(No Model.)

3 Sheets—Sheet 1.

M. C. ARMOUR.

STOVE.

No. 264,994. Patented Sept. 26, 1882

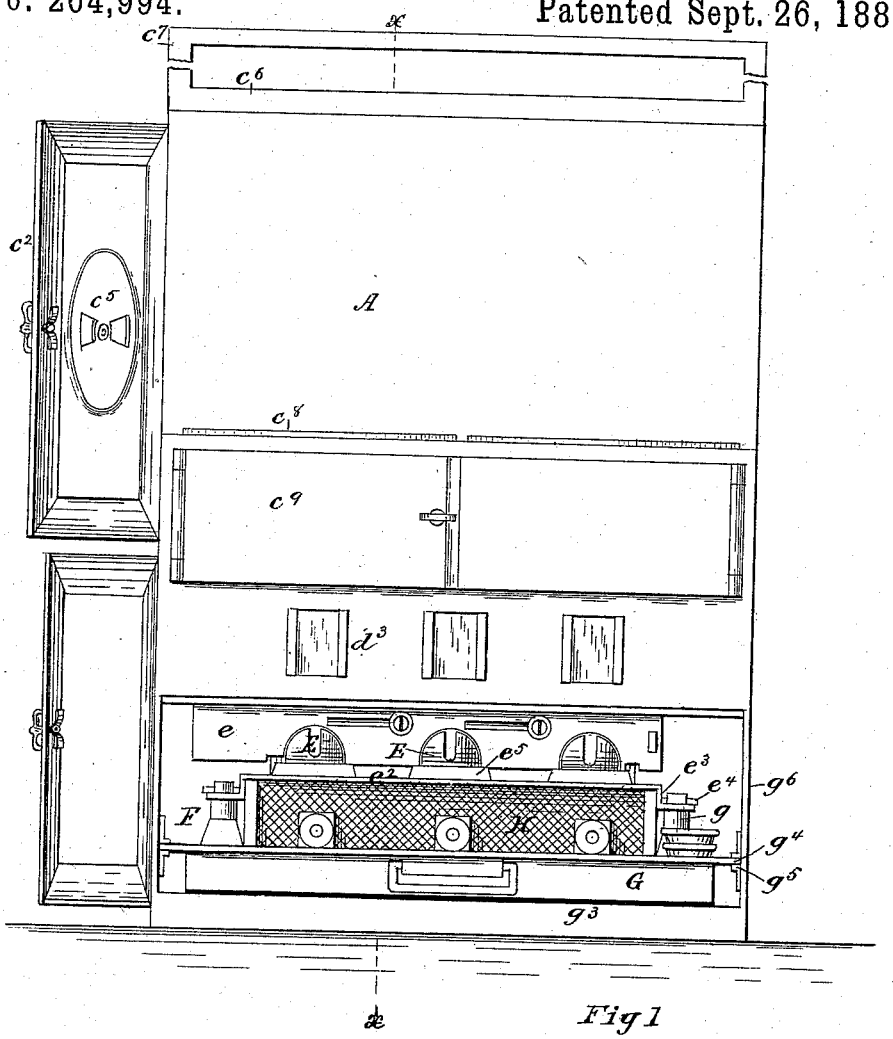

Fig 1

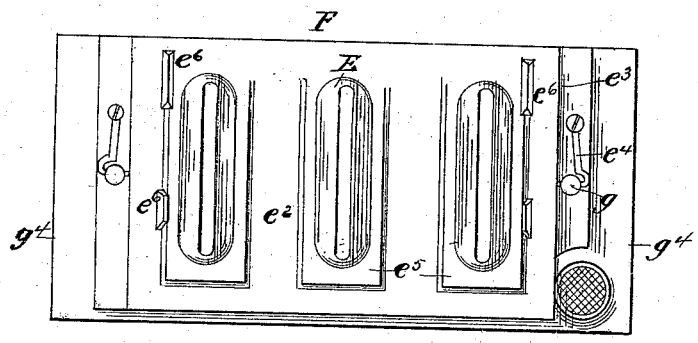

Fig 2

Witnesses
W. C. Collier
Jno. C. MacGregor.

