(No Model.)

W. R. SMITH.

FURNACE REGULATOR.

No. 543,061. Patented July 23, 1895.

Fig. 1.

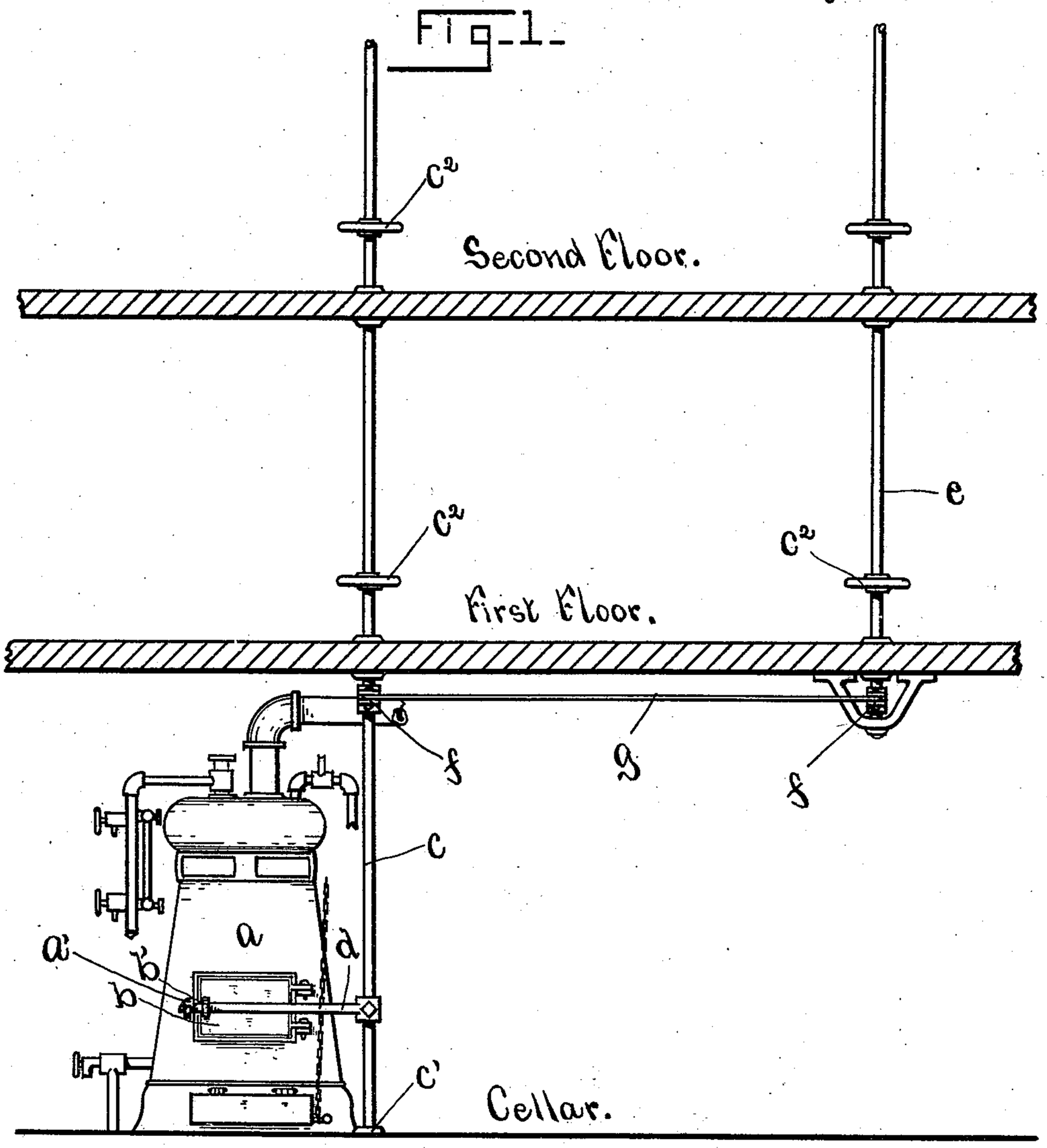
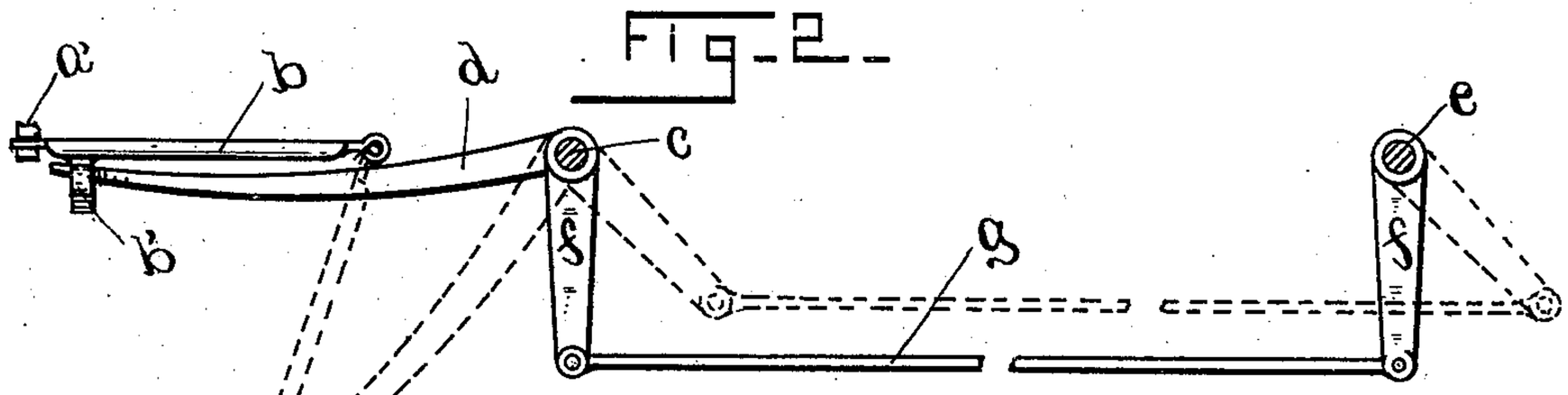


Fig. 2.

