UNITED STATES PATENT OFFICE.

JOHN JORDAN, OF WYANDOTTE, KANSAS.

IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. **59,400**, dated November 6, 1866.

To all whom it may concern:

Be it known that I, JOHN JORDAN, of Wyandotte, Wyandotte county, and State of Kansas, have invented a new and Improved Steam-Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

The present invention relates to a low-pressure steam-pump especially adapted for use upon railways; and consists in a novel construction of the same, whereby many important advantages are secured, as will be obvious from the following detailed description of the same, reference being had to the accompanying plate of drawings, in which the figure is a central vertical section of a steam-pump constructed according to the present invention.

A in the drawing represents the steam-pipe through which the steam passes and enters a vertical cylinder, B, at or near its upper end, *c*, and above the inside horizontal partition-plate D, forming a steam chest or chamber, E. From this chamber E the steam passes through an opening, F, in the center of the partition-plate D into the lower chamber, G, of the cylinder B, in which chamber a hollow metallic float, H, is arranged so as to freely move or play up and down upon a center guide rod or stem, I, that, extending up through the partition-opening F and the top plate of the cylinder B, has a valve, J, secured to it above the said partition-plate D, of suitable size and shape, so that, when down upon the said plate, it will entirely close its center aperture. To the valve rod or stem I, both above and below its float, is fixed a disk or tappet, K K^2, against which, according as the float is rising or falling in the cylinder, the float comes to a bearing, and thus raises or opens or lowers or closes the valve J, as is obvious by an inspection of the drawing.

L, the feed-water pipe communicating with the lower end of the cylinder, in connection with the opening of which pipe into the cylinder a valve, M, is arranged so as to open inward.

N, the discharge-pipe for the water forced by the pump, which pipe communicates at its lower end with the lower end of the cylinder B, where a valve, O, is arranged opening into the pipe, and also again with the cylinder B, but above its float, and just below the steam-chest partition, through a short pipe, P, that at its end opening into the cylinder has a valve, Q, opening inward.

The operation of the pump having the construction above explained is as follows: The steam entering the steam-chest, and from that passing through the valve, acts upon the float in the lower part of the cylinder, and, depressing it, consequently forces whatever water may be below the float up through the discharge water-pipe until, the float having been thus depressed to such a distance that its lower end strikes against the lower tappet of the valve-stem, the valve is thereby closed, when the pressure of water in the discharge-pipe, opening the valve in its connecting-pipe above the float, allows the water to flow into the cylinder, which, condensing the steam therein and above the float, produces a vacuum, or partially so, above the float, which then of course is raised or lifted by the water passing into the cylinder B through the feed-pipe communicating with the lower end thereof until, the float having abutted against the upper tappet of the valve-stem, the valve is again opened, and steam then passing through it again depresses the float, and through it forcing such water as entered the cylinder below the float up through the discharge water-pipe until the valve becomes again closed, when the same operation takes place as before, and so on as long as desired, the opening of the valve being regulated by means of a spiral spring, T, to which its stem is hung, as is obvious without any further explanation.

I claim as new and desire to secure by Letters Patent—

The arrangement of the steam-pipe A, cylinder, B, partition-plate D, having opening E, sliding hollow float H, stem F, tappets K K^2, spring T, valve J, feed-pipe L, discharge-pipe N, and pipe P, in the manner described, for the purpose specified.

JOHN JORDAN.

Witnesses:

NATHANIEL KEARNEY,
JOHN LEARY.

P. F. Jones.

Railroad Rail.

No. 59,401. Patented Nov. 6, 1866.

Fig: 1.

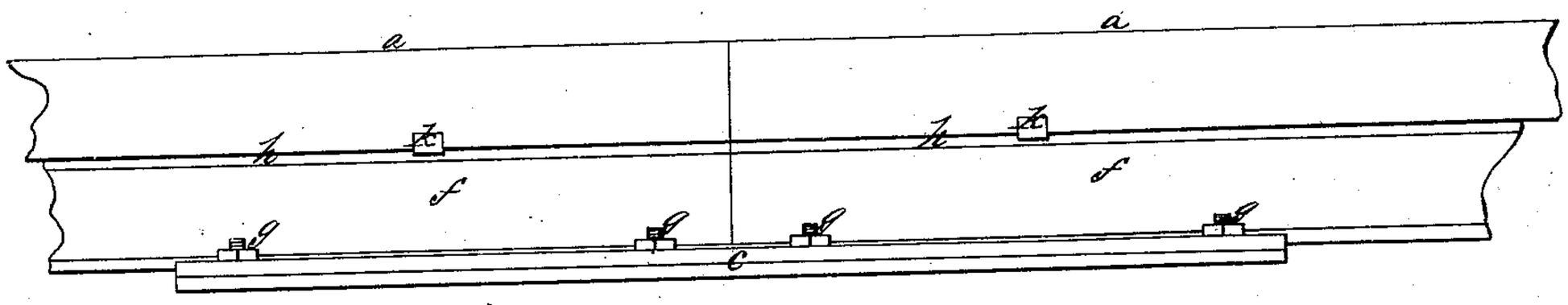


Fig: 2.

