

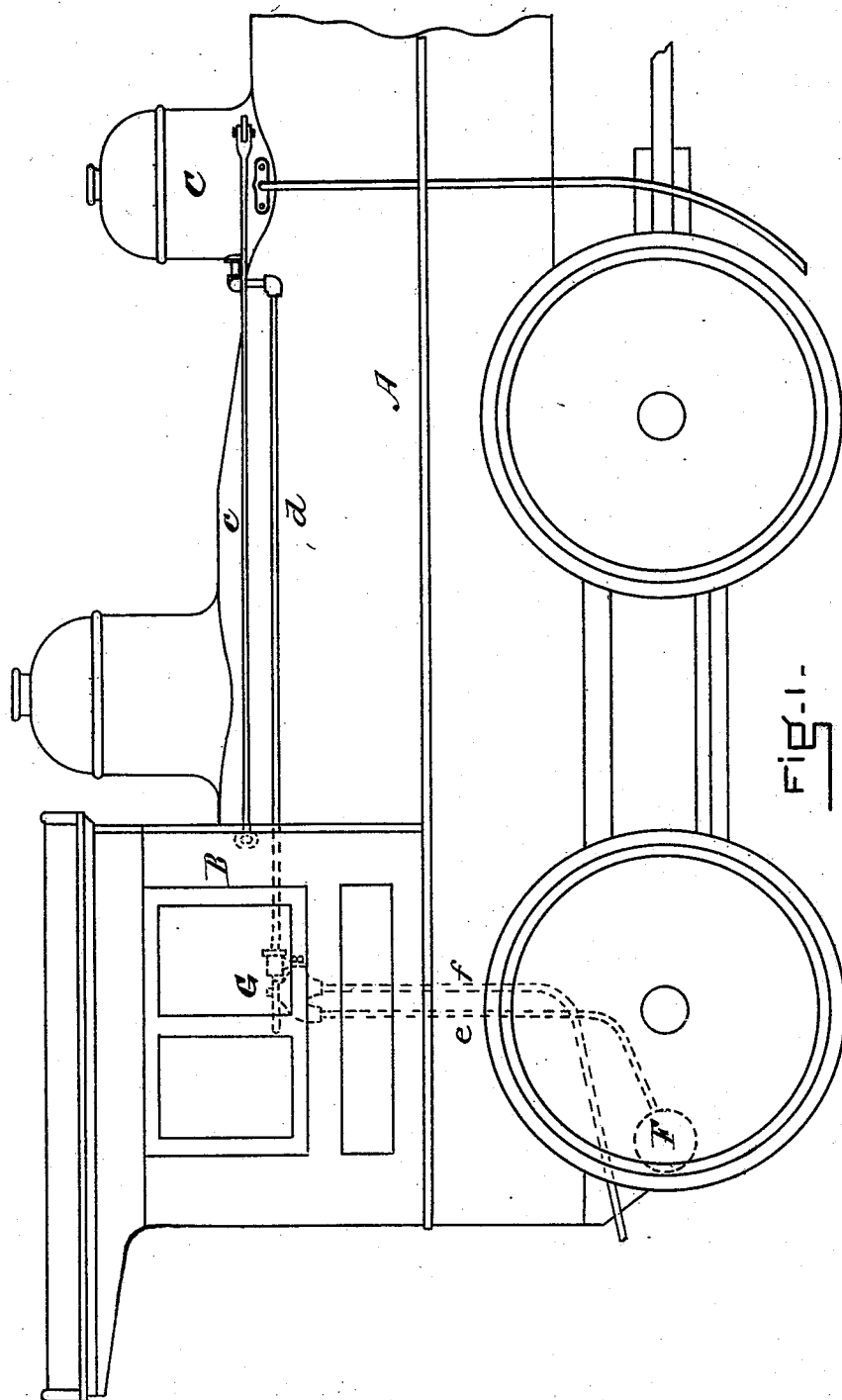
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4 Sheets—Sheet 1.

C. W. SHERBURNE.
TRACK SANDING APPARATUS.

No. 508,849.

Patented Nov. 14, 1893.



