No. 641,338. Patented Jan. 16, 1900.

C. W. SHERBURNE.

TRACK SANDING APPARATUS.

(Application filed Oct. 28, 1899.)

(No Model.) 4 Sheets—Sheet 1.

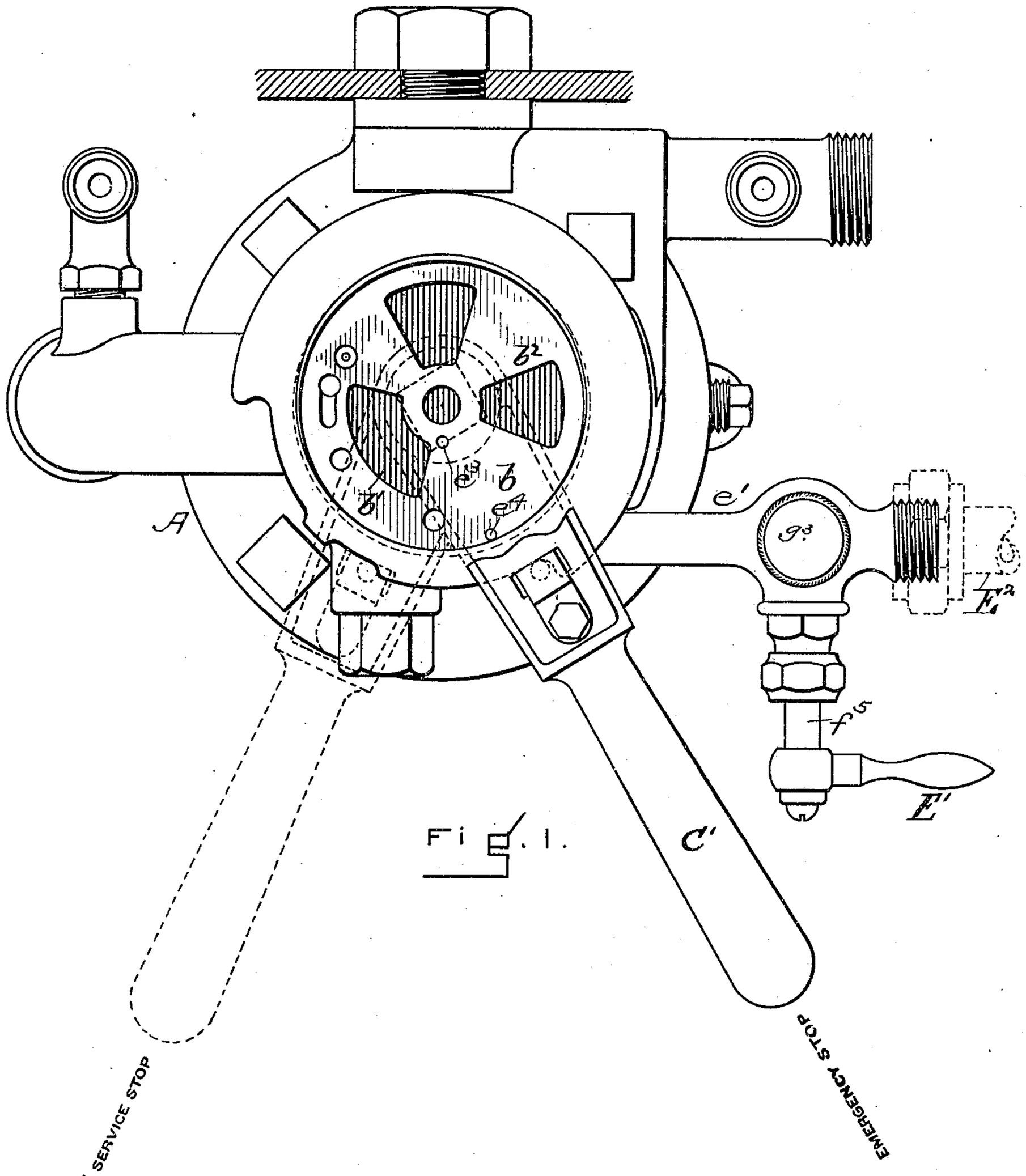

Fig. 1.

WITNESSES:
J. M. Dolan.
M. D. Newman.

