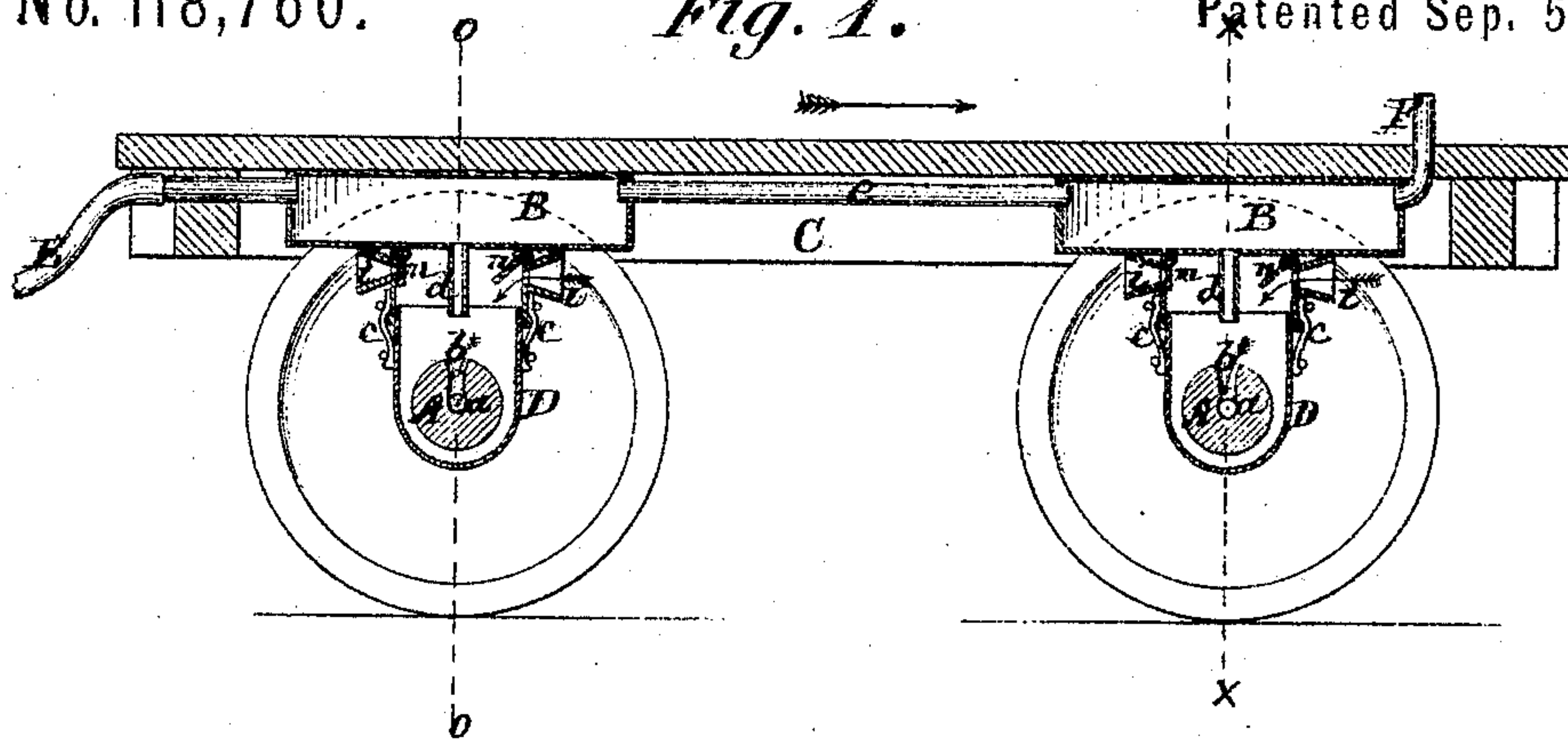
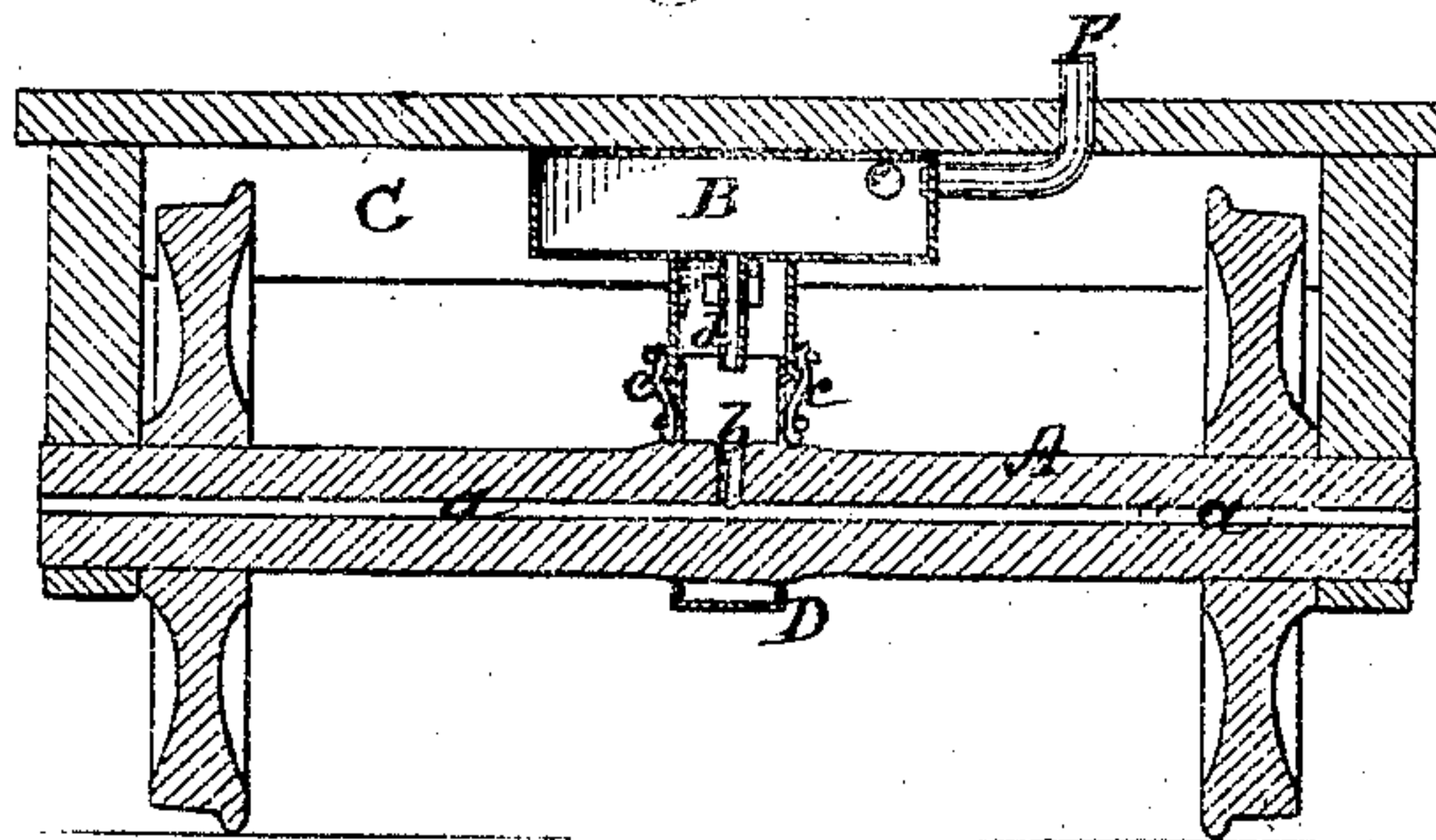
