J. D. C. IVEY.

BRAKE.

APPLICATION FILED JUNE 16, 1919.

1,336,435. **Patented Apr. 13, 1920.**

2 SHEETS—SHEET 1.

Fig. 1.

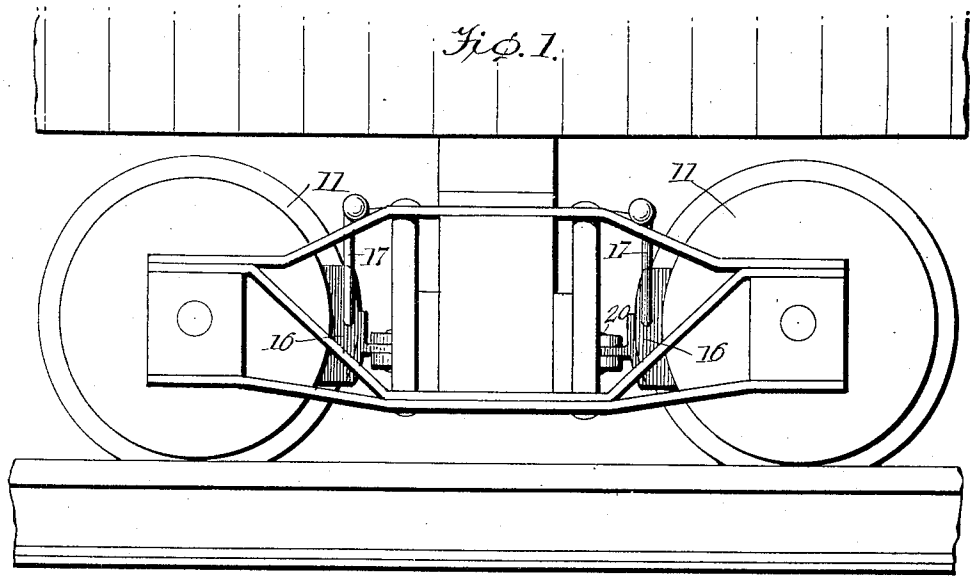
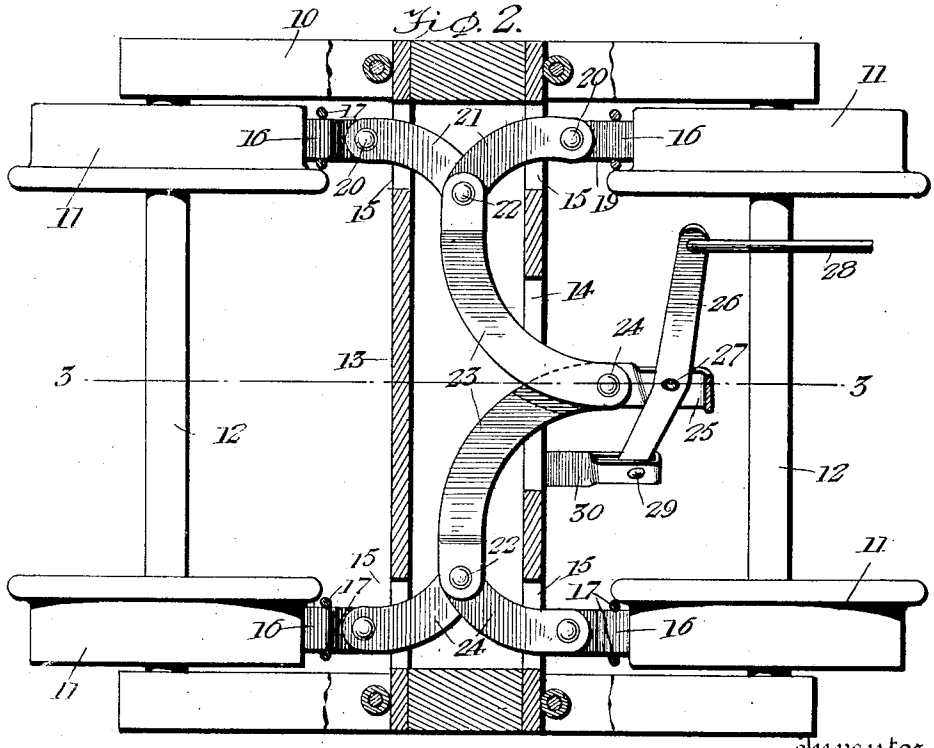


Fig. 2.



Inventor

J. D. C. Ivey,

By Herman A. Phillips

Attorney

J. D. C. IVEY.

BRAKE.

APPLICATION FILED JUNE 16, 1919.

1,336,435.

Patented Apr. 13, 1920.

2 SHEETS—SHEET 2.

Fig. 3.