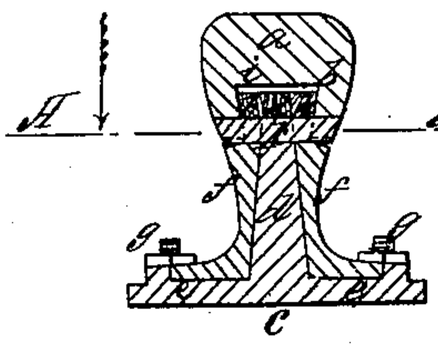
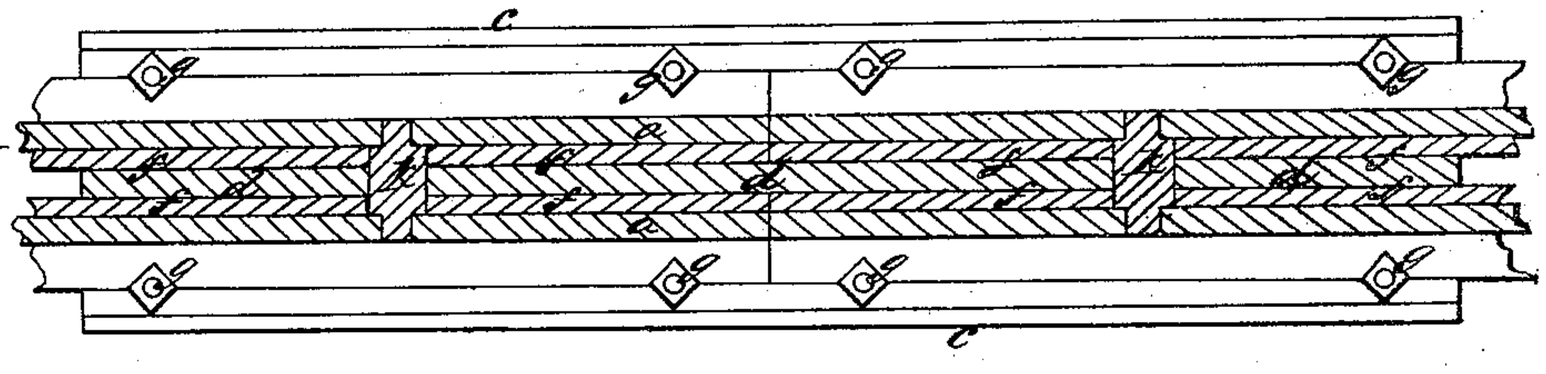


Fig: 3. A:a.



Witnesses:
E. N. Y. Bartholomew
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Inventor:
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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

P. FRANKLIN JONES, OF BALLSTON SPA, NEW YORK.

IMPROVED RAILROAD-RAIL.

Specification forming part of Letters Patent No. **59,401**, dated November 6, 1866.

To all whom it may concern:

Be it known that I, P. FRANKLIN JONES, of Ballston Spa, county of Saratoga, and State of New York, have invented certain new and useful Improvements in Rails for Railroads; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a rail on my improved plan. Fig. 2 is a cross vertical section, and Fig. 3 a horizontal section taken in the plane of the line A *a* of Fig. 2.

The same letters indicate like parts in all the figures.

There are serious objections to the use of railroad-rails as heretofore and now made. They cannot be so laid down in track as to secure speed, safety, and durability. The use of iron chairs (absolutely necessary with the present rails) for connecting the ends of the different sections present insuperable obstacles. The ends of the different sections resting upon and in iron chairs, while the other parts of the rail rest upon wood only, destroys the equilibrium of the solidity of the track and increases the liability to batter at the point of intersection. The iron chairs under the intersecting ends of the rails so effectually destroy the equilibrium of the solidity of the track that the wheels strike more solid upon the joints than upon other parts of the rail. Then the joint, being the weakest point, and supported only by resting upon a single wooden cross-tie, is driven downward by the increased hammer-like action of the wheels in passing rapidly over the joints. This cannot be avoided by the present mode of constructing rails and laying down the track. That which necessarily follows is an uneven horizontal surface to the track, which must increase with every passing train. The intersections or joints are constantly liable to a lateral motion or working, so as to allow the flange of the wheel to catch upon the projecting ends of the rails. The tread-cap, or part that comes in contact with the wheels, is the part most subject to wear and injury by battering, and this liability is very greatly increased by the use of iron chairs placed under the joints. When once the tread-cap of the present rail becomes battered the whole rail has to be removed, and the destruction of rails from this cause and the expense of repairs and replacement is enormous. It is impossible with the use of iron chairs under the joints to secure an equilibrium in the solidity of the track; and where this equilibrium is wanting, the rapidly-passing wheels will assume a jumping, hammer-like action, because of their passing quickly over an unequally-supported and unequally firm surface.

By my invention I avoid most if not all the defects of the rails as heretofore and now made and laid down. I avoid the use of chairs entirely for connecting the intersections, thus saving all the expense in iron, labor, and machinery in making them. While my rail actually requires no more iron to the lineal yard than the rails now in use, by dispensing with the use of chairs I actually save the expense of many tons of iron to the mile in the construction of roads.

The tread-cap on which the wheels run in my rail is made entirely separate and separable from the other parts of the rail, and is so secured to the side sections and core of the rail as to receive and give uniform support in all directions and secure perfect equilibrium in the solidity of the track. The core of the rail forms a continuous chair, which receives and holds all the other sections of the rail perfectly and uniformly in place. The tread-cap is so connected to the side sections and core of the rail that it can easily and quickly be taken up for repairs or replacement without drawing the spikes from the cross-ties or in any manner disturbing the core of the rail. The tread-cap, being the only part of the rail subject to wear or battering by the action of the wheels, is the only part subject to repairs or replacement, which will greatly lessen the expense of keeping roads in repair. This tread-cap I propose to make of some harder and more durable material, as Bessemer steel.

In the accompanying drawings, *a* represents the tread-cap or upper section of the rail, made in the required form for the wheels to run upon. It is made entirely separate and separable from the other parts of the rail, with a groove, *b*, of a dovetail shape in the under side, and along the entire length, for the purpose of receiving and holding firmly in place all the other sections of the rail and of fastening it to them.