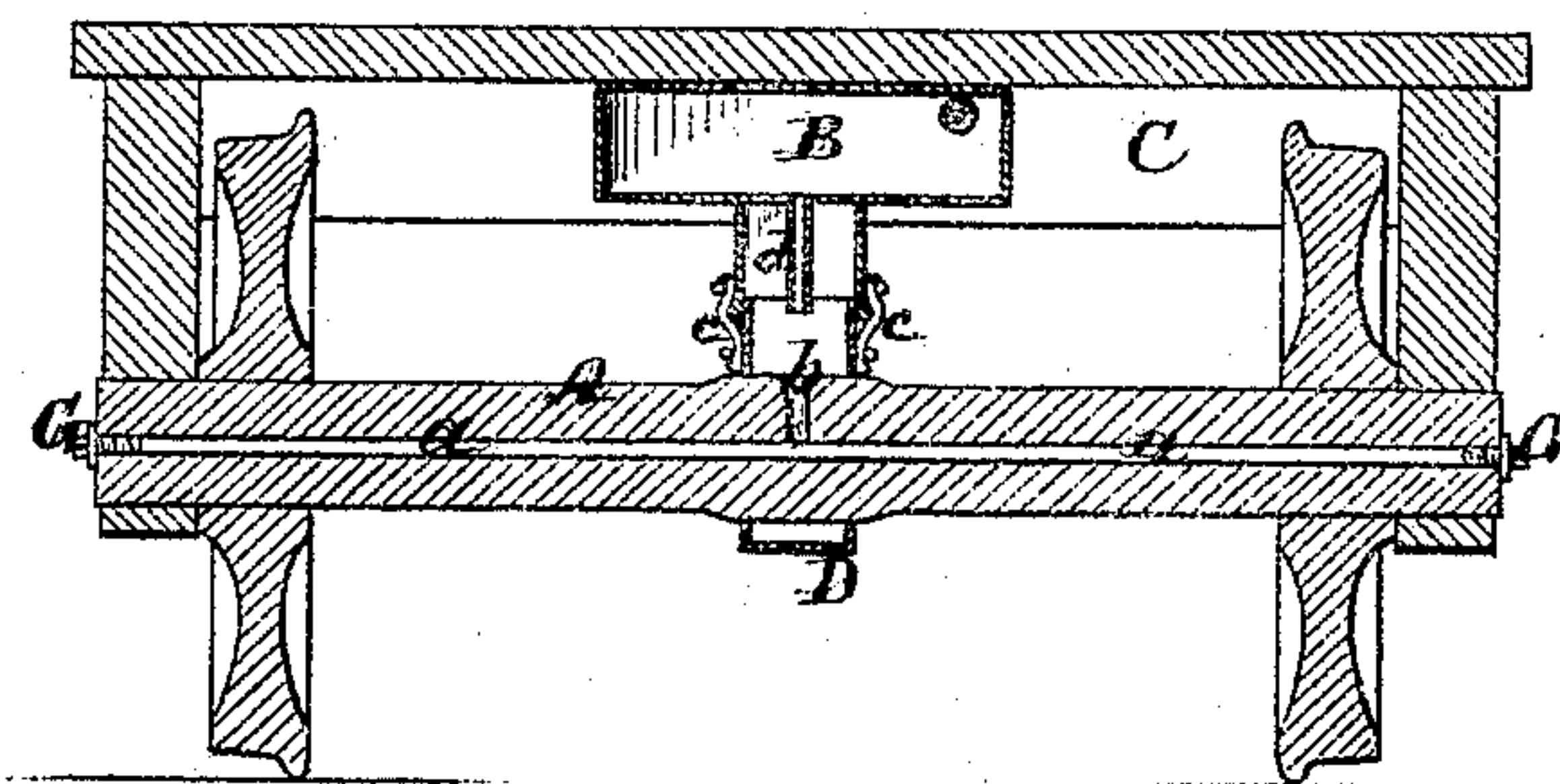


