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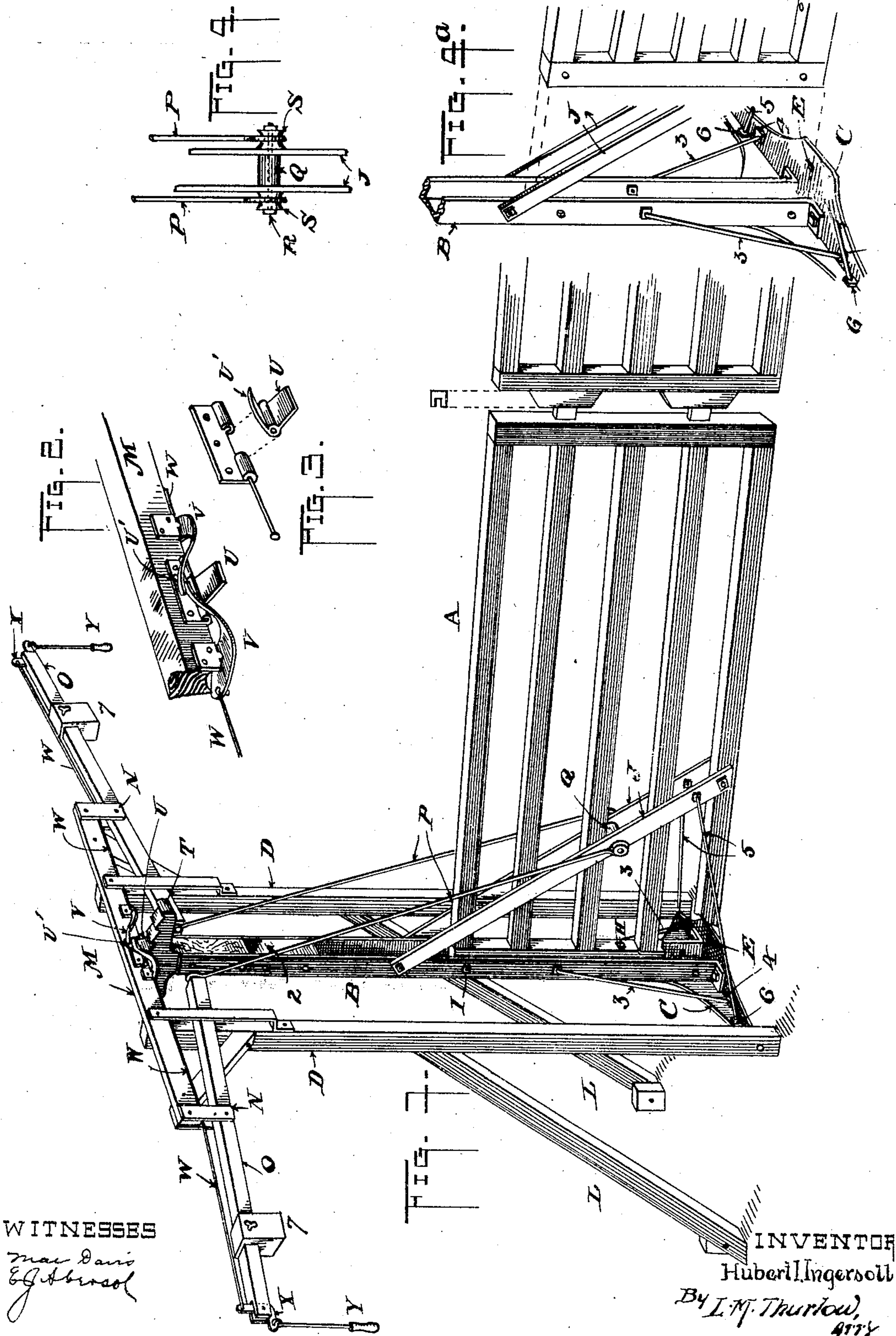
PATENTED NOV. 15, 1904.

