No. 696,027. Patented Mar. 25, 1902.

C. H. FOSTER.

HINGE.

(Application filed Feb. 15, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig.1.

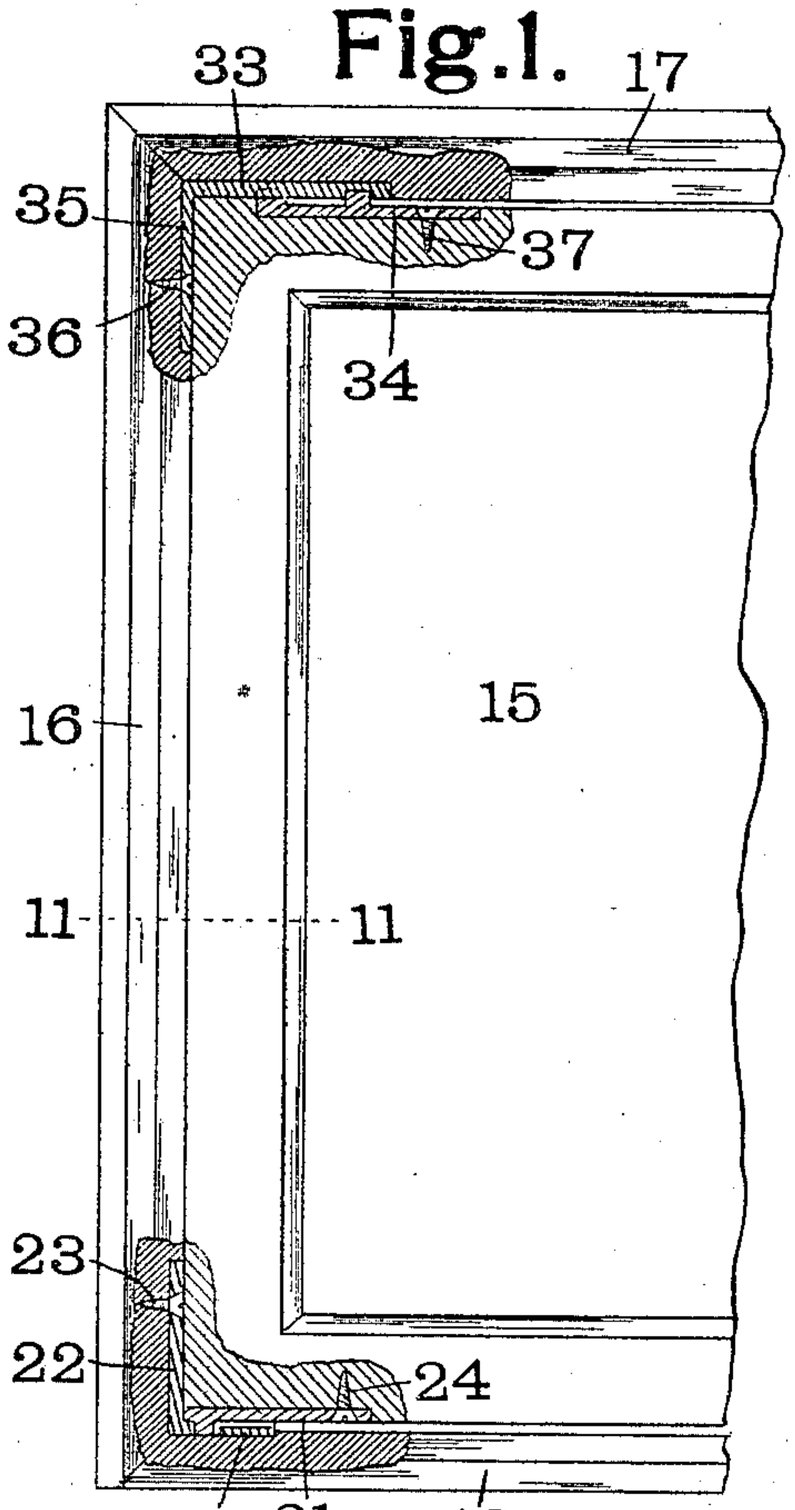


Fig.2.

