

(No Model.)

3 Sheets—Sheet 1.

F. O. HANSON.

FORM AND FRAME FOR BUILDING IRON FENCE.

No. 318,427.

Patented May 19, 1885.

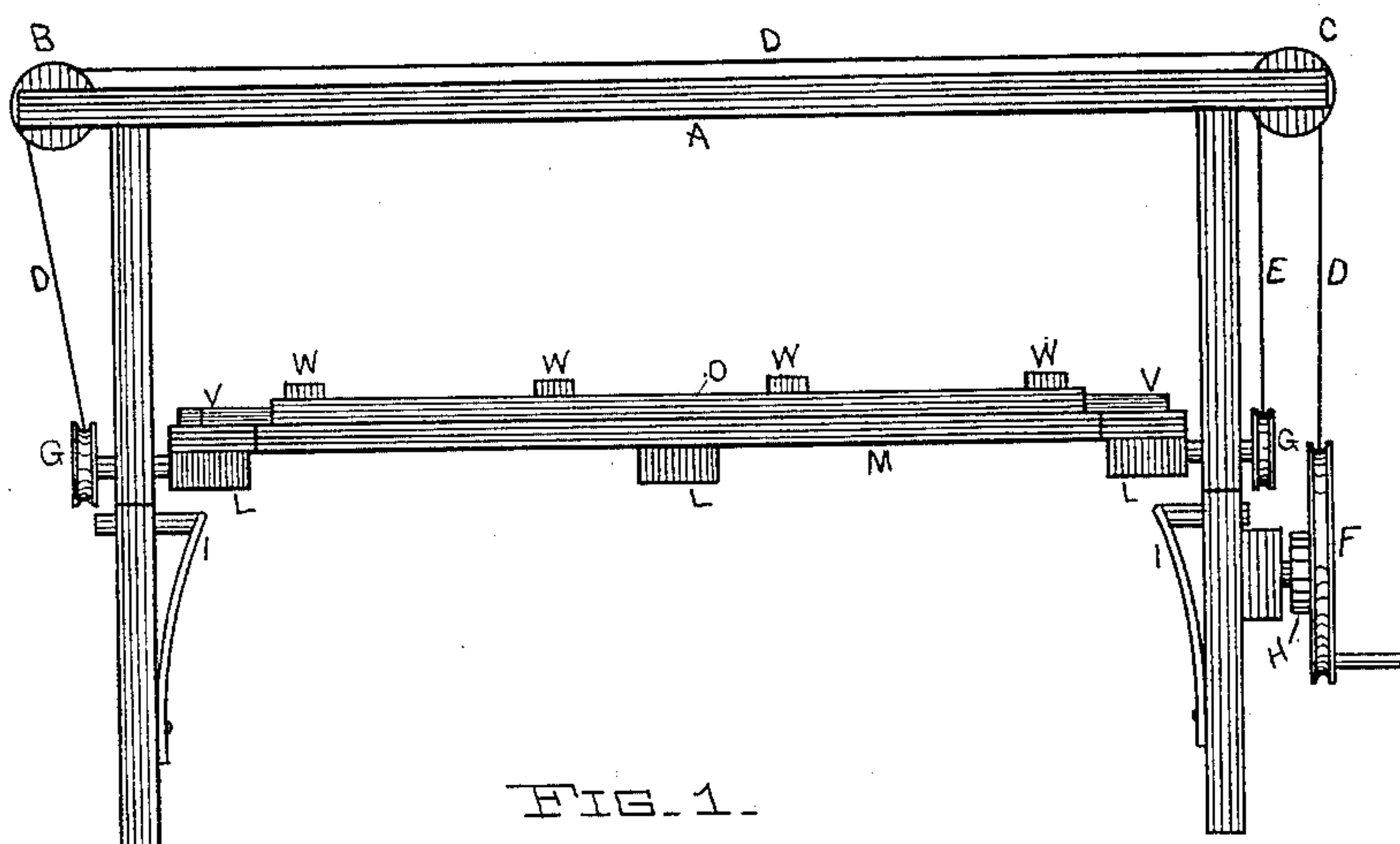


FIG. 1.