H. I. INGERSOLL.
GATE.

APPLICATION FILED MAY 5, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

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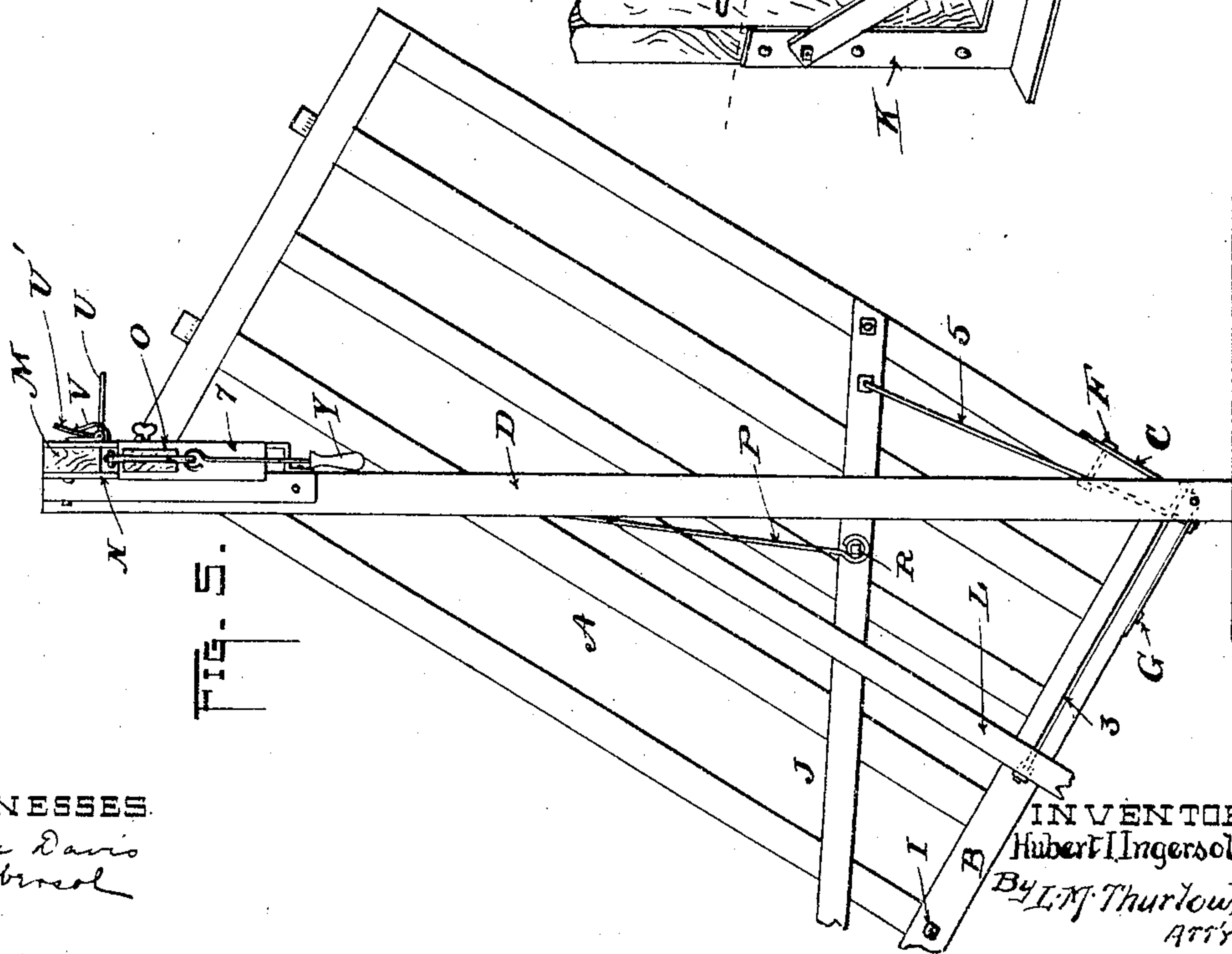