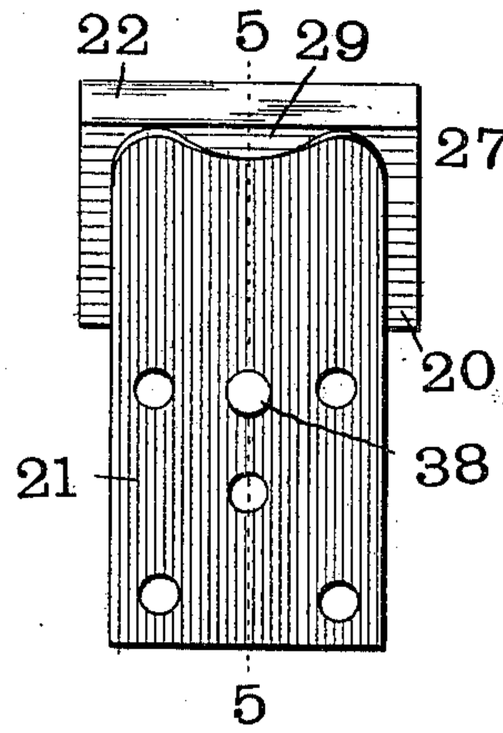


Fig.3.

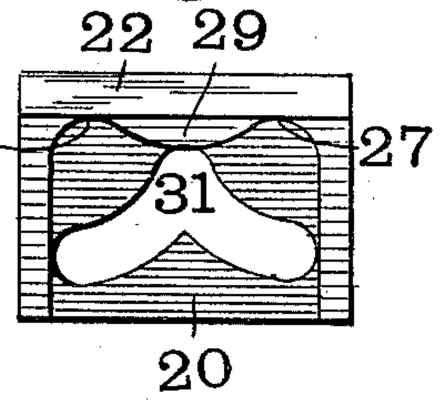


Fig.4.

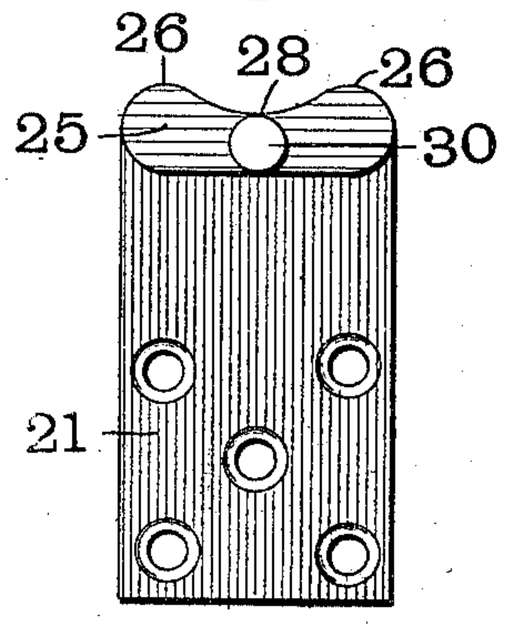


Fig.5.

