

No. 827,557.

PATENTED JULY 31, 1906.

W. H. NICHOLAS.  
BLACKLEADING MACHINE.

APPLICATION FILED NOV. 17, 1903. RENEWED JAN. 16, 1906.

2 SHEETS-SHEET 1.

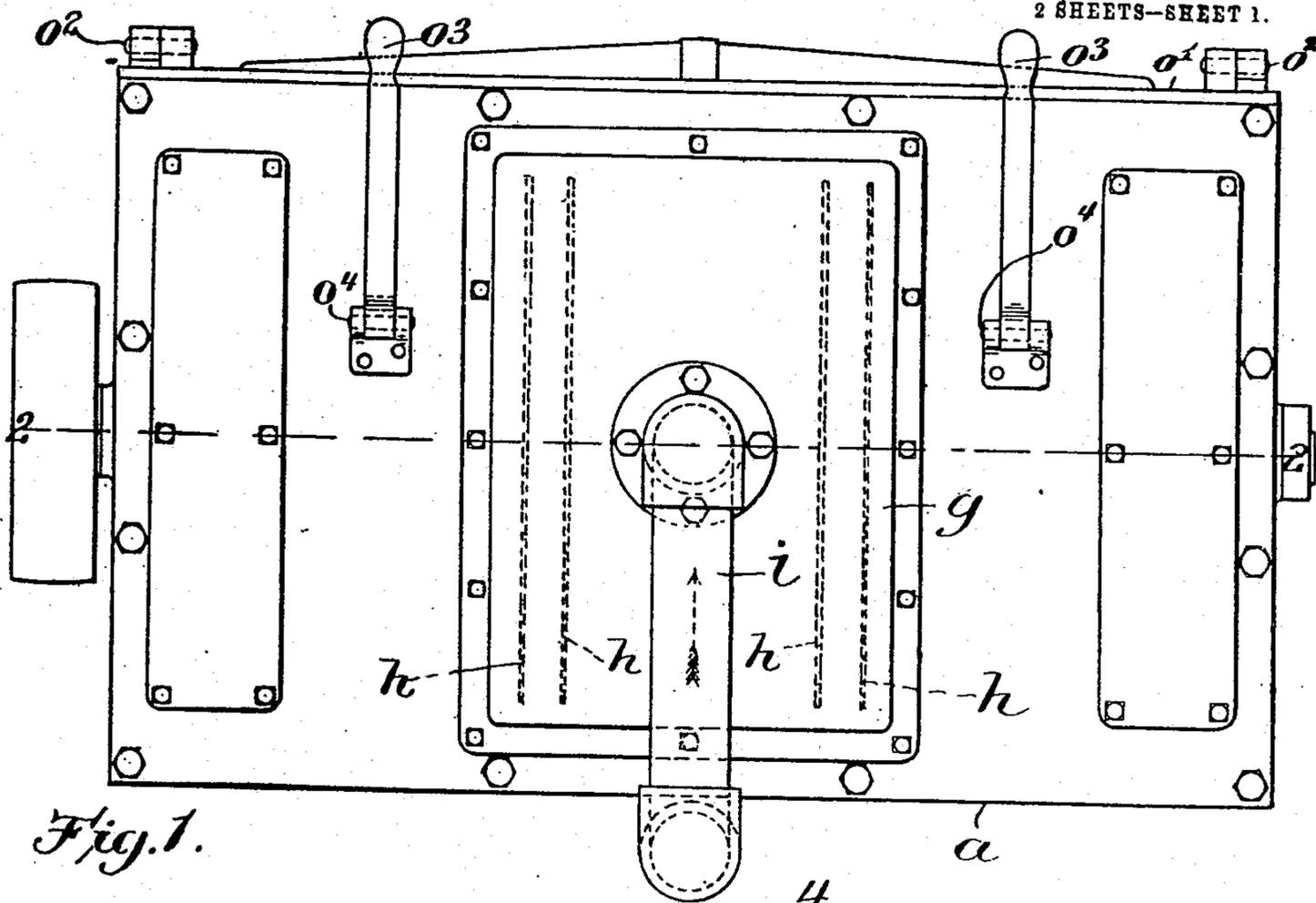


Fig. 1.