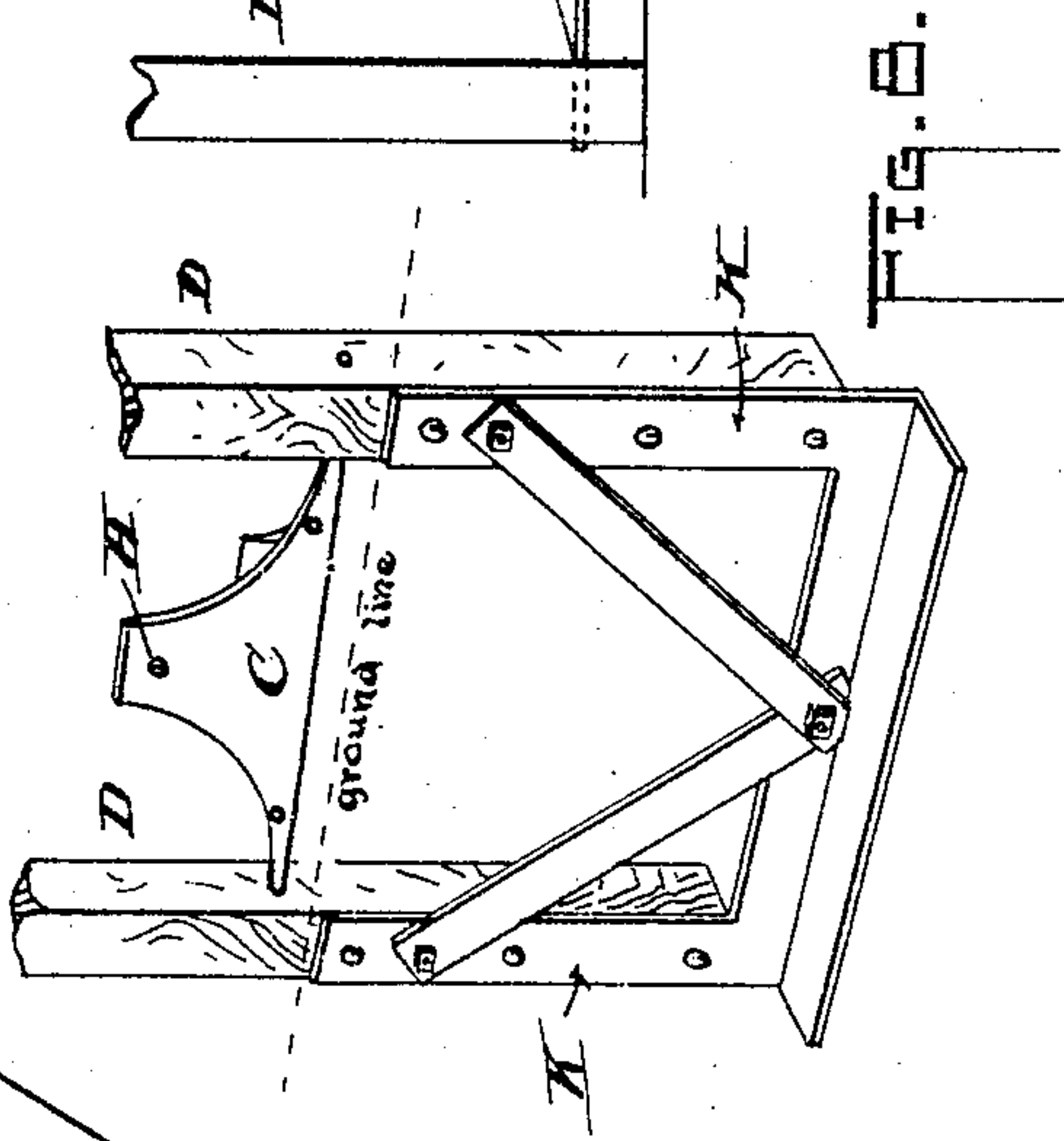
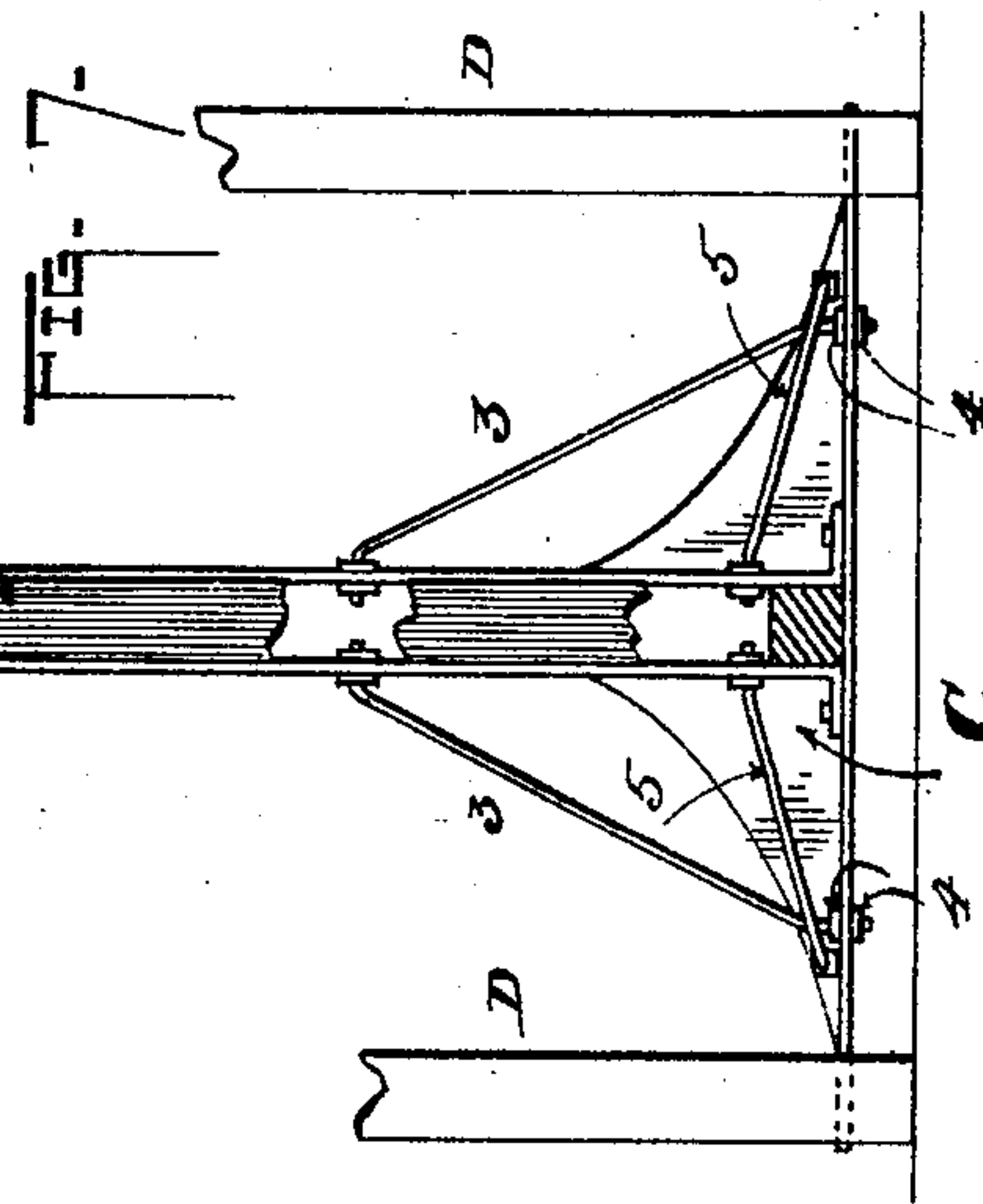
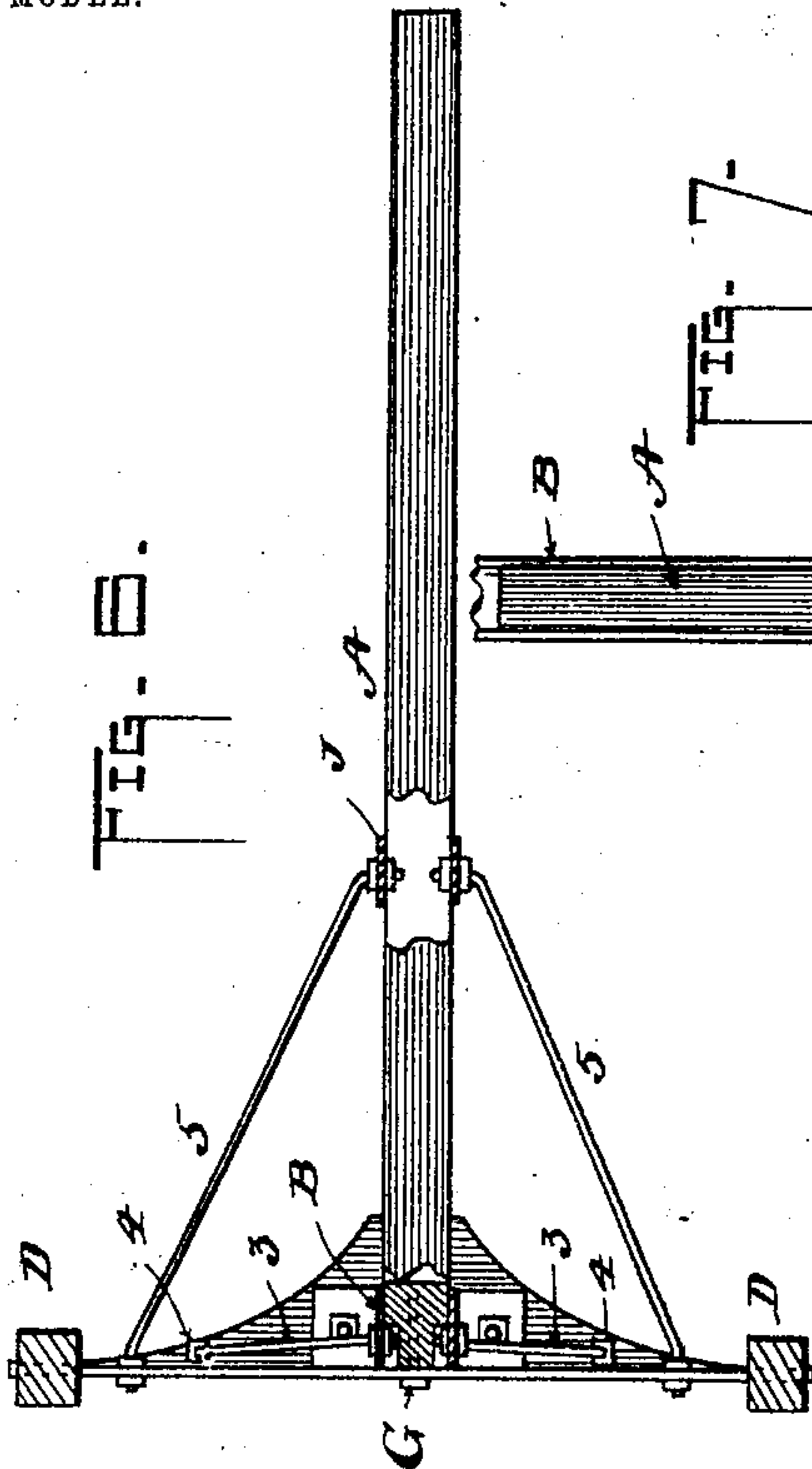
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UNITED STATES PATENT OFFICE.