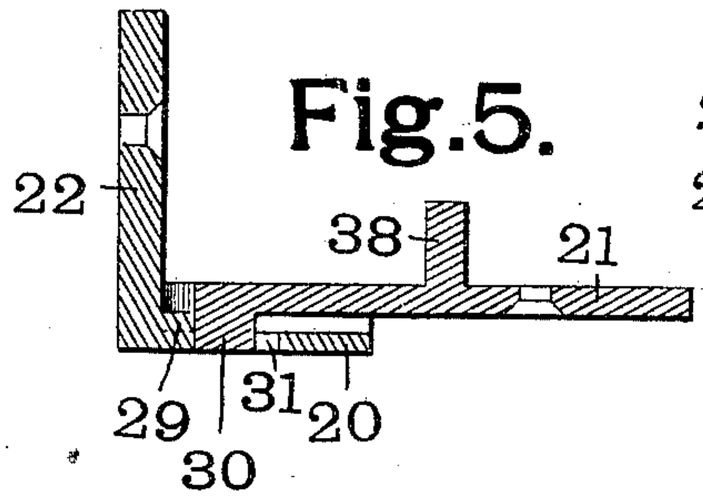
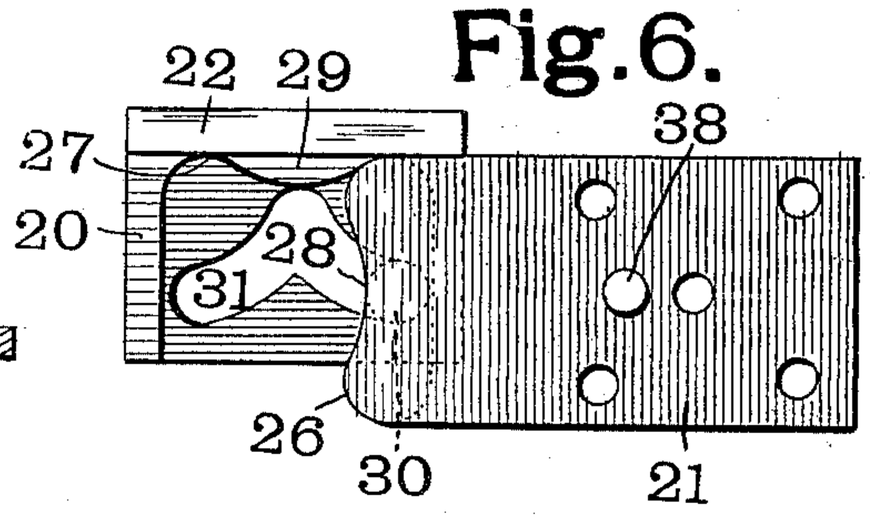


Fig.6.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

Fig. 7.

