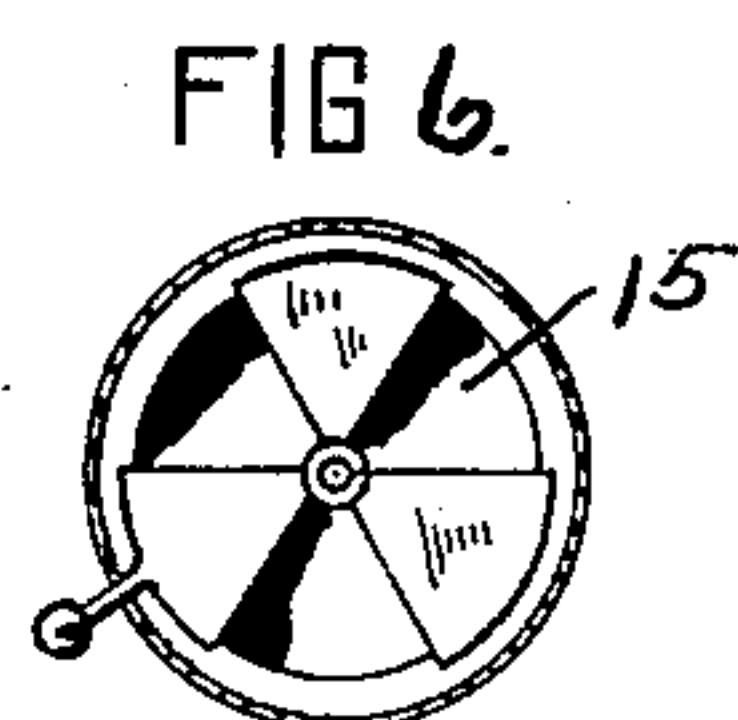
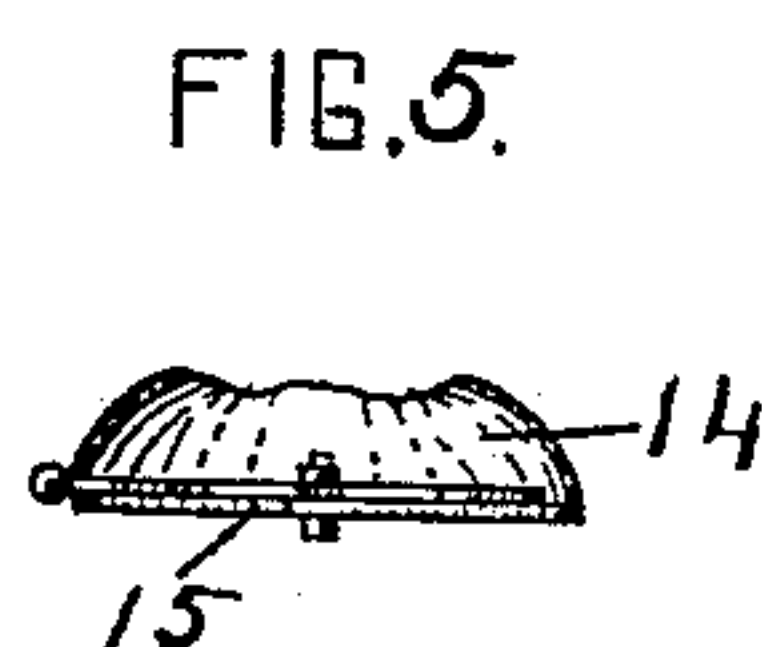
