

(No Model.)

A. G. JOHNSON.

MITER BOX.

No. 366,842.

Patented July 19, 1887.

Fig. 1.

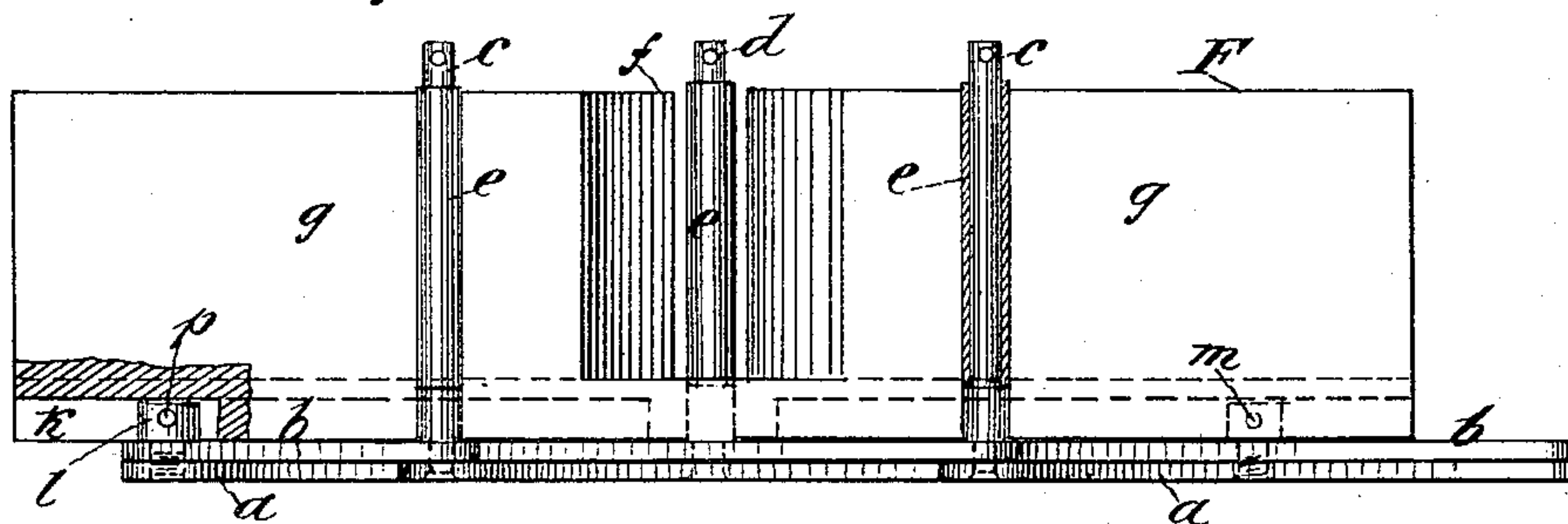


Fig. 2.

