

(No Model.)

E. J. COLBY.
FURNACE REGULATOR.

No. 444,691.

Patented Jan. 13, 1891.

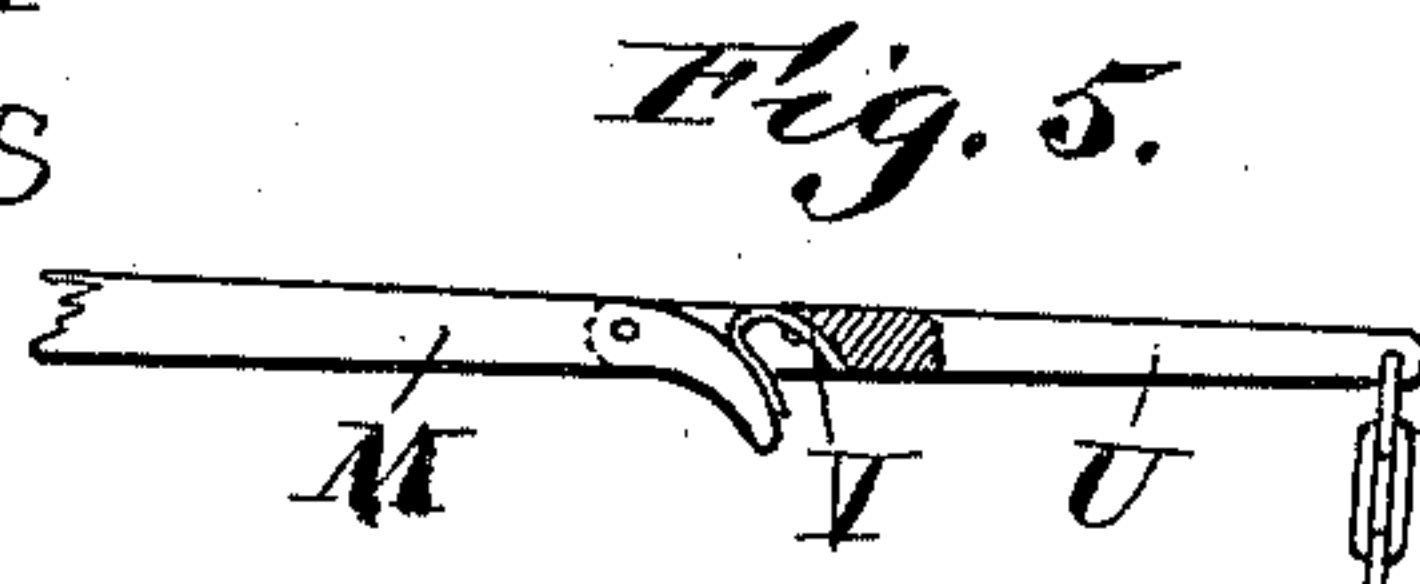