Inventor
Michael C. Armour
By Coburn & Thacher
Attorneys

(No Model.)

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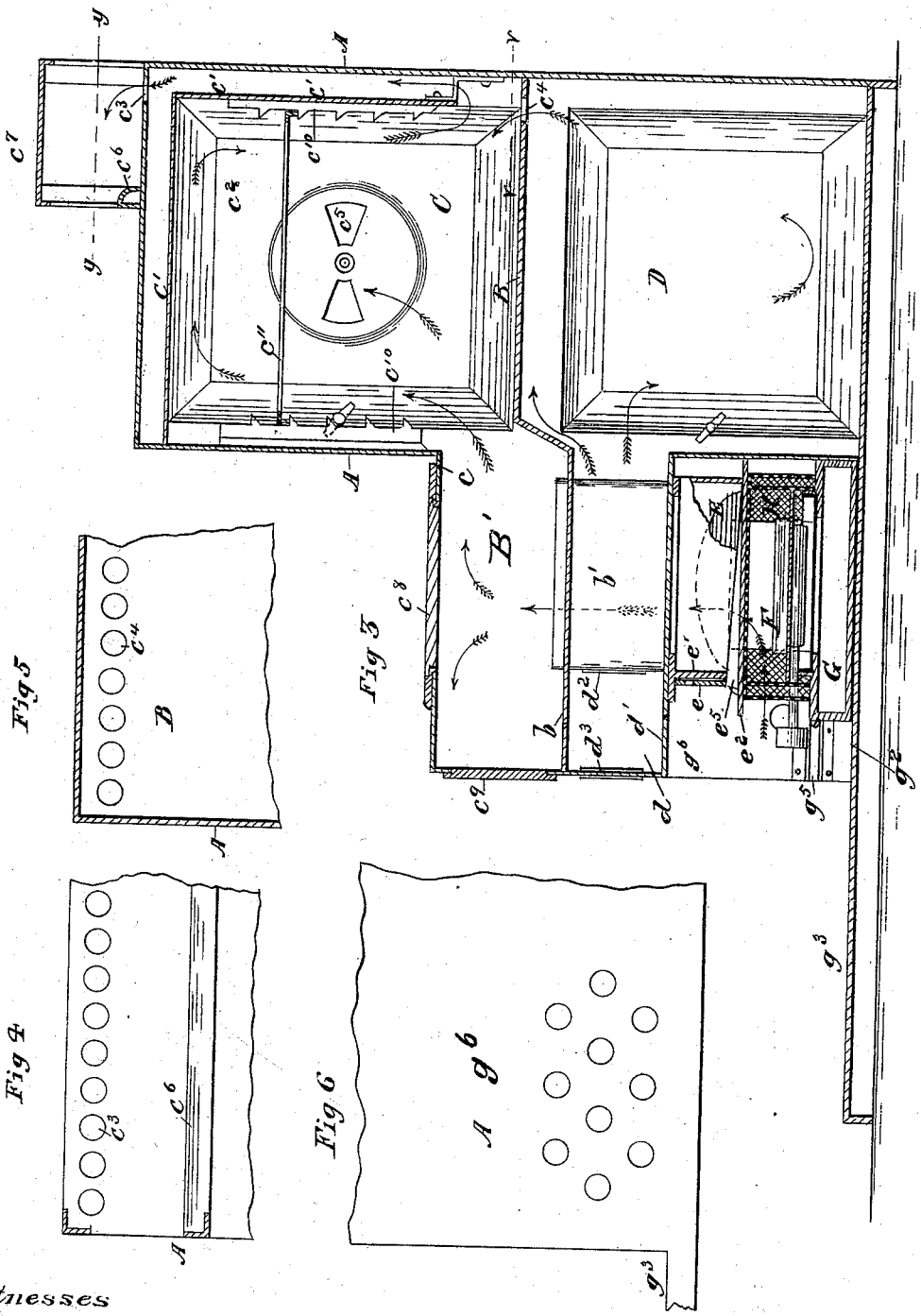

Witnesses

W. C. Collies

Jno. A. MacGregor

Inventor

Michael C. Armour

By Coburn & Thacher

Attorneys

(No Model.)

