

No. 690,769.

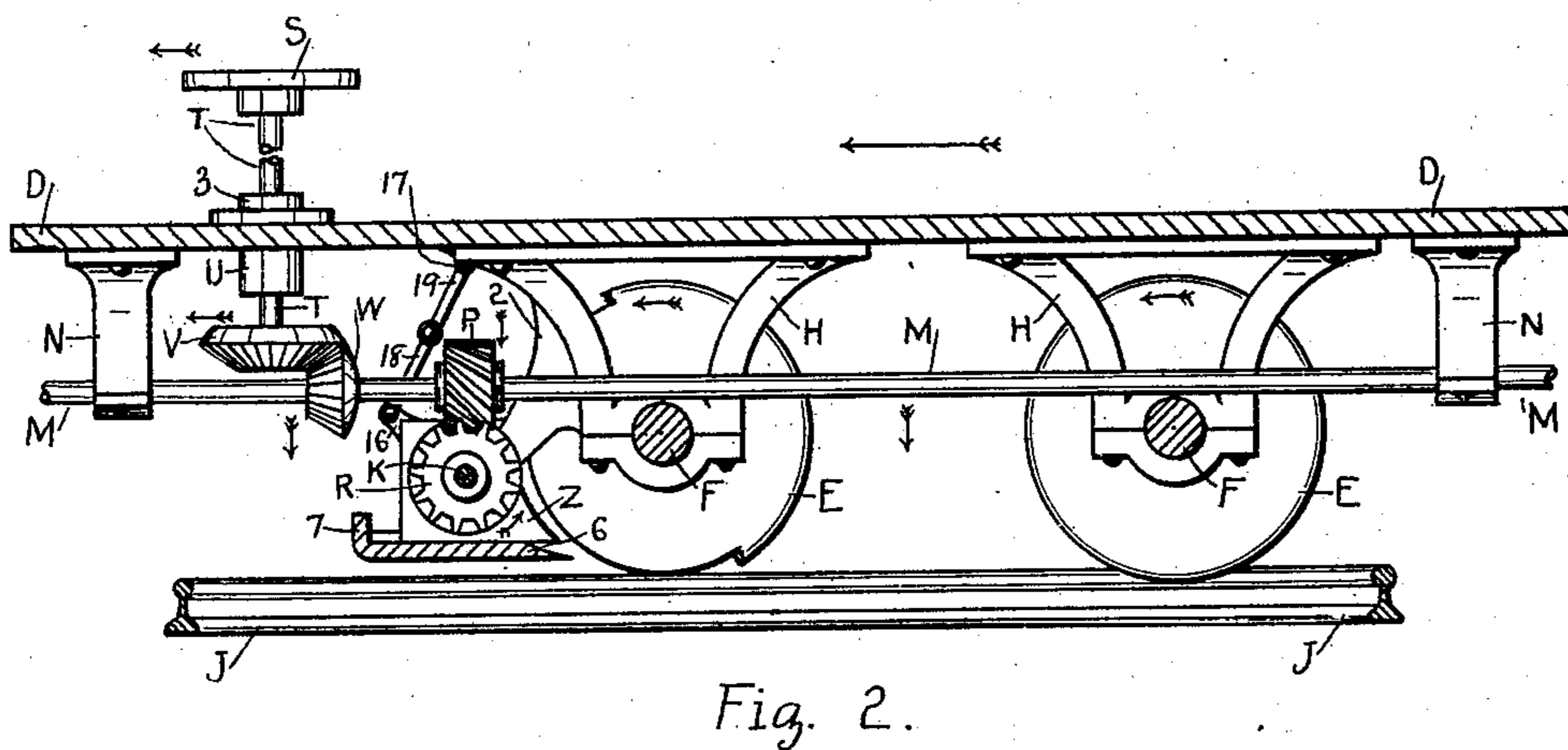
