E. RYAN.

SANDING PIPE FOR LOCOMOTIVES.

APPLICATION FILED APR. 11, 1910.

976,304.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

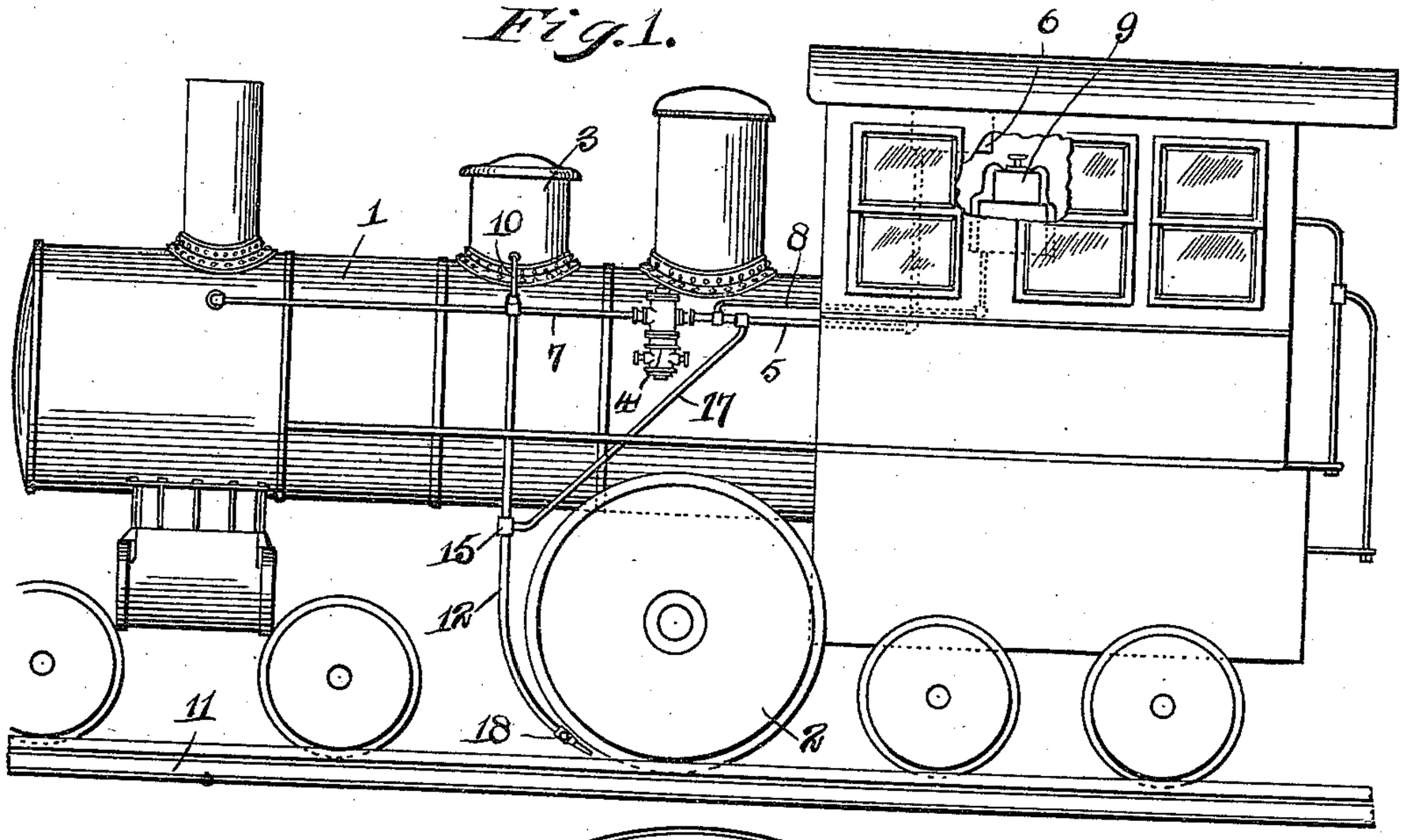
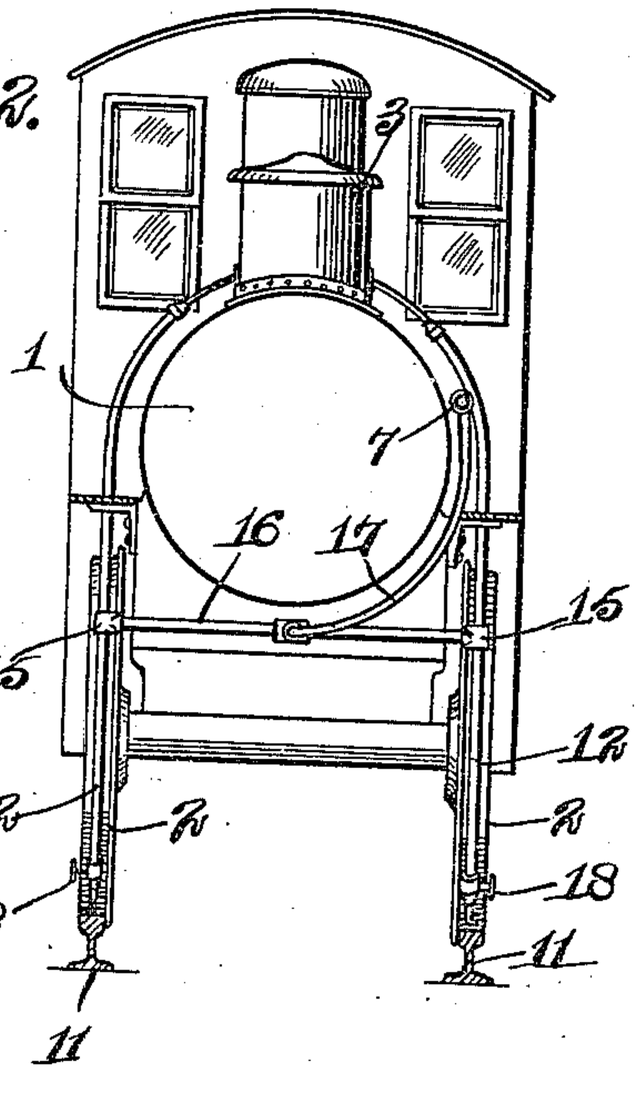