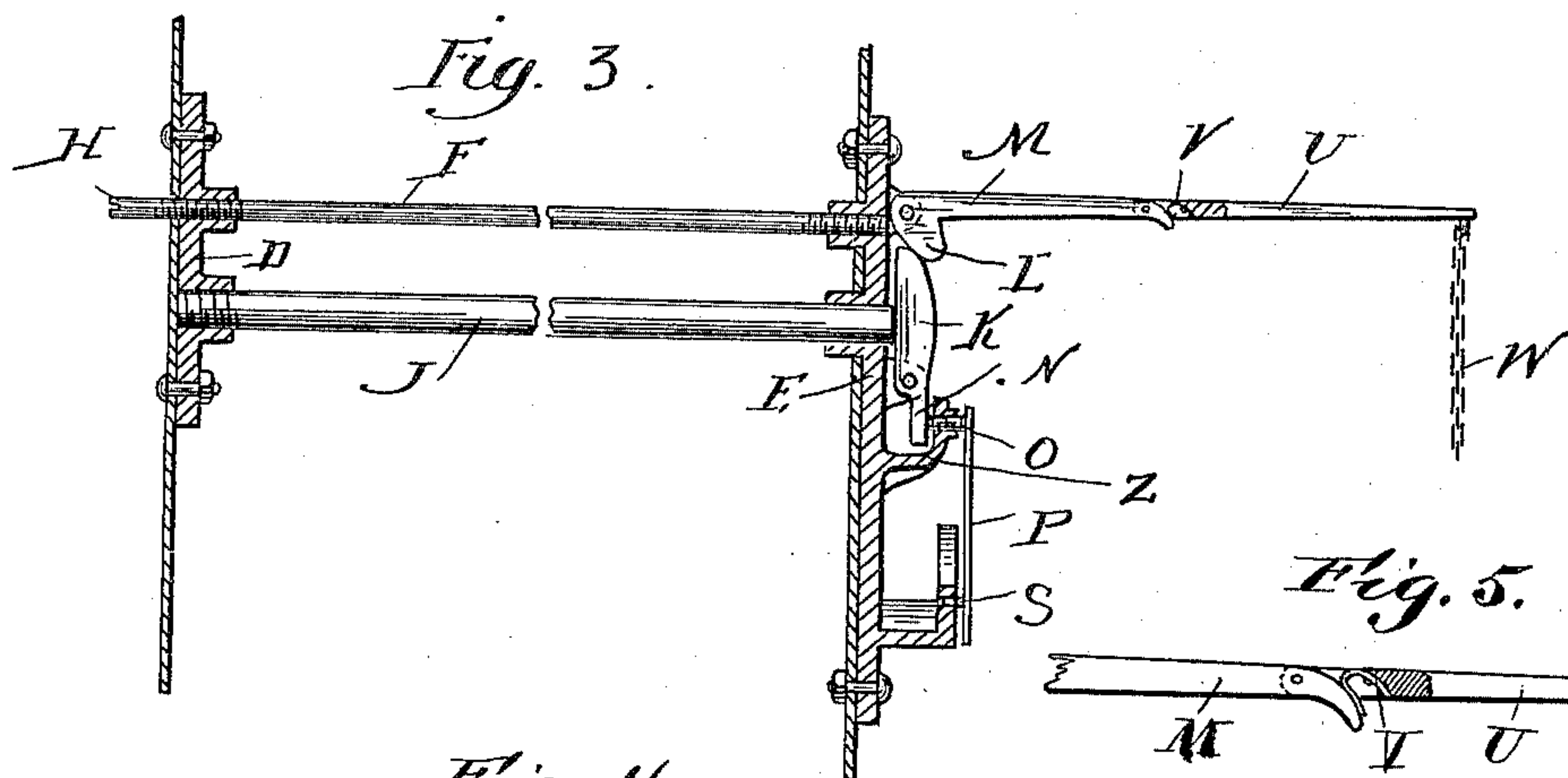
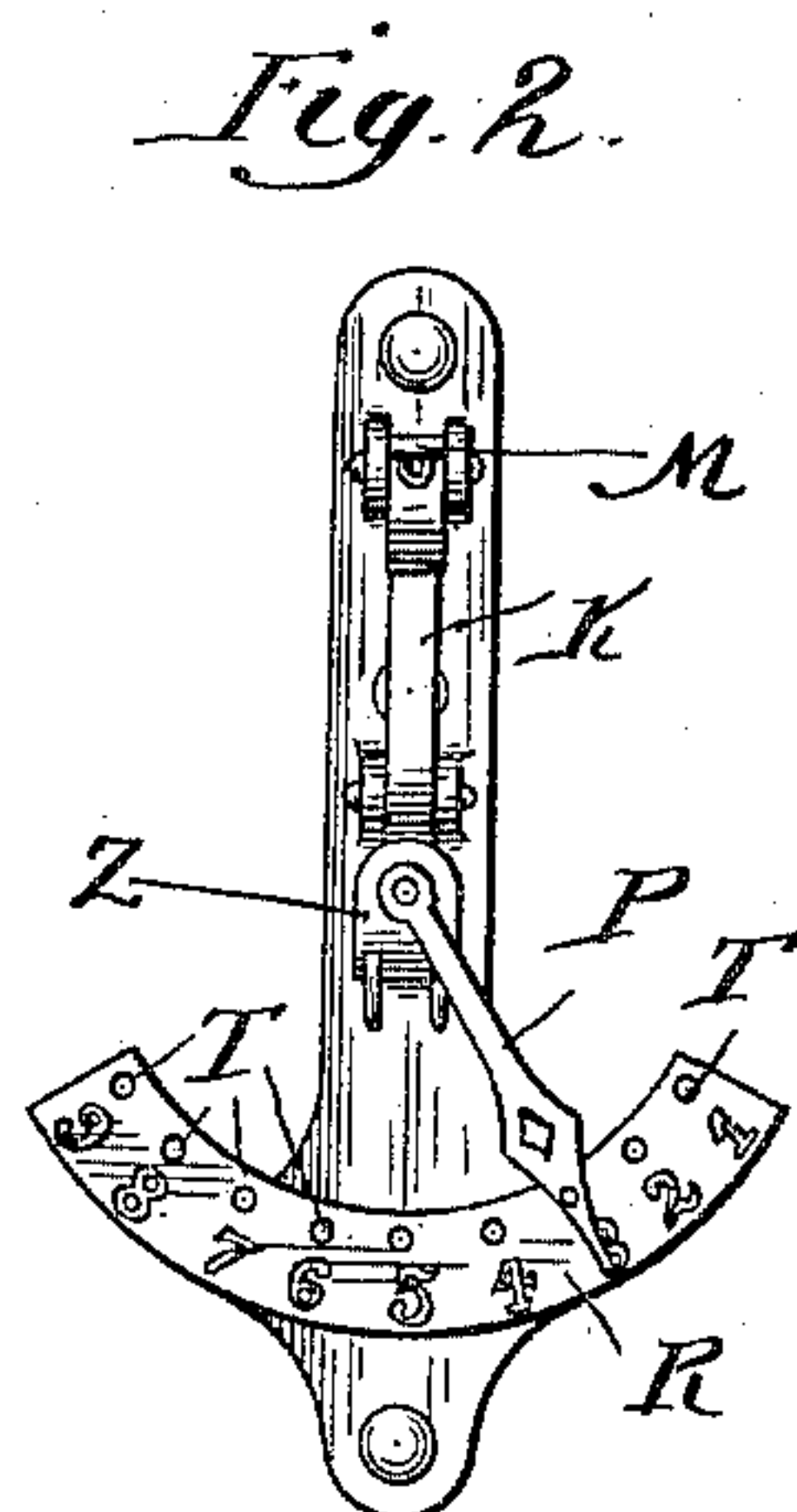