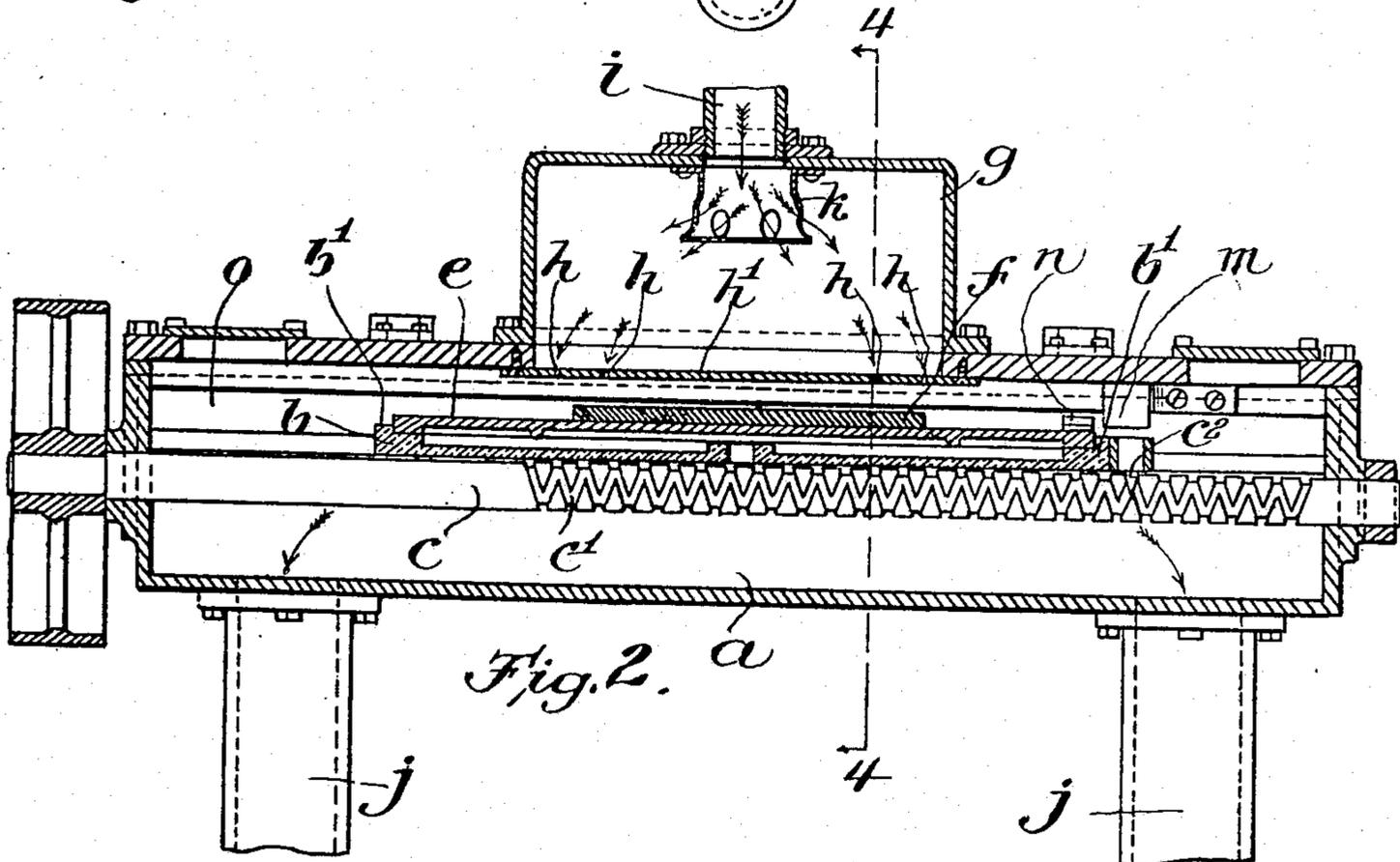


Fig. 2.