WITNESSES
J. H. Dolan.
M. Lynch

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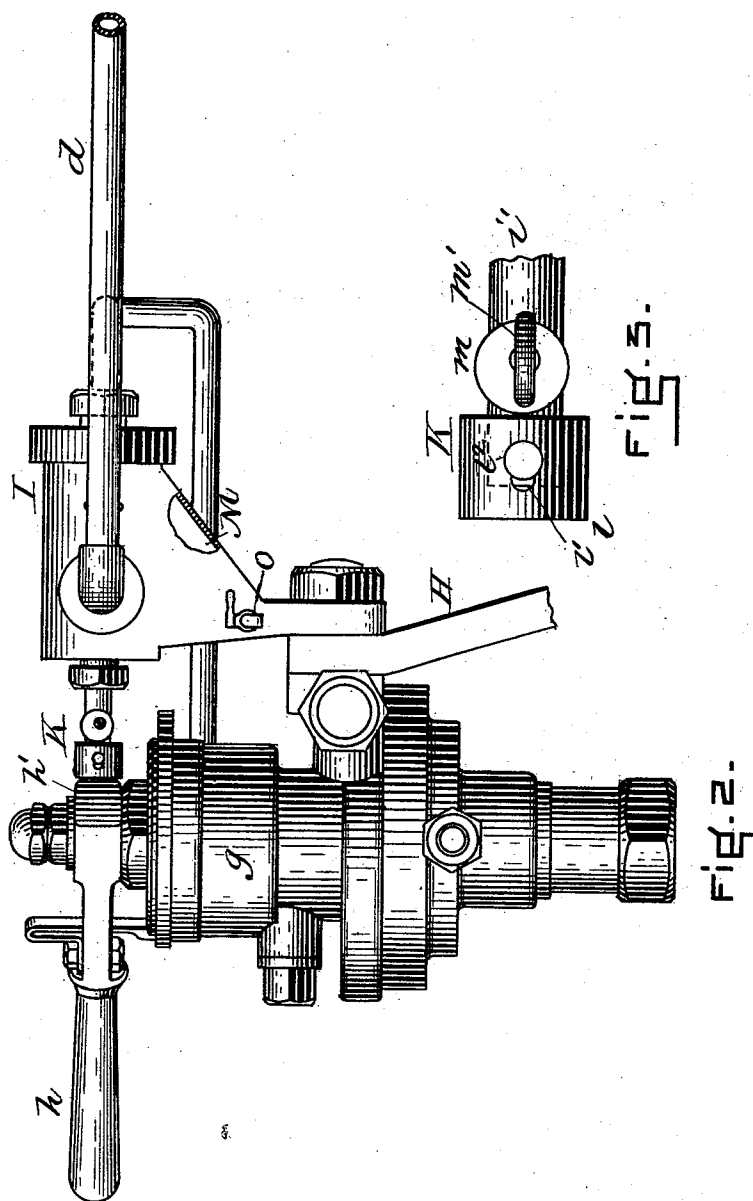
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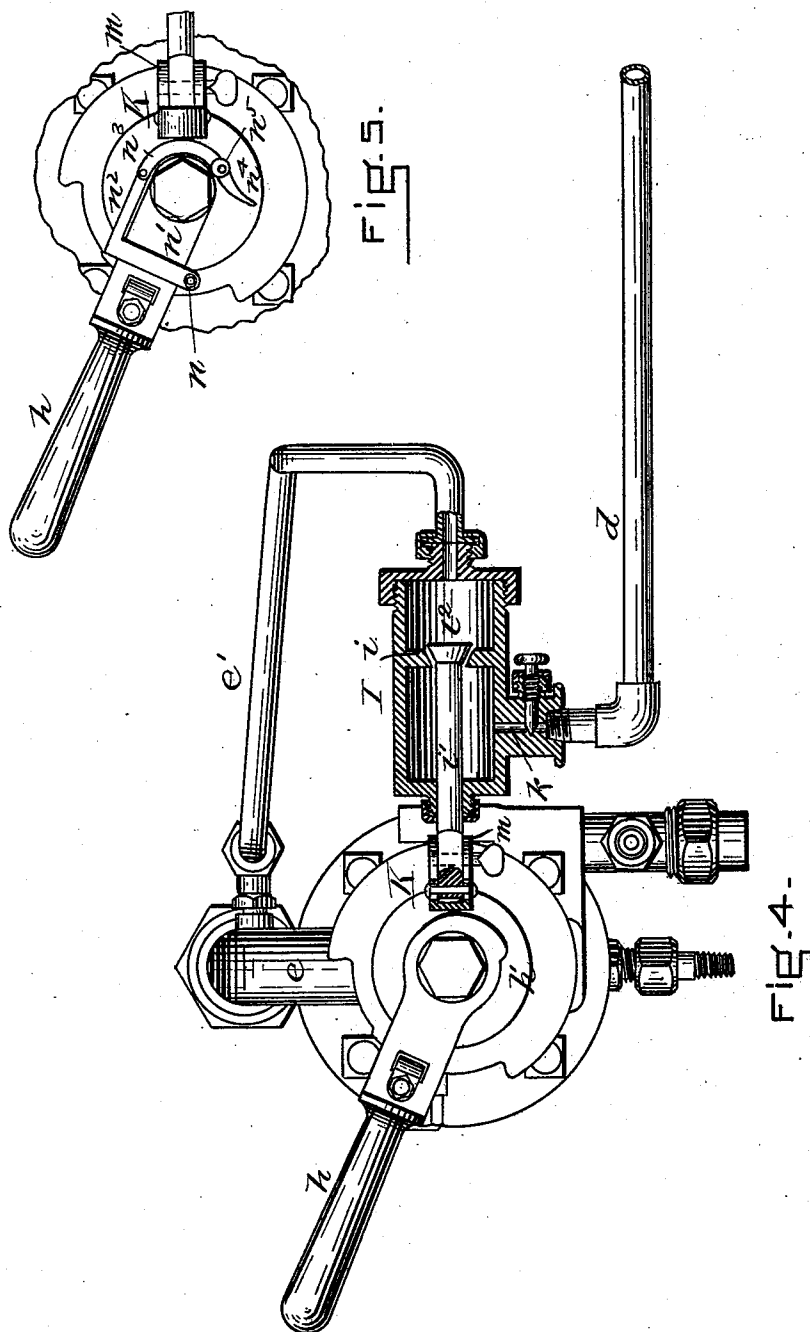