INVENTOR:
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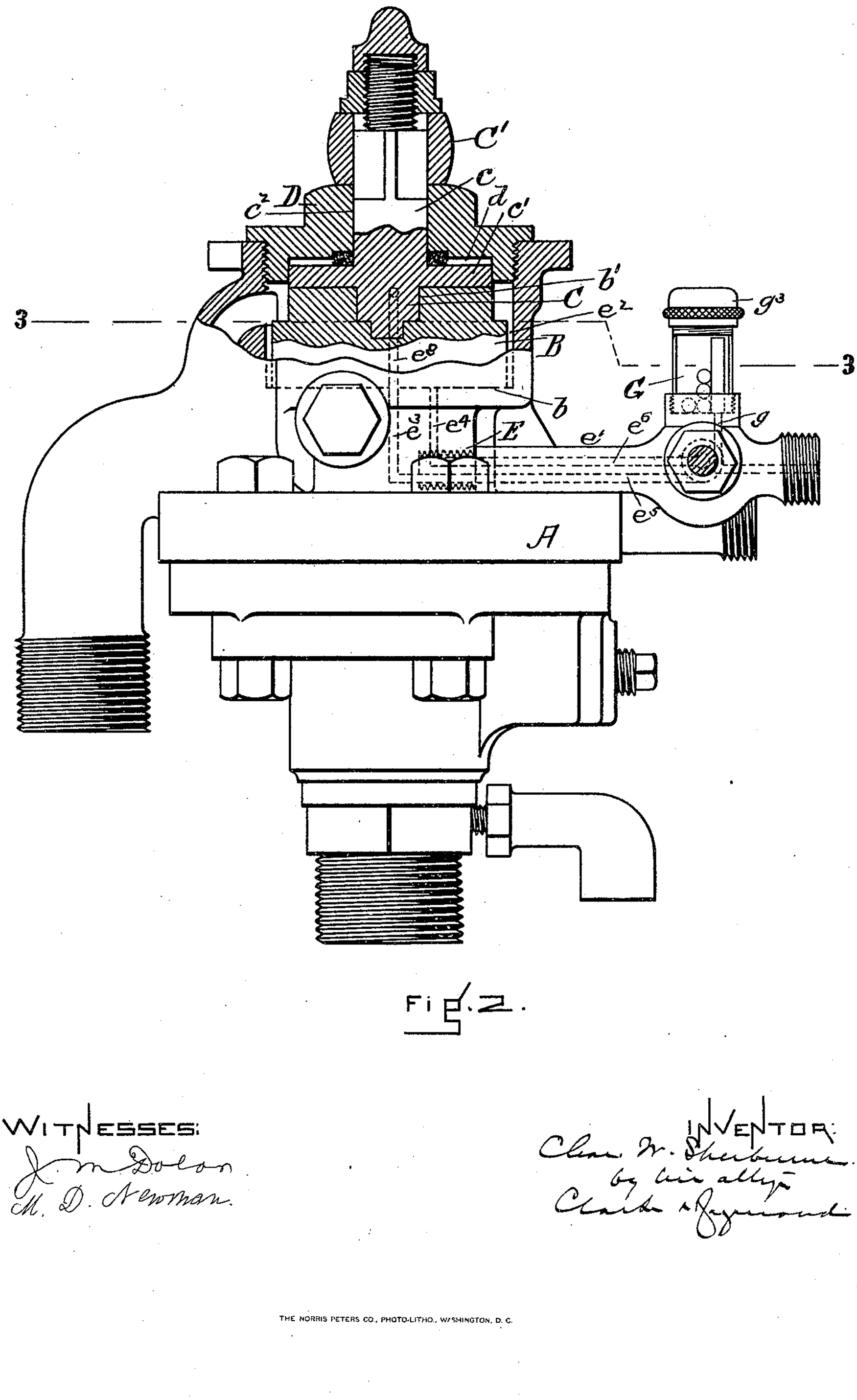

Fig. 2.

