longer to lean against a wall, the arms l will engage the arms q of the lugs o and o' and will be latched by means of the pair of latches above described, as clearly seen in Fig. 3.

Having thus described the invention, what is claimed as new is—

1. A step ladder provided on the top thereof with a pair of pivoted latches normally extending out beyond the sides of the top and swinging upward to be retracted, and a prop pivoted to the step ladder and having a pair of arms normally in engagement with the latches.

2. An extension and step ladder having a pair of lugs pivoted on opposite sides thereof, each lug having a lateral arm, and a ladder prop pivoted to the top of the step ladder and swinging into alignment therewith, the prop having a pair of arms to engage the arms of the lugs to prevent further movement of the prop.

3. A step ladder including a pair of frame members provided each with a boss, a platform attached to the members, two pivots, either pivot attached to either boss, a ladder prop connected to the pivots and having two arms extending beyond the pivots, and a pair of latches pivoted on the top of the platform and normally engaging the arms of the prop, the latches swinging upward away from the arms to release the prop.

4. A step ladder including a pair of frame members provided each with a boss, a platform attached to the members, a prop pivoted to the bosses of the frame members and having a pair of arms extending beyond the bosses, a pair of housings secured on the top of the platform, and a pair of latches pivoted to the housings and swinging upward clear of the arms of the prop, each latch having two arms normally extending at opposite sides of the arms of the prop above the plane of the bosses.

5. A step ladder comprising a pair of side-pieces, steps attached to the side-pieces, a pair of frame members having each a lateral boss thereon, the members having also flanges engaging the front and rear sides of the side-pieces and other flanges at the tops

thereof, a platform secured to the flanges at the tops of the members, a prop pivoted to the bosses to stand at an angle to the side-pieces, and a pair of latches mounted on the top of the platform on pivots that are parallel to the platform, each latch having inclined portions to engage the prop when set at an angle to the side-pieces, the prop hav-

ing beveled portions to clear the inclined portions.

In testimony whereof, I affix my signature in presence of two witnesses.

PURL C. PLASTERER.

Witnesses:

HARRY D. PIERSON,
E. T. SILVIUS.

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