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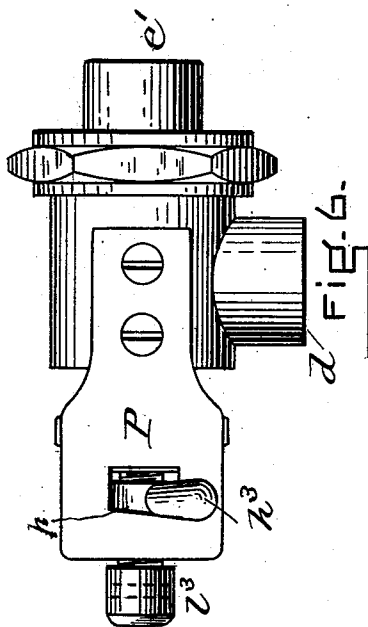
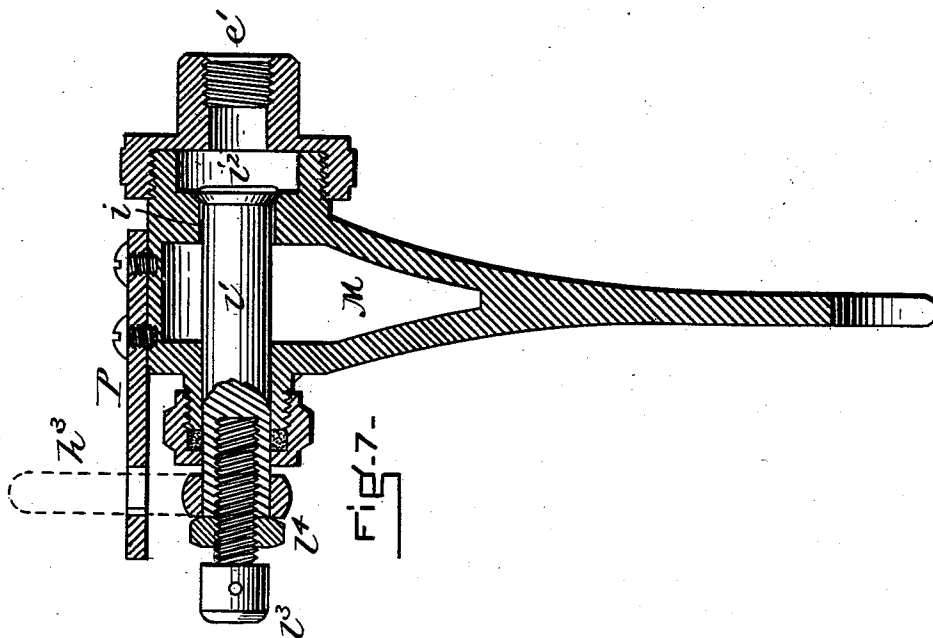
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4 Sheets—Sheet 4.

