(No Model.)

# F. G. TUTTLE.

## TRACK AND WHEEL CLEANING AND LUBRICATING DEVICE.

No. 333,090. Patented Dec. 22, 1885.

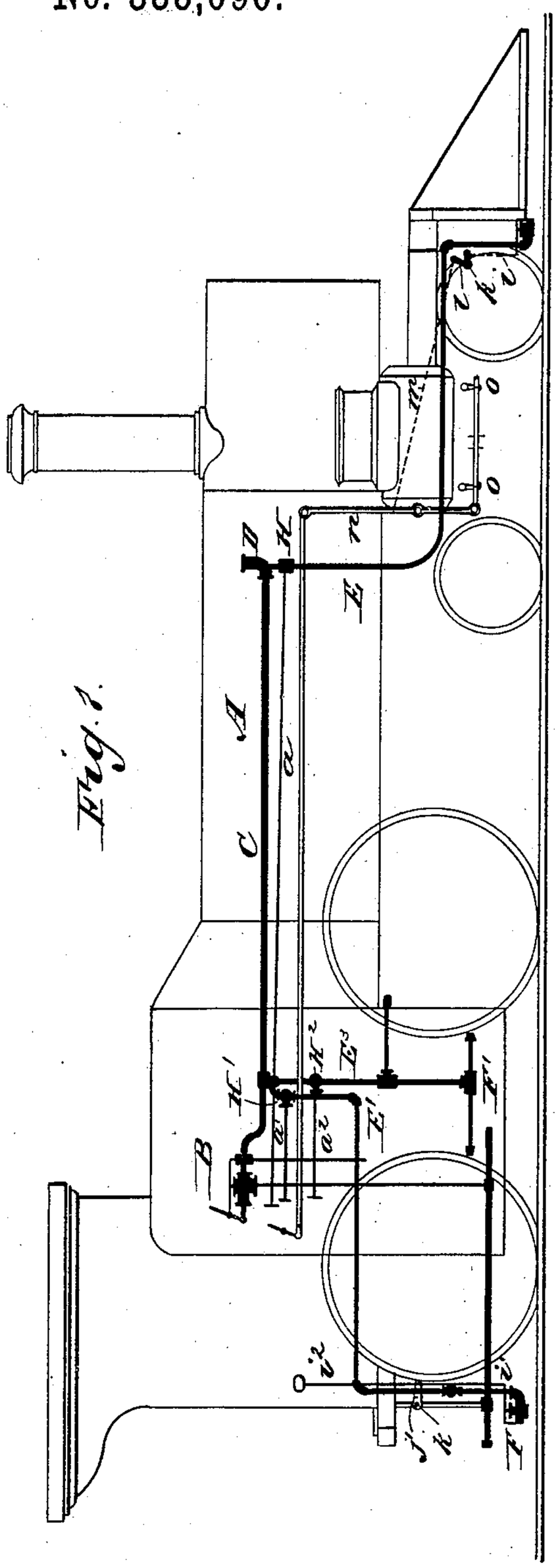

Fig. 1.

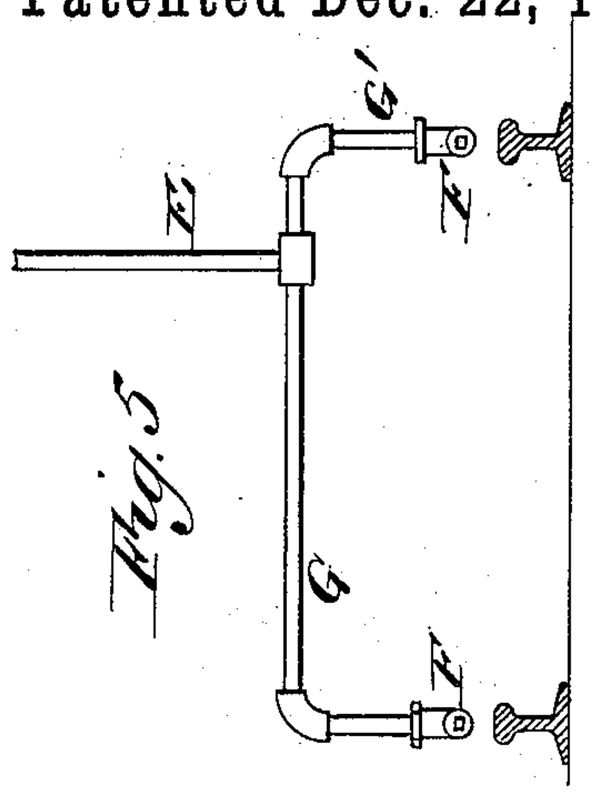

Fig. 5.

