

No. 860,446.

PATENTED JULY 16, 1907.

W. J. CONNALLY.

MITER BOX.

APPLICATION FILED DEC. 19, 1906.

3 SHEETS—SHEET 1.

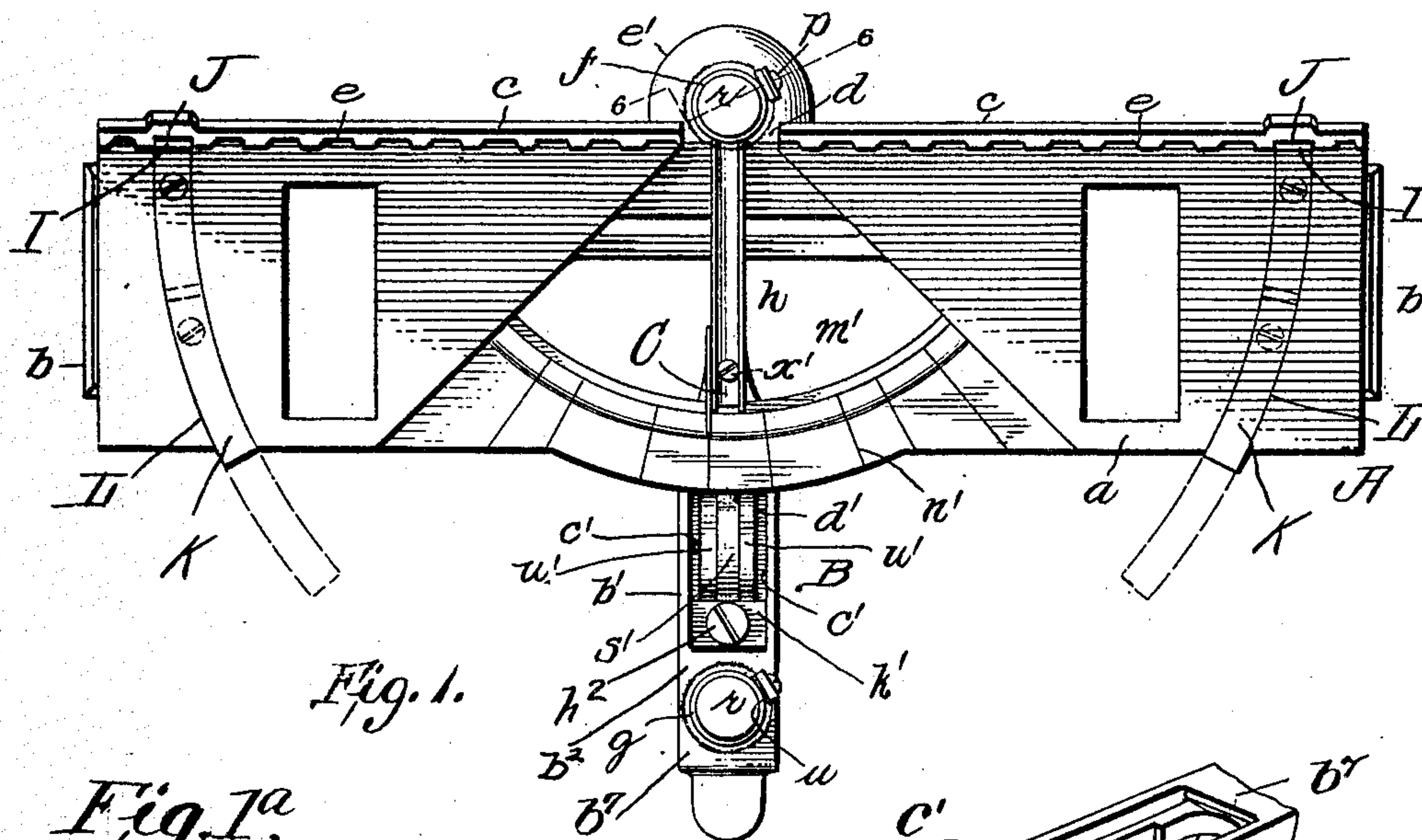