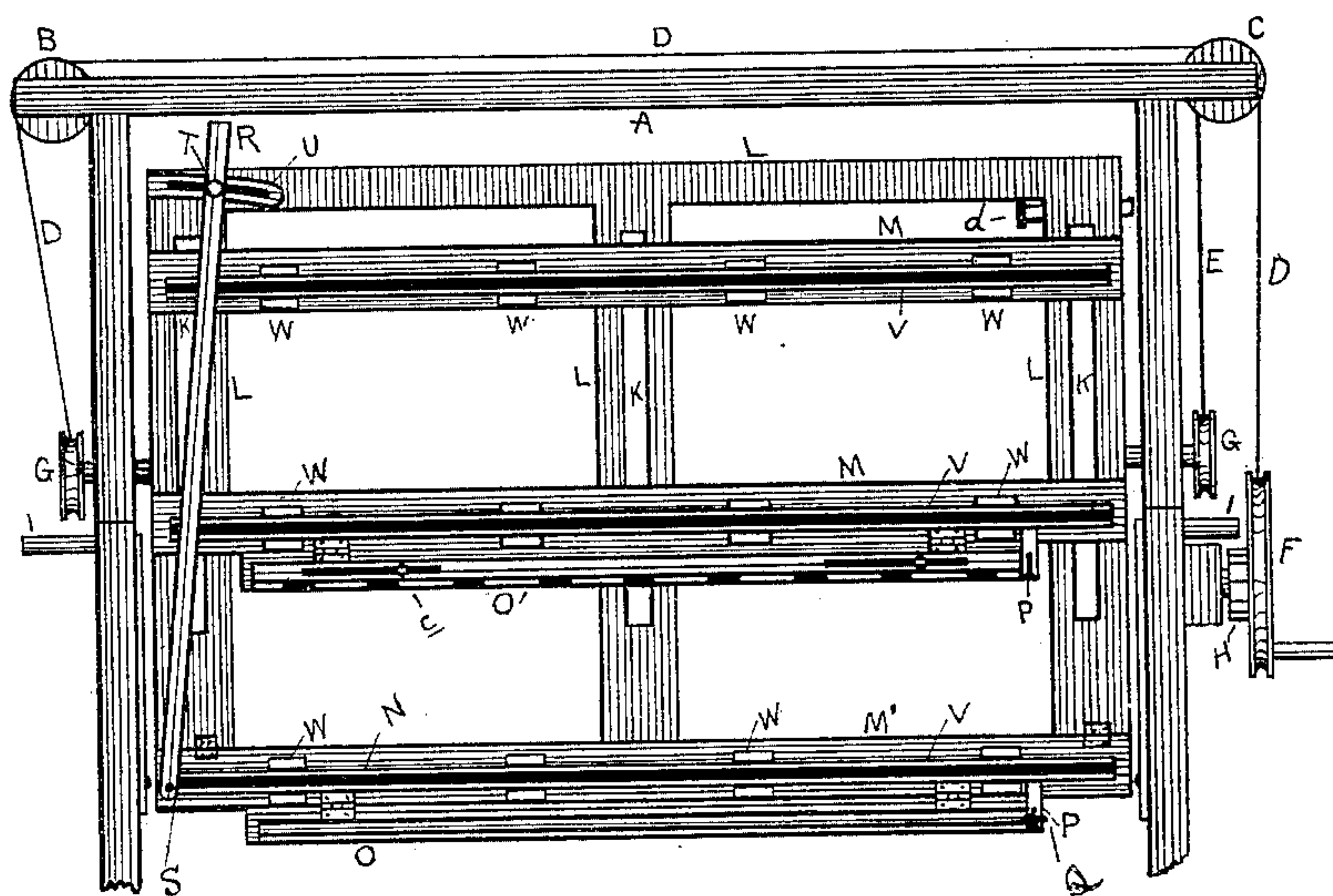


FIG. 2.

E. K. Campbell  
M. Kernan.

Francis O. Hanson  
Per E. K. Campbell  
Atty

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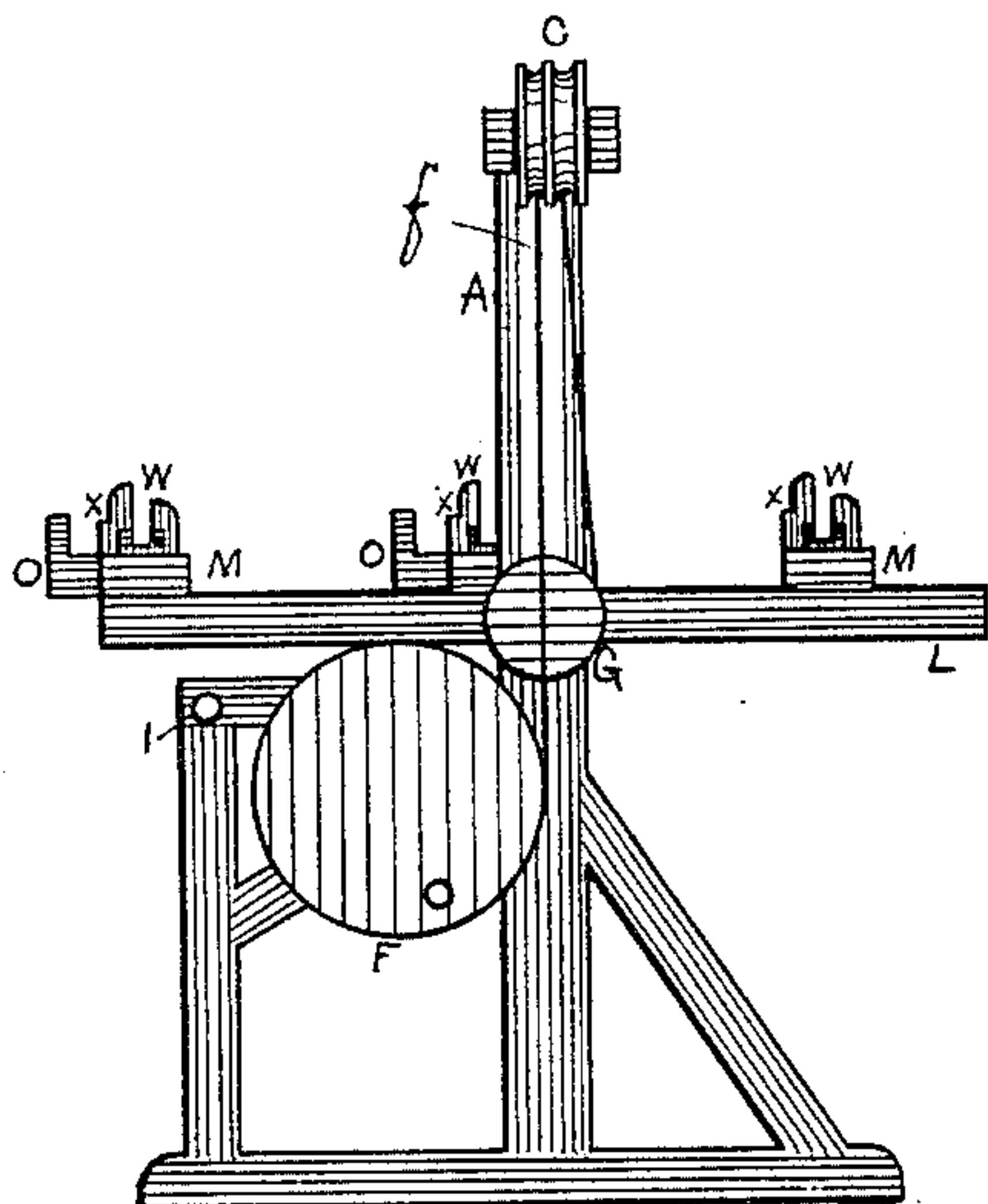


FIG. 3.