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Inventor:  
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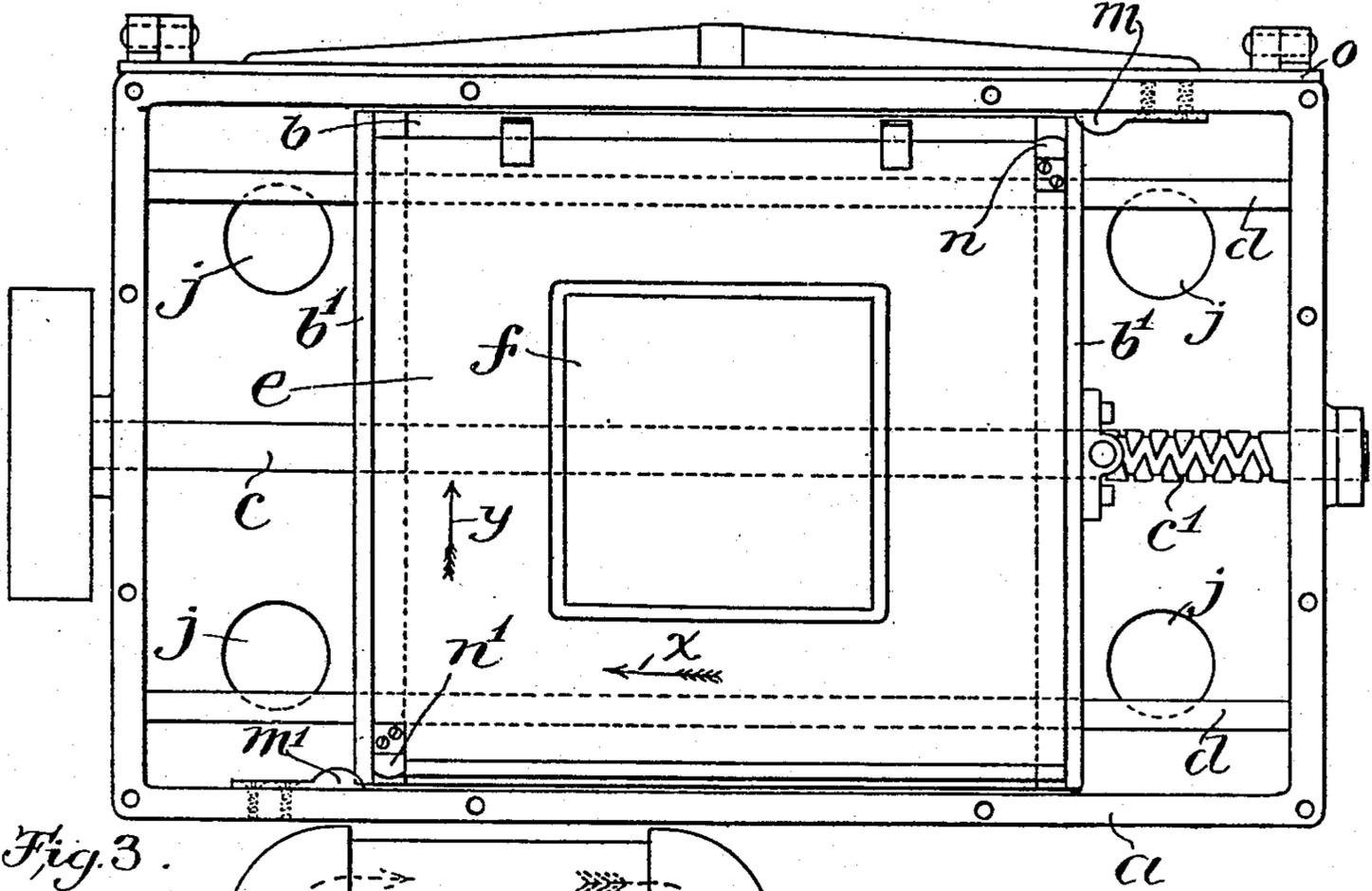


Fig. 3.