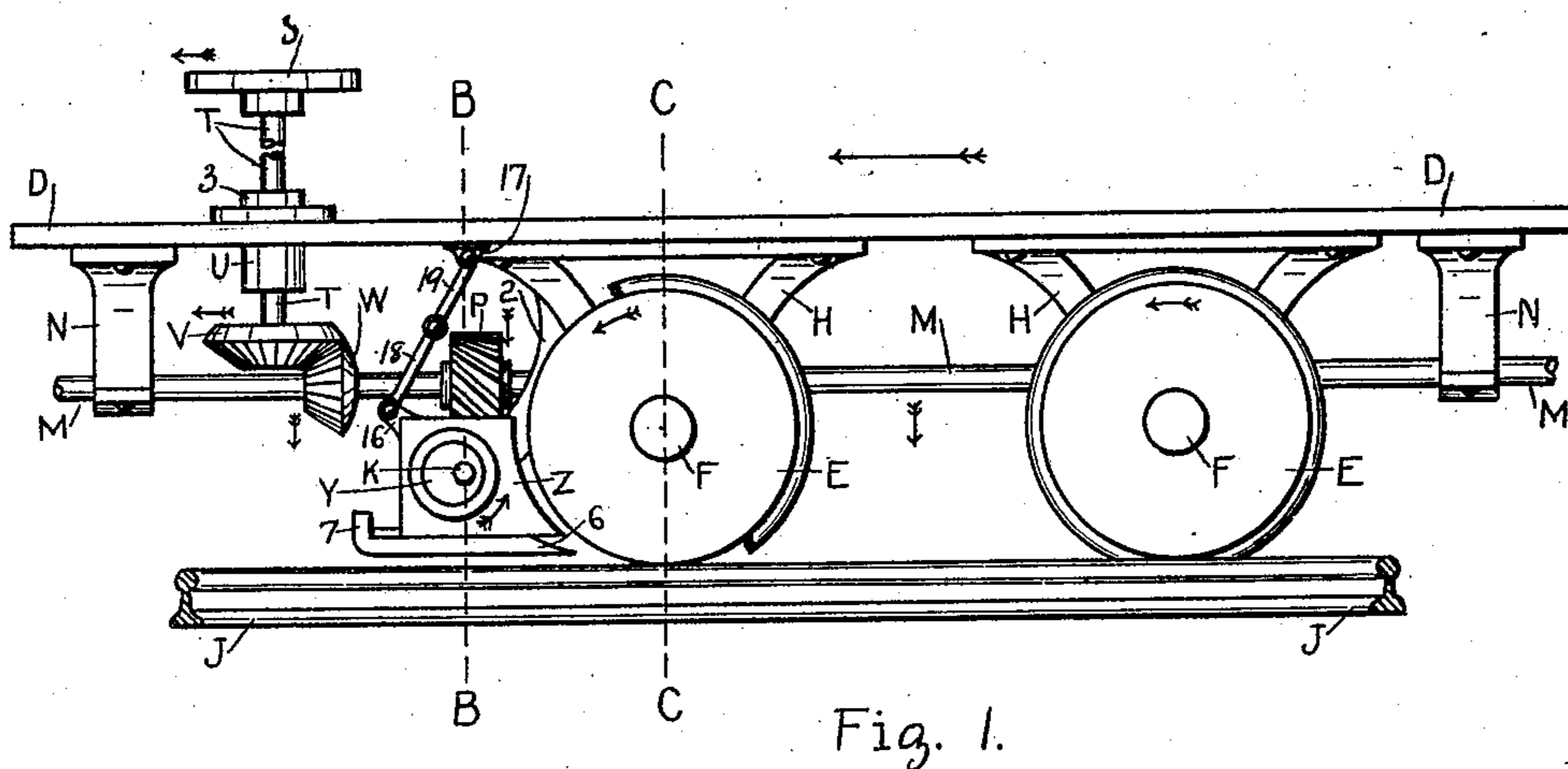
Patented Jan. 7, 1902.