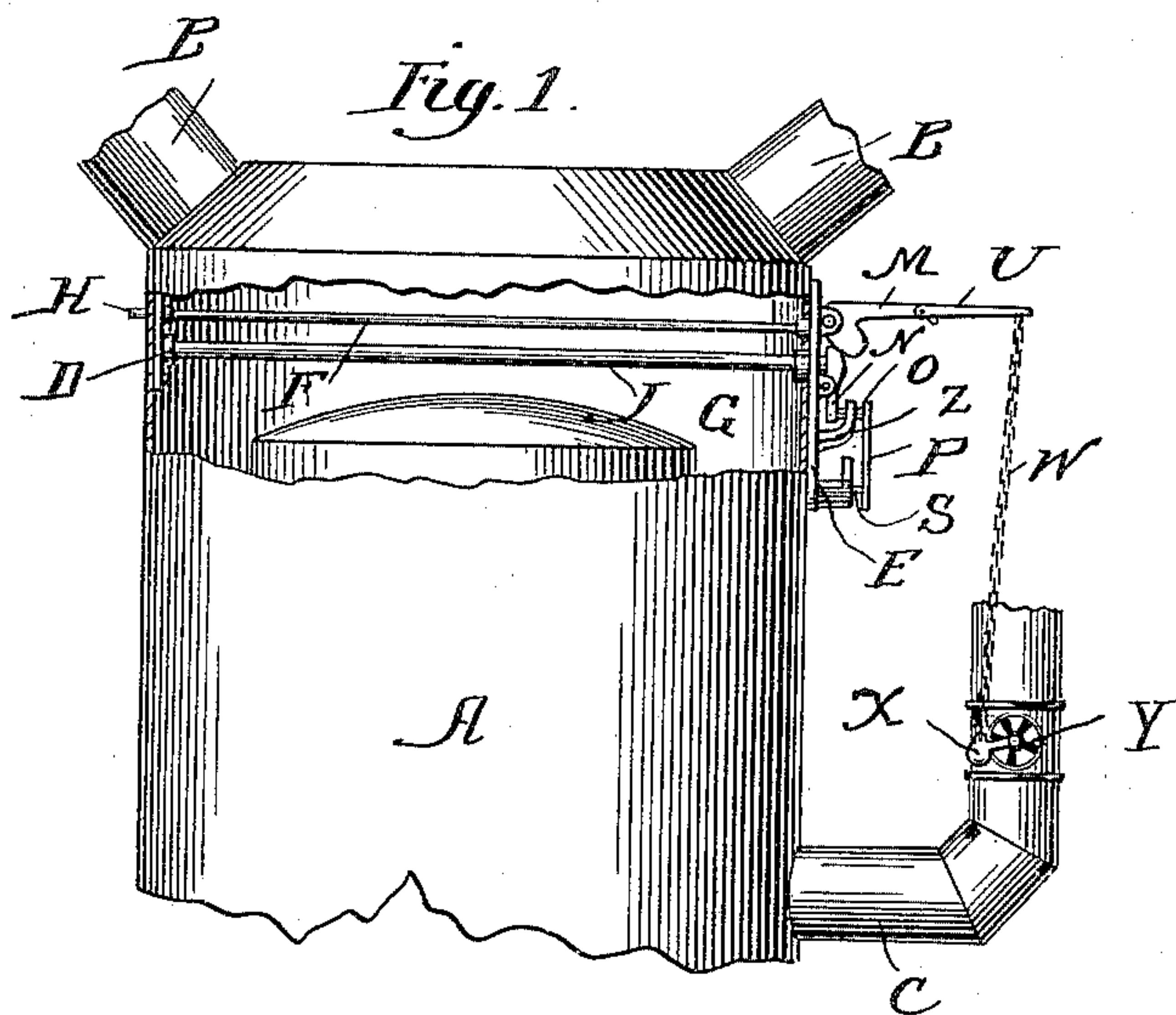
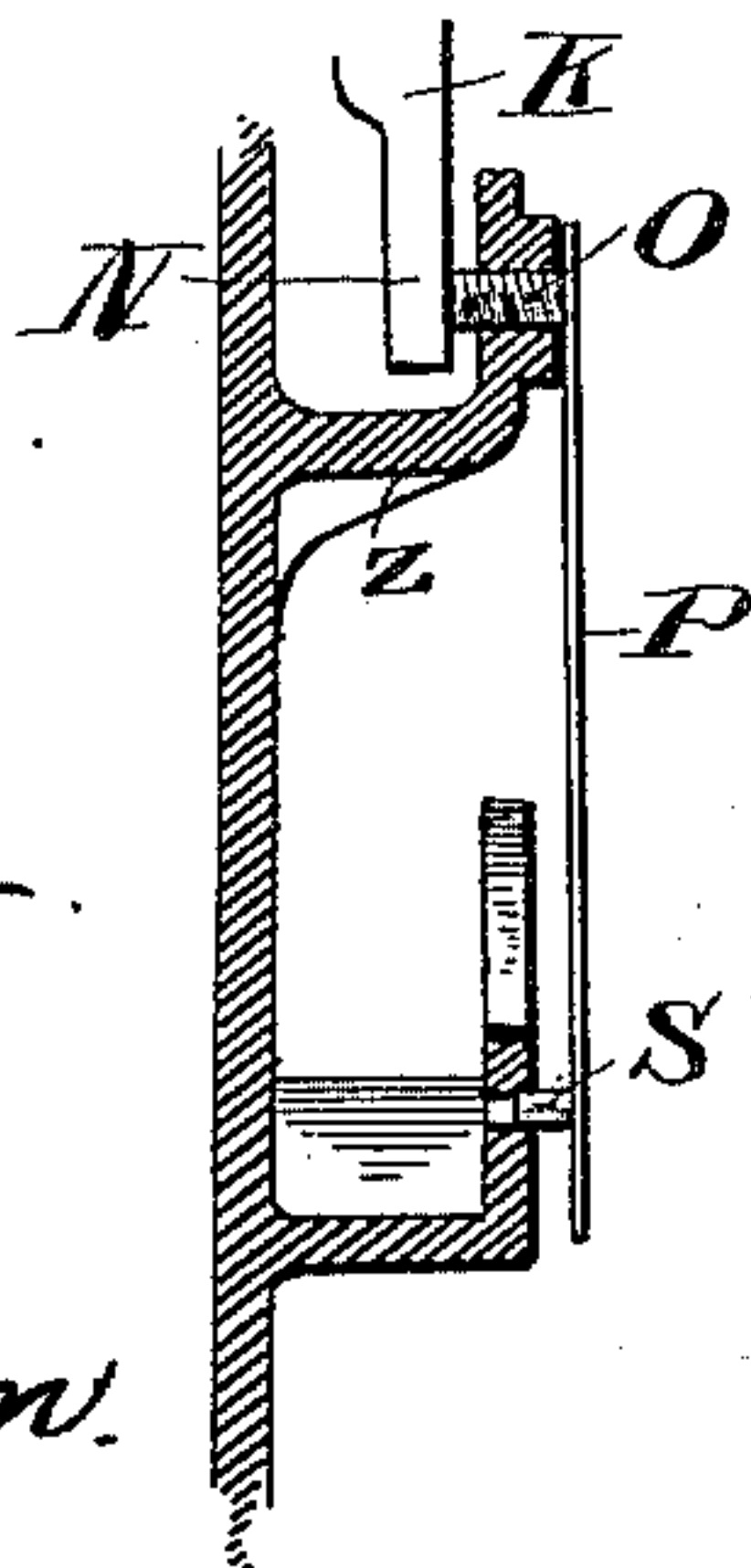