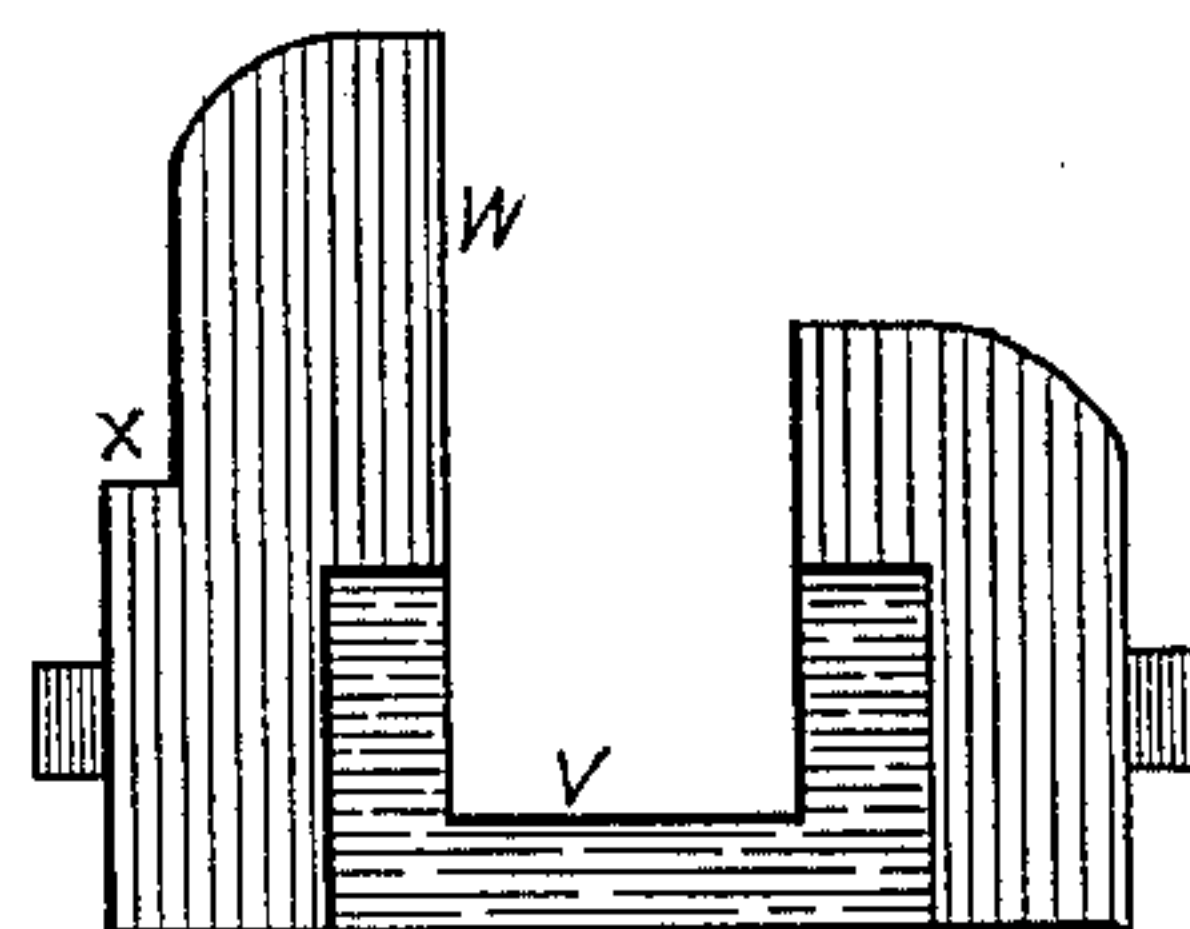


FIG. 4.

