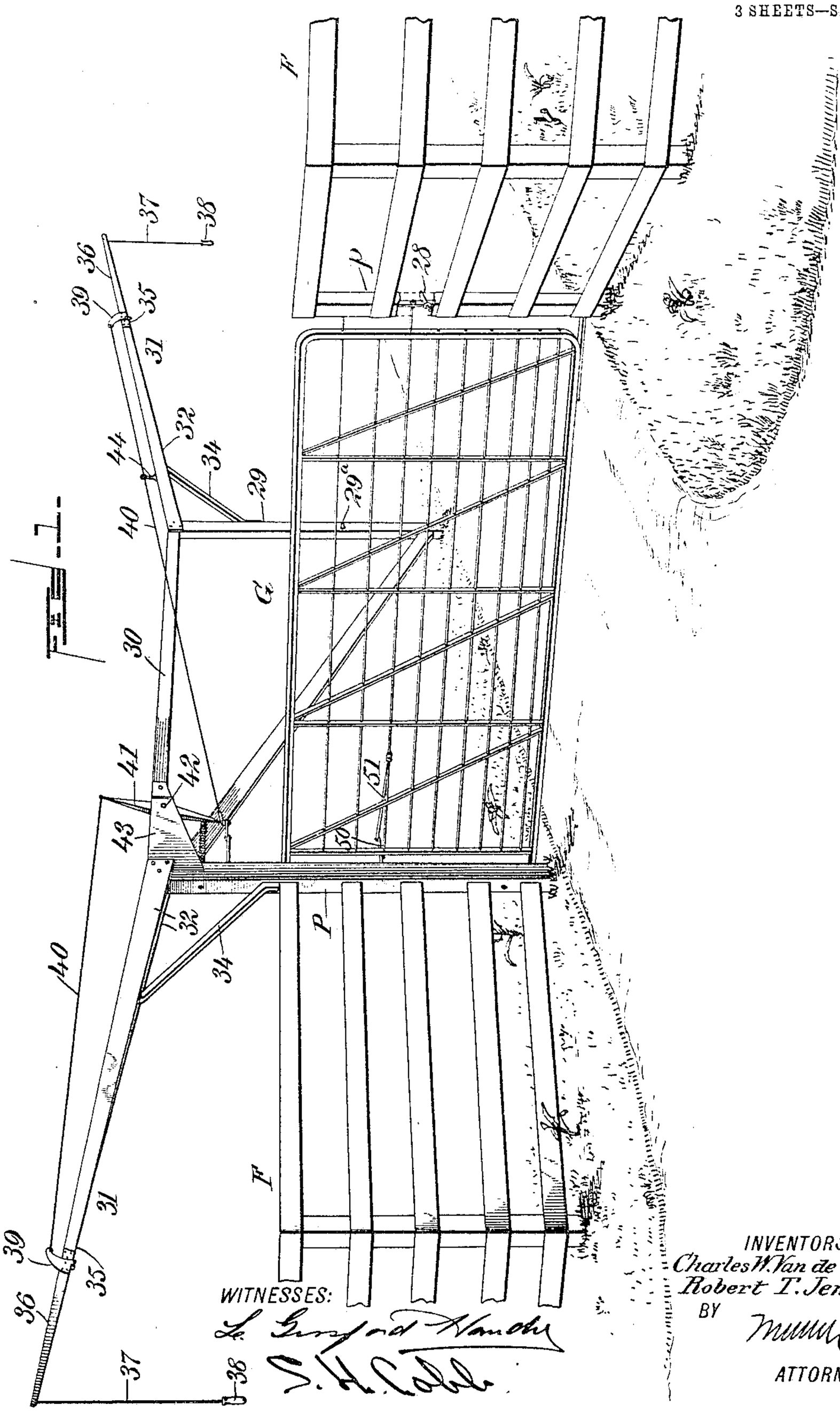
No. 787,242. PATENTED APR. 11, 1905.

C. W. VAN DE WALKER & R. T. JENNEY.

GATE.

APPLICATION FILED MAY 24, 1904.

