

No. 652,555.

I. BROOKE.
STOVE.

Patented June 26, 1900.

(No Model.)

(Application filed Jan. 31, 1900.)

Fig. 1.

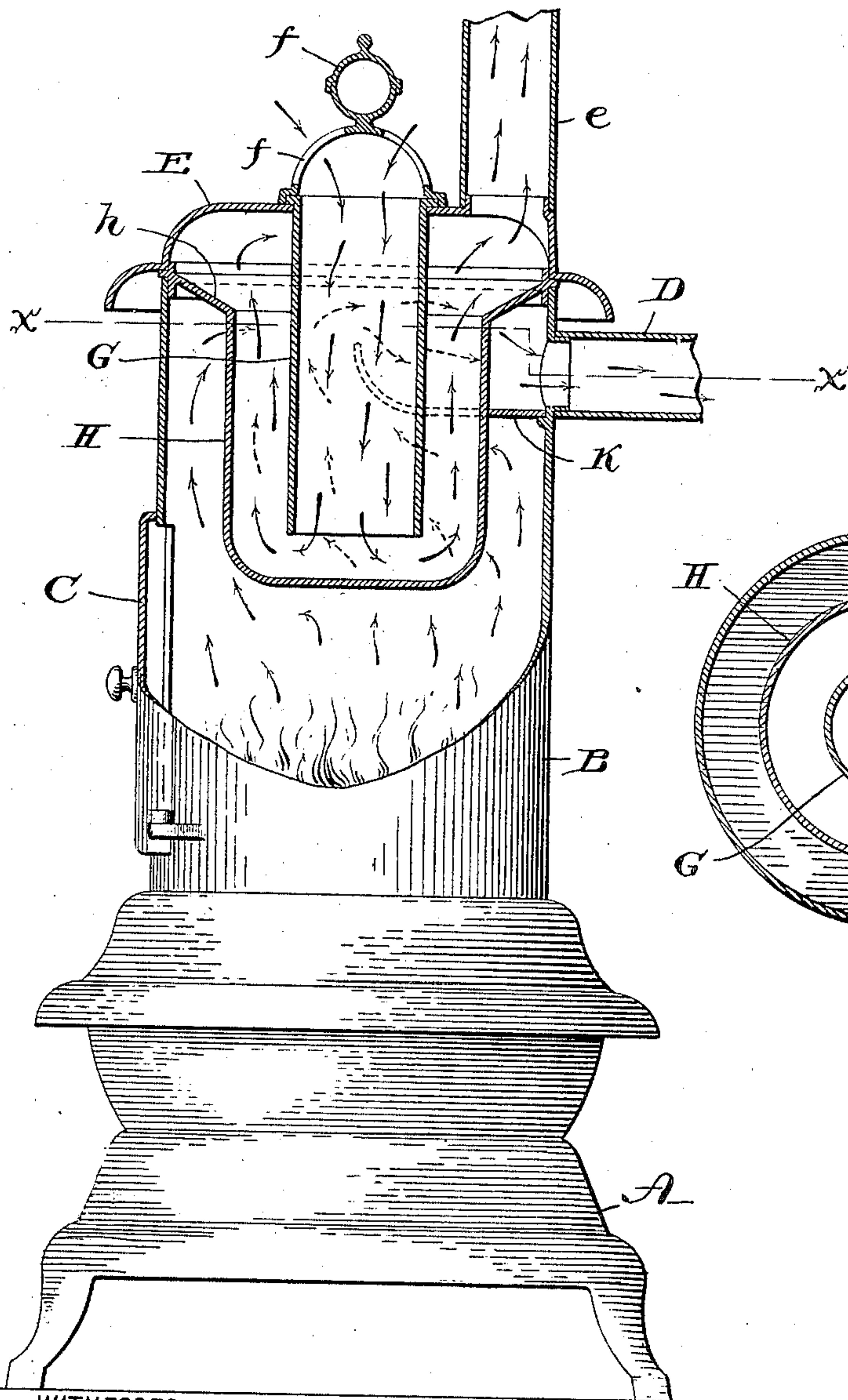
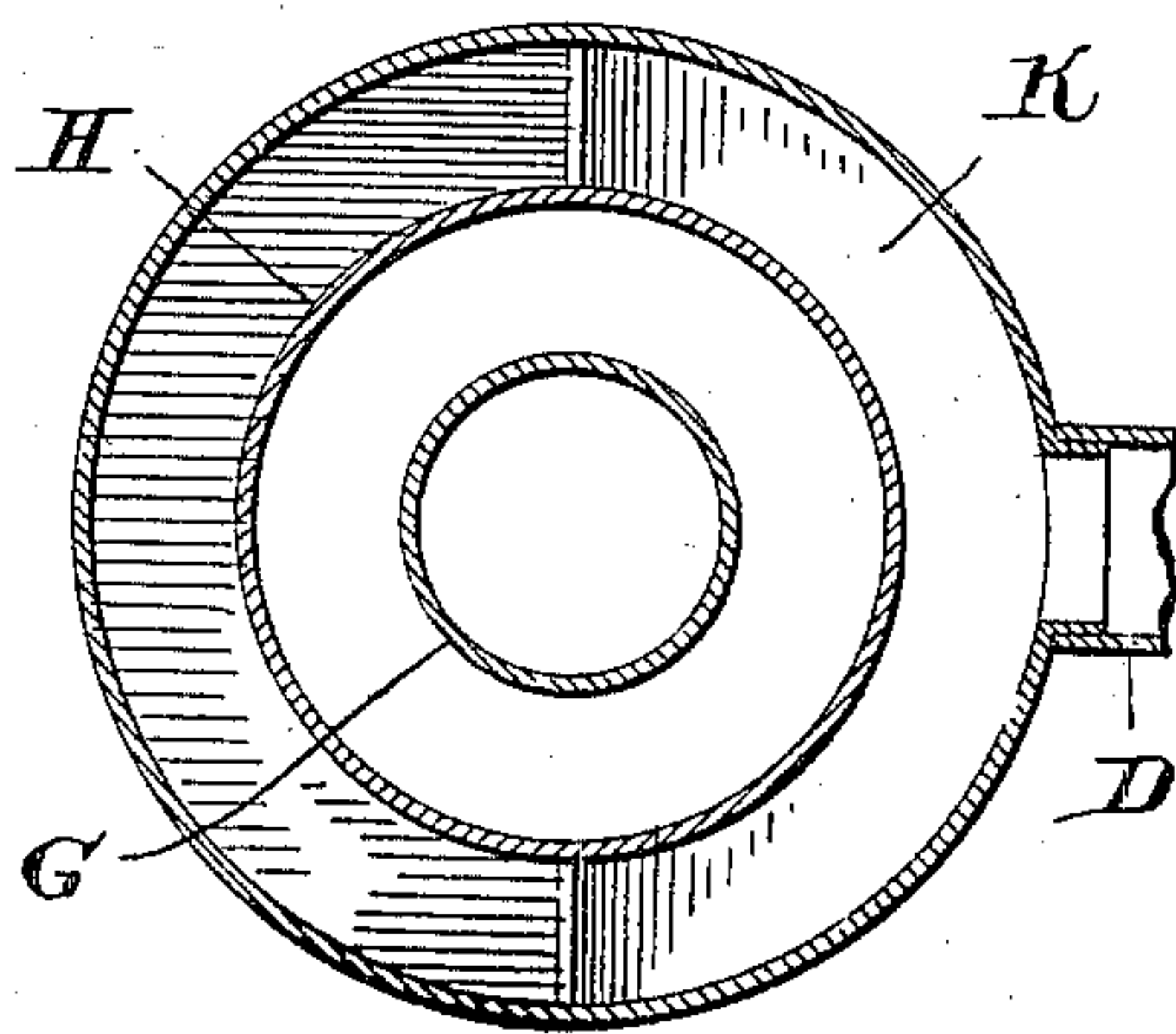


