

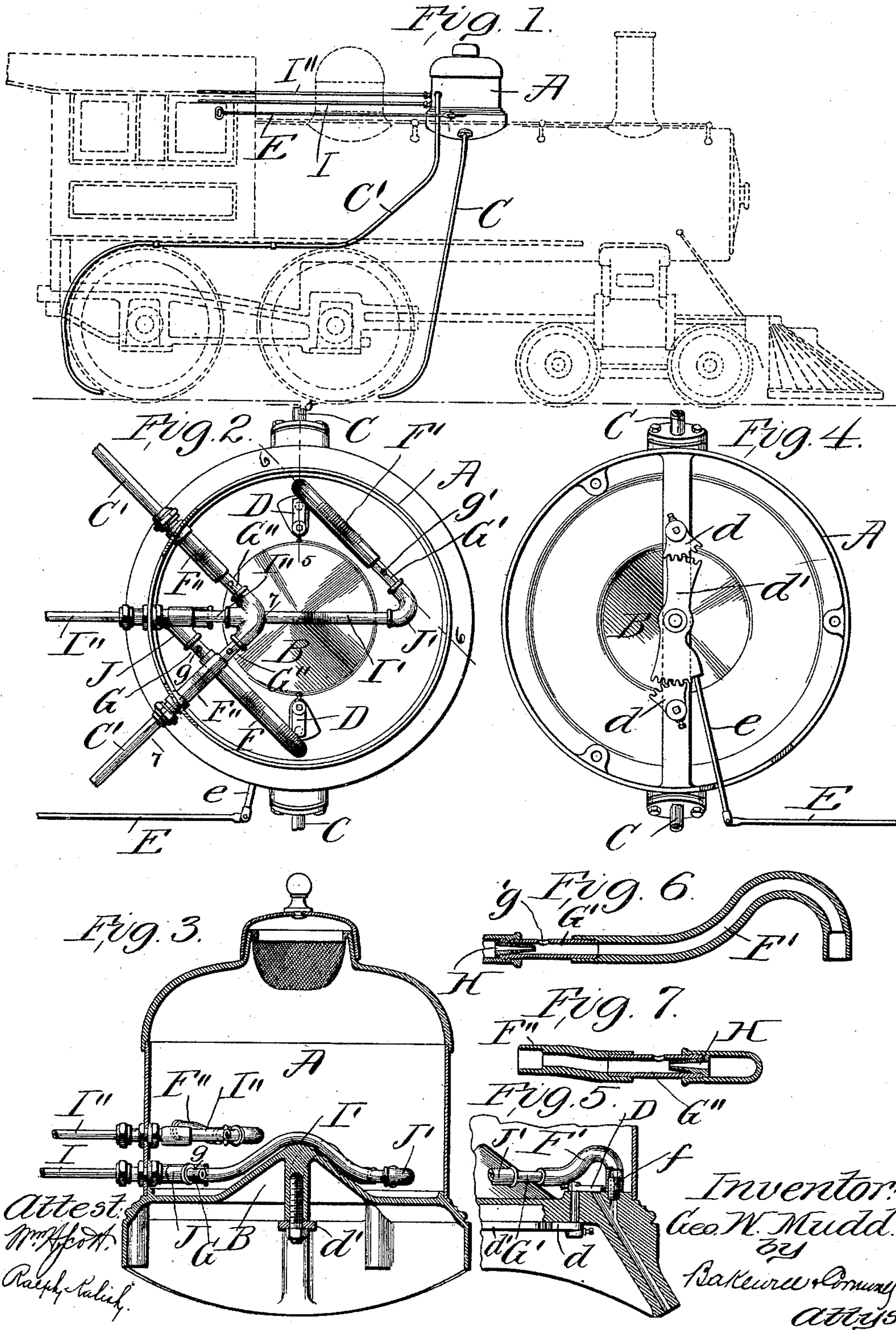
No. 652,324.

Patented June 26, 1900.

G. W. MUDD.  
TRACK SANDING DEVICE.

(Application filed Mar. 22, 1900.)

(No Model.)





# UNITED STATES PATENT OFFICE.

GEORGE W. MUDD, OF MOBERLY, MISSOURI.

## TRACK-SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 652,324, dated June 26, 1900.

Application filed March 22, 1900; Serial No. 9,734. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. MUDD, a citizen of the United States, residing at the city of Moberly, Randolph county, State of Missouri, have invented a certain new and useful Improvement in Track-Sanding Devices, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a diagrammatic view of my improved track-sanding apparatus wherein the same is in position on a locomotive. Fig. 2 is a top plan view of the sand-box, the cover being removed to better show the sanding apparatus therein. Fig. 3 is a vertical sectional view through the sand-box. Fig. 4 is a bottom plan view of the sand-box. Fig. 5 is a sectional view through the sand-box, taken on line 5 5, Fig. 2. Fig. 6 is a detail sectional view taken on line 6 6, Fig. 2; and Fig. 7 is a detail sectional view taken on line 7 7, Fig. 2.

