

(No Model.)

4 Sheets—Sheet 1.

C. W. SHERBURNE.
TRACK SANDING APPARATUS.

No. 506,645.

Patented Oct. 10, 1893.

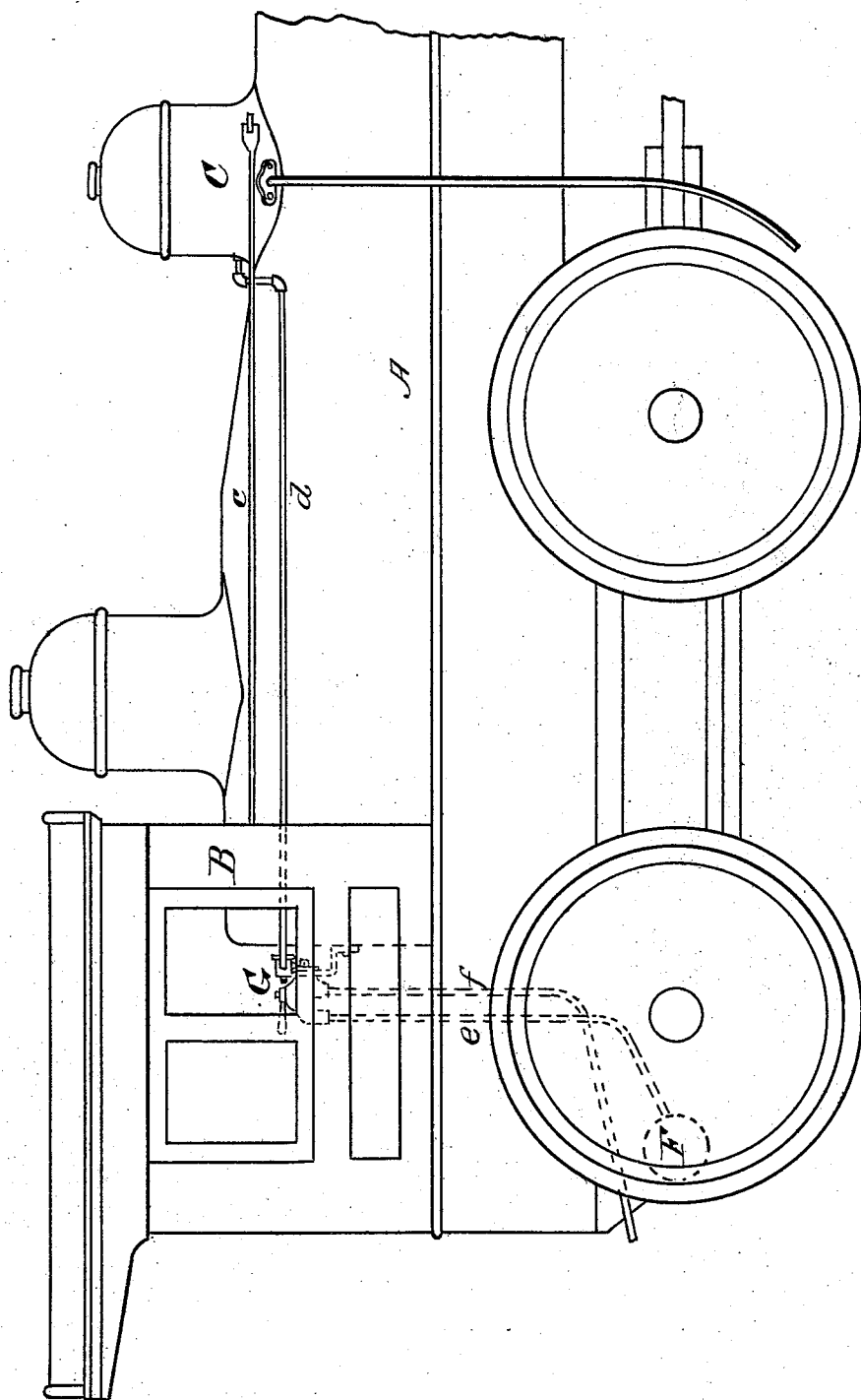


Fig. 1.