3 Sheets—Sheet 3.

M. C. ARMOUR.

STOVE.

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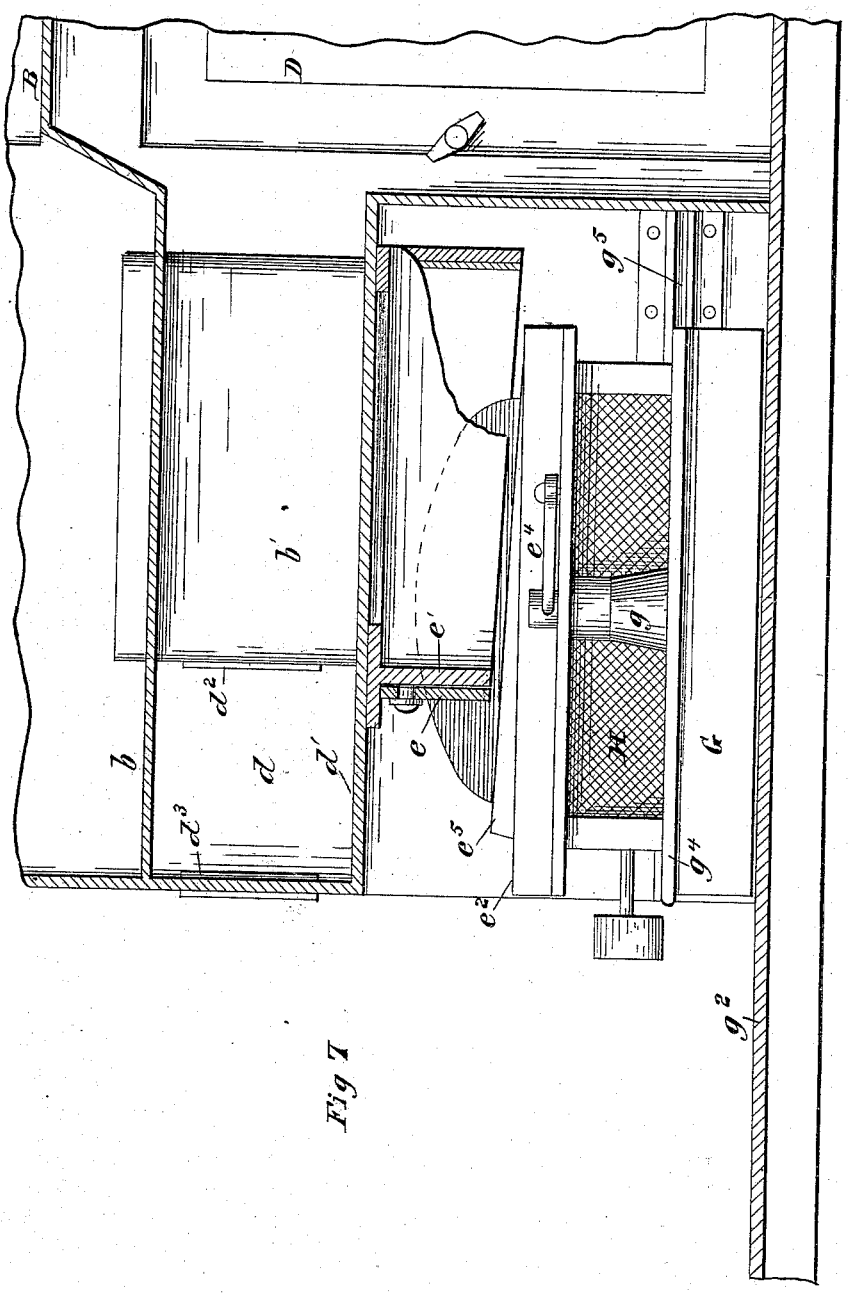

Fig 1

Witnesses
W. C. Corliss
Geo. R. Cutler.

Inventor
Michael C Armour
By Coburn & Thacher
Attorneys

UNITED STATES PATENT OFFICE.

MICHAEL C. ARMOUR, OF CHICAGO, ILLINOIS.

STOVE.

