(No Model.)

H. W. ANNIS & W. H. FARRAND.

SANDING ATTACHMENT FOR LOCOMOTIVES.

No. 305,992. Patented Sept. 30, 1884.

Fig. 1.

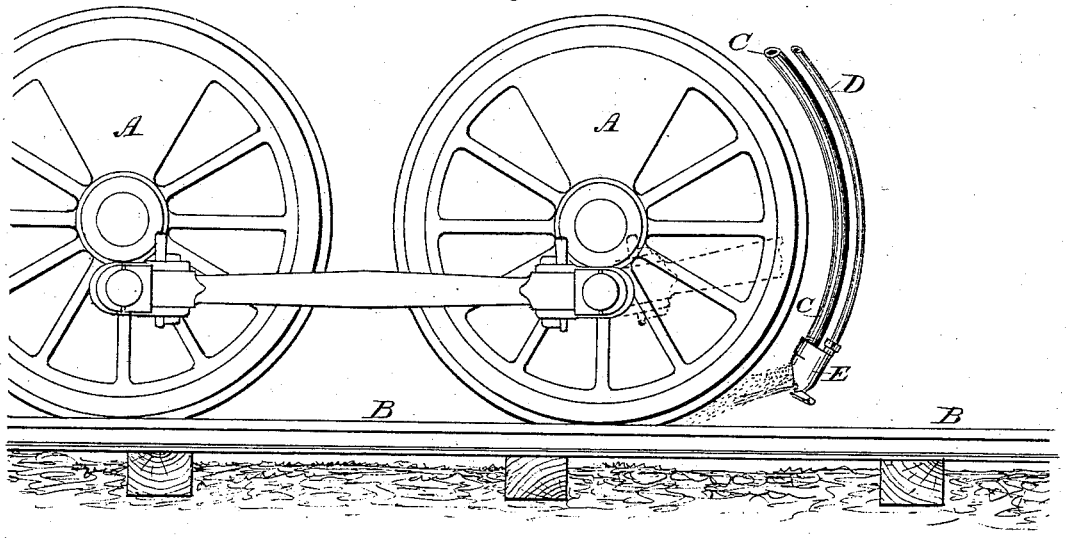


Fig. 2.

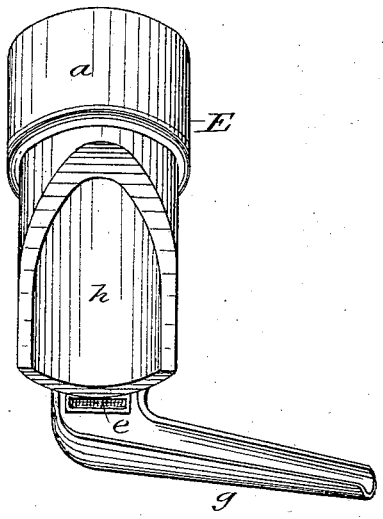


Fig. 3.

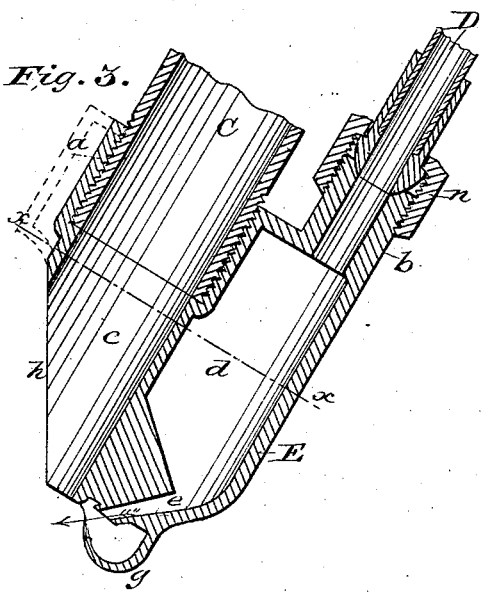
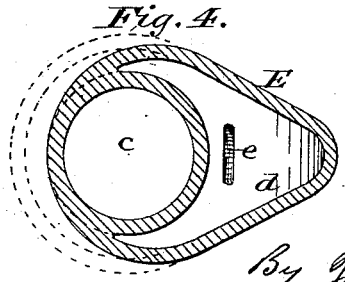


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY W. ANNIS AND WILLIAM H. FARRAND, OF ROCHESTER, N. Y., ASSIGNORS OF ONE-THIRD TO GEORGE S. RILEY, OF SAME PLACE.

SANDING ATTACHMENT FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 305,992, dated September 30, 1884.

Application filed February 25, 1884. (No model.)

To all whom it may concern:

Be it known that we, HENRY W. ANNIS and WILLIAM H. FARRAND, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Sanding Attachments for Locomotives, of which the following is a specification.

Our invention relates to improvements in that class of rail-sanding apparatus for locomotives in which a steam-pipe is employed, in connection with a sand-pipe, to produce friction enough to maintain the proper traction and prevent slipping of the driving-wheels on the rails when they have become slippery by wear, frost, or from other causes, and the object is to apply the sand from a sand-box directly at the point of contact between the wheels and the rails, and to moisten the tread of the driving-wheels and the rails, and cause the sand to adhere to them without the danger of said pipe freezing.

