(No Model.) 2 Sheets—Sheet 1.

J. CONLEY.

BRICK KILN.

No. 491,037. Patented Jan. 31, 1893.

Fig. 3.

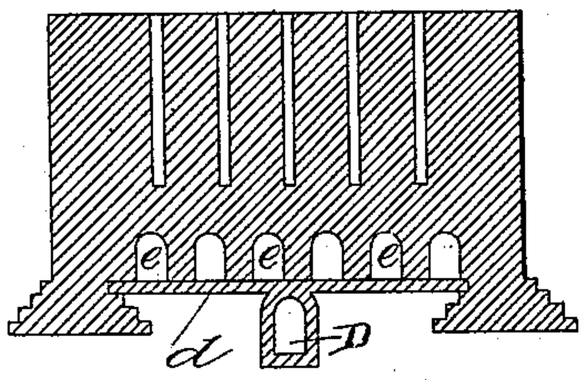


Fig. 4.

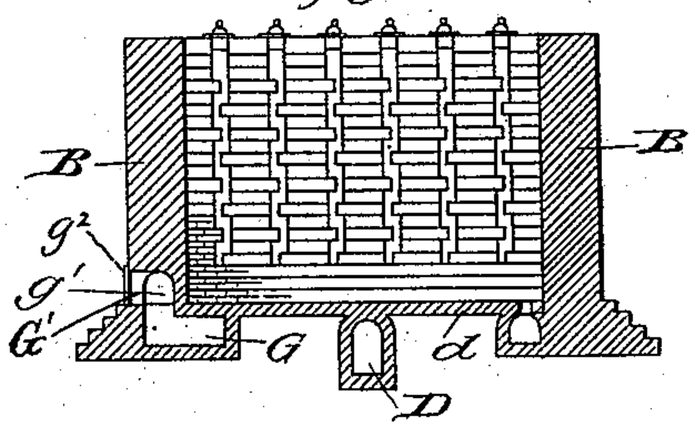


Fig. 2.