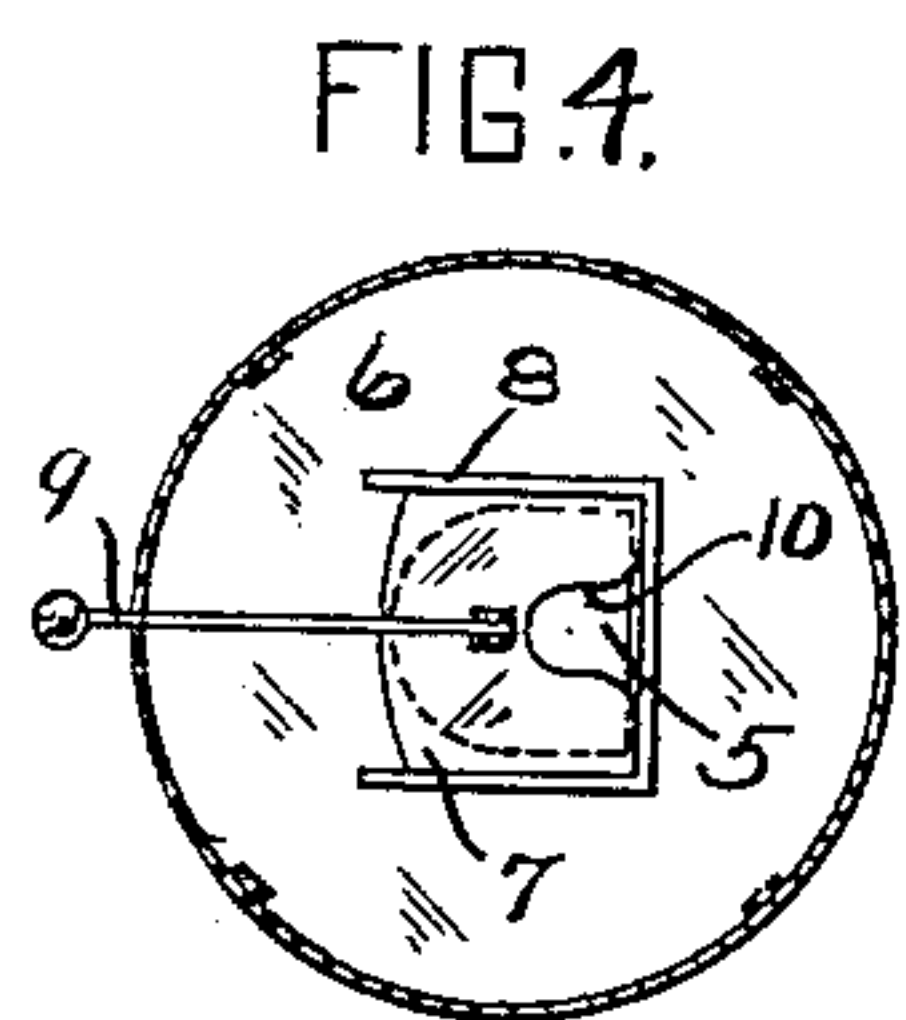
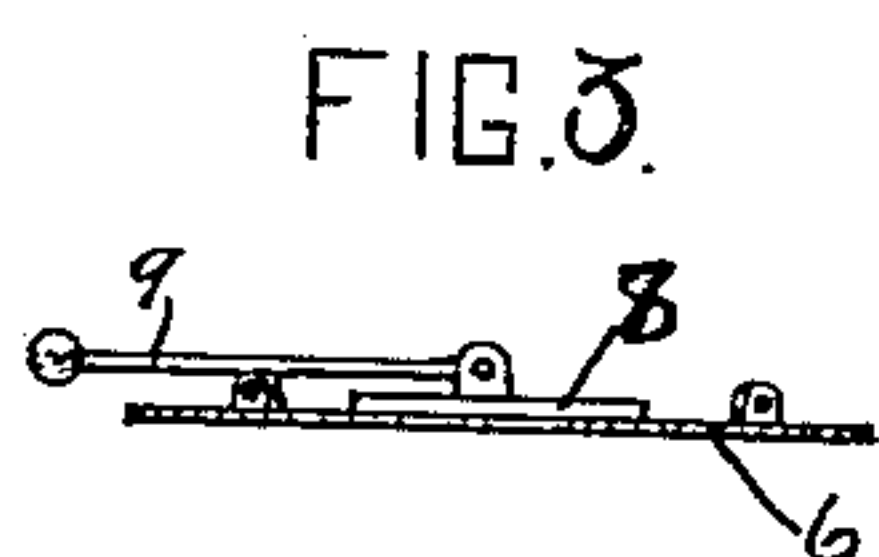
