

No. 820,340.

PATENTED MAY 8, 1906.

F. BASON.
TRACK SANDING DEVICE.
APPLICATION FILED OCT. 18, 1905.

2 SHEETS—SHEET 1.

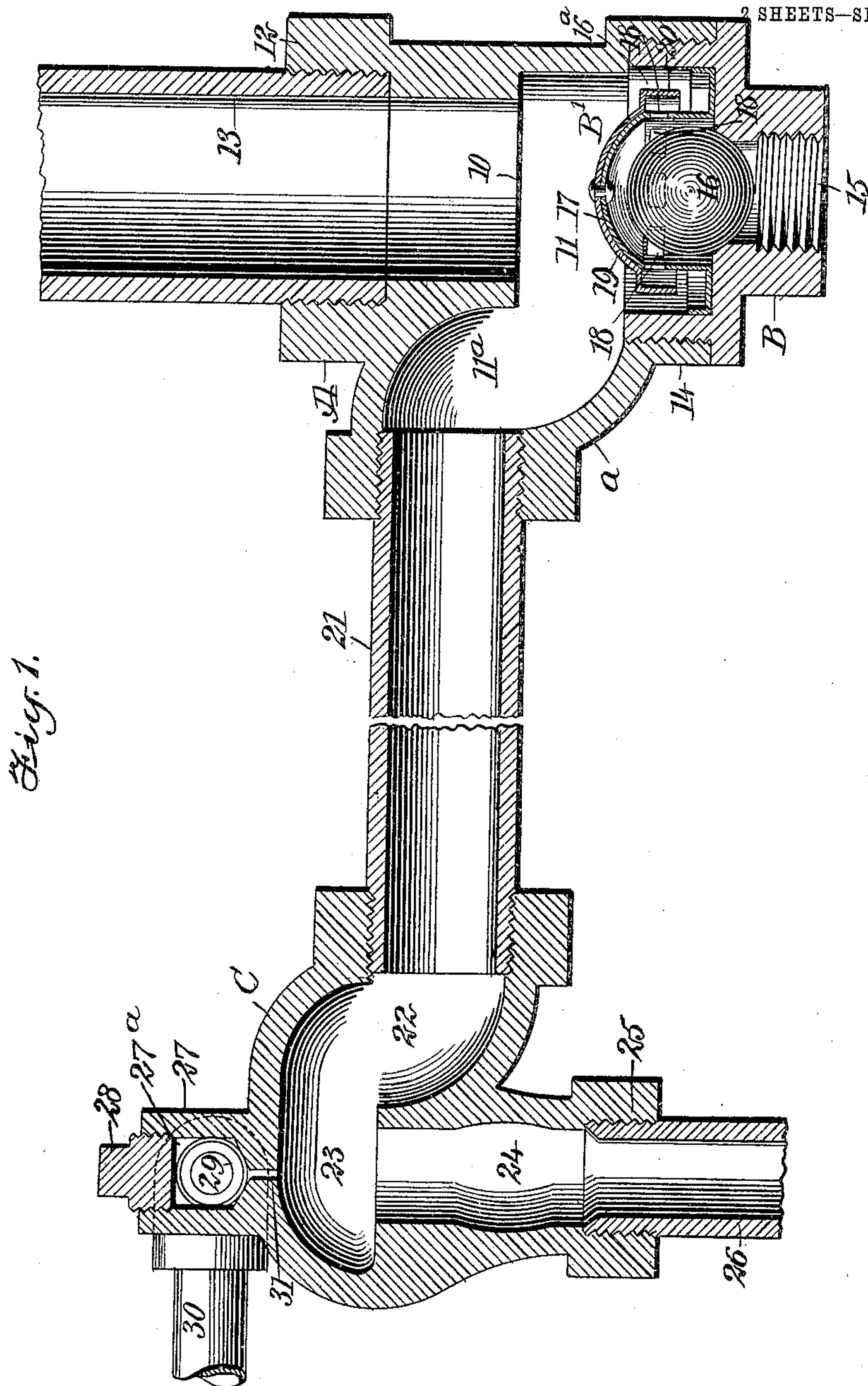


Fig. 1.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

FREDERICK BASON, OF CHICAGO, ILLINOIS.

TRACK-SANDING DEVICE.

No. 820,340.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed October 18, 1905. Serial No. 283,256.

To all whom it may concern:

Be it known that I, FREDERICK BASON, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Track-Sanding Device, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide means for admitting atmospheric air, hot or cold, to the sand at or near the base or bottom of the sand receiver or reservoir, trap, or sand-box for the purpose of relieving from vacuum the compressed air employed, which compressed air forces the sand and atmospheric air to the ejector, the said sand and atmospheric air being drawn properly commingled from suitable sources of supply, due to the passage of the aforesaid compressed air through the device, to its discharge portion.