Fig. 1^a

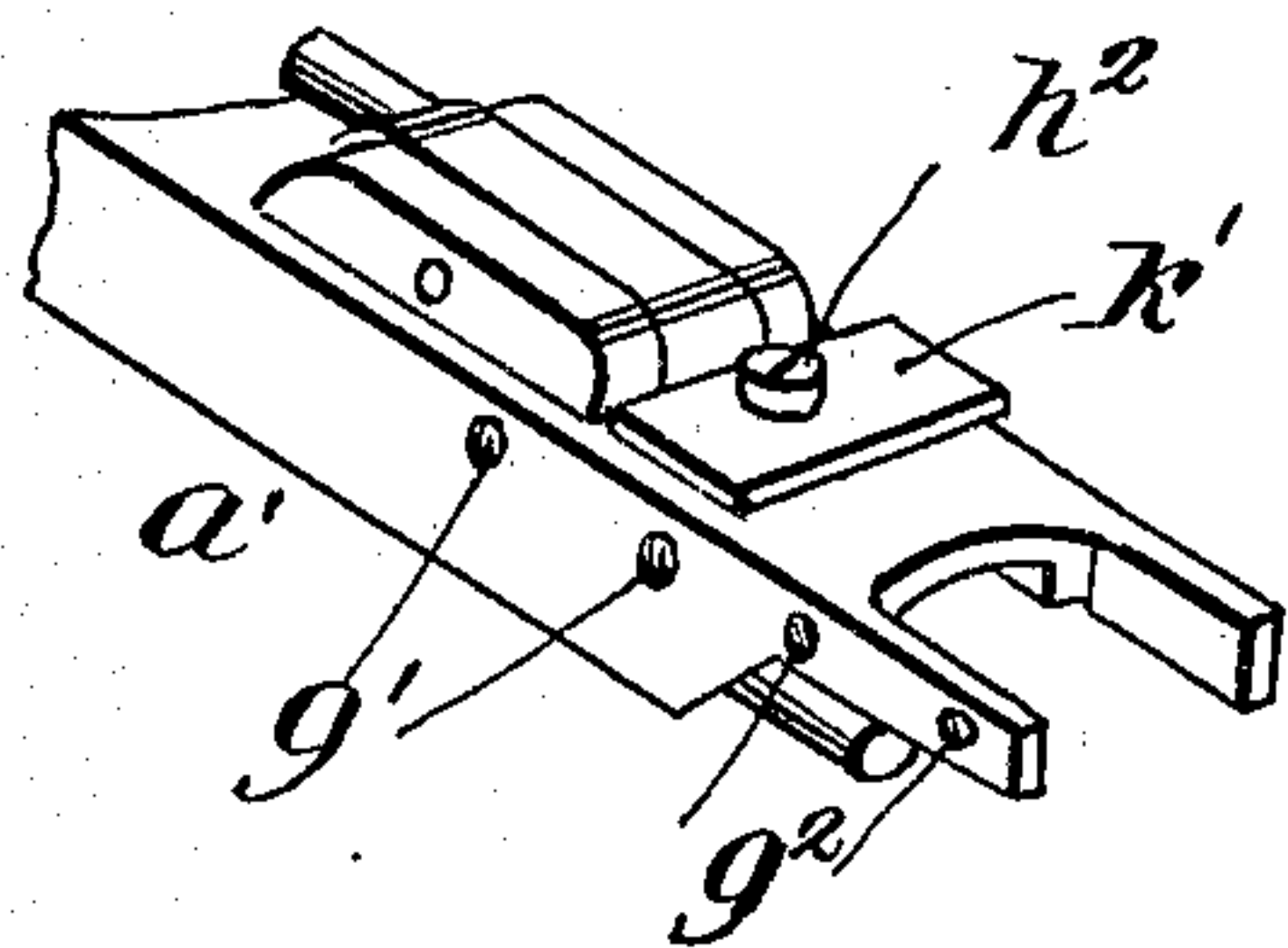


Fig. 1^b

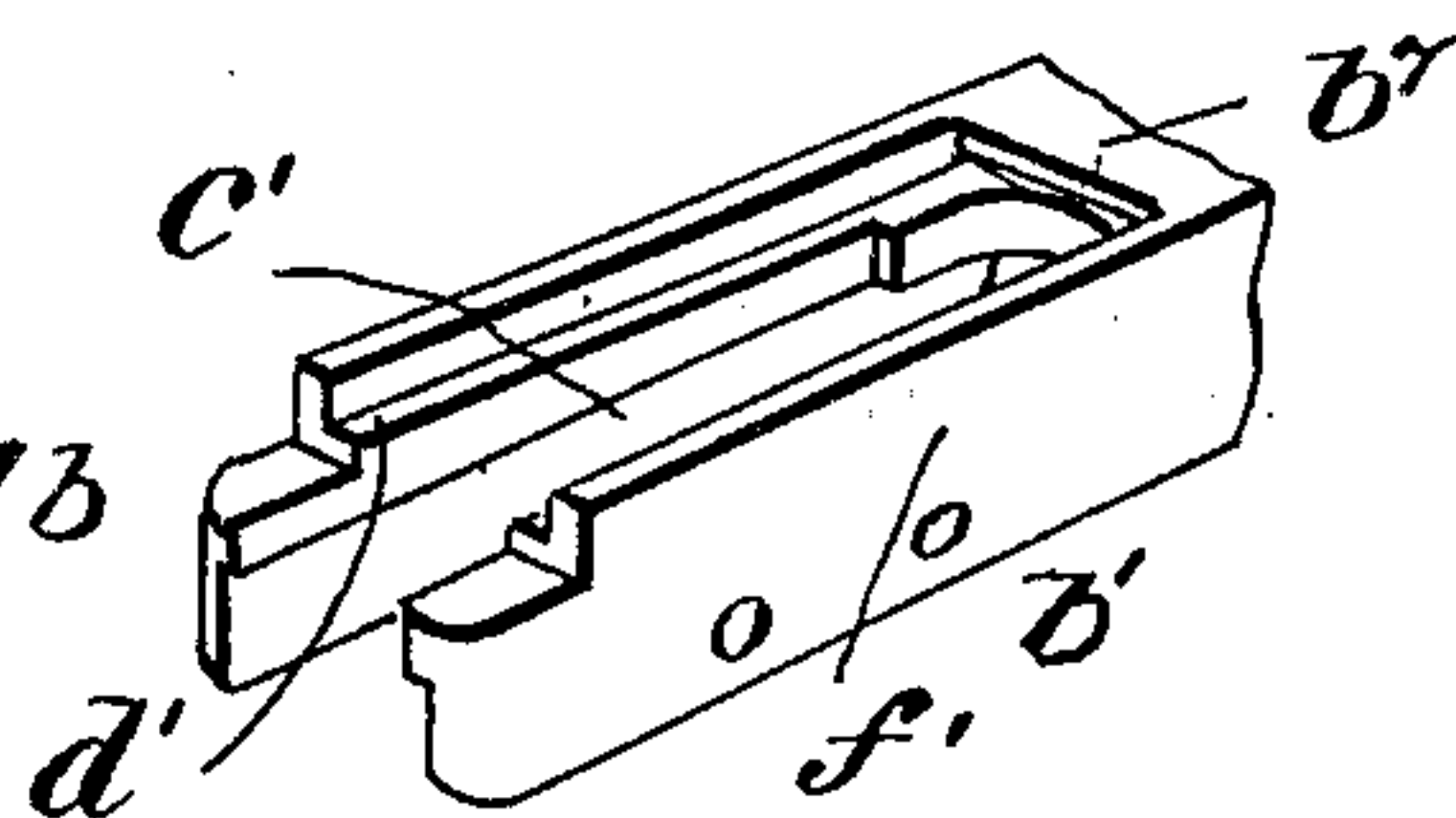
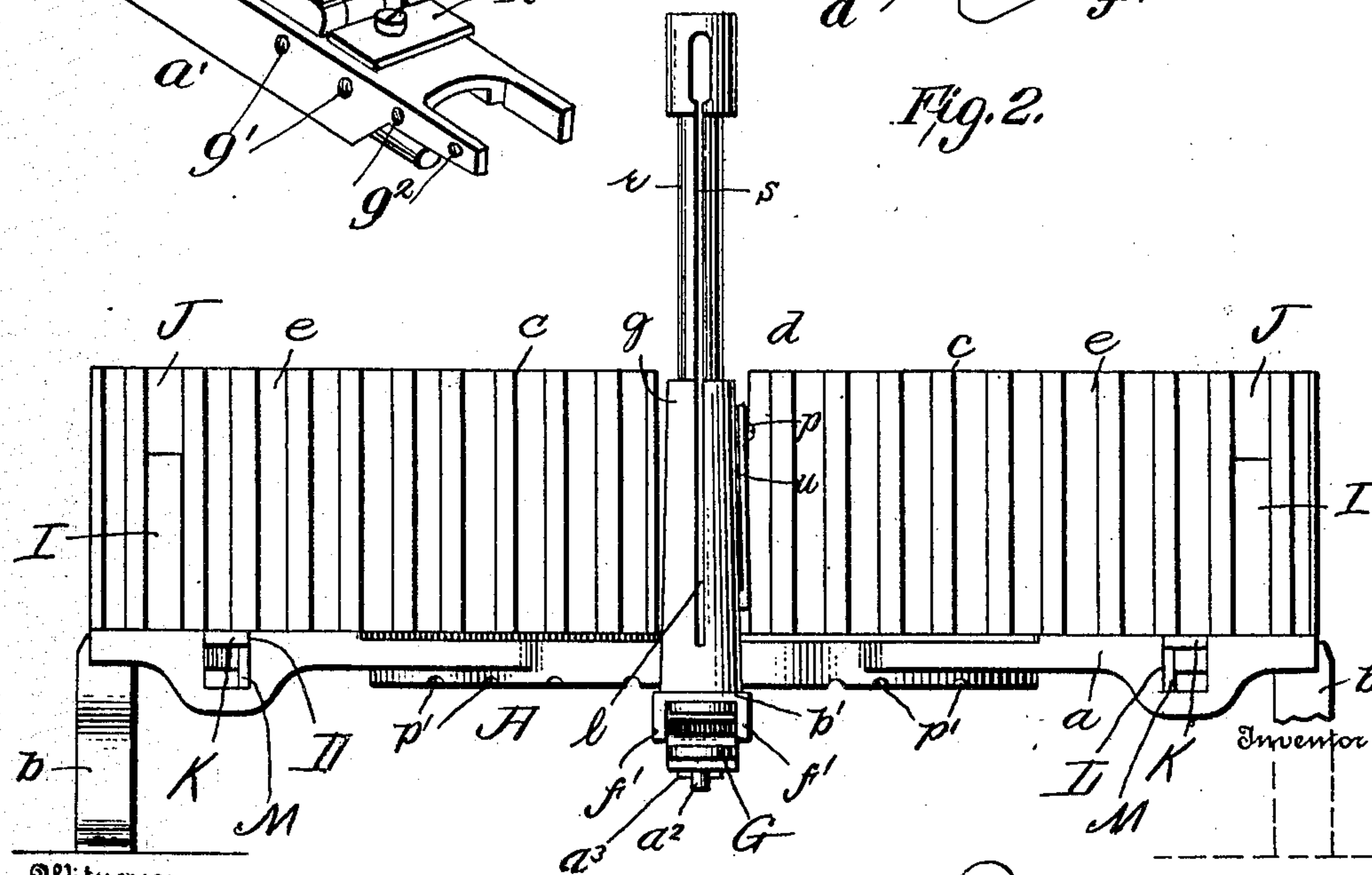