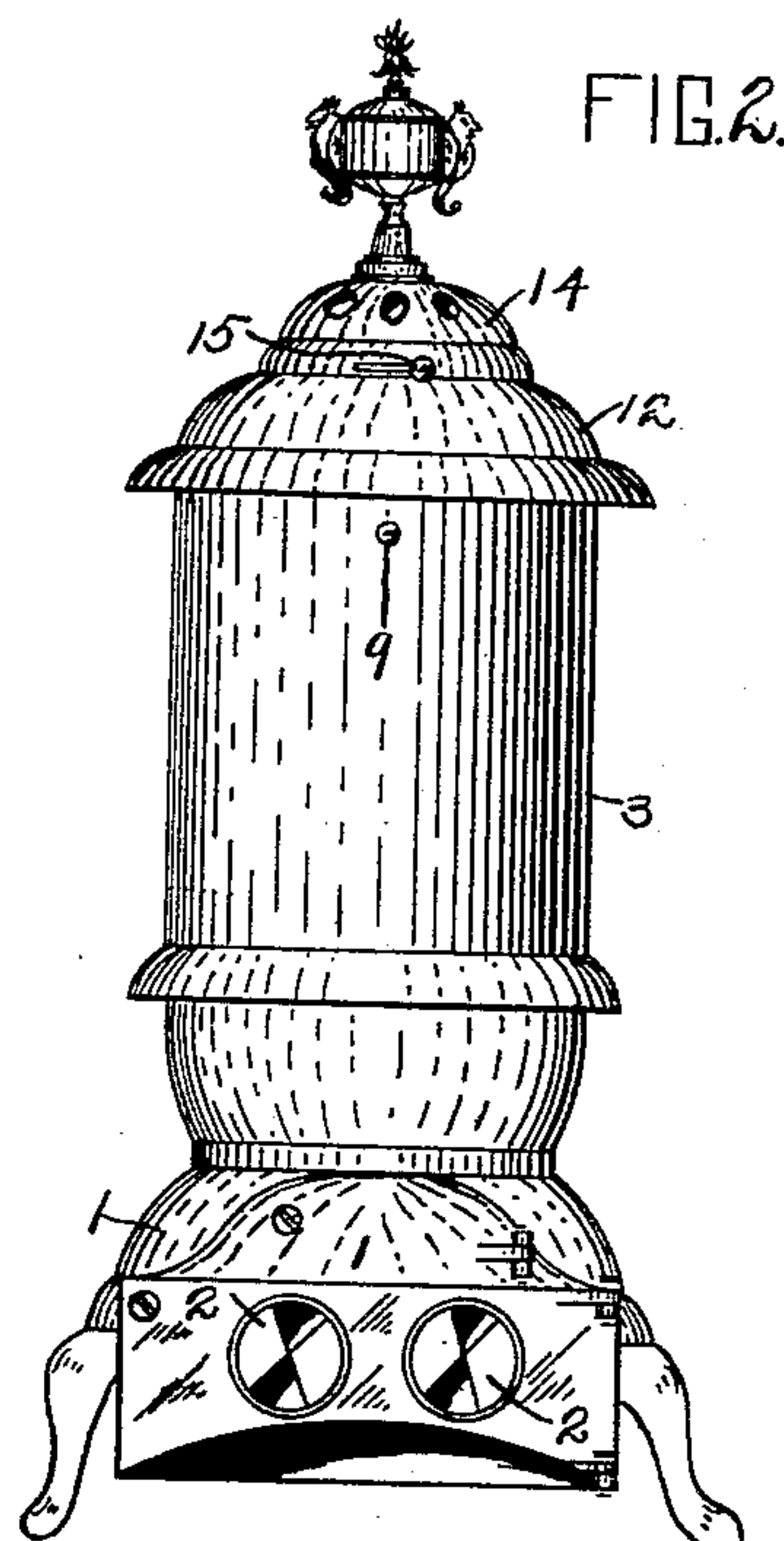
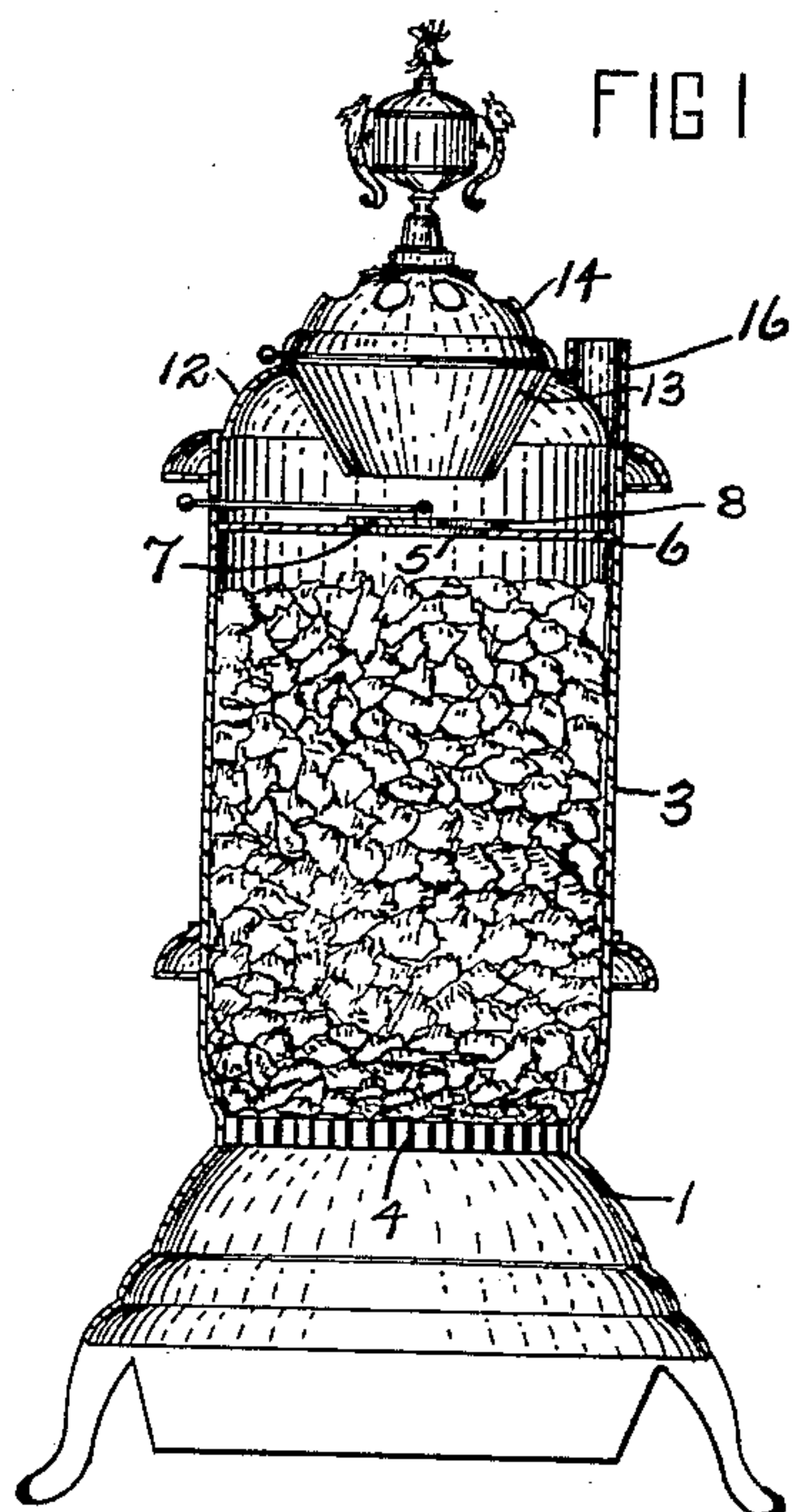