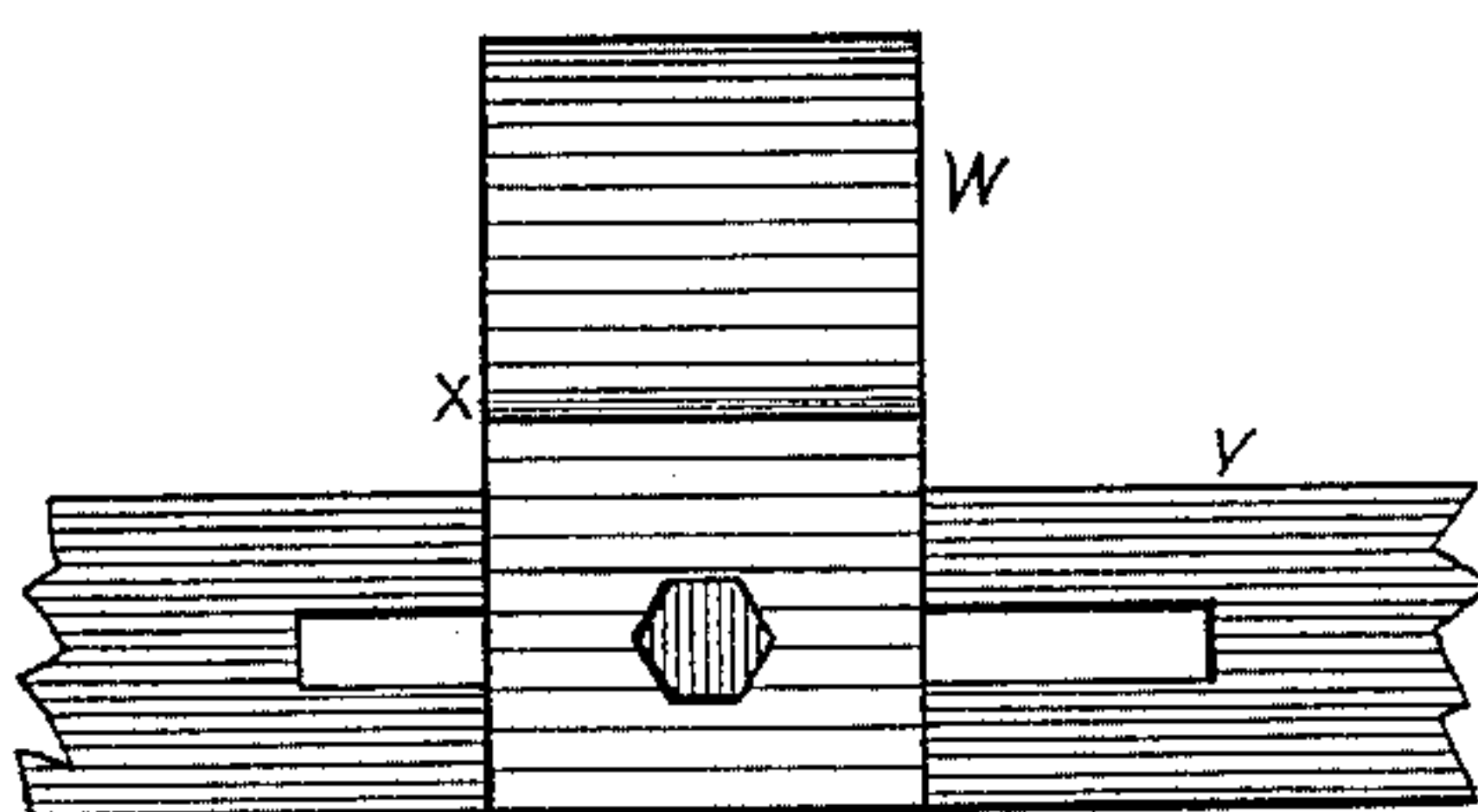


FIG. 5.