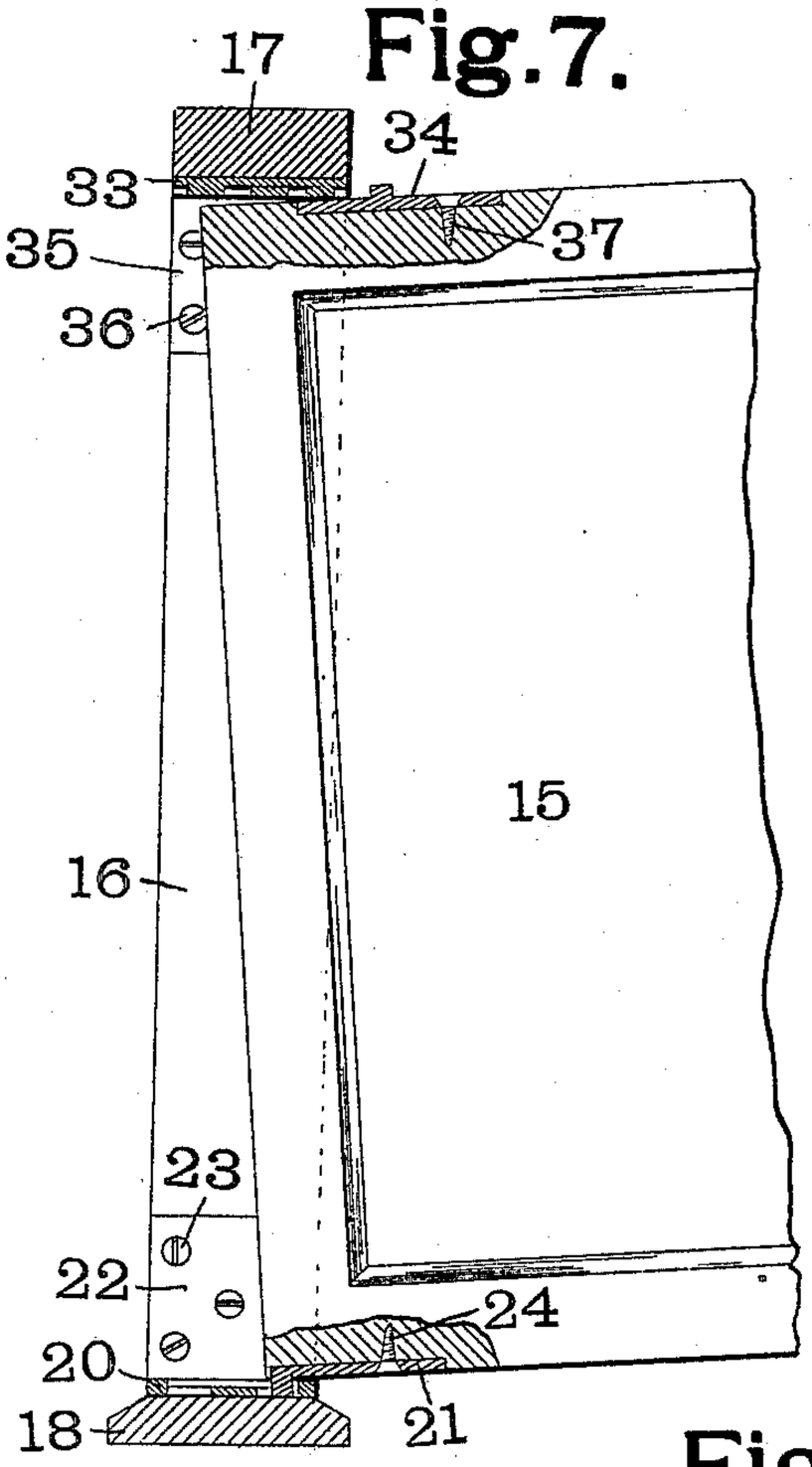


Fig. 8.

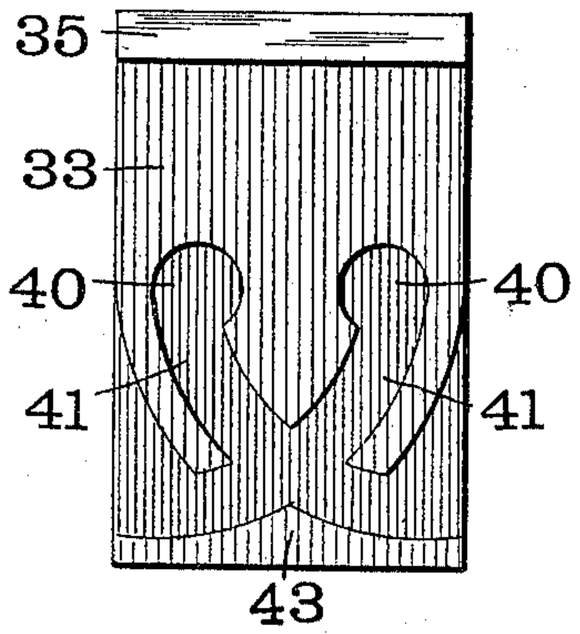


Fig. 9.

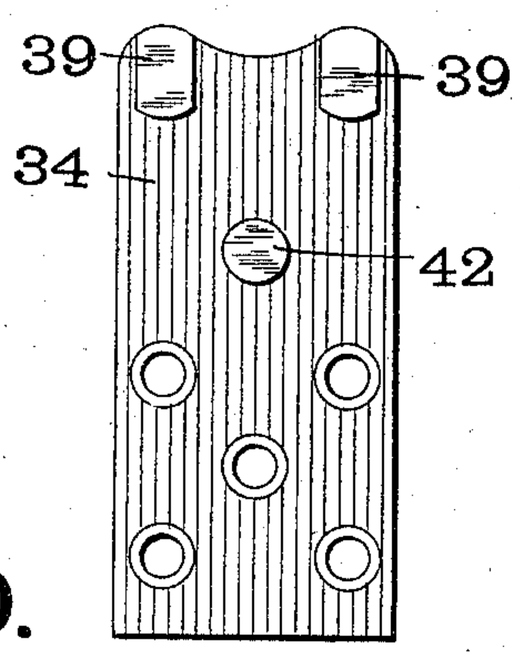


Fig. 10.

