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EXHIBIT

No. 889,802.

PATENTED JUNE 2, 1908.

L. S. NASH.

VALVE.

APPLICATION FILED AUG. 24, 1907.

Fig. 1.

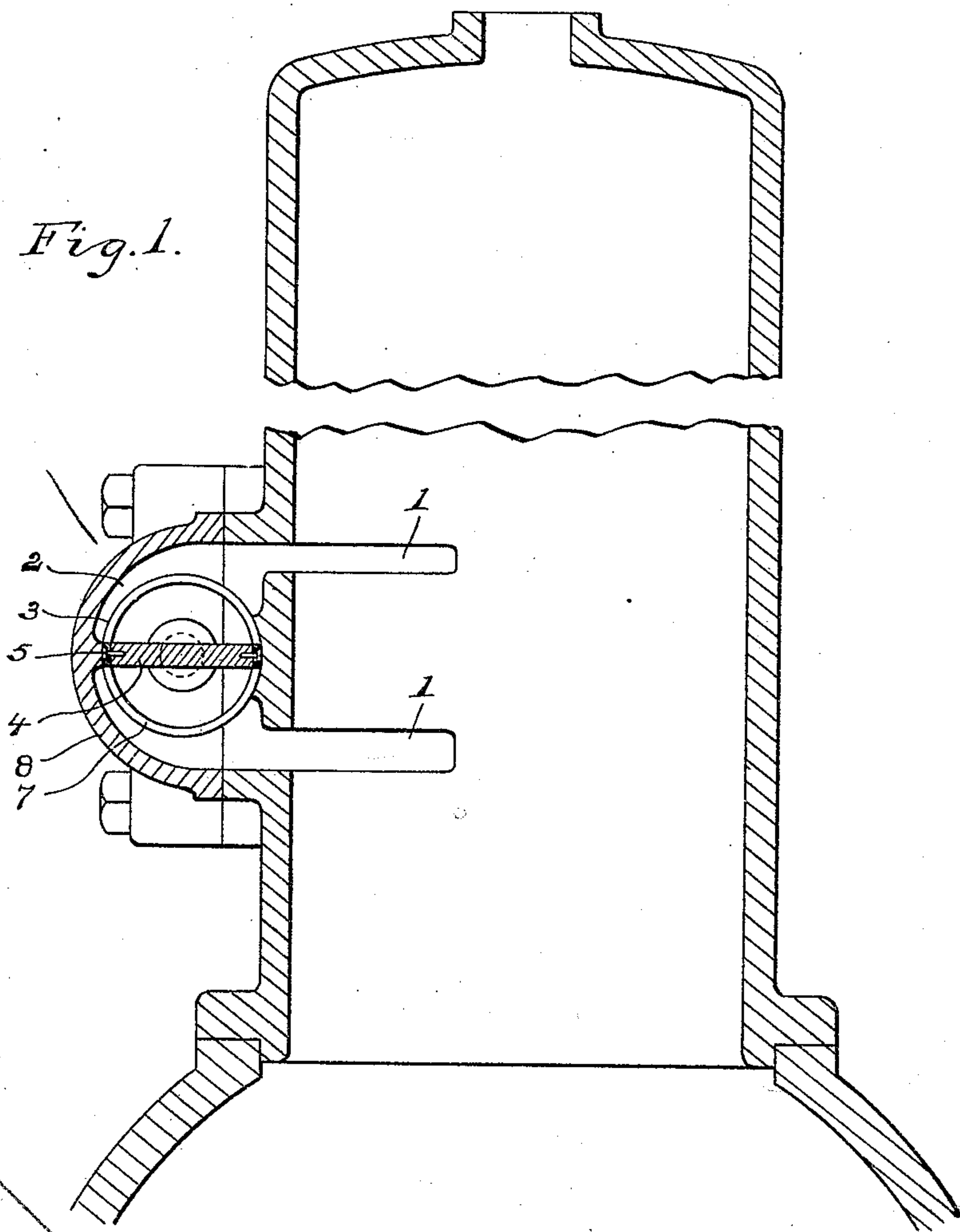
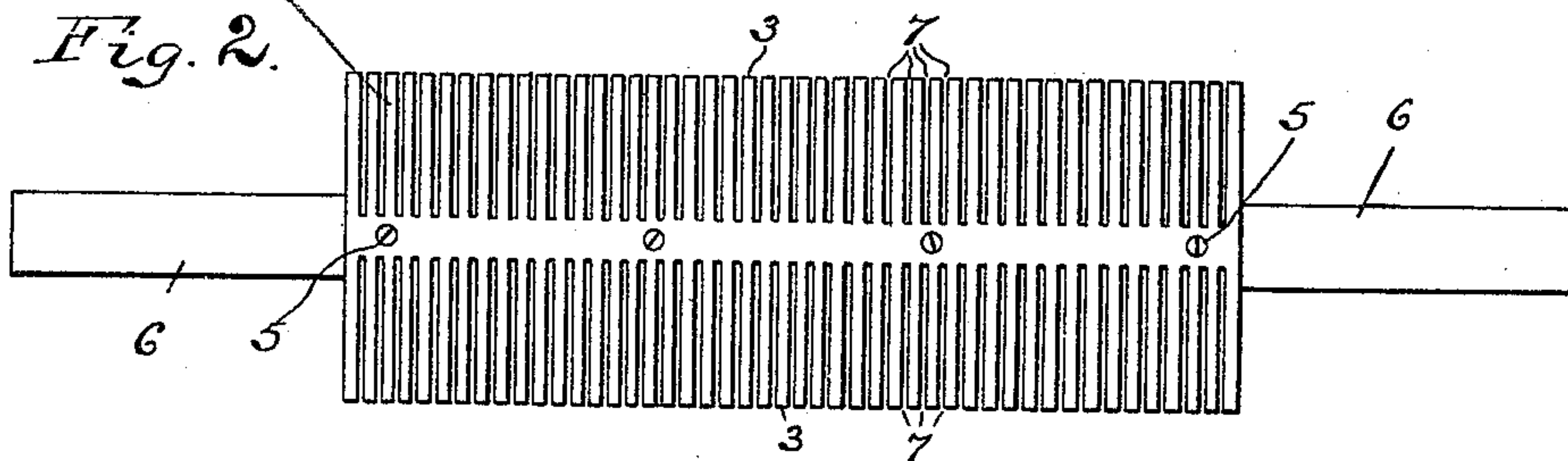