Another purpose of the invention is to provide a construction of track-sanding device which will insure the perfect cleansing of the delivery-pipe from wet-sand obstructions and which will prevent the sand being blown from the atmospheric-air inlet and sand-box over the machinery of the locomotive, an automatically-acting relief-valve being provided for this latter purpose.

Another purpose of the invention is to provide means for discharging the water of condensation by the compressed air into the delivery-pipe in advance of the sand and for draining or pumping the sand from a receiver or sand-box by means of an ejector placed some distance from the box.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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 both the figures.

Figure 1 is a longitudinal section through one form of the track-sanding device, and Fig. 2 is a longitudinal vertical section through a slightly-modified form of the device to be used in connection with the interior of the sand-box.

Among the objects of the invention is to provide a more reliable, practical, and durable device than heretofore employed for track-sanding purposes and one which can be readily attached to the delivery-pipes of

gravity-sanders or the sand-box direct, inside or out, in the attainment of which I use an ejector or jet-pump of simple construction operated by compressed air or other fluid for elevating and accompanying sand or other material from a receiver by exhaustion of air through a suction or leading pipe communicating with it from the said receiver and forcing it from the said ejector through a delivery-pipe to the track near the tread of the wheels of the locomotive or car or to any other desirable place, all of which is accomplished by means of a novel atmospheric jet relief inlet and valve applied to the said receiver at or near its base for the admission of air to the sand when operated by the compressed-air jet, assisting the lifting and conveyance of the sand and relieving the said air-jet from vacuum. Should wet sand obstruct the discharge or delivery pipe, the said valve will close, which will prevent any dry sand from being blown out by the compressed air accumulated between the said valve and the obstruction formed in the delivery-pipe, and the pressure will at such time be increased sufficiently to blow out the obstruction, whereupon the relief-valve, which was formerly closed, will immediately open, and dry sand will be ejected from the delivery-pipe to the track, which delivered dry sand will be properly commingled with air or other fluid employed.

Under the construction employed in Fig. 1, A represents a casing or receiver for the sand, and the said receiver is provided with a tube 10 at its upper portion, surrounded by a flange 12, and to said flange portion of the receiver a supply-pipe 13 is connected and likewise connected with a sand-box or other source of sand-supply. The pipe 10 above referred to is somewhat in the form of a nipple and extends down into the chamber 11 of the said casing A to a point near its bottom, and an upwardly-curved elbow-section 11^a is connected with this receiving-chamber 11. The elbow-section, which is designated as *a*, is provided with an inwardly-threaded flange for a purpose to be hereinafter described. An opening is made in the bottom of the chamber 11 of the casing A below the lower end of the throat or nipple 10 formed therein, and the casing is provided with a downwardly-extending collar 14, interiorly threaded to receive a relief-valve carrier B, which is provided with an inlet 15 in direct communication with the atmospheric air, which open-

ing can be connected by a tube with the atmospheric air at some distance from the device. A ball-valve 16 is seated in the valve-carrier B at the upper or inner end of the air-inlet 15, and a jacket 17 loosely incloses the valve, the said jacket extending down to the bottom portion of the chamber 16^a, formed at the upper portion of the said carrier, and the upper portion of the said jacket 17 is preferably arched and extends into the sand-receiving chamber 11 of the casing A. In fact, the upper portion of the chamber 16^a in the valve-carrier is in communication with the said receiving-chamber 11 of the casing A. This jacket 17 is provided with a series of annularly-arranged openings 18 in its side portions, and a shield 19 is made to rest upon the top of the jacket 17, being secured thereto, and this shield 19 is provided at its lower edge with an offset annular flange 20, extending some distance from yet guarding the apertured portion of the jacket, and ample space is provided between the lower portion of the flange 20 and the bottom of the said chamber 16^a. When the valve 16 is unseated, air entering the jacket 17 will pass out through the apertures 18 therein into the flange portion 20 of the shield 19 and out therefrom into the sand-receiving chamber 11 of the casing A, where the atmospheric air mingles with the sand. The main object of the shield 19 is to trap the sand and prevent it from entering the chamber of the jacket 17 by the jar of the engine or car in motion when the device is not in operation and the sand in the receiver is at rest. A connecting-pipe 21, preferably horizontal, is attached to the curved portion 11^a of the sand-receiving chamber 11, and this connecting-pipe 21 is likewise properly secured to an end portion of the casing of an ejector or jet-pump C. Where the pipe 21 connects with the ejector or jet-pump a sand trap or passage 22 is formed, curved from the upper interior portion of the ejector-casing downwardly to the said pipe 21, the curvature of the said passage 22 being the reverse of the curvature of the passage 11^a in the casing A and connected with the opposite end of the said pipe 21. An extended yet shallow chamber 23 is formed in the upper portion of the ejector or jet-pump casing, and this upper chamber 23 is directly connected with a more contracted and downwardly-extending passage 24, also in the said casing of the ejector, and at the lower portion of this latter passage 24 a flange 25 is formed at the bottom of the ejector-casing to receive the upper end of the discharge-pipe 26, which pipe leads to the track or to wherever the sand is to be distributed. At the upper portion of the ejector-casing a sleeve or collar 27 is formed, producing thereby a chamber 27^a, which is closed at the top by a plug 28 in order that access may be obtained to the said