SPECIFICATION forming part of Letters Patent No. 264,994, dated September 26, 1882.

Application filed October 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL C. ARMOUR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Stoves, which are set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a stove embodying my improvements; Fig. 2, a plan view of the lamp by means of which the stove is heated; Fig. 3, a longitudinal section of the stove, taken on the line *x x*, Fig. 1; Fig. 4, a section of the same, taken on the line *y y*, Fig. 3; Fig. 5, a section of the same, taken on the line *v v*, Fig. 3; Fig. 6, a detail view of one of the sides of the lamp-chamber. Fig. 7 is a vertical detail section of the lower front part of the stove on an enlarged scale, with the lamp partially removed from under the chimneys.

My invention relates to stoves in which oil or gas is the fuel used.

My invention consists, first, of means for obtaining facility or facility and security in the adjustment of the lamp to its place in the stove; and, second, of means for utilizing the hot current of the products of combustion by external and internal radiation as well as by direct contact.

In the drawings, A represents a stove embodying my improvements. B is a diaphragm completely separating the main oven C from the warming-oven D, and, in fact, dividing the whole stove into two parts. This diaphragm B is preferably higher where it forms the bottom of the oven C than it is around the tops of the chimneys *b'*, and this is for the purpose of bringing the oven-bottom up to about the level at which the drafts are deflected to a comparatively horizontal direction after leaving said chimneys. The front part, *b*, of this diaphragm has openings which enable it to fit around the chimneys *b'* near their tops. The front part of this diaphragm, or rather the level of the tops of the chimneys *b'*, is preferably lower than the back part of said diaphragm in order to secure the intimate contiguity of the combustion-current with the diaphragm B for the purpose of heating the floor of the oven C. The front wall of the upper oven, C, comes down only far enough to meet the top *c* of the stove, thus admitting of the passage of the products of combustion directly into this oven, while the front wall of the lower or warming oven, D, comes up only far enough to meet the floor *d'* of the radiating-chamber *d*, which floor *d'* has openings to enable it to fit around the chimneys *b'* near their bottoms. By the above construction the diaphragm B acts as a conductor to communicate heat from the walls of the hot chimneys *b'* to the vessels resting on said diaphragm in the oven C, and the air in the lower oven, D, heated as hereinafter specified, and contiguous to the said diaphragm, where it forms the bottom of the oven C, also assists in heating these vessels.

The front part of the stove between the top *c* and that part of the diaphragm designated *b* forms a chamber, B', which being separate from the oven C and extending not much above the bottom of said oven, I am enabled to locate a cooking-stove top, *c*, directly over the chimneys *b'*, while at the same time the oven C is provided with an ascending as well as a descending current.

The sides of the chimneys *b'* depend below the floor *d'* of the radiating-chamber to inclose the cones E, the front sides of the depending parts of the chimneys being cut open enough to admit of the insertion of the cones when the lamp F is shoved into place from in front. A damper, *e*, sliding on a plate, *e'*, depending from the floor *d'*, and fitted close against the depending parts of the chimneys *b'*, serves to close these openings in the front sides of the depending parts of chimneys *b'* when the lamp has been shoved into place from in front. The chimneys *b'* terminate in a plane slightly inclining from a level downward and backward. They thus fit closely on the tops of ridges e^5, which rise on each side of and in front of each cone E, and the tops of which are in a plane parallel to that just mentioned. The ridges e^6 are guides, the object of which is mentioned hereinafter. The cones E are cast in one piece with a cone-plate, e^2, each end of which is depressed and terminates in a step, e^3. Each of these steps has a perforation to enable it to fit around a post, *g*, rising from the reservoir G. Each of these posts *g* has a hole extending through it from side to side, just above the step e^3, for the insertion therein of the end of a hook, e^4, pivoted so as to swing horizontally, the hook thus serving as a pin to hold the

cone-plate down on the air-box H, on which it rests, while the posts g prevent horizontal motion of said cone-plate. The air-box H rests on reservoir G, which itself rests directly on the floor g^2 of the lamp-chamber, which floor is extended in a hearth, g^3, to form a continuous bearing for the lamp F when removed from under the chimneys b'. The top of the reservoir G is extended on each side in flanges g^4, each of which slides in a pair of guides, g^5, secured to one of the side walls, g^6, of the lamp-chamber. The two lower of these guides g^5 may be used as supports for the lamp when there is no floor beneath it, or none high enough for this purpose. Each of these side walls, g^6, is perforated, as shown in Fig. 6, to provide free access for air to the air-box.

