

2 Sheets—Sheet 1.

No. 430,582.

Patented June 17, 1890.

Fig. 1.

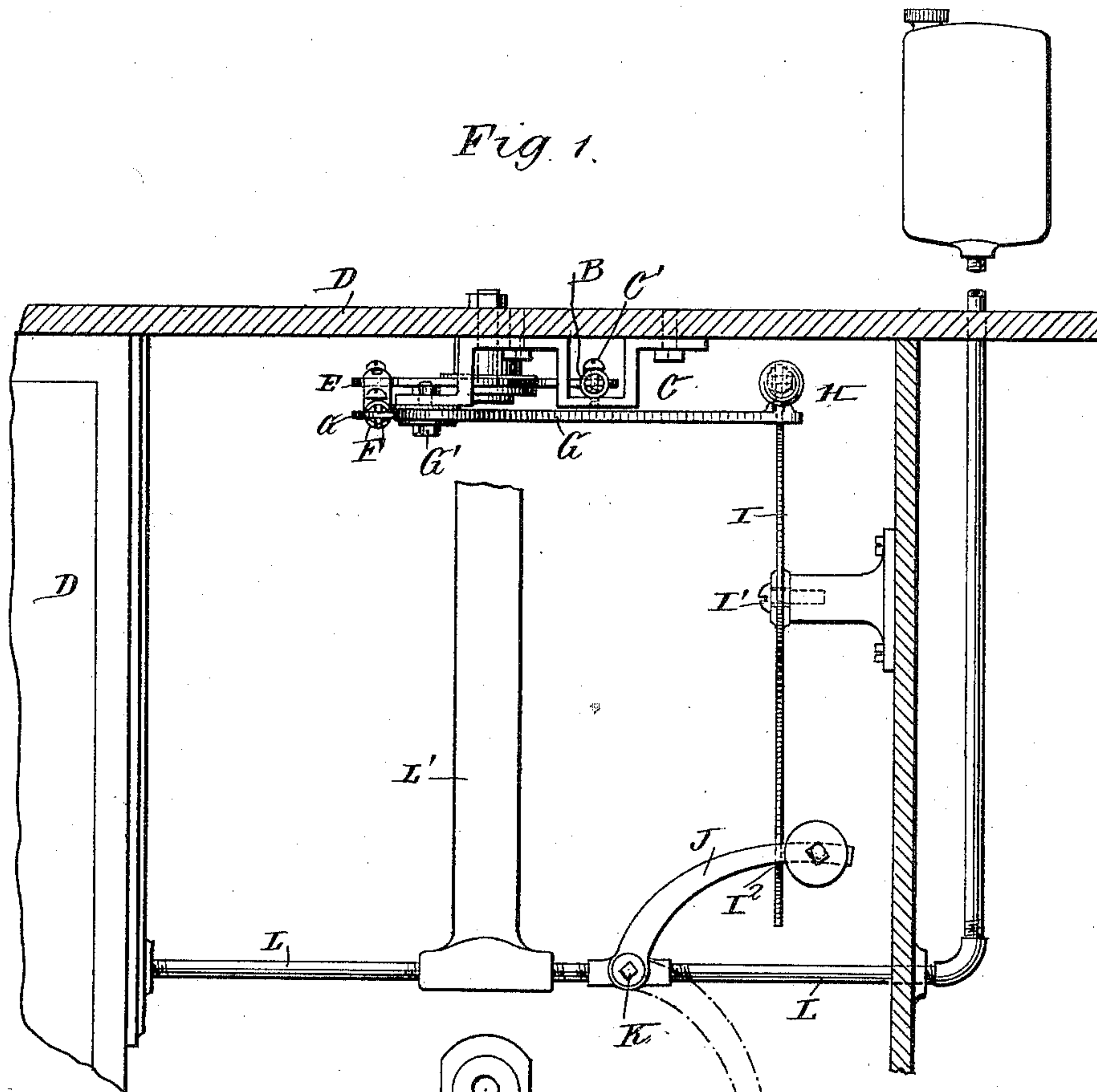
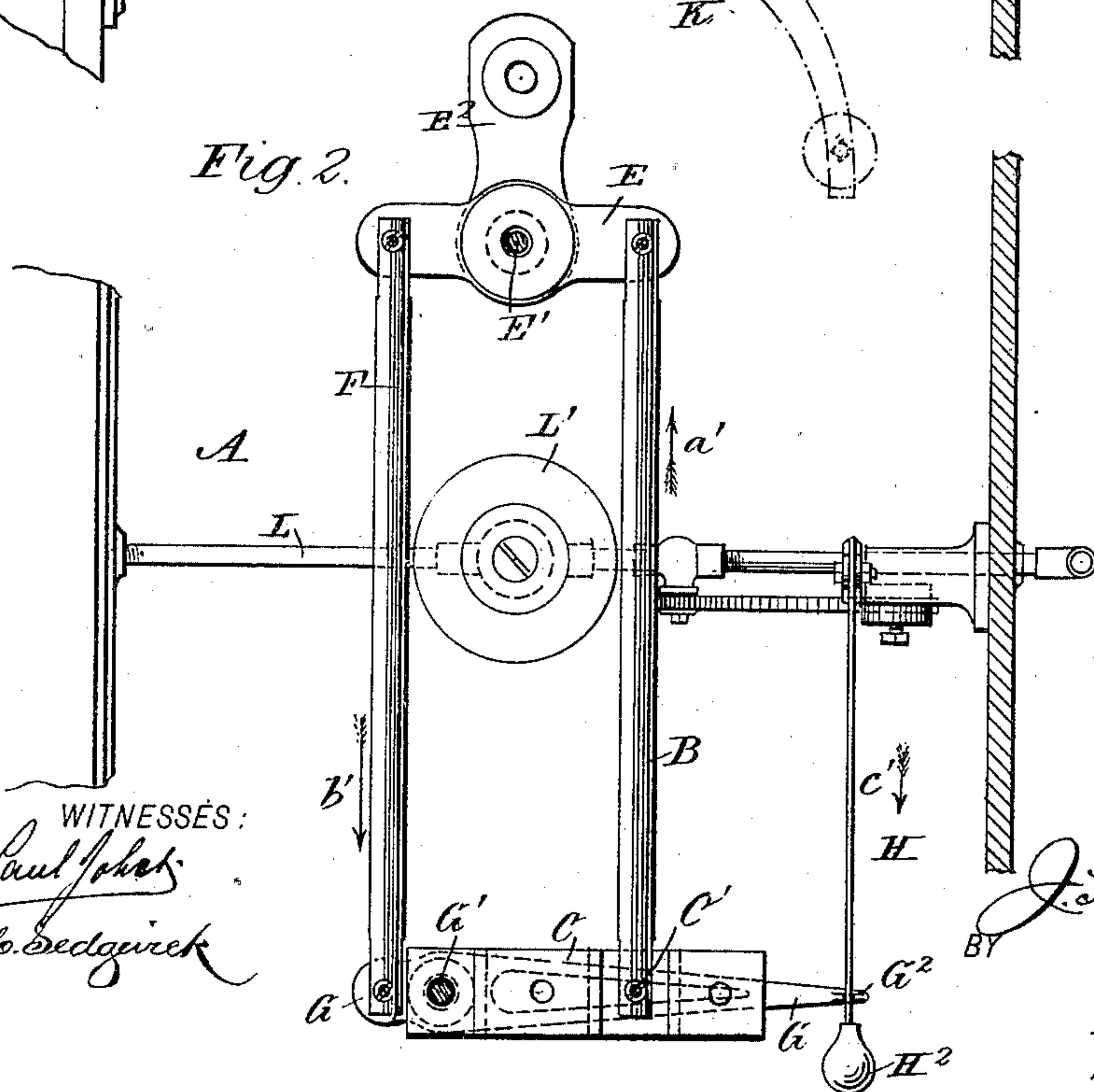


