No. 679,886. Patented Aug. 6, 1901.

G. W. CANTRELL & W. J. EMPEY.

RAILWAY SWITCH.

(Application filed July 25, 1900.)

(No Model.) 2 Sheets—Sheet 1.

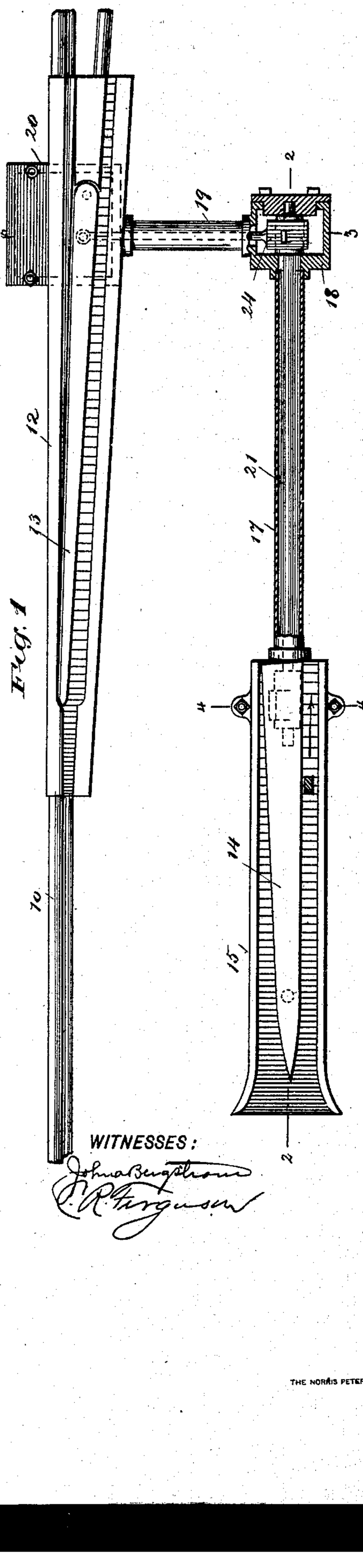

Fig. 1.

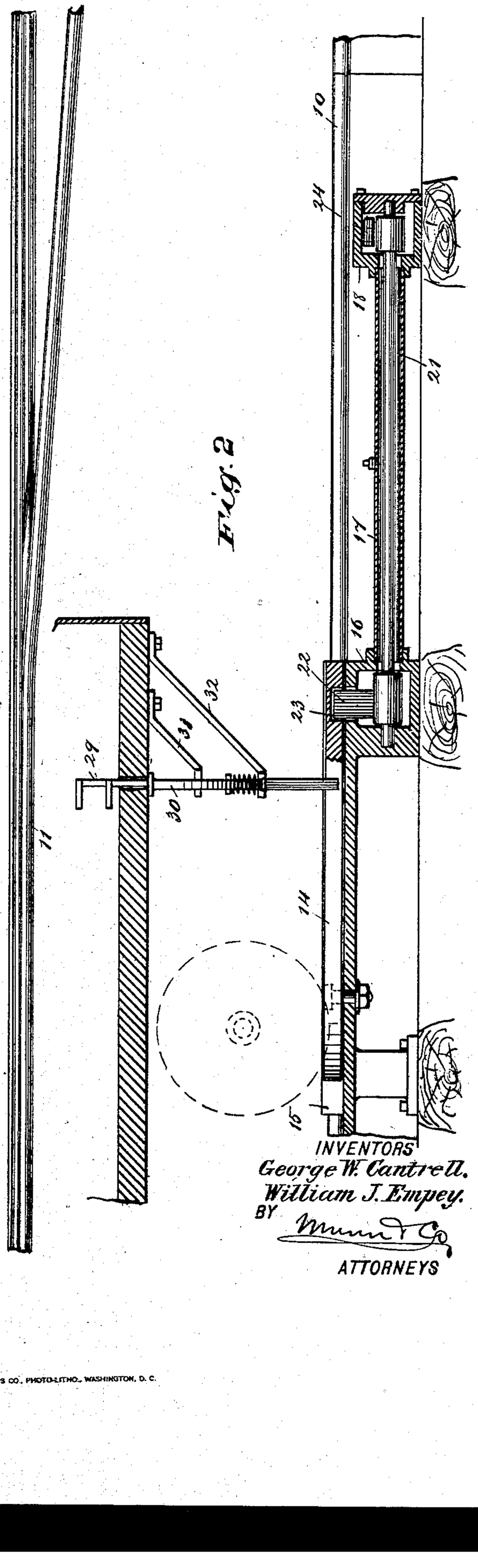

Fig. 2.