In devices heretofore employed for this purpose the pipes are apt to freeze in cold weather and thus become inoperative, and said freezing is caused by the condensation of the steam, which forms ice, the gathering of moisture, and the gradual closing of the sand-pipe by the sand sticking within its pipe, and by accumulation entirely closing it.

To overcome these difficulties and furnish means for causing an unobstructed flow of sand whenever it is required, our invention consists in producing a junction-piece or foot, to which the sand and steam pipes are connected, having an enlarged steam, hot-air, or hot-water heating-chamber by which the freezing of the sand-pipe is prevented, and at the same time to carry off any condensed water from the steam-pipe in a drip-gutter attached to said junction-piece.

It also consists in certain details of construction and arrangement of parts, as will be more fully described hereinafter, and more specifically pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a pair of driving-wheels of a locomotive, showing our improvement connected therewith; Fig. 2, a front elevation of the junction-piece or foot. Fig. 3 is a longitudinal section of the same. Fig. 4 is a cross-section of the same on the line *x x* of Fig. 3.

In the drawings, A A designate the driving-wheels of a locomotive, and B is the rail upon which they run. The sand-pipe C is connected to the ordinary sand-box, (not shown,) and D, the steam-pipe, connected with the steam-space of the boiler, (not shown,) and both pipes are of the ordinary construction and proportions. These pipes are connected to a junction-piece or foot, E, which is located in close proximity to the point of contact between the wheels and rails. The sand-pipe is screwed into a socket, *a*, at the upper rear part of the foot, and the steam-pipe is attached to a nozzle, *b*, in front by a nut, *n*, forming a swivel-joint, and made preferably of a spherical or conical shape, and it can by this means be readily detached when desired. The body of the foot is divided by a partition, and forms the two chambers *c* and *d*. The first chamber, *c*, is a tubular passage, having its lower end cut obliquely, so as to form an opening, *h*, of greater area than its diameter, for the free passage of the sand, and to prevent choking. The second chamber, *d*, which is connected with the steam-pipe, hot-air, or hot-water pipe, forms a steam and heating chamber of considerable capacity, and extends the entire length of the sand-passage and transversely half-way or more around said sand-passage, as shown in Fig. 4, and, by nearly or entirely surrounding the same by hot steam, forming a heating-chamber for steam, hot air, or hot water. At the lower end or bottom of the heating-chamber is arranged an oblong opening or slit, *e*, placed in an angular direction, so that a jet of steam issuing therefrom will strike the descending sand and force it toward the contact-point of the wheels and rails. A drip-gutter, *g*, is placed in close proximity to the mouth of the steam-chamber, and serves to carry the condensed steam toward the side of the rails, and this is another important feature of our invention.

The foot may be made round, oblong, square, or of any other form desired, and the heating-chamber may be extended entirely around the sand-passage, if desired, excepting its mouth, as shown by the dotted lines in Figs. 3 and 4.

It will be readily seen by those skilled in

the art that by this arrangement of heating-chamber of an increased capacity, the freezing and closing up of the sand-passage will be entirely overcome and obviated. By forming the outlet opening or mouth of the sand-passage of an increased area its clogging or choking will be prevented, and the sand-pipe is therefore always kept free and unobstructed.

By carrying the condensed steam sidewise of the rails it is out of the way and cannot form ice on the rails when the locomotive is standing still.

Having thus described our invention, what we claim is—

1. In a rail-sanding apparatus for locomotives, a junction-piece having a heating-chamber partially or entirely surrounding the sand-passage to prevent its freezing, substantially as described.

2. In a rail-sanding apparatus, a junction-piece or foot to which the sand and steam, hot-air or hot-water pipes of a locomotive are connected, and forming a heating-chamber by which the sand-passage is heated and prevented from freezing, substantially as described.

3. In a rail-sanding apparatus for locomotives, a junction-piece or foot to which the sand and heating pipes are connected, and containing a heating-chamber partially or entirely surrounding the sand-passage to prevent its freezing, substantially as described.

4. In a rail-sanding apparatus for locomotives, a junction-piece or foot to which the sand and steam pipes are connected, and having a sand-passage provided with an opening or mouth of larger area than its diameter, substantially as described.

5. In a rail-sanding apparatus for locomotives, a junction-piece or foot provided with a heating-chamber surrounding the sand-passage, having an outlet-opening or mouth of larger area than its diameter, substantially as described.

6. The combination of a junction-piece or foot for a rail-sanding apparatus containing a heating-chamber and a sand-passage, and provided with a drip-gutter, substantially as described.

7. The combination of a junction-piece, E, containing a sand-passage, *c*, and a heating-chamber, *d*, partially surrounding said passage, connected to a steam-pipe, D, and a sand-pipe, C, all constructed and arranged substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

HENRY W. ANNIS.
WILLIAM H. FARRAND.

Witnesses:
J. M. DAVY,
JAS. W. GREENE.