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UNITED STATES PATENT OFFICE.

CHARLES W. SHERBURNE, OF BOSTON, MASSACHUSETTS.

TRACK-SANDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 508,849, dated November 14, 1893.

Application filed January 3, 1893. Serial No. 457,975. (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.

This invention relates to the combination of the air valve which actuates the track-sanding apparatus with the engineer's valve and with the air supply from the air brake system and to the details of construction of such an apparatus.

In the drawings Figure 1 is a side elevation of a locomotive carrying this apparatus. Fig. 2 is a side elevation of the engineer's valve showing its connection with the valve of the track sanding apparatus. Fig. 3 is a detail which shows the manner of combining the valve stem of the air valve of the track-sanding apparatus with the engineer's valve. Fig. 4 is a horizontal section of the valve of the track sanding apparatus showing pipes in elevation, and showing also engineer's valve in plan. Fig. 5 shows an attachment to the ordinary engineer's valve, by which such an apparatus may be worked without changing the handle of the engineer's valve. Fig. 6 is a top plan of a modified form of the track-sanding valve of Fig. 4; and Fig. 7 is a vertical section of the same.

The figures show how the track sanding valve may be operated by hand without moving the engineer's valve.

Like letters denote like parts in all the figures.

A is a locomotive; B is its cab; and C is a sand box; *c* is the connecting rod of the lever usually employed to operate such valves of the track sanding apparatus. The sanding pipes are in the usual form and extend from the sand box C to the front of the driving wheels. *d* is the air pipe leading to the sand valves or sand barrel, by which and through which the supply of air driven sand

is furnished to the track sanding pipes. All these parts are of usual form and need not be further described.

e is the air pipe leading from the air reservoir F to the engineer's valve, and *f* is the air pipe of the train line. The track-sanding apparatus and engineer's valve are shown in sketch at G. The details of this apparatus shown at G are illustrated in the valve figures.

d is as before the air pipe conveying compressed air to the sand box.

g is the engineer's valve, and *h* is its handle.

H is the bracket which supports the engineer's valve from the head of the boiler.

e' is an air pipe leading from the housing forming a part of the engineer's valve into which housing the pipe *e* enters. This housing being continuous with pipe *e* is lettered *e* in Fig. 4. A cylinder I of Fig. 4 is furnished with a diaphragm *i*, in which diaphragm is a valve seat, to which valve seat a valve *i'* is fitted. The stem *i'* of this valve goes through the cylinder head next to the engineer's valve, and the air pipe *e'* goes through the cylinder head farthest from the engineer's valve. Inside of the cylinder I is a neck through which a channel *k* is made, to which channel the pipe *d* is adapted, which pipe *d* leads to the sanding device.

I have already described in previous patents several devices for employing the air blast in connection with the business of track-sanding, and either one of these may be employed in connection with this apparatus. The pressure of air against the end of the valve *i'* will be sufficient to keep it to its seat, unless it is pressed off by some force applied in opposition to the air current.

The handle *h* of the engineer's valve is provided on its end, where it engages with the stem of said valve, with a cam *h'*, as shown in Fig. 4, and this cam pressing against the end of the valve stem *i'* will throw the valve off its seat as the handle *h* is moved from right to left, and the pressure of air will reseat the valve as the handle is moved from left to right.

The drawings in Figs. 2, 4, and 5 are too small to show the detail of the device for en-

gaging the valve stem i' with the cam on the engineer's valve, and therefore this detail is simply lettered K in those figures. In order to understand the construction of this terminal of the valve stem, Fig. 3 has been named. In that figure i' is the piston rod, l is a cap fitting on the end of the piston rod, and l' is a slot in said cap. l^2 is the head of a pin or screw which goes through said slot and into the piston rod, and prevents the cap l from being readily detached. Upon the side of the piston rod is placed an eccentric m which has a handle on it m' . By turning this eccentric so that its fat side is toward the cap l the piston rod becomes virtually lengthened, and therefore able to engage the eccentric h' on the engineer's lever h , and by turning it so that its lean side is toward the said cap the eccentric will not engage said cam. In order, however, that the valve may be worked by and without working the engineer's valve it would be desirable to make the eccentric with such a throw that when the valve was on its seat, the thin side of the eccentric was against the cap l and by turning the eccentric so that the fat side pressed against the cap l the cap would be driven out against the long part of the cam h' , and the valve i^2 thus lifted from its seat.