Fig. 2.



Witnesses

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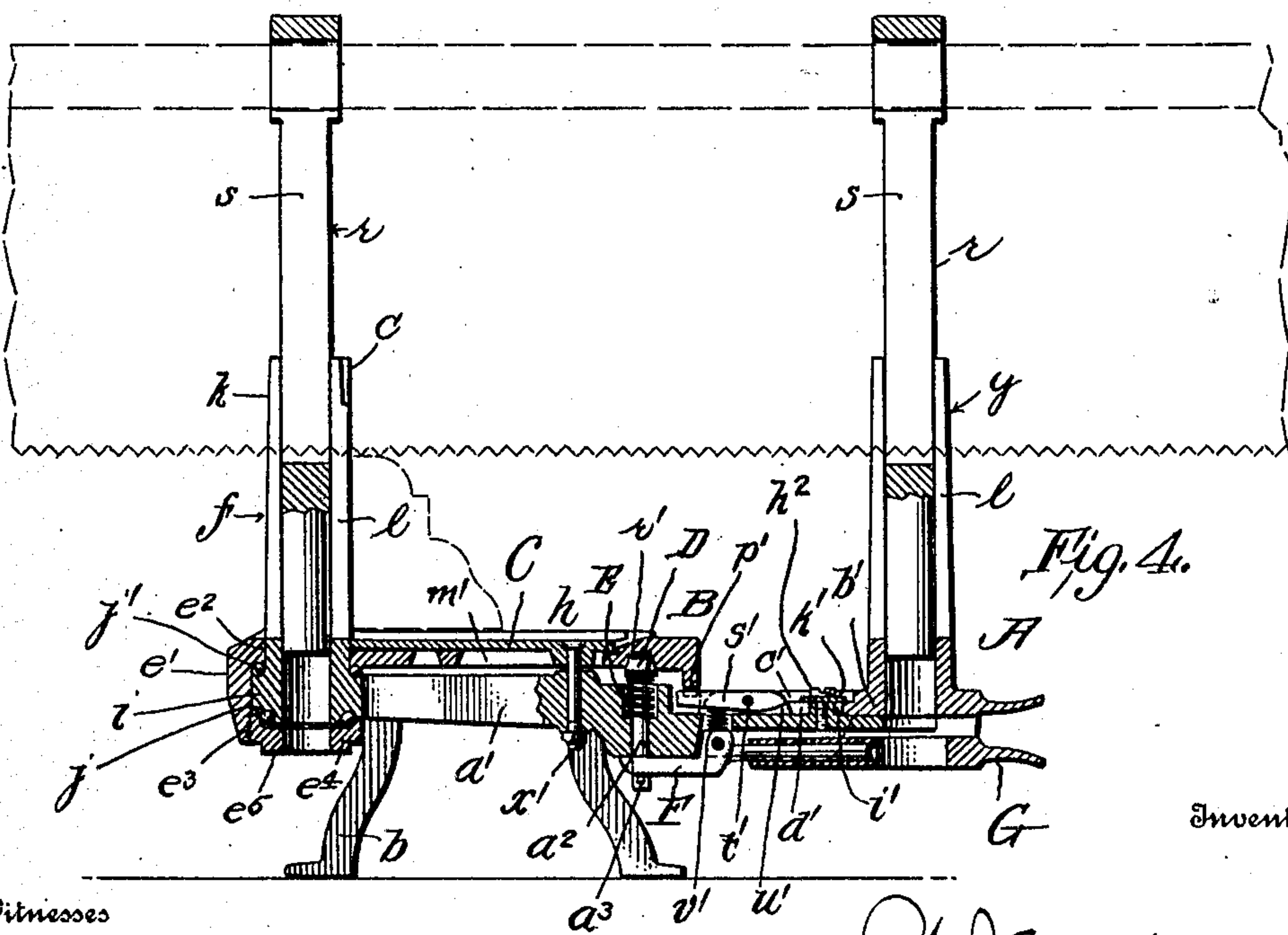
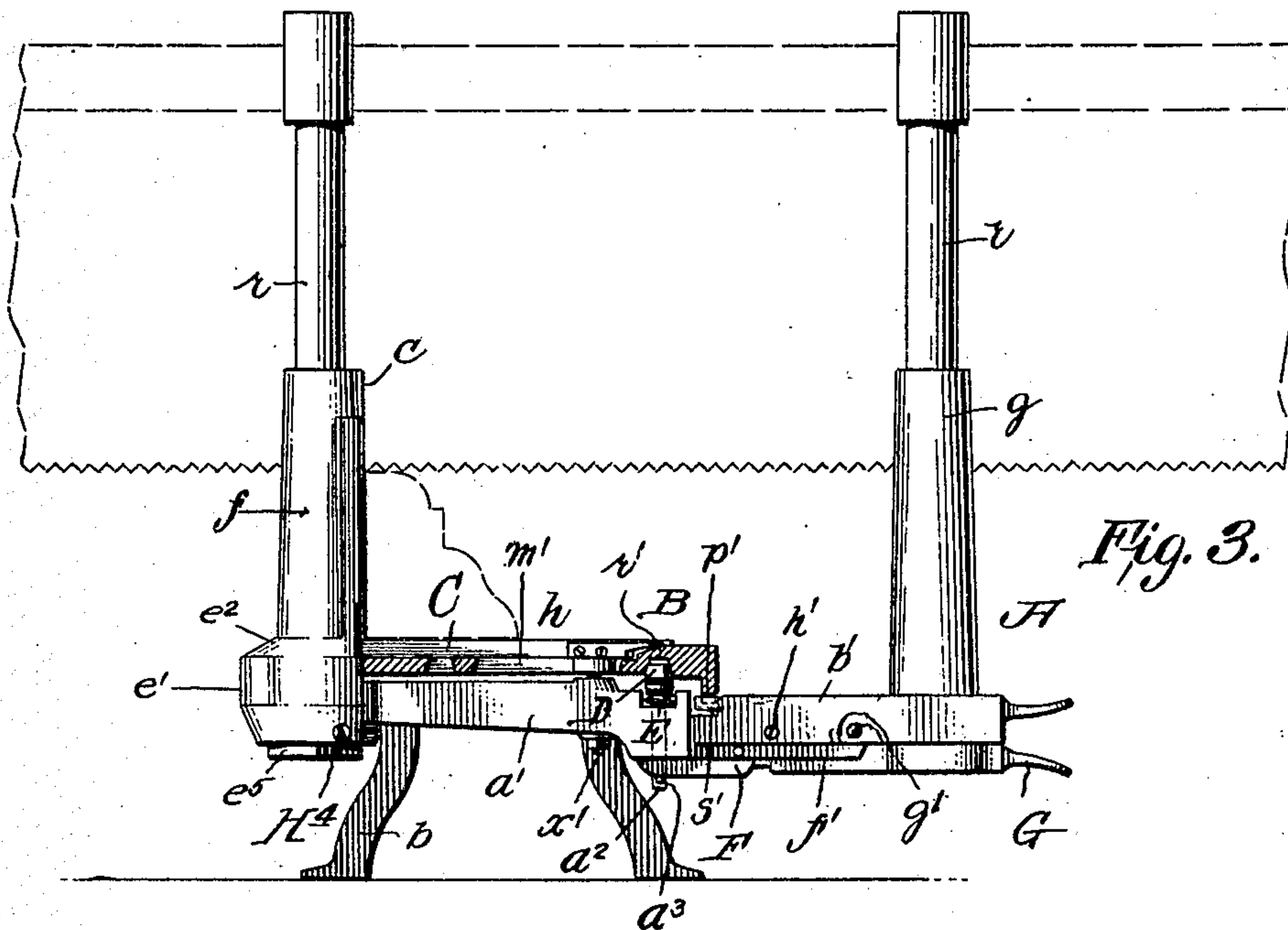
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3 SHEETS—SHEET 2.