Fig. 2.



WITNESSES:

INVENTOR:

ATTORNEYS.

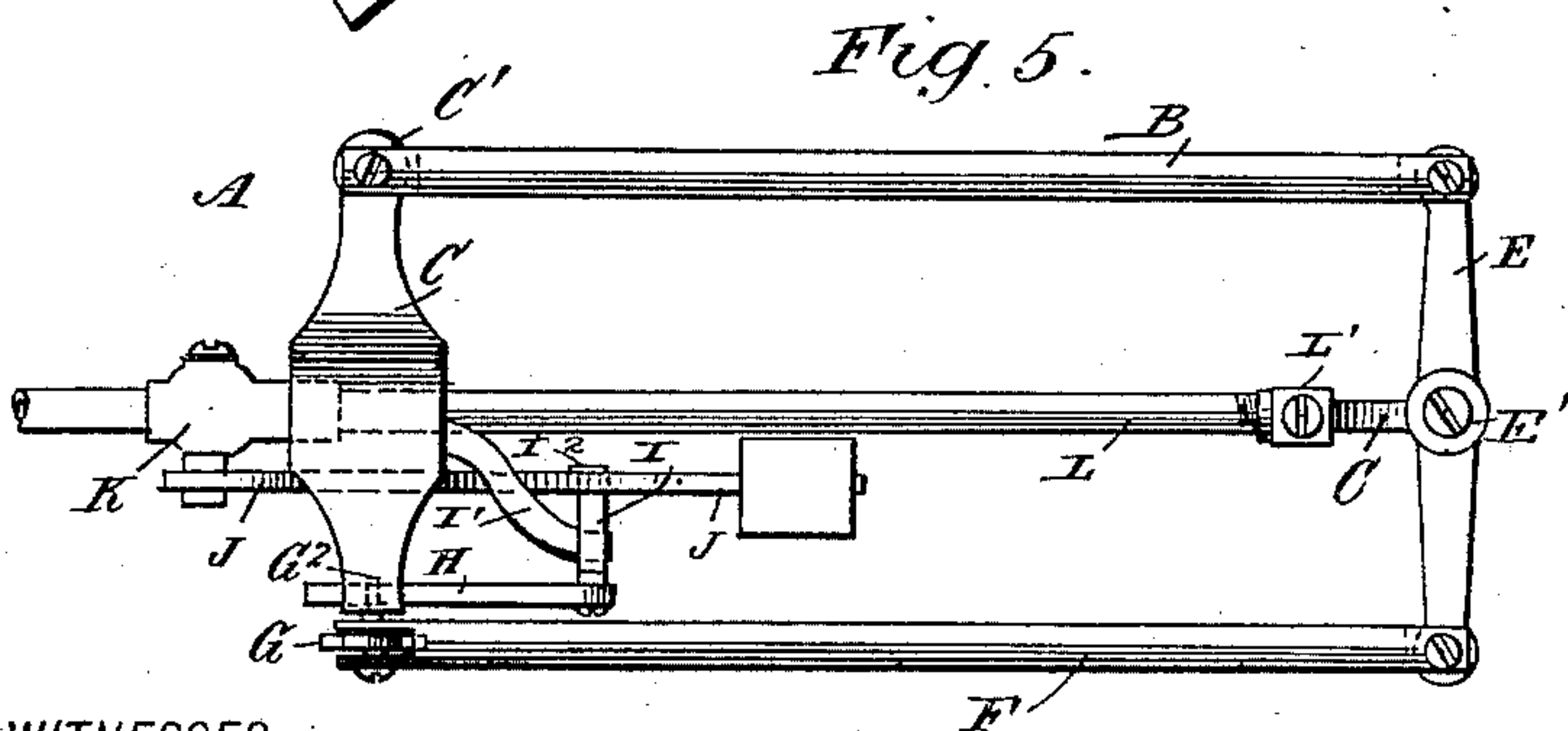
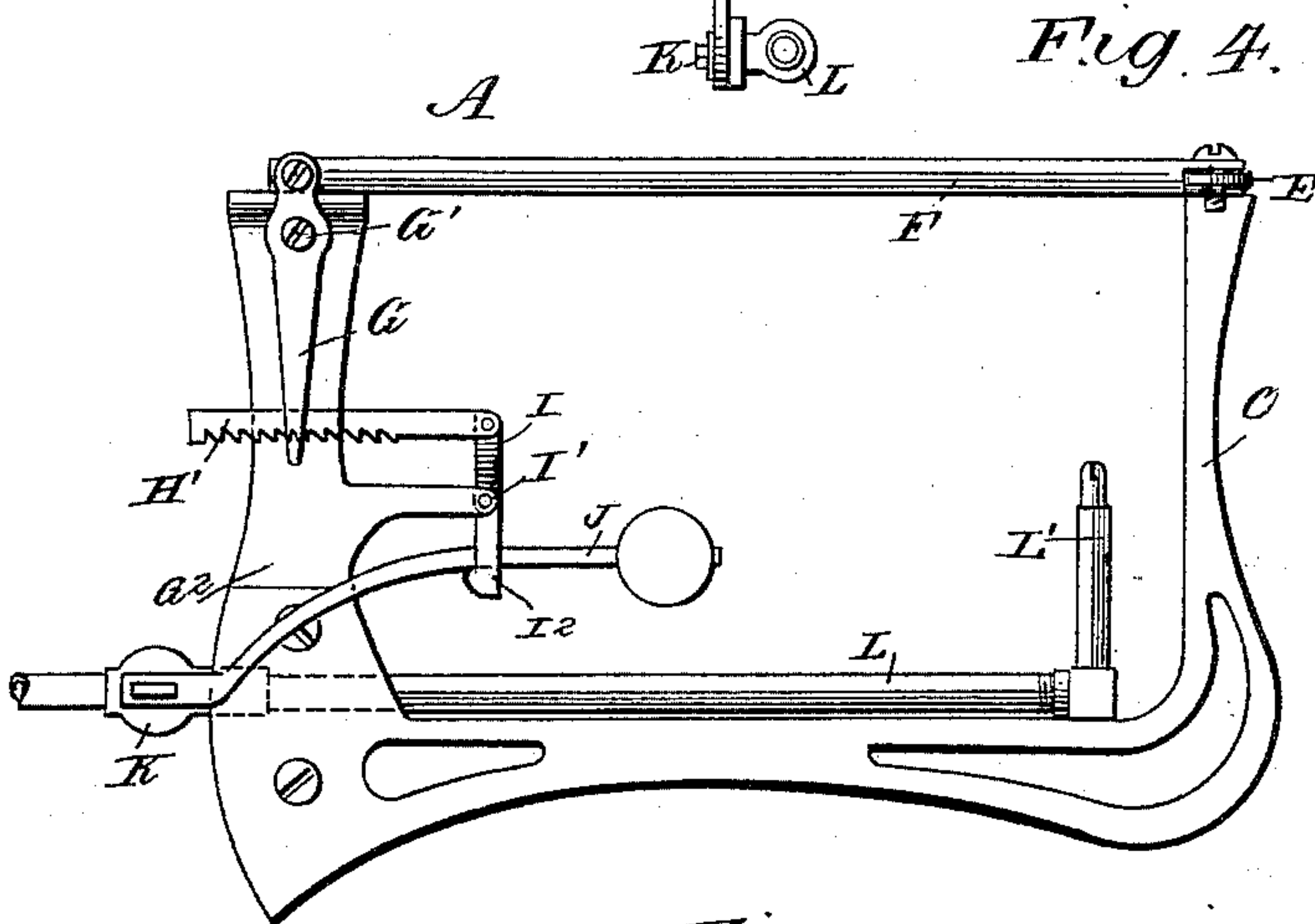