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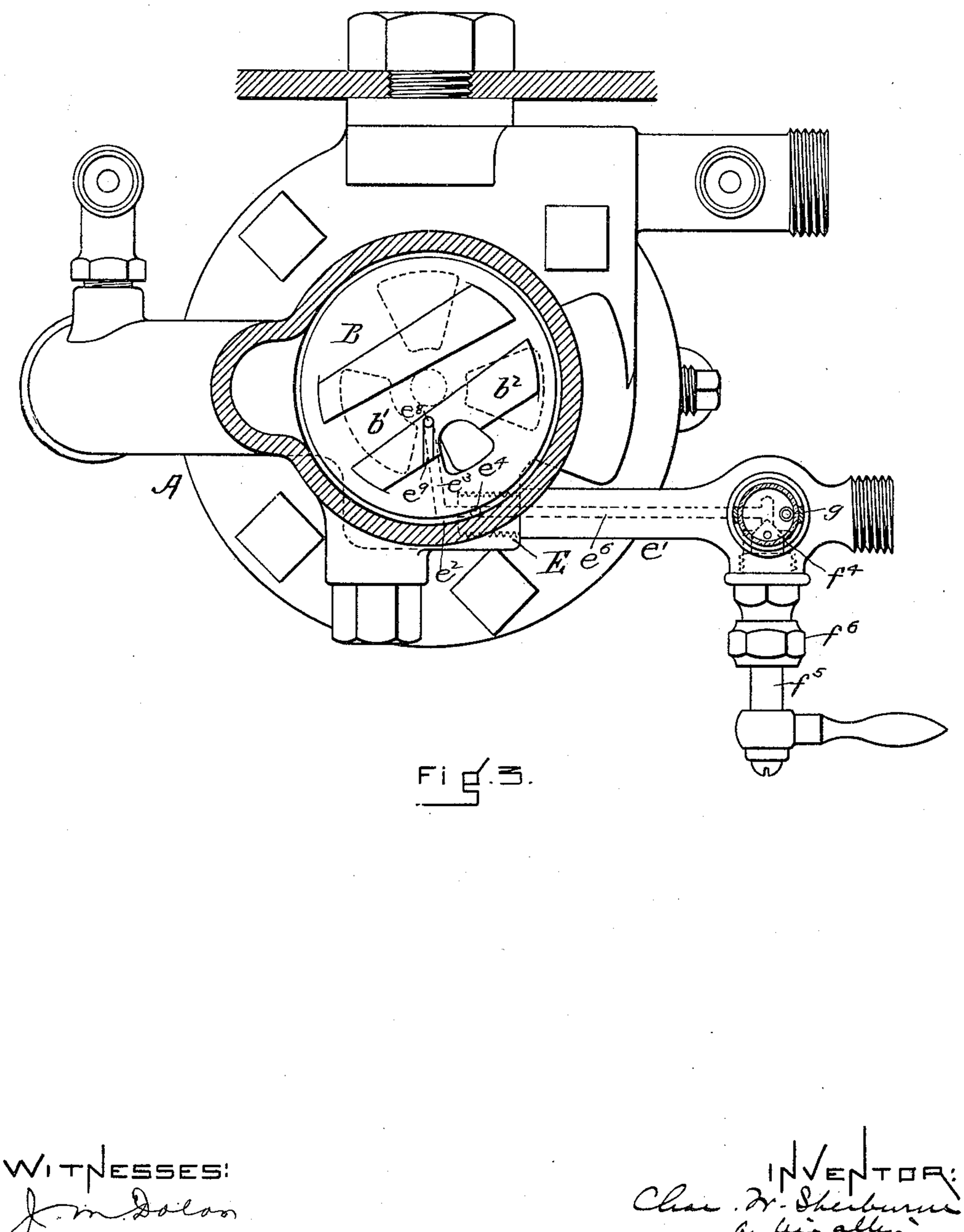

Fig. 3.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 641,338. Patented Jan. 16, 1900.

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(Application filed Oct. 28, 1899.)

(No Model.) 4 Sheets—Sheet 4.