HUBERT I. INGERSOLL, OF GREEN VALLEY, ILLINOIS.

GATE.

SPECIFICATION forming part of Letters Patent No. 774,881, dated November 15, 1904.

Application filed May 5, 1904. Serial No. 206,453. (No model.)

To all whom it may concern:

Be it known that I, HUBERT I. INGERSOLL, a citizen of the United States, residing at Green Valley, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Gates; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention pertains to improvements in gates of that class known as "farm-gates," and has for one of its objects to construct and mount a gate that will have practically no dead-center.

A further object is to construct a gate-frame that may be set up in working order and afterward the gate proper set into it and secured in place.

A still further object is to so simplify gate construction that an inexperienced person may set the gate in working position and maintain it in working condition with little trouble.

Another object is to remove the latch of the gate from the position ordinarily occupied by it and place it far from the reach of animals and children.

Another object is to provide a gate with a vertical arm above the pivot thereof of a length substantially equal to the length of the gate and weighting such arm to equal the weight of the gate, thereby causing the gate to operate on its pivot in a very smooth manner with loss of "dead-center."

A further object of the invention is to mount a latch at the top of such extended arm, so that no matter how much the gate itself is out of plumb the latch will always be in condition to lock the gate.

Another and final object of the invention is to provide a new means for adjusting the gate to bring it plumb, so that it will properly close and will always be vertical.

In the accompanying drawings, Figure 1 is a perspective view of the gate, showing my improvements. Fig. 2 is a perspective view of a latch mechanism. Fig. 3 is a detail view of the latch shown in Fig. 2. Fig. 4 is a detail view of a connection for the operating-rods which raise and lower the gate. Fig. 4^a is a perspective view of a frame portion,

showing a portion of a gate that may be entered thereto. Fig. 5 is a side elevation of the gate, showing its raised position. Fig. 6 is a plan view of the gate and its holding-frame shown in Fig. 5. Fig. 7 is a front elevation of the gate shown in Fig. 6. Fig. 8 is a perspective view of an anchoring means for the posts which form the support for the gate.

The gate proper is indicated by the reference character A and is of any preferred form and of any weight desired.

B is an upright of hollow cross-section into which the gate is set in putting the device together. The said upright is suitably mounted upon and secured to a horizontal foot portion C, having a bearing at each end in one of the posts. As shown in several of the figures, the said foot portion C is made in the shape of an L in cross-section, the extremities being rounded to enter the said posts.

The gate A when set within the upright B rests upon C, and a hole E in the lower portion C admits a bolt, Fig. 5, which passes through the lower rail of the gate and firmly secures the latter in place, aided by a bolt G in the rear, which passes through a hole H in C, Fig. 8. Also a bolt at I through the upright B and the gate serves as a further means of holding the latter member.

At J are two arms secured to the lower rail of the gate and extended upward at an angle to connect with the upright B to remove the strain from the said upright, or rather to brace the entire arrangement in a rigid manner.

Just now I desire to draw attention to the construction employed in bracing the posts D. The latter members are set in the ground to the desired depth, being held parallel to each other by an iron U-shaped frame K, whose lower extremity is bent at a right angle. At L' are two brace-rods, which serve to tie the extremities of the frame K, and thus better serve to maintain the posts in rigid relation to one another. All of this bracing structure is located beneath the surface of the ground, the angled foot acting when solidly set below the frost-line to hold the posts and the gate perfectly rigid, so that there cannot be a change after they are once located. Added to this peculiar arrangement are braces L L, which

are secured at their upper ends to the posts D, their lower ends being held by means of stakes or other suitable supports, as shown.