3 SHEETS—SHEET 1.



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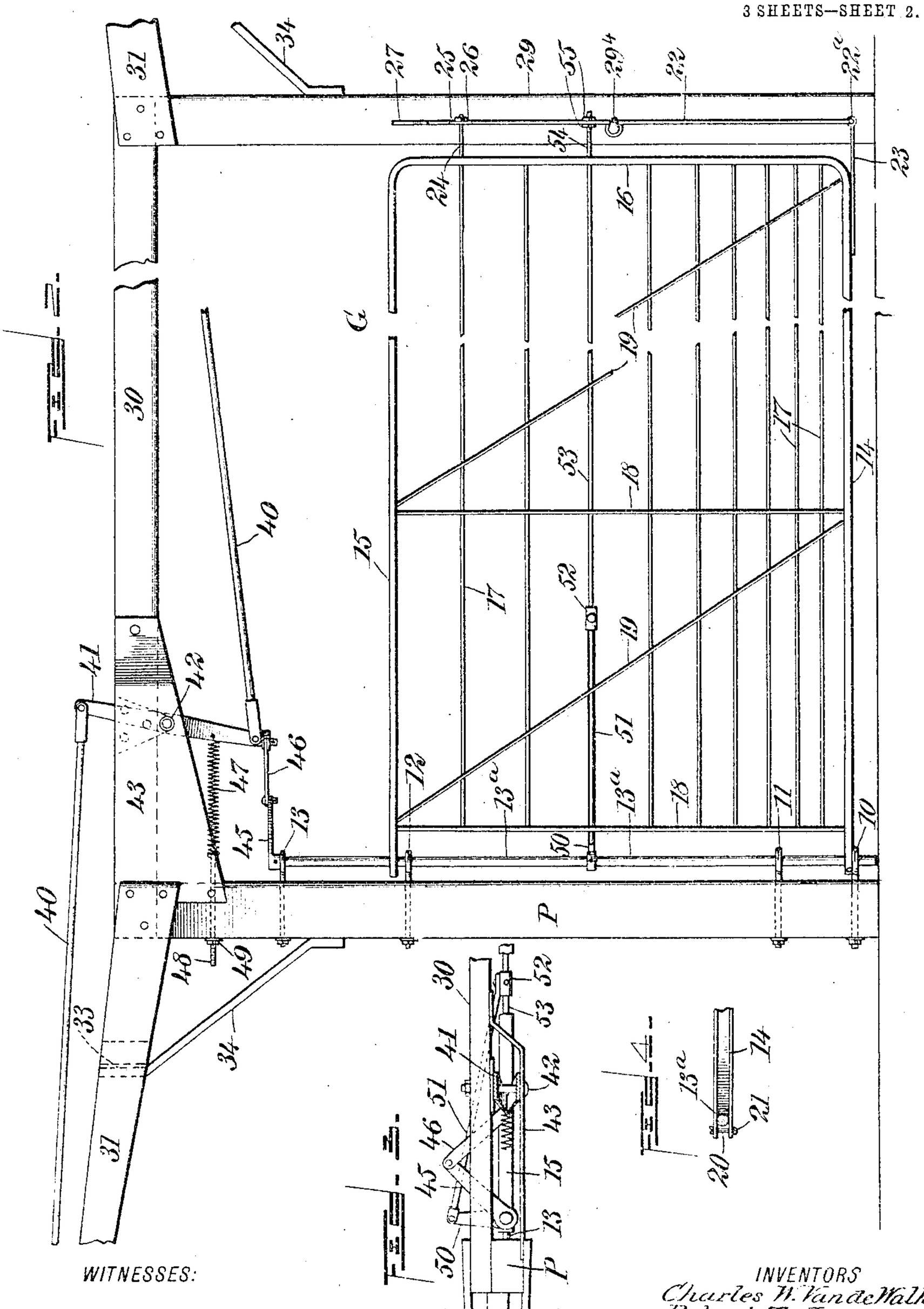

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3 SHEETS—SHEET 3.