The upper oven, C, is provided with an inner wall or casing, c', preferably of sheet metal or other heat-conducting material, which casing is coextensive with its top and nearly so with its back, terminating opposite the latter a short distance from its bottom. This wall c' fits closely against the two sides of the oven, the side where the door c^2 is hung being not cut away to such an extent as to prevent this. The outer wall of the top of the oven C has a series of perforations, c^3, as shown in Fig. 4, over the passage between the inner and outer back walls. At the back of the diaphragm B is a similar series of openings, c^4, as shown in Fig. 5. The object of these openings c^4 is to create a current out of the oven D, which will draw the heated air from around the chimneys b' into the oven and under the floor of the oven C. The door c^2 has a damper, c^5, which is opened when closing the door to prevent the lamps from smoking in consequence of a sudden closing of said door, and the diversion thereby of the draft from the door-aperture to its normal exit behind the casing c'.

On the top of the stove, over the oven C and near its back, but in front of the perforations c^3, is a ridge, c^6, to prevent dishes which it may be desired to keep warm on the top of the oven C from accidentally closing the perforations or holes c^3; and over the entire back part of the top of the oven C is supported on standards a skeleton shelf, c^7, above the perforations c^3, on which rack dishes may be set which it is desired to keep warm.

In the top c are vessel-openings, which are closed by covers c^8. In the front of the stove, just below the top c, is an opening provided with suitable doors, c^9, through which opening a broiling or toasting utensil may be inserted, thus bringing its contents closely and directly over the chimneys b'. That part of the front of each of the chimneys b' which is within the radiating-chamber d is provided with a mica window, d^2, and a similar window, d^3, is placed in the front of the stove opposite each of the first-named windows, these windows serving to enable the operator to observe the conditions of combustion, as well as to emit a pleasant light. The oven C is provided with racks c^{10} and a sliding skeleton shelf, c^{11}, of ordinary construction.

The operation of my invention is as follows: By reason of the inclination of the ridges c^5 and the corresponding inclination of the bottoms of the chimneys b' the lamp F slides into place without binding between the chimney-bottoms and the floor g^2 of the lamp-chamber, although I prefer to make the lamp of such a relative height that when it is shoved to its normal position it is wedged in between the chimney-bottoms and the floor g^2 of the lamp-chamber. The hooks e^4 check any tendency of the cone-plate e^2 to warp, and the depression of the end of the cone-plate makes possible the use of a post which can without difficulty be made short enough to slide under the damper e or any other parts of a stove immediately above the lamp, which might otherwise prove obstructions to the entrance of the lamp. The products of combustion pass from the burners up through the chimneys b' against the top c (which top, to be used for cooking, must of course be made of heat-conducting material, or at least made removable by means of vessel-openings, in order that the heat-conducting or skeleton bottom of a cooking utensil may alone be interposed between the hot current and the contents of the cooking utensil) and over into the main oven, thence upward, backward, and downward, permeating all parts of the oven C, finally entering the lower opening of the flue, which is formed by the inner wall c', in connection with the outer wall of the oven C. Thence the hot current ascends, protecting its inner wall from contact with cool air, and finally escaping through the perforations c^3. By constructing the oven through which the combustion-current passes above the level of the tops of the chimneys, or in case no chimneys are used, as in a gas-stove, above the tops of the burners, the front and bottom of said oven, as well as other parts thereof, are permeated and heated by said current. The air which is heated by radiation from the chimneys b' and other parts of the stove near the flame pervades the oven D, heating the floor of the oven C, and passes up through the openings c^4 into the oven C, air being supplied to the warming-chamber (constituted by the radiating-chamber d and the oven D) by leakage through the floor d' around the chimneys b', and also between the door of the oven D and its casing. Of course good results may be obtained by making the oven D substantially, so far as drafts are concerned, an ordinary oven. The courses of all these currents are shown by arrows in the drawings.

