No. 638,656. Patented Dec. 5, 1899.

F. THEILENGERDES.

CAR BRAKE.

(Application filed Jan. 6, 1899. Renewed Nov. 11, 1899.)

(No Model.) 3 Sheets—Sheet 1.

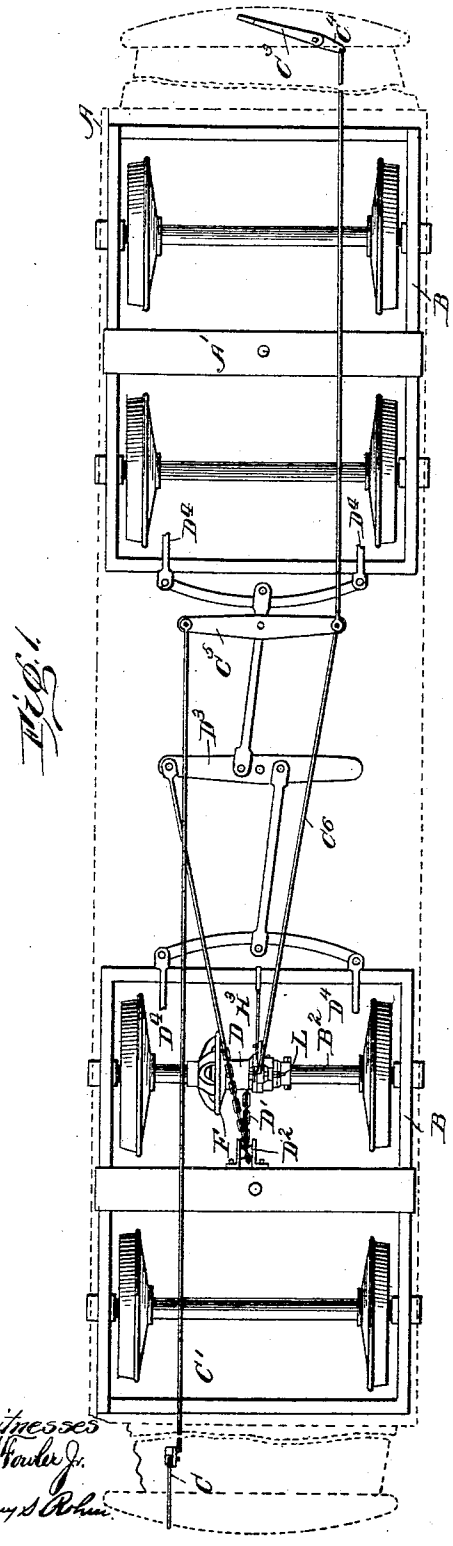


Fig. 1.

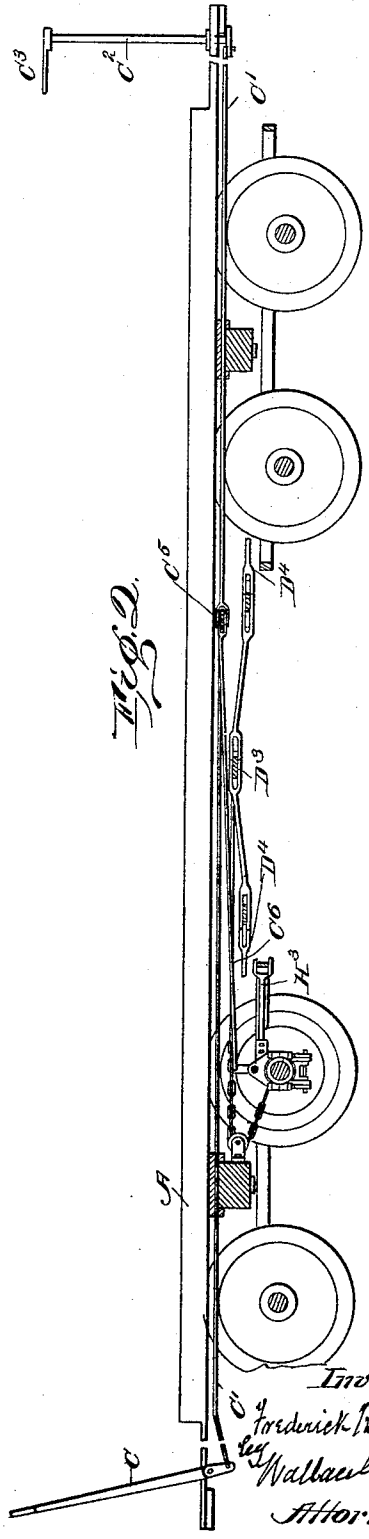


Fig. 2.