Fig. 5

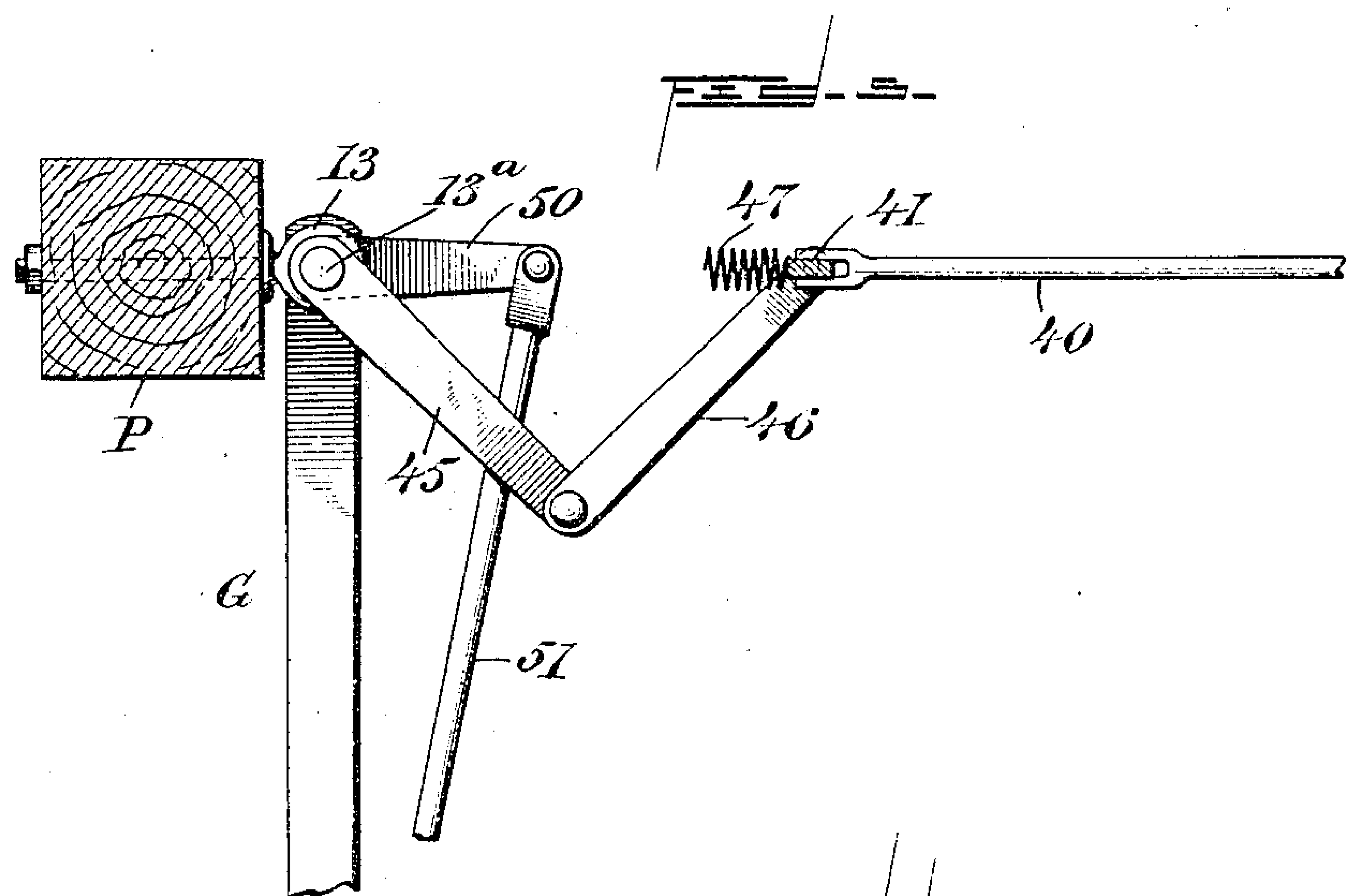


Fig. 6

