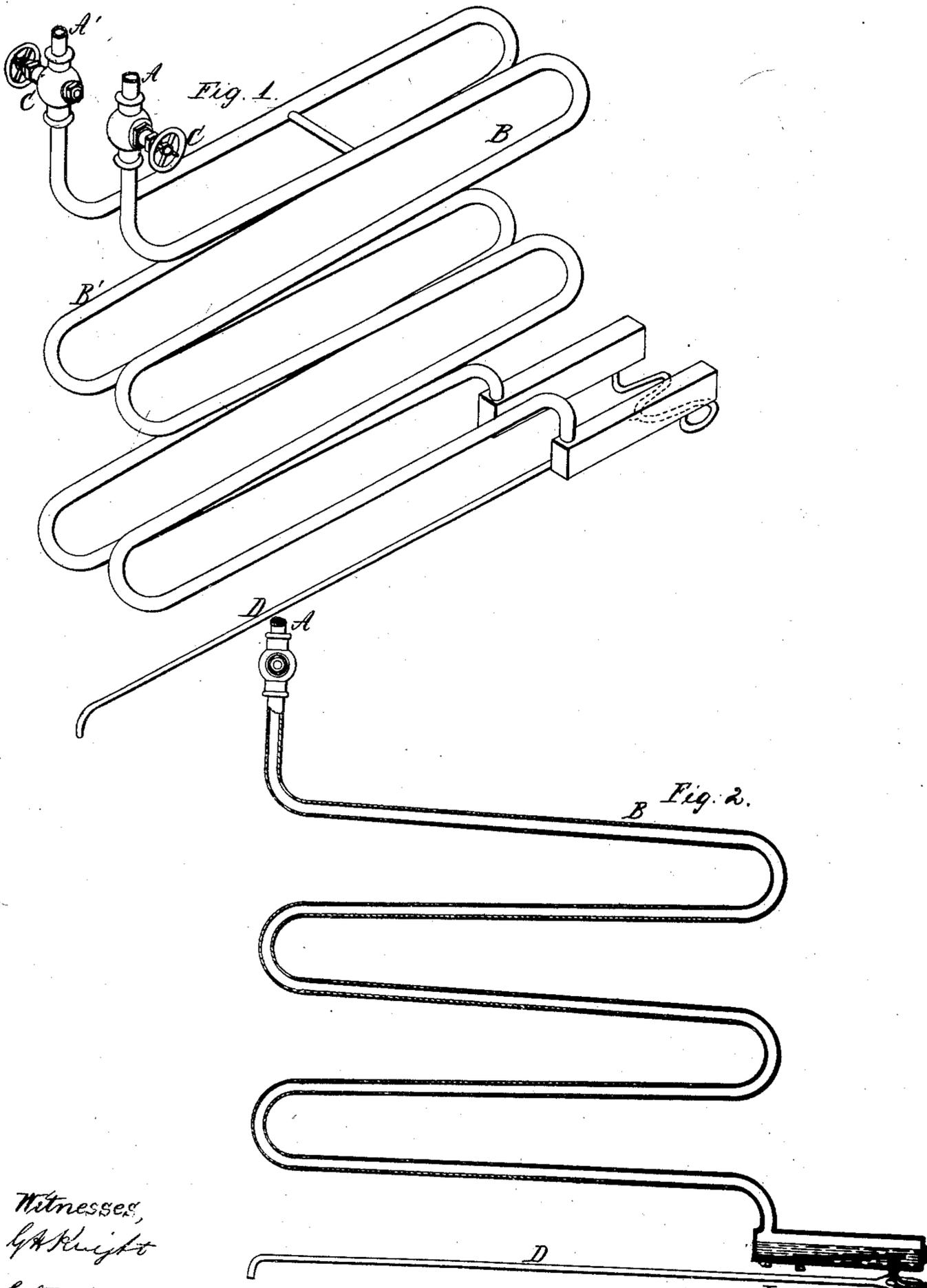


C. A. WILSON.
HEATING APPARATUS.

No. 24,896.

Patented July 26, 1859.