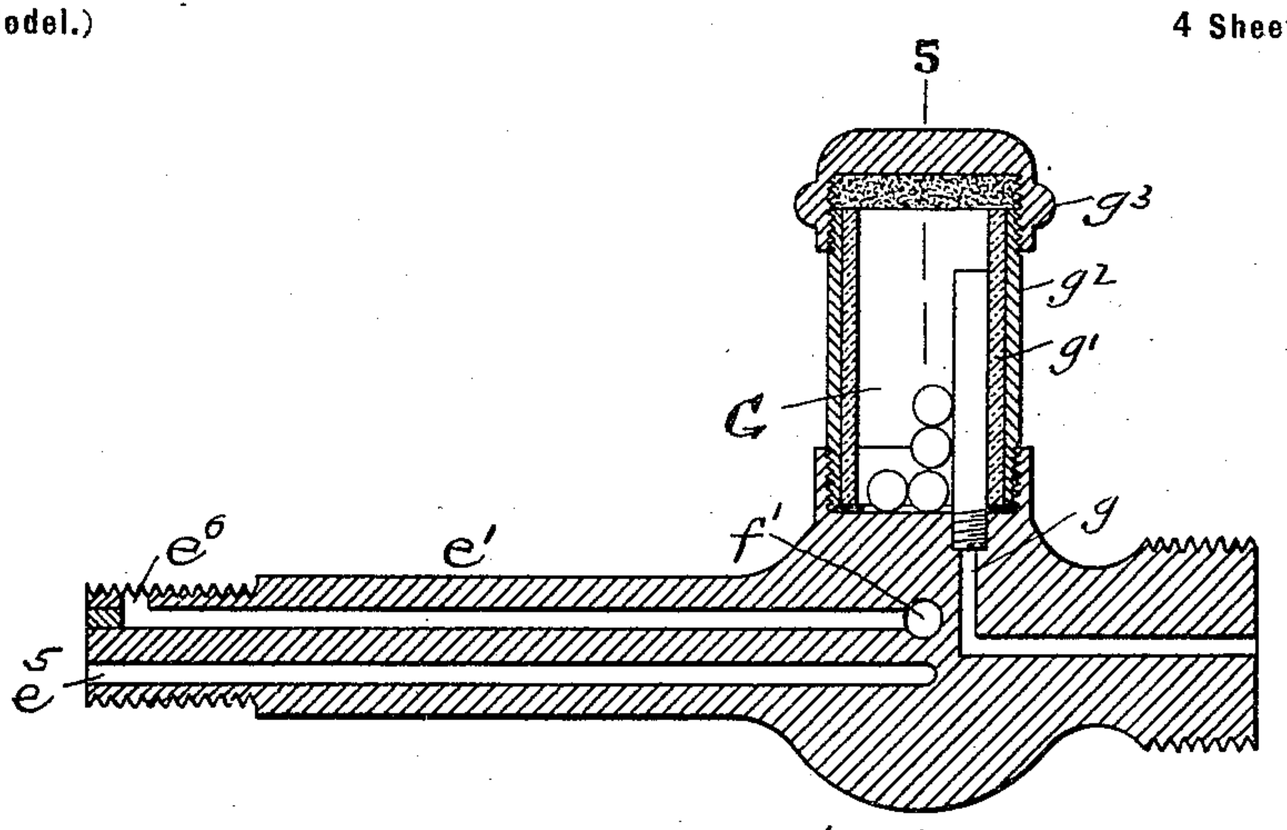

Fig. 4.

