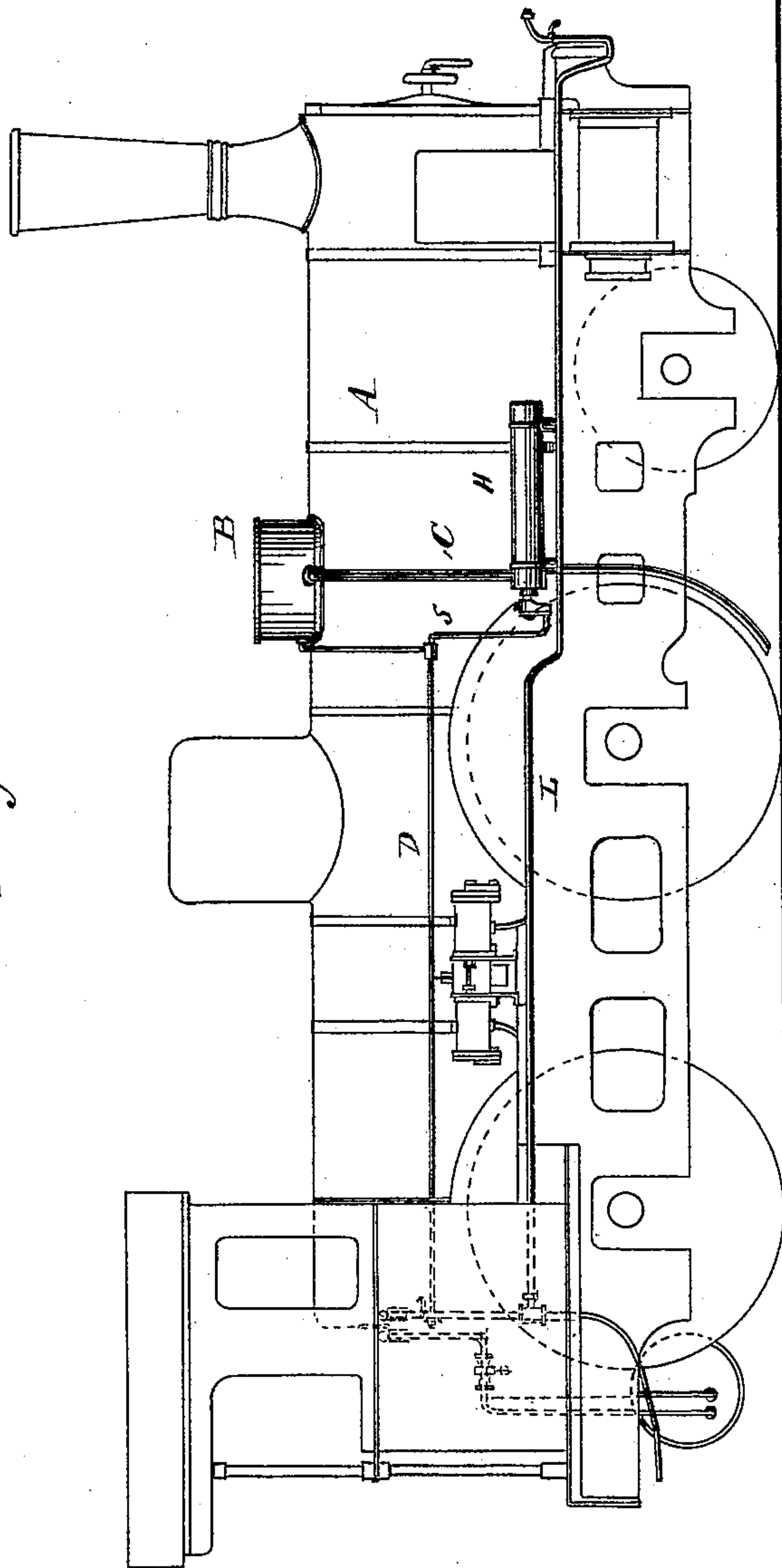


(No Model.)

2 Sheets—Sheet 1.

A. BRÜGGEMANN.
SANDING DEVICE FOR RAILROAD LOCOMOTIVES.
No. 496,149. Patented Apr. 25, 1893.

Fig. 1.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

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SANDING DEVICE FOR RAILROAD LOCOMOTIVES.

No. 496,149.

Patented Apr. 25, 1893.

Fig. 2.