WITNESSES

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INVENTOR

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Charles F. Joyner and

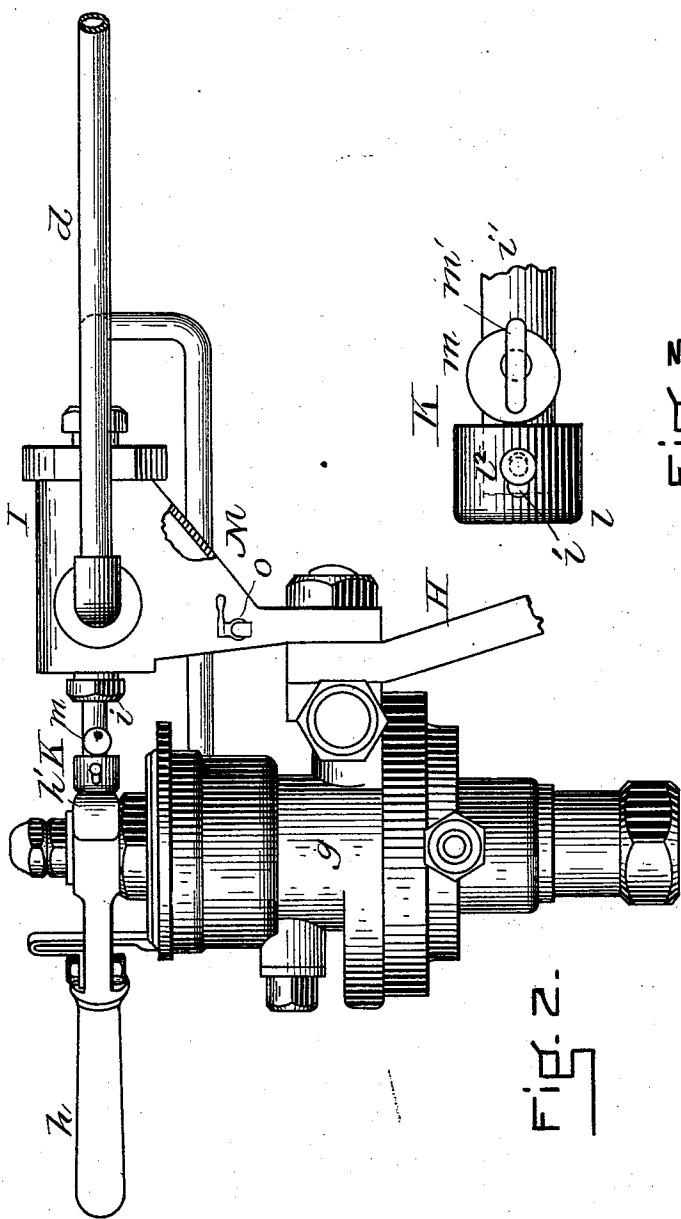
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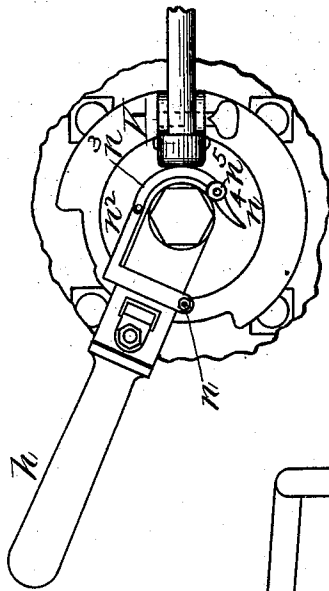


