

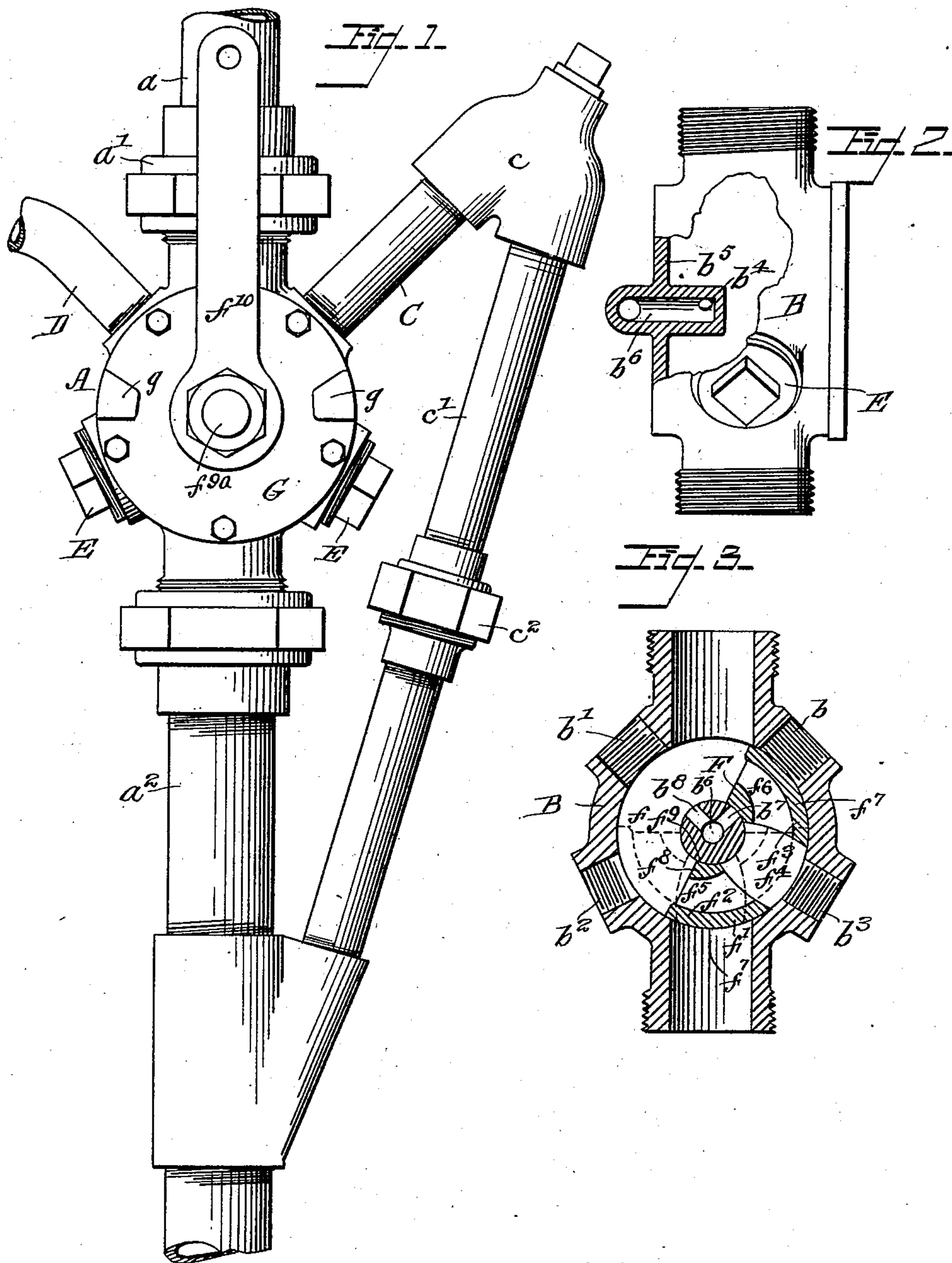
No. 725,801.

PATENTED APR. 21, 1903.