Witnesses

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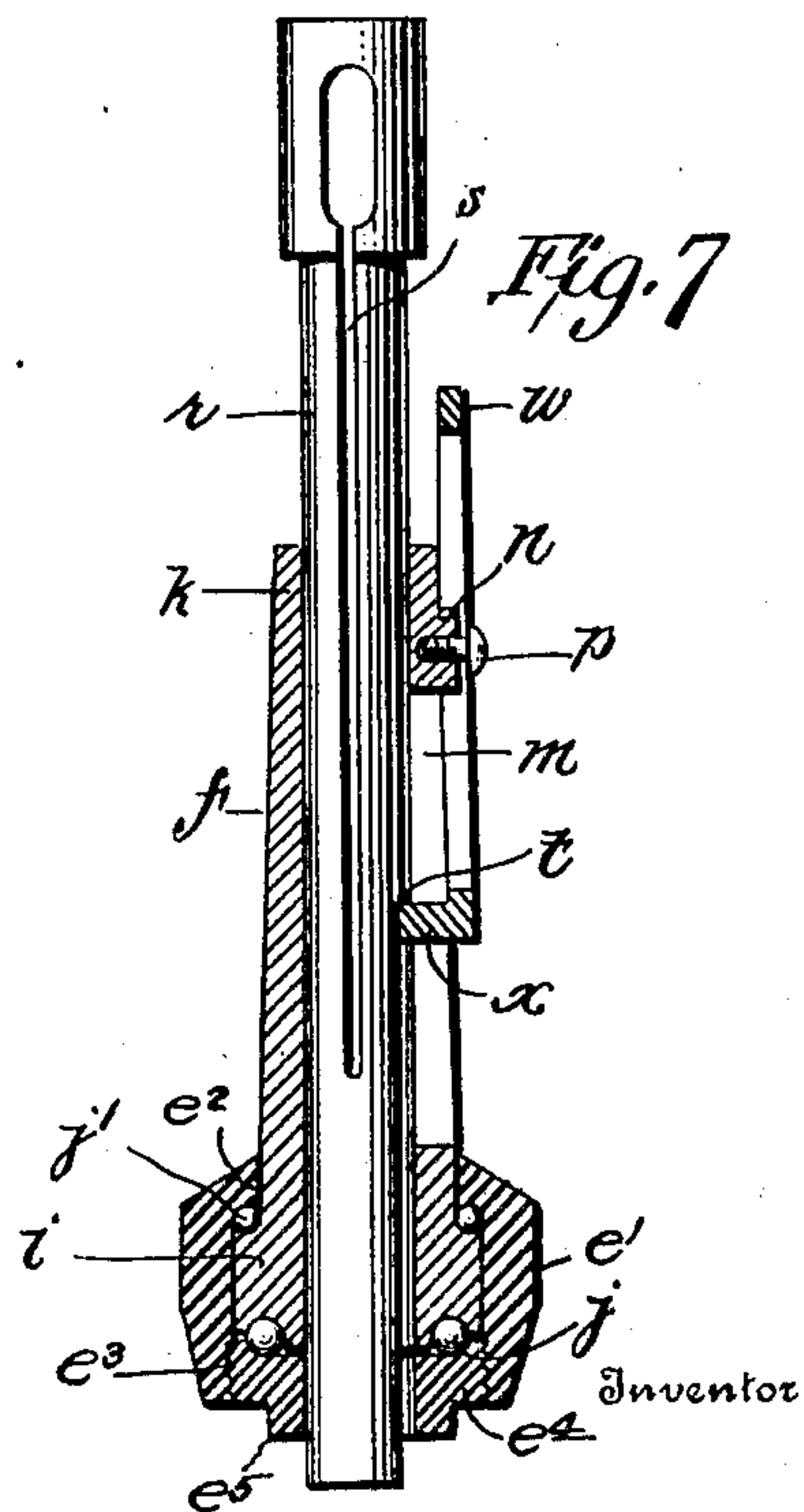
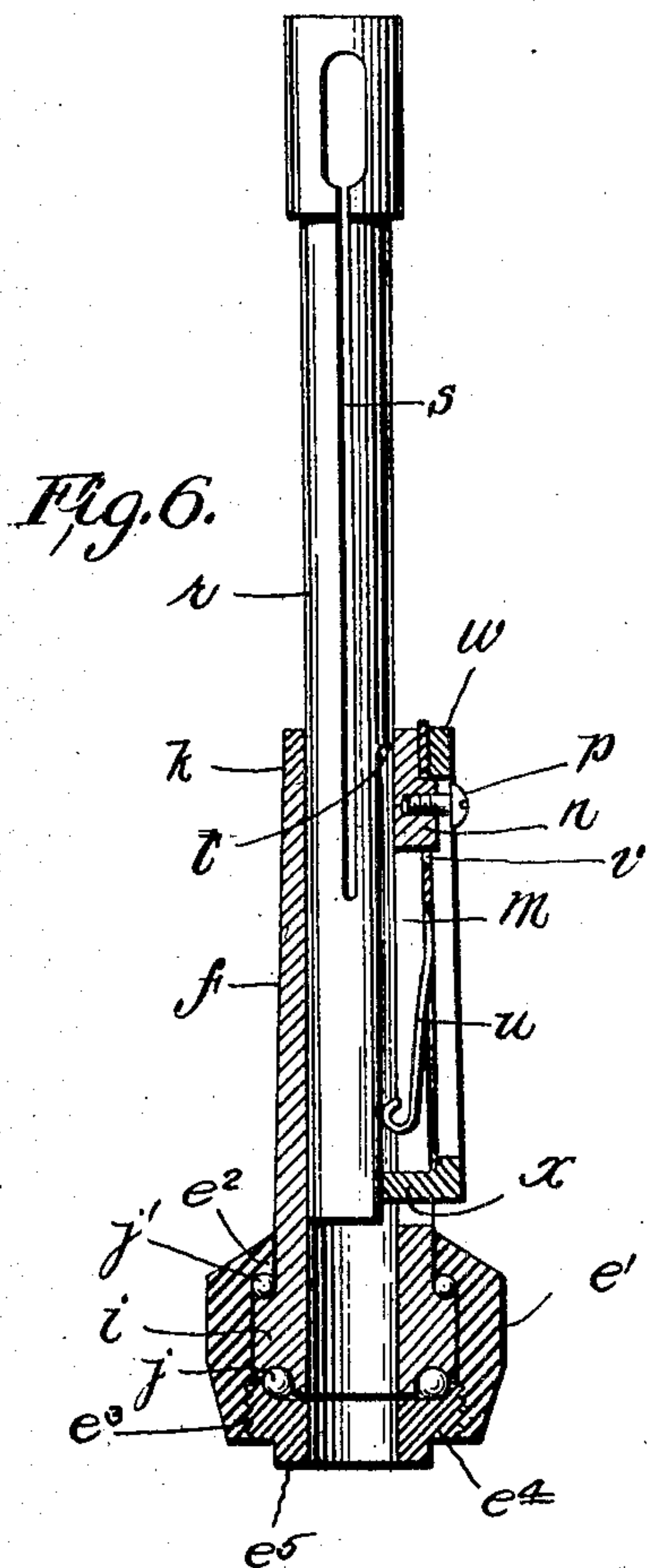
