

(No Model.)

2 Sheets—Sheet 1

S. A. CRONE.
FLUID CONTROLLED GATE.

No. 572,410.

Patented Dec. 1, 1896.

Fig. 2,

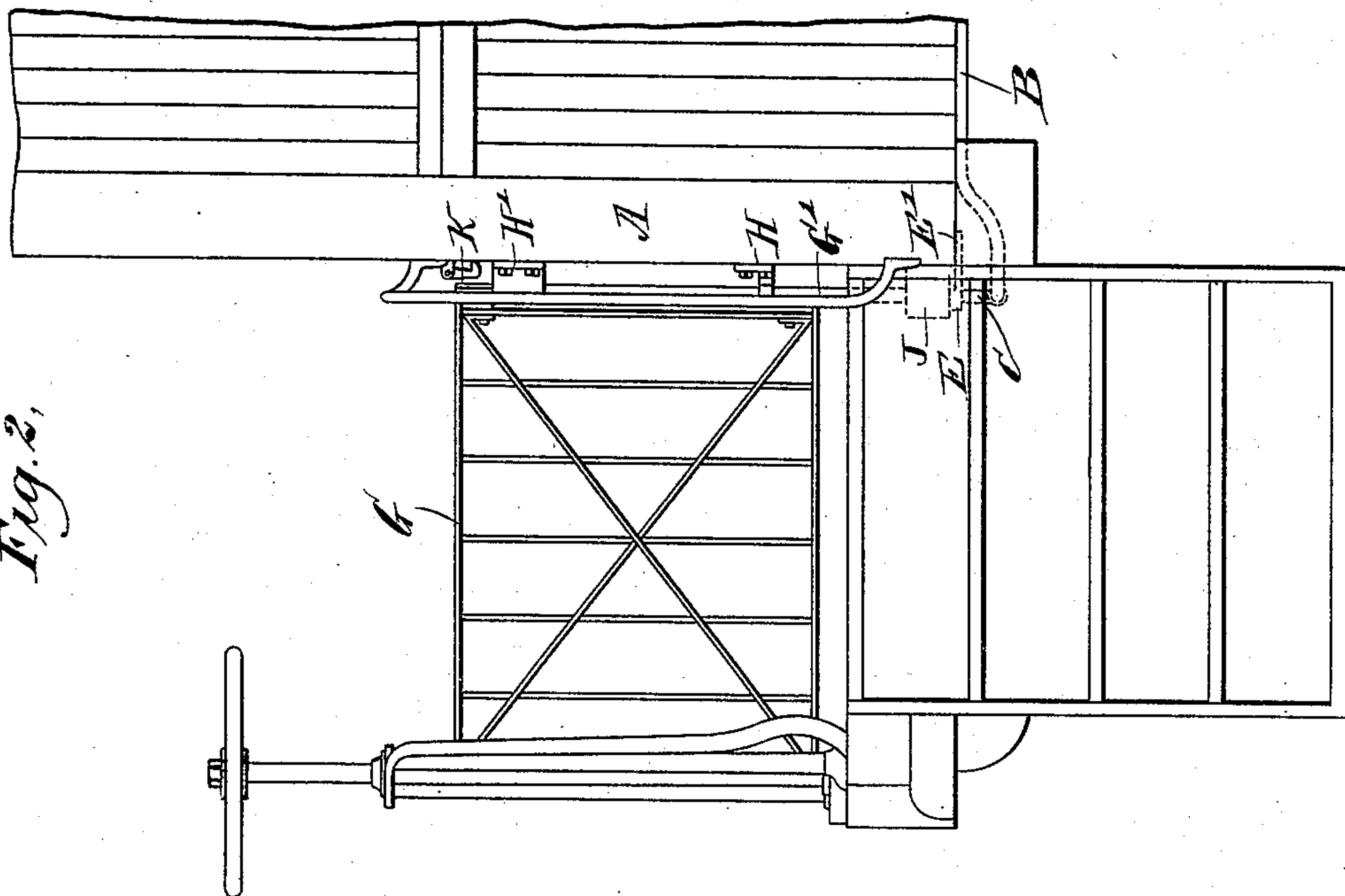
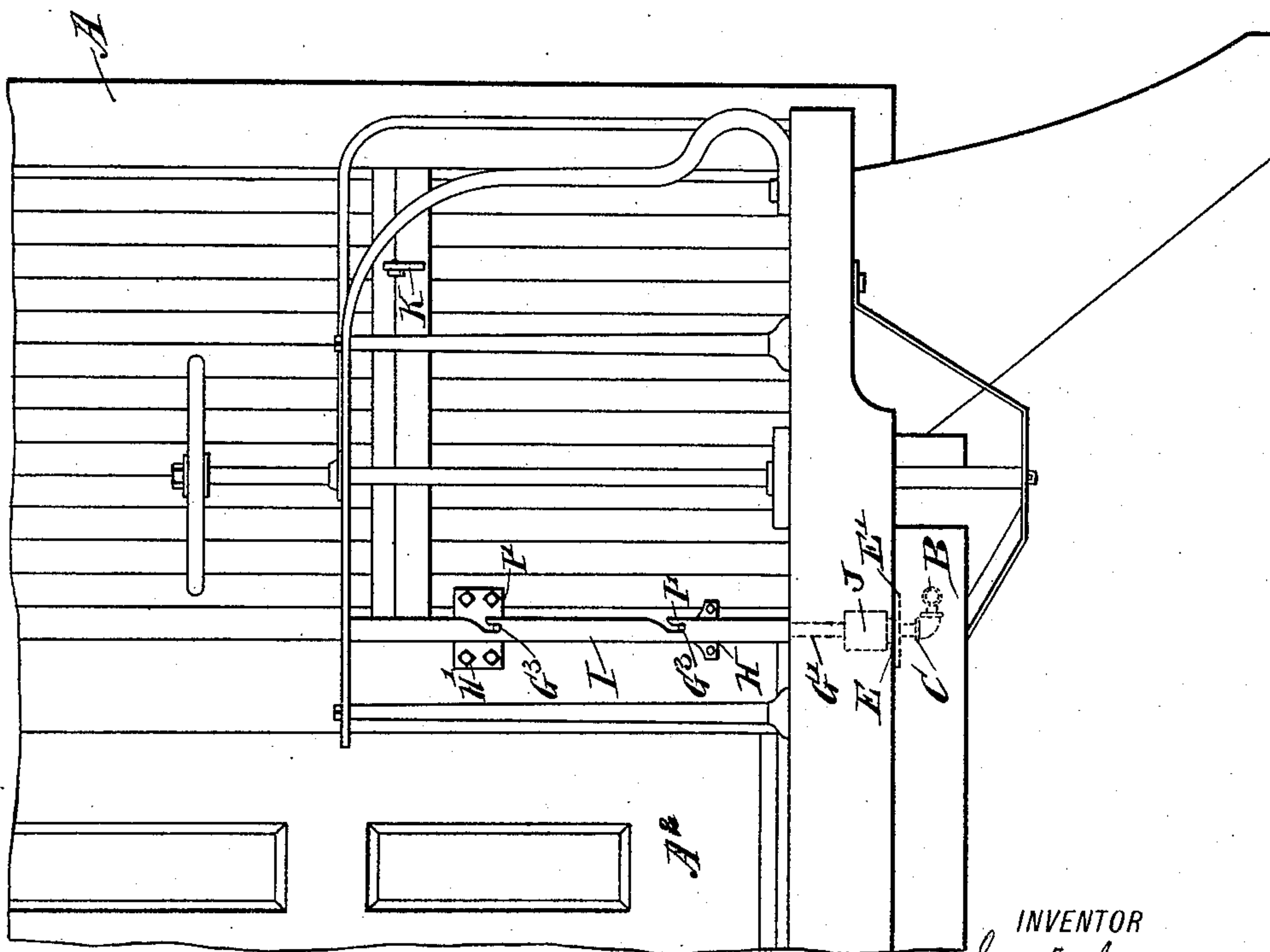