T. E. TOWNSEND.
TRACK SANDING DEVICE.
APPLICATION FILED JUNE 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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T. E. Townsend

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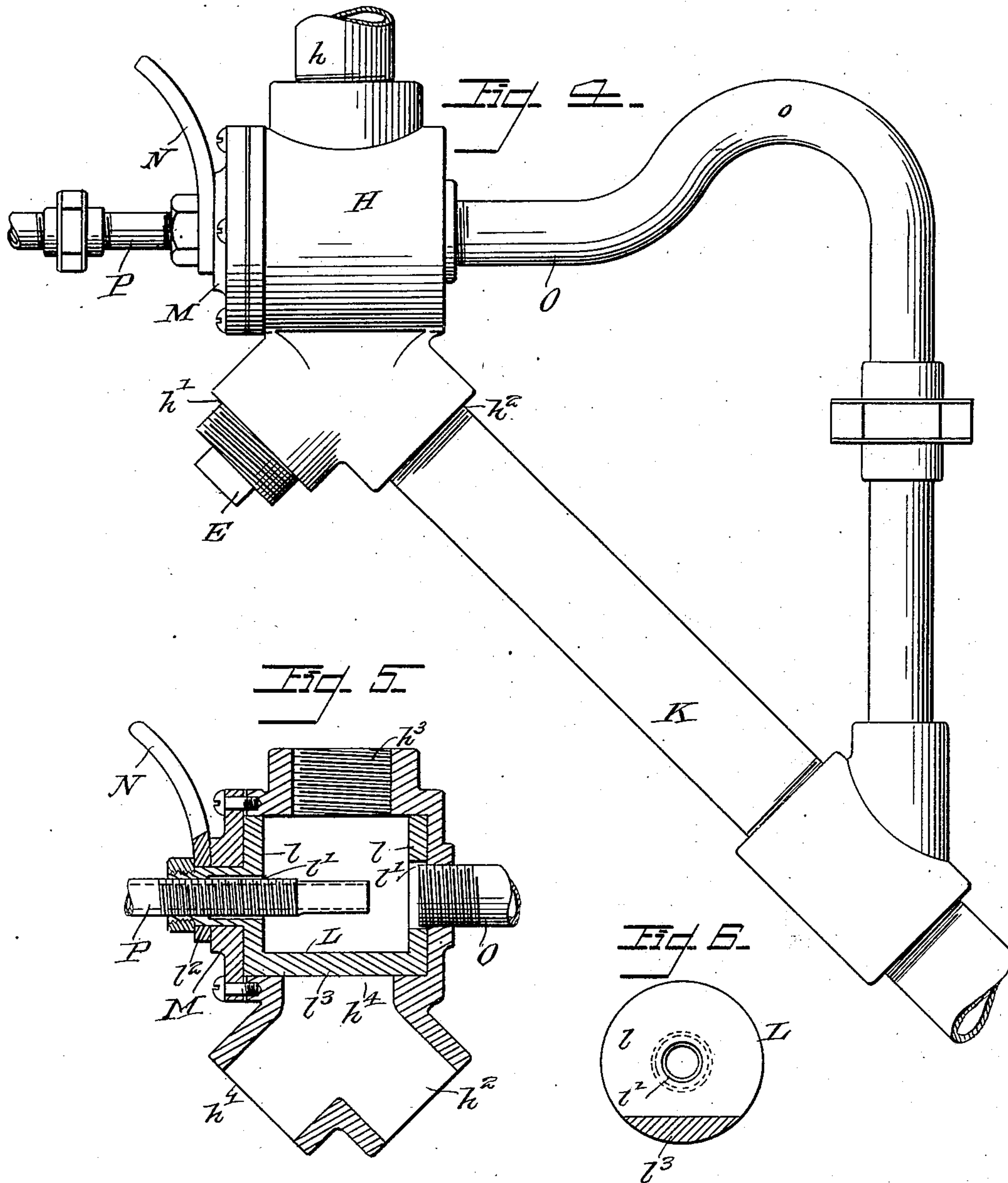
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UNITED STATES PATENT OFFICE.

THOMAS E. TOWNSEND, OF MAHONINGTOWN, PENNSYLVANIA.

TRACK-SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 725,801, dated April 21, 1903.

Application filed June 26, 1902. Serial No. 113,250. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. TOWNSEND, a citizen of the United States; and a resident of Mahoningtown, county of Lawrence, and State of Pennsylvania, have invented a new and useful Improvement in Track-Sanding Devices, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to sanding devices adapted to be used with locomotives for preventing the slipping of the drivers upon the rails in starting. Its object is to provide an apparatus which is adapted for depositing sand upon the rails by means of an air-blast and which in case of failure of the air-supply may be used simply as a gravity sanding device, the sand flowing by its own weight from the sand-box to the rails.

