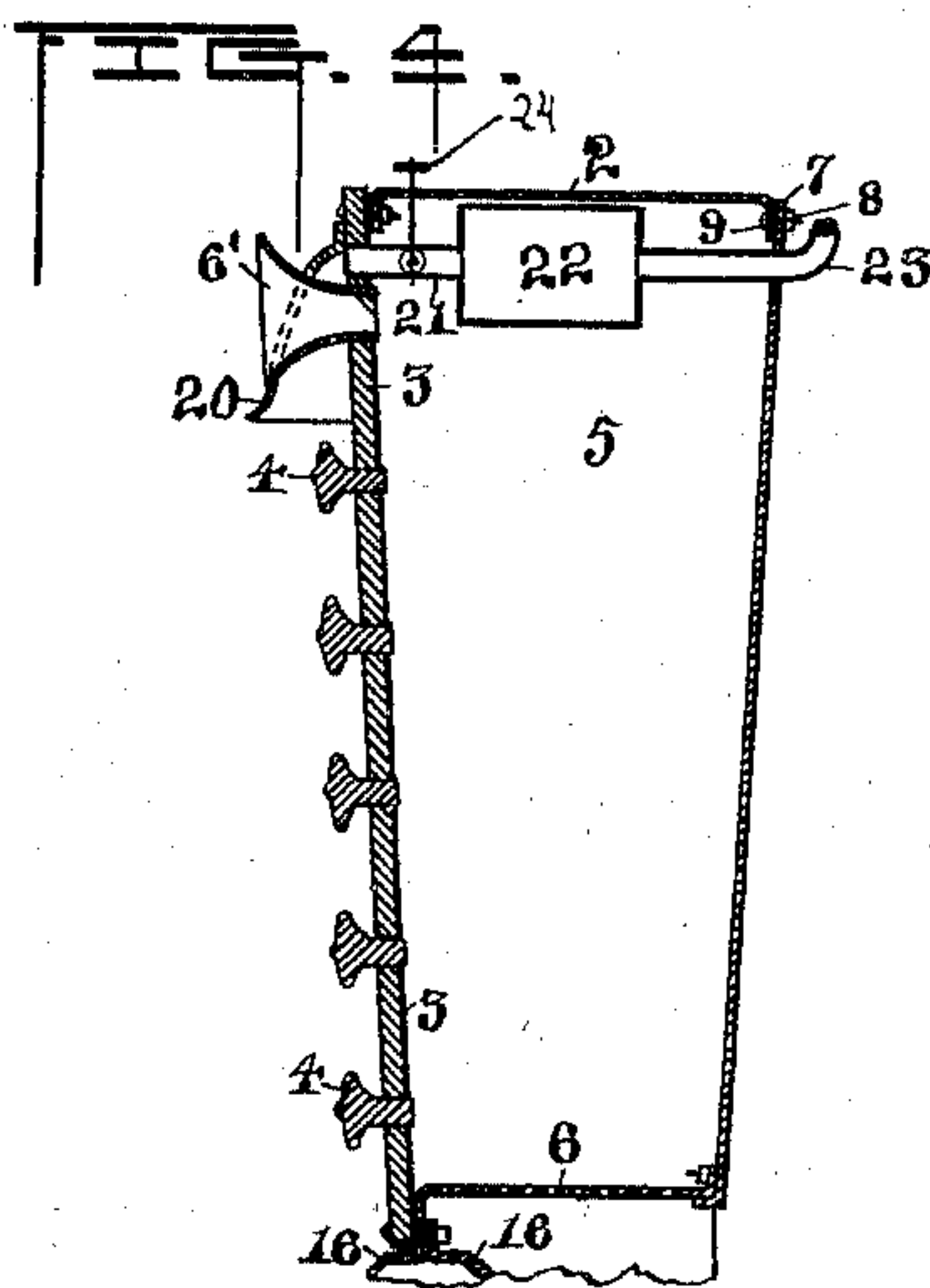