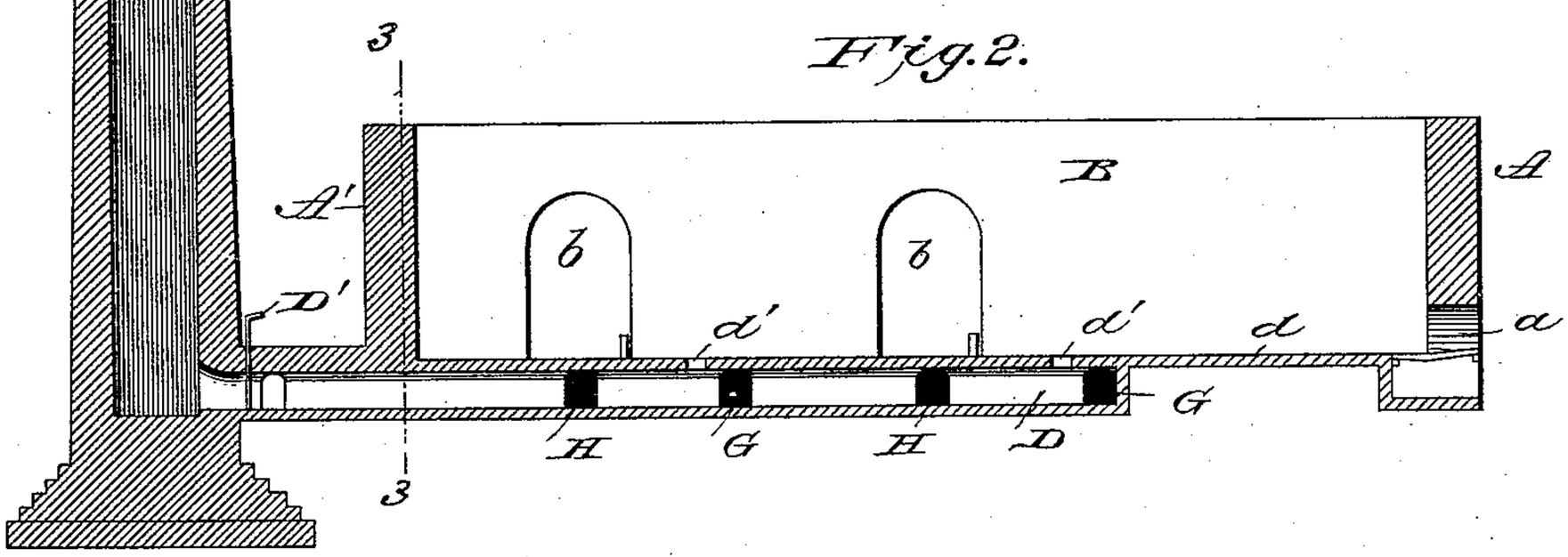
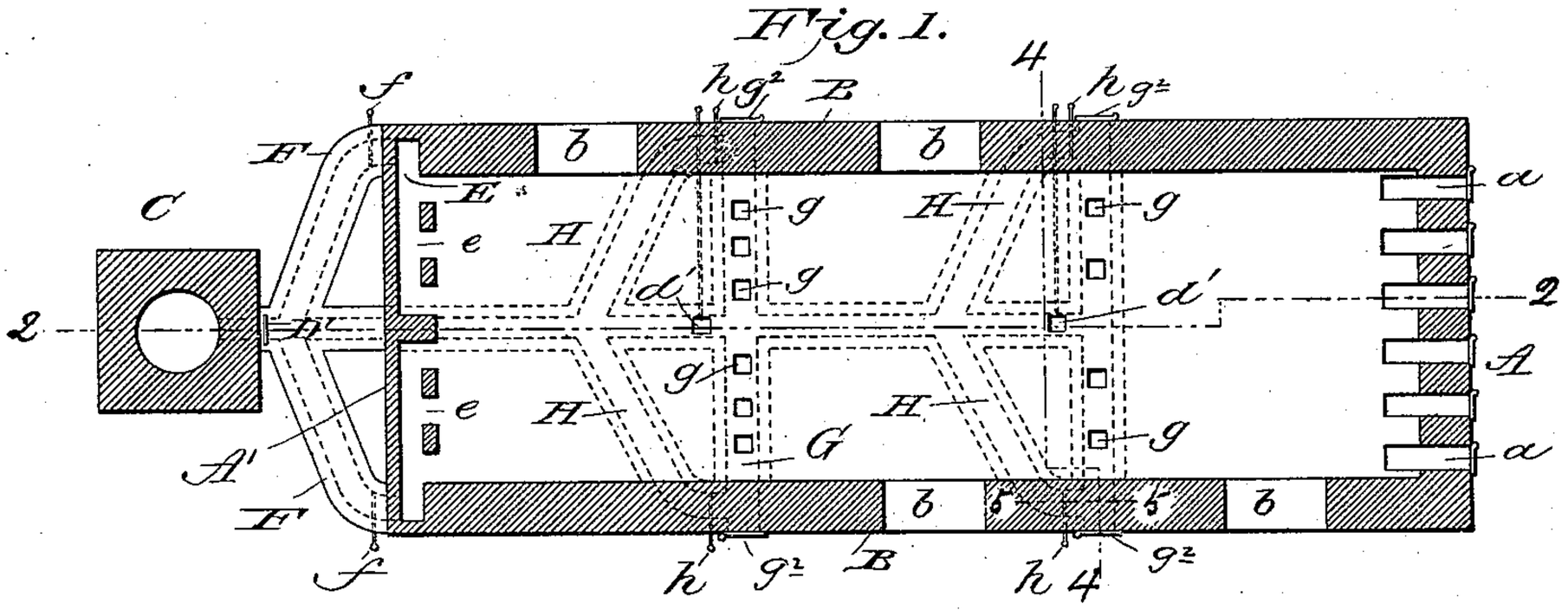


Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

J. CONLEY.

BRICK KILN.

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Fig. 7.