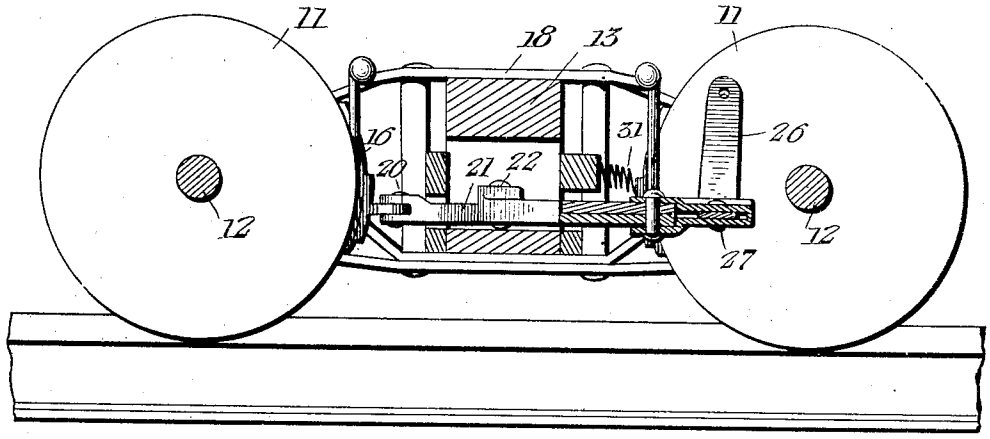
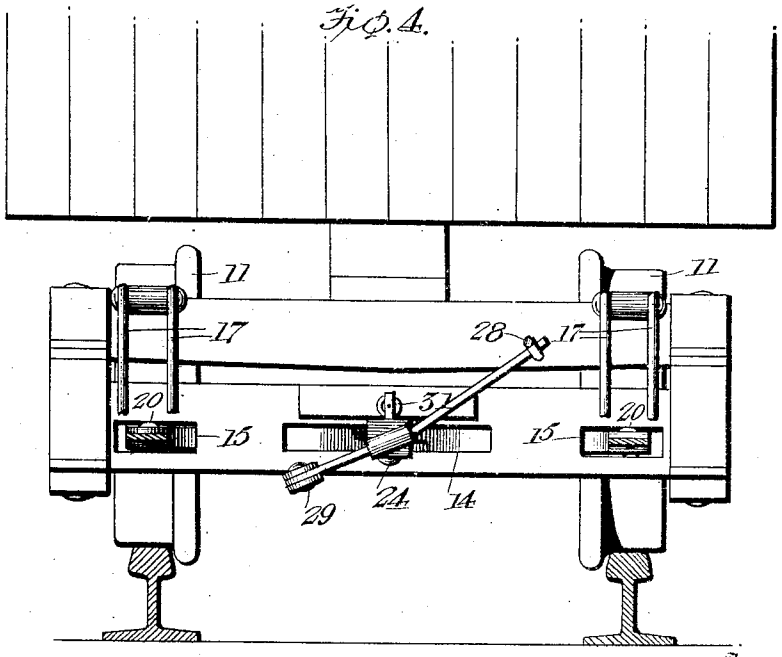


Fig. 4.



Inventor

J. D. C. Ivey,

By Thomas A. Phillips

Attorney

UNITED STATES PATENT OFFICE.

JOHN DAVID CLARK IVEY, OF FITZGERALD, GEORGIA.

BRAKE.

1,336,435. Specification of Letters Patent. **Patented Apr. 13, 1920.**

Application filed June 16, 1919. Serial No. 304,506.

To all whom it may concern:

Be it known that I, JOHN D. C. IVEY, a citizen of the United States, and residing at Fitzgerald, in the county of Ben Hill and State of Georgia, have invented certain new and useful Improvements in Brakes, of which the following is a specification.

My present invention relates generally to brakes and more particularly to railway brakes, my object being the provision of a simple, effective mechanism for applying the brakes in a positive, powerful manner, as well as an arrangement or construction which will admit of ready accessibility for the purpose of quick repair of parts, as well as an arrangement which will be lasting and durable.

With these general objects, further and more specific objects, as well as the resulting advantages of the present arrangement, will appear in the course of the following specification, reference being made to the accompanying drawing, forming a part of this specification, and wherein:—

Figure 1 is a side elevation showing the practical application of my invention,

Fig. 2 is a top plan view, partly broken away and in section in order to better illustrate the several parts,

Fig. 3 is a vertical longitudinal section taken substantially on line 3—3 of Fig. 2, and

Fig. 4 is an end view.

Referring now to these figures, my invention is applied to railway brakes and more particularly to railway trucks, generally indicated at 10, the wheels of which appear at 11 and the axles at 12. The central cross beam 13 of the truck is in accordance with my invention made of hollow construction and is provided at one side with the central opening 14 and with opposing side openings 15 at its opposite sides and adjacent to its opposite ends, in line with the wheels 11 and with the brake blocks 16, which latter are suspended by links 17 from longitudinal side bars as may be plainly seen by a comparison of Figs. 1 and 2.