*Archibald B. Tripler.**Method of Preventing Rail-road Axles from Heating.*

No. 118,760.

Fig. 1.

Patented Sep. 5. 1871.

*Fig. 2.**Fig. 3.*Witnesses*W. Hamilton Johnson**Chas. C. Upperman**Archibald B. Tripler,**By his Attorneys,**Upferman & Johnson.*

UNITED STATES PATENT OFFICE.

ARCHIBALD B. TRIPLER, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN DEVICES FOR PREVENTING RAILWAY AXLES FROM HEATING.

Specification forming part of Letters Patent No. 118,760, dated September 5, 1871; antedated August 19, 1871.

To all whom it may concern:

Be it known that I, ARCHIBALD B. TRIPLER, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Method of Preventing Railroad Axles from Heating; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing of the same which makes part of this specification, and in which—

Figure 1 represents a vertical section of a railroad-car truck embracing my improvements. Fig. 2 represents a cross-section at the line *xx* of Fig. 1. Fig. 3 represents a similar section at the line *oo* of Fig. 1, showing a modification of my invention.

This invention relates to a method of increasing the safety of railroad-car axles; and it consists in making the axle with a central opening, which is intersected by a small opening at or near the middle of its length, so as to put the central opening in communication with a water and air-supply tank for the purpose of using either separately, or both combined, as a means of cooling the axle, and in producing a circulation of such cooling means through the axle by the running motion of the car when the opening of the axle is unobstructed, or, when such opening is closed at each end of the axle, producing such circulation of water by means of the action of the heat generated in the axle.