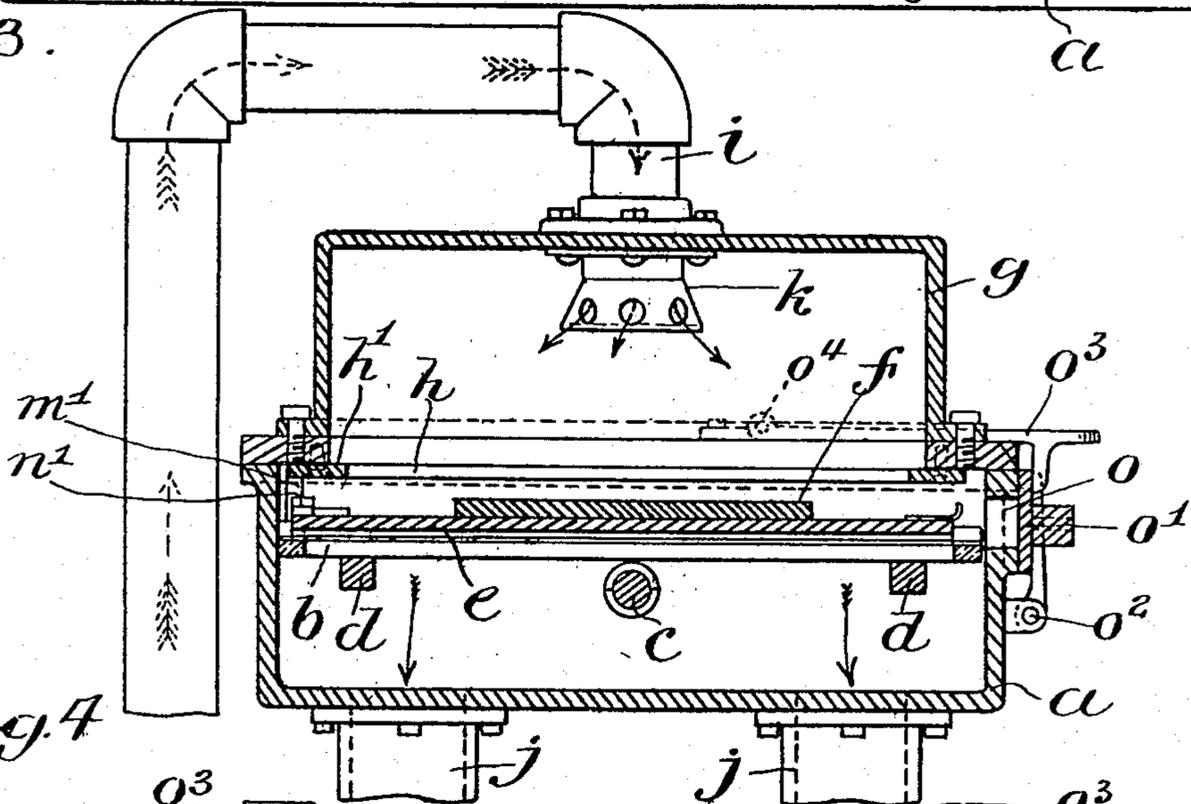


Fig. 4.