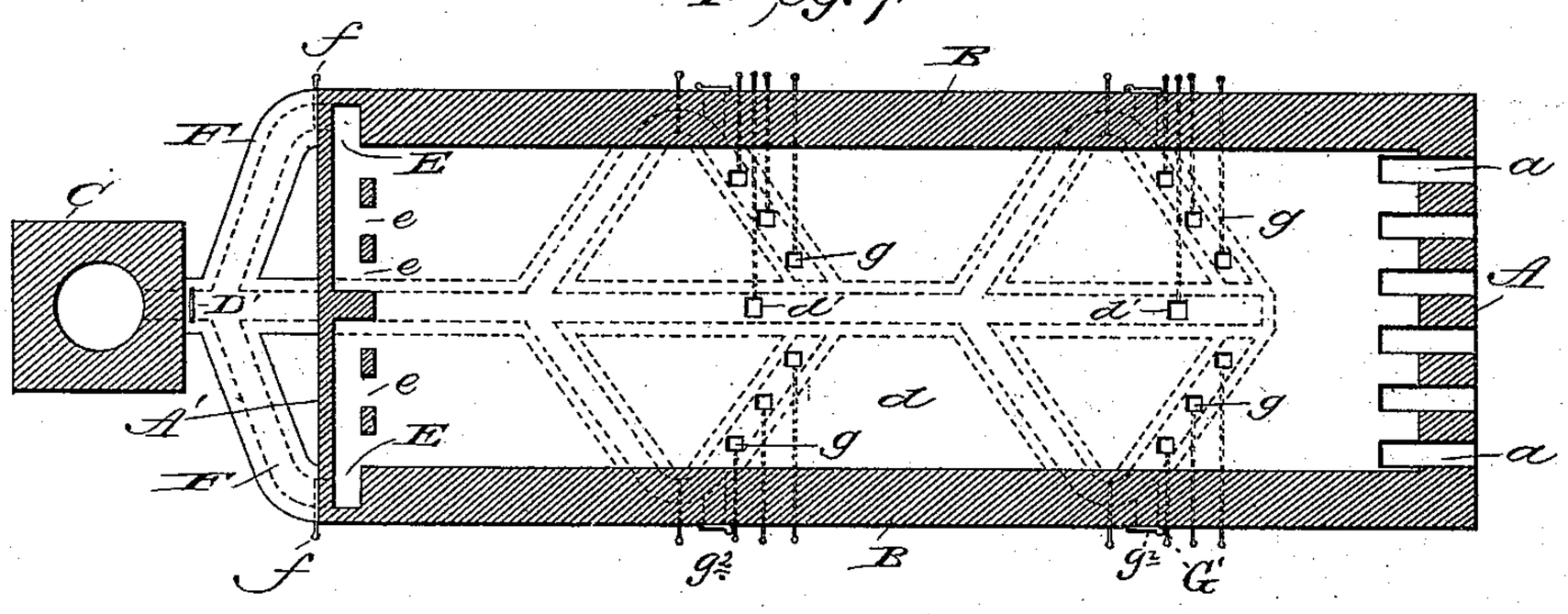


Fig. 5.

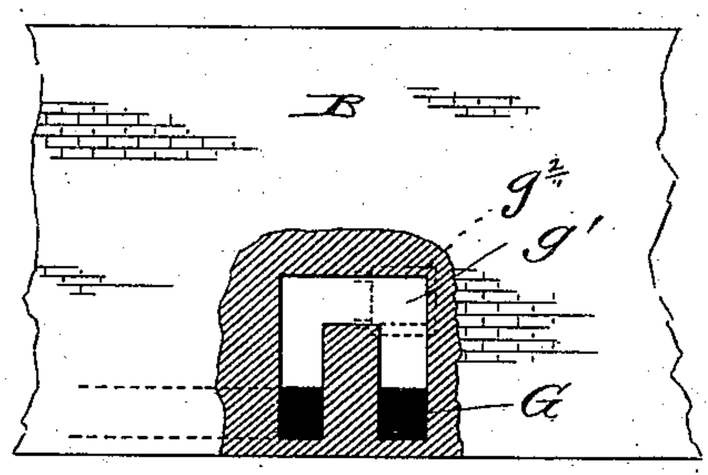
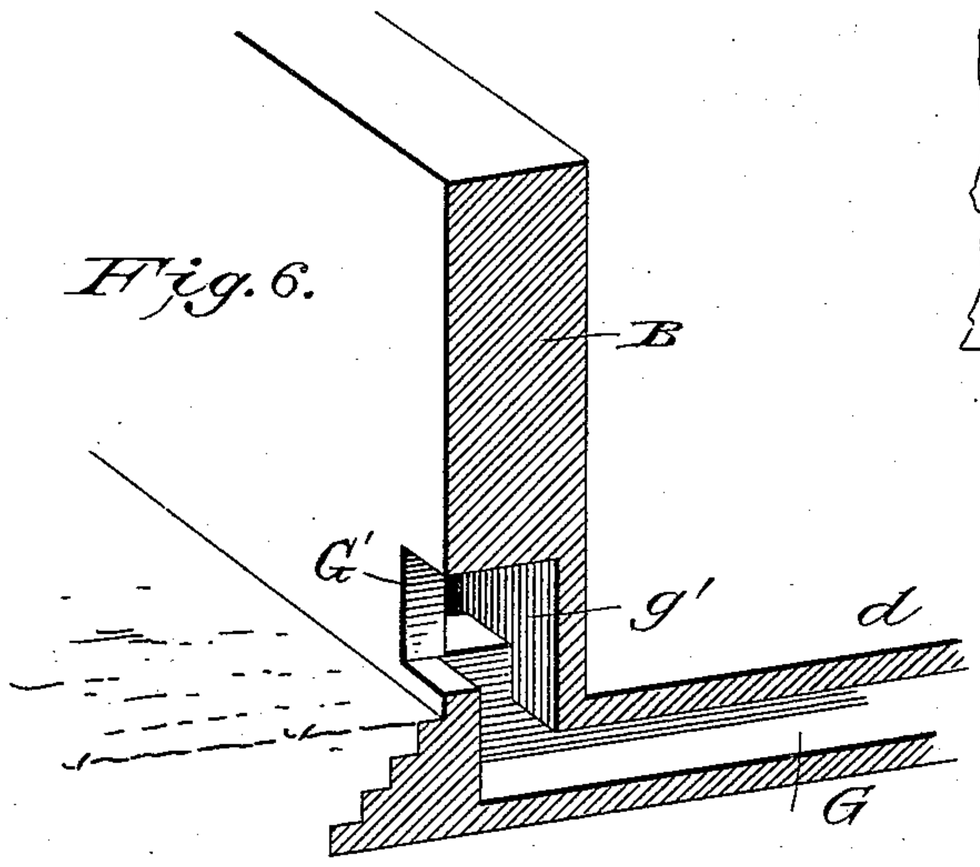