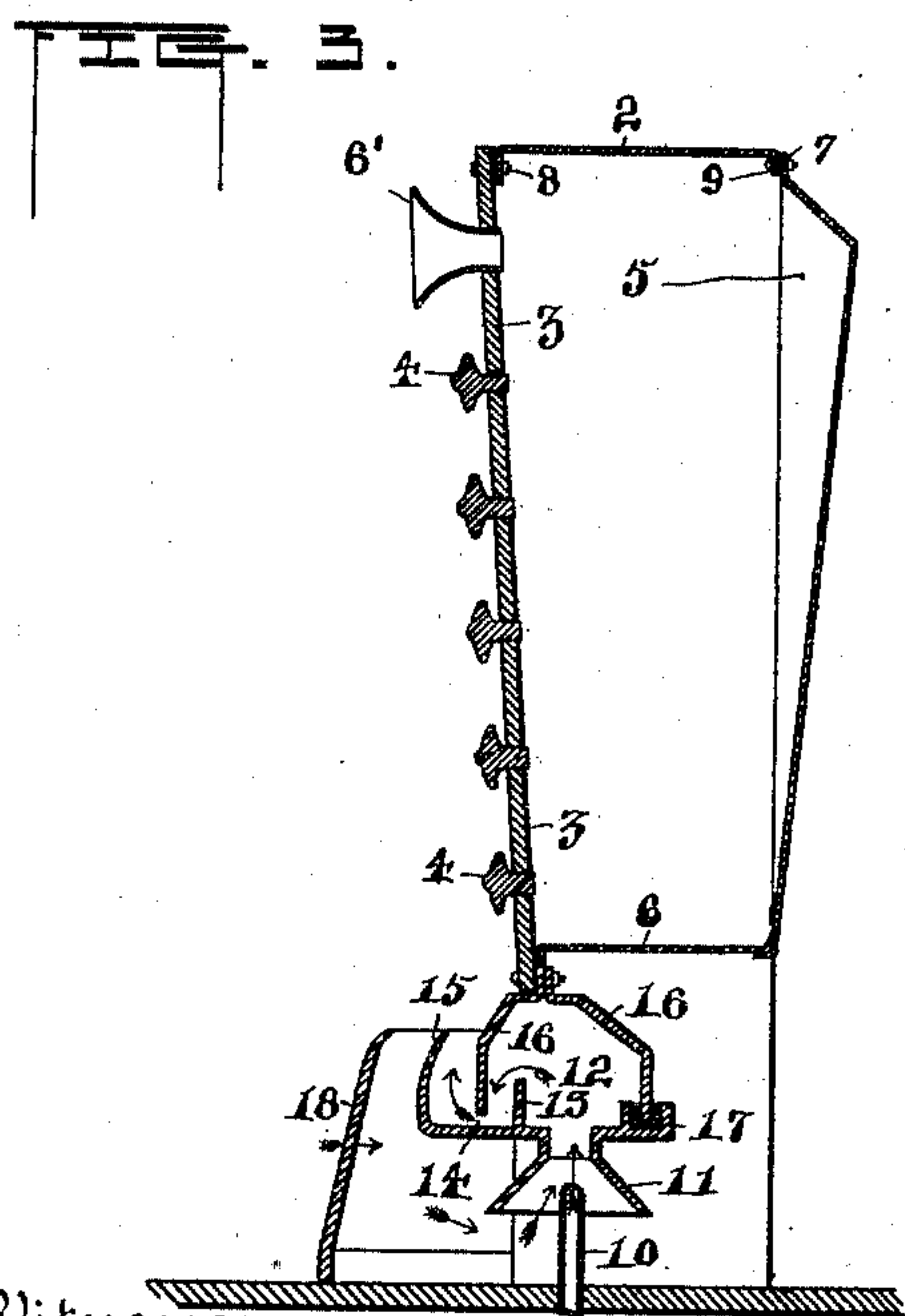
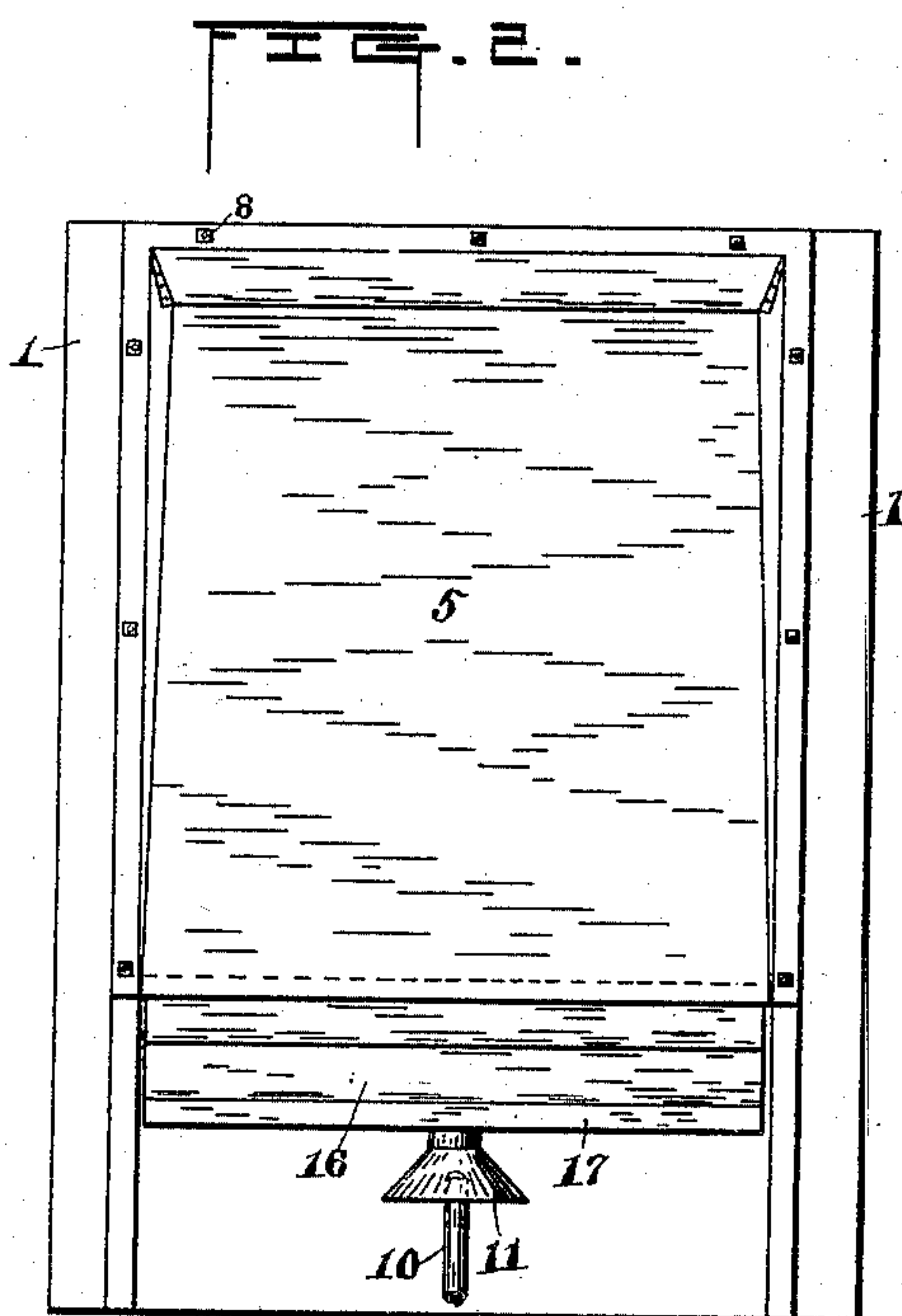