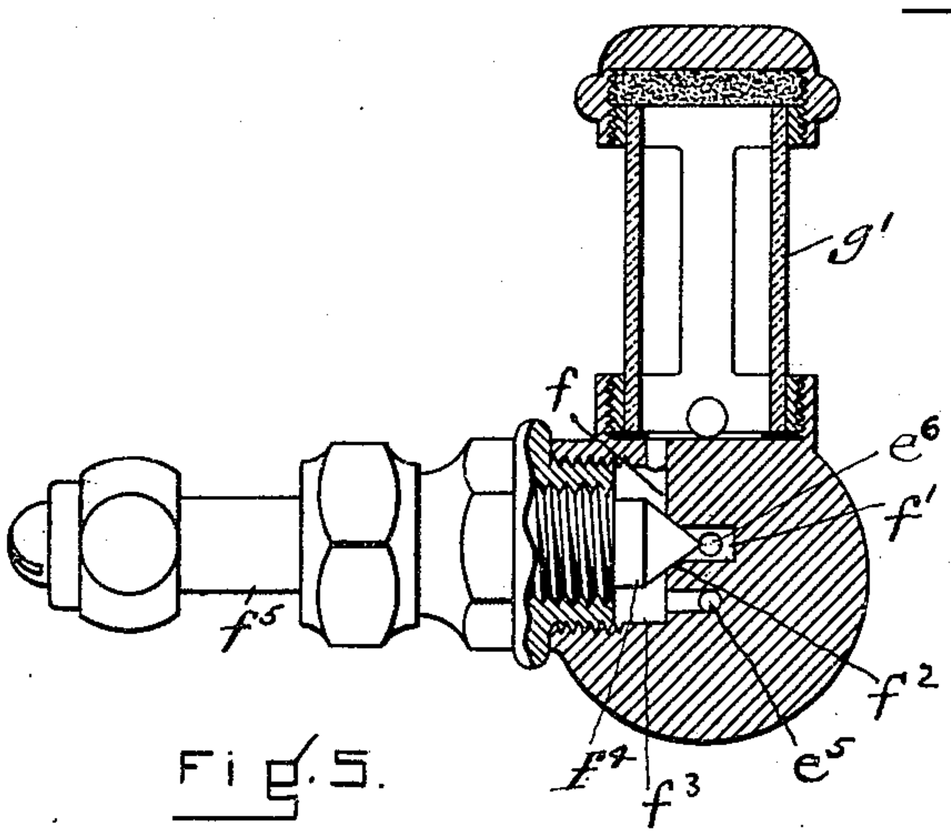

Fig. 5.

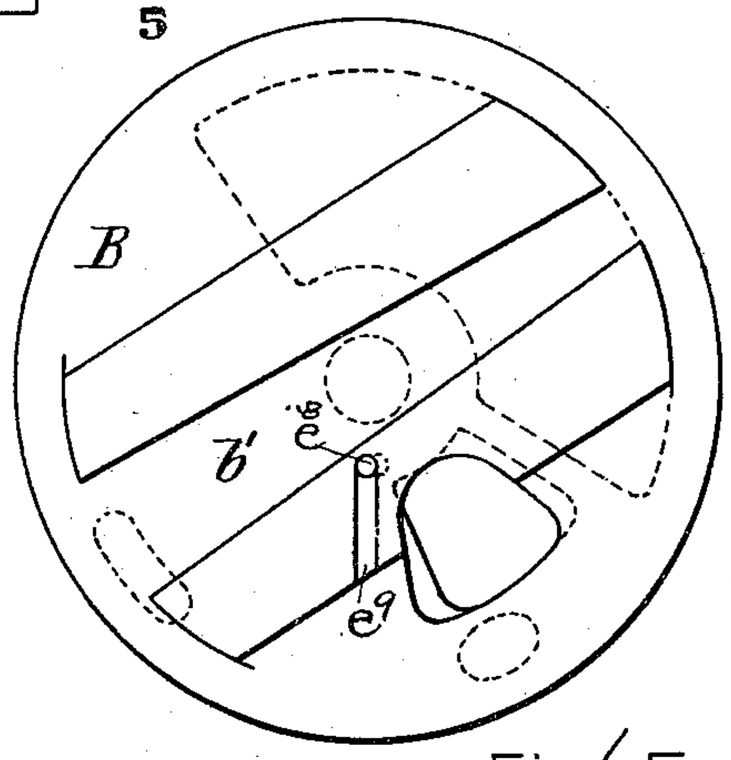

Fig. 6.