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Fig. 4.

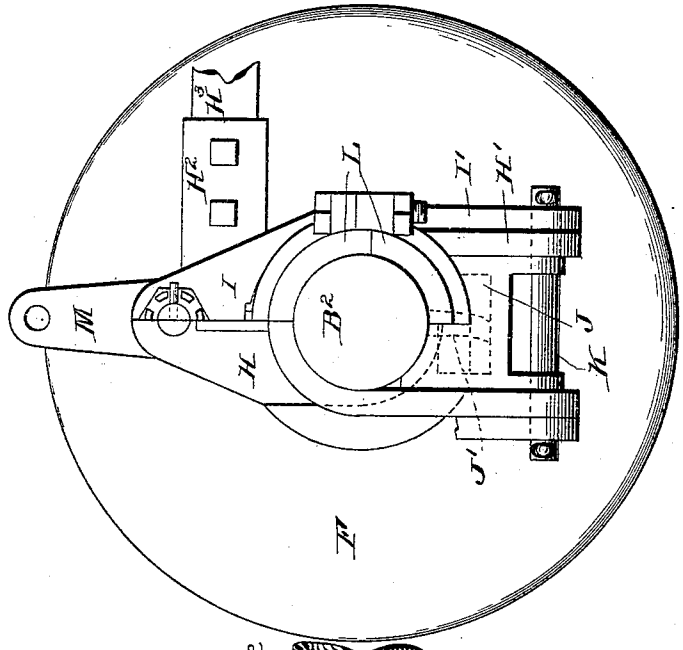
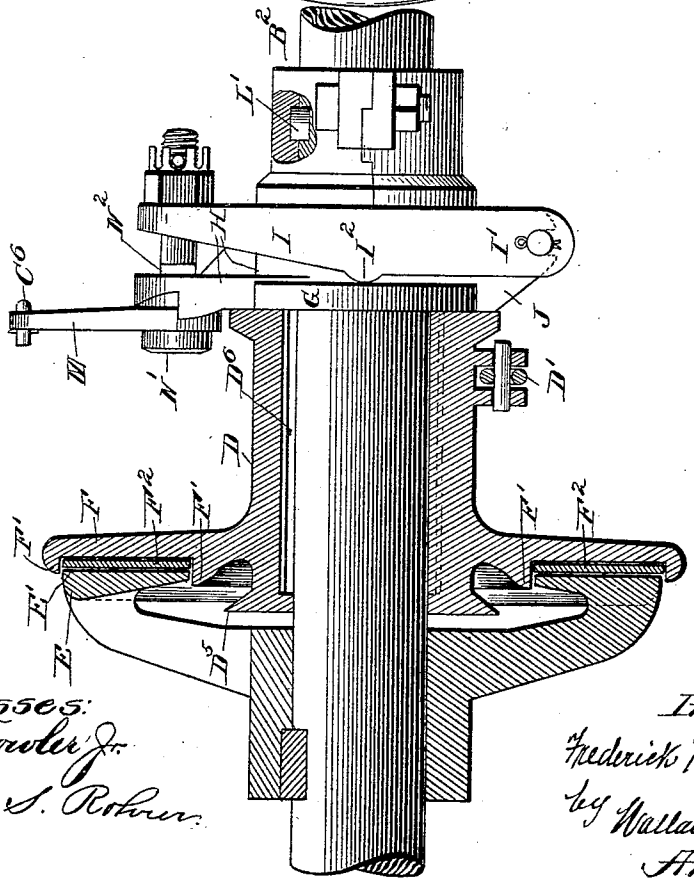


Fig. 3.



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Fig. 5.

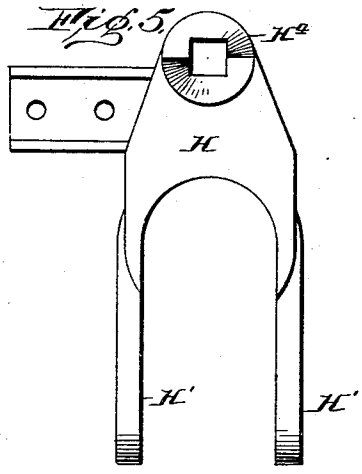


Fig. 6.

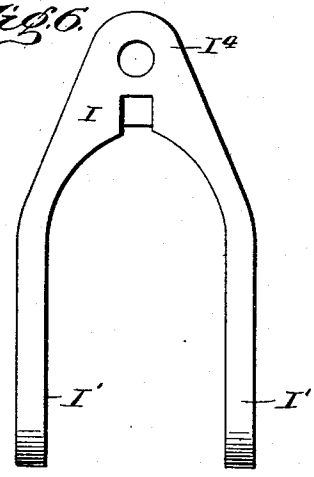


Fig. 7.