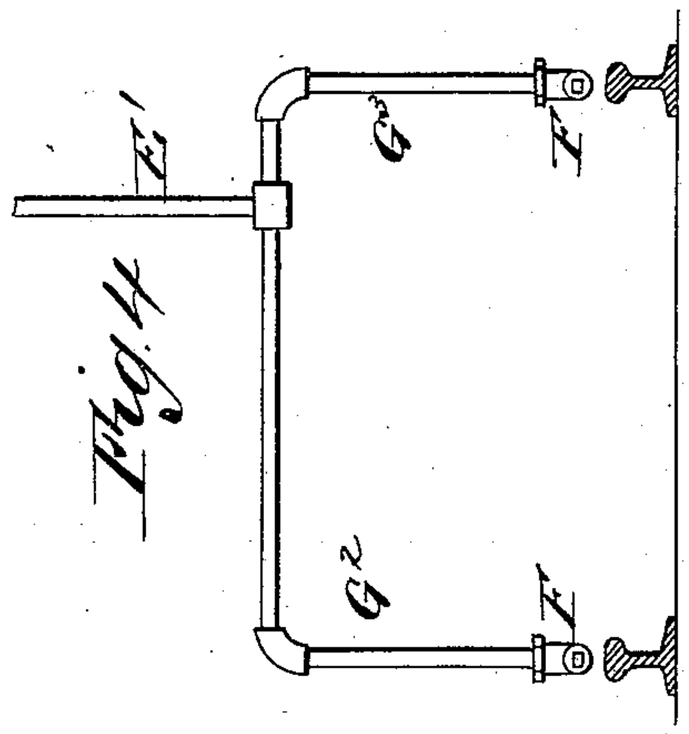

Fig. 4.

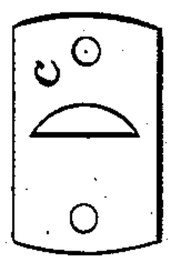

Fig. 3.

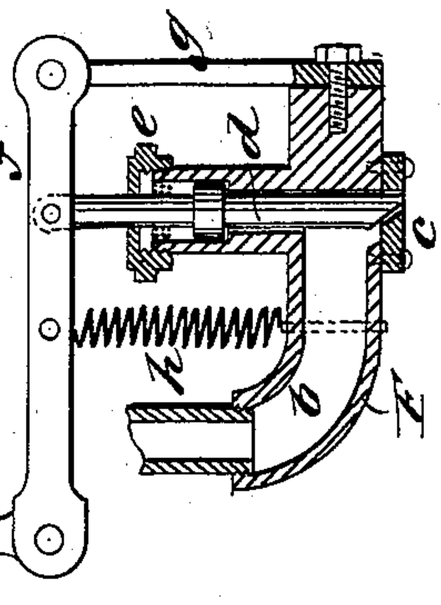

Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## TRACK AND WHEEL CLEANING AND LUBRICATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 333,090, dated December 22, 1885.

Application filed June 4, 1885. Serial No. 167,691. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS G. TUTTLE, of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Track and Wheel Cleaning and Lubricating Device, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved track and wheel cleaning and lubricating device. Fig. 2 is a vertical section of the valve and nozzle. Fig. 3 is an inverted plan view of the nozzle, showing the form of the discharge-opening; and Figs. 4 and 5 represent the branch pipes communicating with the nozzles.

The object of my invention is to provide for locomotives a track and wheel washing device, which may be operated by means of the ordinary injector carried by the locomotive for feeding its boiler.

My invention consists in combining with the injector and pipes leading therefrom of series of pipes leading to the front and rear of the locomotive and provided with nozzles for discharging hot water upon the track, and in series of pipes and nozzles for discharging jets of hot water against the drive-wheels of the locomotive.

In railroad practice it has been found that the rails become covered in dry weather with a thin film of metal worn from the wheels and rails, which film causes the drive-wheels to slip, and thus in many cases stalls the train. I have discovered that by thoroughly washing this metallic film from the drive-wheels and from the track the adhesion of the drive-wheels is greatly increased by the actual contact of the wheel with the rail without an intervening film of metal. In damp and foggy weather the rails become very slippery from the accumulation of moisture and the wetting of the thin film of metal and the formation of oxide, which causes the drive-wheels to slip. Washing the wheels and the rails also removes this, as well as any sand or dirt that may accumulate on the track or on the wheels.

The locomotive-boiler A is provided with the usual injector, B, communicating through a pipe, C, and check-valve D with the water-space of the boiler.

In my invention I connect a pipe, E, with the pipe C, outside of the check-valve D, and extend it to the front part of the locomotive and connect it with nozzles F by means of branch pipes G G′. The nozzles F, which will be described in detail further on, are located above the track-rail and a short distance from it, so that the water discharged from them impinges upon the head of the rail.

