

(No Model.)

2 Sheets—Sheet 1.

F. A. KNOX.

AUTOMATIC ADJUSTABLE GRATE.

No. 279,770.

Patented June 19, 1883.

Fig. 1.

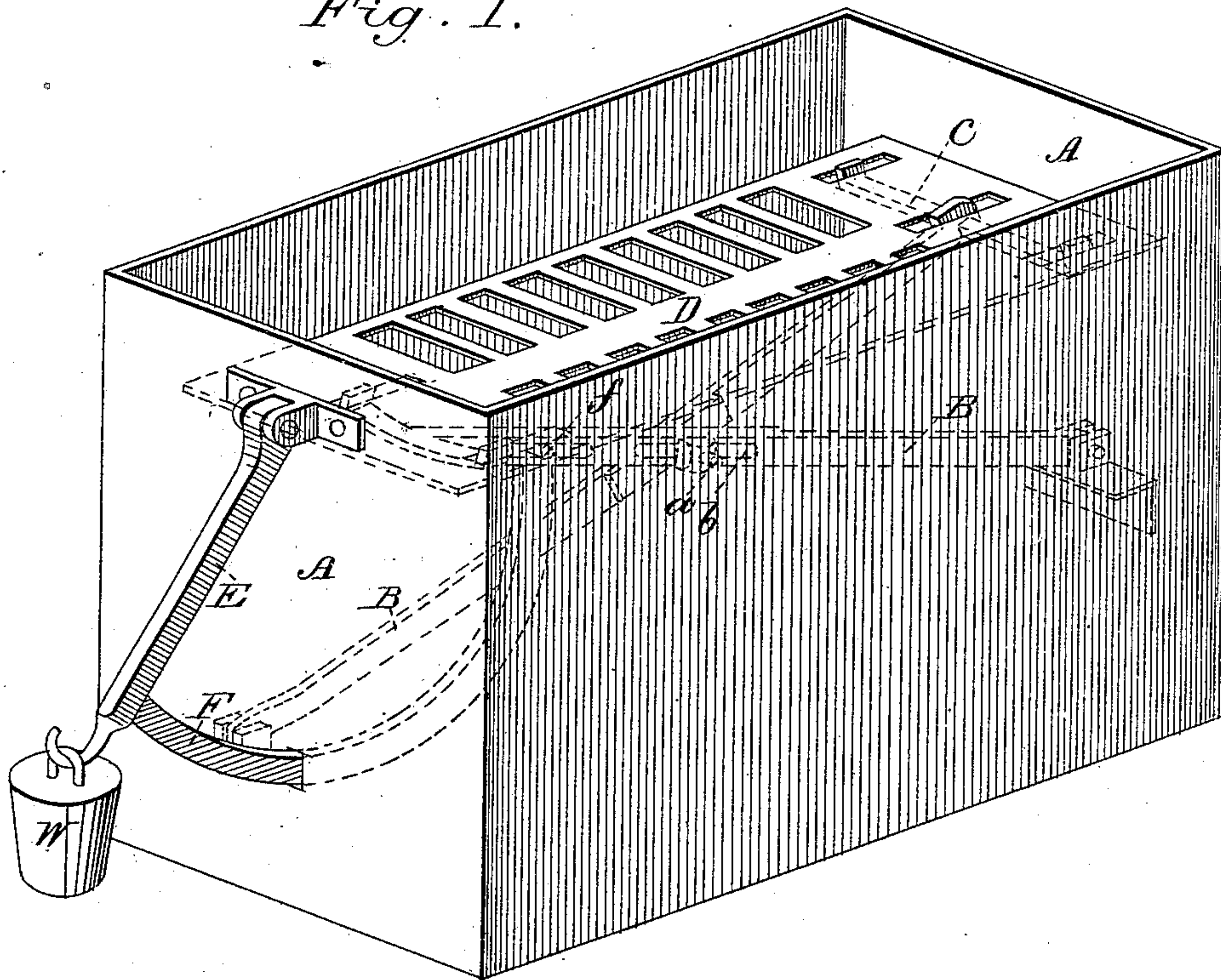
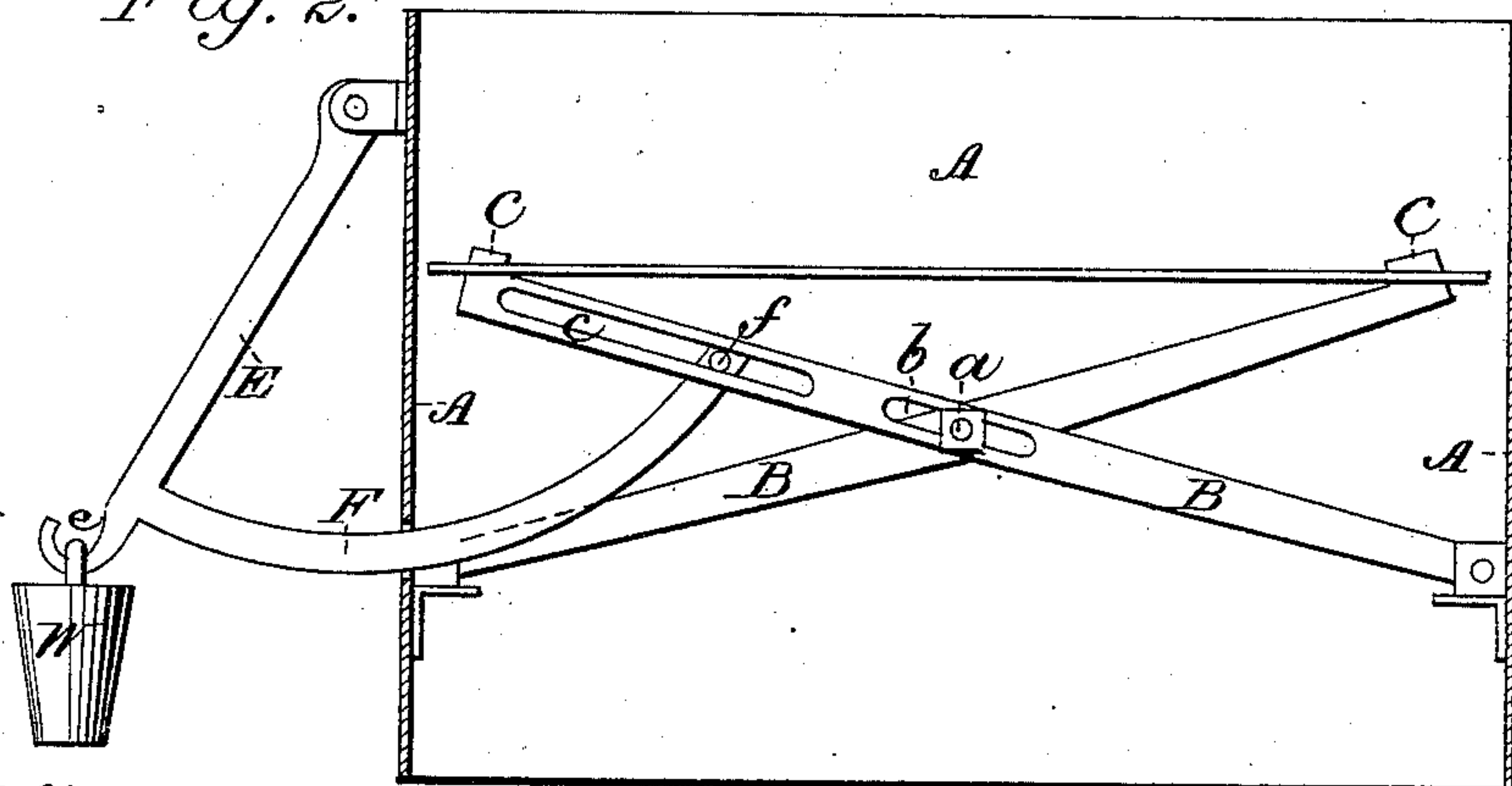