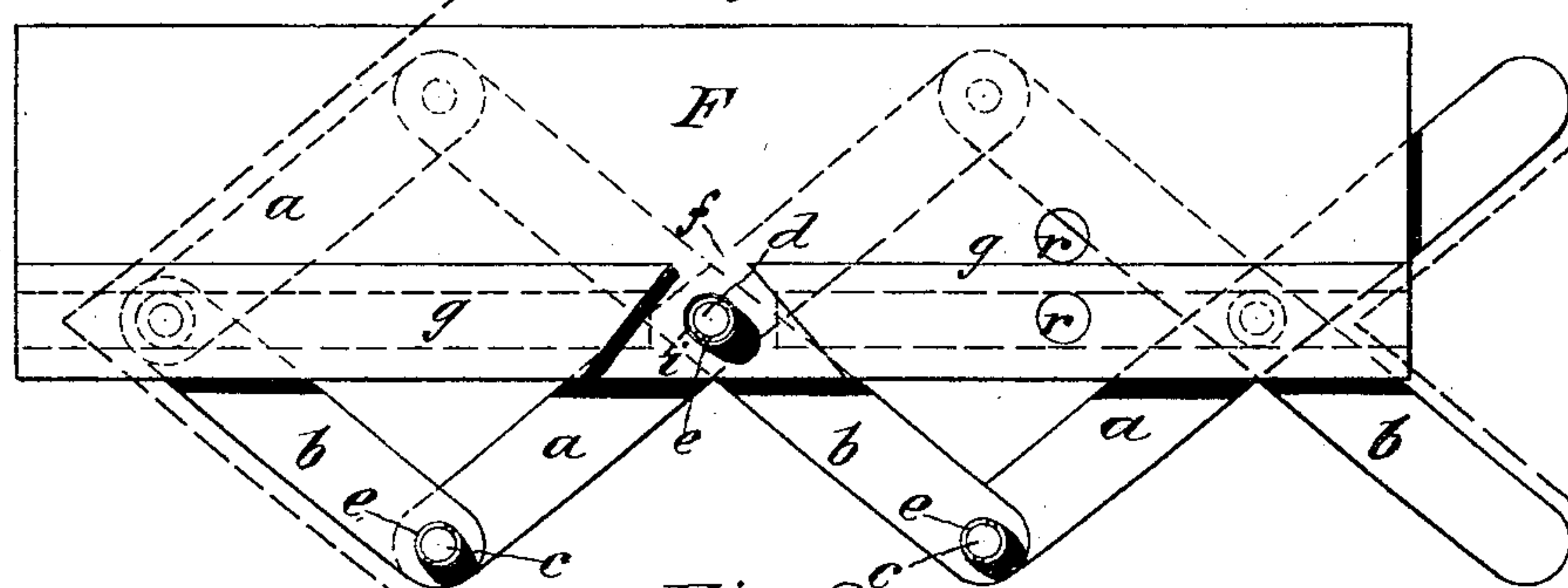


Fig. 3.