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Fig. 3

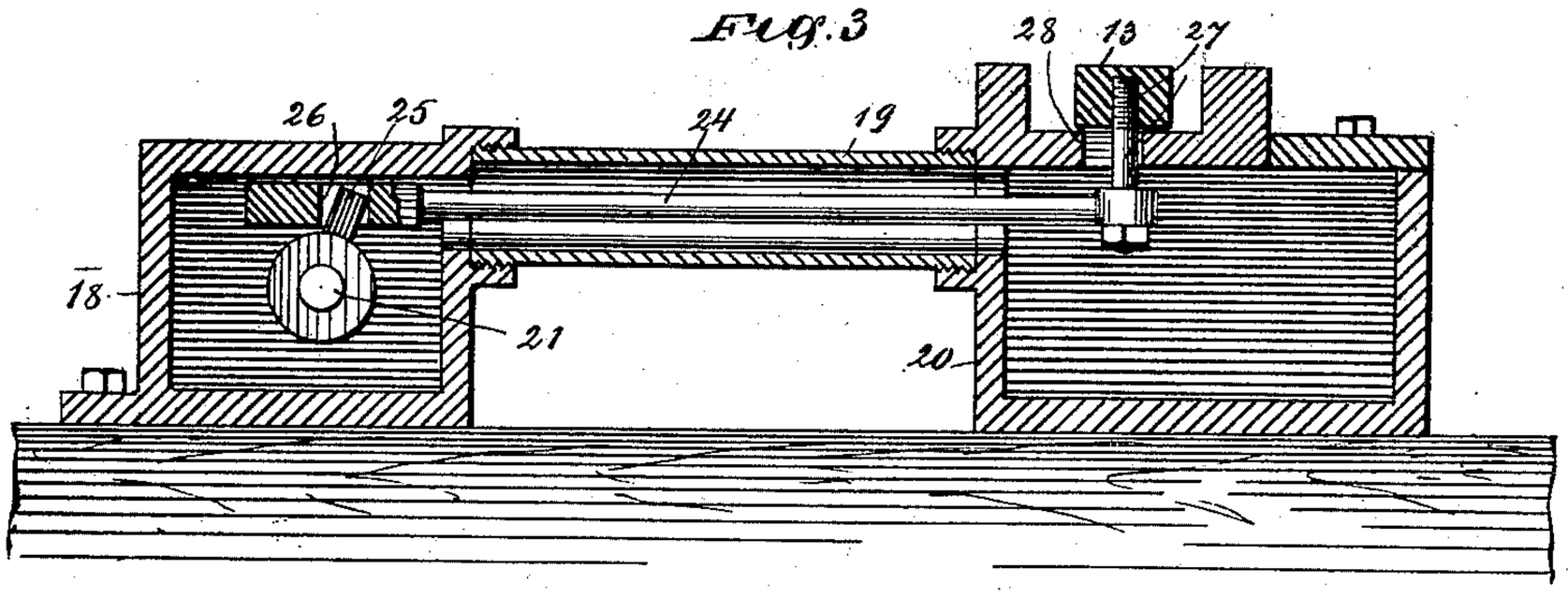


Fig. 4

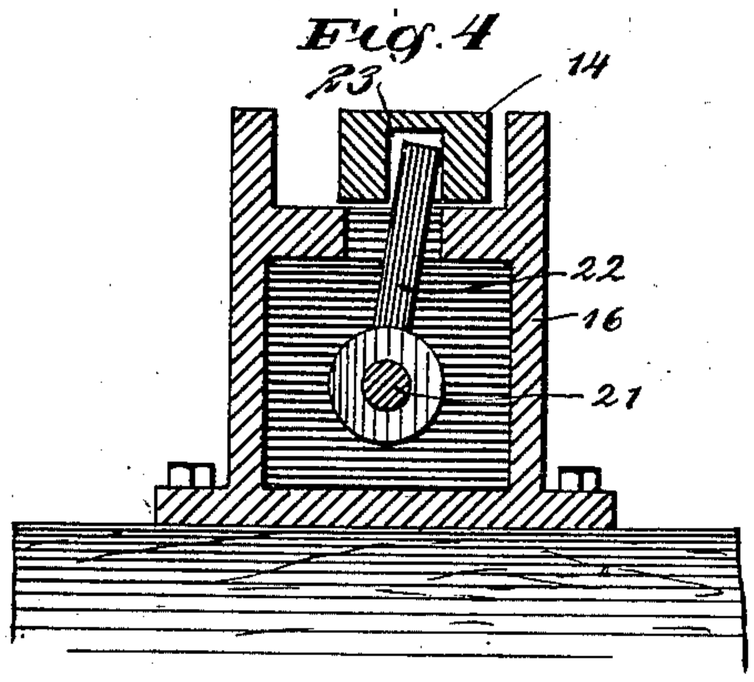
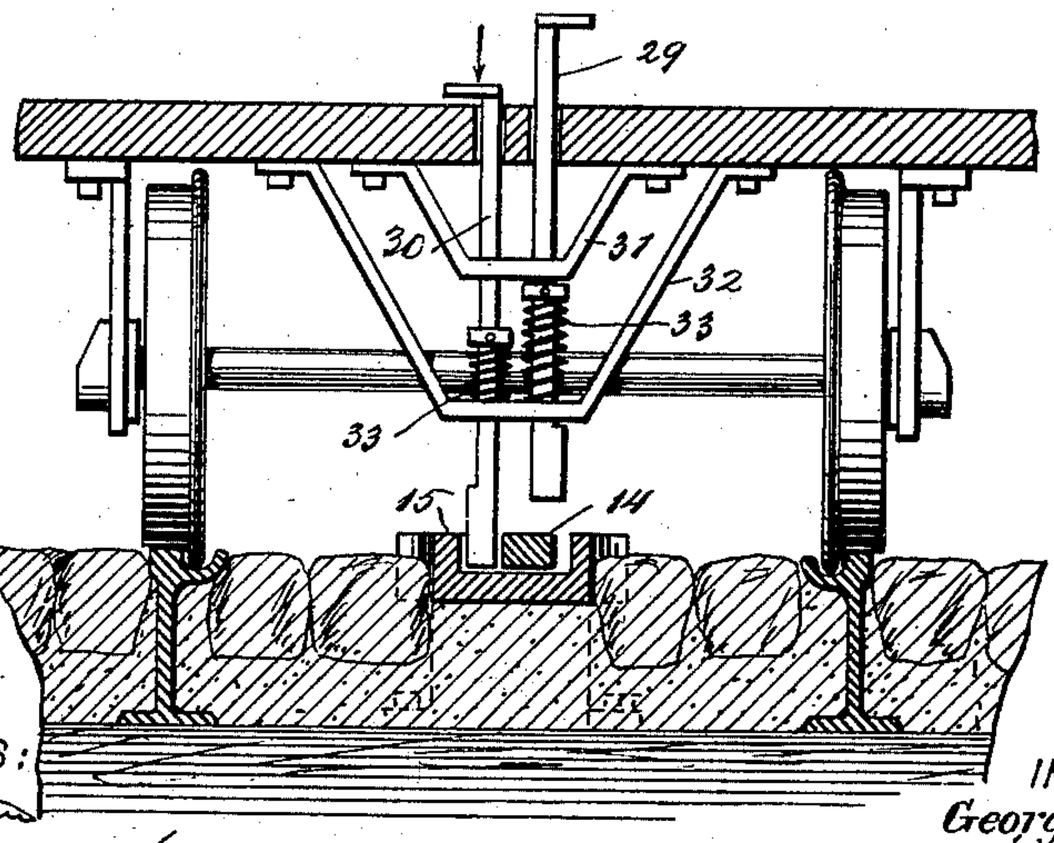


Fig. 5



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UNITED STATES PATENT OFFICE.

GEORGE W. CANTRELL AND WILLIAM J. EMPEY, OF SPOKANE, WASHINGTON.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 679,886, dated August 6, 1901.

Application filed July 25, 1900. Serial No. 24,777. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. CANTRELL and WILLIAM J. EMPEY, citizens of the United States, and residents of Spokane, in the county of Spokane and State of Washington, have invented a new and Improved Railway-Switch, of which the following is a full, clear, and exact description.

