J. A. SHINN.

Promoting Traction in Locomotive.

No. 203,784. Patented May 14, 1878.

Fig. 1

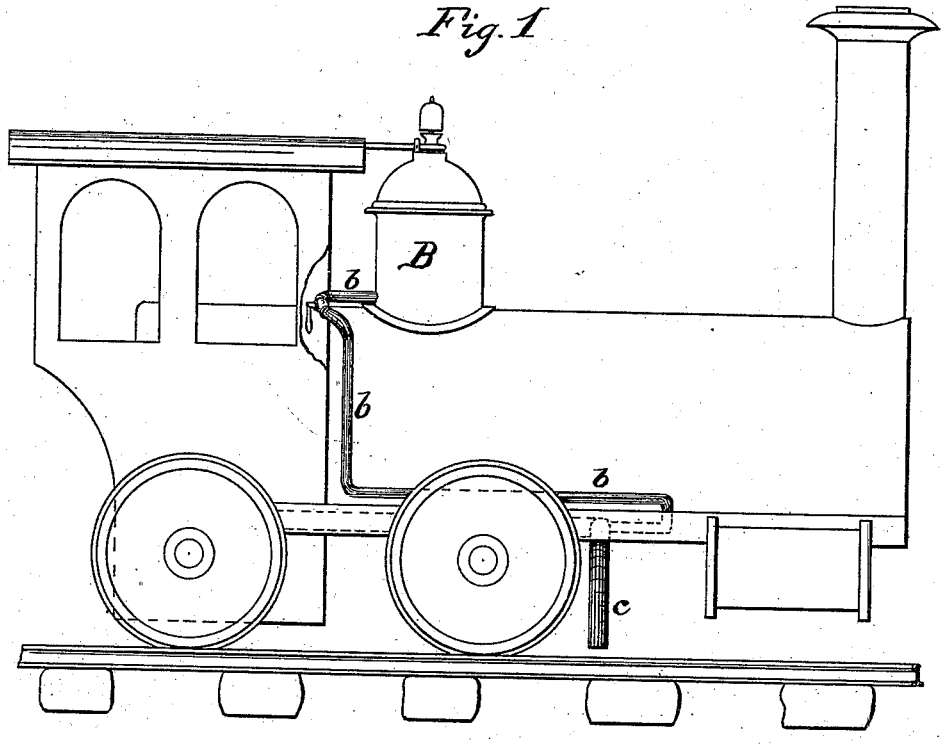
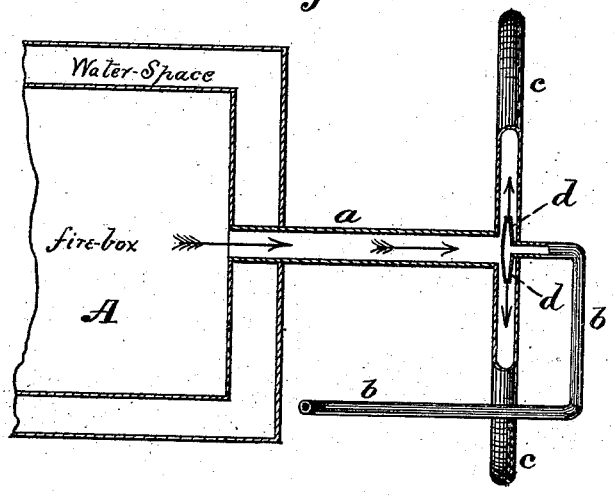


Fig. 2.



Witnesses.

J. Smith.

D. A. Pollock.

Joseph A. Shinn. Inventor.

by Connolly Bros & McGoldrick.

Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH A. SHINN, OF NEWCASTLE, PENNSYLVANIA.

IMPROVEMENT IN PROMOTING TRACTION IN LOCOMOTIVES.

Specification forming part of Letters Patent No. **203,784**, dated May 14, 1878; application filed October 8, 1877.

