

No. 608,199.

Patented Aug. 2, 1898.

J. JACKSON.
PRESSURE AND VACUUM GAGE.

(Application filed Apr. 1, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

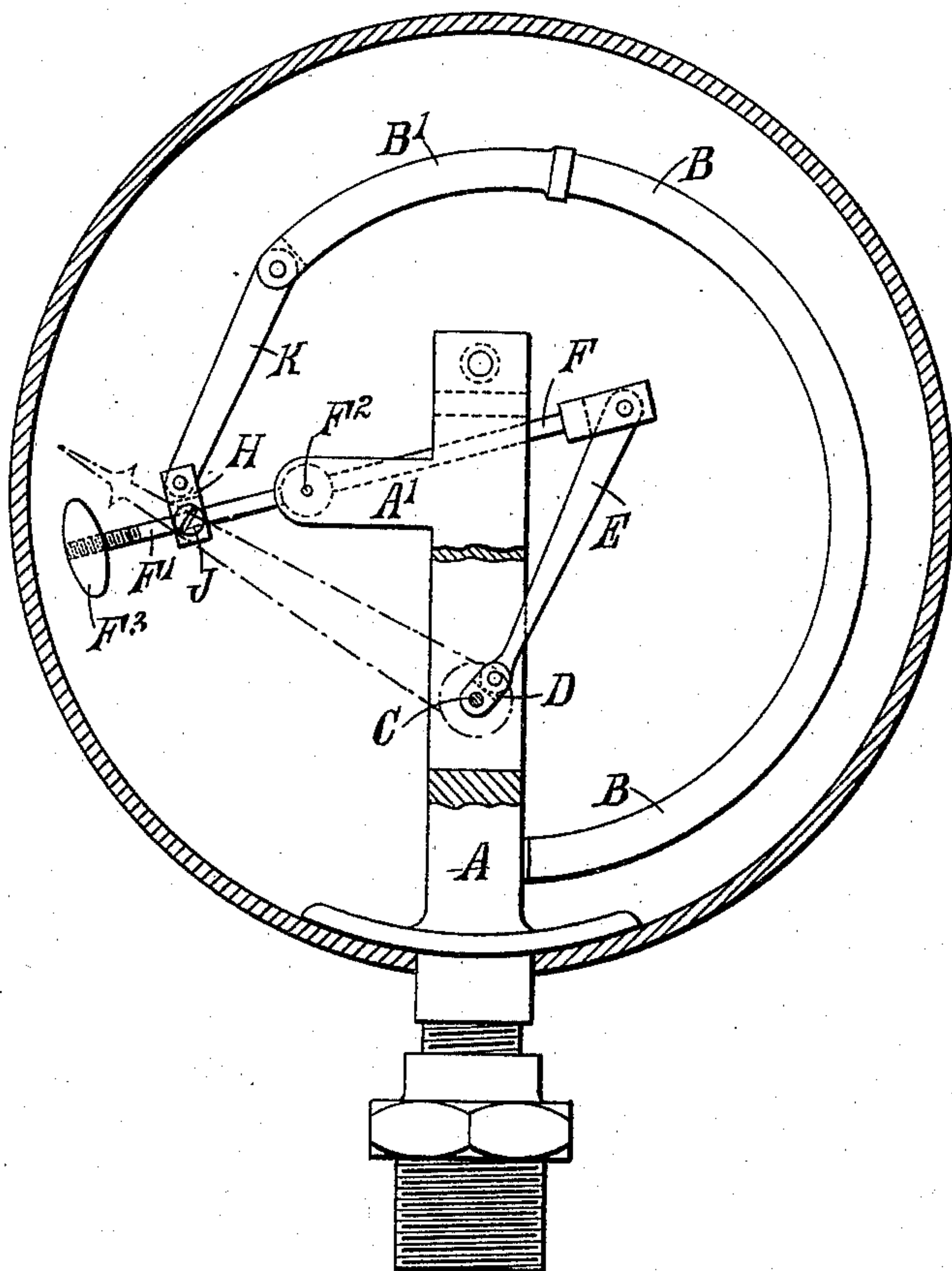
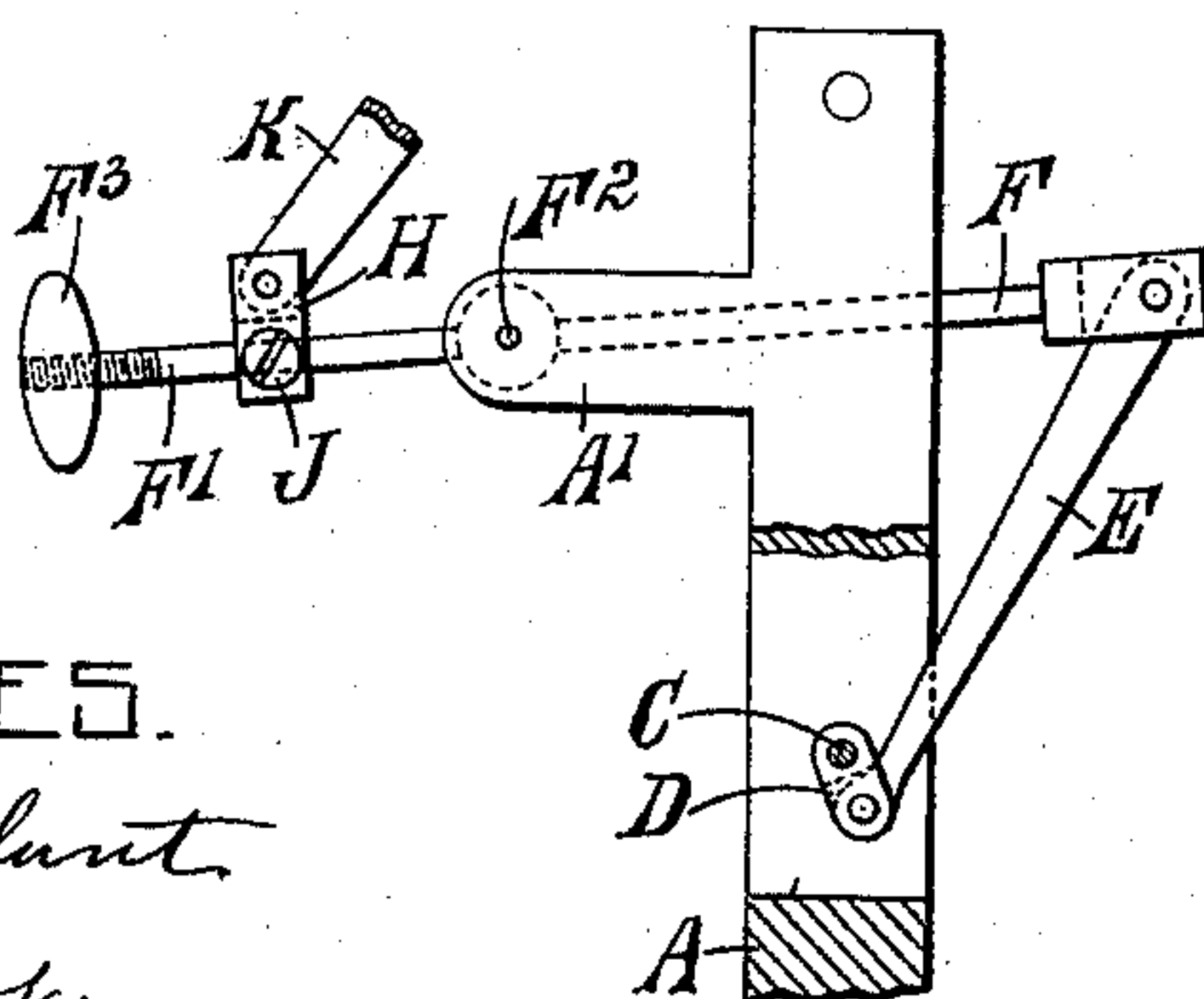