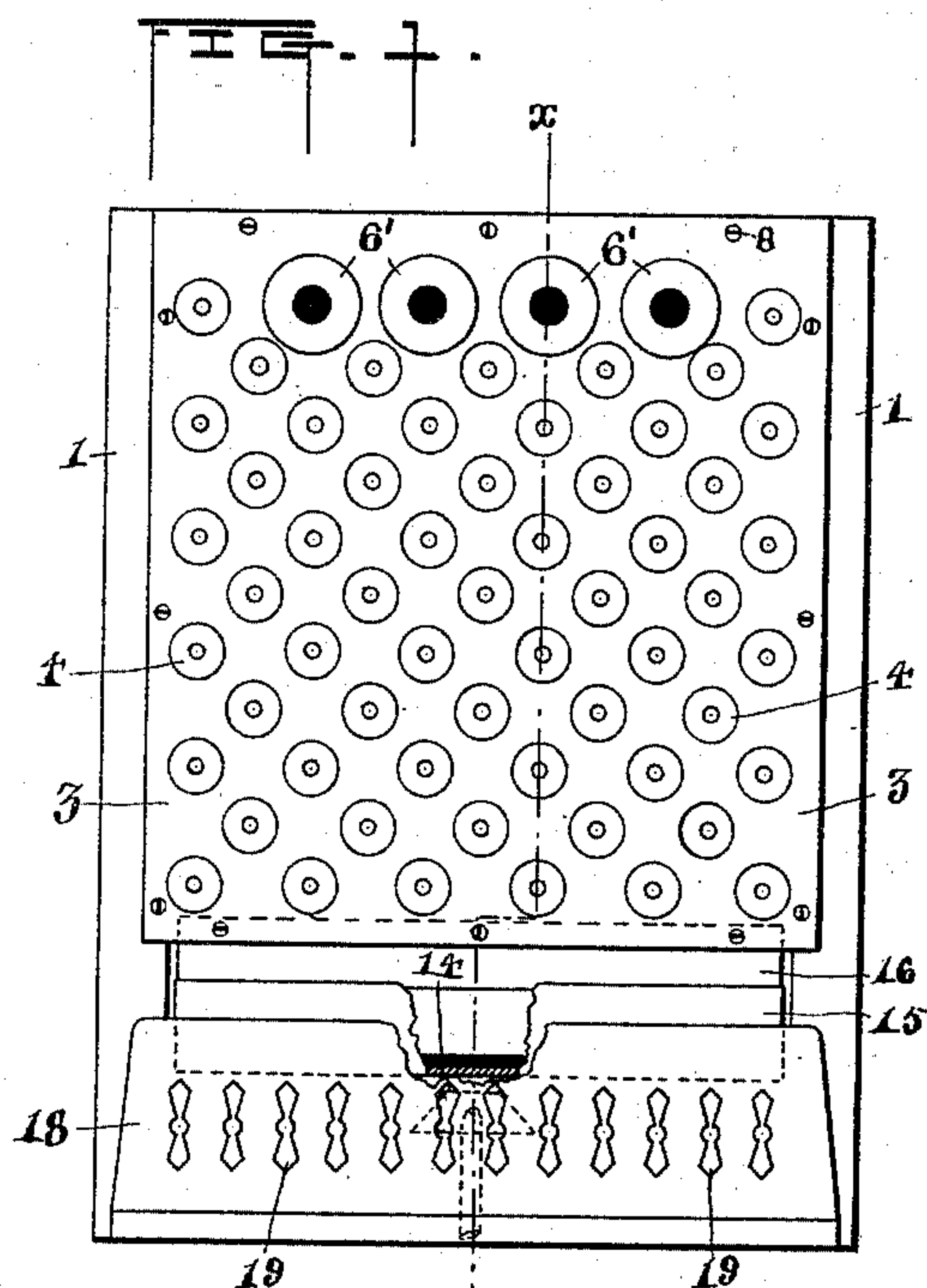