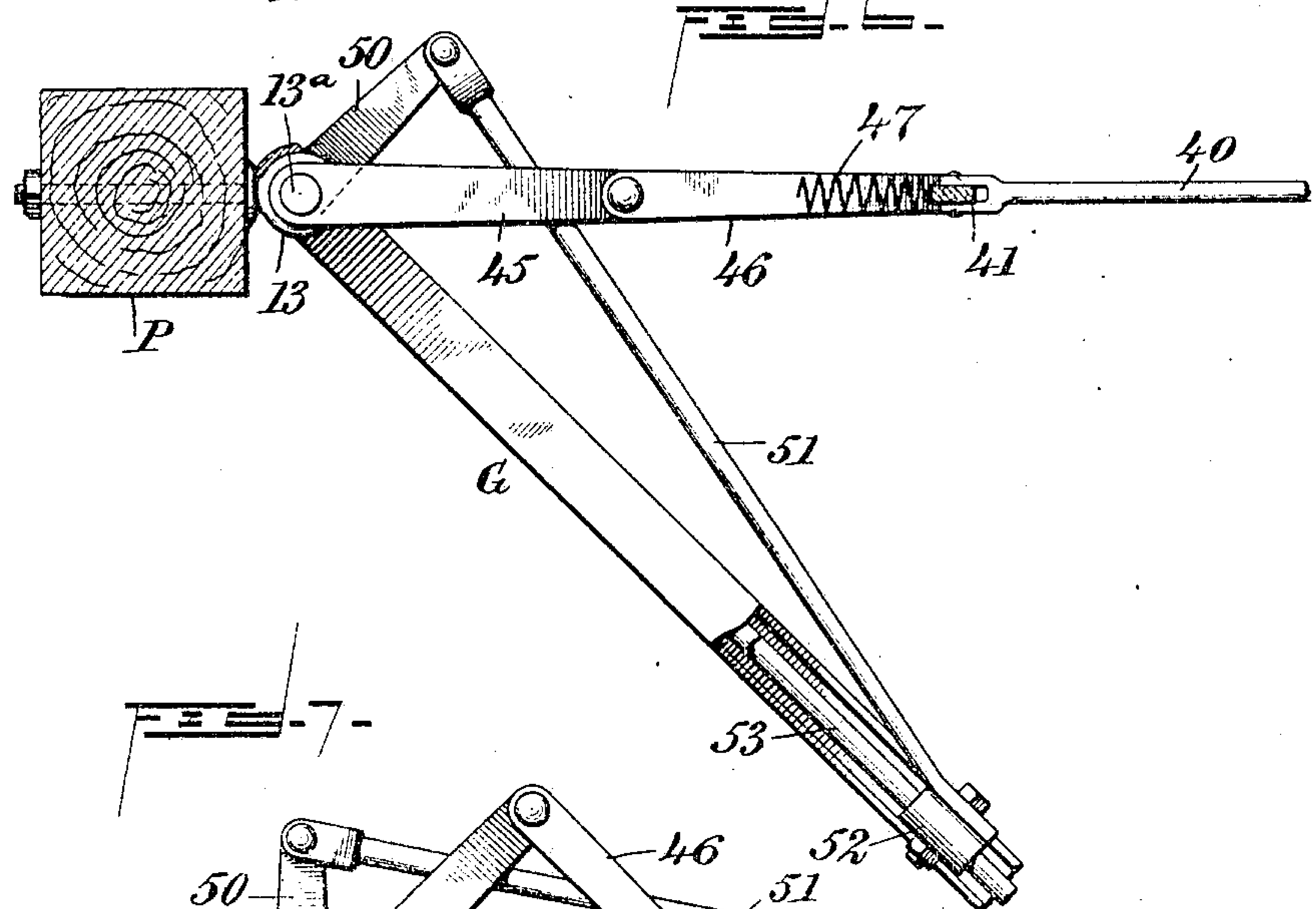
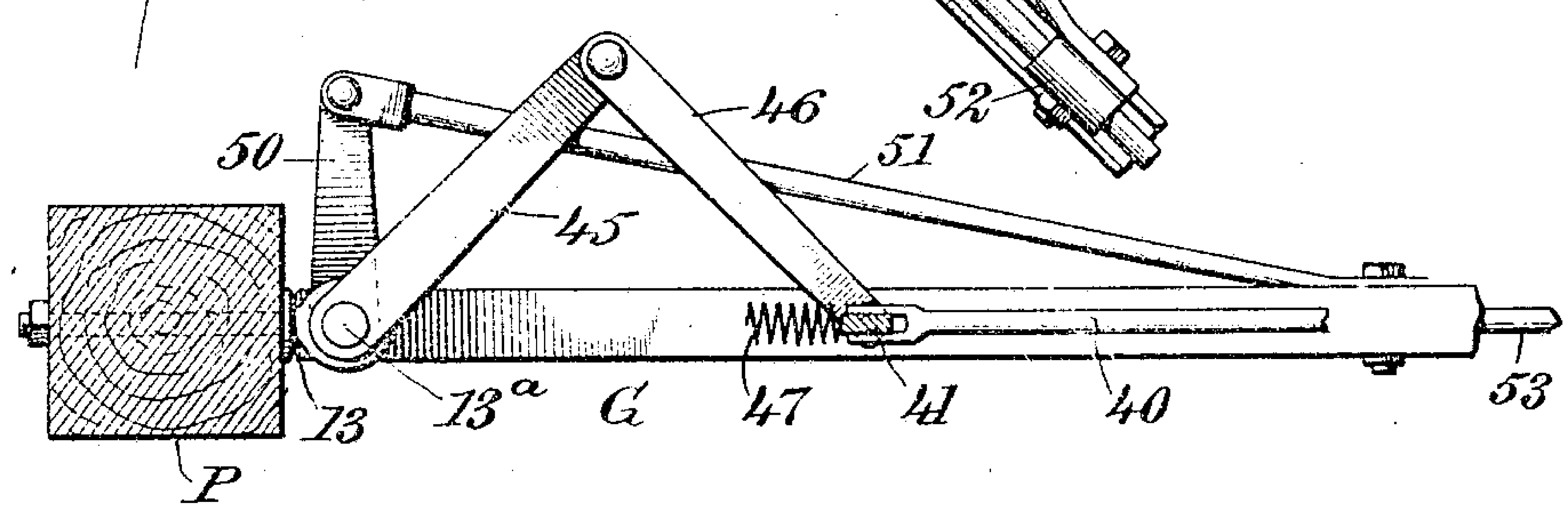