Fig. 2.



WITNESSES.

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J. Murphy.

INVENTOR.

John Jackson
by Jas. H. Churchill

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Fig. 3.

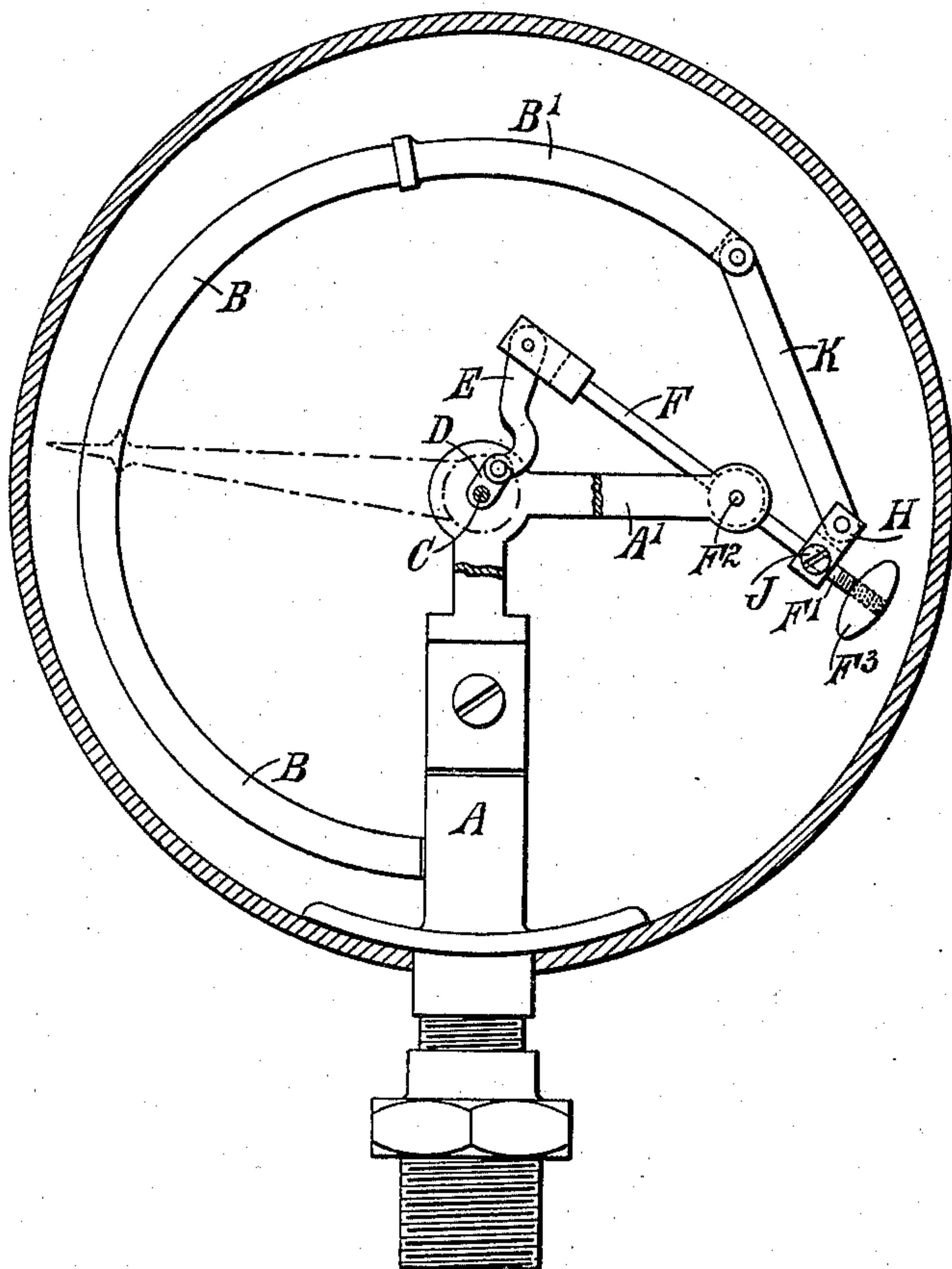
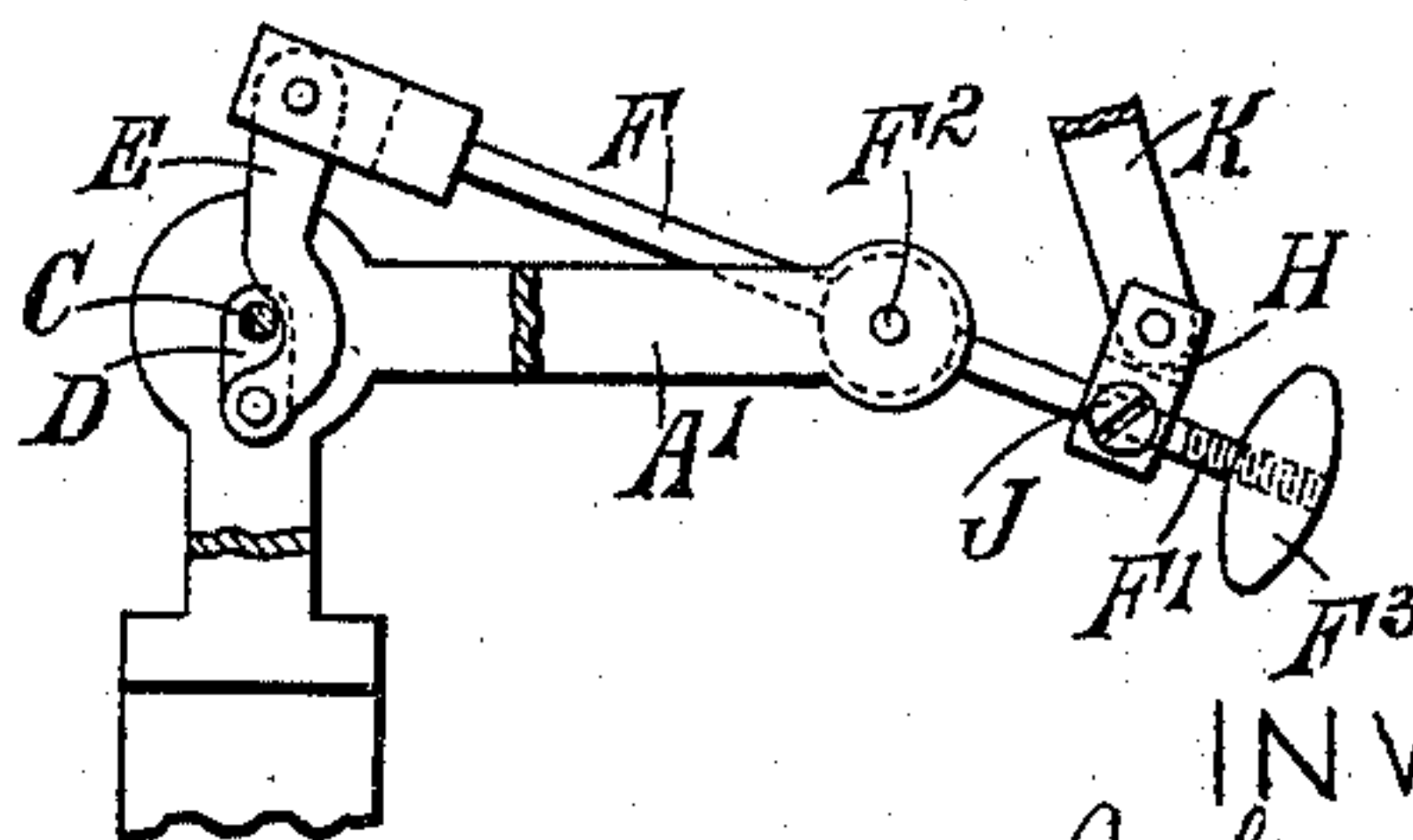