FIG-5-

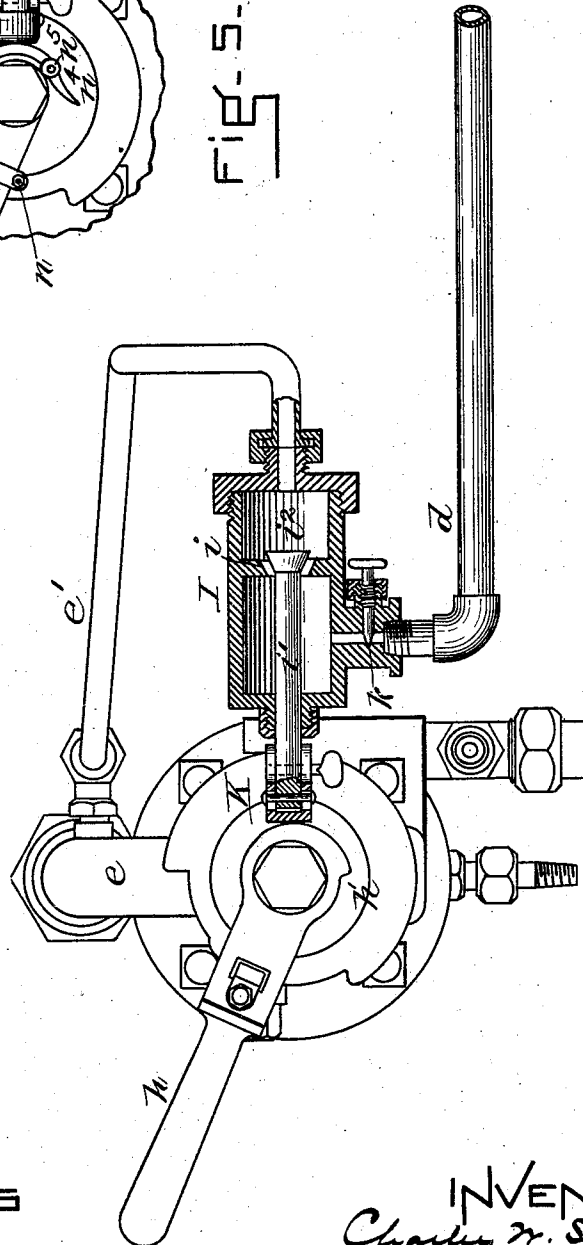


FIG-4-

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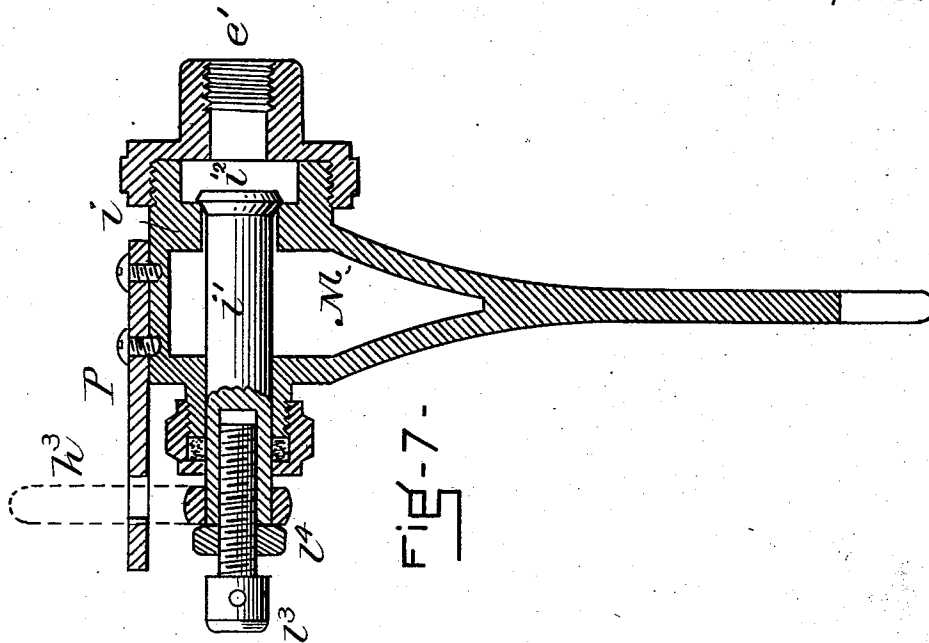


Fig-7-

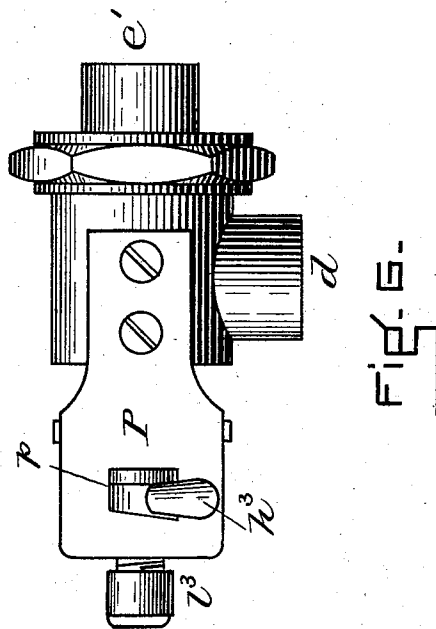


Fig-6-

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UNITED STATES PATENT OFFICE.

CHARLES W. SHERBURNE, OF BOSTON, MASSACHUSETTS.

TRACK-SANDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 506,645, dated October 10, 1893.

Original application filed January 3, 1893, Serial No. 457,975. Divided and this application filed August 2, 1893. Serial No. 482,162. (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.

The application is a division of application Serial No. 457,975, of January 3, 1893, and is made for the purpose of taking out of interference those matters of invention in the apparatus hereinafter described which are not claimed by the claim put in interference, and the descriptive part of the specification is substantially the same as the descriptive part of the former specification referred to.