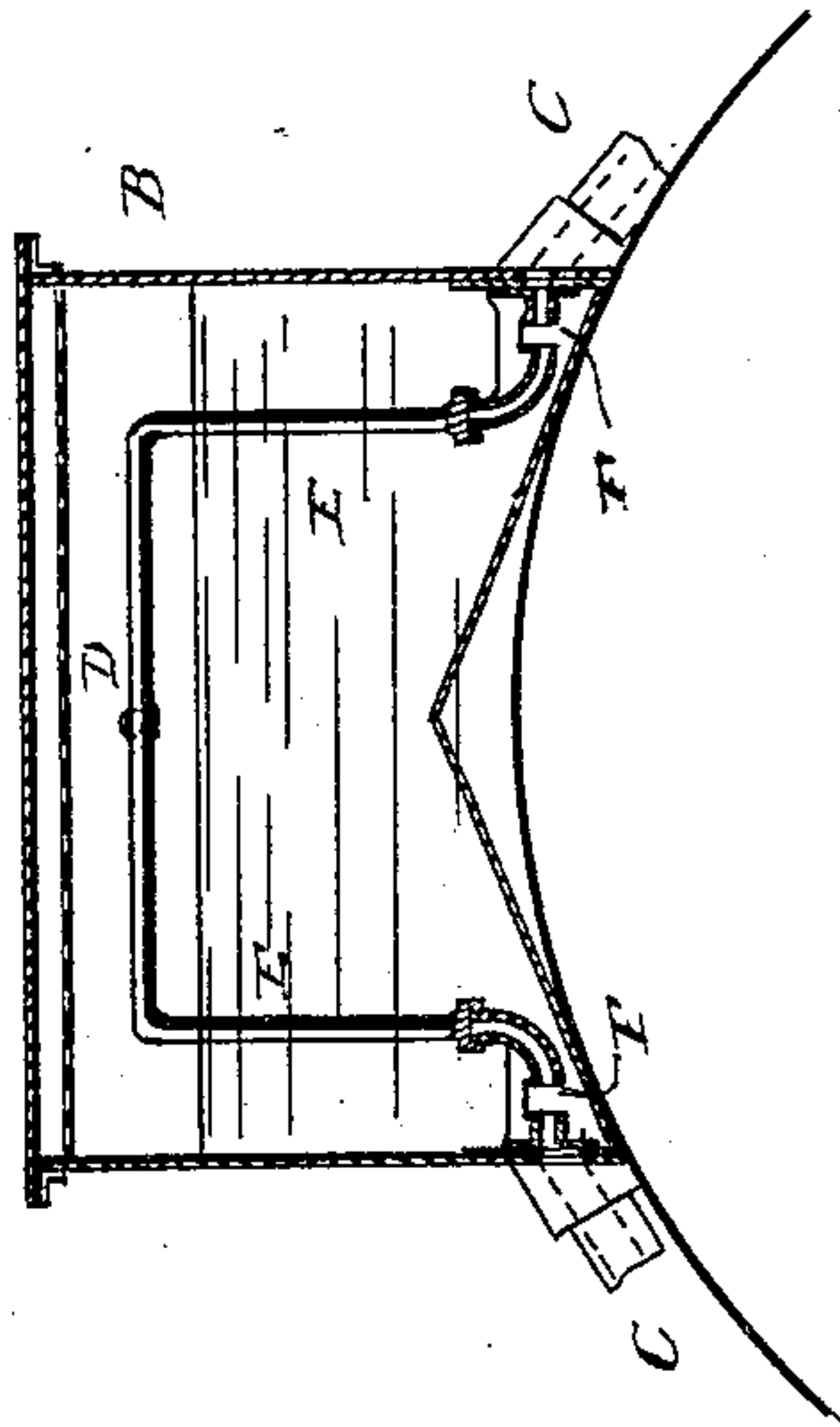
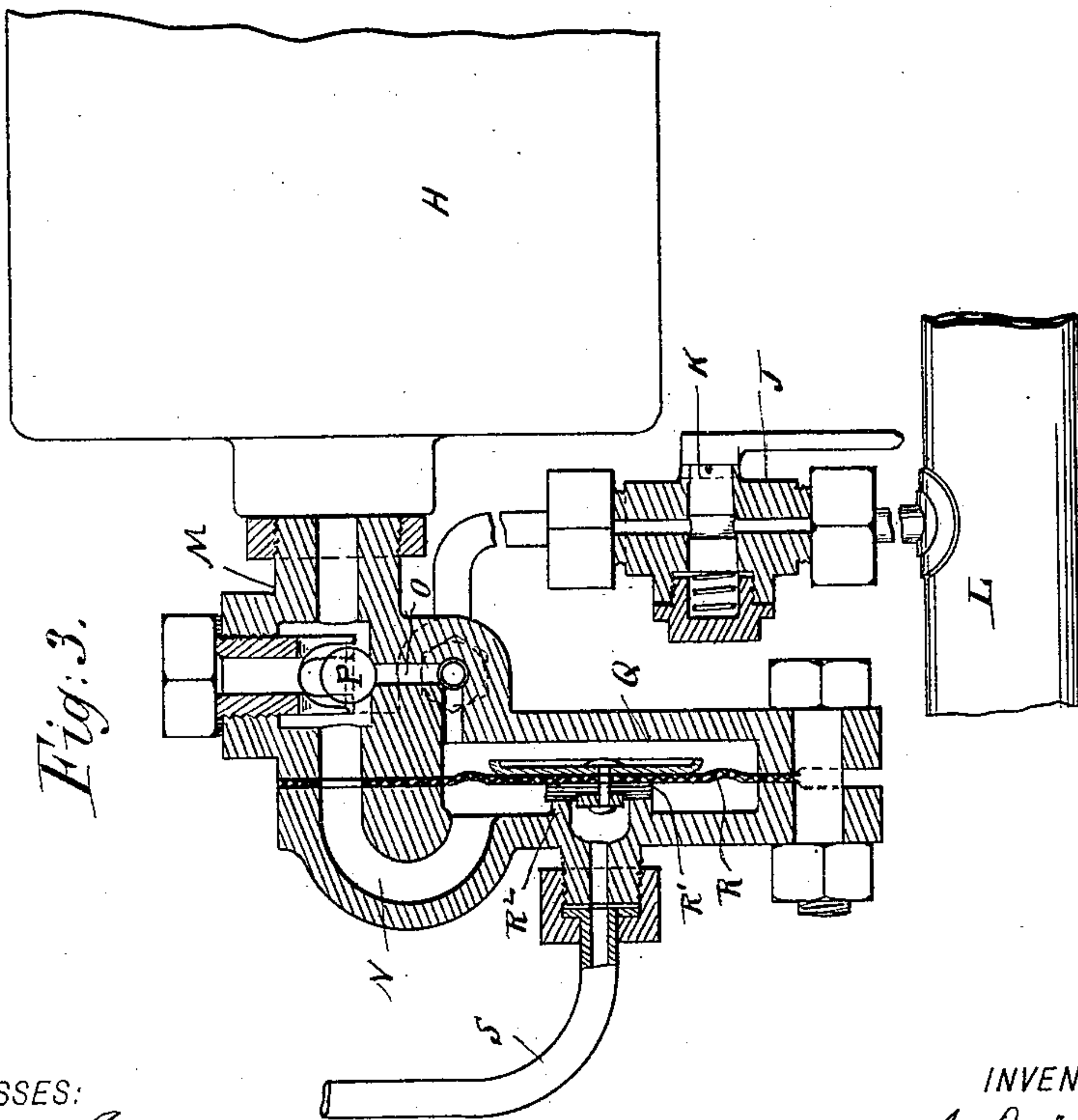