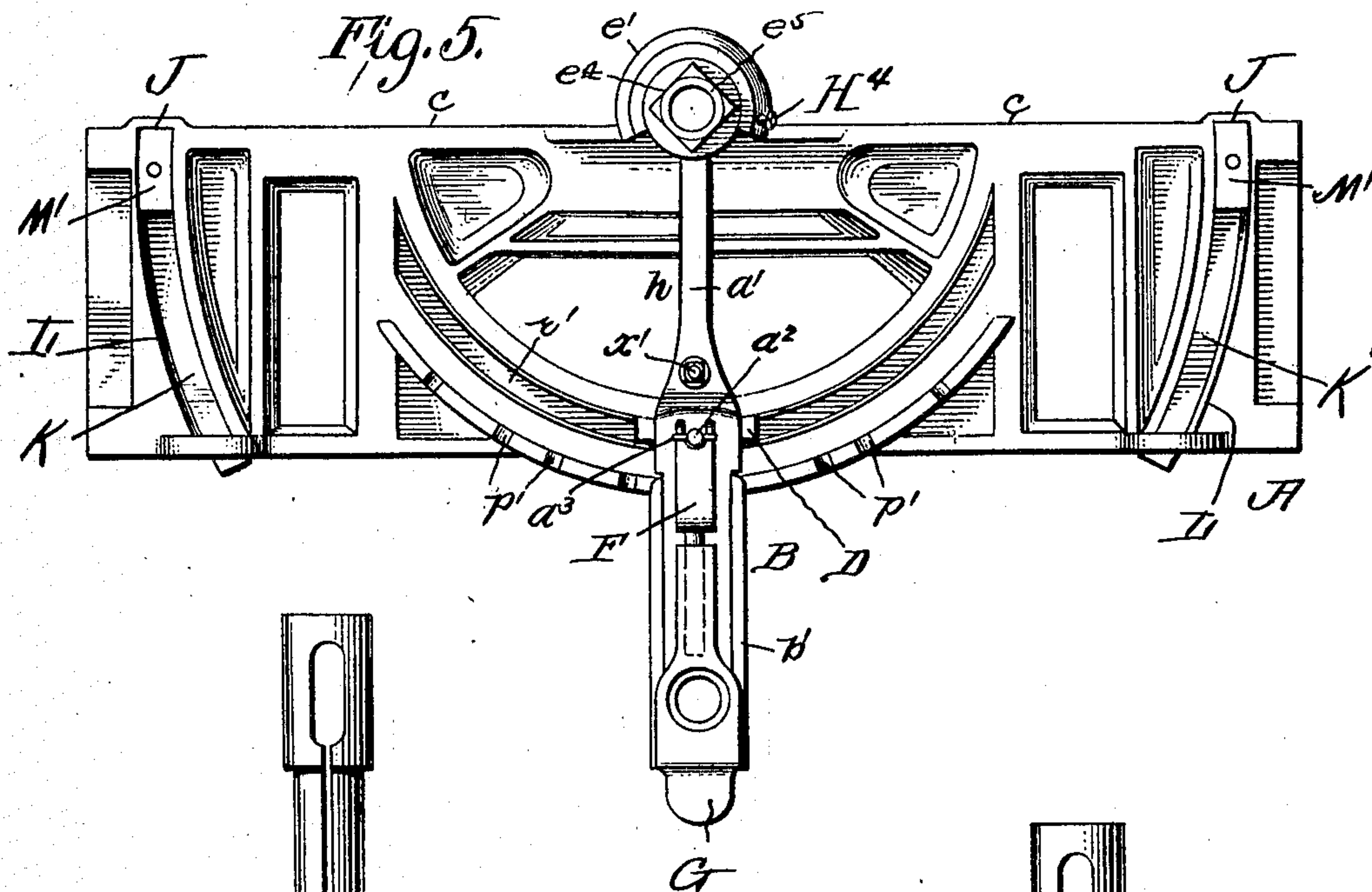
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM JEFFERSON CONNALLY, OF ATLANTA, GEORGIA.