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 air valve of Fig. 4, and Fig. 7 is a vertical section of the same. These figures show how the track sanding air valve may be operated by hand without moving the engineer's valve.

Like letters denote like parts in all the figures.

A is the locomotive. B is its cab, and C is a sand box. *c* is the connecting rod of the le-

ver usually employed to operate such sanding 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.

Fig. 2: *d* is as before the air pipe conveying compressed air to the train line. *g* is the engineer's valve, and *h* its handle. H is the bracket which supports the engineer's valve from the head of the boiler.

e' Fig. 4 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*, Fig. 1, 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 the previous patent 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 re-seat the valve as the handle is moved from left to right.

5 The drawings in Figs. 2, 4 and 5 are too small to show the detail of the device for engaging 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
10 to understand the construction of this terminal of the valve stem, Fig. 3 has been made. 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
15 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
20 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
25 eccentric will not engage said cam. In order however, that the valve may be worked by the engineer and without working the engineer's valve, it would be desirable to make the eccentric with such a throw that when the
30 valve was on its seat, the thin side of the eccentric should be 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
35 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
40 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 abreast of the stem of the engineer's valve.
45 At this point a semi-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 to the outer end of the semi-circular part n^3 a handle n^4
50 which is provided with the small eccentric n^5 , which when turned round 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
55 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 simply a
60 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
65 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
70 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 source of air sup-
75 ply marked e' in the other figures would be attached to the neck, also marked e' in Figs. 6 and 7, and the pipe leading to the sand box of the track sanding apparatus would be attached to the neck marked d' in Fig. 6. These
80 necks, which really constitute 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
85 greater clearness of description.

The diaphragm in which the valve seat is made is lettered as before i , the valve stem i' , and the valve i^2 . The adjusting screw which
90 lengthens or shortens the valve stem so as to bring it into connection with the eccentric on 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
95 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
100 of the valve stem tightly, both being made slightly conical or with shoulders, it would force the valve from its seat and allow air to pass into the chamber M which serves as a
105 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
110 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
115 other end of the slot, the handle will be moved sidewise in the direction of the valve i^2 , and will move with it the piston rod i' endwise, until the valve i is opened. This contrivance,
120 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.

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

1. The combination in a track sanding apparatus adapted to be operated by compressed
125 air derived from the air brake system, of an air pipe e' , a valve controlling the passage of air from said air pipe toward the track sanding apparatus, the pipe d leading from said
130 valve to the track sanding apparatus, means of connecting said valve to and disconnecting it from the engineer's lever h , the engineer's lever h , and an independent handle for operating said valve, whereby the same may be

actuated on moving the engineer's valve, or actuated by hand at the will of the engineer, substantially as described.

2. In a combined air brake apparatus and track sanding apparatus operated by air derived from the air brake apparatus, the combination of a valve which controls the access of air to the track sanding apparatus with the handle of the engineer's valve and a cam on said handle, and with an independent handle provided with or governed by a cam, whereby one and the same valve and one set of air pipes may be employed to admit air to the track sanding apparatus at the will of the engineer, by the movement of the handle of the engineer's valve, when applying the brakes or by the movement of the other handle when the brakes are not applied, substantially as described.

3. The combination in an air actuated track sanding apparatus of the handle of the engineer's valve with a detachable cam frame, and with the valve which controls the admission of air to the track sanding apparatus, and with the valve stem thereof, substantially as described.

4. In an air actuated track sanding apparatus, an air valve which controls the admission of air to the air pipe leading to the sand box, in combination with three other ele-

ments: to wit,—with said air pipe, with the handle which controls the train brake valve, and with an extensible valve stem, substantially as and for the purposes described.

5. In an air actuated track sanding apparatus, the combination with the valve stem of the valve which admits air to the track sanding apparatus, of the sliding cap *l*, and eccentric *m*, substantially as described.

6. In an air actuated track sanding apparatus, the combination of the moisture separator *M* with the valve *i*² which controls the air pipe leading to said moisture separator and shuts off from it or admits to it the air under pressure for actuating the track sanding device proper, substantially as and for the purposes described.

7. In an air actuated track sanding apparatus containing means for admitting or excluding air from the air pipe leading to the sand box or sanding pipes, the further combination of the lever *h*³ and cam plate *P* provided with the cam slot *p*, with the valve *i*², substantially as and for the purposes described.

CHARLES W. SHERBURNE.

In presence of—

J. M. DOLAN,

F. F. RAYMOND, 2d.