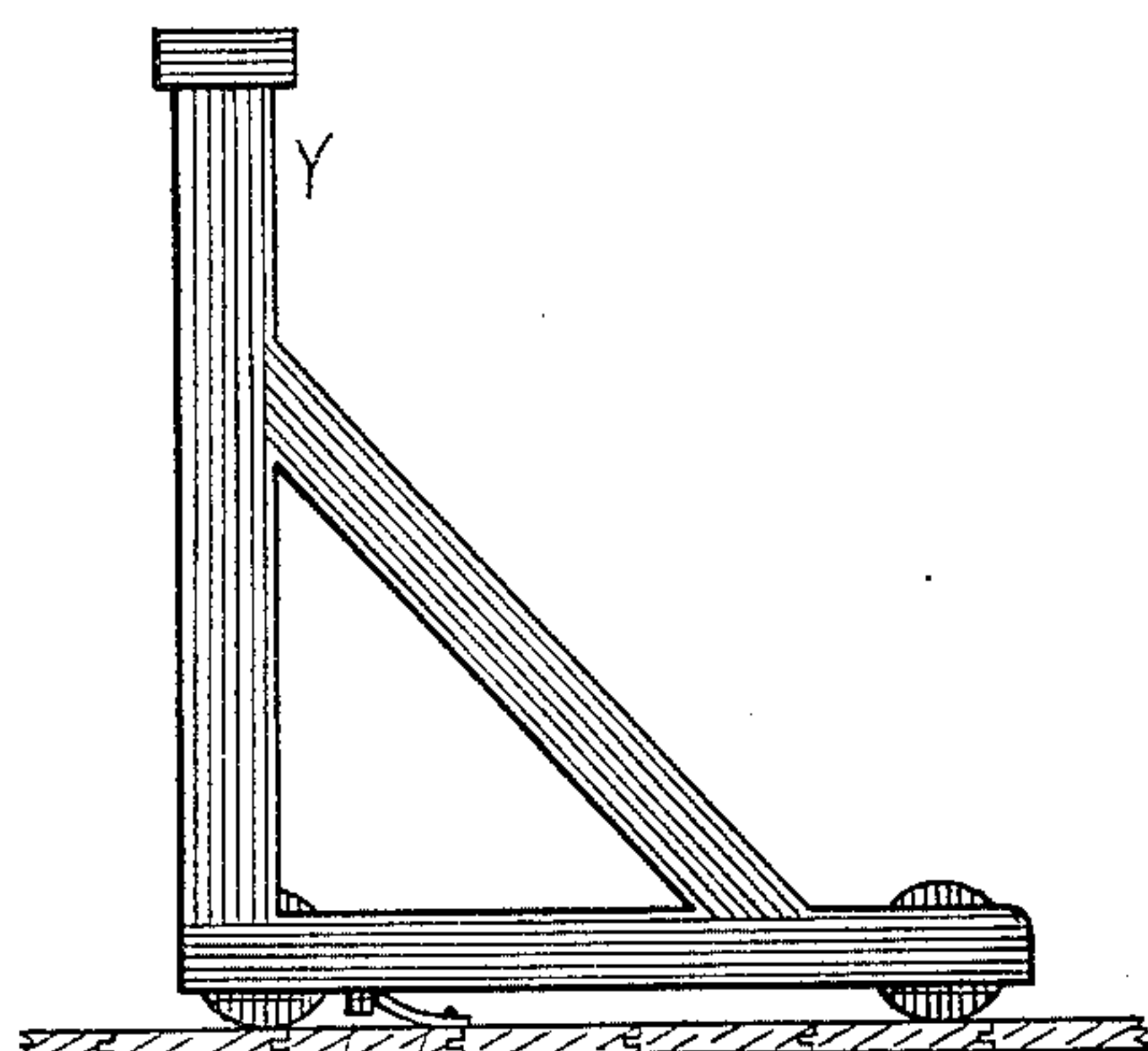


FIG. 7.



FIG. 8.

E. K. Campbell  
M. Kernan.

Francis O. Hanson  
per C. D. Campbell  
att'y.

(No Model.)

3 Sheets—Sheet 3.

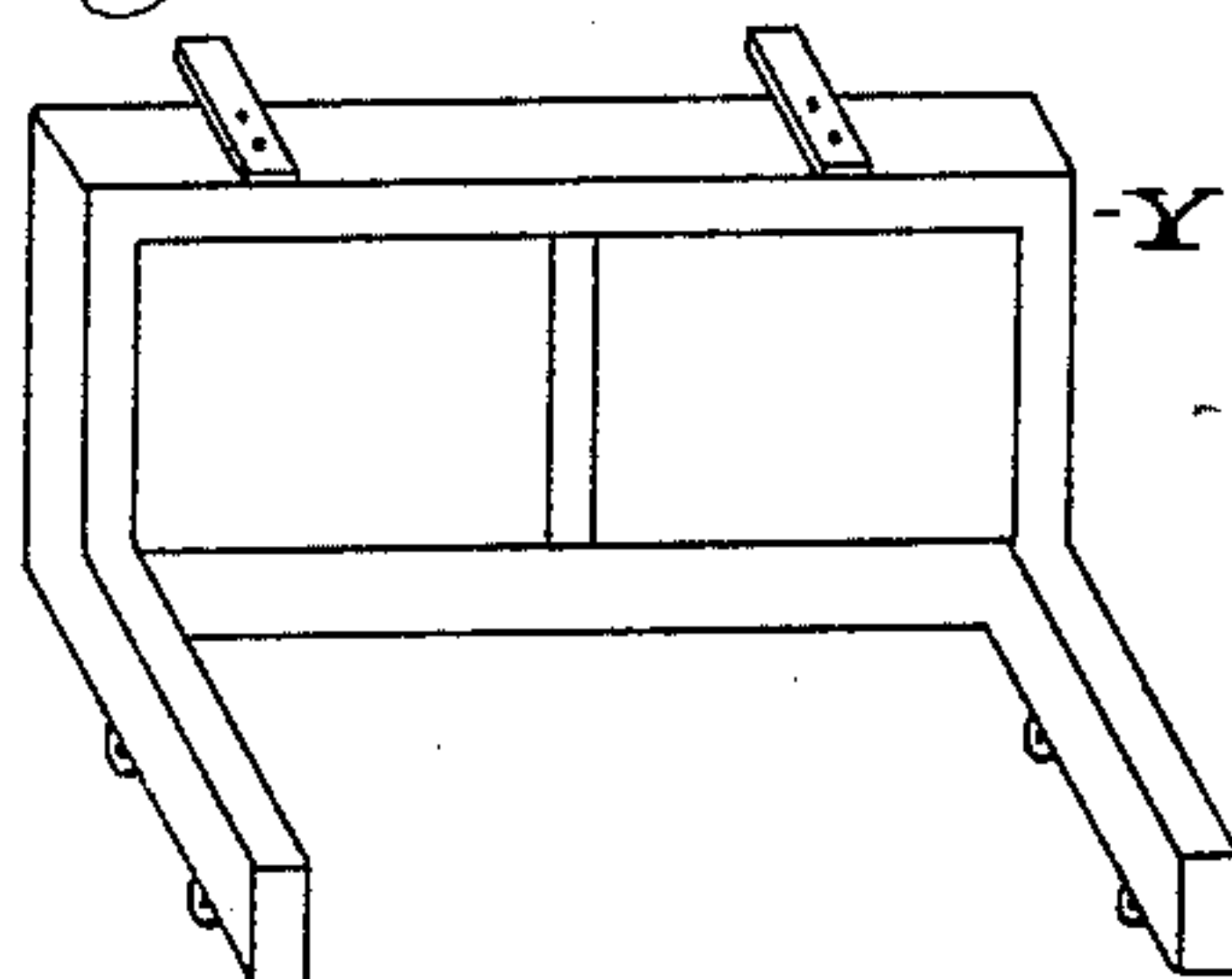
F. O. HANSON.