In order to provide an easy way of converting the present engineer's valve lever into a valve lever with a cam to it without throwing away the lever I make a frame which is shown in Fig. 5. This frame hooks at n upon the lever handle h . The part n' goes over the top of the handle, and a branch at right angles n^2 goes down at the handle to about breast of the stem of the engineer's valve. At this point a circular part n^3 is hinged which lies close to the end of the spindle, or which can be raised out from it at its outer end. This is provided by hinging the outer end of the semi-circular part n^3 a handle n^4 , which is provided with a small eccentric n^5 , which when turned down against the side of the lever h allows the semi-circular part n^3 to lie close against the end of the lever, but when thrown out to the position shown in Fig. 5 or a little farther throws the outer end of the semi-circular part n^3 away from the end of the handle h and thereby converts the end of this handle into an eccentric, such as is shown in Fig. 4. This detail is merely a method of forming the eccentric shown in Fig. 4 at h' , and it is a detachable eccentric end to the engineer's handle. Of course instead of making the cap of the valve stem l a cap to go outside of the valve stem as shown in the previous figures, and instead of having it adjustable to and fro by an eccentric, it is obvious that it may be made in the form of a screw, and be adjusted by turning the rod. Of course also the moisture trap which is combined with the valve hitherto described as shown in Fig. 2 at M where the sides of the moisture trap are broken away may be of

somewhat different shape than is here shown. Such a modification is shown in Figs. 6 and 7. The pipe leading from the sources of air supply marked e' in the other figures would be attached to the neck also marked e' of Figs. 6 and 7, and the pipe leading to the track sanding apparatus would be attached to the neck marked d in Fig. 6. These necks which really constitute the mechanical parts of the pipes screwed into them, being simply portions of the conduit leading to and from the valve have been lettered the same as the pipes to which they are attached, for the greater clearness of description. The diaphragm in which the valve seat is made is lettered as before i , the valve i^2 , the valve stem i' . The adjusting screw which lengthens or shortens the valve stem so as to bring it in connection, with the eccentrics and the engineer's lever is marked l^3 . A check nut l^4 is run upon this screw against the end of the valve stem i . A small lever h^3 having an eye at its end is placed with the eye around the valve stem, and its side presses against the check nut l^4 . If now this lever could be moved toward the valve seat, as it fits the end of the valve stem tightly both being made slightly conical or with shoulders, until it forces the valve from its seat and allows air to pass into the chamber M, which serves as a moisture trap and from which moisture can be drawn out through the drainage cock o of Fig. 2, which would be placed at or near the lower point of the chamber M in Fig. 7. A plate P is fastened upon the top of the chamber M, as shown in Figs. 6 and 7, and in this plate there is a slot p which is inclined as shown in Fig. 6. Through this slot the handle h^3 projects upward and if drawn from the position shown in Fig. 6 toward the other end of the slot the handle will be movable sidewise toward the valve i^2 , and will move with it the piston rod i' endwise until the valve is opened. This contrivance therefore allows the engineer to open the valve by hand and is an exact equivalent for the construction at first described and illustrated in Fig. 3.

The claim of this specification having been put in interference with those of other inventors, and a new application, Serial No. 482,162, of August 2, 1893, having been filed for the matters not involved in the interference controversy, no claim is made herein to specific details of construction, but only to the broad mechanical combination of the air conduit originating in the air brake pressure supply, and discharging into the sanding apparatus, with a valve in said conduit, the engineer's brake valve, and mechanical connections between the two valves, whereby they are moved simultaneously, and air is automatically supplied to the sanding apparatus when the brakes are applied.

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

In an air actuated track sanding apparatus the combination of two air pipes connected with the same source of air supply, under pressure one leading to the sand storage and delivery device, and one to the brake apparatus, each of said air pipes being provided with a shut off valve, with said sand storage and delivery apparatus proper and with said train brake apparatus proper, and with a single handle under control of the engineer to actuate both said valves together, as and for the purposes described. 10

CHARLES W. SHERBURNE.

In presence of—

J. M. DOLAN,

F. F. RAYMOND, 2d.