

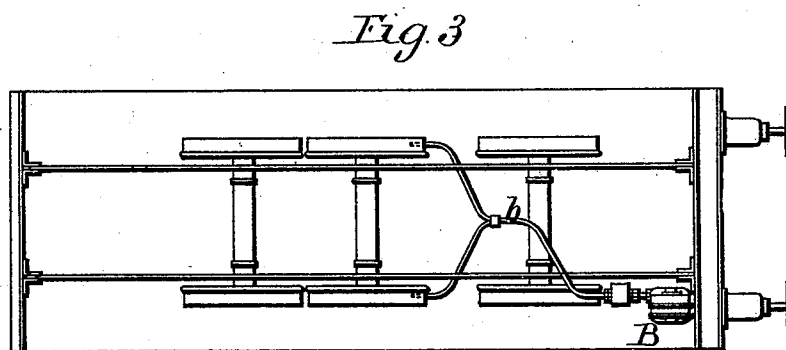
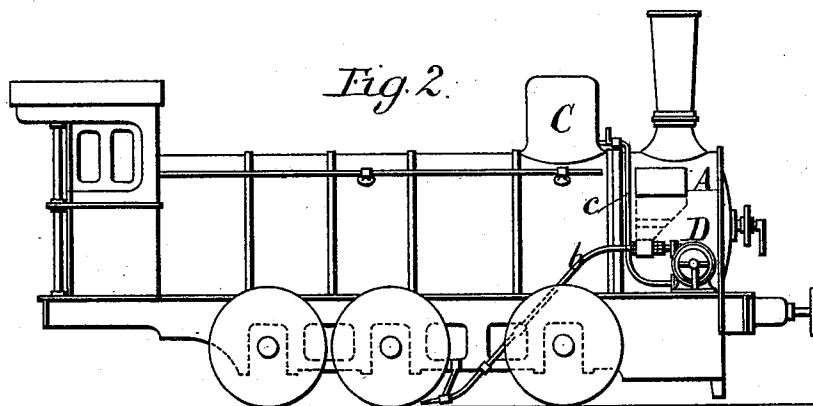
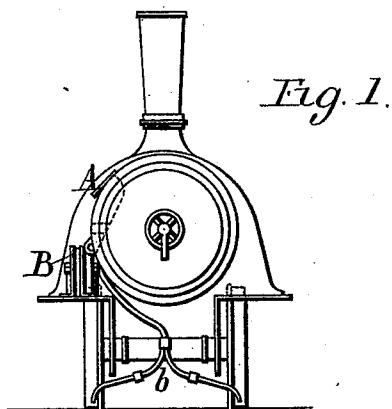
(No Model.)

2 Sheets—Sheet 1.

G. LENTZ.
APPARATUS FOR SANDING RAILS.

No. 481,797.

Patented Aug. 30, 1892.



Witnesses:-
J. A. Rutherford.
Robert Emmett.

Inventor:
Gustav Lentz.
James H. Norris.
Attorney.

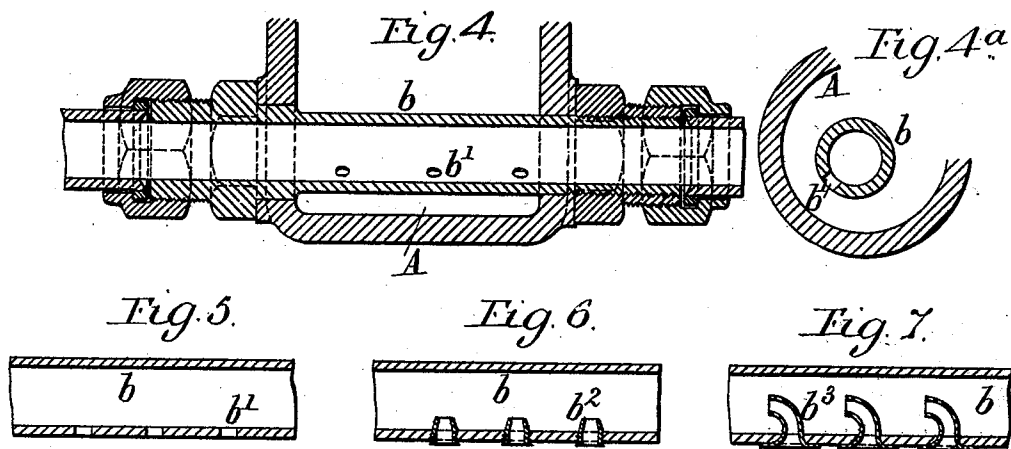
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APPARATUS FOR SANDING RAILS.

No. 481,797.

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Witnesses:-
J. A. Rutherford
Robert Everett

Inventor:
Gustav Lentz.
By James C. Norris.
Attorney.