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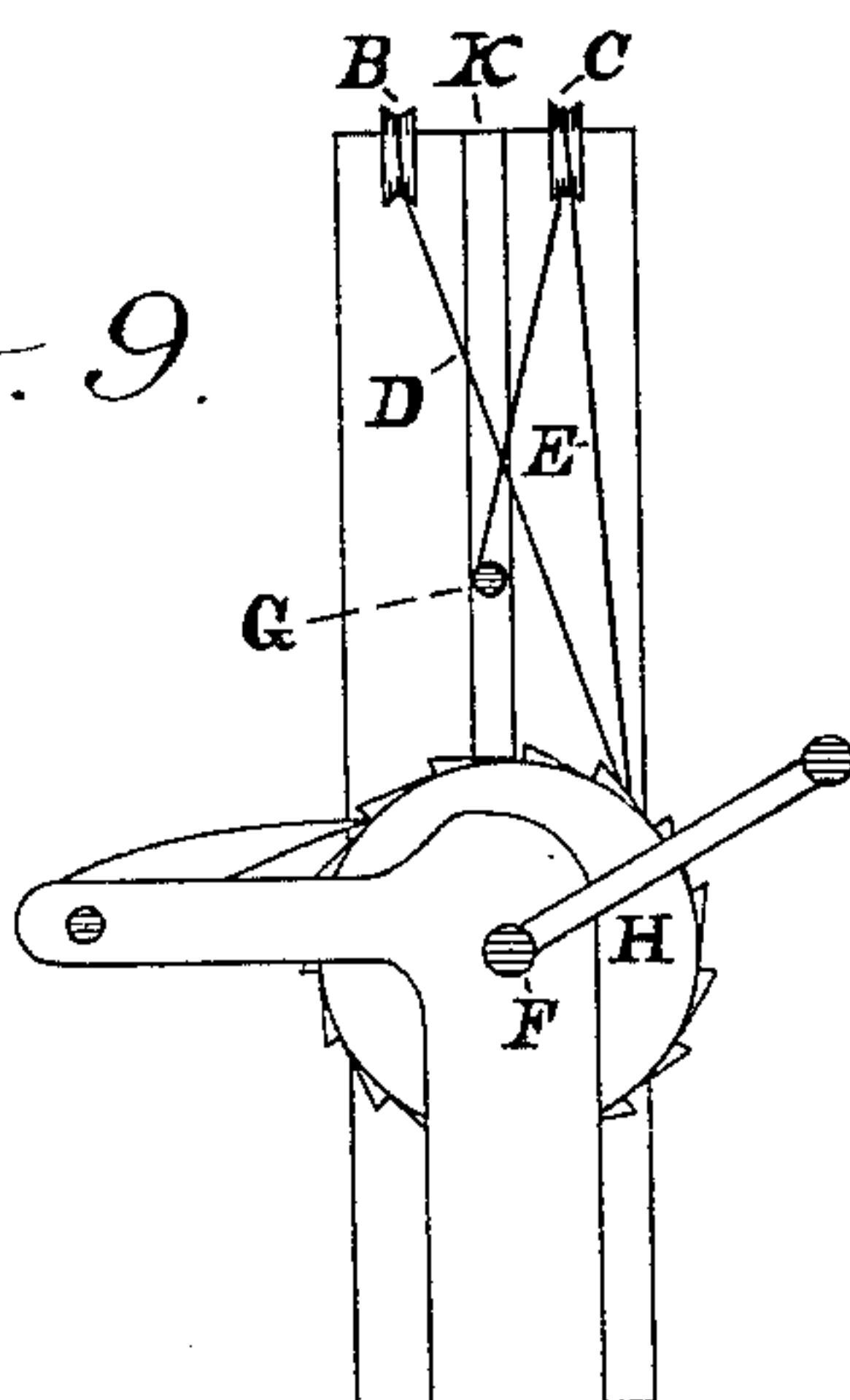
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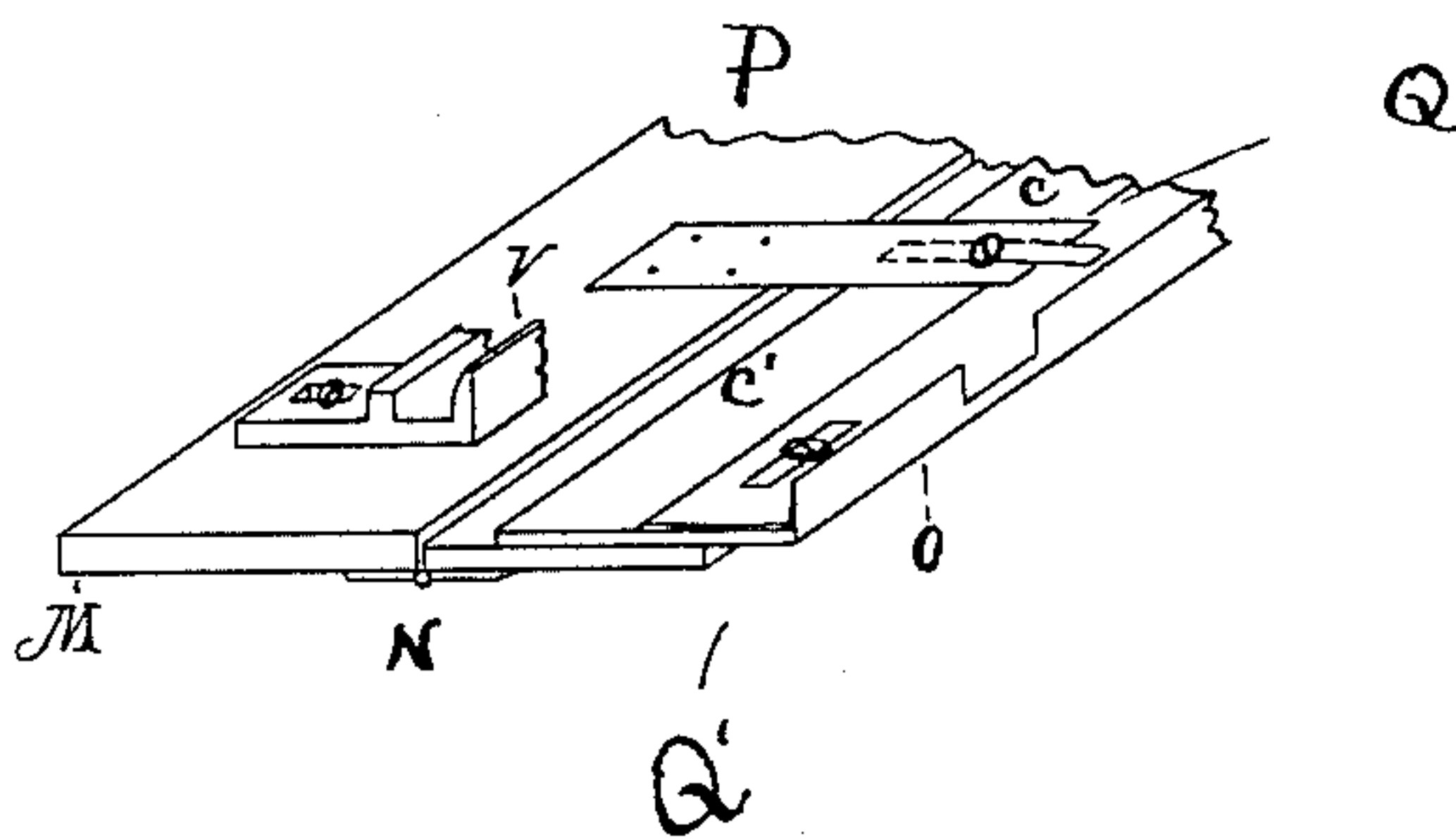
*Fig. 8.* Y'