(No Model.)

E. BOURNE.
GAS STOVE.

No. 448,747.

Patented Mar. 24, 1891.



Witnesses
Arch. M. Catlin.
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UNITED STATES PATENT OFFICE.

EDWARD BOURNE, OF ALLEGHENY, PENNSYLVANIA.

GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 448,747, dated March 24, 1891.

Application filed September 30, 1890. Serial No. 366,680. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BOURNE, a resident of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The object of the invention is to provide an economical gas-burning and air-heating stove adapted for quickly warming a room; and it consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawings, Figure 1 is a front elevation. Fig. 2 is a rear elevation. Fig. 3 is a section on line *xx* of Fig. 1, and Fig. 4 is a modification shown in section.

Numerals 1 1 indicate the side pieces or plates of a frame, and 2 the top connecting-plate.

3 is a front plate studded with buttons 4, of refractory material, which may, if desired, be made in ornamental forms.

5 is a box or case joined to the rear of the frame and together with it inclosing an air space or chamber. It has a perforated bottom 6, and its interior communicates with the trumpet-shaped outlets 6', fixed in the front plate 3.

The frame may be made of metal, soap-stone, porcelain, or other suitable material, and ornamented as desired, and can be joined to the box 5 in any convenient manner. For example, the box may be made of sheet metal and provided with an outwardly-turned flange 7, which can be held to the frame by screws or bolts 8, passing through similar flanges 9 on the frame.

Instead of making the frame and air-box separate and joining them, as described, they may be cast together with the front plate. The side pieces of the frame by preference are extended below the air-chamber sufficiently to constitute legs or supports for the structure, and between their feet is arranged a gas-supply pipe 10.

11 is a wide-mouthed air-injecting tube surrounding the gas-pipe, and 12 is a gas and air mixing chamber, preferably extending the whole distance between the side plates 1 1.

It is provided with a baffle-plate 13 and has a very narrow outlet 14, which extends in the present instance the whole length of the air-mixing chamber.

15 is an exterior deflecting plate or flange that directs air and gas upwardly and toward the radiating front plate.