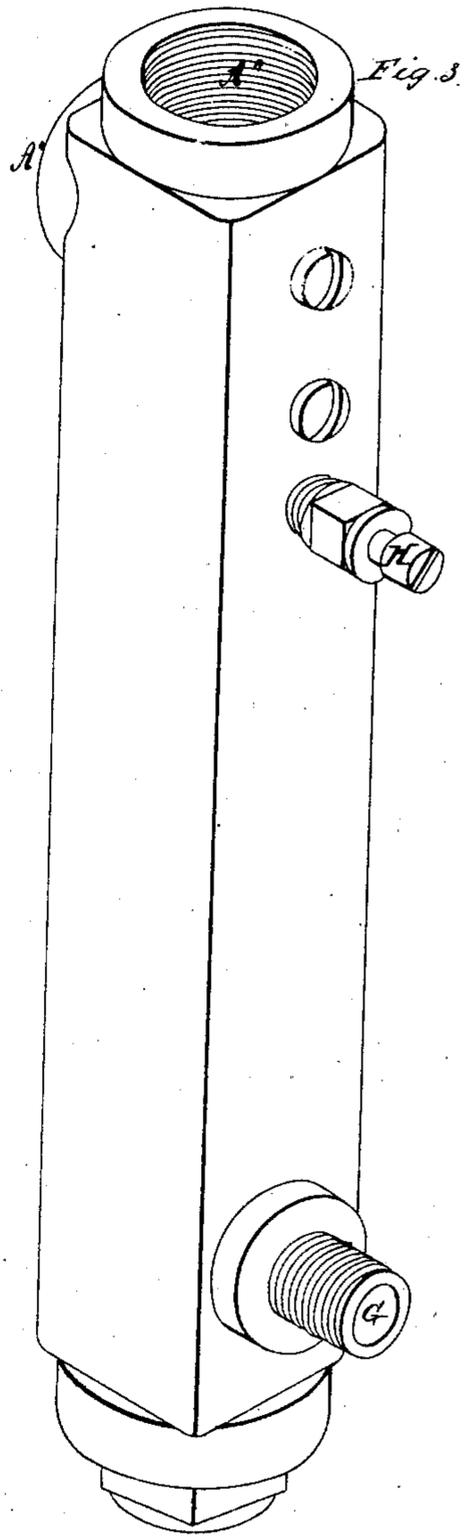
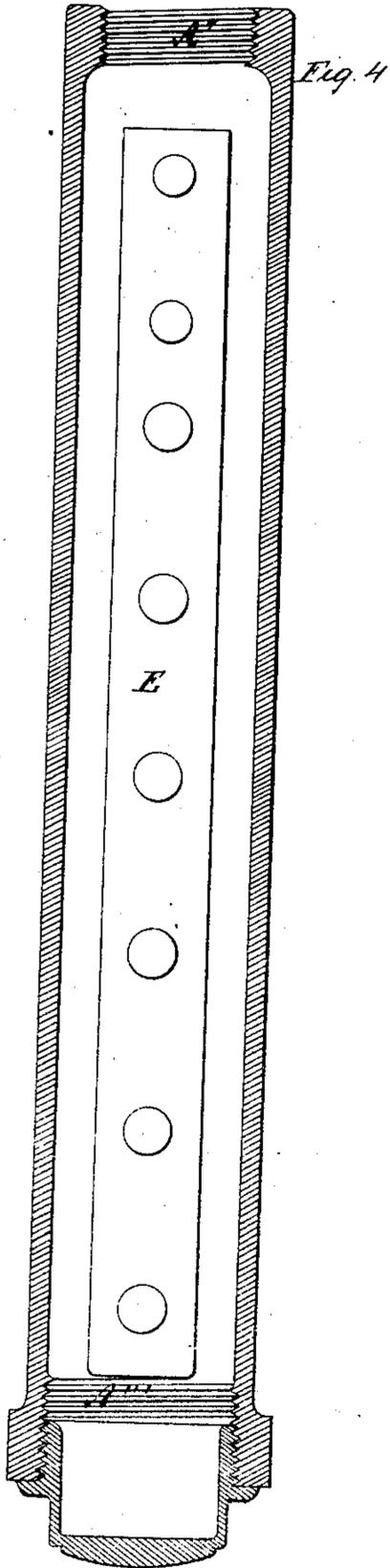
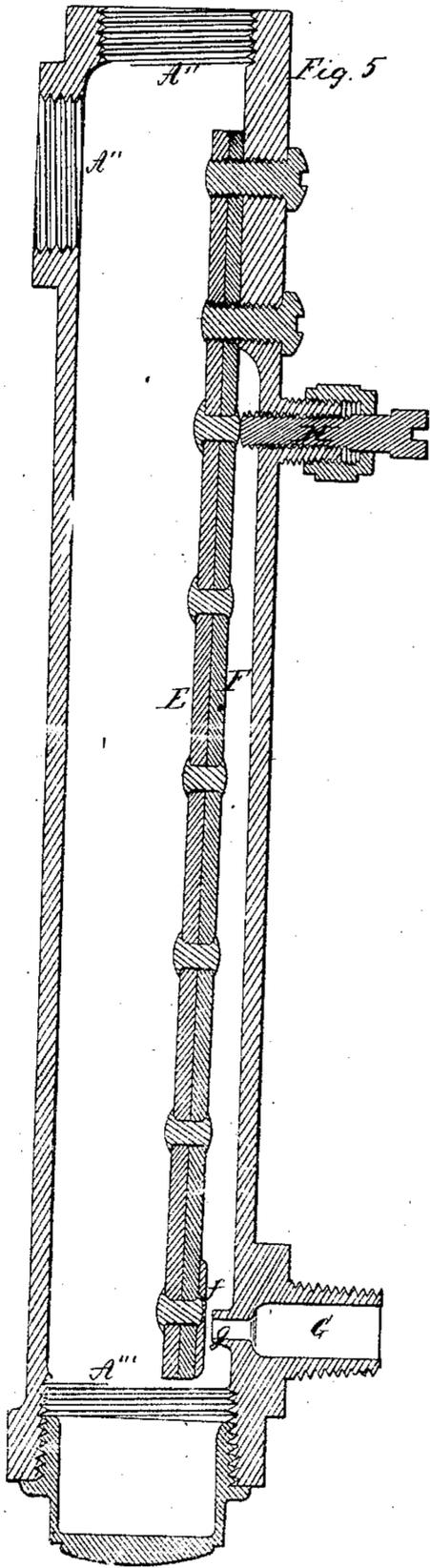
Witnesses,
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C. Stearns