Fig. 2.



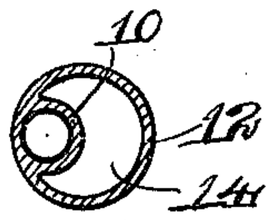


Fig. 4.

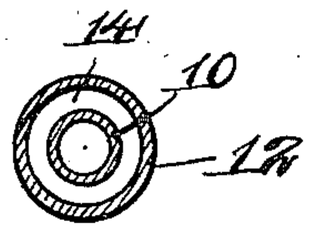


Fig. 3.

11

Witnesses:

C. C. Wessels.

A. A. Olson.

Inventor:

Edward Ryan,

By Joshua R. H. Potts

his Attorney.

E. RYAN.

SANDING PIPE FOR LOCOMOTIVES.

APPLICATION FILED APR. 11, 1910.

976,304.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 2.

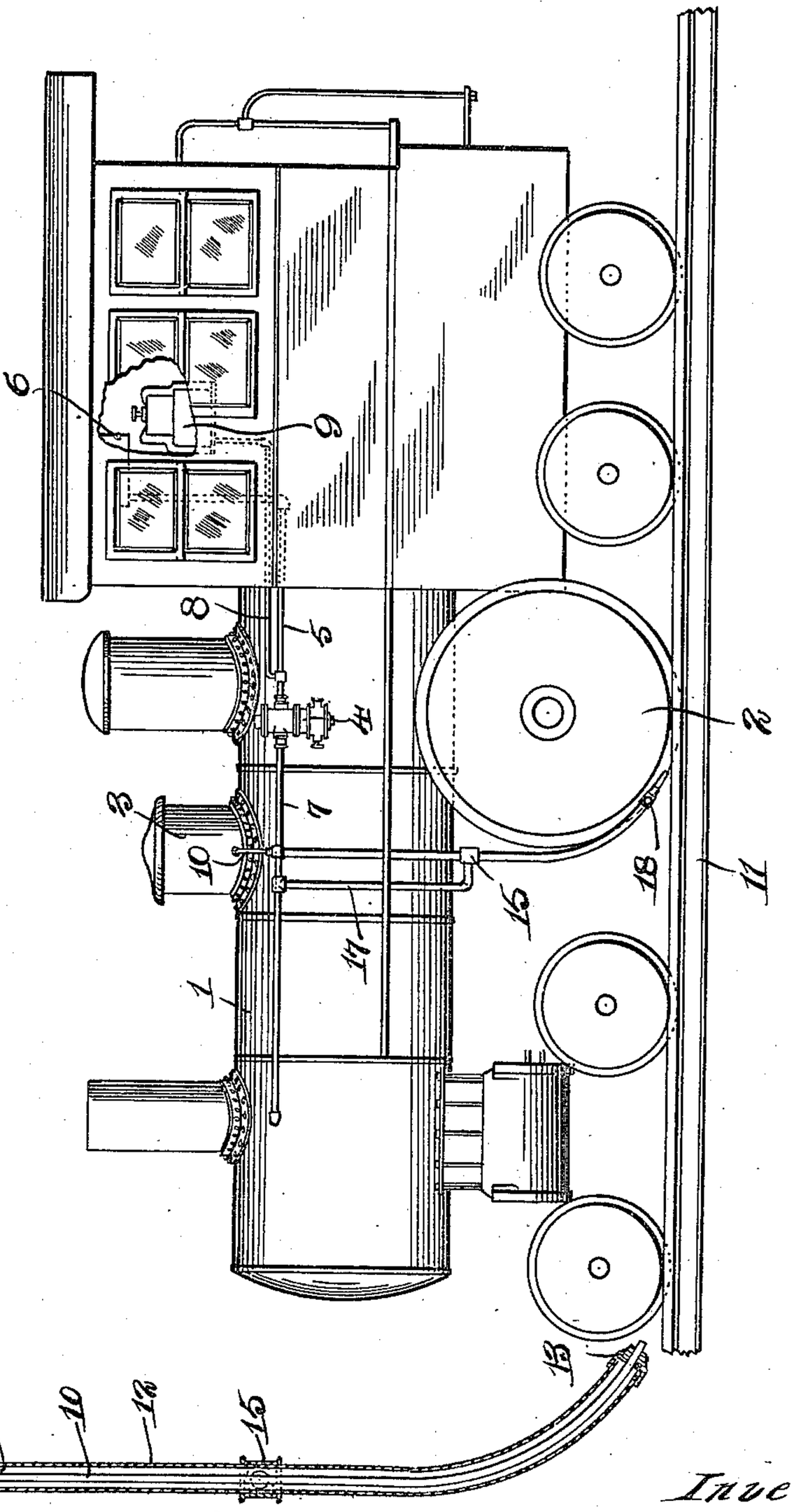


Fig. 5.

Fig. 6.

Witnesses:
E. E. Wessels.
A. A. Olson.

Inventor:
Edward Ryan,
By Joshua R. H. Potts
his Attorney.

UNITED STATES PATENT OFFICE.

EDWARD RYAN, OF CLINTON, IOWA.

SANDING-PIPE FOR LOCOMOTIVES.

976,304. Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed April 11, 1910. Serial No. 554,684.

To all whom it may concern:

Be it known that I, EDWARD RYAN, a citizen of the United States, residing at Clinton, county of Clinton, and State of Iowa, have invented certain new and useful Improvements in Sanding-Pipes for Locomotives, of which the following is a specification.

My invention relates to sanding devices for locomotive engines.

At the present time, in locomotive engines, it not infrequently happens in cold weather that snow and ice accumulate at the discharge end of the locomotive sanding pipe or that the sand becomes frozen in the sanding pipe, causing the clogging of the latter, and which occasions considerable inconvenience to the engineer or fireman and ofttimes serious accidents.

It is the object of the present invention to produce a sanding device of the character mentioned which will be designed to prevent the freezing and clogging of the sanding pipe.

A further object is the production of a sanding device which will be of durable and economical construction and efficient in operation.

Other objects will appear hereinafter.