Fig. 3.



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UNITED STATES PATENT OFFICE.

AUGUST BRÜGGEMANN, OF BRESLAU, GERMANY.

SANDING DEVICE FOR RAILROAD-LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 496,149, dated April 25, 1893.

Application filed October 22, 1892. Serial No. 449,613. (No model.) Patented in Germany November 8, 1891, No. 64,242; in France March 22, 1892, No. 220,330, and in Belgium March 22, 1892, No. 98,913.

To all whom it may concern:

Be it known that I, AUGUST BRÜGGEMANN, a subject of the Emperor of Germany, residing at the city of Breslau, Province of Silesia, Empire of Germany, have invented certain new and useful Improvements in Sanding Devices with Air-Pressure for the Use of Railroad-Locomotives, (for which I have obtained Letters Patent in Germany under date of November 8, 1891, No. 64,242; in France, No. 220,330, dated March 22, 1892, and in Belgium, No. 98,913, dated March 22, 1892,) of which the following is a specification.

This invention relates to a new and improved device for sanding railway tracks. The utility of rapidly operating brakes, such as compressed air-brakes or other automatic brakes, such as have been used almost exclusively on railway cars during the last few years is materially interfered with by wet or moist rails, and therefore it is of the greatest importance to be able to sand the tracks during moist weather immediately before applying the brake, so as to avoid slipping and sliding of the wheels on the tracks.

The object of my invention is to provide a new and improved device for forcing the sand from the sand-box upon the rails, which device is operated by compressed air, either independently of the brakes or automatically at the same time the brakes are applied.

The invention consists in the combination with a sand-box, such as is used on locomotives, of outlet-pipes for the sand and pipes for conducting compressed air into the sand-box.