Fig. 2.



WITNESSES:

A. M. Dow.

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INVENTOR

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By

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Attorneys



Two cycle.

Rear compression, Crank case.

Examiner.

# UNITED STATES PATENT OFFICE.

LAWRENCE S. NASH, OF DETROIT, MICHIGAN.

## VALVE.

No. 889,802.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed August 24, 1907. Serial No. 389,994.

*To all whom it may concern:*

Be it known that I, LAWRENCE S. NASH, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a valve especially adapted for a throttle for an internal combustion motor, which acts as a screen when open to prevent back-firing from the explosion chamber of the motor through the passage controlled by the valve, and at the same time does not materially impede flow of gas through the passage.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a view in transverse section of a combined valve and screen embodying the invention, showing the valve closing a by-pass connecting the ports of a motor, together with portions of the adjacent cylinder wall and base. Fig. 2 is a view in side elevation of the valve removed from its seat.

In the drawings, 1—1 are the inlet ports of a two-cycle, rear compression motor of conventional type, connected by the usual by-pass 2, herein shown as enlarged and provided with a transverse valve seat in which the valve proper is rotatably secured.

The latter is a cylindrical shell 3 with an imperforate, diametrically disposed diaphragm 4, secured as by screws 5 to the shell, extending from end to end of the cylinder, and axial stems 6 thereon, adapted to rotatably center the valve in the seat transverse to the by-pass, either of the stems affording convenient connection for any suitable operating means. A series of narrow, parallel spaced slots 7 in the shell on each side of the diaphragm 4 throughout the entire length of the shell extend from edge to edge of the diaphragm in planes perpendicular to the axis.

As a matter of convenience for clearing and inspecting, the valve may be mounted as herein shown in a hollow casing 8 which is removably secured against the motor exterior.