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

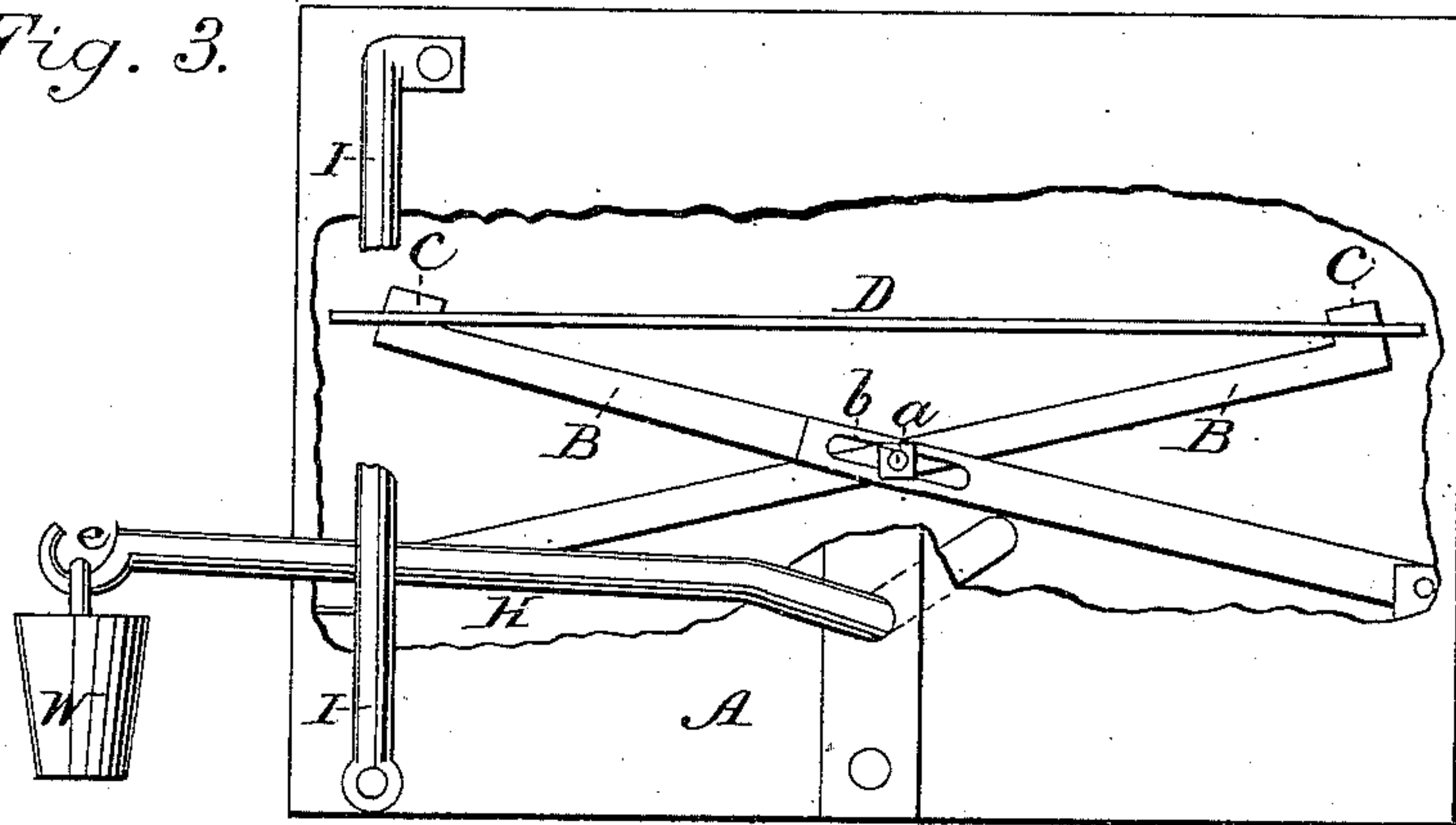


Fig. 4.