This invention relates to improvements in switches, particularly for street-railways; and the object is to provide a switch mechanism of simple construction that may be operated to throw the switch-tongue by the motorman or driver of a car without leaving the car, and, further, to so place the parts that they will at all times be thoroughly lubricated and protected from freezing and from grit or sand, thus preventing undue wear on the parts.

We will describe a railway-switch embodying our invention and then point out the novel features in the appended claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a switch and operating mechanism embodying our invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 1, and Fig. 5 is a partial section and partial elevation showing devices carried by a car for operating the switch.

Referring to the drawings, 10 11 indicate the two rails of a track, in which is located the frog 12, having the swinging switch-tongue 13. Arranged between the rails at any desired distance from the switch-tongue is a shifting lever 14. This shifting lever is pivoted near its forward end within a boxing 15 in such manner that the rear or heel end of said lever may swing transversely of the boxing. At the rear end of the boxing 15 and seated in the ground between the rails is a casing 16, from which a tube or pipe 17 extends to a connection with a casing 18, also located below the surface of the ground, and from this casing 18 a tube or pipe 19 extends transversely of the track to a connection with a casing 20, located underneath the frog 12.

Having bearings in the casings 16 and 18 and extended through the tube 17 is a rock-bar 21, which at its end within the casing 16 has an arm 22, extended upward through an opening in the base of the boxing 15 and entering a notch 23 in the lever 14. A shifting lever 24 is connected to the rock-bar 21 at its end within the casing 18 by means of an arm 25, extended from said rock-bar into an opening 26 in the shifting bar. At the opposite end of the shifting bar is a bolt 27, which extends through a slot 28 in the bottom wall of the frog 12 and has screw-thread engagement with the switch-tongue 13, forward of its pivotal point. This shifting bar 24, as clearly shown in the drawings, extends through the tube or pipe 19.

Carried by a car are two vertically-movable actuating-rods 29 and 30. These rods extend through a platform of the car and are provided at their upper ends with foot-plates. The rods are movable through openings in hangers 31 and 32, attached to the lower side of the platform, and they are held normally in an upper position by means of springs 33, which engage at one end with collars on the rods and at the other end with the hanger 32. These rods are suitably spaced apart, so that one may be engaged against one side of the lever 14, while the other rod is adapted to engage against the other side of said lever, depending, of course, on the direction in which it is desired to shift the switch-tongue.

In operation, assuming the switch-tongue to be in the position indicated in Fig. 1 and it is desired to shift the same for the passage of an approaching car, as the car reaches the lever 14 the rod 30 is to be forced downward, so as to engage with the edge of said lever. Therefore as the car moves along the rod will cause the lever to be shifted, consequently rocking the bar 21, and by drawing upon the bar 24 the switch-tongue will be moved to its opposite position, and obviously when it is to be again moved to the position shown in Fig. 1 the rod 29 is to be moved down to engage with said lever 14.

It is designed that the tubes or pipes 17 and

19 and the several casings should contain oil, not only for the purpose of lubricating the parts, but to prevent an accumulation of water or moisture that may by freezing interfere with the operation of the mechanism. This oil may be placed in the pipes and casings when the mechanism is placed in position.

The operating-lever 14 may be placed at a considerable distance from the switch-tongue, thereby giving the motorman or other operator sufficient time to see whether or not the switch has been properly set and lessening the danger of accidents, as the motorman will have sufficient time to stop the car before reaching the switch.

This device is comparatively cheap to manufacture and may be readily applied to the switch-tongues in ordinary use, and, further, it will be observed that the lever 14 may be operated manually—that is, by means of a bar or the like—if desired.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination with a switch-tongue, of a shifting lever arranged between the rails of the track and having a notch, a casing below the rear end of the lever, a casing rearward of the first-named casing, a tube connection between the two casings, a rock-bar extended through the tube and having bearings in the casings, an arm extended from the rock-bar and engaging loosely in the notch of the lever, a casing at the opposite side of the track from the last-named casing, a tube connection between the two casings, a shifting bar extended through the tube and into the casing, an arm connection between the shifting bar and the rock-bar, and a connection between the shifting bar and switch-tongue, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE W. CANTRELL.
WILLIAM J. EMPEY.

Witnesses:
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