

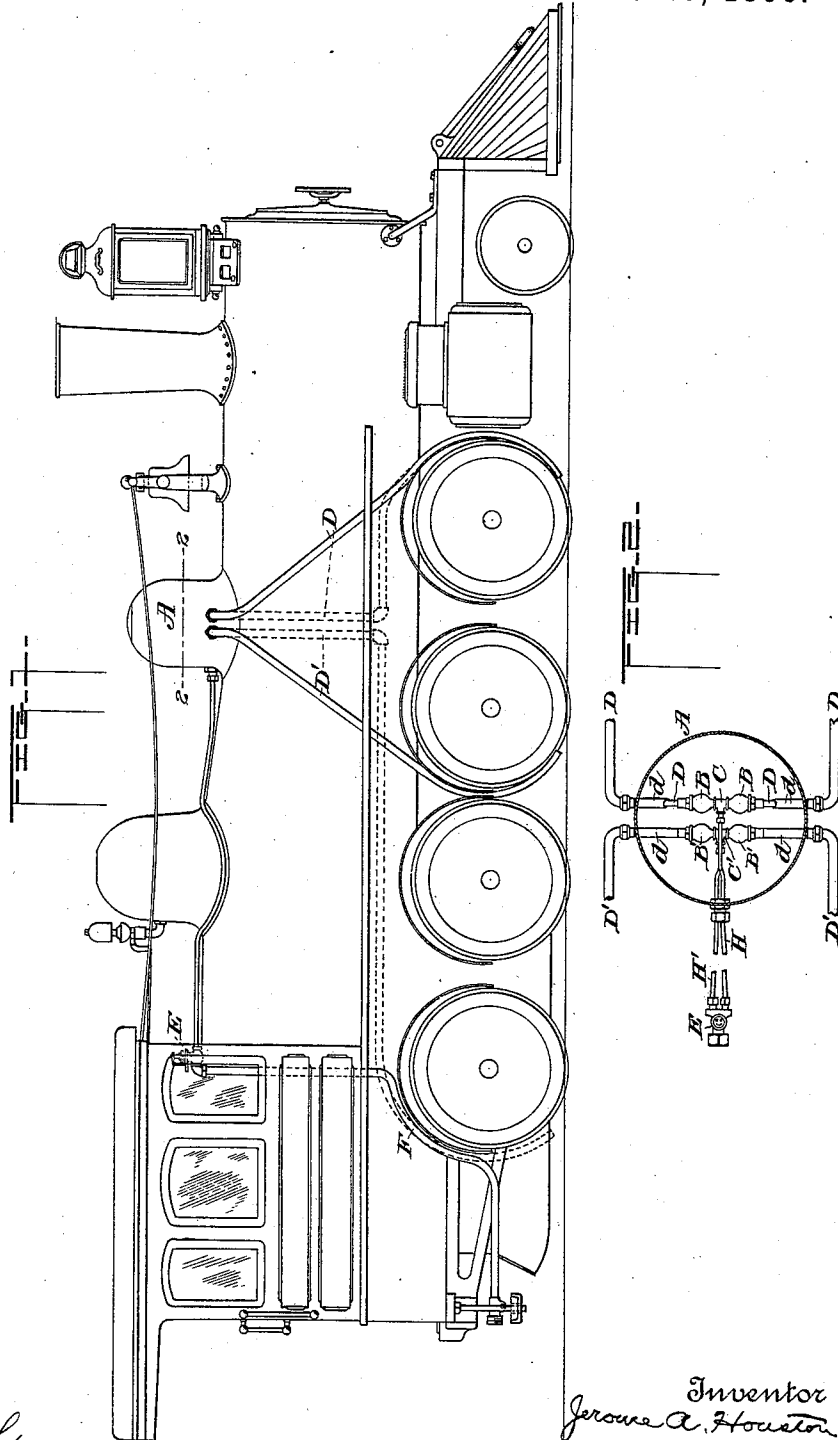
(No Model.)

2 Sheets—Sheet 1.

J. A. HOUSTON.
TRACK SANDING APPARATUS.

No. 541,090.

Patented June 18, 1895.



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TRACK-SANDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 541,090, dated June 18, 1895.

Application filed March 18, 1895. Serial No. 542,086. (No model.)

To all whom it may concern:

Be it known that I, JEROME ADOLPH HOUSTON, a citizen of the United States, residing at Springfield, in the county of Green and State of Missouri, have invented certain new and useful Improvements in Track-Sanding Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to sanding devices for locomotives and its object is, to improve the apparatus heretofore in use for ejecting sand from the sand box, by means of fluid pressure.

The invention consists briefly, in one or more pairs of sand ejectors located in the sand box and connected with a source of fluid supply, preferably the main reservoir of the air brake system, with a valve placed within easy reach of the engineer, whereby he can admit air to the ejector and cause the sand to be delivered to either the front or back drivers or both.

My invention dispenses with the present system of valves and levers in the sand box, and can be applied at comparatively small cost to any locomotive.