Fig. 7



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No. 787,242. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

CHARLES W. VAN DE WALKER AND ROBERT T. JENNEY, OF TWO RIVERS, WISCONSIN, ASSIGNORS TO WESTERN STEEL GATE COMPANY, OF TWO RIVERS, WISCONSIN.

GATE.

SPECIFICATION forming part of Letters Patent No. 787,242, dated April 11, 1905.

Application filed May 24, 1904. Serial No. 209,430.

To all whom it may concern:

Be it known that we, CHARLES W. VAN DE WALKER and ROBERT T. JENNEY, citizens of the United States, and residents of Two Rivers, in the county of Manitowoc and State of Wisconsin, have invented a new and Improved Gate, of which the following is a full, clear, and exact description.

Our invention relates to gates, and more particularly to mechanism for opening and closing the same. Its principal objects are to provide a simple and effective mechanism for this purpose.

It consists in the various features and combinations hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a portion of a fence and a gate embodying one form of our invention. Fig. 2 is an enlarged broken elevation showing the gate in its open position. Fig. 3 is a broken detail, in top plan, of the operating mechanism. Fig. 4 is a horizontal sectional detail showing the lower support of the gate; and Figs. 5, 6, and 7 are details in horizontal section illustrating, respectively, the position of the elements when the gate is closed, when it is in an intermediate position, and when open.

A fence is designated by the letter F, there being in said fence an opening which is closed by a gate G. At one side of the gate-opening is a post P, preferably extending somewhat above the height of the ordinary fence, and upon this post are mounted supports, here shown as eyebolts 10, 11, 12, and 13, through the openings of which extends a vertical spindle 13^a. About this spindle swings the gate G, this being here illustrated as consisting of an outer frame formed of bent channel-iron, furnishing top and bottom bars 14 and 15, respectively, and a vertical end bar 16. It is provided with horizontal members 17, suitably spaced and extending through openings in the end bar and in a series of vertical members 18 and diagonal stays 19. At the inner end of the top bar is an opening which coöperates with the spindle, and the lower bar is slotted at 20 to embrace the lower end of said spindle, this slot being closed outside the spindle by some such device as a cotter 21. The lower bar normally rests upon the support 10; but if it is desired to raise the gate so that it may operate at a greater height to enable it, for example, to move above snow the cotter may be removed and the lower bar swung out, whereupon the upper bar may be slid upon the spindle until the slot 20 comes above the support 11, when it may be again brought into coöperation with the spindle and secured in place by the cotter. The upper supports 12 and 13 serve as a bearing for the spindle, and the distance between them is sufficient to permit this transfer of the gate to the second support.

A latch is provided for the gate, here shown as consisting of a flexible metallic bar 22, pivoted at 22^a to the end of a bracket 23, fixed to the lower bar 14 and guided at its upper end by a continuation 24 of one of the horizontal members 17, this extending through a slot 25 in the bar 22. A nut 26 is preferably threaded upon the end of the extension to limit the outward movement of the latch. The upper end of the spring-bar 22 may have formed upon it a handle 27 for convenience in operation by persons on foot. The latch-bar may coact with an inclined catch 28, fixed at one side of a post *p* at the opposite side of the gate-opening from the post P.