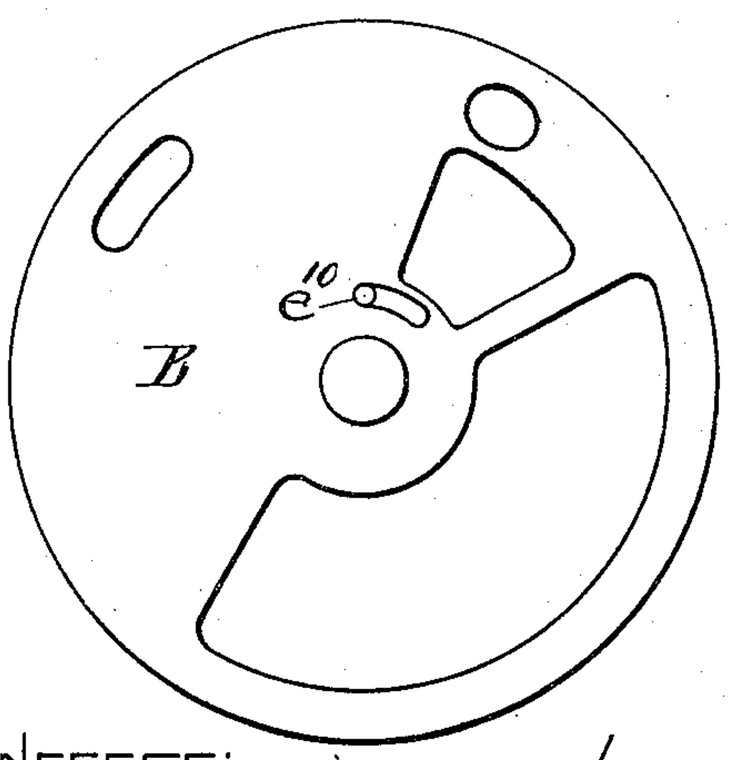

Fig. 8.

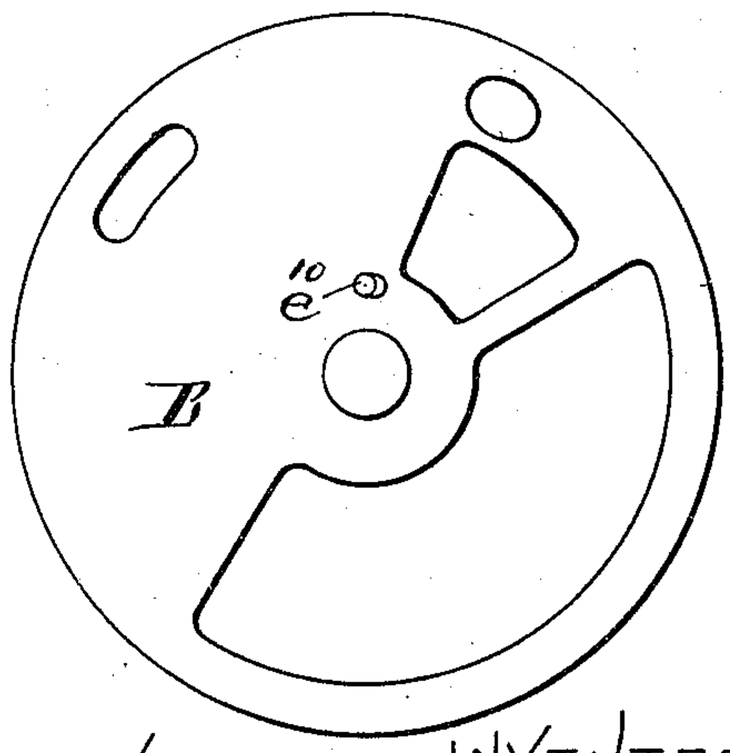

Fig. 7.

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UNITED STATES PATENT OFFICE.

CHARLES W. SHERBURNE, OF BOSTON, MASSACHUSETTS.

TRACK-SANDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 641,338, dated January 16, 1900.

Application filed October 28, 1899. Serial No. 735,080. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. SHERBURNE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Track-Sanding Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to the class of track-sanding devices in which air is used for feeding the sand from the sand-box; and it consists in incorporating in the engineer's valve of an automatic train-brake system a means for supplying and controlling the supply of air to the sand. It is desirable that the operation of the engineer's valve shall in setting the brakes also simultaneously operate the track-sanding device; and my invention is so embodied in the engineer's valve that the sand-feed may take place during the ordinary service use of the valve or during its emergency use only, or during both uses of said valve. It is also applied to the valve in a manner to permit of the operation of the sanding device independently of the operation of the engineer's valve.