With these objects in view my invention consists in a sanding device characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter fully described and more particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a side elevation of a locomotive equipped with my sanding device in its preferred form, Fig. 2 is a partially sectional front elevation thereof, Figs. 3 and 4 are enlarged sections of the sanding pipe embodied in my invention showing two different forms thereof, Fig. 5 is a side elevation of a locomotive equipped with my device connected in a slightly different manner thereof, and Fig. 6 is a longitudinal section of one of the sanding pipes detached.

Referring now to the drawings 1 indicates the locomotive engine which may be of any ordinary or preferred design.

2 indicates the drive wheels of the locomotive and 3 the sand dome or box thereof.

4 is the locomotive air pump, 5 indicating the air pump supply pipe which extends thereto from the steam fountain 6 in the locomotive cab, and 7 the air pump exhaust pipe which extends therefrom to the locomotive smoke box.

8 is the oil conductor which leads from the lubricator 9 in the cab and which communicates with the pipe 5 adjacent the connection of the latter with the air pump.

Having their upper ends communicating with the sand compartment of the dome 3, the same depending therefrom at opposite sides of the locomotive boiler and terminating at their lower ends forward of but in close proximity with the under sides of the drive wheels 2 for discharge of sand upon the respective track rails 11 are sanding pipes 10. Inclosing each of the pipes 10, the same being substantially co-extensive in length therewith, is a casing 12, attachment of the latter at its respective ends being, as clearly shown in Fig. 6, effected preferably by means of reducers 13. The interior diameters of the casings 12 are greater than the exterior diameters of the pipes 10 and whereby an annular chamber 14 is formed around each of the pipes 10. Connected at its respective ends by means of couplings 15 to the casings 12 is a pipe 16 which communicates at its respective ends with the chambers 14. Establishing communication between said pipe 16 and the air pump supply pipe 5, as shown in Fig. 5, or the air pump exhaust pipe 7, as shown in Fig. 5, is a pipe 17. The point of connection in the pipe 5 of the pipe 17 therewith, as shown in Fig. 1, is located rearward of the point of connection of the oil pipe 8 therewith; such provision being made in order to avoid the delivery of oil through the pipes 17 to the chambers 14.

With the arrangement disclosed it will be seen that the chambers 14 will be in direct communication with live steam passing through the pipe 5 or 7, and whereby the pipes 10 will be maintained constantly in a heated condition. The chambers 14 extending, as shown, substantially the entire length of said pipes 10, substantially the entire length of the latter will be constantly maintained at a high temperature and whereby freezing of sand therein will absolutely be prevented.

In order to facilitate the ready withdrawal of water of condensation from the

chambers 14, train cocks 18 are preferably tapped in the lower extremity of each of the casings 12 in connection with the lower extremities of said chambers. In the preferred form of construction, the pipe 10 and casing 12 are separate, the same being connected and held in concentric positions, as before described, by means of the reducers 13. However, if desired, I may form said pipes integral, as shown in Fig. 4.

While I have shown what I deem to be the preferable form of my sanding device I do not wish to be limited thereto as there might be various changes made in the details of construction and arrangement of parts described without departing from the spirit of the invention comprehended within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with a locomotive engine and the sanding pipe thereof, of means for heating said sanding pipe throughout substantially its entire exposed length, substantially as described.

2. The combination with a locomotive engine and the sanding pipes thereof, of a casing surrounding each of said pipes forming a chamber about the same substantially coextensive in length therewith, steam pipes communicating with said chambers, and drain cocks communicating with said chambers at their lower ends, substantially as described.

3. The combination with a locomotive engine and the sanding pipes thereof, and an air pump steam pipe, of a casing surrounding each of said pipes forming an annular chamber about the same substantially coextensive in length therewith, and pipes establishing communication between said air pump steam pipe and said chambers, substantially as described.

4. The combination with a locomotive engine and the sanding pipes thereof, and an air pump steam pipe, of a casing surrounding each of said pipes forming an annular chamber about the same substantially coextensive in length therewith, pipes establishing communication between said air pump, steam pipe and said chambers, and drain cocks communicating with said chambers at their lower ends, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD RYAN.

Witnesses:

JANET E. HOGAN,

JOSHUA R. H. POTTS.