In the accompanying drawing, the axle *A* is represented as having a central opening, *a*, drilled therein, from one end to the other, of suitable diameter. This opening is intersected at or near the middle of the length of the axle by a radial opening, *b*, which opens communication from the surface of the interior of the axle. This communication is for the purpose of allowing a stream of both water and air, or either separately, to be introduced into and through said axle to prevent it from getting heated within the journal-box. The method of introducing the cooling agents consists in having a water-tank, *B*, secured to the truck *C* above the axle, and a water-tight jacket, *D*, to inclose that part of the axle containing the radial opening, leaving a space between it and said axle. The tank and jacket are united by a yielding or flexible connection, *e*, so as to render their junction water-tight and allow the latter to conform to any irregularity in the

motion or vibration of the axle. The water from the tank passes therefrom by a small tube, *d*, into the jacket when the cars are in motion, so that the portion of the axle inclosed by the jacket revolves in water, and the receiving-opening *b* of the axle being within the jacket, the air and water will pass into said opening *b*, and into and out of the central opening *a* at every revolution of the axle, which must necessarily keep its journals from becoming unduly heated. The tank *B* may be supplied with water from a hose, *E*, connected therewith and to the tender of the train; or by a pipe, *F*, leading from the water-cooler within each car, whereby the waste water is utilized; or the tanks may be supplied in any other suitable and convenient way, and the tank of each axle may be connected with each other by a suitable pipe, *e*, so that one tank may be supplied from another. The air is conducted into the tank and through the axle by means of openings in that part of the tank which forms the junction with the jacket, as shown in Fig. 1. These openings are provided with air-gatherers or hoods *i*, arranged so as to gather the air while the car is in motion, and force it within the jacket and through the central opening of the axle. These openings are also provided with valves *n*, arranged so that the one which is fronting the direction in which the car is moving will be constantly kept open by the pressure of the air from without, while the other will be constantly kept closed by the pressure of the air within the case or jacket. By this means a constant stream of both air and water is forced into and through the central opening of the axle at the same time.

In warm seasons the combined use of these cooling agents may be both useful and desirable with axles open at both ends; but in cold seasons, when water would be liable to freeze, I retain the water within the axle and thus prevent it from freezing.

In Fig. 2 of the drawing the central opening of the axle is represented as being open at both ends; but it is obvious that it may be closed at one end, and the air and water forced into and out of it at one end only. My invention also embraces the use of a hollow axle closed at both ends, as shown in Fig. 3, so as to retain the water as the cooling agent within its central opening and its supply-tank, instead of allowing it to pass therefrom. Under this modification of my

invention, whenever the water within the axle becomes heated it will be displaced by being caused to rise by the descent of a colder body from the supply-tank, and thus a constant circulation of cold water will be produced and maintained within and through the axle without reducing the supply, except from leakage. In this case the air-valves may or may not be used, as may be desired. Each end of the central opening is closed by a screw-tap, G, or other device,

It is obvious that when the water is inclosed within the axle, it will absorb, to a greater or lesser extent, the heat of the axle, and thus be caused to expand and force itself from the axle through the supply-opening. In this process the colder water from the tank will descend and take the place of the heated water. The water in the tank is prevented from retaining the heat by the cooling effect of the air introduced in the tank.

Having described my invention, I claim—

1. A railroad-car axle, having a central opening, intersected at or near the middle of its length by a radial receiving-opening, *b*, in combination with a water-tank and air-valves or gatherers, *i*, the latter opening and closing automatically to

receive the air alone as the cooling agent, or as a motor to drive the water through said central opening, in the manner and for the purpose described.

2. A water or air-receiver, constructed with air-gatherers *i* and valves *n* or their equivalent, arranged to receive and conduct air into and through the central opening *a* of the axle by the motion of the car itself, as described.

3. The central opening *a* of the axle, sealed or closed at each end thereof, and communicating with a supply-tank centrally located, so as to produce and maintain a continuous circulation of the cooling agent within the axle, in the manner essentially as described.

4. The combination of an axle, A, constructed with longitudinal and radial openings *a b*, as described, the jacket D, the tank B, and the connecting supply-pipes, substantially as described.

In testimony whereof I have hereunto signed my name.

A. B. TRIPLER.

Witnesses:

A. E. H. JOHNSON,
CHAS. E. UPPERMAN.