The brake blocks 16 at each side of the truck have arms 19 projecting away from the respective wheels and pivotally connected at 20 to the adjacent ends of toggle levers 21, the latter being arranged in pairs at relatively opposite sides of the truck, each lever 21 being curved into one of the openings 15 of the cross beam 13 and toward the center of the cross beam. The inner end of the levers of each pair are lapped and pivotally connected at 22 to the inner ends of an actuating lever 23. There are two of these actuating levers, seen particularly in Fig. 2, each lever 23 being curved in its length from its inner end at the pivot 22 toward the center of the cross beam 13 and laterally with respect thereto and outwardly through its central opening 14, and the outer ends of the two levers 23 are likewise lapped and pivotally connected at 24, to a connecting piece 25. To this piece 25 the brake applying lever 26 is fulcrumed at 27, at a point intermediate its ends, one end thereof receiving the brake applying rod 28, and the opposite end being pivotally connected at 29 to a bracket 30 secured to and projecting laterally from a portion of the cross beam 13.

By reference to Fig. 2 in particular, it will be noted that the bracket 30 is angularly bent as well as the outer portion of the connecting piece 25 so that the brake applying lever 26 is inclined in its length, bringing its end connected to the brake applying rod 28, into a plane higher than that of the wheel axles 12, although the actuating lever 23 and the toggle lever 21 are in approximately the same plane, slightly below the plane of the wheel axles 12.

A spring may be utilized to normally hold the several levers in inactive position, which may be for instance in the nature of a compression spring 31 bearing between a portion of the cross beam 13 and the fulcrum 27 for instance, of the lever 26. On the other hand, the spring may, if desired, be in the nature of a retractile spring between the pivots 22 of the toggle and actuating levers 21 and 23, its function in either instance obviously being to normally prevent engaging movement of the brake block with the wheels, until power is actually applied to the brake actuating rod 28.

Thus in operation it will be noted that when thrust is applied against the brake applying rod 28, the lever 26 will be rocked upon its pivot 29, thrusting its central fulcrum 27 in a longitudinal plane with respect to the truck and forcing the brake actuating levers 23 inwardly in the direction of their length, so as to shift the pivot 22 outwardly and thus force lengthwise movement of the toggle levers 21 so as to shift the brake blocks 16 into engagement

with the wheels 11 and hold them in this position until the power is released. When so engaged with the wheels, it is to be noted that at each side of the truck a practically direct connection between the two wheels is formed, so that the bearing of one will react in braking power against the other.

It is also to be noted that with my improved connections, in their nature simple and effective, ready accessibility for purposes of repair and substitution of parts is permitted, the several parts are protected in their normal movement, and the construction generally insures practical, efficient operation in use.

I claim:—

1. In a car brake, the combination with a truck having a hollow cross beam between its wheel carrying axles, provided with a central opening at one side and with opposing side openings between the truck wheels, brake blocks suspended in the truck adjacent to and between the wheels at each side, toggle levers pivotally connected at their outer ends to the brake blocks and extending inwardly through the openings at the ends of the cross beam, the inner ends of the toggle levers at each side of the truck being lapped, brake actuating levers to the inner ends of which the said inner ends of the toggle levers are pivotally connected, said actuating levers being curved through the cross beam and externally from the central opening thereof, a connecting piece to which the outer ends of the actuating levers are pivoted, a brake applying lever having a pivotal connection at one end with the truck and having an intermediate fulcrum in connection with said connecting piece, and a brake applying rod having connection with the opposite end of the last mentioned lever, all for the purpose described.

2. In a car brake, the combination with a wheeled truck having a cross beam, provided with a longitudinal bore and with end openings and a central opening, of brake blocks opposite the end openings, toggle levers pivotally connected to the brake blocks and extending inwardly through the end openings, brake actuating levers pivotally connected at their inner ends to the toggle levers, said brake actuating levers being curved outwardly through the central opening of the cross beam, a brake applying lever having a pivotal connection at one end with the truck and connected at an intermediate point to the said brake actuating levers, and a brake applying member connected to the opposite end of the said brake applying lever, for the purpose described.

3. In a car brake, the combination with a truck having wheel axles and wheels thereon, of brake blocks suspended adjacent to the wheels, a pair of toggle levers at each side of the truck, the outer ends of which are pivotally connected to the said brake blocks and the inner ends of which are lapped, said toggle levers being curved toward the center of the truck, a pair of brake actuating levers, each of which is curved throughout its length and connected at one end to the lapped inner end of a pair of said toggle levers, the opposite ends of the two actuating levers being lapped, and a brake applying lever having actuating connections and connected to the latter ends of the brake actuating levers, as described.

4. In a railway brake, the combination of a truck having wheel axles and wheels, of brake blocks suspended in the truck adjacent to the wheels, curved toggle levers arranged in pairs at opposite sides of the truck, the outer ends of the levers of each pair being pivotally connected to the said brake blocks, a pair of brake actuating levers also curved throughout their length, each being pivotally connected at one end to the levers of one of said pairs of toggle levers, and a brake applying lever mounted in connection with the truck, having actuating connections, and connected to the opposite ends of the said brake applying levers.

In testimony whereof I affix my signature.

JOHN DAVID CLARK IVEY.