Fig. 1,



WITNESSES:

Edward Thorpe
Theo. G. Foster

INVENTOR
S. A. Crone
BY
Munn & Co.
ATTORNEYS.

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Fig. 5.

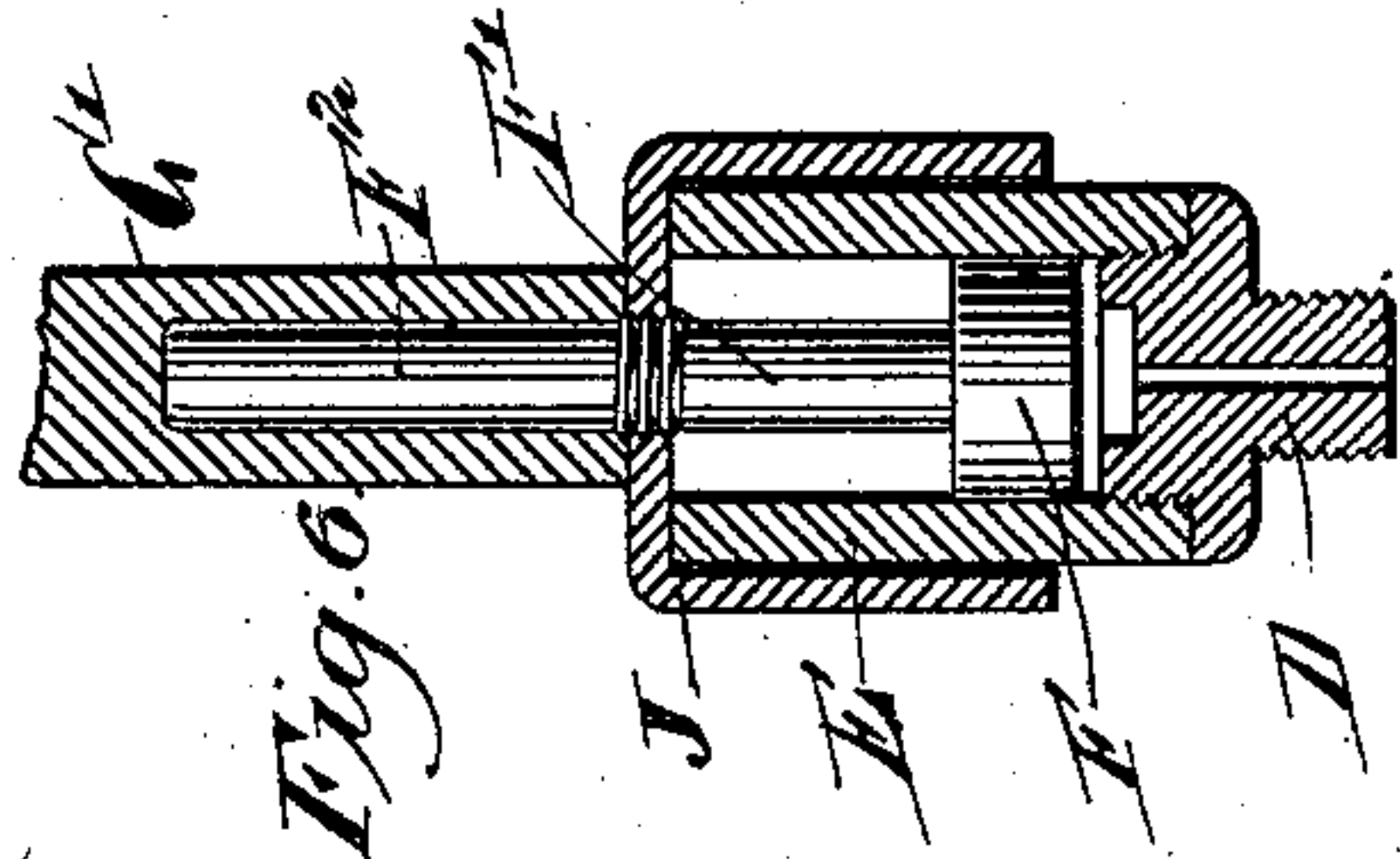
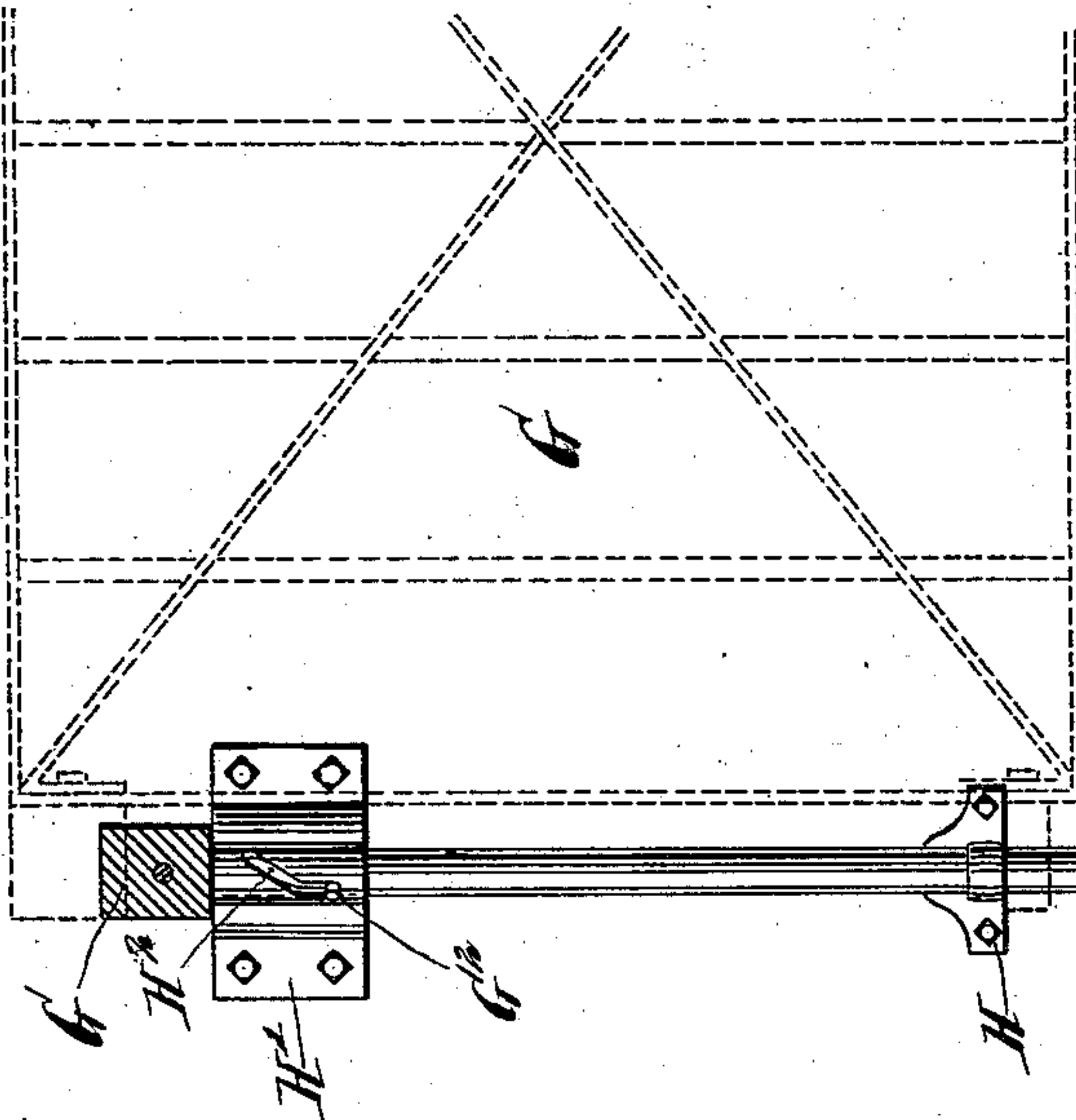