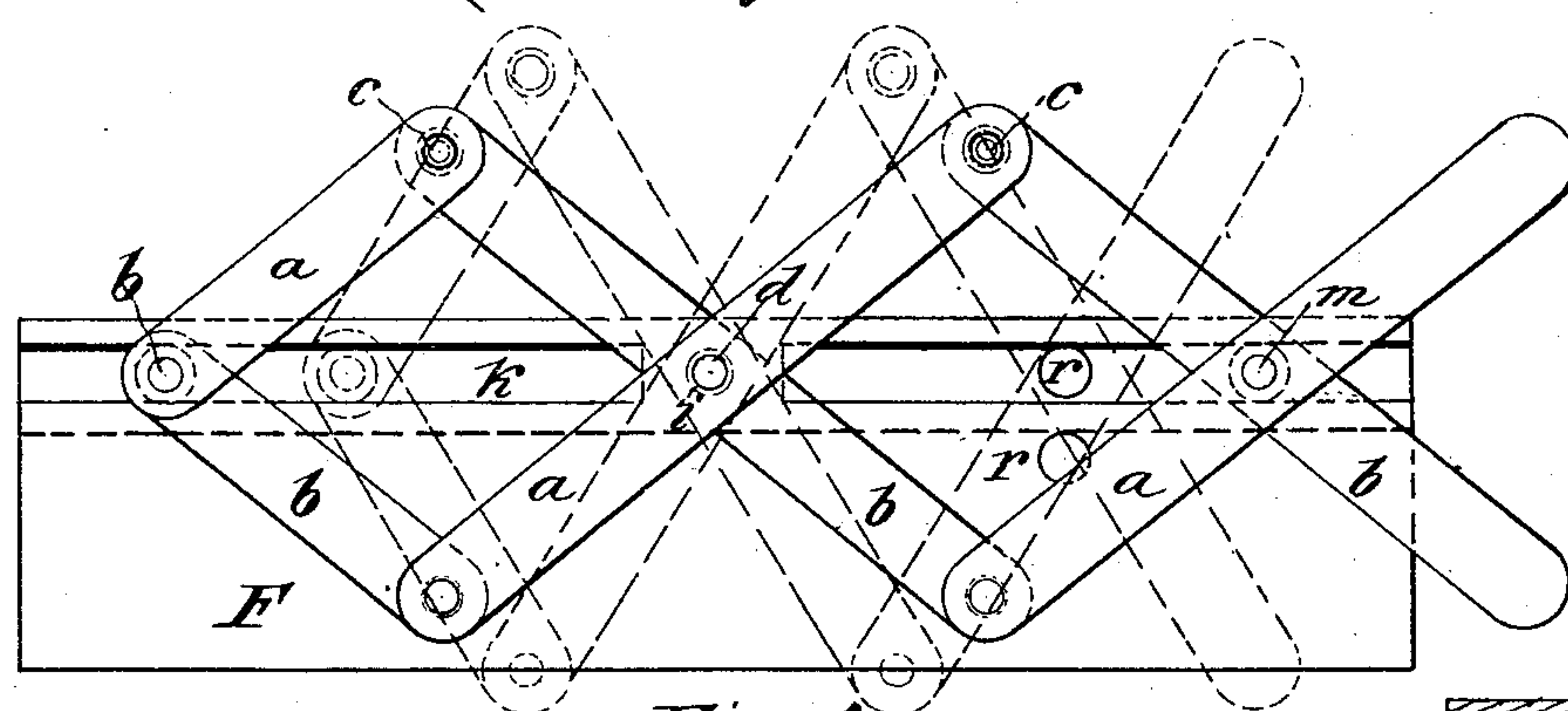


Fig. 4.