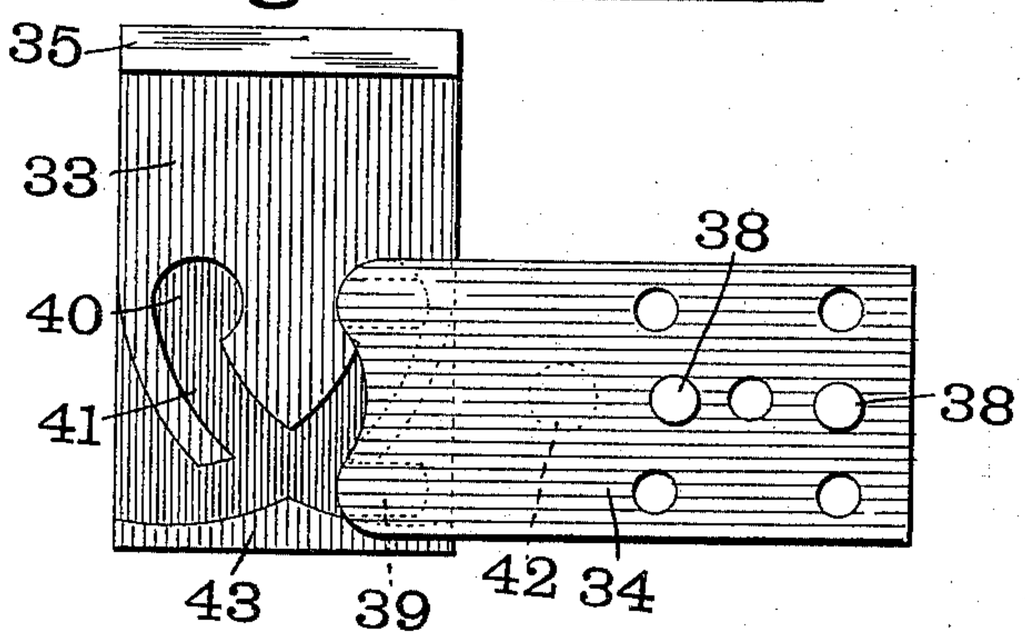
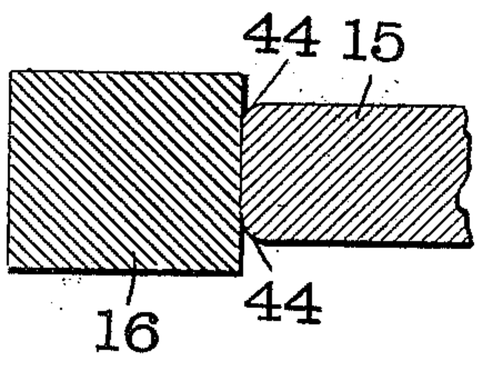


Fig. 11.



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UNITED STATES PATENT OFFICE.

CHARLES H. FOSTER, OF OMAHA, NEBRASKA.

HINGE.

SPECIFICATION forming part of Letters Patent No. 696,027, dated March 25, 1902.

Application filed February 15, 1901. Serial No. 47,391. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. FOSTER, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Hinges, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to hinges for a swinging door, and more particularly to hinges for a self-closing swinging door acting by gravity.

My invention consists in certain novel features and details of construction, all of which will be described in the following specification and pointed out in the claims affixed hereto.

In the accompanying drawings, which illustrate the usual form of door, Figure 1 is a view, on a reduced scale, showing such usual form of door, partly in elevation and partly in section, with my invention applied thereto, the door being closed. Fig. 2 is a top plan view of the lower hinge. Fig. 3 is a top plan view of the fixed part of the lower hinge. Fig. 4 is a bottom plan view of the movable part of the lower hinge. Fig. 5 is a section on the line 5 5 of Fig. 2. Fig. 6 is a view similar to Fig. 2, but showing the parts in a different position. Fig. 7 is a view similar to Fig. 1, the door being open. Fig. 8 is a bottom plan view of the fixed part of the upper hinge. Fig. 9 is a top plan view of the movable part of the upper hinge. Fig. 10 is a bottom plan view of the complete upper hinge, and Fig. 11 is a section on the line 11 11 of Fig. 1.

Like marks of reference refer to similar parts in the several views of the drawings.

15 is the door, 16 the rear jamb, 17 the lintel, and 18 the sill, all of the usual form.