Fig. 2.



WITNESSES:

A. V. Group
C. E. Parker

INVENTOR

Isaac Brooke

BY

H. V. Hudson

ATTORNEY

UNITED STATES PATENT OFFICE.

ISAAC BROOKE, OF POTTSTOWN, PENNSYLVANIA, ASSIGNOR TO FLOYD, WELLS & CO., OF ROYERSFORD, PENNSYLVANIA.

STOVE.

SPECIFICATION forming part of Letters Patent No. 652,555, dated June 26, 1900.

Application filed January 31, 1900. Serial No. 3,389. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BROOKE, a citizen of the United States, residing at Pottstown, Montgomery county, Pennsylvania, have invented certain new and useful Improvements in Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to stoves for heating purposes, and particularly to that class in which an internal radiating-drum directly within the fire-chamber above the fire-box and exposed to the direct heat therefrom is employed.

The objects of my improvements in that class of stoves or furnaces are, first, to secure the maximum extent of heat-radiating surface of such internal heating-drum to be exposed to the flame and hot products of combustion on its way to the smoke-flue, and, second, to provide means whereby the cold air to be heated is caused to enter the radiating-drum directly from the outside atmosphere in the room in a downward direction and without passing through circuitous or heating passages on its way to said drum and immediately upon its entrance therein to cause it to directly impinge upon the hot surfaces of said drum, and then to so guide or direct it therein that it will when so heated naturally flow, as air in a heated state, in an upward direction through a direct passage and against additionally-heating surfaces within the said drum to and through apertures therein leading to the outside atmosphere in which the stove is located or through pipes to contiguous apartments.