Referring to the drawings, Figure 1 is a view in plan of my improved apparatus with the rotary valve and cap removed. Fig. 2 is a view principally in side elevation, a part of the structure being broken away to show the construction of the valve, and the sand air ports and passages being represented by dotted lines. Fig. 3 is a horizontal section upon the dotted line 3 3 of Fig. 2. Figs. 4 and 5 show an air-sift feed, to which reference is hereinafter made. Fig. 6 is a plan of the rotary valve. Fig. 7 is a plan of the rotary valve inverted to show the air-port when arranged to feed air automatically only upon an emergency stop. Fig. 8 is a view in plan inverted of the rotary valve, showing the air-port when constructed to feed air for both the service and emergency stops.

I have represented in the drawings my invention as applied to the well-known engineer's valve of the Westinghouse air-brake system. It is not necessary to describe the entire construction and operation of said valve here; but I will briefly enumerate the parts thereof which are used in applying my invention thereto.

A is the usual valve-casing.

B is the rotary valve, seated upon the stationary valve-seat *b*, in which seat are the usual air-ports of the valve, which are connected or disconnected by the movement of the rotary valve.

C is a key at the inner end of the valve-stem *c* and which is contained in a keyway *b'* in the outer end of the rotary valve. The valve-stem also has a cylindrical extension *c'*, which is integral with it and which is contained in a cavity *d* of a cap D. This cap has a bearing c^2 for the valve-stem and screws over the rotary valve into the valve-casing. Upon the outer end of the stem *c* is the valve-operating lever C'.

For the ordinary work, known as "service" work, meaning the operation of the brakes for usual train stops, the valve is rotated a portion of a revolution by the handle, the extent of such movement being usually determined by the engagement of a spring-catch on the handle with a stationary latch-recess on the valve.

For emergency work—*i. e.*, for making a quicker stop than is made by the service stop—the valve is adapted to be additionally rotated beyond the position at which the latch engages the catch, and the catch is of such a nature that the latch can be moved past it to permit of this additional movement of the rotary valve when it may be necessary to so operate it. These parts are common to the Westinghouse engine-brake.

I will now describe the application of my invention to the valve, calling attention to the fact that I employ the same rotary valve as is used for governing the train-brake without changing in any respect the construction of the valve or that of the valve-seat. The valve-casing is also unchanged, excepting that it has a hole E tapped or otherwise formed in it for receiving one end of the valve-casing *e'*, forming a part of the connection between the air-valve and the sand-box or sand-feeding devices. This hole E is arranged between the two ports *b' b²* in the valve-seat. It is connected with the air-chamber e^2 above the valve-seat by two small passages or ports e^3 and e^4 in the valve-seat. The port e^3 con-

nects with a passage e^5 in the valve-case e' and the port e^4 with the passage e^6 in said valve-case. The first of these ports is the one which is controlled by the rotary train-brake valve B. The second of these ports is not controlled by the rotary valve, it having continuous connection with the air-chamber e^2 above the rotary valve by means of the space about the valve, the said valve not being fitted upon its cylindrical edge tightly in the valve-casing, and thus forming a passage for the air to pass between it and the casing from the chamber e^2 to the port e^4, which is in the valve-seat in line with the wall of the valve-chamber. (See Fig. 1.) The air under pressure is therefore constantly present in the said port e^4 and passage e^6 of the valve; but it is prevented from flowing through said passage, excepting when desired, by means of the hand-valve E′ in said valve-casing.

The port e^3 is opened and closed with the rotary brake-valve B by the brake-valve lever, and it is represented as connected with the air-chamber e^2 by a hole e^8, extending through the rotary valve and which for convenience is placed near the center of the valve and has at its upper end a lateral extension e^9 to connect it with the chamber. The location and direction of this hole in the rotary brake-valve, however, may be varied at will, so long as its inner end is adapted to be brought into line with the port e^3 upon the turning of the valve. The time at which it is connected with the port determines the time when the automatic flow of the air, and therefore the sand, begins, and the connection may be so shaped as to establish a flow of air immediately upon a slight turning of the valve and to continue such flow throughout the entire service and emergency movements of the rotary valve, or it may be arranged to continue during the service movement only or a portion of the service movement or during the emergency movement only or a portion of the emergency movement, these results being governed by the length and position of the entrance e^{10} to the port e^3 in the stationary seat as respects the hole in the rotary valve.

In Fig. 8 of the drawings I have represented the connection between the hole e^8 and the port e^3 as continuous throughout the service and emergency stops and in Fig. 7 as continuous only during the emergency stop and as not connected during the service stop, so that the sand then automatically feeds only during emergency stop.