Fig. 6.



Witnesses L. S. Elliott.
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UNITED STATES PATENT OFFICE.

JOSEPH CONLEY, OF ST. JOSEPH, MISSOURI, ASSIGNOR OF ONE-HALF TO HUGH J. BOWEN, OF SAME PLACE.

BRICK-KILN.

SPECIFICATION forming part of Letters Patent No. 491,037, dated January 31, 1893.

Application filed October 6, 1892. Serial No. 448,033. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH CONLEY, a citizen of the United States of America, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Brick-Kilns; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in kilns or furnaces for burning brick or other wares.

The object of the invention is to provide a kiln of improved construction for burning brick or other articles, which will be cheap in construction, the furnace being built up of green brick while the side and end walls, as well as the floor and flues, are of burnt brick to make a permanent structure; said kiln having a central flue and lateral flues connecting therewith, the central flue leading to the chimney; all as will be hereinafter fully set forth.

In the accompanying drawings forming part of this specification: Figure 1 is a sectional plan view of a kiln constructed in accordance with my invention. Fig. 2 is a vertical sectional view taken through the line 2—2 of Fig. 1. Fig. 3 is a transverse sectional view taken through the line 3—3 of Fig. 2. Fig. 4 is a transverse sectional view taken through the line 4—4 of Fig. 1. Fig. 5 is a sectional view taken on the line 5—5 Fig. 1. Fig. 6 is a detail sectional view. Fig. 7 is a horizontal sectional view of a modification of my improvement.

A and A′ designate the end walls of the kiln, and B the side walls; the side walls having suitable doorways *b b* through which entrance can be had to the interior of the kiln for stacking the brick in the kiln. The end wall A is provided with apertures *a* which lead into the furnace which is built up in the stacking of the green brick, and beneath this furnace and the apertures *a* are located the grate-bars and ash-pit.

C designates the chimney, which connects with the longitudinal flue D located below the floor *d* of the kiln, and the floor above this flue is provided with apertures *d′* which may be covered by suitable dampers of simple construction, being made up of flat metallic plates having operating rods attached thereto which pass through the side walls of the kiln. A damper or cut-off D′ is provided adjacent to the chimney, and intersects the longitudinal flue D so that the draft can be regulated. The end wall A′ of the kiln has flues E E permanently constructed therein above the floor, and these flues communicate with the interior of the kiln by openings *e*, the outer ends of said flues connecting with the central flue D near the base of the chimney by means of conduits F. Cut-offs or dampers *f f* are provided where the flues or conduits F connect with the flues E. To get the desired connection between the flue *e* E which are above the floor *d* and the longitudinal flue D which is below the floor the conduits or flues F at their point of connection with the flues E extend upwardly.