This invention relates to a new and useful improvement in track-sanding devices, and is designed particularly for use in connection with locomotives.

The object of this invention is to utilize compressed air as a medium for effecting the discharge of sand from the reservoir usually arranged upon the boiler of the locomotive, the sand being delivered upon the rails in front of or behind the driving-wheels for well-understood purposes. The pipes for conveying compressed air to the sand-box preferably run from the cabin of the locomotive and are provided with suitable valves within easy reach of the engineer, so that by opening one or the other of said valves the sand can be discharged onto the rails in front of or behind the driving-wheels, as desired. In addition to this if for any reason the source of supply for compressed air fails or it is not desirable to use compressed air the usual manually-operated valve can be manipulated, so as to permit the sand to fall by gravity through the pipes and onto the rails in front of or behind the driving-wheels.

The construction of my present invention involves the use of well-known devices and parts which can be found on the market, so

that repairs when necessary can be made quickly and readily without necessitating the use of special castings or other specially-made parts, which may not be immediately accessible to a shop.

With the above object in view my invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings I have shown a locomotive in dotted lines in Fig. 1 to which is applied my improved sanding apparatus; but I wish it to be understood that this apparatus could as well be used in connection with street-cars, &c., where compressed air could be had.

A indicates the sand-box, which is provided with the usual crown or raised bottom B, from each side of which lead pipes C, the openings to said pipes being controlled by ordinary swing-valves D, as shown in Fig. 2. Beneath the box the stems of these valves are provided with segments *d*, which mesh with a toothed lever or gear-wheel *d'*, to whose spindle is connected a rod or rock-arm *e*, carrying an operating-rod E, leading back into the cabin of the locomotive. This construction is well understood. When the rod E is pulled, the valves D are swung laterally to permit the sand in the box to fall by gravity into the pipes C to be delivered onto the rails in front of the driving-wheels.

*f* indicates a nipple screwed into an opening branching from the opening leading to pipe C, said nipple extending above the bottom of the box, as shown in Fig. 5, and having its upper end plain or unthreaded.

F indicates an elbow-pipe whose vertical member fits loosely over the nipple *f* and whose horizontal member is formed with a socket for loosely receiving the end of a short section of pipe G, which contains the blast-nozzle H. This short section of pipe G is formed with an opening *g* preferably in its upper wall and in advance of the mouth of the nozzle, whereby when a blast of compressed air is forced through the nozzle the air drives the sand falling through opening *g* in front of it through the removable section of pipe F and into the branch of the opening leading to pipe C. As shown in Figs. 2 and 3, a pipe I is employed for conducting com-



pressed air to the nozzle H, said pipe leading from the cabin of the locomotive and through the wall of the sand-box into a Y-shaped coupling J, in one member of which is secured one end of section of pipe G, while in the other member a pipe I' is secured for conducting compressed air to an elbow-coupling J', into the other member of which coupling is threaded a short section of pipe G', formed with an opening *g'* in its upper face for supplying the sand in front of a nozzle. (Not shown.) A removable section of pipe F' is loosely arranged on the end of this short section of pipe G', and at the other end said pipe F' coöperates with another nipple in the opposite side of the box, (not shown,) but which directs the sand into a branch opening leading to the opposite pipe C.

From the above construction it will be noted that the air admitted through pipe I will force the sand in the box to pass through pipes F and F' into the openings leading to the pipes C and thence to both rails in front of the driving-wheels. So far as this construction is concerned it is similar to that shown and described in United States Letters Patent No. 630,550, granted to me August 8, 1899, with the exception of the removable sections of pipe F and F'. These sections of pipe F and F' constitute the invention of this present application and in practice are made of chilled iron and with walls sufficiently thick to resist the cutting action of the sand. These sections of pipe F and F' are not permanently attached in position, but are provided with sockets in their ends which telescope over the sections of pipe G and G' at one end and over the nipples at the other.

From actual tests made I have found that ordinary wrought-iron or cast pipes will wear out so quickly that repairs form a considerable item in the cost of maintenance, and the wearing of the pipe in front of the blast-nozzle is increased from the fact that the pipe is bent upwardly and then downwardly for the purpose of preventing the sand from jarring through the pipe in the absence of an air-blast, and the sand thus being compelled to follow a tortuous path will at each bend of the pipe impinge against the walls thereof and so cut the pipe that the pipe is soon rendered unfit for use. By introducing a removable section of chilled-iron pipe, in which removable section are formed the bends before referred to, I not only offer a greater resistance to the cutting action of the sand, and thus insure longer life to the apparatus, but in repairing it is not necessary to employ a wrench for dismantling the apparatus to introduce the new pipe, but all that has to be done is to lift the vertical member from the nipple and then slide the horizontal member from its coöperating pipe, a new pipe being introduced in reverse order—that is, the horizontal portion slipped over its coöperating pipe G or G' and the vertical portion introduced over its nipple. The quickness and readi-

ness with which these repairs can be made recommend themselves, as these sections F and F' can be bent and the sockets bored in their ends and kept in stock to be inserted at a moment's notice, the time consumed in effecting such a repair occupying only two or three minutes. Generally speaking, there is no wear on the parts of the apparatus beyond pipes F and F'.