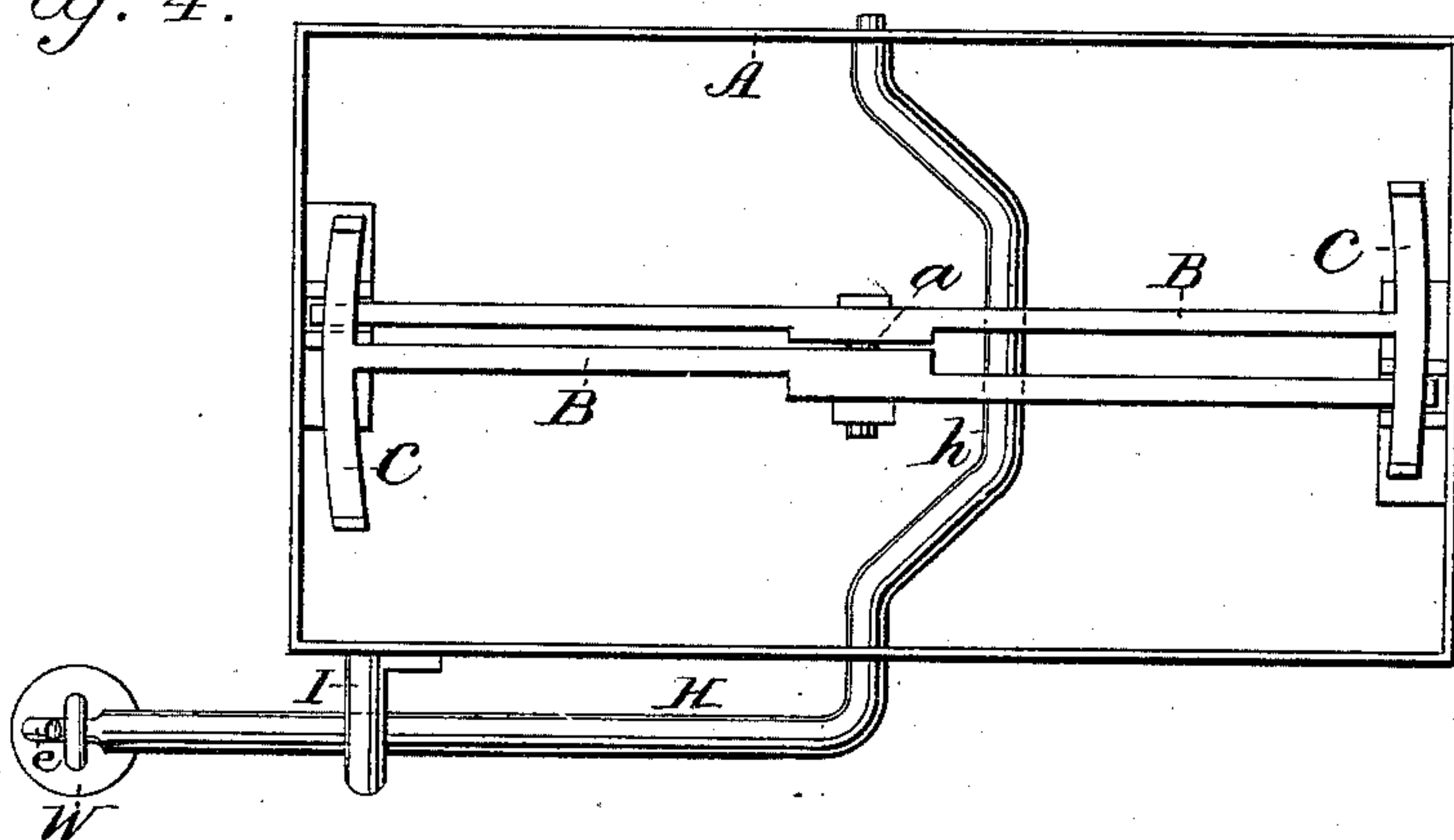