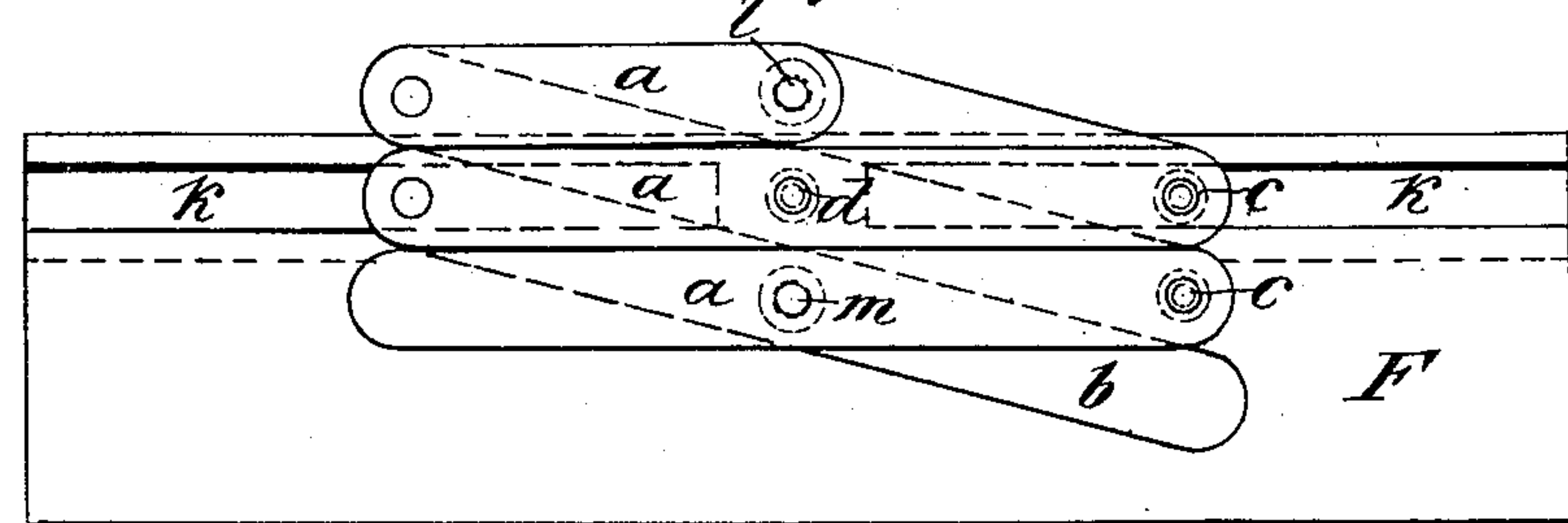
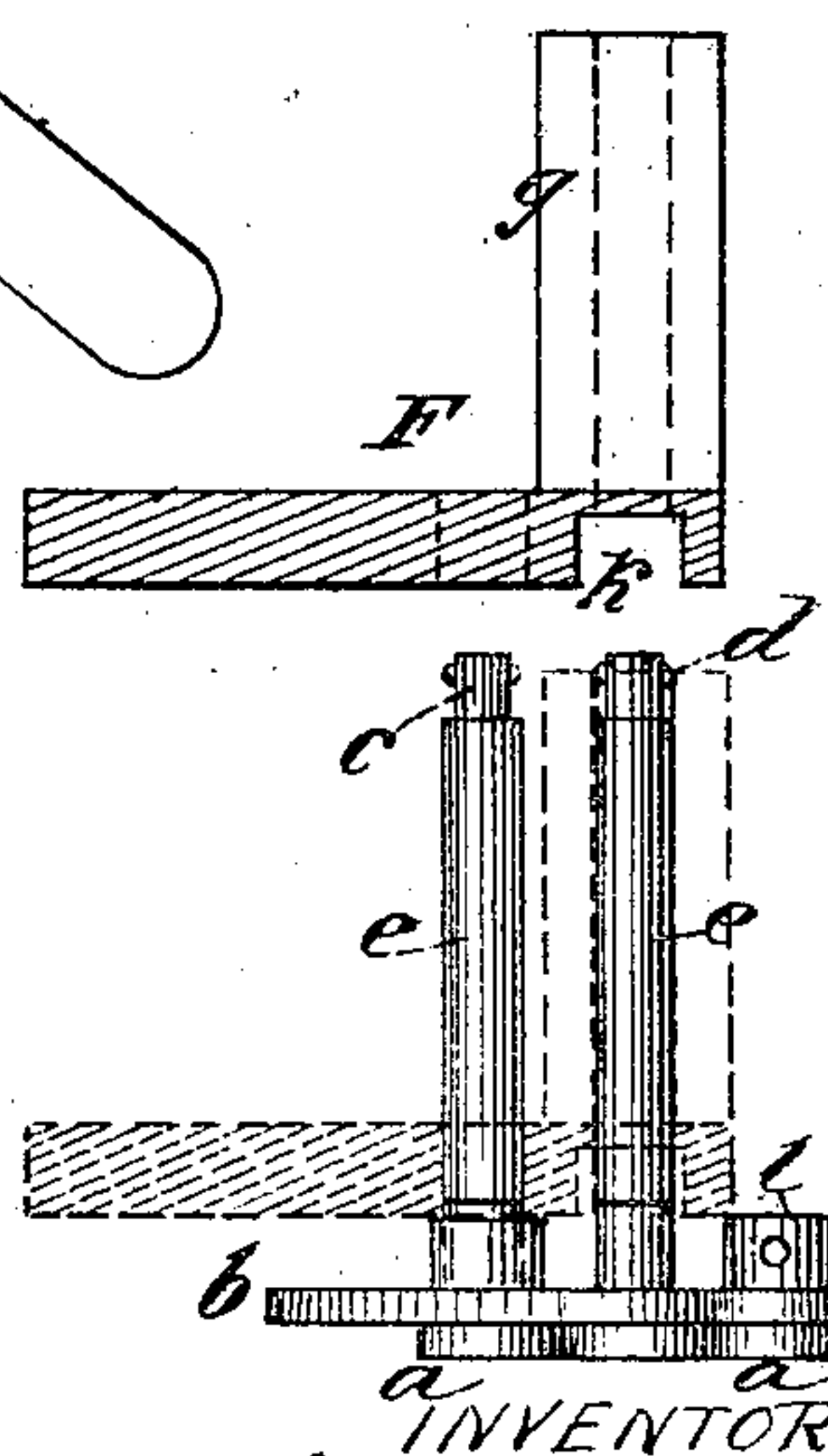


Fig. 5.



WITNESSES

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MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 366,842, dated July 19, 1887.

Application filed April 6, 1887. Serial No. 233,838. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER G. JOHNSON, of New York city, county and State of New York, have invented certain new and useful Improvements in Miter-Boxes, of which the following is a specification.

My invention relates to adjustable miter-boxes, and aims to provide a simple and efficient miter-box of this class which may not only be adjusted to different angles, but may be set by the angles in the work itself for which it is desired to cut the molding, thereby insuring accurate work. In addition to this, my invention aims to have the miter-box foldable into a compact space when not in use, and at the same time render the construction light and inexpensive.