A combustion-current oven of the above construction will cook the top, bottom, and sides of the meat, &c., placed therein, the top and front side being heated by exposure to the combustion-current, the bottom by the same means or by the floor of the oven, and the back side by the double wall, through its positive and negative operation explained above,

as well as by direct exposure to the combustion-current.

It is obvious from the above that a single combustion-current can be made to impart heat not only to cook food placed on the top *c*, but also to cook food placed in the oven C and heat what is placed in the oven D. The guides e^6 are to guide the cones or burners under their chimneys when the lamp is being shoved into the lamp-chamber, and the flanges g^4, by making the top of the reservoir G coextensive with the lamp-chamber, are an alternate device for the same purpose. The other functions of my invention have either been sufficiently noted in the above description or are too obvious to require special mention.

I am aware that stoves have been constructed in which the chamber surrounding the burners opens upwardly at the back through the front part of an oven-floor, the products of combustion having a downward outlet at the back of the oven; but I believe I am the first to arrange a chamber directly over the burners, which receives their heat through apertures in its floor closely surrounding the chimneys, which is closed at the top and in front, and which opens at the rear for virtually its full height into the lower part and through the front wall of an oven, this oven opening at its lower back part into an upward passage to the outer air, so that the chamber virtually constitutes a horizontal flue, by means of which, in combination with the upward outlet at the back of the oven, the products of combustion are directed across the lower part of the latter, combining the advantage of a perfect draft for the flame with that of heating the lower part of the oven.

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

1. An oil or gas stove provided with a cone-plate the ends of which are depressed and terminate in steps, in combination with posts rising from the body of the lamp and penetrating perforations in said steps, substantially as and for the purpose set forth.

2. An oil or gas stove the lamp of which is provided with perforated posts, a cone-plate having ends which are perforated, and hooks for securing said cone-plate down in its place, all arranged, combined, and operating substantially as set forth.

3. An oil or gas stove provided with lamp-chimneys terminating below in a plane inclining downward and backward, in combination with a lamp-top which has similarly-inclined surfaces corresponding with said chimneys, substantially as and for the purpose set forth.

4. In an oil-stove, the chamber B′, open at the back, and having apertures in its floor to admit the tops of the lamp-chimneys, in combination with the oven C, arranged behind and above it, having in its lower part a front opening conterminous with the rear opening of the chamber, and in its lower back part an opposite opening into an upward passage to the outer air, substantially as and for the purposes described.

5. An oil or gas stove provided with a warming-chamber entirely through which the lamp-chimneys pass, in combination with an oven through which the combustion-current passes, substantially as and for the purpose set forth.

6. An oil or gas stove provided with a warming-chamber entirely through which the lamp-chimneys pass, in combination with a top over the combustion-current and near enough to the burners for cooking, and an oven through which said current passes, substantially as and for the purpose set forth.

7. In an oil or gas stove, one or more burners, the top *c*, of heat-radiating material, and near enough to said burners for cooking, an oven through which the combustion-current from said burners passes, and which is provided with a discharge-orifice in a different location from that of the distributing-point in said oven for said current, and an ordinary oven heated by said burners, all combined and operating substantially as set forth.

8. In an oil or gas stove, one or more burners, the top *c*, having vessel-openings, and near enough to said burners for cooking, an oven through which the combustion-current from said burners passes, and which is provided with a discharge-orifice in a different location from that of the distributing-point in said oven for said current, and an ordinary oven heated by said burners, all combined and operating substantially as set forth.

9. In an oil or gas stove, one or more burners, the top *c*, near enough to the burners for cooking, an oven through which the combustion-current from said burners passes, and which is provided with a discharge-orifice in a different location from that of the distributing-point in said oven for said current, an ordinary oven heated by said burners, and chimneys for said burners radiating directly into said ordinary oven, combined and operating substantially as set forth.

10. In an oil or gas stove, in combination with burners, a combustion-current oven provided with a damper in its door, substantially as and for the purpose set forth.

MICHAEL C. ARMOUR.

Witnesses:
GEO. R. CUTLER,
W. C. CORLIES.