

A. R. MARSHALL,
Gas Regulator.

No. 15,614.

Patented Aug. 26, 1856.

Fig. 1.

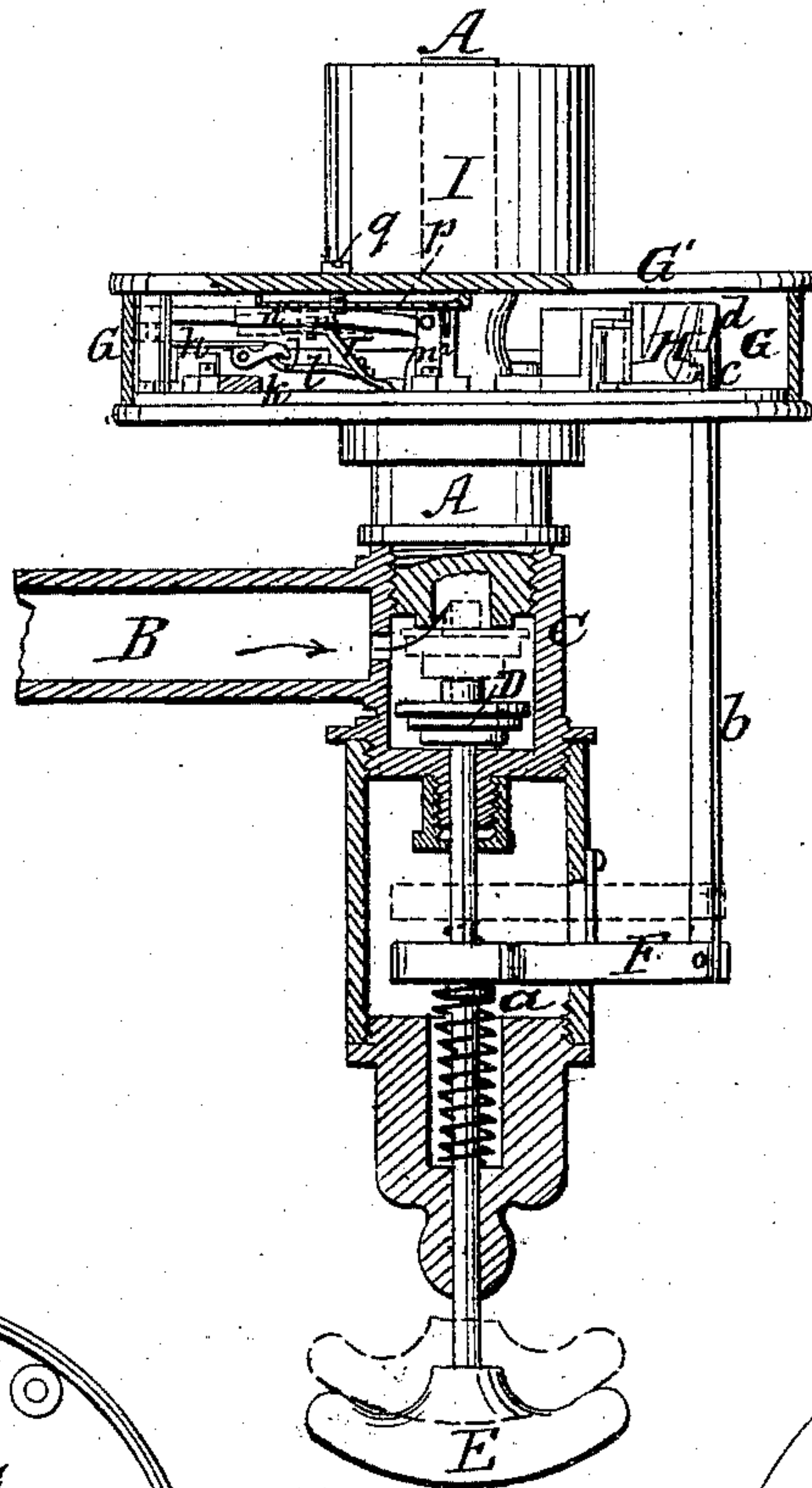


Fig. 2.