The air and gas mixing chamber is formed of two suitably-shaped plates 16 16, bolted to the foot of the front plate 3 and seated in a base-plate 17. As shown, the rear plate 16 has a sand-joint connection with the base-plate 17. The sand, however, can be omitted and gas burned upon both sides of the air and gas mixing chamber. The walls of the mixing-chamber can be cast in one piece, if desired, and the base-plate and air-induction tube also. The attachment of the plates 16, which cover the mixing-chamber, to the front plate 3 gives said chamber a suitable location and also contributes to the convenient portability of the stove. It also provides for the conduction of heat from the bottom of the front plate to the mixing-chamber—a very important function in stoves designed for burning natural gases—and the deflecting-plate 15 directs the burning gas along the outer plate 16 and against the foot of the radiating-plate, the construction being well adapted to utilize a part of the heat, which is great at this point, to heat said mixing-chamber. The base-plate 17, being properly located under the plate 16 and having baffle and deflecting plates, constitutes, together with said plate 16 and with proper air and gas inlets, a very simple and efficient burner.

18 denotes a fender provided with air-inlets 19. Gas being supplied through the pipe 10, air is induced through the air-inlets in large quantity and a part of it is drawn up into chamber 12 and there commingled with the gas. The mixture of air and gas escapes from the burner at 14, where it is ignited and directed up along the face or front plate 3, which, to secure the best results, is inclined forwardly and overhangs the burner indicated. The burning gas heats the front plate and buttons, and these radiate heat to the front. The back of the plate and the rearwardly-protruding stems of the buttons also heat the air passing through the air-chamber 5. Sufficient air for maintaining a circula-

tion through said chamber and the exits 6' will be drawn in through the perforated fender 18; but, if preferred, air can be supplied both to the burner and the air-heating chamber by other means, as is well understood.

The above-described gas-stove is adapted to fully utilize the entire heating capacity of the gas and to quickly warm a room. As no chimney is used, the products of combustion remain in the room where the device is located and, mingling with the air discharged from the air-chamber, rise to the ceiling, thus tending to prevent that part of the air which is warmed by radiation from rising as rapidly as otherwise. The products of a comparatively small amount of gas being highly heated will rise at once and will not become speedily diffused. They will not, therefore, be specially objectionable, and certainly not in a room to be temporarily occupied, since the comparatively small and slow deterioration of the air will be compensated for by the more rapid heating, and, when necessary, ventilation can of course be resorted to. It will be understood, therefore, that my heater is adapted for rapidly warming rooms—for example, for warming a bed-room in the morning or a dining-room or for temporarily heating other rooms.

In Fig. 4 is shown a modification whereby the products of combustion can be conducted away. 20 is a hood into which the products ascend, and 21 is an exit-pipe leading to a drum 22, which is provided with a pipe 23, leading to a suitable point of discharge—as, for example, a chimney. 24 is a damper, which when closed compels all the products to remain in the room to be heated. No fireplace is necessary for the heater. In case the modified form is used, the exit-pipe can extend to a greater or less distance to a convenient and suitable point of discharge in a chimney or stove-pipe. It will be noted that in the modification the air-box is bolted directly to the front plate; but this variation is immaterial.

The stove can be placed wherever desired in a room, and unless the modified form be used it can be located without reference to chimneys or flues. The inflowing air and gas keep the extreme base of the stove cool and also the back, the main part of the heat being radiated to the front.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. In a gas-stove, the combination of the frame and overhanging front radiating-plate inclosing an air-heating chamber, said plate having the gas-burner located at the foot thereof and having a burner-slit extending about the whole width of the plate, said front plate being provided with exits for warm air near its top and with radiating stems extending into the air-heating chamber, whereby heat is conducted through the front plate to the air-heating chamber, substantially as set forth.

2. In a gas-stove, the frame and front plate inclosing the air-heating chamber, a gas-burner having the plate 16 attached to the foot of said front plate, an exit below the same, and a deflecting-plate 15, arranged in front of the front plate and directed toward the same, all combined for the purpose set forth.

3. In a portable gas-stove, the frame provided with an overhanging front plate and having its sides extending downwardly below said plate to constitute supporting-legs, a burner having plate 16 attached to the foot of the front plate and a deflector 15 directed toward the same, and a perforated fender in front of the deflecting-plate, substantially as set forth.

4. In a gas-stove, a radiating front plate, a gas-inlet pipe and a burner located at the foot of said plate, a hood near the top of the same, a frame, said frame and plate inclosing an air-heating chamber, an exit-pipe extending from below the point of attachment of the hood through the air-chamber, said chamber having a perforated bottom, and outlet-pipes 6', extending through the hood and being in communication with the space about the gas-exit pipe 23, substantially as set forth.

5. In a gas-stove, a radiating front plate, a gas-inlet pipe, a burner located at the foot of said plate, a hood near the top of the same, a frame, said frame and plate inclosing an air-heating chamber, and air-outlet pipes 6', extending through the hood and communicating with the air-chamber, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWARD BOURNE.

Witnesses:

ROBT. C. MOORE,
W. J. TROTH.