MITER-BOX.

No. 860,446.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed December 19, 1906. Serial No. 348,650.

To all whom it may concern:

Be it known that I, WILLIAM JEFFERSON CONNALLY, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Miter-Boxes, of which the following is a specification.

My invention relates to miter boxes of the swinging saw-guide type; and it seeks to provide a simple, easily adjusted and accurate miter box, and one embodying such a construction and relative arrangement of parts that there is no liability of the smallest moldings or other pieces of wood being broken at the back side incident to sawing thereof, and the entire length of the toothed edge of the blade may be drawn forward through the molding or other piece of wood without disengagement of the end of the saw blade from the rear upright of the swinging saw-guide.

Other objects and advantageous features of the invention will be fully understood from the following description and claims when the same are read in connection with the accompanying drawings, forming part of this specification, in which:

Figure 1 is a plan view of a miter box constructed in accordance with my invention. Fig. 1^a is a detail view showing a portion of the rear section of the swinging saw-guide comprised in my improvements. Fig. 1^b is a similar view of a portion of the front section of said guide. Fig. 2 is a front elevation of same. Fig. 3 is a vertical section taken through the miter box in a plane at one side of the swinging saw-guide. Fig. 4 is a section taken through said saw-guide. Fig. 5 is an inverted plan view of the miter box. Fig. 6 is a detail view, partly in elevation and partly in vertical section, showing the rear upright of the swinging saw-guide, a portion of the body thereof, and the box on the main frame. Fig. 7 is a similar view illustrating the said upright with the resilient shoe removed, and as arranged to limit the depth of the kerf that is to be formed in a molding or other piece of wood.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the main frame of my novel miter box. The said main frame comprises a work-support *a* provided at its ends with legs *b*, and vertical back-rests *c* fixed on the rear edge of the work-support, and arranged with a space *d* between their inner ends, and having their forward sides ribbed, as indicated by *e*. On the rear, lower portion of the frame A is fixed a box *e'*, open at its forward side, Fig. 4, and having an inwardly directed flange *e²* at its upper end and an interior thread *e³* in its lower end for the engagement of a nut *e⁴* on which is an angular boss *e⁵* to permit of its removal when necessity demands.