The invention consists in a certain construction and combination of parts to be more fully described, and definitely set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure 1 represents in side elevation the preferred form of my invention. Fig. 2 represents in side elevation the body of the valve used in connection with my invention, a portion being broken away, as indicated. Fig. 3 represents a cross-section through this valve. Fig. 4 shows in side elevation a modified form of my invention. Fig. 5 shows in section a valve used with this modified form, and Fig. 6 is a section through the valve proper.

Before proceeding to a detailed description of the two forms which have been illustrated it may be said that in the preferred construction the apparatus is illustrated as adapted to apply sand to the rails either in front or behind the driver, while in the modified form the apparatus is adapted to deposit sand on one side only, preferably in front of the driver. The latter, however, may be ar-

ranged to apply sand in front of or behind the driver.

Referring to the parts by letters, and referring especially to Figs. 1 to 3, inclusive, A represents a valve, to which a pipe *a* is connected by a suitable coupling *a'*, which pipe leads down from the sand-box usually carried by a locomotive. This pipe *a* preferably connects with the valve from above. The pipe *a*², which is connected in a similar manner, leads from the valve from below and opposite this point. It will appear that the body of this valve consists substantially of a casing or barrel, which is provided with two upper openings *b b'*, which are located, respectively, toward the front and rear of the locomotive. To the forward opening *b* is connected a short section of pipe C, to the extremity of which attaches an elbow *c*, and a second section of pipe *c'*, including a suitable coupling *c*², connects this elbow with the previously-mentioned vertical pipe *a*². To the rear opening *b'* is connected a second pipe D, which leads to the rail at the rear of the driver. In this manner two outlets from the valve-body B lead to the rails in front of the drivers and one leads to the rear of the drivers. Two other openings *b*² *b*³ are provided on the lower portion of the valve-body, located, respectively, toward the front and rear. These openings are intended for the purpose of facilitating the cleaning of the valve and are normally closed by the plugs E.

The rear wall *b*⁵ of the valve-body is provided with an integral projection or boss *b*⁴, which is circular in section, as shown, and located on the axis of the valve-body. This boss contains an air-duct *b*⁶, from which compressed air may enter the valve, and near its inner extremity it is provided with outlets *b*⁷ *b*⁸, the axes of which are in substantial alignment with the aforesaid openings *b b'*, leading, respectively, to the front and rear of the drivers. Within the body is rotatably mounted a valve F, which comprises, substantially, two disks *f*, connected by a section of cylindrical wall *f'*. In Fig. 3 this valve is shown in cross-section, and it will appear that it comprises two segments *f*² *f*³, between which is an opening *f*⁴, which opening communicates with two openings *f*⁵ *f*⁶, leading from

the segments, so that peripheral walls f^7 are formed and shorter walls f^8 at the hub. The inner walls f^8 have bored faces f^9 , which may lie against the cylindrical face of the boss b^4 , and when the valve is in certain positions these faces are adapted to close either of the outlets b^7 b^8 aforesaid. The outer walls f^7 are adapted to close either of the openings b b' which lead to the track. In the position in which this valve is shown in Fig. 3 the opening b , leading to the front of the driver, is closed, as also is the outlet b^7 for the compressed air through the boss b^4 . So is the opening which is connected to the pipe a^2 . The opening b' , leading to the rear of the driver, is, however, uncovered, and the escaping of air through this outlet entrains with it the sand in the valve which was received from the sand-box. Hence when the valve is in this position sand is deposited upon the rails at the rear of the driver.

If the valve were thrown to an opposite position, the opening b' , leading to the rear, would be closed, together with the outlet-pipe a^2 , while the upper opening b would be open, and the escaping air would now carry sand around through the pipe-elbow c , depositing it eventually in front of the driver. If the air-blast should fail, the valve should be thrown into the position shown in the dotted lines, and the sand could now run by its own gravity through the opening in the valve to the vertical downward pipe a^2 , so that even in case of the failure of the air-supply the valve could be operated, allowing the sand to pass in the manner described by its own gravity.

It will be observed that the short section of pipe C, which inclines upwardly, as indicated, together with the elbow, acts, as it were, as a trap to prevent the flow of the sand by gravity through this pipe. It does not, however, prevent the sand being carried through it by the air-blast. It will be observed also that the valve F is provided with a suitable head f^9 , to which is attached a handle or lever f^{10} for turning the valve. A suitable cover G is provided for the valve, which has outward projections or stops g , adapted to arrest the movement of the lever at the proper points.