*Fig. 9.*



*Fig. 10.*



Witnesses:

E. M. Campbell  
S. A. Knight

Inventor:

Francis O. Hanson  
Per C. D. Campbell



# UNITED STATES PATENT OFFICE.

FRANCIS O. HANSON, OF KENTON, OHIO.

## FORM AND FRAME FOR BUILDING IRON FENCE.

SPECIFICATION forming part of Letters Patent No. 318,427, dated May 19, 1885.

Application filed September 11, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS O. HANSON, a citizen of the United States, and a resident of Kenton, in the county of Hardin and State of Ohio, have invented a new and useful Form and Frame for Building Iron Fence In, of which the following is a specification.

My invention consists in a new frame and form for building iron fence in, and essentially in adapting it to assuming the positions most natural and advantageous for the workman to work in and for holding and gaging the material at the different steps in construction of a panel.

The style of fence my form is particularly designed for is that composed of two or more parallel horizontal rails—such as channel-rail, T-rail, I-rail, &c.—through which vertical pickets are passed, and fastened into the rails by swaging the same up against the pickets. Ornaments may be attached, if desired.

Figure 1 is a front view of my frame with my building-form in a horizontal position. Fig. 2 is a front view of my form in a vertical position. Fig. 3 is an end view of my frame and form. Fig. 4 is a sectional end view through my clamp W and rail-holding trough or groove V. Fig. 5 is a rear view of my clamp W, attached to the rail; Fig. 6, a view of hand-anvil and picket steadier or holder. Fig. 7 is an end view of my work-table. Fig. 8 is a perspective view of my work-bench; Fig. 9, an end view of my frame, showing pawl and ratchet. Fig. 10 is a detached view of one of my cross-pieces M, showing a manner of hinging my adjustable gages O.

A is the frame of my machine; B C, pulleys; D E, ropes passing from windlass F over pulleys B C, to pivots G of my form; H, pawl-and-ratchet wheel, by which the form is locked at any height; I, spring-shoulders, on which the front of my form rests when in a horizontal position; K, slots in the cross-pieces of the frame of my form L; M, adjustable cross-pieces carrying troughs V, in which the rails of the fence are set preparatory to fastening in the pickets; N, hinges by means of which the gages O O' are dropped out of position when desired. The gages O O' are raised straight edges, fastened adjustably on pieces hinged to the cross-bars of the form. They

can be moved nearer to or away from the troughs V. In building a panel of fence, these gages are placed at that distance from the rail-holding trough that the picket is to extend 55 above the rail.

P are slotted pieces on cross-pieces M, by means of which and thumb screw or key Q the hinged gages O O' are kept up when raised. The piece P is a small piece of brass or iron 60 fastened permanently to the cross-piece of the frame and projecting out over the hinged piece carrying gage O, and having an open slot in the outer end.

Q is a small thumb screw or button, the 65 head of which when turned sidewise passes through the slot in piece P and permits the gage O to drop down, but when turned crosswise locks the piece carrying the gage up in position. By this screw the gage O is adjusted laterally. 70

R is an adjustable lever by means of which the pitch of the pickets is regulated. The holes in the rails to receive the pickets are punched at even and similar distances apart, 75 beginning at certain distances from the ends of the rails. The ends of the rails are placed against the lever R, which, if the fence is for level ground, will be left straight across the form or at right angles with the cross-pieces 80 and rail-troughs. If the fence is to be pitched—that is, if each picket is to be a little higher than the preceding one for rising ground—the lever R will be moved so as to be obliquely across the face of the form, more or less, as 85 desired. This will give the necessary pitch to the fence when the pickets are inserted and swaged in.

S is the pivot on which the lever R turns; T, screw to fasten gage-lever R in position 90 in slot U; V, trough or slot in which rail is held.

W W are a series of adjustable jaws in which are the troughs V. One side of the jaws is squared, as shown at *x*, to fit down snugly on 95 the top of bench Y when the bench is moved up.

Z is a piece dependent from the bottom of bench Y. As the table is advanced, this piece presses the spring *b* down and passes over it. 100 The spring *b* extends to a point just back of where the piece Z must go when the bench is



up in working position. As soon as the piece Z passes the end of spring *b* the spring rises to its normal position, the end of it coming against the back of piece Z and preventing its going backward until the spring is pressed down again.