G G designate transverse flues which extend entirely across the kiln beneath the floor, the floor having openings *g g* above said flues, and in advance of said flues the longitudinal flue D is provided with the apertures *d′* hereinbefore referred to. Connecting with the flues G by means of apertures or ways as shown in Figs. 5 and 6 are diagonal flues H which lead to the central flue D, and these flues are provided with dampers or cut-offs *h*. The ends of the flues G have an uprise *g′*, to locate the openings G′ of said flues above the ground level as shown in Figs. 4 and 6, so that it is not necessary to build around the kiln a trench and retaining wall for the purpose of keeping out water or moisture from flues which are below the floor or ground level and in front of these openings are doors g^2. The openings G′ are located above the ground level and are for the purpose of letting cold air into the flues when it is desired to cool the interior of the kiln or regulate the draft, as when said doors are opened the cold air will be drawn into the flues beneath the floor of the kiln and pass through the central flue to the chimney; thus the draft may be regulated without ma-

nipulating the dampers which operate over the openings in the floor.

In Fig. 7 of the drawings I have shown a slight modification of my invention, in which instead of providing the transverse flues G diagonal flues having apertures and dampers are employed, giving the same results; but in practice the construction shown in Fig. 1 is preferred.

With a kiln constructed as shown, having dampers, doorways and cut-offs, the green bricks prior to firing are stacked upon the floor in the proper manner, and as said bricks are being stacked a furnace is formed adjacent to the end wall A, and from the entrances or doorways *b b* may be built partitions which can be removed as the burning advances. The side and end walls may also have grooves or recesses which form air passages and fuel rests, it being understood that the fuel, preferably slack coal, is fed through the spaces between the stacked bricks, fuel pots being used as usually employed with this class of kilns. The fire is started from the apertures *a a* in the end wall A, a suitable quantity of fuel being placed upon the grate bars. The passage of the heat and products of combustion can be regulated by the dampers to give the desired direction thereto and also to regulate the intensity of the heat, and the vapor or water gas which is given off from the green brick in its heated condition is utilized. By properly manipulating the partition boards the heat can be caused to traverse the lower portion of the kiln to bake the lower bricks.

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

1. In a kiln, the combination of the end wall provided with apertures and grate-bars, the opposite end wall having transverse flues and apertures, the ends of said flues connecting with a horizontal flue located below the floor of the kiln, said flue connecting with the interior of the kiln and chimney, substantially as shown, and for the purpose set forth.

2. In a kiln having an end wall A with a series of apertures, grate bars and ash pits extending from the exterior of said wall within the same, a longitudinal flue connecting the interior of the kiln with a chimney, side walls and end wall, the side walls having doorways and the end wall above the floor of the kiln having flues which connect with the interior of the kiln above the floor and with the central flue by flues or conduits F, transverse flues having apertures above the same which lead to the interior of the kiln, the side openings of said flues being above the floor level of the kiln, substantially as shown, and for the purpose set forth.

3. In a kiln, the combination of the end and side walls constructed substantially as shown, of a central longitudinal flue having apertures and dampers or cut-offs for closing the same, transverse flues with apertures leading to the interior of the kiln and openings in the side walls above said flues, forwardly inclined flues H connecting with the transverse flues within the side walls and with the central longitudinal flue below the floor of the kiln, substantially as shown, and for the purpose set forth.

4. In a kiln, the combination of the inclosing walls, transverse flues G below the floor of the kiln, the outer ends of said flues within the side walls having upwardly extending portions *g'* and apertures connected therewith, the upwardly projecting portions also connecting with flues H which connect with the longitudinal flue D substantially as shown whereby the openings and outlets G' are located above or on a line with the floor of the kiln, and dampers or cut-offs intersecting the flues H, substantially as shown, and for the purpose set forth.

5. A permanently constructed kiln consisting of end walls A and A', side walls B, flues D G and H located below the floor of the kiln and provided with apertures and dampers as shown, the end wall A' having flues E above the floor level and apertures *e* connecting the interior of the kiln therewith, said flues being connected by conduits F with the longitudinal flue D, of a furnace built adjacent to the end wall A, the brick constituting the furnace or furnaces not forming a permanent portion of the kiln, for the purpose set forth.

6. In a kiln, the combination of a rectangular structure having at one end a starting furnace and at the opposite end a flue which is connected with the chimney, a central longitudinal flue connecting with the chimney and with the interior of the kiln by apertures or openings formed above said flues in the base of the kiln, a plurality of transverse flues which connect with the central flue and with the interior of the kiln, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH CONLEY.

Witnesses:
L. S. ELLIOTT,
E. W. JOHNSON.