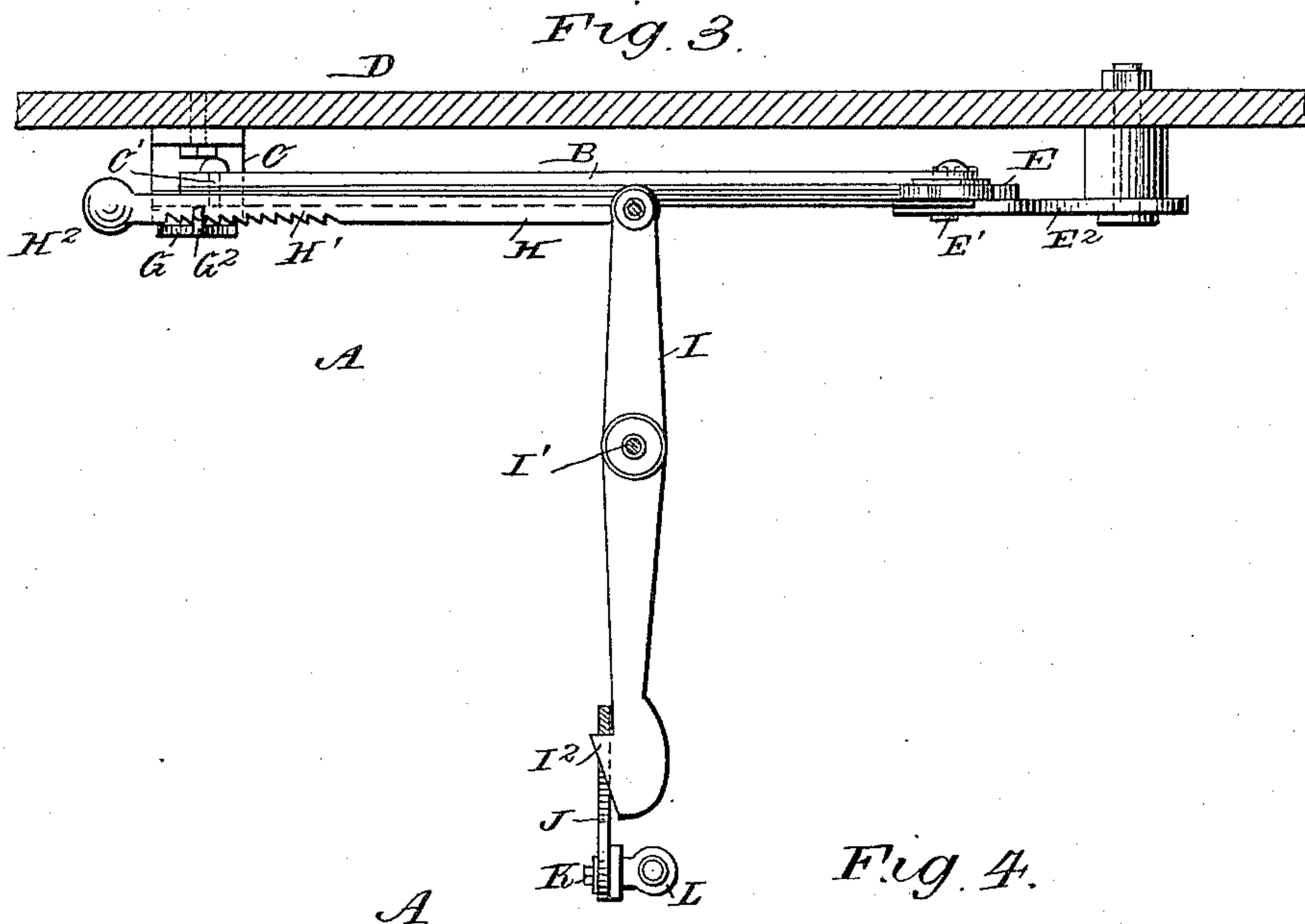
(No Model.)