In the accompanying drawings, Figure 1 is a side elevation of a consolidation locomotive equipped with my invention. Fig. 2 is a horizontal cross-section of the sand-box on the line 22, Fig. 1. Fig. 3 is a vertical longitudinal section of the sand-box. Fig. 4 is a vertical cross-section of the same. Fig. 5 is a vertical longitudinal section of one of the siphon-ejectors. Fig. 6 is a sectional elevation of the engineer's valve. Fig. 7 is a cross-section thereof on line 77, Fig. 6. Figs. 8, 9, 10, and 11 are plan views of the valve in different positions.

In the sand box A are located four siphon ejectors B B' arranged at suitable distances apart, and in pairs, each pair being connected together by a T-pipe joint C or C'. The siphons are held above the bottom a of the sand box by means of the rigid delivery pipes D D' which run to and through the sides of the sand box, one pipe of each pair going to the right and the other to the left, as shown in Fig. 2. Each pipe is incased in a sleeve d

which fits tightly against the wall of the sand box and prevents the sand from working out around the pipe. The delivery pipes D run to a point in front of the driving wheels, while the pipes D' deliver the sand to the rails in the rear of the wheels, being for use when the engine is backing.

Each siphon is made as shown in Fig. 5, having a head provided with a screw-threaded neck b for connection with the T C C', a nozzle b for delivering a jet of fluid pressure into the discharge passage b², and across the funnel b³ which is open downwardly to the sand. The nozzle b is conical, and the mouth of the discharge passage b² is flaring and concentric with the nozzle, so that they form an annular tapering passage for the sand sucked up by the vacuum formed by the jet issuing from the nozzle. The sand thus lifted is forcibly blown out through the pipes D D'.

The siphons are preferably operated by compressed air piped from the main reservoir of the air-brake system.

The valve by which the engineer controls the flow of air to the siphons is located in the cab of the locomotive. It consists of a casing E having a chamber e into which leads a pipe F from the main reservoir. The bottom of the chamber forms a seat for the valve G, which is preferably a flat disk mounted on a spindle g which passes up through a stuffing box E' and has a suitable handle G'. The valve is held to the seat by a helical spring G². In the valve seat are two ports e' e² which communicate respectively with two pipes H H' leading respectively to the T's C C'. These pipes may be placed under the jacket of the boiler if desired. The valve G contains two ports g' g², which by turning the valve one way or the other can be made to admit air either to both ports e' e² (Fig. 8), to the port e' only (Fig. 9), to the port e² only (Fig. 10), or to shut off the air entirely (Fig. 11). In the first position, both pairs of siphons eject sand. In the second position, the forward pair B are operated; in the third position, the back pair B', and in the fourth position, neither pair.

The operation of my invention is plain from the foregoing description.

When the engineer wishes to sand the rails, he turns the valve G so as to admit compressed

air to one pair of siphons, or the other, according as he may be going ahead or backing. The air lifts the sand by reason of the vacuum it creates in the siphons, and blows it out
5 through the delivery pipes.

My invention can be applied to any style of locomotives, and will work with steam if desired, though I prefer compressed air on account of its dryness.

10 If it is not desired to sand the rails when backing, only one pair of siphons need be used.

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

15 1. A sanding device for locomotives, comprising in combination with the sand box, one or more pairs of siphon ejectors located above the bottom of the box, each siphon consisting of a funnel opening downwardly into the sand
20 box, and an air nozzle projecting horizontally across said funnel above its mouth, a pipe supplying compressed air to each pair of siphons, a valve controlling said pipes, and delivery pipes conveying the sand from said siphons to the rails, substantially as described.
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2. In a sanding device for locomotives comprising in combination with the sand box, two pairs of siphon ejectors, located above the bottom of the box, each siphon consisting of a
30 funnel opening downwardly into the sand box, and an air nozzle projecting horizontally across said funnel above its mouth, two pipes each supplying air to one pair of siphons, an

engineer's valve controlling both pipes, and delivery pipes leading from one pair of siphons to the forward drivers, and from the other pair to the back drivers, substantially as described. 35

3. The combination with the sand box A, of the two pairs of siphon ejectors B B', the T's C C' connecting said pairs, the delivery pipes D D', the air pipes H H' connected with the T's, and the valve G having two ports controlling the pipes H H', substantially as described. 40

4. The combination with the sand box A of the pairs of siphons B B', the delivery pipes D D' supporting said siphons above the bottom of the box, and the packing sleeves d surrounding said pipes, substantially as described. 45

5. In a sanding device, for locomotives, the combination with an air supply pipe, of a valve casing E containing a valve seat having ports e' e² leading to two delivery pipes, and a disk valve G containing two ports g' g² adapted to open either one or both of said ports or to close them both, substantially as described. 50

In testimony whereof I affix my signature 60 in presence of two witnesses.

JEROME ADOLPH HOUSTON.

Witnesses:

J. W. HART,
QUINCY ALLEN.