To these ends my invention consists of the features hereinafter described in detail as novel and particularly pointed out in the claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a front elevation, partly in section, of a stove constructed according to my invention; and Fig. 2 is a lateral section through the line *x x* of Fig. 1.

In the drawings an ordinary stove-base is represented at A, with superposed ash-chamber and fire-pot, and above the same at B is represented the outer body or casing of the

stove, having a door C, a smoke and draft flue D, a top or covering plate E, provided with a hot-air flue *e* or equivalent openings, and the usual swinging or perforated cover-plate F, covering a central opening in the said cover-plate E. Depending from said central opening last mentioned is a flue-chamber G, open at top and bottom, preferably cylindrical, and establishing communication with the open air through its lower open end, opening into the radiating-drum H, hereinafter described.

Supported within the outer body B of the stove and directly over—that is to say, in line with—the fire-pot, but preferably at such distance above it as to fully clear the door C, is an internal radiating-drum H, preferably in the form of an inverted hat; but its form is not material, provided it be of lesser diameter than the interior of casing B and have flaring walls or flanges *h*, integral or otherwise, by which it may be suspended and secured within the casing B from or near the top thereof and by which flaring edges or flanges *h* all access of smoke or fire to the interior of the drum H is prevented, but, on the contrary, is deflected toward the smoke and draft flue D. In order to deflect the flame and hot products of combustion and cause the same to circulate evenly around all the surface of the drum H within the fire-chamber, I provide a semi-annular plate K, (see Fig. 2,) located between the outer vertical wall of drum H and the inner wall of the fire-chamber or casing B and just below the horizontal plane of the draft-flue D, and, if desired, may be formed with curved end pieces, (indicated by dotted lines in Fig. 1,) tending thereby to further direct the course of the flame products more evenly around the drum H, as indicated by the dotted arrows.

The construction described is novel, simple, and effectual, and its operation is as follows: Naturally-ascending heat and flame from the fire-pot, the direction of which is indicated by the dotted arrows, increases the temperature of the air normally contained in the internal radiating-drum H by impingement against its exposed walls within the fire-chamber, causing said air naturally to ascend and by a direct course find its exit through

the hot-air flue *e* or equivalent perforations in the top *E* of the stove. The vacuum or suction created thereby draws in fresh outside cold air through the perforations *f* in the cover *F*, which descends in a direct course through the central flue-chamber *G* and is delivered thence directly against the base or hottest wall of the internal heating and radiating drum *H*. Thus the circulation of air continues in the course described, and the mechanical parts of the device are so constructed and so arranged relatively to each other, as described, that the fresh cold air, which naturally descends, is led in a downward direction to the heating parts, and the hot air, which naturally ascends, is led directly after heating in an upward direction. No such direct passages for the cold and hot air, respectively, following the natural course of volumes of air of different temperatures, has ever heretofore been provided or the operation described accomplished in hot-air stoves or furnaces of the class referred to.

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

1. In a stove or furnace the combination with the casing *B* forming a fire-chamber, of a closed radiating-drum *H* supported dependingly within said fire-chamber and forming an annular draft-passage between the said parts, a draft-flue *D* leading from the fire-chamber at a point at or near the top of said annular draft-passage, a cold-air flue *G* open at both ends and supported dependingly within said drum through a central opening in the top-cover of the furnace, and a hot-air-

discharge opening at the top of said radiating-drum; said parts being combined, arranged and operating substantially as described. 40

2. The combination with the inclosed fire-chamber of a stove or furnace having a draft-flue at or near its top, of an internal radiating-drum having flaring or flanged upper walls, and supported dependingly in said fire-chamber; of a deflecting-plate between the walls of the fire-chamber and the radiating-drum and below the draft-flue, adapted to deflect the flame and hot gases around the base of the radiating-drum and its vertical walls; and a cold-air-flue chamber open at both ends and supported in a central opening in the top-cover of the stove or furnace and dependingly within the said radiating-drum; substantially as described. 45 50 55

3. The combination with the fire-chamber *B* having an upper draft-flue *D*, of an internal dependingly-supported radiating-drum *H*, with flanged walls *h* adapted to support it within the fire-chamber; and a cold-air flue *G* open at both ends, and supported within the said radiating-drum, one end of said flue *G* communicating directly, through an opening in the top of the stove, with the open air, and the other end leading to near the bottom wall of said radiating-drum; substantially as described. 60 65

In testimony whereof I have hereunto affixed my signature this 26th day of January, A. D. 1900.

ISAAC BROOKE.

Witnesses:

F. ANDERSON,
JOS. L. ELLIOTT.