To all whom it may concern:

Be it known that I, JOSEPH A. SHINN, of Newcastle, in the county of Lawrence, State of Pennsylvania, have invented certain new and useful Improvements in the Method of Promoting Traction in Locomotives, and apparatus therefor; and I do hereby declare that the following is a full, clear, and exact description or the same, reference being had to the drawings which form part of this specification, in which—

Figure 1 is a side elevation of a locomotive having my improvement; and Fig. 2 is a plan section, showing a means of producing the hot blast by steam-jet acting on air coming through the fire-box.

My invention has for its object the promoting or increasing of traction of the driving-wheels of locomotives by cleaning and drying the rails in front of them; and consists in the novel construction, and combination of parts in an apparatus for applying to the rail or rails a forcible blast of hot air or of the gases of combustion, whereby the deposit of dirt, or mingled dirt, grease, and water, which is nearly always on the rails, is disintegrated and blown away and the rails dried, thus dispensing with the sand-box now in use.

Railway-rails, after a little use, become coated with dirt, sand, and particles of matter, which, mingling with the grease and water which drop upon the rails, is the cause of great loss of power, in that the coating decreases the traction of the wheels. At present this difficulty is, to some extent, surmounted by the use of sand, which must be specially prepared for the purpose, and is therefore expensive. When long used it accumulates in piles on each side of the rail, ready to be whirled up by every passing train and blind the eyes of the passengers. Besides not being thoroughly effective, in consequence of the increased draft of the train after the sand has been applied, the driver slips notwithstanding, and the result is that the rail is ground out at that point, and thus gradually the smooth top of the rail becomes ground into a succession of hollows, and is more or less dangerous.

Now, I propose to obviate these difficulties by causing a blast of hot air or gas to be projected upon the rail, at the will of the engineer, in front of one or more driving-wheels. The result is that all loose particles are instantly driven off the rails, and the mingled dirt and grease disintegratad and blown off by the force of the blast. This leaves the rail as clean as possible and dry, and the normal capabilities of the engine have full play.

I construct as follows: Passing out from the fire-box A through the water-space is an air-pipe, *a*, which is riveted on the inner shell, similarly to boiler-flues, and passes through the outer shell by a thread cut upon both pipe and shell, the end of the pipe being thus protected by the water. This leads forward, as seen in Fig. 2, and into it is fitted a small steam-pipe, *b*, coming from the steam-dome B of the boiler.

At a point about midway between the two front drivers, pipe *a* divides into two branches, *c c*, leading to each side, and steam-pipe *b* is led in at the junction, passing into each branch a short distance and ending in a small nozzle, *d*, pointing outwardly in each. Pipes *c* continue over till in front of the forward drivers, where they deliver on the rails, pointing obliquely across and from the drivers. If, now, steam be admitted into pipe *b* from dome B, steam-jets are thrown out at nozzles *d*, creating a vacuum behind, thus drawing the hot air and gas through pipe *a* from the fire-box A. On reaching the jets it is forcibly expelled upon the rails, by its impact driving off loose dirt, and by its heat melting and disintegrating the mingled dirt and grease, which also is blown away, and thus the rail is left clear and clean.

Incidentally it is evident that in winter the hot blast would further effect the evaporation of ice on the rails, in addition to its ordinary functions as described.

I am well aware that steam-jets have been used to clear railway-tracks of snow and ice and other obstructions, and I therefore do not make any claim to their use; but steam will not effect the results I wish to bring about—namely, the melting and disintegrating of the greasy matter adhering to the rails, and then blowing it off—for the grease repels the moisture and baffles the effort of steam alone; but I introduce the feature of highly-

heated air, steam being used in quantity merely sufficient to produce a blast, and this hot dry air effects results otherwise impossible.

I claim as my invention—

As a means of heating and projecting the blast, the combination of an air-pipe, *a*, passing into or through the fire-box A, a steam-pipe, *b*, having nozzle or nozzles *d*, and suitable conductors to the rails, substantially as described.

In testimony that I claim the foregoing I have hereto set my hand this 1st day of October, A. D. 1877.

JOSEPH A. SHINN.

Witnesses:
GEO. W. VEACH,
JNO. K. SHINN.