The valve-casing e', as above indicated, has one uninterrupted passage extending continuously through it from end to end and through which the air released by the turning of the rotary valve of the train-brake flows to the pipe E^2, extending to the sand holding and distributing devices, and an additional passage extending from the end of the casing, connected with the air-supply through or in the train-brake-valve casing. This passage is connected or disconnected with the continuous passage and is governed by a controlling-valve. I have represented as a convenient construction a face f, having a hole f' surrounded by a conical side f^2. (See Fig. 5.) This hole connects the chamber f^3, into which the passage e^6 opens, with the continuous passage e^5 and is controlled by a conical valve f^4, movable with respect to the conical side f^2 and arranged at the inner end of the valve-operating spindle f^5, which is held to the valve by a cap f^6, which screws into the body of the valve. It will be understood that this valve is operated by hand and is used when it is desired to feed sand to the tracks without operating the brakes, the compressed air then passing from the brake system through the engine-valve and passage e^6.

In Figs. 4 and 5 I have represented the sanding device as provided with a sight feed or means whereby the flow of air and the velocity of the flow may be seen. It consists in diverting the passage e^5 into a side chamber G and connecting said chamber again with the passage by the hole g.

The opening to the chamber and the outlet therefrom are out of line, and balls or other objects movable by air are interposed between them. The air passing into the chamber strikes the balls or other objects and moves the same in the chamber, and thus indicates whether air is passing through the chamber and at what speed or force it is passing, the air agitating the balls or other devices more or less, according to the extent of the pressure.

The side chamber comprises a tube g', of glass or other transparent material, confined in an open metal frame g^2, which is screwed to the valve-body, and the tube, of glass, is held in the case by a cap g^3, which screws upon the metal case. A packing is arranged between the cap and the edge of the tube. (See Fig. 5.)

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An engineer's air-valve for a combined train-brake and track-sanding apparatus, having a stationary valve-seat provided with the train-brake air-ports and a track-sanding air-port, and a rotary valve having train-brake air-ports and a track-sanding air-passage which is adapted, upon the movement of the rotary valve in applying the brakes, to make an operative connection with the track-sanding air-port in the stationary seat, as and for the purposes described.

2. An engineer's air-valve for a combined train-brake and track-sanding apparatus having a stationary valve-seat provided with train-brake air-ports, a track-sanding air-passage and a track-sanding air-port, a rotary valve having train-brake air-ports and a track-sanding air-passage, which latter, upon the rotation of the valve, is adapted to be connected with the track-sanding air-port in the stationary seat, an air-chamber upon the side

of the rotary valve opposite the valve-seat and a connection or passage from said chamber to the track-sanding air-passage in the valve-seat, as and for the purposes described.

3. An engineer's air-valve for a combined train-brake and track-sanding apparatus having a stationary valve-seat provided with the usual train-brake air-ports, a track-sanding air-passage and a track-sanding air-port, a rotary valve having the usual train-brake air-ports and a track-sanding air-passage which is adapted, upon the rotation of the valve, to make connection with the track-sanding air-port in the stationary seat, an air-chamber upon the side of the rotary valve opposite the stationary seat, an air-passage from said chamber to the track-sanding air-passage in the stationary seat and a hand-operative, independent valve to open and close said last-named passage.

4. An engineer's air-valve for a combined train-brake and track-sanding apparatus, having a stationary valve-seat provided with the usual train-brake air-ports and also provided with a track-sanding air-port, a rotary valve having the usual train-brake air-ports and a track-sanding air-passage, which valve is adapted to have imparted to it a movement for a service stop and an additional movement for an emergency stop, the said track-sanding air-port in the stationary valve and the said air-passage in the rotary valve not making connection during the movement of the rotary valve in service stops and only making connection during the movement of the valve in emergency stops, as and for the purposes set forth.

5. In a track-sanding apparatus, a sight-feed chamber through which the air supplying the sand box or pipe passes, having an air-inlet at the lower end of said chamber, an air-outlet from the upper end of said chamber and interposed independent indicators contained in the chambers below the air-outlet and adapted to be moved by the air in its passage through the chamber.

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