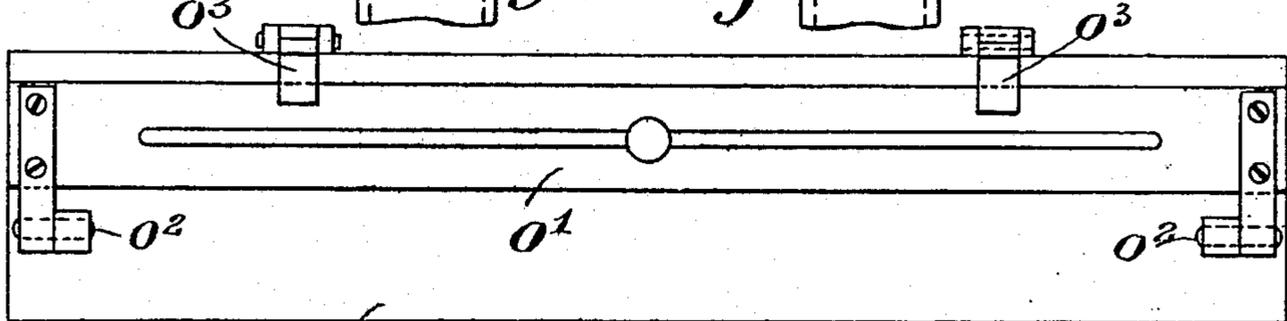


Fig. 5.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. NICHOLAS, OF BOSTON, MASSACHUSETTS.

## BLACKLEADING-MACHINE.

No. 827,557.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed November 17, 1903. Renewed January 15, 1906. Serial No. 296,153.

*To all whom it may concern:*

Be it known that I, WILLIAM H. NICHOLAS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Blackleading-Machines, of which the following is a specification.

This invention relates to machines for applying powdered plumbago or black-lead to wax molds prior to the electrotyping process and is an improvement on that class of machines in which the mold to be treated is reciprocated in close proximity to the outlet or outlets of a chamber into which the powdered material is forced by air-pressure, the material passing through said outlets, which are usually in the form of narrow slots, onto the upper surface of the mold.

The invention has for its object first to enable the position of the mold to be shifted at the end of each longitudinal movement, so that the mold will occupy a different path when moving in one direction from that occupied by it when moving in the opposite direction to the end that any portion or portions of the mold that may have failed to be coated with black-lead during one pass in consequence of obstructions in the outlet or outlets of the chamber may be brought into position to receive a coating from an unobstructed part of the said outlet or outlets during the next pass.

The invention also has for its object to enable the mold to be more conveniently inserted in and removed from the casing which contains it during the coating operation and with less liability of the escape and loss of powdered material through the opening which permits the insertion and removal of the mold.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top plan view of a blackleading-machine embodying my invention. Fig. 2 represents a longitudinal section on line 2 2 of Fig. 1. Fig. 3 represents a top view showing the machine with the cover or upper portion removed. Fig. 4 represents a section on line 4 4 of Fig. 2. Fig. 5 represents a side elevation of a portion of the machine.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a* represents a box or cas-

ing, and *b* represents a carriage which is reciprocated horizontally in the said casing by suitable means, such as a shaft *c*, having intersecting right and left screw-threads or helical grooves *c'* engaging a yoke *c''*, pivoted to the carriage, the arrangement being such that a continuous rotation of the shaft *c* causes the carriage to reciprocate lengthwise of the shaft. The carriage is supported at opposite sides of the shaft by guides or ears *d*.

*e* represents a bed which supports the wax mold *f* to be coated and is movable upon the carriage *b* in a direction at right angles with the movement of the carriage, the bed being guided in its movements by guides or shoulders *b' b'*, formed on the carriage.

*g* represents a chamber affixed to the top of the casing *a* and communicating with the interior of the latter through narrow elongated slots *h h*, formed in a plate *h'*, which constitutes the bottom of the chamber *g* and is located in close proximity to the path of the mold *f*.

Powdered plumbago is forced into the chamber *g* through a pipe *i*, communicating with the casing of a blower, (not shown,) the said blower-casing receiving black-lead from the main casing *a* through conduits *j j*, which may constitute the legs or supports for the casing *a*. I have not shown the connection between the conduits *j* and the blower-casing, it being sufficient to state that the said conduits communicate with the casing, so that black-lead entering the box *a* from the chamber *g* will be drawn into the blower-casing and will be forced from the latter by the action of the blower through the pipe *i* back to the chamber *g*.