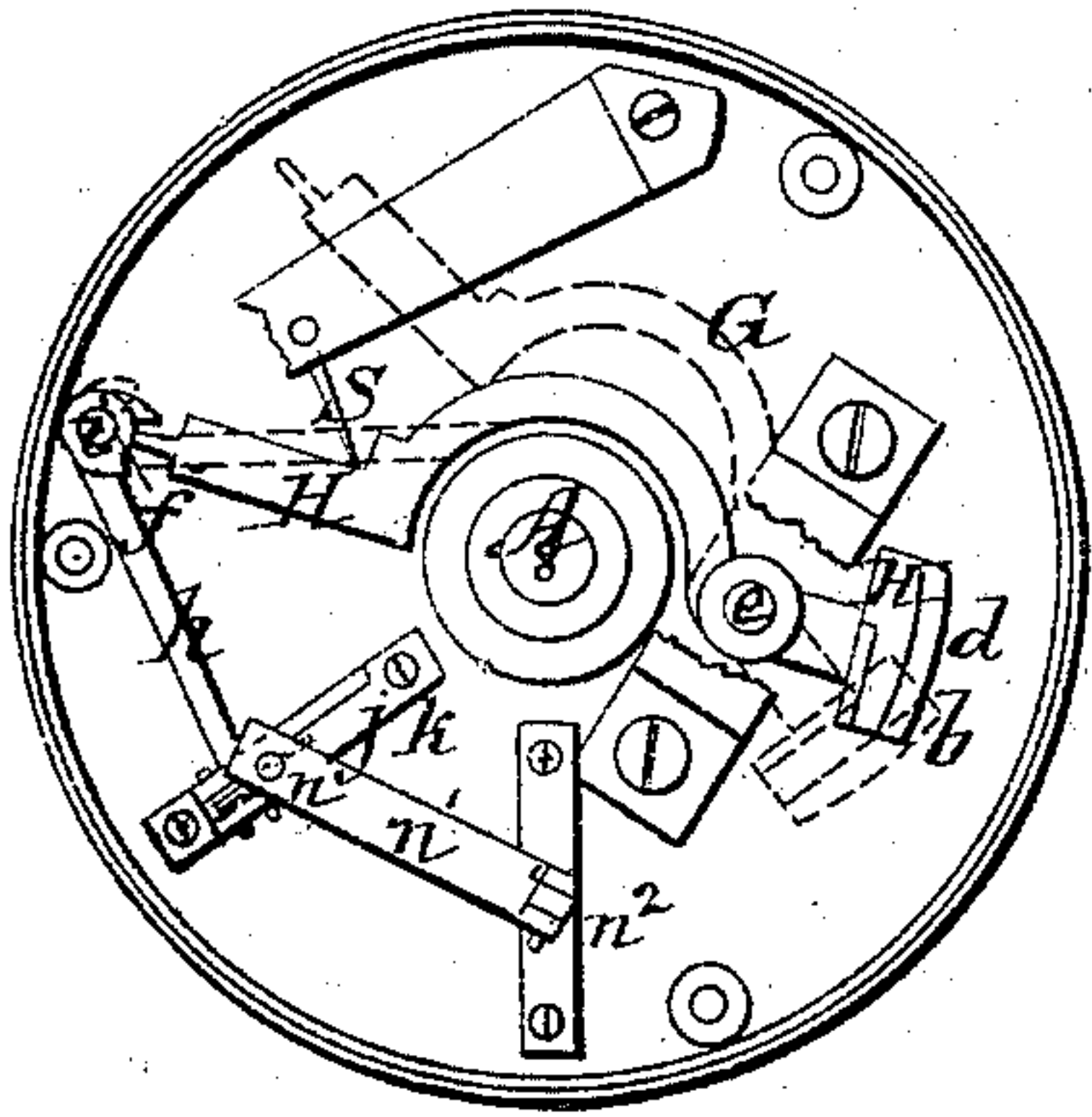


Fig. 3.