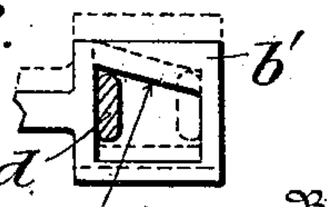


Witnesses

Alonzo W. Luther.

Melvin R. Chamberlain.

Fig. 3.



Inventor

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UNITED STATES PATENT OFFICE.

WILLIAM R. SMITH, OF NORWICH, CONNECTICUT.

FURNACE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 543,061, dated July 23, 1895.

Application filed March 15, 1895. Serial No. 541,950. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. SMITH, a citizen of the United States, residing at Norwich, New London county, State of Connecticut, have invented certain new and useful Improvements in Furnace-Regulators, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings.

It is a common practice to regulate a furnace-fire, especially in the case of dwelling-houses, by means of the furnace-door, this being accomplished by opening said door when it is desired to deaden the fire or by keeping said door closed when it is desired to increase the fire. This method of controlling the fire, while it accomplishes very satisfactorily the desired end, is often the occasion of much inconvenience and annoyance, for the reason that in most cases the furnace is located in the cellar or basement, so that to go to the same from a remote part of the building when it demands attention is generally an item of considerable trouble. As a result the furnace-door is often left closed much more than it should be, and thus a waste of fuel is often occasioned and the rooms of the building are suffered to be too highly heated.

To do away with the annoyances just recited is the object of this invention, and with this end in view I have provided a device by means of which the furnace-door may be operated from any floor of the building to regulate the fire as above stated, thus making it necessary to go to such furnace only at the proper times to feed or clean the same.

To more readily explain my invention I have provided the accompanying sheet of drawings, which illustrate the same, as follows:

Figure 1 illustrates several floors of a building having located in its basement or cellar a suitable furnace, said building being provided with my improved furnace-regulating device. Fig. 2 is an enlarged detached view of my device proper, and illustrates the operation of the same; and Fig. 3 is an enlarged detached view of an element embodied in the construction thereof.

Referring to the drawings, the letter *a* indicates a furnace as a whole and *b* its fire-door.

The letter *c* denotes a vertical shaft or rod supported on the basement-floor in a bearing *c'*, from which it extends upward and may, if desired, pass through the several floors of the building and to the top thereof.

The letter *d* denotes an arm, one end of which is secured to rod *c* and the free end of which passes through and engages an eye *b'* or similar device located on furnace-door *b*.

It will now be understood from the drawings that should rod *c* be slightly rotated such rotation will, through the arm *d*, secured thereon, cause door *b* (which latter the free end of arm *d* engages, as above explained) to swing on its hinges, either to open or close said door, in accordance with the direction of rotation of the rod *c*.

Located on rod *c* and at the proper height above each floor of the building is a suitable hand-wheel or operating-handle c^2. It will be readily understood that by means of these hand-wheels rods *c* may be readily rotated from any floor of the building, and, as a result, the door *b* as well controlled as if operated in the cellar.

Should it not be desired or practicable to run shaft *c* vertically through the building, or should it be desired to manipulate said shaft, as described, at other points in the building, suitable connections may be made with shaft *c* to meet the requirements just stated. To make it possible to thus operate shaft *c* at points remote therefrom, one or more similar shafts may be located at desired points in the building, one such shaft being shown in the drawings and denoted by the letter *e*, the same being also provided with the hand-wheels c^2. In the drawings, however, I have shown shafts *c* and *e* as each provided with an arm *f*, the free ends of which arms are connected by a rod *g*. It will now be apparent that any motion of one of said shafts will be transmitted by means of the arms *f* and rod *g* to the companion shaft, and thus any desired movement imparted to the furnace-door *b* by means either of shaft *c* or shaft *e*.

It often happens that door *b* is engaged by a latch *a'*, the office of which is to secure said door against accidental opening or from being forced open by a back-draft and to thus allow gas to escape from the furnace. The nature

of latch a' is usually such as to require said door to be first lifted from engagement therewith before it can be opened, as well understood. In order that my advice may be operative when such a latch is employed I have so constructed the same that the first office of arm d is to raise the door b from engagement with its latch, after which it will then open said door in the manner already described. This feature of my device is illustrated in Fig. 3, in which is shown an elevation of the eye b', also rod d passing therethrough. The upper wall of the opening in eye b', against which arm d bears, is formed as an inclined plane b^2, and said opening is preferably of considerable width in order that arm d may have considerable play therein. It will now be seen that the first movement of arm d, traveling on the inclined plane b^2, will serve to raise said eye into the position shown in dotted lines, and thus to lift said door from engagement with its latch, after which continued movement of the arm d will serve to swing open door b in the manner already described.

My device as a whole is extremely simple and cheap in its construction and is very easy of manipulation, is valuable as a labor-saver, and by reason of its complete control of the fire enables a furnace to be run much more economically than ordinarily.

Having thus described my invention, I claim—

In combination with a furnace having a hinged door with an eye b', means for controlling said door consisting of a shaft c and an arm d secured thereto, the latter engaging said eye as set forth; the eye being provided with an inclined wall b^2 by means of which the arm d is caused to lift the door before swinging the same, all being substantially as specified.

WILLIAM R. SMITH.

Witnesses:
MAXTON HOLMES,
ALONZO M. LUTHER.