*k* represents a deflector in the chamber *g*, arranged to distribute the blast of the plumbago-laden air that enters the chamber through the pipe *i*. It will be seen from the foregoing that jets of air carrying powdered plumbago pass continuously through the slots *h h* and impinge upon the upper surface of the mold *f*, the slots *h* being of such length that they extend entirely across the mold, as indicated in Fig. 5 and by dotted lines in Fig. 1. The reciprocating motion of the mold is intended to cause a uniform distribution of the plumbago on the surface of the mold. It sometimes happens, however, that the slots *h* are obstructed in part by lumps or masses of plumbago or foreign matter so that the portions of the mold beneath the obstructed parts do not receive a proper coating. To

obviate this difficulty, I provide means for changing the position of the bed *e* at the end of each longitudinal movement, so that the bed when moving in one direction moves in a given path and when returning moves in a different path. The means here shown for causing the edgewise movement of the bed comprise two fixed cam-shaped bed-displacing members *m m'*, one located at one side of the box near one end thereof and the other at the opposite side of the box near the opposite end thereof, as shown in Fig. 3. These members *m m'* cooperate with shoulders *n n'*, affixed to the bed. When the bed is moving in the direction of the arrow *x* in Fig. 3, the shoulder *n'* strikes the cam *m'* just before the end of the longitudinal movement, thus giving the bed and the mold thereon a movement in the direction of the arrow *y*. The movement of the carriage in the opposite direction brings the shoulder *n* in position to collide with the cam *m*, and thus cause an edgewise movement of the bed in the opposite direction. By thus imparting movements to the bed crosswise of the path of movement of the carriage I insure a practically uniform coating of the bed, regardless of local obstructions in the slots *h*.

*o* represents an elongated opening at one side of the casing *a*, said opening being so located as to permit the bed *e* and the mold thereon to slide edgewise into and out of the casing through said opening, the length of the opening being such that the bed can be inserted and removed when the carriage is at any part of its movement. When the machine is in operation, the opening *o* is closed by an elongated door *o'*, hinged at *o<sup>2</sup>*. The door is held closed by movable catches *o<sup>3</sup>*, which are hinged at *o<sup>4</sup>* to the top of the casing. It will be seen that the bed *e*, arranged to be moved edgewise upon the carriage, enables the opening provided for the insertion and removal of the mold to be made of minimum width and located in one of the vertical sides of the casing. The area of the said opening

is therefore much less than would be required if the opening and door were at the top of the casing. Hence there is much less scattering and waste of powdered material when the door is opened than heretofore.

I claim—

1. In a machine of the character stated, the combination of a box, a carriage movable therein, means for reciprocating the carriage, a mold-supporting bed movable on the carriage crosswise of the path of movement of the latter, means for shifting the position of the bed at predetermined intervals, whereby the bed is caused to move in different parallel paths, and means for applying powdered material to a mold on the bed.

2. In a machine of the character stated, the combination of a box, a carriage movable therein, means for reciprocating the carriage, a mold-supporting bed movable on the carriage crosswise of the path of movement of the latter, and bed-displacing members on the inner sides of the box arranged to act alternately in moving the bed crosswise of the path of movement of the carriage.

3. In a machine of the character stated, the combination of a box, a carriage movable therein, means for reciprocating the carriage, a mold-supporting bed movable on the carriage crosswise of the path of movement of the latter, the bed being removable horizontally, entirely away from the carriage, a longitudinal opening in one side of the box coinciding with the path in which the bed is moved by the carriage, said opening extending below the bottom of the bed and above the top of the mold, so that the bed and the mold thereon may be moved horizontally to and from the carriage through said opening, and a door to close said opening.

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

WILLIAM H. NICHOLAS.

Witnesses:

C. F. BROWN,  
E. BATCHELDER.