(No Model.)

F. J. GOULD.
STOVE.

No. 602,577.

Patented Apr. 19, 1898.



WITNESSES:
Horace B. Jones
Zula Green

INVENTOR
Frank J. Gould
BY
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UNITED STATES PATENT OFFICE.

FRANK J. GOULD, OF MARION, INDIANA.

STOVE.

SPECIFICATION forming part of Letters Patent No. 602,577, dated April 19, 1898.

Application filed December 7, 1896. Serial No. 614,723. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. GOULD, of Marion, county of Grant, and State of Indiana, have invented a certain new and useful Stove; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

My invention has for its object the constant suppression of the combustion of the fuel, so that none of it will be wasted. This is effected, chiefly, by making the shell of the stove air-tight between the grate at the bottom and a false top or diaphragm above the fuel, in which an opening is provided whose size can be regulated. This opening should always exist, and during the process of combustion below it should preferably be small in comparison with the grate-surface. The size of this opening should, however, be regulated.

Another object of my invention is to so construct the part of the stove above the false top or diaphragm that the fuel may be readily introduced into the combustion-chamber and that whatever gases pass through the opening in the false top or diaphragm, from the combustion-chamber, will be caused to pass out of the exit-pipe and prevented from escaping into the room. Therefore it is observed that my stove consists of two chambers—a lower one, air-tight excepting as above specified, and an upper one, that need not necessarily be air-tight.

By reason of these features and others that will hereinafter be shown it is observed that I provide a heating stove or furnace which is comparatively inexpensive to construct, is simple and easily controlled, is clean, is extremely economical of fuel, and has great heating capacity.

The full nature of my invention will appear from the accompanying drawings and the description and claims following.

In the drawings, Figure 1 is a central vertical section of my stove from front to rear. Fig. 2 is a front elevation of the stove. Fig. 3 is a side elevation of the false top or diaphragm and the damper in connection therewith. Fig. 4 is a plan view of the same. Fig. 5 is a sectional view of the lower portion of the swinging top, showing the check-damper

therein. Fig. 6 is a section of the stove immediately above such check-damper, giving a plan view of the latter.