Across the tops of posts D D is placed a horizontal beam M, whose ends project beyond and support, by means of hangers N, operating-arms O. The adjacent ends of the said arms carry pull-rods P, whose lower ends are connected to the braces J. The manner of connecting them is shown in Fig. 4, in which Q is a sleeve placed between the said braces, through which passes a bolt R. Outside the braces on each end of the bolt is a sleeve S, around which the pull-rods are bent, as shown in Fig. 1. By this means it will be seen that after the bolt R is removed the gate may be readily taken down by removing the bolts F G H I and the braces J. The upright B extends up between the ends of the arms O and is of substantially the same length as the gate, being surmounted by a rack T, some one of whose teeth is engaged by a latch U, Figs. 2 and 3, hinged to the beam M above said rack. Secured to the beam at each side of the latch T is a bell-crank V. One end of each crank is connected by a wire or cable W with a crank X at the outer end of one of the arms O, as shown. The free ends of the bell-cranks V approach one another and the latch U and engage with a tongue U' of the latter member. A pull on the handle Y at either side of the gate will turn the bell-crank V, connected with the wire W, moving the free end of the said bell-crank toward the beam M, thereby putting pressure on the tongue U' and raising the tongue out of engagement with the teeth of the rack T. The tongue U' reaches the limit of its backward movement by meeting the beam M, and consequently the wires W can move no farther; but the strain will then be put upon the arms O to depress them and raise the pull-rods P to raise the gate. I prefer to make the upright B balance the weight of the gate, so that a slight pull on the rods P will throw the said upright beyond the pivot-point at C, the gate passing freely backward to the open position, its upper position when passing beneath the beam M being as shown in Fig. 5. The closing movement of the gate is the same as the opening one.

Just here it is desired to show the advantage in making the upright B of the same length as the gate itself. It will be understood that by making it of substantially the same length and weighting it near the top, as by a weight 2, or making the rack T of a heavy block of iron the pivotal movement of the gate will be much smoother than if the weight were placed above the pivot at C at the top of the gate, as is done in many devices of this class. By having the weight at the latter place the movement would be erratic, because it would not have the range of movement of a weight placed higher up, as I have it. For this reason there is practically

no place in the movement of the gate where it would not pass over one way or the other, it having been demonstrated by actual experiment. It has been found that when the gate is started in either direction by a pull on the arm O the gate passes to the opposite position without a hitch, owing to the substantially equal length of the gate and upright B.

In practice I have found it preferable to make the portion C in the neighborhood of thirty-six inches long, thus providing a long bearing for the gate, which lessens the liability of its getting out of line, and in connection with this I have provided means for adjusting the gate should it become warped or twisted by accident, so that its free end will properly meet the rest in the post or jamb whatever the form of rest may be. To this end a rod 3 is passed through the horizontal web of the portion C, as shown in Fig. 7, a nut 4 being placed above and below the said web, one of the rods having a place at each side of the gate, as shown. The upper ends of the rods are bent and passed through the limbs of the upright B. Now if the gate is in any way out of the vertical position it is only necessary to loosen the nuts 4 at the side toward which the gate leans. Then by tightening those at the other side the gate can be brought to the upright position readily, after which the nuts first loosened are tightened, thus holding the entire gate rigidly in proper position. Means of similar construction is also provided for bringing the free end of the gate in line with the post or jamb. The numeral 5 shows a substantially horizontal rod at each side of the gate, one end passing through the vertical web of C and the other through the braces J. By manipulating the nuts 6 at C the gate can be moved in a horizontal direction. The posts D when once set need never be moved, because the rods 3 and 5 serve for the necessary adjustments. By having the long bearing C it will be evident that the movement of the rack T will be but the smallest fraction of an inch, if, indeed, it will be moved at all, by any disturbance of the gate. An advantage therefore arises in having the latch at this point because a considerable movement of the gate itself will change the position of the rack but little, so that the member U must always engage a tooth of the said rack T. A number of the teeth are provided on the latter member, so that no matter if the gate lodges accidentally upon a lump of dirt or other obstacle, or even if it drops too low, the latch must always engage with the rack. I attach adjustable weights 7 to the arms O, so that they will assist in balancing the gate, though I have not found them absolutely necessary when the upright B is properly weighted. These weights are a good thing, however, in case ice accumulates on the gate to such an extent that it is out of balance with the upright. In such an event

the weights 7 may be shifted toward the free ends of O to obtain the counterbalance.

I am fully aware that weights have been used heretofore both upon the arms O and upon the gate, also that a latch has been placed at the back of the gate near the top, also that certain adjustments by means of rods and turn-buckles have been had, and having these in mind I have devised a new arrangement and construction, which are found of much advantage over the older forms of which I have apprised myself.