Taking up now the modification shown in Figs. 4, 5, and 6, the valve-body H is formed, substantially, into a barrel, the axis of which is, however, parallel with the plane of the paper and not at right angles to it, as in the former construction. The sand is admitted above the valve by means of the pipe h , and the body of the valve is provided below with a Y-shaped extension having two openings, (indicated, respectively, by h^1 h^2 .) To one of these openings is connected a pipe K, leading to the rails just in front of the driver. The construction of the valve L, which is carried within the body, is clearly shown in Fig. 5. It comprises, substantially, the disks l , provided with bores l' , concentric with the axis of the valve, one end of the valve being pro-

vided with an outwardly-projecting stem or head l^2 , which passes through a suitable cover M and has attached to it an operating handle or lever N, secured in place by a suitable nut. The end disks l of the valve are connected by a section of cylindrical wall l^3 , adapted to close either the inlet-opening h^3 or the outlet-opening h^4 of the valve-body. Compressed air is admitted to the body of the valve by a tubular member P, threaded to the valve-stem l^2 , which delivers the air at a point near the outlet-pipe O, which is also arranged axially of the valve, as indicated. This pipe is provided with an upward bend or curve o , which is for the same purpose as the upwardly-inclined branch shown in the preferred form of my invention, its presence effectually preventing the escape of sand by gravity alone through this section of pipe. When the valve is in the position in which it is shown in Figs. 5 and 6, the cylindrical face of the wall l^3 closes the outlet from the lower part of the body, so that sand may not escape at this point. The escape of air through the air-pipe draws with it the sand within the body of the valve, finding exit through the curved pipe and finally being deposited upon the rail.

In case the air-supply fails the valve may be thrown to a position substantially at ninety degrees with that shown, whereupon the sand from the sand-box will pass freely by gravity through the valve-body. If the valve be thrown to the position making an angle of one hundred and eighty degrees with that in which it is shown, the cylindrical face of the valve will close the opening leading into the body from the sand-box. When in this position, the valve can be readily cleaned, as will be readily understood.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a track-sanding device, in combination, a valve, means for delivering sand thereto, a gravity feed-pipe leading therefrom, and means for delivering an air-current to said valve, the latter adapted to control the air-current-delivering means and the flow of sand through said gravity feed-pipe.

2. In a track-sanding device, in combination, a valve, means for delivering sand thereto, a gravity feed-pipe leading therefrom, means for delivering an air-current to said valve, and a pipe connection leading from said valve and connecting with said gravity feed-pipe below same, said valve adapted to control the flow of sand through said feed-pipe.

3. In a track-sanding device, in combination, a valve, pipe connections leading there-

from to the track-rail, means for delivering sand to said valve, means for delivering a current of air to said valve, means whereby said valve may control the admission and exit of said air-current and means whereby said valve may control the passage of sand through said valve by gravity.

4. In a track-sanding device, in combination, a valve, means for delivering sand thereto, a pipe leading from the body of said valve, means whereby said valve may allow sand to flow through said pipe by gravity, a pipe connection extending upwardly from said valve and connecting with said valve below same and means for delivering an air-current to said valve, whereby sand may be carried through said upward extension.

5. In a track-sanding device, in combination, a valve, a substantially vertical pipe adapted to deliver sand to said body by gravity, a second substantially vertical pipe leading from said valve-body and through which sand is adapted to gravitate, said second pipe being arranged to deliver sand upon the rail, a pipe connection which branches upward, then downward and connecting an upper opening in said body with said second vertical pipe, a pipe connection leading from a second upper opening and adapted to deliver sand to the track-rail on the opposite side of the driver, means for delivering an air-current within said valve-body and means for controlling the flow of said air-current through said upper openings.

6. In a track-sanding device, in combination, a valve-body having two upper openings, pipes connected therewith and leading respectively to the front and rear of the driver, means for delivering sand within said body by gravity, a second pipe connecting therewith and adapted to lead sand to the front of said driver, an air-duct adapted to convey air into said valve-body, said duct having outlets substantially alining respectively with said upper openings and adapted to cause sand to be entrained by the escape of air and a rotatable valve mounted within said body, said valve being adapted to close simultaneously either of said upper openings and said second pipe.

7. In a track-sanding device, in combination, a valve, means for delivering sand thereto, a gravity feed-pipe leading from the body of said valve, a pipe connection extending upwardly from said valve and connecting with said pipe below said valves, means for delivering an air-current to said valve whereby sand may be carried through said upward extension, said valve adapted to control said air-current-delivering means and to control the flow of sand through said gravity feed-pipe.

Signed by me this 23d day of June, 1902.

THOMAS E. TOWNSEND.

Attest:

D. T. DAVIES,
A. E. MERKEL.