*a* is a swaging-bar, that fits in the space between the top of the bench and the rail. The front end of the swaging-bar is made circular, V-shaped, or of shape to conform to the shape of the picket used. The swaging-bar *a* is a heavy bar of iron about eighteen inches or two feet long, one end of it having a recess or groove to fit against the picket being worked on to hold it steady while being swaged in. The other end of the swaging-bar is broad and mushroom-shaped, adapted to rest against the body of the operator. The sides of the bar are square and just fit snugly between the work-bench and the rail, and when lying on the bench form an anvil to receive the impact of the blows on the rail.

In swaging a picket the operator rests the swaging-bar on top of the bench with the grooved end against the picket and his body pressed firmly against the other end of the swaging-bar to keep the picket firmly in position while striking the blow to swage the picket in.

*Y* is a work-bench, composed of a rectangular vertical frame and two rearwardly-projecting pieces at the bottom, which are mounted on rollers, as shown, Figs. 7 and 8, and having two projecting pieces, *Y'*, on which the form rests when the pickets are being swaged in. *c* is a slot on piece *P*, in which screw *Q* plays; *C'*, a slot in which the screw *Q'* plays, Fig. 10.

The operation of my device is as follows: The form *L* is placed in a horizontal position, as shown in Fig. 1. The rails are inserted in the troughs or slots *V*, the ends being placed against the lever *R*, which is placed straight or inclined across the face of the form, as the pickets are to be perpendicular with the base or to have any certain pitch from a level. The gages *O* are made of L-shaped pieces extending across the form, having parts of their upright faces cut away, as shown, Fig. 10, to allow the longer pickets to pass through. These gages are adjustable lengthwise by means of screw *Q'* and slot *c'*, and crosswise of the form by means of slot *c* and screw *Q*. The gage *O* is dropped down out of the way, and the gage *O'* moved along until its cut-away parts are opposite the holes for the long pickets. This gage is then let down also, the short pickets driven in their proper places, when gage *O'* is raised and the ends of the pickets brought flush against the face of the guide. The longer pickets are then driven in their proper holes, the gage *O* raised and the ends of the long pickets regulated by it. The pickets are driven through the rails bottom end first, so that the top of the picket will come against the gages. The gages *O O'* are adjustable by means of screws and slots *g*, to regulate pickets extending different dis-

tances above the rails. *d d* are sliding pins in the rear part of my form. *f* is a slot in the upright parts of my frame, in which the pivots *G* slide, and into which the pins *d* are pushed when the frame is raised to a vertical position to keep it in that position. When the pickets are all of one length, one of the gages *O O'* may be let down out of the way. When the pickets have been driven in the proper distances, and regulated by the gages, the form *L* is raised by the windlass *F* and ropes *D E* to the desired height. When it is swung into a vertical position, with the top of the fence downward, the heads of the revolving sliding pins *d* are pushed into the slot *f*, which keeps the form from swinging. The tool-table *Y* is then advanced until the top of it rests under the recess *X* on clamp *W*. The workman then inserts the swaging-bar *a* between the top of the table *Y* and the rail *V*, the recess in the end of bar *a* resting against the picket and the other end against his person. The swaging-bar *a* fits snugly between the rail and bar and furnishes an anvil to support the rail and receive the impact of the blows in swaging. The workman next places his swaging-punch on the rail near the picket and pointed toward the picket, and with a blow swages or plugs the metal against the picket, fastening it tightly in position. The beam *M'* is hinged at *h* to let down out of the way should the small pickets have heads so large as to cause trough *V* or clamps *W* to be in the way. By this construction and arrangement the workman has his panel in a horizontal position when driving in his pickets and for gaging and straightening them. The rails are held firmly and free from liability to wobble while the pickets are being driven in, the proper pitch is always preserved, and the panel is always at a height most convenient to work at. As soon as the swaging or plugging is to be done, the workman stands the fence in a vertical position, top down, by swinging the form around, and rests each rail on his swaging-anvil while swaging or plugging the metal around the picket. By means of the ropes and pulleys the form carrying the fence is readily raised to bring the parts to be worked onto a proper level.

Heretofore the work has all been done with a stationary frame, placing the workman at a great disadvantage, and rendering the work tedious, very tiresome, and less accurate.

A workman with my form can do more than the work of two heretofore, and do it much better.

What I claim is—

1. In a frame for building iron fence, a pivoted swaging-form having devices to keep it in a vertical or horizontal position, substantially as set forth.

2. In a form for building iron fence, the adjustable rail-holding troughs *V*, the hinged guide *O*, and the adjustable hinged guide *O'*, as and for the purpose set forth.

3. In a form for building iron fence, the



combination, with the rail-holding troughs V, of the adjusting-lever R and screw T, whereby the pitch of the panel is regulated, as and for the purpose set forth.

5 4. The combination, with the pivoted form for building iron fence, of the pulleys B C, ropes D E, windlass F, and pins *d*, as and for the purpose set forth.

10 5. The combination, with pivoted form L, for building iron fence, of the spring-stop I, for holding the form in a horizontal position, as and for the purpose set forth.

6. The combination, with the swinging form L and rail-guides W, of the rolling work-bench Y, upon which the part X of guides or clamps 15 W rest, and the swaging-bar *a*, fitting snugly in between the rail V and top of bench Y, forming an anvil to steady the rail and receive the impact of the blows in swaging or plugging the picket in.

FRANCIS O. HANSON.

Witnesses:

CARL H. PRICE,  
H. A. MOORE.