chamber to clean the same, and preferably the curved delivery end 29 of the fluid-supply pipe 30 is made to enter the upper chamber 27^a, the said pipe 30 being connected, for example, with a suitably-placed controlling-valve, so as to supply compressed air in suitable quantities to the ejector or jet-pump C through the medium of a small opening 31 connecting the upper chamber 23 of the ejector with the receiving-chamber 27^a at its top. Thus in the general operation as the fluid under pressure is turned on into the ejector or jet-pump a suction is created therein and likewise in the connecting-pipe 20, which suction extends to the sand-receiving casing A, causing the valve 16 to be unseated and to admit air into the chamber 11 of said casing A, and thus air, with the sand, will be drawn into the casing of the ejector and forced out therefrom commingled through the medium of the discharge-pipe 26.

Under the construction shown in Fig. 2, wherein the ejector or jet-pump E is connected directly with the sand-box D, said box has a casing D' constructed therein, having a trap outlet or passage 34, more or less upwardly curved or elbow-shaped, which outlet is carried to an aperture 34^a in a side of the sand-box, and where this connection is made a washer 34^b is located. The outer end portion or outlet-passage 34 receives the inner end of a connecting-pipe 35. The casing D' is provided with an inlet-opening 32 in its side portions at the bottom of the sand-box, and an opening 32^a is produced in the top of the casing D' to the rear of the outlet-passage 34, and in this opening 32^a the lower end of an air-feed pipe 33 is located, having its other end in connection with the outside atmosphere. The air in this pipe may be heated by carrying the pipe in close proximity to the boiler or by other means. The casing of the ejector or jet-pump E differs slightly from the casing of the ejector C, as shown in Fig. 1, in that it is provided with a single substantially pear-shaped chamber 37, provided with an outlet-pipe 38, through which the sand escapes to the track. The chamber 37 of the ejector or jet-pump E is provided with an upwardly-curved suction branch 36, which has suitable connection with the aforesaid connecting-pipe 35, and at the top portion of the ejector or jet-pump an inlet-chamber 40^a is formed within a sleeve or collar 39, closed at the top by a removable plug 40 for cleaning purposes, and this chamber receives the inner end 41 of a delivery-pipe 42, connected with the engineer's valve or any suitable source of fluid-supply under pressure, while communication is established between the inlet-chamber 40^a and the main chamber 37 of the ejector by means of an orifice 43. Under this construction when compressed air is admitted to the ejector and suction is produced in the connecting or lead pipe 35, and

consequently in the casing D' in the sand-box D, sand is drawn from the box, together with air from the pipe 33, and the said sand and air thus attracted are forced out through the delivery-pipe 38 by the direct action of the fluid entering the ejector-casing. The box D may be charged with sand in the usual manner, and the air-supply pipe 33 may be provided with a relief-valve of practically the same character, for example, as is shown in Fig. 1.

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

1. In a track-sanding device, an ejector or jet-pump, a source of sand-supply, and a connection between the ejector and sand-supply, the sand-supply being provided with a valved air-inlet adjacent to said connection.

2. In a track-sanding device, a receptacle for sand, means for connecting the said receptacle with a source of sand-supply, the said receptacle having a valve-controlled opening at its bottom portion below the sand-supply, which opening is in communication with the outside atmosphere, an ejector, means for connecting said ejector with a source of fluid-supply under pressure, and a

tubular connection between the said sand-receptacle and the ejector.

3. In a track-sanding device, an ejector having a curved side passage in communication with its main chamber, means for connecting the said ejector with a source of fluid-supply under pressure, a casing, means for supplying sand to the said casing, the said casing having a curved side passage and an opening in the bottom in communication with the outside atmosphere, a ball-valve located at said opening, normally closing the same, an apertured jacket extending over the said valve and the opening at which it is located, a shield attached to the said jacket and having a flanged portion extending down around the apertured portion of the jacket and spaced therefrom, and a tubular connection between the side passage of the ejector or jet-pump and the said passage of the said casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK BASON.

Witnesses:

C. D. HOWE,

FREDERICK WILLIAM BASON.