In detail, 1 is the base of a stove, with draft-dampers 2 in the front portion thereof. Above this base I mount a shell 3, that is air-tight, excepting the openings through the grate 4 at the bottom and an opening 5 through the false top or diaphragm 6, near the upper end thereof. The joint between this false top or diaphragm and the shell is air-tight or as nearly so as possible. The opening therein is preferably central and is large enough to admit the fuel. This opening 5 is closed almost entirely by a sliding damper 7, that moves in the guideway 8 on the upper side of the false top or diaphragm 6 and is actuated by the rod 9, that extends through the shell of the stove, as shown. This damper 7 is cut out, preferably on one side, to form a small opening 10 through it when it is closed. By this arrangement it is observed that the opening through the diaphragm 6 is never wholly closed, and after fuel has been introduced and the damper 7 closed the size of the opening therethrough remains constant; but it can be enlarged, if the needs of the stove at any particular time require it, by pulling the damper out a little. By having a small outlet at the top, as shown in this opening 10, in comparison with the grate-openings at the bottom, the combustion of the fuel can be suppressed, and yet maintained so that one charge of fuel will last a long time. For example, with this stove I have maintained a constant fire for seven days on fifty-eight pounds of common soft coal. During this time the combustion, as well as the amount of heat given off, remained constant and even. I have also found that the combustion by this means is as nearly complete and the heat as completely economized as would seem to be possible. For that reason, I have found that the amount of heat and the length of time required for its combustion are practically the same per pound for all kinds of fuel, whether it be hard coal, soft coal, or coke. In order to effect this constant suppression and slow but even consumption, it is necessary that the stove be air-tight, not only to prevent the escape of gases that may form therein, but to prevent the inlet of any air

excepting through the grate. In actual use the oxygen, since it enters only through the grate, will maintain the combustion only near the grate, and the fuel will feed down from above as it is thus consumed. The amount of air or oxygen passing through a given surface of the grate will depend upon the relative size of the opening in the diaphragm above the fuel.

Turning now to the upper portion of the stove, I provide in the main portion 12 of the top a funnel 13, whose lower end tapers toward and rather closely approaches and registers with the opening 5 in the diaphragm 6. This is primarily for the admission of fuel. The funnel 13 is open at its upper end when the fuel is being introduced and is closed by a swinging top 14, which has in it a damper 15, which is shown herein, especially in Figs. 5 and 6, as a register-damper. The swinging top has openings in it and is preferably made with open-work. When the register-damper 15 is open, air passes through the top 14 and such damper and the funnel 13 into the upper chamber of the stove and out through the outlet-pipe 16. The gases that arise from the combustion-chamber through the diaphragm mingle with such air when the damper 15 is open and pass out with it through the outlet-pipe 16. In this manner the gases are prevented from escaping into the room and are carried off through the stovepipe.

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

1. A heating-stove comprising a shell for containing fuel divided into two chambers by a false top or diaphragm having an opening, a damper for regulating the size of such opening, a grate extending across the lower end of the shell, the shell being imperforate between the diaphragm and grate, means for introducing fuel through such diaphragm, and means for permitting the introduction of

air beneath the grate and into the upper chamber, substantially as described.

2. A heating-stove comprising a shell for containing fuel divided into two chambers by a false top or diaphragm having an opening, a damper that can partially but never completely close such opening, a grate extending under the lower end of the shell, the shell being imperforate between the diaphragm and grate, means for introducing the fuel through such diaphragm, and means for permitting the introduction of air beneath the grate and into the upper chamber.

3. A heating-stove comprising a shell for containing fuel divided into two chambers by a false top or diaphragm having an opening, a damper for regulating the size of such opening, a grate extending across the lower end of the shell, the shell being imperforate between the diaphragm and grate, means for introducing fuel through such diaphragm, means for permitting the introduction of air beneath the grate, and an outlet-pipe from the upper chamber, substantially as described.

4. In a stove or furnace, a shell for containing the fuel, a diaphragm that divides the shell into an upper and a lower chamber, said diaphragm having an opening through it, a damper to regulate said opening but which cannot be entirely closed, a funnel above and registering with the opening in the diaphragm, a check-damper above the funnel, an outlet-pipe from the upper chamber, and a grate at the lower end of the stove through which air is admitted, said shell being imperforate between the grate and diaphragm, substantially as set forth.

In witness whereof I have hereunto set my hand this 25th day of November, 1896.

FRANK J. GOULD.

Witnesses:

FRANK P. FRUCHEY,
J. C. MCLEAN.