March 11, 1924. 1,486,578

J. P. HARNEY

LOCOMOTIVE

Filed March 8, 1922

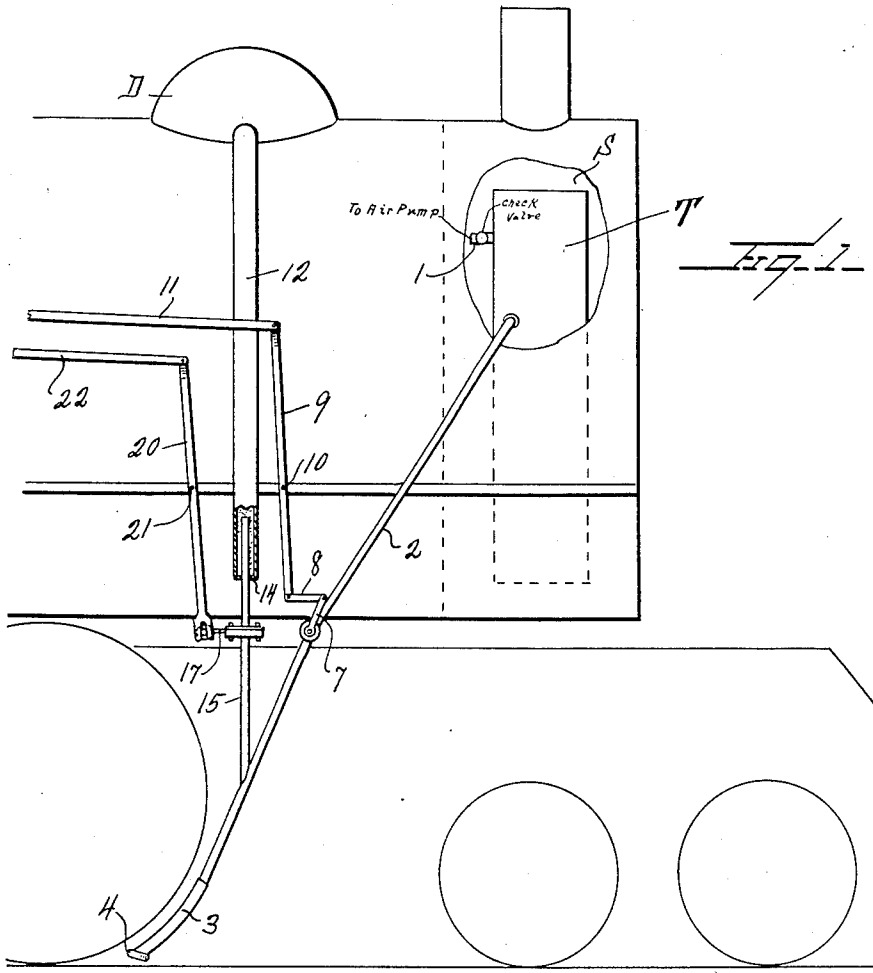


Fig. 1

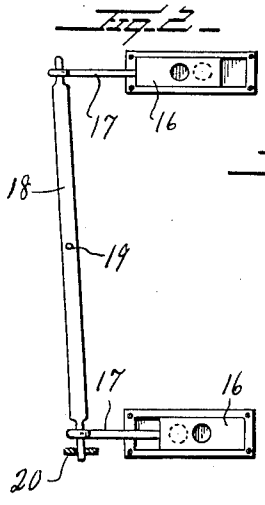


Fig. 2

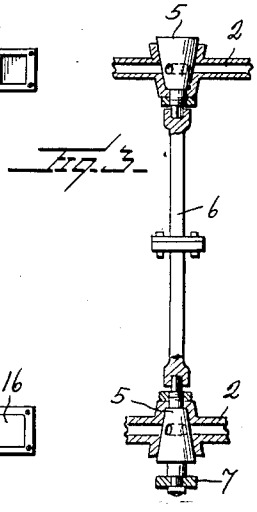


Fig. 3

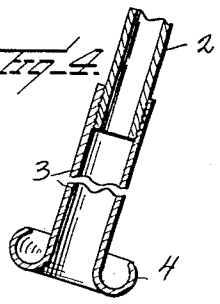


Fig. 4

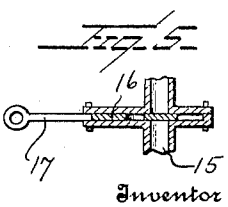


Fig. 5

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UNITED STATES PATENT OFFICE.

JOSEPH P. HARNEY, OF ALTOONA, PENNSYLVANIA.

LOCOMOTIVE.

Application filed March 8, 1922. Serial No. 542,094.

To all whom it may concern:

Be it known that I, JOSEPH P. HARNEY, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Locomotives, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in locomotives and it is an object of the invention to provide a locomotive with novel and improved means whereby the tractive contact of the drive wheels with the rails of the trackway may be maintained with a maximum of efficiency.

Another object of the invention is to provide a locomotive with novel and improved means whereby the rails of a trackway may have delivered thereon air heated at such temperature to assure an effective tractive contact of the drive wheel or wheels with said rails.

An additional object of the invention is to provide a locomotive with novel and improved means for drying the rails of a trackway embodying a pipe line discharging upon each of the rails of the trackway and leading from a source of air supply arranged within the smoke box of the locomotive and at such a location whereby the air is effectively heated by the products of combustion.