Fig. 6.

Fig. 4.

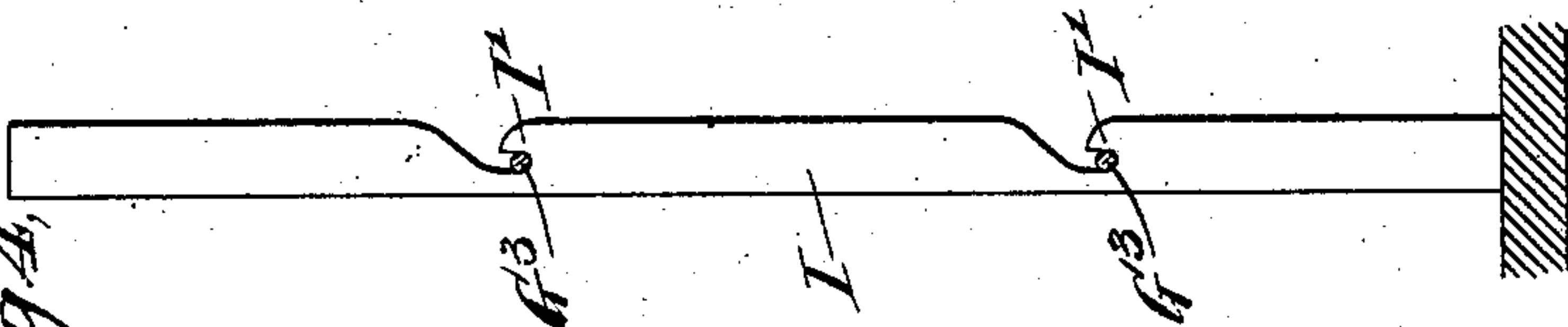
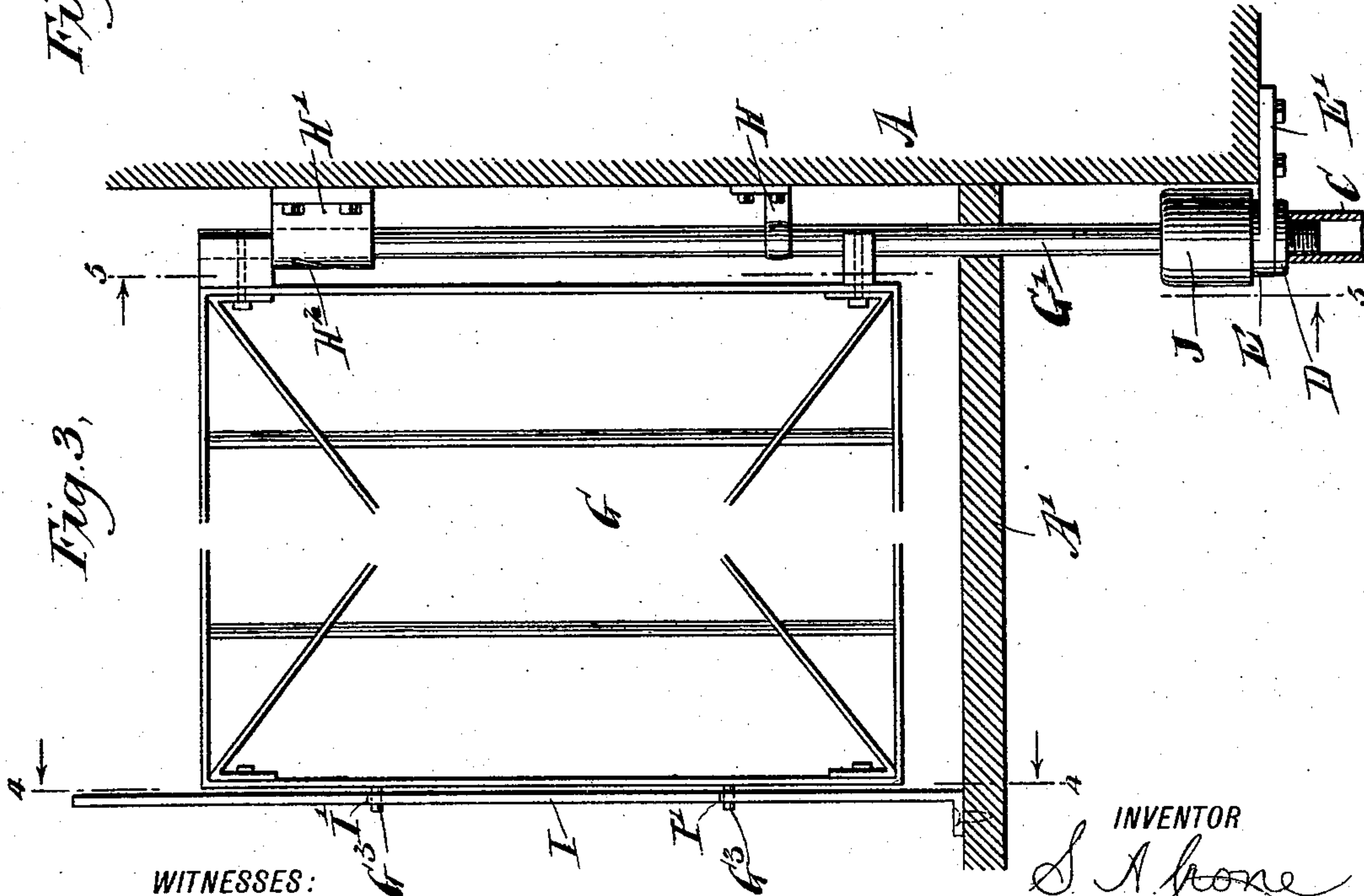