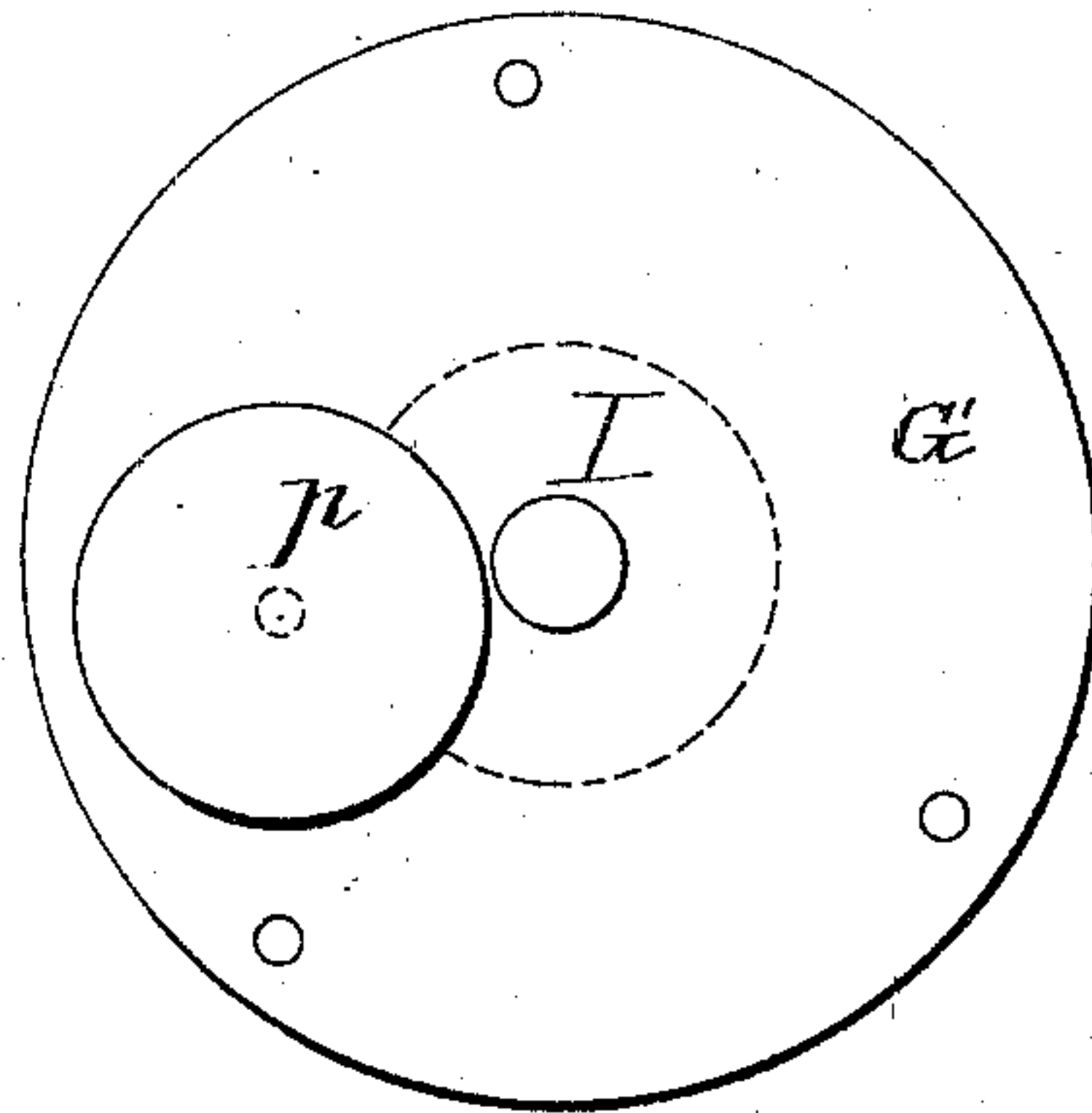


Fig. 4.

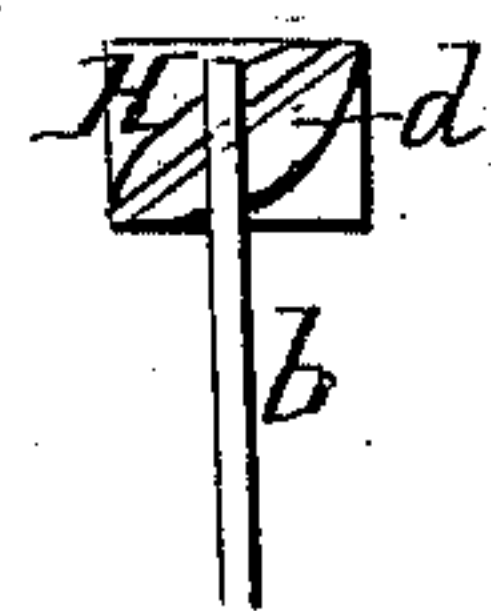


Fig. 5.



UNITED STATES PATENT OFFICE.

A. R. MARSHALL, OF STRATFORD, CONNECTICUT.

AUTOMATIC ATTACHMENT TO GAS-BURNERS.

Specification of Letters Patent No. 15,614, dated August 26, 1856.

To all whom it may concern:

Be it known that I, AUGUSTUS R. MARSHALL, of Stratford, in the county of Fairfield and State of Connecticut, have invented a new and useful Automatic Attachment to Gas-Burners for the Purpose of Shutting Off the Gas when the Light is Extinguished by Accident or Otherwise; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which,—

Figure 1, is a vertical sectional view, showing the application of my invention to a gas burner. Fig. 2, is a top view of the same with the cover of the box which incloses the principal mechanism of the attachment, removed to show the interior. Fig. 3, is a view of the bottom of the cover of the box. Figs. 4 and 5, are detail views which are hereinafter explained.

Similar letters of reference indicate corresponding parts in the several figures.