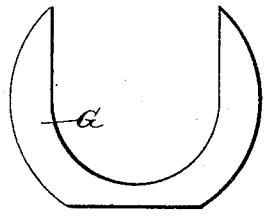


Fig. 8.

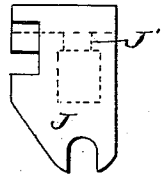


Fig. 9.

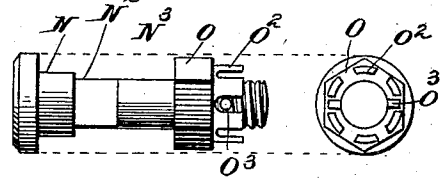


Fig. 10.

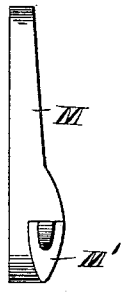
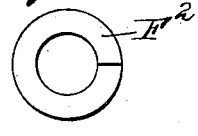


Fig. 11.



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UNITED STATES PATENT OFFICE.

FREDERICK THEILENGERDES, OF MEMPHIS, TENNESSEE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 638,656, dated December 5, 1899.

Application filed January 6, 1899. Renewed November 11, 1899. Serial No. 736,689. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK THEILENGERDES, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of brakes in which the brake-shoes are brought into action through throwing into engagement a friction-clutch upon one of the axles; and the novelty is found principally in the clutch and the means for operating it. Practically devices of this class have proved unsatisfactory, largely because oil, dust, and oil-saturated dust accumulate upon the friction-surfaces—a difficulty eliminated by this invention.

In the drawings, Figure 1 is a diagrammatic plan of street-car trucks with the novel braking devices in position. Fig. 2 is a side elevation, partly in section, showing the same devices. Fig. 3 is an enlarged axial section of the clutch, the adjacent operating devices being in elevation. Fig. 4 is a view looking from the right in Fig. 3. Figs. 5, 6, 7, 8, 9, 10 and 11 are detail views.

In the drawings, A represents the outline of a car-body, A′ the bolsters, B the truck-frame, B′ the wheels, and B^2 one of the axles, all without novelty.

At one end of the car is a vertical centrally-pivoted brake-lever C, having its lower short arm connected to a brake-operating rod C′, and at the other end of the car is a brake-staff C^2, having above a horizontal removable hand-lever C^3 and below a short arm C^4, connected to a second brake-operating rod C′. These two rods are attached to opposite ends of a centrally-pivoted bar C^5, and from one end of this bar a connection C^6 runs to devices for throwing into action a certain friction-clutch connected with a drum-sleeve D, normally free to slide and rotate upon the axle B^2. A cable D′, winding upon the drum, passes over a pulley D^2 and returning is connected to one arm of a centrally-pivoted lever D^3, whose opposite arms are connected in the usual way to rods D^4, operating brake-beams. (Not shown.) A ring E, concentric with the axle and having a plane side surface E′, is rigidly secured to the axle by arms outside of its plane and projecting from a hub keyed to the axle. An analogous ring F is rigidly fixed to the drum-sleeve by a web without the ring's face plane and is provided with an annular recess, formed by annular flanges F′ on its side face, to receive the ring E. Between the opposing faces of the two rings is placed a loose annular disk F^2, of leather or the like. The drum-sleeve D projects beyond the plane of the two rings and has beyond this plane a circumferential flange D^5.

It is essential to have that part of the axle upon which the drum-sleeve works well lubricated; but to prevent in some degree the escape of oil at the clutch end the oil-channels D^6 do not extend quite to that end. Such oil as may escape for the most part drops from the flange D^5, yet some small portion creeps up the flange and dust collects, forming an ever-increasing capillary mass; but the weight of the mass causes it to break off before it becomes injuriously large in amount and as it falls to pass out between the arms. The flange F′ throws it away from the rings, to which, moreover, these flanges leave small chance for dust to enter. It has followed in practical use of the devices that these rings very rarely need any attention whatever. At the opposite end the drum-sleeve has a plane face which normally rests against an upwardly-open U-shaped member G and against a forked saddle H, which fits between the branches of the member G and whose pendent branches H′ extend below the axle. Over the main portion of the saddle rests a forked lever I, whose branches I′ extend downward in contact with the branches H′, and near the middle each branch of the lever has a projection I^2, which rests against the member G. Between the branches H′, below the axle, is placed an oil-reservoir J, provided with a wick J′ to raise oil to the axle, with a lateral projection to support the member G, and with forked lugs to rest upon a readily-removable rod K, which passes through the branches H′ I′, forming a fulcrum for the latter. The saddle H is prevented from rotating or tilting by a projection H^2 and a bar