Fig. 3.



WITNESSES:

Edward Thorpe
Rev. J. H. H. H.

INVENTOR
S. A. Crone
BY
M. A. Crone
ATTORNEYS.

UNITED STATES PATENT OFFICE.

SETH A. CRONE, OF NEW YORK, N. Y.

FLUID-CONTROLLED GATE.

SPECIFICATION forming part of Letters Patent No. 572,410, dated December 1, 1896.

Application filed June 23, 1896. Serial No. 596,602. (No model.)

To all whom it may concern:

Be it known that I, SETH A. CRONE, of New York city, in the county and State of New York, have invented a new and improved Fluid-Controlled Gate, of which the following is a full, clear, and exact description.

The invention relates to railroad-cars; and its object is to provide a new and Improved fluid-controlled gate under the control of and adapted to be opened and closed by the engineer in the cab of the locomotive.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

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 an end elevation of a railroad-car provided with the improvement. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged sectional side elevation of the same. Fig. 4 is a sectional end elevation of part of the same on the line 4 4 of Fig. 3. Fig. 5 is a like view of the improvement on the line 5 5 of Fig. 3, and Fig. 6 is a sectional side elevation of the cylinder and gate-post.

On the under side of each car A is held an air-pipe B, and the pipes of the several cars in a train are connected with each other by a suitable coupling, so as to form a line of pipe the forward end of which is connected with the main air-reservoir on the locomotive, and in the said line of pipe is arranged a valve, under the control of the engineer, to permit the latter to connect or disconnect the line of pipe with and from the said reservoir and to connect the line of pipe with the outer air, so as to admit, cut off, or exhaust the air in the line of pipe.

Each pipe B is connected near the end with a branch pipe C, attached to a nipple D, screwing in the bottom of a vertically-disposed cylinder E, formed with a bracket E', adapted to be secured to the car A, as plainly illustrated in the drawings. In this cylinder E is fitted a piston F, having its piston-rod F' formed into a pin F², loosely engaging a central opening in the lower end of the gate-post G', carrying the gate G of any approved construction, the said post G' being mounted to

turn and to slide vertically in suitable bearings H and H', secured to the end of the car A, as plainly shown in the drawings.

On the gate-post G' and near the upper end thereof is secured a pin G², engaging a slot H², formed in the semicircular cap of the bearing H', as plainly shown in Fig. 5, the said slot H² being in its lower portion vertical and in its upper portion inclined and curved, as will be readily understood by referring to Fig. 5. Now it is evident that when air passes through the pipes B and C and nipple D into the lower end of the cylinder E then this air exerts a pressure on the piston F to lift the latter and cause a similar movement of the post G' and gate G, whereby a swinging motion is given to the gate, owing to the pin G² traveling in the angular portion of the slot H². Thus the gate G, which is normally in a closed position, is caused to swing into an open position on the platform A' of the car, so as to give access to and from the door A² at each end of the car. When the pressure is released in the cylinder E, then the weight of the gate G causes it and the piston F to move downward, whereby the pin G² travels back and downward in the slot H², so as to cause an automatic closing of the gate G. The gate in closing is locked in this position by means of pins G³, projecting from the free end of the gate and adapted to engage recesses I', formed in a keeper I, secured to the railing or other part of the car A at the outer end of the platform, as plainly shown in the drawings.