The invention further consists in the combination with the said sand-box and compressed air-pipes, of an auxiliary receptacle for compressed air and means for automatically admitting the compressed air from the auxiliary receptacle into the sand-box as soon as the brakes are applied.

The invention also consists in the construction and combination of parts and details which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a side-view of a locomotive provided with my improved sanding device. Fig. 2 is a cross-sectional view on an enlarged scale through the sand-box, and Fig. 3 is an enlarged detail-

sectional view of the valves for the same, when it is to be operated simultaneously with the brakes.

Similar letters of reference indicate corresponding parts.

The locomotive A is provided with the usual sand-box B and from the same one or more pipes C extend down to within a short distance from the rails, adjacent to the driving-wheels. The pipe D extends from a compressed air-pipe in the cab to the sand-box B and in the sand-box is provided with one or more branches E, according to the number of pipes C connected with the sand-box, which branches extend down to the upper ends of the pipes C and are provided a short distance from their lower ends with bottom or side-openings F. If the compressed air is admitted into the sand-box through the pipe D the same tries to escape, but the sand prevents this, and the only outlet that the compressed air has is through the pipes C. The compressed air passes from the outlet ends of the pipes E into the upper ends of the pipes C, and in doing so carries along a certain quantity of sand which is conducted through the pipes C to the rails. The same result can be obtained if the sand-box is closed hermetically and compressed air admitted into the same in any desired manner, which compressed air forces its way through the sand to the outlet tubes C. The quantity of compressed air required is comparatively small and yet sufficient sand will be carried along for the desired purpose.

The apparatus is absolutely reliable in operation and also instantaneous.

The compressed air-device has the advantage that no moisture is carried into the sand and there is no danger of the sand congealing or packing.

The above described apparatus distributes the sand uniformly and is more advantageous than other apparatuses. Any number of pipes can be connected with the sand-box.

The device can be applied on old locomotives as well as on new ones and requires very little changes and it can also be modified as to operate automatically when the brakes are applied. For this purpose an auxiliary compressed air receptacle H is arranged which is

connected by the pipe J having the cock K with the main conducting pipe L, for the compressed air. The receptacle H has a neck M provided with a bore N in which the check-valve P is arranged, which check-valve fits on a seat formed at the upper end of the L-shaped bore O into which the pipe J above described leads. The lower end of the L-shaped bore O is in communication with the chamber Q in which a diaphragm R is arranged that carries a valve R' fitting on the seat R² formed around the end of a neck connected by the pipe S with the pipe D.

This device operates as follows:—The valve K is opened so as to establish communication between the pipe L and bore O, so as to permit the compressed air to pass through the pipe J, the bore O and neck M into the receptacle H, the check-valve P being raised. After the same pressure has been obtained in the receptacle H as in the rest of the compressed air-conductors, the valve P drops and closes communication between the receptacle H and the pipe L. If the brake is operated, that is, the air drawn from the main conductor, there will be a greater pressure on the left-hand side, for the reason that the compressed air remaining in the receptacle H acts on said left-hand side of the diaphragm R and presses said diaphragm to the right, thereby lifting the valve R' off its seat. The compressed air can now escape from the receptacle H through the pipe S into the pipe D and from the same into the sand-box, where it forces out the sand in the manner described. For passenger-trains it is sufficient to provide the locomotive with one of my improved compressed air sand-distributors, but for freight trains and larger trains it might be necessary to apply some on the cars also.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. The combination, with a hermetically-closed sand-box, of outlet-pipes for conducting the sand from the same, a pipe for conducting compressed air directly into the sand-box and branch-pipes for conducting the compressed air through the sand at points near the upper ends of the outlet-pipes for the sand, substantially as set forth.

2. The combination, with a locomotive, of compressed air-conductors, a sand-box having outlet-tubes for the sand, a pipe for conducting compressed air to the sand-box, an auxiliary compressed air-receptacle, a pipe for connecting said auxiliary compressed air-receptacle with the main compressed air-conductors, and a valve for automatically connecting the auxiliary receptacle with the pipe for taking compressed air to the sand-box, substantially as set forth.

3. The combination, with a locomotive, pipes for conducting compressed air, a sand-box, outlet-pipes for said sand-box, a pipe for conducting compressed air to the sand-box, an auxiliary air-receptacle, a pipe for connecting the main compressed air-conductors, with the auxiliary receptacle, a check-valve for closing said pipe, a pipe connecting the auxiliary receptacle with the sand-box, and a diaphragm-valve for closing said pipe connecting the auxiliary receptacle with the sand-box, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

AUGUST BRÜGGEMANN.

Witnesses:

FRIEDRICH NUSS,
CLARENCE W. ERDMAN.