2 Sheets—Sheet 2.

J. KILSHAW.
AUTOMATIC REGULATOR.

No. 430,582.

Patented June 17, 1890.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN KILSHAW, OF ST. PAUL, MINNESOTA.

AUTOMATIC REGULATOR.

SPECIFICATION forming part of Letters Patent No. 430,582, dated June 17, 1890.

Application filed October 3, 1889. Serial No. 325,876. (No model.)

To all whom it may concern:

Be it known that I, JOHN KILSHAW, of St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and Improved Automatic Regulator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved regulator especially designed for automatically shutting off the flow of gas, steam, or a liquid used in heating or lighting or in driving machinery.

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 letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied to a gasoline-stove, parts of the latter being in section. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation of the same. Fig. 4 is a side elevation of the improvement as applied to a gas-burner, and Fig. 5 is a plan view of the same.

The improved regulator A is provided with an expansion-tube B, preferably made of brass, copper, or any other suitable metal or composition and secured at one end at C' to a bracket C, secured in the immediate neighborhood of the device on which it is to be used. As shown in Figs. 1, 2, and 3, the bracket C is secured to the under side of the top plate of the gasoline-stove D; but, as shown in Fig. 4, it is attached to the pipe supplying the gas to the gas-burner. The other end of the expansion-tube B is pivotally connected with a lever E, fulcrumed at E' on a bracket E², secured to the under side of the top plate of the gasoline-stove D. The opposite end of the lever E is pivotally connected with one end of an expansion-tube F, similar to the expansion-tube B, and pivotally connected at its free end with one end of a lever G, fulcrumed at G' on the under side of the bracket C.

The lever G is provided on the end opposite the tube F with a lug G², adapted to engage one of the teeth H', formed on the under side of an arm H, pivotally connected with a lever I, pivoted at I' on one side of the

gasoline-stove. The free end of the arm H is provided with a weight H², so as to hold the said arm H with its teeth H' in contact with the lug G². On the lower part of the lever I is formed a shoulder I², which supports a weighted lever J, secured on the stem of a valve K, held in the supply-pipe L, connected with the usual reservoir and serving to supply the necessary fuel to the burner L' of the gasoline-stove, said burner L' being located between the two expansion-tubes B and F, so that the radiated heat of the burner, when lighted, expands said tubes B and F, whereby the tube B presses in the direction of the arrow a', so as to swing the lever E, and the latter, with the expansion-tube F moving in the direction of the arrow b', acts on the lever G, so that the lug G² of the said lever G passes over the back of the teeth H' of the arm H without moving the latter.

Now it is evident that when the flame of the burner L' is extinguished the tubes B and F commence to contract and move in the opposite directions of the arrows a' and b', whereby the lever G is drawn backward, thus pulling the arm H in the direction of the arrow c', thereby swinging the lever I, with the shoulder I², out of contact with the weighted lever J, whereby the latter is set free, and by its weight it swings downward into the position shown in dotted lines in Fig. 1, closing the valve K. As soon as the valve K is closed a full supply of gas from the reservoir to the burner L' is prevented. When the operator again desires to light the burner L', the lever J has to be swung upward and placed at rest on the shoulder I² of the lever I. When the burner is again accidentally extinguished, the above-described operation is repeated. In a similar manner, in the device shown in Figs. 4 and 5, the flame from the gas-burner L' operates on the expansion-tubes B and F, so that the valve supplying gas to the burner L' is shut off whenever the flame of the burner is accidentally extinguished.

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

1. In an automatic regulator, the combination, with a supply-valve having a weighted lever, of an expansion-tube having one end

connected to a fixed support, a second tube pivotally connected with the first tube, a pivoted lever, to one end of which the second tube is pivoted, a second pivoted lever provided with a shoulder at one end for engaging the weighted lever of the valve, and an arm pivoted to the second lever and provided with notches with which the first-named lever engages, substantially as herein shown and described.

2. In an automatic regulator, the combination, with the supply-valve K, having the weighted lever J, of the tubes B F, the tube B having one end secured to the bracket C, the centrally-pivoted lever E, to which the tubes are pivoted, the lever G, pivoted to the bracket C and tube F and provided with the lug G², the pivoted lever I, provided at its lower end with the shoulder I², engaging the lever J, and the arm H, pivoted to the upper end of the lever I and provided with teeth, with

which the lug of lever G engages, and with the weight H², for holding the arm in engagement with the lug of the lever G, substantially as herein shown and described.

3. In an automatic regulator, the combination, with a tube secured at one end to a fixed bracket, of a lever pivotally connected with the free end of the said tube, a second tube pivotally connected with the other end of the said lever, a second lever pivotally connected with the free end of the said second tube, a notched arm engaged by the said second lever, and a third lever pivotally connected with the said notched arm and adapted to support a weighted valve-lever, operating the valve substantially as shown and described.

JOHN KILSHAW.

Witnesses:

M. P. MORIARTY,
C. R. ROBBINS.