The recesses I' are arranged with their lower portion vertical, so as to securely hold the pins G³ in place, it being understood that as the gate rises its pin G² first travels in the vertical portion of the slot H² before the said pin passes to the inclined portion, and consequently the pins G³ are lifted in the vertical portion of the recesses I' before they disengage the same just previous to the gate swinging into an open position.

In order to exclude water, oil, dust, or the like from the cylinder E and the pipes connected therewith, I provide a cap J, screwed or otherwise fastened to the piston-rod F' and fitting snugly over the upper end and sides of the cylinder E, as plainly shown in Fig. 6. This cap J moves up and down with the pis-

ton-rod F', so as at all times to form a tight joint with the cylinder for the purpose mentioned. On the end of the car A may be arranged a latch K, of any approved construction, to permit an operator to lock the gate in an open position whenever desired, it being understood, however, that this latch K is normally inactive and is only made use of when it is not desired to close the gates by the engineer in the cab of the locomotive.

In practice I employ in some cases one single line of pipe for controlling both gates on each platform simultaneously, but it is evident that I may use two lines of pipes, one for controlling the gates on one side of the train and one for controlling the gates on the opposite side, so that the gates of one side may be open while the others remain closed, to compel passengers to get on or off only on that side of the train at which the gates are open. This is especially serviceable on elevated-railroad trains and the like.

It will further be seen that each of the gates can be readily opened and closed by an attendant of the car whenever desired, as in this case it is only necessary for the attendant to lift the gate slightly, so as to disengage the pins G³ from the recesses I' to unlock the gate and to free the latter so as to swing it open. The pin F² is sufficiently long to permit such lifting of the gate G and its post G' without disconnecting the said pin F² and post in case the gate is opened by hand, as above described.

It is understood that the device is readily applied to all kinds of gates, doors, and the like.

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

1. A gate provided with a post rigidly secured thereto and mounted to turn and slide in bearings, a piston controlled by fluid-pressure and engaging the lower end of the post for sliding it, and means for turning the post as it is slid by the piston, substantially as described.

2. A gate, provided with a post rigidly secured thereto and mounted to slide and to swing, a pin held on the said post and engaging an angular groove in a fixed part, and a piston controlled by fluid-pressure and engaging the lower end of the said post, substantially as shown and described.

3. A gate, provided with a post rigidly secured thereto and fitted to slide and to turn in fixed bearings, a pin projecting from the said post and engaging an angular slot in one

of the said bearings, a piston loosely engaging the lower end of the said post to lift the latter, and a cylinder containing the said piston and connected with a fluid supply, substantially as shown and described.

4. A gate, provided with a post fitted to slide and to turn in fixed bearings, a pin projecting from the said post and engaging a slot in one of the said bearings, a piston loosely engaging one end of the said post to lift the latter, a cylinder containing the said piston and connected with a fluid supply, and a keeper formed with recesses adapted to be engaged by a pin held on the free end of the said gate, to lock the latter in a closed position, substantially as shown and described.

5. A gate provided with a post mounted to turn and to slide in fixed bearings, a pin projecting from the said post and engaging an angular slot in one of the said bearings, and a keeper formed with recesses adapted to be engaged by pins projecting from the free end of the said gate, substantially as shown and described.

6. A gate, provided with a post fitted to slide and to turn in fixed bearings, a pin projected from the said post and engaging a slot in one of the said bearings, a piston loosely engaging one end of the said post to lift the latter, a cylinder containing the said piston and connected with a fluid supply, and a cap held on the piston-rod of the said piston and engaging the said cylinder, substantially as shown and described.

7. In a gate, the combination with a gate provided with a post rigidly secured to the gate and having a recess in its lower end, and bearings in which the post is mounted to turn and slide, of a cylinder connected with a fluid supply, a piston in the cylinder and having its piston-rod projecting into the recess in the lower end of the post, and means for turning the post as it is slid by the piston, substantially as described.

8. In a gate, the combination of a gate provided with pins projecting from its free end, a post secured to the opposite end of the gate and provided with a laterally-projecting pin, bearings in which the post slides and turns, one of the bearings being provided with a slot having a vertical lower portion and an inclined and curved upper portion, and a keeper provided with recesses to receive the pins of the gates, substantially as described.

SETH A. CRONE.

Witnesses:

THEO. G. HOSTER,
JNO. M. RITTER.