To this end the main feature of my invention may be stated to consist in constructing the frame or base of the box of a series of jointed bars arranged in the form of lazy-tongs, the opposite ends of which preferably terminate, respectively, in a salient and an entering angle, with posts arising from the center and outer joints of the tongs forming the guides for the saw, whereby any desired angle may be obtained, according as the tongs are opened or closed more or less. In connection with this I use an L-shaped platform or ledge to hold the molding, which ledge fits over the lazy-tongs, and is provided with an underlying longitudinal groove which engages three projections on the center joints of the lazy-tongs, which are always in line, the middle projection forming a guide-post which rises up through a notch in the ledge, so that when the molding is placed against the ledge it may be sawed at the desired angle by passing the saw through the notch in a line coincident with the middle post and with one of the outer posts on the outer angles of the lazy-tongs.

My invention therefore lies in the main features above outlined, and in certain minor features in connection therewith, as hereinafter fully set forth.

In the drawings annexed, Figure 1 presents a side elevation of my improved miter-box. Fig. 2 is a plan view, and Fig. 3 an inverted plan view, thereof. Fig. 4 is an inverted plan of the box folded or contracted. Fig. 5 is a sectional end elevation in the folded position,

with the ledge or platform separated from the lazy-tongs.

Referring to Figs. 1 and 3, it will be readily seen that the foundation frame or base of the miter-box consists of a number of bars, *a b*, jointed together in the form of lazy-tongs, which may therefore be placed at different relative angles, according as the tongs are extended or contracted, or opened or closed more or less, as shown by full and dotted lines in Figs. 1 and 2. The bars are of course jointed at all angles or intersections by rivets or other means, so as to have free movement, in the usual manner of lazy-tongs. From two of the outer angles or joints, however, there arise two posts, *c c*, which posts, as shown in Figs. 1 and 5, are prolongations of the pivot-pin or rivet of said joints, such pivot-pin being secured immovably in one of the under bars, *a*, and turning freely in the other bar, *b*, as will be understood. From the middle joint of the tongs arises a third post, *d*, in a similar manner, as shown best in Figs. 1, 2, and 5. Now, the middle post, *d*, with the outer posts, *c c*, form the guides for the saw, determining the angle at which the saw-cut will be taken, and it will be readily understood that as the tongs are contracted or extended the angle of the outer posts with the middle post will be varied, as shown by dotted lines in Fig. 3, so that any desired angle may be thus obtained. The guide-posts *c d* are fitted with rollers *e* for contact with the sides of the saw, and which render the movement of the saw more easy. In order to form a proper rest or guide for the molding while being cut, I provide an L-shaped platform or ledge, *F*, which fits upon the lazy-tongs, as shown best in Figs. 1, 2, and 5. At the middle of the upright abutment *g* of this platform is formed an angular notch, *f*, into which the middle post, *d*, rises through a hole, *i*, at the base of the notch. A longitudinal groove, *k*, is formed in the base of the platform *F*, underlying the abutment *g*, and in line with the hole *i*, for the post *d*, and into this groove fits the two projections *l m*, which rise from the central joints of the tongs, at each end thereof, as shown. It will now be seen that the projections *l m* and middle post, *d*, will be always in line with each other, no matter how far the tongs are extended or con-

tracted, and hence they will always fit the groove *k*, and therefore the platform will always rest truly and securely on the tongs, at whatever angles the tongs are set to place the outer posts, *c*, at any desired angle with the middle post, as shown in Figs. 2 and 3. Now, to hold the tongs at any desired angle to which they may be set, a clamp is provided at one of the joints to clamp the same firmly when so set. This clamp is preferably formed at the projection *l*, which is in fact the head of a clamp-screw, the stem of which passes loosely through the bar *b* of the tongs, and screws into the bar *a*, so that after the tongs are moved to the desired angle the clamp-screw may be tightened up, and will thus hold the tongs firmly at said angle. A hole, *p*, is bored through the head of said clamp-screw for the application of a wrench pin or bar, whereby the screw may be forcibly tightened or loosened in making the desired adjustments; but the screw-head may be formed in any other way for the reception of a wrench or screw-driver, or may be knurled for operation by hand. The opposite projection, *m*, may also be a clamp-screw, like the projection *l*; but it is preferably a fixed rivet or stud, the head of which forms the projection, while the stem passes loosely through the bar *b* and is riveted in the bar *a*, as indicated in Fig. 1.