The lower hinge, which is placed between the lower edge of the door 15 and sill 18, is composed of a fixed part 20 and a movable part 21. The fixed part 20 is mortised into the sill 18 and is preferably provided with an upward extension 22, by means of which it is secured to the rear jamb 16 by means of screws 23 or in any other suitable way. The movable part 21 of the lower hinge is secured to the lower edge of the door 15 by means of screws 24 or in any other suitable way. The movable part 21 has a downwardly-projecting portion 25, provided with two rounded bearing-surfaces 26, which coöperate with curved recesses 27 in the fixed part 20. The rear end of the movable part 21 is also provided with a curved recess 28, coöperating with a curved projection 29 on the fixed part. Projecting downwardly from the part 25 is a pin 30, which enters a V-shaped slot 31 in the fixed part of the hinge, which is most clearly seen in Figs. 3 and 6. When the door is in its closed position, the curved projection 29 will rest against the curved recess 28; but as soon as the door is moved a slight distance one or the other of the bearing-surfaces 26 will coöperate with one of the recesses 27 in the fixed part of the hinge.

The upper hinge, which is placed between the upper edge of the door 15 and the lintel 17, is composed of a fixed part 33 and a movable part 34. The fixed part 33 is mortised into the lintel 17 and is preferably provided with a downwardly-projecting portion 35, which is secured to the rear jamb 17 by means of screws 36 or in any other suitable manner. The movable part 34 is secured to the top edge of the door 15 by means of screws 37 or in any other suitable way. The usual construction of doors is such that the screws 24 and 37, holding the movable parts 21 and 34, will enter the end of the grain of the wood. I therefore prefer to provide each of said movable parts with one or more anchor-pins 38 to assist the screws in holding the parts in place. The movable part 34 is provided with two upward-projecting bearings 39, which cooperate with curved recesses 40 in the fixed part 33. Leading from the recesses 40 are ways 41, in which one of the bearings 39 moves while the door swings upon the other. The movable part 34 is also provided with a pin 42, which coöperates with a guide 43 on the fixed part. The rear edges of the door 15 should be slightly rounded or chamfered, as at 44 in Fig. 11, so as to prevent the corner of the door from striking against the rear jamb 15 during the first part of the movement of the door. In doors of this class it is usual to provide no raised sill, the floor itself

serving as the sill. Therefore where I have used the term "sill" I wish to include a floor serving as a sill.

The operation of my invention is as follows: When the door is in its closed position, the parts will be as shown in Fig. 1, the curved bearing-surface 29 of the fixed part of the lower hinge bearing against the recess 28 of the movable part. During the first slight movement of the door the door will turn with this point as a pivot. The edges of the door being curved or chamfered, however, will prevent their striking against the rear jamb 16. As soon as a slight movement of the door has occurred the point of movement will be shifted to one of the bearing-surfaces 26, which is substantially in line with the edge of the door. The same thing will occur in the upper hinge, one of the bearings 39 being thrown against the corresponding curved recess 40 of the fixed part of the upper hinge. This will allow the door to swing open without its rear edge striking against the rear jamb. As the door swings open the outer end of the door will be thrown upward, owing to the pivotal point of the upper hinge being farther from the jamb than the pivotal point of the lower hinge. This will cause the door to return to its closed position from gravity alone.

I am aware that gate-hinges have been heretofore constructed in which one of the hinges had its pivotal point at a greater distance from the post than the other of said hinges, being placed between the rear edge of the gate and the post, thus leaving a considerable opening between the gate and post. I am also aware that gate-hinges have been heretofore constructed in which one of the hinges projected laterally from the gate, thus causing its pivotal point to be out of alinement with the pivotal point of the other hinge. I therefore disclaim such constructions.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of bearings and a pair of intersecting curved guideways extending from said bearings, and the other of said parts being provided with a pair of bearing-pins coöperating with said bearings and traveling in said guideways.

2. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of bearings and a pair of curved guideways of less width than said bearings and extending therefrom, and the other of said parts being provided with a pair of elongated bearing-pins coöperating with said bearings and traveling in said guideways.

In testimony whereof I have hereunto set my hand and affixed my seal in the presence of the two subscribing witnesses.

C. H. FOSTER. [L. S.]

Witnesses:
WM. T. JONES,
W. A. ALEXANDER.