UNITED STATES PATENT OFFICE.

GUSTAV LENTZ, OF DUSSELDORF, GERMANY.

APPARATUS FOR SANDING RAILS.

SPECIFICATION forming part of Letters Patent No. 481,797, dated August 30, 1892.

Application filed October 21, 1891. Serial No. 409,436. (No model.) Patented in France September 4, 1891, No. 215,926.

To all whom it may concern:

Be it known that I, GUSTAV LENTZ, civil engineer, a citizen of Prussia, residing at 18 Uhlan Strasse, Dusseldorf, in the German Empire, have invented certain new and useful Improvements in Apparatus for Supplying Sand to the Rails for Preventing the Slipping of Locomotive-Wheels, (for which I have obtained Letters Patent in France September 4, 1891, No. 215,926,) of which the following is a specification.

The apparatus heretofore employed on locomotive-engines for supplying sand to the rails for preventing the slipping of the wheels have the defect that they act very imperfectly and often not at all, on account of the sand being moist or impure and because the delivery-tubes become moist and rusty in wet weather, thereby obstructing the passage of the sand and eventually becoming choked.

It has also been proposed to draw air through the sand-box and delivery-tube by the exhausting action of a steam-ejector at the lower end of the delivery-tube; but this arrangement is subject to the same defect as soon as the steam-valve is not perfectly steam-tight. According to my present invention I obviate this defect by causing air under pressure to flow through a delivery-pipe that passes through or that is in communication with the sand-box, such pipe having lateral openings through which the sand is caused to enter it, so as to be carried along by the air-current and to be discharged thereby onto the rails beneath the wheels. The sand being previously dried in any suitable manner and there being no moisture or rusting possible in the delivery-pipe, no such choking as above mentioned can take place, so that the action of the apparatus is always reliable.

Figures 1 to 3 of the accompanying drawings show the application of my improved sand-distributing apparatus to a locomotive-engine. Fig. 1 shows an end view, and Fig. 2 a side view, and Fig. 3 a part plan. Figs. 4 to 7 show enlarged details of various modes of effecting the communication between the sand-box and the air-distributing pipe.

The sand to be employed should not only be well dried but also perfectly burned, so as to destroy all hygroscopic constituents, and sifted. I prefer to place the sand-box A in

the smoke-box of the engine, where it is subject to a high temperature which is quite sufficient for the purpose. The sand-box may, however, also be placed against the outside of the boiler, as usual. Through the lower part of the sand-box A is led the sand-distributing pipe *b*, which at the part where it passes through the box has a number of holes *b'* through which the sand can enter the pipe. A current of air under pressure above that of the atmosphere produced in any suitable manner being made to flow through the pipe, the entering grains of sand will be carried along by such blast and will be discharged at bottom between the rails and the wheels. Instead of branching the pipe *b*, as shown, for conveying the sand to the two driving-wheels, there may be two or more separate sand-distributing pipes with air-blast for conveying the sand separately to each of the wheels requiring it.

For producing the requisite air-blast a fan B may be employed, arranged close to the smoke-box, which can be put in action by the driver when required. In the arrangement shown a small steam-pipe *c* is led from the main steam-dome C of the engine to a small steam-turbine D fixed on the same axis as the fan B, so that on admitting steam through pipe *c* to the turbine the fan is driven at the requisite speed. In place of the fan any other appliance for producing a current of forced air—such as an air-pump, &c.—can be employed.

In the arrangement of the air-distributing pipe shown in longitudinal section and cross-section, respectively, at Figs. 4 and 4^a, the part of the pipe *b* passing through the sand-box A is made rotatable, so that the inlet-holes *b'* for the sand can, according to requirements, be directed either upward, downward, or sidewise, whereby the quantity of sand entering the pipe will be regulated.

Figs. 5, 6, and 7 show different forms for the inlet-holes, those at Figs. 6 and 7 being provided with small nozzles *b²* and *b³*.

Having now described the nature of this invention and the best means I know for carrying the same into practical effect, I claim—

In apparatus for use on locomotives for supplying sand to the rails, the combination, with the sand-box A, of a pipe *b*, passing through

the same, into one end of which an air-blast
is forced by a fan or other suitable means,
while such blast is delivered under the wheels
from the other end, the part of the pipe sit-
5 uated within the sand-box being provided
with lateral holes *b' b'* and made rotatable, so
as to bring the holes into any desired posi-
tion, substantially as described.

In testimony whereof I have signed my
name to this specification, in the presence of 10
two subscribing witnesses, this 26th day of
September, A. D. 1891.

GUSTAV LENTZ.

Witnesses:

D. J. PARTELLO,
WILH. OTTO.