B is the swinging saw-guide of the miter box. This guide is made up of a rear upright *f*, a forward upright

g, and a horizontal body *h* intermediate the said uprights. As best shown in Figs. 4, 6, and 7, the body *h* of the guide is provided at its rear end with an apertured, circular portion *i*, and between this circular portion *i* and the nut *e⁴* and top of the box *e'* are preferably employed groups of antifriction balls *j* and *j'*, this in order to render the movements of the saw-guide easy and prolong the usefulness of the parts by lessening frictional wear thereof. The rear upright *f* of the saw-guide comprises a tubular post *k* fixed to and rising from the circular portion *i* of body *h* and having diametrically-opposite slots *l*, Fig. 4, to receive a saw-blade, and also having a slot *m*, Figs. 6 and 7, and a lug *n* arranged above said slot, in which lug is a threaded socket to receive a screw *p*, a rod *r*, of the length shown or a greater length, removably arranged in the post *k*, and having the usual slot *s* to receive the saw-blade and also having a shoulder *t*, Figs. 6 and 7, a resilient shoe *u* arranged to bear against the rod *r*, at a point below the shoulder *t*, and having a slot *v* receiving the lug *n* on post *k*, and a gage-bar *w* slotted to receive said lug *n* and the screw *p* and arranged between the head of the screw *p* and the resilient shoe *u* and having an inwardly directed toe *x* at its lower end adapted for the engagement of the shoulder *t* on rod *r*, after the manner shown in Fig. 7. The forward upright *g* of the saw guide is similar in construction to the rear upright *f*, and need not, therefore, be described in detail. The saw blade is arranged in the rods *r* of the two uprights of the guide, and it will be apparent that the resilient shoes *u* of the two uprights are adapted by bearing against the rods *r* to frictionally hold the saw blade above the work; and it will also be apparent that the operator is enabled by tapping on the upper edge of the saw blade to move the blade and the rods *r* downward, against the action of the shoes *u*, until the saw teeth are in engagement with the piece of work to be mitered. In the position shown in Fig. 6, the gages *w* of the uprights *f* and *g* are adapted by engaging the shoulders *t* of rods *r* to stop the downward movement of the said rods *r* and the saw when the latter cuts through a piece of work, while when the gages *w* are employed without the shoes *u*, as shown in Fig. 7, said gages may be set so as to engage the shoulders *t* of the rods *r* and thereby stop the downward movement of the saw when said saw has cut a kerf of predetermined depth in a piece of work.

As best shown in Fig. 1, the post *k* of the rear upright *f* is arranged flush with the faces of the back-rests *c* of the main frame. This is materially advantageous for the reason that a piece of wood that is being cut, will have a bearing against said post *k* exactly where the saw cuts into the wood, thereby avoiding breaking of the smallest moldings or pieces of wood at the back during sawing thereof, and permitting of the extreme

teeth of the saw being drawn to the back of the molding or piece of wood without disengaging or withdrawing the saw blade from the post *k* of rear upright *f*.

The body *h* of the swinging saw-guide B is made up of a rear section *a'*, Figs. 1^a and 4, which carries the rear upright *f*, and a forward section *b'*, Figs. 1^b and 4, which carries the forward upright *g*. The forward section *b'* comprises a top wall *b'*, Fig. 1, and side walls or depending side flanges *f'*; and it is provided in its rear portion with an opening *c'*, and in the opening and on the inner sides of the side walls or flanges *f'*, at a slight distance below the upper edges of said walls or flanges, with ledges *d'*. Said forward section *b'* receives the rear section *a'*, which latter rests under and against the ledges *d'* of section *b'* and between the side walls or flanges *f'* thereof. Extending through a side wall or flange *f'* of section *b'* and into threaded sockets *g'* in the section *a'* are screws *h'* which, when the section *b'* is to be moved endwise in a forward direction on the section *a'* to increase the length of the saw-guide B, are adapted to be turned out of the sockets *g'*, and then when said section *b'* is moved to its foremost position, are adapted to be turned into sockets *g''* in section *a'* nearer than the sockets *g'* to the forward end of section *a'*, Fig. 1^a. The section *b'* is also adjustably fixed on the section *a'* by a headed screw *h''*, Figs. 1 and 4, which bears in a protuberance *i'* rising from said section *a'*, and a plate *k'* which is arranged on the screw, under the head thereof, and rests on the ledges *d'* of section *b'*. When the screw *h''* is loosened, the section *b'* is held on the section *a'* and yet may be moved endwise forward or backward with respect thereto according to whether the saw-guide B is to be increased or diminished in length.

The work-support *a* of the main frame A is provided with the usual opening *m'* and scale *n'* in front of said opening, Fig. 1; and it has formed in its underside a series of shallow seats *p'* and a groove or channel *r'* which latter describes a part of a circle as shown in Fig. 5. The seats *p'* are preferably formed in a flange depending from main frame A and disposed radially to the center of movement of the saw guide B, and are for the engagement of a spring-pressed latch *s'*, preferably a lever, carried by the body section *a'* of the saw guide B, and is provided in order to enable the operator to readily place the saw-guide in the positions or at the angles to the back-rests *c* in which it is most frequently used. The lever *s'* is fulcrumed at *t'* between standards *u'* on the body section *a'*, and the spring *v'*, Fig. 4, which presses the rear arm of said lever upward, is interposed between said rear arm and the fulcrumed portion of another lever hereinafter referred to in detail, all as best shown in Fig. 4.

C is a pointer arm arranged to cooperate with the scale *n'* and fixed to and extending forward from the rear post *k* of the saw-guide and connected through a bolt *x'* with the body section *a'* of the saw-guide.

D is a beveled shoe movable in the correspondingly beveled groove or channel *r'* in the work-support *a*, and having a depending stem *a''* movable vertically in the body section *a'* of saw guide B. E is a spring for pressing said shoe D upward.

F is a lever fulcrumed on the body section *a'* of the saw-guide and having its rear arm connected with the stem of the shoe D, and G is a finger-piece which is

slidable on the forward arm of lever F so that it can be moved fore and aft with the body section *b'* of the saw-guide. The rear arm of the lever F and the stem of the shoe D are preferably connected in the manner best shown in Fig. 5—that is to say, the stem has a cross pin *a''* and the lever has a bifurcated end to receive the stem and also has the underside of said end rounded. By virtue of this it will be apparent that when the shoe D is moved downward through the medium of the lever F, the shoe D will have but a single movement, viz: a vertical movement, and hence said shoe is better enabled to frictionally hold the saw-guide B against movement with respect to the main frame A.