Inventor
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Witnesses
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UNITED STATES PATENT OFFICE.

CHAS. A. WILSON, OF CINCINNATI, OHIO.

APPARATUS FOR WARMING BY STEAM.

Specification of Letters Patent No. 24,896, dated July 26, 1859.

To all whom it may concern:

Be it known that I, CHARLES A. WILSON, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in House-Warming Apparatus; and I hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing, making part of this specification.

This invention has for its object the more efficient and economical heating of apartments by steam, and consists in the construction and arrangement of selfacting valves in the discharging ends of the branches, coils or radiators.

In the accompanying drawings Figure 1 is a perspective view representing a portion of a system of steam pipes with my improvements. Fig. 2 is a vertical longitudinal section of one branch of the same. Fig. 3 is a perspective view of the automatic discharge valve on a larger scale. Fig. 4 is a horizontal section and Fig. 5 is a vertical longitudinal section of the same.

A, A' are branches of the steam induction pipe.

B, B' are radiators in which the steam being condensed gives out its latent heat, the communication between the induction pipes, and the radiators may be closable by means of any suitable cocks C operated by hand to shut off the steam from the radiators or to regulate its admission to the same.

The discharging or lower end of the radiator where it communicates with the discharge pipe D is guarded by a thermostat which may be constructed as follows:

E, F is a customary thermostat "spring" of brass and steel contained as represented, within a box which may be attached to the lower end of the radiator by either of the apertures (A'' A''') which the form and position of the radiator may require, the other apertures being closed by screw caps as seen at A''''.

G is the discharge pipe its inner end being ground to form a valve seat *g*. The portion of the bar E F which impinges on this seat *g* is furnished with a boss *f* of tin or other soft metal to make a tight joint with the seat when ever by the greater expansion of the brass portion of the bar by the heat the bar is pressed against the said seat.

H is a set screw which being made to op-

pose the bending inward of the spring affords a means of regulating the degree of sensitiveness of the instrument. It will be seen that this mode of regulation has no effect whatever in opposing the natural working of the spring except as it is about to close the valve so that as little strain as possible occurs and that only during the period of closure (about one-tenth of the whole time). It is also obvious that by the use of a soft metal boss upon a simple flat seat, the liability of sticking is avoided, an important qualification in a self acting valve and the expense of a special or distinct valve is avoided.

It is well known that in the usual arrangement of steam pipes for heating purposes the steam in its effort to seek the quickest discharge will traverse some branches at the expense of others. As a partial remedy for this the pipes to the latter are sometimes made of much greater diameter, and even then the pressure on the induction or upper end with a radiator fed by a very long steam pipe will occasionally, be so much less than that at the discharging end as to retain within the radiator a body of air or water which the steam (from the circumstance just stated) is unable to displace.

By my arrangement the radiators as they become charged with steam close up of themselves, one by one and thus while avoiding waste of steam and undue heating of a portion—every radiator is eventually brought within the circuit. One great advantage attendant on this plan is that the apparatus takes care of itself requiring no management or manipulation of valves. The thermostat when once properly set by the builder lets off the water of condensation, as fast as formed, and thus serves to keep the radiator at any desired temperature whatever be the pressure of steam or the temperature of the surrounding atmosphere. The whole system is perfectly selfacting: the various branches opening and closing promiscuously as they happen to get cool or hot and what little steam escapes into the discharge pipe is immediately condensed so as to save the necessity of a special provision for condensation. These self acting valves are much less liable to leak than the common hand worked screw-valves, let off all the water and thus avoid the danger of bursting, and by letting

through no more steam at any time than is used save largely in fuel.

I claim as new and of my invention herein and desire to secure by Letters Patent—

5 The valves (E F *f* *g*) adapted and arranged substantially as set forth in the lower or discharging ends of the branches coils or radiators of a system of steam heating pipes,

and closable automatically by heat in the manner and for the purpose explained. 10

In testimony of which invention, I hereunto set my hand.

C. A. WILSON.

Witnesses:

GEO. H. KNIGHT,

C. STEEMER, Jr.