In operation, the valve closes the passage it controls when turned with the diaphragm squarely across the duct. When the dia-

phragm is obliquely disposed or in full alignment with the passage, the slots permit direct and reasonably unimpeded flow of the charge therethrough, while any ignition of the charge beyond the valve is checked by the screen and cannot fire the incoming charges. The screen is peculiarly effective, since excessive back pressure cannot force the flame back through the central air spaces of the valve and that part of the shell lying back of the seat, even if it does carry the flame into the valve interior. Again, as the valve is on contact throughout practically its entire length with the seat, whether open or closed, any heat in the latter is rapidly conducted to the body of the valve which is kept cool by the free circulation of gases through it.

While herein shown and described as a throttle for a motor it may be used for any similar place where it is desirable to prevent back-firing in a current passing through it, and I do not care to limit myself to any particular use, or to any particular form or arrangement of parts.

What I claim as my invention is:—

1. A valve comprising a cylindrical shell having a diametrically disposed imperforate diaphragm, apertured at intervals on each side of the diaphragm.

2. A valve comprising a cylindrical shell having a diametrically disposed imperforate diaphragm, transversely slotted at intervals on each side of the diaphragm.

3. A valve comprising a cylindrical shell and a diametrically disposed imperforate diaphragm secured therein extending throughout its length, said shell being provided with a plurality of transverse slots on each side of the diaphragm, extending from edge to edge thereof.

4. A valve comprising a cylindrical shell and a diametrically disposed imperforate diaphragm secured therein extending throughout its length, said shell being provided with a plurality of narrow peripheral transverse slots spaced at regular and frequent intervals in parallel planes perpendicular to the axis of the valve on each side of the diaphragm, extending from edge to edge thereof.

5. A valve comprising a cylindrical shell and a diametrically disposed imperforate diaphragm secured therein extending throughout its length, said shell being provided with a plurality of narrow peripheral transverse slots spaced at regular and frequent intervals



in parallel planes perpendicular to the axis of the valve on each side of the diaphragm, extending from edge to edge thereof, the slots on opposite sides of the diaphragm being in alinement with each other.

6. A valve comprising a cylindrical shell, a diametrically disposed imperforate diaphragm secured therein extending throughout its length, said shell being provided with a plurality of transverse slots on each side of the diaphragm, extending from edge to edge thereof, and axial stems on each end of the shell.

7. In an internal combustion motor, the combination with the combustion chamber, the ignition chamber and passage connecting them, of a valve consisting of a cylindrical shell rotatably seated transversely in the passage, having a diametrically disposed imperforate diaphragm, apertured at intervals on each side of the diaphragm.

8. In an internal combustion motor, the combination with the combustion chamber, the ignition chamber and passage connecting them, of a valve consisting of a cylindrical shell rotatably seated transversely in the passage, having a diametrically disposed imperforate diaphragm therein extending from end to end thereof, said shell being provided with a plurality of peripheral slots on each side of the diaphragm, extending from edge to edge thereof.

9. In a conventional two-cycle rear compression internal combustion motor, the combination with the cylinder wall, and base wall provided with the usual piston controlled inlet ports and by-pass connecting the ports, of a valve consisting of a cylindrical shell rotatably seated transversely in the by-pass having a diametrically disposed imperforate diaphragm of sufficient extent to close the by-pass when turned trans-

versely thereto, said shell being provided with a series of narrow peripheral slots on each side of the diaphragm extending from edge to edge thereof.

10. In a conventional two-cycle rear compression internal combustion motor, the combination with the cylinder wall and base wall provided with the usual piston-controlled inlet ports, of a removably secured exterior casing, bridging the ports and forming with the walls a by-pass, and a hollow cylindrical valve journaled in the casing transversely to the by-pass having a diametrically disposed imperforate diaphragm secured therein of sufficient extent to close the by-pass when turned transversely thereto, said shell being provided with a series of narrow peripheral slots on each side of the diaphragm extending from edge to edge thereof.

11. In a conventional two-cycle rear compression internal combustion motor, the combination with the cylinder wall and base wall provided with the usual piston-controlled inlet ports, of a removably secured exterior casing bridging the ports and forming with the walls a by-pass, and a hollow cylindrical valve rotatable in the casing transversely to the by-pass having a diametrically disposed imperforate diaphragm secured therein of sufficient extent to close the by-pass when turned transversely thereto, said shell being provided with a series of narrow peripheral slots on each side of the diaphragm extending from edge to edge thereof, and axial stems on each end of the diaphragm journaled in the casing.

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

LAWRENCE S. NASH.

Witnesses:

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C. R. STICKNEY.