It will be observed that the upright B is forward of the pivot at C when the gate is closed, so that the weight of the gate itself and the weighted upright will naturally tend to close the gate when the preponderance of weight is forward of the pivot during the closing movement. By having the upright a little heavier than the gate it will also be seen when the opening movement is made the moment the weight of the upright has passed across the pivot the weight of the gate itself will begin to be overcome, so that the natural tendency is to fall to the open position, and for this reason the gate has no point where it is likely to stop during either the opening or closing movement.

Therefore, having described my invention, I claim—

1. In a gate of the character described, a hollow upright pivotally carried at its lower end, a gate for entrance to and removal from said upright, means for securing the gate in place when entered, means for adjusting the gate vertically, other means for adjusting it horizontally to bring it into alinement with the fence and means for tilting the gate and the upright substantially as set forth.

2. In a tilting gate of the character described, a frame pivoted to tilt in a vertical plane, a removable gate secured in said frame, an extension on the latter extending upward and substantially the same length as the length of the gate and weighted to balance the weight of the gate, means for operating the gate to open or close it, and a locking device located at the top of such vertical extension for the purposes described.

3. In a tilting gate of the character described, a frame pivoted to tilt in a vertical plane, supports forming the bearing for its pivot, a removable gate secured therein, said frame extending upward for substantially the same distance as the length of the gate and weighted to balance the gate, locking means at the top of such upward extension, means for rocking the gate on the pivot of the frame, and means for adjusting the gate in two planes to place the same plumb.

4. In a tilting gate, the gate, a pivotal frame from which said gate is detachable for the purposes explained, said frame having an upward extension of substantially the same length as the gate, a weight thereon for balancing the

weight of the gate, a toothed rack carried at the top of the extension, a latch above the rack for engaging the rack for preventing the gate from being raised, and means for first disengaging the latch and afterward opening the gate substantially as set forth.

5. In a tilting gate of the character described, a frame pivoted to tilt, a gate adapted to be carried thereby but removable therefrom, said frame having an upward extension of substantially the same length as the gate, a locking mechanism at the top of the said extension for locking the gate shut, means for first releasing the locking mechanism and then operating the gate to open it at one movement, and means for adjusting the gate in two planes for bringing it in line with the fence when closed, and for bringing it to a vertical position.

6. In a gate of the character described, the upright B, the gate A secured therein but removable therefrom, said upright being of a length equal to the length of the gate, the portion C at the base of the upright and forming the pivot of the gate, the posts D forming the bearings for the said portion C, the pairs of rods 3 and 5 for adjusting the gate, the rack T at the top of the upright B, the latch U above the rack and adapted to engage with the latter, and the wires W and arms O for raising the latch and opening the gate in the manner set forth.

7. In a tilting gate, the frame B, the portion C for carrying it, the gate A secured within the frame but removable therefrom, the locking mechanism at the top of the frame, means for unlatching the gate and operating the latter on its pivot, the brace-rods 3 for adjusting the gate to maintain it in a vertical position, the braces J attached to the frame B and to the gate in the position shown, and the adjusting-rods 5 secured to the portion C and the braces J as shown for adjusting the gate for keeping it in line with the fence.

8. In a tilting gate, a hollow upright, a horizontally-pivoted angle-bar of some length on which the upright is mounted and secured, a gate adapted for attachment to and removal from the upright, means for securing the gate in place within the said upright, a rod at each side of the upright and secured at one end thereto, the opposite ends of the rods adjustably secured in the horizontal angle-bar for adjusting the gate to a vertical position, a pair of rods secured to the gate at one end and adjustably secured to the said angle-bar at the other for adjusting the gate to aline it with the fence and means for tilting it on its pivot for opening or closing purposes.

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

HUBERT I. INGERSOLL.

Witnesses:

O. B. ORENDORFF,
WM. F. HODSON.