In the pipe E, near the check-valve D, I place a stop-valve, H, whose spindle *a* extends into the cab of the locomotive, where it is under the control of the engineer. In a similar manner I connect a pipe, E′, with the pipe C, and extend it to the rear of the locomotive and connect it by means of branch pipes $G^2$ $G^3$ with nozzles F, located above and near the track-rails.

In the pipe E′, I place a valve, H′, whose spindle *a′* extends into the locomotive-cab, and a pipe, $E^3$, is connected with the pipe C, and extends downward and around the fire-box underneath the waist of the boiler, and is connected with two pairs of nozzles, F′, which are adapted to discharge against the peripheries of the drive-wheels on either side of the locomotive. The pipe $E^3$ is provided with a stop-valve, $H^2$, whose spindle $a^2$ extends into the cab of the locomotive.

The nozzle F consists of a curved valve-casing, *b*, having in the lower ends thereof a valve-seat, *c*, having in it an aperture in the form of a segment of a circle with the straight side thereof beveled, and to the casing B is fitted a cylindrical valve, *d*, having its end beveled to correspond to the beveled surface of the valve-seat, and leaving a thin straight slit for the escape of the jet, the cylindrical surface of the valve corresponding with the curved part of the aperture in the valve-seat. The spindle of the valve *d* extends upward through a stuffing-box, *e*, and is connected with a lever, *f*, fulcrumed on a standard, *g*, secured to the valve-casing *b*. The lever *f* extends over the valve-casing *b*, and is drawn downward toward the casing by a spiral spring, *h*, which is secured to the casing *b*, and also to the lever *f*. The lever *f* at the front valves is con-

nected by a rod, *i*, with an arm, *j*, on a rock-shaft, *k*, which may extend across the front of the locomotive, and is provided with an arm, *l*, connected by a rod, *m*, with the usual lever, *n*, employed in working the cylinder-cocks *o*. The nozzles F at the rear of the locomotive are constructed like those at the front of the locomotive; but the levers *f* are provided with rods *i'*, which are connected with arms *j'* on the rock-shaft *k'*, extending across the locomotive under the floor of the cab. The rod $i^2$ extends from one of the arms *j'* through the floor of the cab in position to be operated by the engineer or fireman.

When it is desired to wash the track in front of the locomotive, the injector B is set in operation, the valve H is opened, a thin jet of hot or warm water is then projected through the nozzles F forcibly upon the track and removes the thin film of metal or sand or dust as the locomotive progresses.

The track at the rear of the locomotive is washed by opening the valve H'. The wheels are washed by opening the valve $H^2$ and permitting the water to escape through the pipe $E^3$ to the double nozzles F on either side of the fire-box.

In some cases it is desirable to project steam upon the wheels and upon the track. This may be done by closing the water-supply valve of the injector and allowing only steam to escape through it. This will prove effectual in removing ice from the drive-wheels and from the track. By projecting water against the drive-wheels and the track in rounding sharp curves, the flanges of the wheels and the track will become lubricated, so that the friction between the wheels and track will be lessened, and in cases where the brakes are set during the forward motion of the train the friction of the brake upon the wheel may be partially relieved by the engineer by projecting water upon the track in the manner already described.

When the track-washing nozzles become clogged from any cause, the valve *d* of the forward nozzle is raised by operating the cylinder-cock lever in the usual way. This permits of the free escape of water, which carries with it any obstruction that may have lodged in the nozzle. The rear nozzles are cleared by operating the rod $i^2$.

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

1. The combination, with the injector-discharge pipe of a locomotive, of track and wheel cleaning nozzles and pipes establishing communication between the boiler-feed pipe and the said nozzles, substantially as herein described.

2. The combination, with the injector-pipe of a locomotive, of nozzles adapted to discharge ~~water or steam upon~~ the track or locomotive wheels ~~or both~~, and valves for controlling the discharge of water from the pipes, as herein specified.

3. The combination, with the injector B and pipe C, leading therefrom to the boiler, of one or more pipes provided with suitable regulating-valves and one or more pairs of nozzles, F, adapted to discharge hot water or steam on the track or wheels, as herein specified.

4. A track and wheel cleaning nozzle having a discharge-opening of the form of a segment of a circle with the straight side thereof beveled to form a thin flat discharge-opening, and the combination therewith of a cylindrical valve having a beveled end, as herein specified.

5. The combination, with the nozzle F, having the valve *d*, of the lever *f*, spring *h*, and means for operating the lever *f*, substantially as herein specified.

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Witnesses:
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