A, is a burner of well-known construction and B, is the pipe by which it is supplied with gas, said pipe leading into a valve box C, containing a puppet valve D, which is fitted to a seat at the bottom of the burner and which has a spring *a*, coiled round its stem for the purpose of forcing it up to its seat to shut off the gas from the burner. E, is a handle at the bottom of the valve stem to pull down the valve to open or let the gas into the burner. F, is an arm attached firmly to the valve stem, and connected by a rod *b*, with the mechanism in the box G, which surrounds the bottom of the burner, said mechanism being for the purpose of locking the valve when open, while the gas is burning, but operating to close the valve when the light is blown out or accidentally extinguished. The upper part of the rod *b*, which enters the box G, has a notch *c*, which receives an oblique tongue *d*, on the end of the shorter arm of a horizontal bent lever A, which works on a pivot or fulcrum pin *e*, within the box. This tongue is shown in Figs. 1 and 2, and also in Fig. 3, which is an end view of the lever, and is operated upon by the elevation or depression of the rod *b*, to move the lever on its fulcrum. When the valve is open, the notch in the rod is at or near the bottom of the tongue and the lever is in the position shown in Fig. 2, in black outline, in which position,

it is locked by the point of its longer arm being confined in a notch *f*, see Fig. 2, near the fulcrum of a lighter lever *h*, which works on a fulcrum *i*, within the box G, and when the lever is thus locked, the valve cannot close, for the reason that the rod *b*, is not allowed to move upward, but when it is unlocked, the valve is shut by the spring *a*. The lever *h*, is operated upon to lock and unlock the lever H, by the following means.

j, is a catch, working on a pivot in a small stand *k*, which is secured to the bottom of the box G. This catch has a spring *l*, placed under it, acting to throw it upward, and a stop pin *m*, above it, serves to catch the extremity of the long arm of the lever *h*, when the said lever is thrown into the position shown in black in Fig. 2, by the action of the lever, H, in its notch *f*, the said catch thus serving to lock the lever H, and hold the valve open. This catch, however, is only intended to serve to lock the lever *h*, temporarily, when the gas is first lighted, and a second catch *n*, is afterward employed to lock the said lever, the latter catch being kept in position to lock the lever by the expansion of air produced by the heat of the flame from the burner in a closed chamber I, with which the burner is surrounded. The closed air chamber I, stands immediately on the top of and is attached to the top plate or cover G', of the box G, and communicates through a hole in the said cover with a very thin and flexible metal disk or plate *p*, which is attached, at its edges, in an air-tight manner to the interior of the plate G'. This disk *p*, is distended by the expansion of the air in the chamber I, by the heat from the flame, and this distention may be regulated by a screw *q*, working through the plate G', to regulate the quantity of air in the chamber I. The flexible disk *p*, constituted a thermostat.

The catch *n*, consists of a pin secured to a small bar *n'*, which stands below the disk *p*, where it is hinged at one end to a stand *n*², within the box G, and supported, at the other end, by a spring *r*, resting on the bottom of the box in such a manner that before the gas is lighted and the disk *p* distended the catch pin *n*, is held up clear of the lever *h*, and standing immediately above the catch *g* as shown in black outline in Fig. 1, and also in Fig. 5, but, that when the disk *p* becomes distended by the expansion of the air in the air-chamber, it presses down the

bar n' , and causes the pin n , to press down the catch j , as shown in red outline in Fig. 1, and to do the duty up to that time performed by the said catch, viz, that of stopping and locking the lever h , whose tendency, owing to the action of the spring a , on the lever H , is to fly toward the position in which it is shown in blue outline in Fig. 2. The catch n , continues in operation till the light is blown out or otherwise extinguished, when, by the cooling of the air in the chamber I , and its consequent contraction, the disk p , is caused to rise and thus allow the catch n , to rise clear of the lever h , and liberate it, thus liberating the lever H , and leaving the rod b , free to move upward, and by that means allowing the valve to be closed by the spring a . The position of the levers H and h , when liberated, is shown in Fig. 2, in blue outline, the lever H , still maintaining its connection with the valve by means of the tongue d , and the notch c , in the rod b , and the lever h , resting against a spring s . When the valve is opened again by pulling down the handle E , the locking mechanism always sets itself, the lever H , setting the lever h , and the latter lever being first locked by the catch j , and afterward by the catch n .

It must be observed in the arrangement of the catches j , and n , that the catch n ,

must stand so far from the notch in the catch j , that the lever h , will pass just over the edge of the notch of the catch j , before being caught by n , in order that when the catch n , rises to allow the lever h , to escape, the said lever may not be again caught by j ; this arrangement will be readily understood by reference to Fig. 5.

This automatic shut-off apparatus may be used either with or without a cock of the usual kind, to turn the gas on or off the burner.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination with the thermostat p , and the valve D , of the catch n on the bar n' , and the system of levers h , H , for the locking and unlocking of the valve, in the manner and for the purposes specified.

2. Combining with the locking catch n , or its equivalent, which is acted upon by the thermostat p , another catch j , so arranged as to lock the valve open until the catch n , is set in operation by the action of the thermostat and then to be moved out of the way by the catch n , substantially as herein described.

A. R. MARSHALL.

Witnesses:

CHAS. B. GOULDING,
JOHN GOULDING.