Only one of the projections *l* or *m* is necessary to act as a guide in the groove *k*, in connection with the post *d*; but both projections *l m* are preferably used.

In making the desired adjustments of the box it will be understood that it is only necessary to raise or slip the platform off the tongs, then loosen the clamp *l* and set the tongs at the required angle, after which the clamp *l* is tightened and the platform replaced. The molding to be cut is then placed on the platform *F* and pressed up against the ledge *g*, while the saw is passed through the notch *f* and guided up against the posts *d c*, which will thus enable the molding to be cut at the angle desired.

By referring to Figs. 2 and 3 it will be noted that the bars of the lazy-tongs are so terminated at the opposite ends that the bars form a salient angle at one end and an entering angle at the opposite end, and these angles at the ends will of course always be of the same degrees as that which the central post makes with the outer posts, *c*. It will therefore be seen that the box may be readily set by the angles of the work itself for which it is desired to cut the molding. For instance, if the angle is a corner—that is, a hollow or entering angle—then the salient end of the lazy-tongs may be placed in such corner, as shown by dotted lines on the left of Fig. 2, and the tongs thus adjusted until it matches with said corner, when the proper angle will be obtained for cutting the moldings. If, on the other hand, the angle of the work is salient, then the opposite end of the lazy-tongs may be adjusted thereto, as shown on the right of Fig. 2. In this way the

box may be set to the correct angles for cutting the moldings, suited exactly to the work itself, in a very quick, accurate, and simple manner, without requiring any measurements or calculations, which is an important advantage.

When the box is not in use, it may be folded or contracted into a compact space, as shown in Figs. 4 and 5, by contracting the tongs to the utmost and then placing the platform *F* over the same, so that the central hole, *i*, fits over the central post, *d*, while two additional holes, *r r*, (see Figs. 2 and 3,) engage the posts *c c*, as shown by full and dotted lines in Figs. 4 and 5. In this condition it may be conveniently placed in the tool box or chest until again required, and will thus occupy much less space than other miter-boxes.

The bars of the lazy-tongs are preferably made of steel or wrought-iron; but they may be made of malleable iron or other material. The platform *F* is preferably made of wood; but it may be made of metal or other material. It may therefore be now appreciated that my invention presents several advantages in simplicity and cheapness of construction, ease and range of adjustment, and embodies a new principle in the construction of miter-boxes.

I do not of course limit myself to the particular details of construction herein shown; but

What I claim as my invention is—

1. A miter-box formed of a series of bars jointed together in the form of lazy-tongs, with posts rising from the middle and outer joints to form guides for the saw, substantially as herein set forth.

2. In a miter-box, the combination, with a base frame in the form of lazy-tongs, of guide-posts arising from the middle and outer joints, forming angular guides for the saw, and a clamp at one of the joints to hold the tongs as adjusted, substantially as and for the purpose set forth.

3. In a miter-box, the combination, with the lazy-tongs *ab*, of posts *d c*, arising from the middle and outer joints thereof, and rollers *e* on said posts, substantially as shown and described.

4. In a miter-box, the combination, with a base-frame in the form of contractible and expansible lazy-tongs, of guide-posts arising from the middle and outer joints of the tongs, and an L-shaped or angular platform fitted upon said tongs in line with the center thereof, substantially as shown and described.

5. The combination, in a miter-box, with the lazy-tongs frame *a b* and posts *c d*, arising from the middle and outer joints thereof, of the platform *F*, resting on said tongs and having underlying groove *k*, with a projection or projections on the middle joints of the tongs fitting said groove, substantially as shown and described.

6. The combination, with the lazy-tongs *a b*, of the posts *c d* and projections *l m*, and

the platform F, having the notch *f* and groove *k*, arranged and operating substantially as shown and described.

5 7. An improved miter-box formed with a contractible and expansible frame in the form of lazy-tongs, with guide-posts rising from the joints of the tongs to form guides for the saw, with the bars at opposite ends of said

tongs terminated, respectively, in a salient and an entering angle, substantially as and for the purpose set forth. 10

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Witnesses:

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