At the side to which the gate is to swing, it being situated at substantially ninety degrees from the post *p* and at the same distance from the post P as said post *p*, is a post or upright 29, connected near its upper end with the end of the post P by a cross-bar 30. This upright 29 carries a catch 29^a for engagement with the latch-bar 22 when the gate is open. From each end of the cross-bar projects an arm 31, here shown as inclined up-

wardly therefrom at a slight angle and for the sake of strength and lightness consisting of opposite side pieces 32 32, joined at their ends and connected by an intermediate cross-bar or stay 33. They may each be braced by a diagonal stay 34, secured to the stay 33 and to the adjacent post. Fulcrumed at 35 upon the end of each arm is a lever 36, at the outer extremity of which is a pendant 37, carrying a handle 38. From a point near the inner end of this lever rises a projection or arm 39, and these opposite arms are joined by connectors or rods 40 to the opposite ends of an operating-lever 41, fulcrumed at 42 between the cross-bar 30 and a bracket 43, which may be secured to the post P at one end and to the cross-bar at the other. The rod 40, which extends farthest from the lever 41, may be supported by a guide 44, carried by the arm 31 at that side of the gate.

Fixed to the upper end of the spindle is an arm 45, which is connected at its outer extremity by a link 46 to the lower end of the lever 41, this arm and link together forming a toggle-lever. The arm may also by its contact with the support 13 serve to fix the position of the spindle in the support. Connected to the operating-lever between its fulcrum and the point of attachment of the toggle is a spring 47, fastened at its opposite end to the post P and exerting its force to maintain the gate in one or the other of its extreme positions, as will be hereinafter described, and at the same time to hold the levers 36 raised. The attachment of the spring to the post is preferably through a threaded rod 48, extending through an opening in said post and having at the outer side thereof a nut 49, the rotation of which will serve to vary the tension of the spring.

Fixed to the spindle at a point here shown as substantially midway of the gate is an arm 50, which is connected by a suitable link 51 to a collar 52, fast upon an operating member or bar 53, extending longitudinally of the gate. This bar is mounted to slide in the bar 16 and members 18 and preferably passes freely through openings in the stays 19. At the opposite extremity of this bar is a threaded portion 54, which extends through an opening in the latch and is fixed with relation thereto by opposite check-nuts 55 55.

When the gate is closed, the toggle will occupy the position illustrated in Fig. 5 of the drawings. Now if it is desired to open the gate either of the handles 38 may be drawn downward. This depresses the lever 36 and through the connecting-rod and the operating-lever straightens the toggle against the tension of the spring, which results in a rotation of the spindle. This through the arm 50 and link 51 first moves the operating-bar 53 from the spindle, releasing the latch-bar from the catch 28, then the arm continuing its revolution swings the gate. This straightening of the toggle is effective to move the gate until its elements are alined with one another, as is illustrated in Fig. 6; but the momentum of the gate will be sufficient to swing it by this intermediate point, which is at substantially forty-five degrees from its closed position, causing the toggle to break upon the other side. This brings the tension of the spring upon the gate in such a manner as to continue its movement, and this causes it to contact with the upright 29, at which point the latch-bar engages the catch 29[a] and locks it in place, the operating elements occupying the position shown in Fig. 7. The closing of the gate may be accomplished in exactly the same manner, the toggle in this case merely moving in the opposite direction.

It will thus be seen that the gate may be operated in either direction from either side by a person in a vehicle and that at either of its extreme positions it will not only be locked by the catch provided, but will be held by the tension of the spring, which assists in opening or closing it. The gate and its operating mechanism is, moreover, extremely simple and durable.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination with a gate, of a spindle about which the gate may swing, an arm fixed to the spindle, an operating-lever connected with the arm, a spring exerting its tension upon the operating-lever, and means for transmitting the movement of the spindle to the gate.

2. The combination with a gate, of a spindle about which the gate may swing, a lever, a toggle connecting the lever and gate, and means for transmitting the movement of the spindle to the gate.

3. The combination with a gate, of a spindle about which the gate may swing, a lever, a toggle connecting the lever and gate, a spring acting upon the lever, and means for transmitting the movement of the spindle to the gate.

4. The combination with a gate, of a spindle about which the gate may swing, a lever, a toggle connecting the lever and gate, a spring acting upon the lever, means for adjusting the tension of the spring, and means for transmitting the movement of the spindle to the gate.

5. The combination with a gate, of a lever fulcrumed adjacent thereto, a toggle pivoted to the lever and connected with the gate, and operating members connected to the lever near its opposite ends and extending to the opposite sides of the gate.

6. The combination with a gate, of an arm extending at each side of the gate, a lever fulrumed upon each arm, an intermediate lever onnected with each of the first-named levers nd with the gate, and a spring connected to he intermediate lever and exerting its force o hold the gate in one of its extreme posiions and the connected levers raised.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES W. VAN DE WALKER.
ROBERT T. JENNEY.

Witnesses:
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