It is also an object of the invention to provide a locomotive with novel and improved means whereby heated air may be discharged upon the rails of the trackway, together with means whereby the sand, when desired, may also be discharged with the air.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved locomotive whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a fragmentary view in side elevation, with portions broken away, illustrating a locomotive provided with an attachment constructed in accordance with an embodiment of my invention, said figure being of a diagrammatic character;

Figure 2 is a diagrammatic view in top plan illustrating the means whereby the transversely spaced valves for controlling the flow or delivery of the sand may be operated in unison;

Figure 3 is a diagrammatic view partly in section and partly in top plan illustrating the means whereby the discharge of the heated air upon the rails of a trackway are under simultaneous control;

Figure 4 is an enlarged fragmentary view of the discharge end of one of the air lines; and

Figure 5 is a longitudinal sectional view taken through one of the valves illustrated in Figure 2.

As disclosed in the accompanying drawings, S denotes the smoke box of a locomotive in which is suitably positioned a tank or reservoir T adapted to contain a supply of air under pressure, said air being delivered within the tank or reservoir T through the induction pipe 1 leading from the air pump or compressor of the type generally carried by locomotives for use in connection with the air brake system.

At each side of the locomotive is a pipe line 2 disposed in a direction and of a length to terminate at a point in relatively close proximity to a rail of a trackway and to a wheel, such as a drive wheel, of the locomotive. The lower or discharge end of the pipe line 2 is engaged within an end portion of a nozzle 3, the lower or eduction end of the nozzle 3 being defined by an upstanding annular flange 4, preferably arcuate in cross section. This flange 4 provides a trap to collect moisture which may form upon the line 2 or nozzle 3 and otherwise drop down upon a rail.

Interposed in the pipe lines 2 are the valves 5 of a rotary type and, as is particularly illustrated in Figure 3, said valves 5 are connected by the interposed rod 6 for unitary rotation, so that both of the valves 5 may be simultaneously moved into open position or into closed position as desired. One of the valves 5 is provided with an operating member 7 which, as herein disclosed, is connected through the instrumentality of a link 8 with a lower end portion of a swinging bar or rod 9, said bar or rod 9 being pivotally supported intermediate its

length. Operatively engaged, as at 10, wtih the upper portion of the bar or rod 9 is a rod 11 which preferably leads within the cab of the locomotive so that the engineer may adjust the valves 5 into open and closed position as required.

When the valves 5 are in open position, heated air will pass downwardly through each of the pipe lines 2 and its associated nozzle 3 and be delivered upon a rail of the trackway at a point in relatively close proximity to a wheel of the locomotive. This heated air operates to effectively dry the rail in advance of the wheel and also the approaching portion of the rim of the wheel so that the desired tractive contact between the wheel and rail is assured. The use of this heated air is of particular advantage in starting or stopping.

D denotes a sand dome of a type now generally in use and leading from said dome and overlying each side of the locomotive is a pipe 12 having its lower end 14 closed. Extending upwardly within the pipe 12 through its lower closed end is a second pipe 15 of a major diameter less than the mean diameter of the pipe 12, said pipe 15 being in communication with a pipe line 2. Interposed within the pipe 15 is a slide valve 16 to provide means whereby the flow through the pipe 15 may be readily and effectively controlled as the requirements of practice may necessitate. By having the pipe 15 extend within the pipe 12 at a point above the lower closed end 14 of the pipe 12, it is assured that the sand which may pass through the pipe 15 into a pipe line 2 will be dry as any moisture which may be within the sand held within the pipe 12 will be collected within the lower portion of the pipe 12 below the upper or induction end of the pipe 15.

The valves 16, which are arranged at the opposite sides of the locomotive, are provided with the outstanding stems 17 operatively engaged with the extremities of a lever 18, said lever being supported, as at 19, substantially midway its length for swinging movement about a vertical axis. Operatively engaged with one extremity of the lever 18 is a vertically disposed operating bar 20. The bar 20 is supported, as at 21, at a point midway its ends for swinging movement. Operatively engaged with the upper end portion of the bar 20 is a rod 22 which is preferably of a length to extend within the cab of a locomotive so that the engineer may effect a simultaneous opening or closing of the valves 16 when required. In operation, it is to be understood that while the valves 16 move simultaneously or in unison, they travel in opposite directions.

With the use of my improved attachment, it is not at all times necessary that sand be employed and for which reason a material saving in sand is effected and which is a feature of material advantage.

Congealment or clogging sand principally takes place at the lower end portion of the sand pipe or nozzle but in my improved arrangement this difficulty is overcome as the heated air in addition to acting directly upon the sand also heats the pipe and nozzle whereby increased efficiency is obtained.

From the foregoing description it is thought to be obvious that a locomotive constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:

1. In combination with the smoke box of a locomotive and a supporting wheel for the locomotive, means within the smoke box for heating air under pressure, and means for discharging said heated air upon the surface over which the wheel traverses.

2. In combination with the smoke box of a locomotive and a supporting wheel for the locomotive, means within the smoke box for heating air under pressure, and means for discharging said heated air upon the surface over which the wheel traverses and at a point in advance of and in close proximity to the wheel.

3. In combination with a supporting wheel for a vehicle, means for discharging heated air in advance of such wheel to dry the surface upon which such wheel traverses, and means for discharging sand with said air, said last named means operating independently of the first named means.

4. In combination with a smoke box of a locomotive, a supporting wheel for the locomotive, means within the smoke box for heating air under pressure, and means for discharging said air upon the portions of the wheel approaching the surface over which the wheel traverses.

In testimony whereof I hereunto affix my signature.

JOSEPH P. HARNEY.