Fig. 4.



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ATT'Y.

UNITED STATES PATENT OFFICE.

JOHN JACKSON, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO
AMBROSE STEVENS VOSE, OF BOSTON, MASSACHUSETTS.

PRESSURE AND VACUUM GAGE.

SPECIFICATION forming part of Letters Patent No. 608,199, dated August 2, 1898.

Application filed April 1, 1897. Serial No. 630,264. (No model.)

To all whom it may concern:

Be it known that I, JOHN JACKSON, engineer, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Pressure and Vacuum Gages, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of one form of my improved pressure-gage with an eccentric index or pointer, the dial and other parts being removed. Fig. 2 shows a portion of Fig. 1 with the moving parts in a different position. Fig. 3 is a similar view to Fig. 1, illustrating another form of my improved pressure-gage with a central index or pointer; and Fig. 4 shows a portion of Fig. 3 with the moving parts in a different position.

My invention relates to pressure and vacuum gages and is designed to simplify the construction and increase the efficiency of the same.

The main object of my present invention is to construct an eccentric gage—that is to say, one wherein the spindle or arbor of the index or pointer is placed eccentrically—in such a manner as to obtain a long range of movement of the index or pointer, with a curved tube or tubular chamber extending around only about one-half of a circle, and without the use of toothed gearing. My improvements are, however, also applicable to gages in which the index or pointer is mounted centrally.

The essential feature of my said invention is the combination, with the curved tube or tubular chamber and with the spindle or arbor of the index or pointer, of a multiplying system of levers and links for connecting the said tube with the said arbor.

Referring to the drawings, A is the tubular stem to which the other parts of the gage are attached. B is the curved tube or tubular chamber. C is the arbor of the index or pointer. On the said arbor C is formed or fixed a short crank D, the pin whereof is connected by a link E to the end of one arm F of a lever F F', pivoted at F² to a bracket A', formed on or attached to the stem A. The other arm F' of this lever has fitted upon it an adjustable block or piece H, which is se-

cured in position by means of a set-screw J and is connected through a link K with a curved extension B' of the tube B. A counterweight F³ is preferably screwed upon the arm F' to counterbalance the weight of the longer arm F.

In Figs. 1 and 2 I have shown my improvements applied to a gage in which an eccentric dial is used and the index or pointer is placed eccentrically. It will be seen that the distance from the pivot F² of the lever F F' to the point of connection thereof with the link K is about one-third of the distance from the said pivot to the point of connection of the said lever with the link E. Therefore the movement imparted from the free end of the curved tube B will be multiplied, and consequently the range of movement of the eccentrically-mounted index or pointer will be greater than in the eccentric gages hitherto constructed, notwithstanding the fact that the curved tube is much shorter than those usually employed in such gages. By adjusting the block or piece H on the lever F F' this range of movement can be varied as desired.

In Figs. 3 and 4 I have shown my improvements applied to a gage in which the index or pointer is placed centrally and a concentric dial is used. I find it advantageous in this case to bend or curve the link E, as shown, so that the crank D and the index or pointer can be turned through an angle of nearly one hundred and eighty degrees. A link of this form can also, if desired, be used in my improved eccentric gage hereinbefore described.

By my improvements above described I provide for obtaining without the use of toothed gearing an ample range of movement of the index or pointer in gages having an eccentric dial and index or pointer by means of a curved tube which extends through only about one-half of a circle, so that I can make the said tube of greater thickness than heretofore, and the water of condensation will flow out of the said tube instead of being retained therein, as is the case when such tube extends around more than one-half of a circle. Moreover, I insure a very smooth and uniform motion of the parts.

I sometimes make the adjustable block or

piece H of sufficient weight to counterbalance the weight of the longer arm F of the lever F F', in which case the supplementary weight F³ can be dispensed with.

- 5 My improvements are applicable to steam, hydraulic, gas, and other pressure gages and also to vacuum-gages, and may, if desired, be applied to gages with curved tubes or cham-
10 bers of greater length than those shown in the drawings.

What I claim is—

1. In a pressure or vacuum gage, the combination with the curved tube or tubular chamber and with the arbor that carries the
15 index or pointer, of a double-armed pivoted lever having one arm longer than the other, a link positively connecting the short arm of said lever to said tube or chamber, a crank-
20 arm on said arbor, another link positively connecting said crank-arm with the long arm of said lever, and a counterweight for the long arm of the lever mounted on the short

arm of said lever, substantially as and for the purpose specified.

2. In a pressure or vacuum gage, the combination of a curved tube or chamber, an arm
25 extending from the free end of said tube or chamber, a double-armed lever turning about a fixed pivot or axis, an adjustable block or
30 piece on one arm of said lever, a link connecting said block or piece with said arm or extension of the tube or chamber, the arbor for the index or pointer, a crank-arm fixed
35 on said arbor and another link connecting said crank-arm with the other arm of said lever, substantially as, and for the purposes, above specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN JACKSON.

Witnesses:

JOHN T. KNOWLES,
J. B. BATH.