In order to sand the rails in the rear of the driving-wheels, I arrange sand-delivery pipes C', (see Fig. 1,) leading behind the rear driving-wheels and from the sand-box. These pipes C' pass through the vertical walls of the sand-box a short distance and coöperate with removable pipes F'', formed with sockets for loosely receiving the inner ends of said delivery-pipes. These removable sections of pipe F'' are made of chilled iron and with sufficiently-thick walls and are preferably bent, as shown in Fig. 7, and respond in purpose and function to the description heretofore given with respect to sections of pipe F and F'. Short sections of pipe G'', in whose upper walls are formed sand-openings, are loosely received in the inner ends of these pipes F'', said sections of pipe G'' containing the blast-nozzles (not shown) and being threaded into a forty-five-angle T-coupling, into the central boss of which leads a pipe I'' from the cabin of the locomotive, which pipe supplies compressed air to the blast-nozzles for forcing the sand into and through the delivery-pipes and behind the driving-wheels.

It will be noticed that my improved apparatus can be employed to sand both rails in front of or behind the driving-wheels and that the parts composing my improved apparatus are simple in construction and easily applied. The pneumatic sanding apparatus does not in any way affect the manual control of the usual valves, and it may be said that the pneumatic feature is simply an addition to the well-known form of manually-operable valve now in general use. The same delivery-pipes are employed for conducting the sand to the rails in front of the driving-wheels which are employed in connection with the manually-operable valve-controlled sanding apparatus.

My improved apparatus can be applied on any of the usual constructions now in use, is cheap, and can be quickly and readily repaired at small expense.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my apparatus can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. The combination with a sand-box, of openings leading from the bottom thereof to delivery-pipes, valves for controlling said openings, means for manually operating said



valves, nipples extending above the bottom of the box and arranged in branch openings leading to said delivery-pipes, pipes F and F' fitting loosely upon said nipples, pipes G and G' upon which the other ends of the pipes F and F' are loosely fitted, openings in the pipes G and G' for admitting sand thereinto, nozzles arranged behind said openings, and a pipe for supplying compressed air to said nozzles, substantially as described.

2. The combination with a sand-box, of a nipple arranged therein and leading to a delivery-pipe, a supply-pipe for compressed air passing through the wall of the sand-box, a short section of pipe provided with an opening for the inlet of sand, a nozzle arranged behind said opening for directing a blast of air through said pipe and with it the sand entering through the inlet-opening, and a removable section of pipe made of refractory material and provided with socketed ends for loosely fitting upon and cooperating with the nipple leading to the delivery-pipe and the end of the short section of pipe in which the nozzle is located, substantially as described.

3. The combination with a sand-box provided with an opening in its bottom for conveying sand to a delivery-pipe, of a valve for closing said opening, means for manually operating said valve, a nipple arranged in a branch from said opening and projecting above the bottom of the box, a pipe formed with a vertical portion whose end is socketed to loosely cooperate with the nipple, said pipe also having a horizontal portion formed with a socket end, a short section of pipe G loosely fitted in the socket in the end of the horizontal portion of said pipe, an upward bend in said pipe intermediate its socketed ends, an

inlet-opening for the sand in the pipe G, and a nozzle arranged behind said opening for delivering a blast of air across the opening for forcing sand in front thereof, through the bent pipe, and into the delivery-pipe, substantially as described.

4. The combination with a sand-box having openings leading from its bottom and communicating with delivery-pipes terminating above the rails in front of the driving-wheels, of manually-operable valves for said openings, delivery-pipes leading from the sand-box to a point above the rails behind the driving-wheels, the rear delivery-pipes terminating in nipples in the box, branch openings from the front delivery-pipes, which terminate in nipples in the box, pipes made of refractory material and formed with socketed ends for cooperating with said nipples, short sections of pipe loosely cooperating with oppositely-disposed sockets in the opposite ends of said removable pipes, sand-inlet openings in said short sections of pipe, blast-nozzles arranged in said short sections of pipe to deliver blasts of air across said openings and drive the sand therethrough and through the removable pipes into the delivery-pipes, and independent pipes for supplying compressed air to the nozzles in the back delivery-pipes and the front delivery-pipes, substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 19th day of March, 1900.

GEORGE W. MUDD.

Witnesses:

WM. H. SCOTT,  
RALPH KALISH.