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

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FURNACE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 444,691, dated January 13, 1891.

Application filed January 27, 1890. Serial No. 338,226. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. COLBY, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Furnace-Regulators, of which the following is a full, clear, and exact specification.

My invention relates to heat-regulators for furnaces, and has for its object to provide means for regulating the supply of atmospheric air to the smoke-flue, and thus to regulate the draft of the furnace.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view, with parts broken away, of a furnace having my device attached. Fig. 2 is a front view of the device proper. Fig. 3 is a side view of the same. Fig. 4 is an enlarged detail view of the studs, and Fig. 5 is an enlarged view of the spring connecting the two parts of the lever.

Like parts are indicated by the same letter in all the figures.

A is the cylindrical portion of the furnace; B B, the heat-pipes passing therefrom, and C the smoke flue or pipe leading to the flue from such furnace.

D E are plates secured upon the opposite sides, interiorly or exteriorly as may be desired, to the furnace.

F is a rod passing through the hot-air chamber G and oppositely-threaded into the plates D and E. The rod is slotted at H, so that by turning this rod the plates D and E may be made to approach or recede from each other.

J is a rod or tube screw-threaded to the plate D and passing through the plate E. On the outside of the plate E is pivoted the lever K, one side bearing against the end of the tube or rod J and the other end against the portion L of the pivoted elbow-crank lever M.

N is the lower end of the lever K, which engages the inner end of the screw-threaded bolt O, to the outer end of which is rigidly secured the arrow P, adapted to pass over the scale R and provided with a pin S to engage the apertures T. The levers M and K are pivoted on the plate E. To the outer end

of the lever M is pivoted a portion U, normally held in parallelism with the upper portion of the lever M by means of the spring V and having at its outer end the chain W, which leads to the weighted handle X on the damper Y. The screw-threaded bolt O passes through a lug Z on the plate E. The scale R is in like manner supported on the plate E.

The use and operation of my invention are as follows: The rod F and the tube J are made of materials having different expansibility, the tube J being, as shown in the drawings, more expansible than the rod F. As the heat in the heat-chamber varies, the rod or tube J will therefore be forced out through the aperture in the plate E. The relative lengths of the two rods may be adjusted by turning the rod F, thus causing the tube or rod J to project a greater or less degree from its plate E, according to the extent of rotation of such rod. The tube or rod J engages the plate E midway between the pivoted point of the plate E and its engagement with the part L of the lever M. The point of effective engagement of the rod J with such lever may therefore be determined by fixing the position of the lever K on its pivot, and this is done by rotating the arrow P, thus moving the screw-threaded rod O in or out and fixing the point beyond which the lever K cannot move in receding with the tube or rod J. As the rod J expands, however, it ultimately engages such lever K and forces it outward against the part L of the lever M, thus rocking the lever M on its pivot and raising the chain W and opening the valve Y. Thus by operating the arrow P one can fix the point beyond which the lever K will not recede, and hence can fix the limit of closing of the damper or valve Y. On the other hand, by turning the rod F the relative length of the rod J can be varied, and hence the point at which it begins its operation can be altered, so as to cause it to begin to open the damper wider at any degree of temperature in the heat-chamber, according to the pleasure of the operator. The springs V acts as a sort of cushion to prevent injury to the parts when operation has gone so far as to open its damper to its greatest width of opening.

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

In a heat-regulator for furnaces, the combination of an upper heat-chamber with the plates E and D on opposite sides thereof, the oppositely-screw-threaded rod F, screw-threaded into said plates and projecting into said chamber, the rod J, screw-threaded in one plate and passing into the opposite plate, the lever K, pivoted and adapted to be engaged by the rod J, the lever M, having the

lug L to engage the lever K, the screw-threaded stud O, adapted to engage the outer end of the lever K and provided with the pointer P, the scale R, along which such pointer moves, and the extension U and spring V, secured on lever M, the whole constructed as and for the purpose described.

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Witnesses:

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