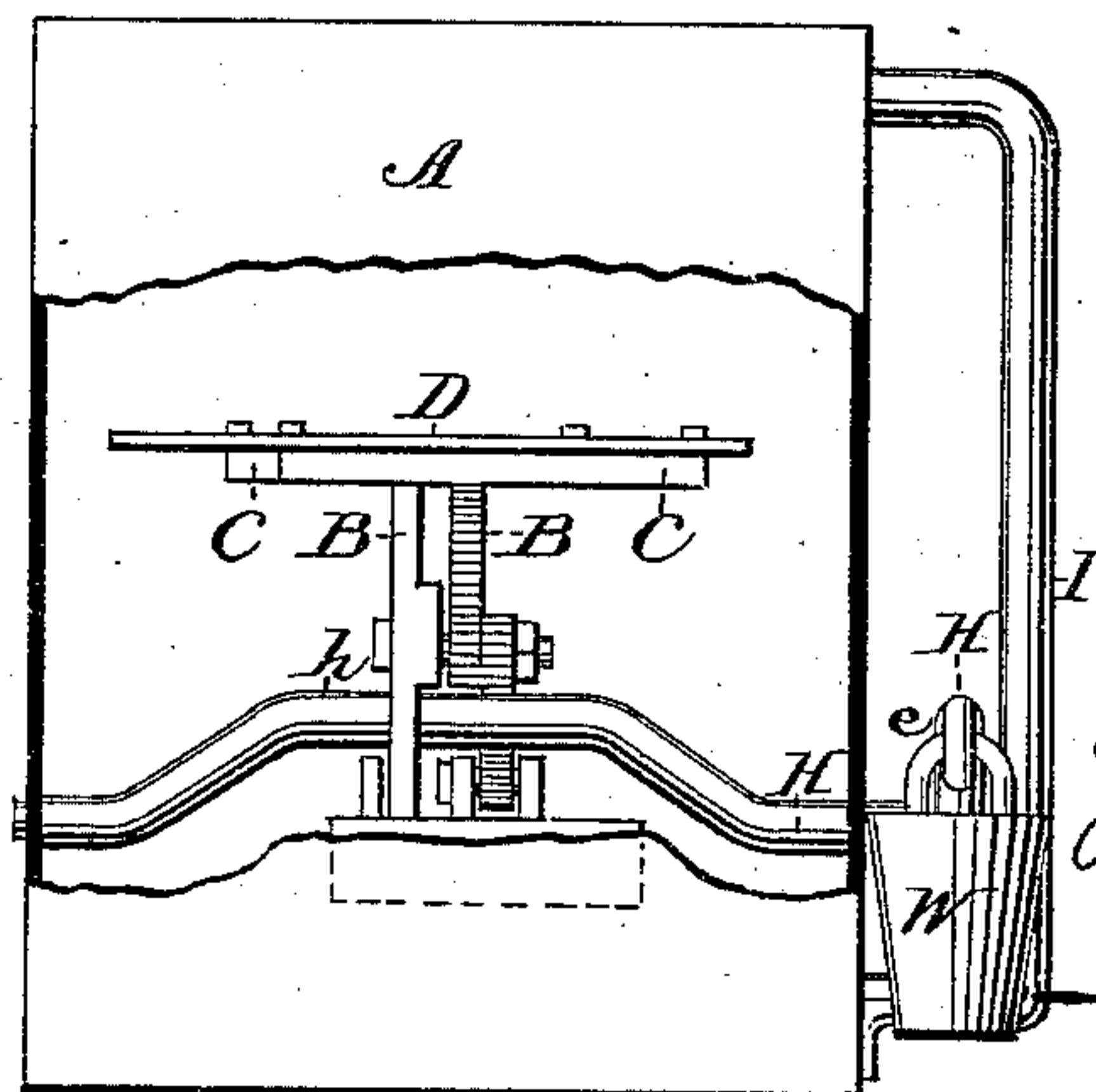