It will be gathered from the foregoing that the spring-pressed shoe D serves to securely hold the saw-guide B in the position in which the same is placed, and yet when it is desired to change the position of the saw-guide, the same may be readily accomplished after the finger-piece G is moved upward to draw the shoe D down and out of engagement with the work-support *a*. With the shoe D held out of engagement with the work-support *a*, the saw-guide B may be swung in either direction to the position desired and may then be secured in position by simply releasing the finger-piece G since when this is done, the spring E will force the shoe D up into the channel or groove *r'* and hold it under considerable pressure in the same. The spring *v'* is a weak spring, and consequently when the saw guide B is pushed or pulled laterally, the said spring will give and hence permit the latch *s'* to move out of any seat *p'* in which it may be disposed.

My novel miter box is used in the ordinary well known manner, and when it is so used it will be apparent that the pointer arm C will rest under and support the piece of wood that is being sawed.

As best shown in Fig. 5, the back side of the shoe D is preferably curved in conformity to the curvature of the channel or groove *r'* of the work-support *a*, while the forward side of said shoe is straight.

By loosening the set screw *H''* which holds nut *e''* against casual turning, and adjusting the said nut *e''*, lost motion of the swinging saw-guide B may be readily taken up when necessity demands.

The adjustable connection described and shown between the rear body section *a'* and forward body section *b'* of the swinging saw-guide B, permits of said saw-guide being readily increased or diminished in length when desired.

I I are gages which when not in use rest in recesses J in the work-rests *c*. These gages I are carried by bars K which are arranged and adapted to be moved in curvilinear slots L in the work-support *a*. The bars K rest on ledges M in the slots and are provided on their under sides with shoes M' to frictionally engage opposite walls of the slots—this to hold the gages I against casual movement from the positions in which they are placed.

I have entered into a detailed description of the construction and relative arrangement of the parts comprised in the present and preferred embodiment of my invention in order to impart a full, clear and exact understanding of the said embodiment. I do not desire, however to be understood as confining myself to the said specific construction and relative arrangement of

parts as such changes may obviously be made in practice as fairly fall within the scope of my invention as defined in the appended claims.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In a miter box, the combination of a work-support having in its underside a groove which describes a part of a circle and is tapered upward in cross-section, and also having an arcuate, depending flange in the lower edge of which is a plurality of spaced shallow seats open at their opposite ends; of a saw-guide connected with the work-support and arranged to swing horizontally under the support, a vertically movable shoe carried by the saw-guide and movable into and out of engagement with the groove in the work-support and having a depending stem and a cross-pin thereon, a spring backing said shoe, a vertically swinging lever fulcrumed on the saw guide and having a bifurcated and rounded end receiving the stem above the cross-pin thereof, and a spring-pressed latch carried by the saw-guide and extending in the direction of the length thereof and movable up and down independent of the saw-guide, whereby said latch may be moved by lateral movement of the saw-guide into and out of engagement with the seats in the flange of the work-support.
2. In a miter box, the combination with a main frame comprising back rests arranged with a space between their inner ends, and a work-support fixed with respect to the back rests and having in its underside a groove which describes a part of a circle and is tapered upward in cross-section and also having an arcuate depending flange in the lower edge of which is a plurality of spaced shallow seats open at their opposite ends; of a swinging saw-guide connected with the main frame and having a saw-receiving post arranged in the space between the back rests and flush with the forward sides of said rests, a vertically-movable shoe carried by the saw-guide and movable into and out of engagement with the groove in the work-support and having a depending stem and a cross-pin thereon, a spring backing said shoe, a vertically swinging lever fulcrumed on the saw-guide and having a bifurcated and rounded end receiving the stem above the cross-pin thereof, and a spring-pressed latch carried by the saw-guide and extending in the direction of the length thereof and movable up and down independent of the saw-guide, whereby said latch may be moved by lateral movement of the saw-guide into and out of engagement with the seats in the flange of the work-support.
3. In a miter box, the combination with a frame having

a work-support in the underside of which is a plurality of spaced, shallow seats and a groove which describes a part of a circle; of a swinging saw-guide connected with the frame, a spring-pressed latch carried by the saw-guide and arranged to be moved into and out of the seats in the work-support by lateral movement of the saw guide, a spring-pressed shoe carried by the saw-guide and arranged and movable in the groove of the work-support, and means also carried by the saw-guide for moving the shoe out of engagement with the groove in the work-support.

4. In a miter box, the combination of a frame on the rear lower portion of which is a box open at its forward side and having an interior thread in its lower end, a nut occupying said threaded lower end of the box, and a swinging saw-guide comprising a body portion having an annular rear end arranged in the box and on the nut, a rear, hollow post journaled in the box and having diametrically opposite saw-receiving slots, a similar hollow post rising from the forward end of the body portion and alined with an aperture therein, and saw-receiving rods movable vertically in the hollow posts.

5. The combination in a miter box, of a hollow post having diametrically opposite slots and also having an additional slot and a lug above the latter slot in which lug is a threaded socket, a saw-receiving rod movable vertically in the post and having a shoulder, a gage having a slot receiving the lug on the post and also having a toe extending through the last mentioned slot of the post, and a screw turned into the threaded socket and having a head arranged at the outer side of the gage.

6. The combination in a miter box, of a hollow post having diametrically opposite slots and also having an additional slot and a lug above the latter slot in which lug is a threaded socket, a saw-receiving rod movable vertically in the post and having a shoulder, a gage having a slot receiving the lug on the post and also having a toe extending through the last mentioned slot of the post, a screw turned into the threaded socket and having a head arranged at the outer side of the gage, and a resilient shoe having an apertured portion receiving the lug and interposed between the gage and the post, and having a depending portion extending through the last mentioned slot in the post and exerting pressure against the side of the saw-receiving rod.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM JEFFERSON CONNALLY.

Witnesses:

H. F. LUCKETT,
S. N. TEITLEBAUM.