H^3, extending therefrom to the truck-frame. The saddle and forked lever are held against moving from the drum-sleeve by a split sleeve L, clamped to the axle, further secured by a dowel L′, and having on the meeting faces of its halves engaging projections to keep the halves in exact relative positions. Obviously if the upper end of the forked lever be forced toward the drum-sleeve the projections I^3 press the member G forward, slide the sleeve, and bring the clutch into action to wind the cable upon the drum. It is so swung by the connection C^6, which engages the free end of a lever M, turning upon a large cylindrical portion N of a bolt N′ and provided with spiral cam-faces M′ to meet corresponding faces on one side of the upper part H^4 of the saddle H. This bolt has a squared portion N^2, loosely fitting in a square aperture in the part H^4, a smaller cylindrical part N^3, passing loosely through the upper part I^4 of the lever I, and a threaded terminal portion, upon which works a nut O, locked in any desired position by a pin or cotter passing through the bolt and engaging in slots in a sleeve O^2, formed integrally with the nut. The saddle prevents rotation of the bolt. Now when the lever M is swung in the proper direction, since the sleeve L prevents the saddle from yielding, the bolt slides, and the nut pressing against the part I^4 the forked lever is swung on the pivot K and the clutch is engaged. The combined multiplication of power by the lever M and the screw-like cam-faces gives almost any desired force, the necessary sliding movement of the ring being only a small fraction of an inch.

It is obvious that this brake is practically instantaneous, that none of the novel devices interfere with the attachment of ordinary hand-brake connections, and that changes in construction can be made without departing from my invention. From this last consideration I desire to claim my invention broadly as well as specifically.

What I claim is—

1. The combination with a car-axle, of a sleeve mounted to slide and revolve upon the axle, an encircling friction-ring borne by said sleeve, a coacting friction-ring rigidly connected to the axle itself, an annular shield or flange interposed between the shaft and said rings to protect the latter from oil, and means for forcing one ring against the other.

2. The combination with a car-axle, of a revoluble sliding drum-sleeve upon the axle, an encircling friction-ring borne by the sleeve in a plane between its ends, a coacting friction-ring rigidly connected to the shaft by arms extending over the adjacent portion of the sleeve at some distance without the latter, an annular flange projecting outward from that portion of the sleeve within the arms, and means for forcibly sliding the sleeve upon the axle.

3. The combination with a car-axle, of a sliding, revoluble drum-sleeve upon the axle, an encircling friction-ring borne by the sleeve in a plane between its ends and provided with annular flanges projecting, parallel to the axle, at the margins, respectively, of the ring, a second friction-ring fitting between said flanges and supported from the axle itself by rigid arms projecting from the axle over the adjacent end portion of the sleeve, an annular flange upon said end portion and means for forcibly sliding the sleeve upon the axle.

4. The combination with an axle, of a drum-sleeve mounted to slide and rotate upon the same and having a circumferential flange at one end, a friction-ring supported from the sleeve in a plane between its ends, a second ring rigidly supported, alongside the first, from a part of the axle beyond said end of the drum-sleeve, and means for forcing the drum-sleeve and its ring toward the rigidly-supported ring.

5. The combination with a car-axle, of a friction-clutch mounted upon the axle and having a sliding drum-sleeve member, a collar upon the axle, a saddle interposed between said member and collar, a lever pivoted upon the saddle to swing parallel to the axle and force said member toward its companion, a second lever swinging transversely with reference to the axle and having a lateral cam-face working against the saddle to move the lever bodily parallel to the axle, and a bolt or link connecting the second lever to the free end of the first.

6. The combination with the axle, the friction-clutch thereon and the sleeve fixed to the axle at a short distance from the clutch, of the forked saddle between the clutch and sleeve, the forked lever passing over the saddle, a removable oil-reservoir between the branches of the saddle, a wick raising oil therefrom to the axle, and a removable fulcrum-rod passing through the branches of both saddle and lever and supporting said reservoir.

7. The combination with the axle, of the friction-clutch having one member sliding thereon, the saddle held against lateral movement by connection with the truck-frame and resting upon the axle at the end of said member, the forked lever pivoted to the saddle and acting to slide said member, the bolt sliding in the upper portion of the saddle and engaging the free end of said lever, and a second lever revolubly mounted on said bolt and provided with cam-faces acting against the saddle and by reaction moving the bolt longitudinally and thus actuating the forked lever.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK THEILENGERDES.

Witnesses:

THOS. J. TUCKER,

S. J. STEVENS.