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK A. KNOX, OF WOODLAND, CALIFORNIA.

AUTOMATIC ADJUSTABLE GRATE.

SPECIFICATION forming part of Letters Patent No. 279,770, dated June 19, 1883.

Application filed February 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. KNOX, of Woodland, county of Yolo, State of California, have invented an Automatic Adjustable Grate; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a new and useful adjustable grate, the operation of which is automatic; and it consists in the details of construction of a grate supported by the free ends of levers pivoted at opposite ends in the fire-box, and in a means operated by a weight upon the outside of the box for raising the free ends of the supporting-levers and elevating the grate as the coal is consumed, as will hereinafter more fully appear.

The object of my invention is to keep the fire near the top of the fire-box, no matter what the state of the coal may be.

I am aware of adjustable grates depending upon the direct operation of some person, and which, when adjusted and set, remain so until again altered; but my object is to furnish a grate which shall adjust itself by rising as the coal is consumed, so as to keep the fire near the top.

Referring to the accompanying drawings, Figure 1, Sheet 1, is a perspective view of my automatic adjustable grate. Fig. 2 is a longitudinal section. Fig. 3, Sheet 2, is a front elevation, showing means for operating the grate from the side. Fig. 4 is a plan of same with the grate D left off. Fig. 5 is an end elevation of same with part of the wall broken away, showing interior.

Let A represent a fire-box.

B B are two levers pivoted in the ends of the box, and to each other at their centers by means of a pin, *a*, passing from one through a slot, *b*, in the other.

The free ends of these levers are provided with cross-arms C, upon which the grate D lies. Pivoted to the outer end of the fire-box is a lever, E, having a hook, *e*, and a curved arm, F. This arm extends through the end of the fire-box, and is connected with the end of one of the levers B by means of a small stud, *f*, which travels in a slot, *c*, made in the lever.

W is a weight hung upon the hook *e* of the

lever E. This weight is sufficient, when no coal is on the grate, to hold the lever E down and to keep the levers B up, thus holding the grate up near the top of the fire-box. When coal is put upon the grate, its weight forces the levers B down and raises the weight W; but as it is consumed and becomes lighter the weight W gradually overcomes it, raising the grate again as the coal is consumed. This is its automatic feature, for the fire is thus kept near the top, no matter how nearly consumed the coal may be.

In some stoves it may be inconvenient to have the operating-lever upon the end. When such is the case, I may apply a lever on the side, as shown in Fig. 3.

H represents the lever mounted transversely in the fire-box, under the levers B at their middles. It is bent in the form of a crank, *h*, and its end outside of the box extends beside it in a guide, I, thereon. The weight W, when hung upon its end, will elevate its crank *h*, and thus raise the grate-supporting levers.

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

1. The grate D, in combination with the supporting-levers B, pivoted at opposite ends in the fire-box, and connected with each other by a pin, *a*, in slot *b*, and the means for raising the free ends of the levers B and elevating the grate as the coal is consumed, consisting of the pivoted lever E, having curved arm F, connected by stud *f* in slot *c* of one of the levers B, and the weight W, all arranged and operating substantially as herein described.

2. The grate D, and the pivoted levers B, supporting said grate, in combination with the means for operating said levers from the side of the fire-box, consisting of the crank-lever H, under the levers B, and having an arm on the side of the box, and weight W, hung to the said arm, substantially as herein described.

In witness whereof I hereunto set my hand.

FRANK A. KNOX.

Witnesses:

E. H. PEERY,
WM. H. WINNE.