S. H. POCOCK.
CAR BRAKE.

(Application filed May 25, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

B. E. Herald
Peter F. Knorr

Inventor

Stephen Harry Pocock
By John B. Hendry, Atty.

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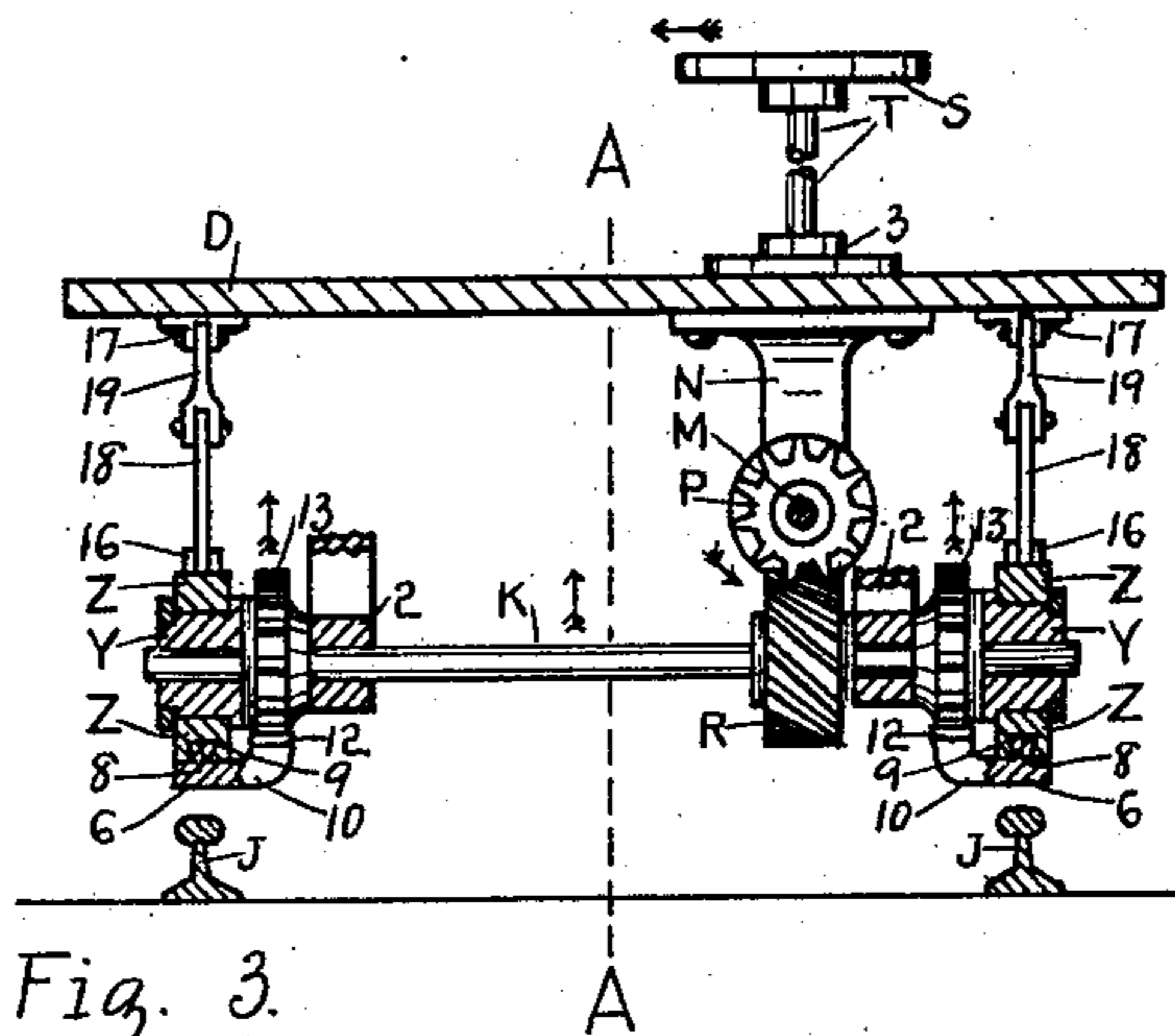


Fig. 3.

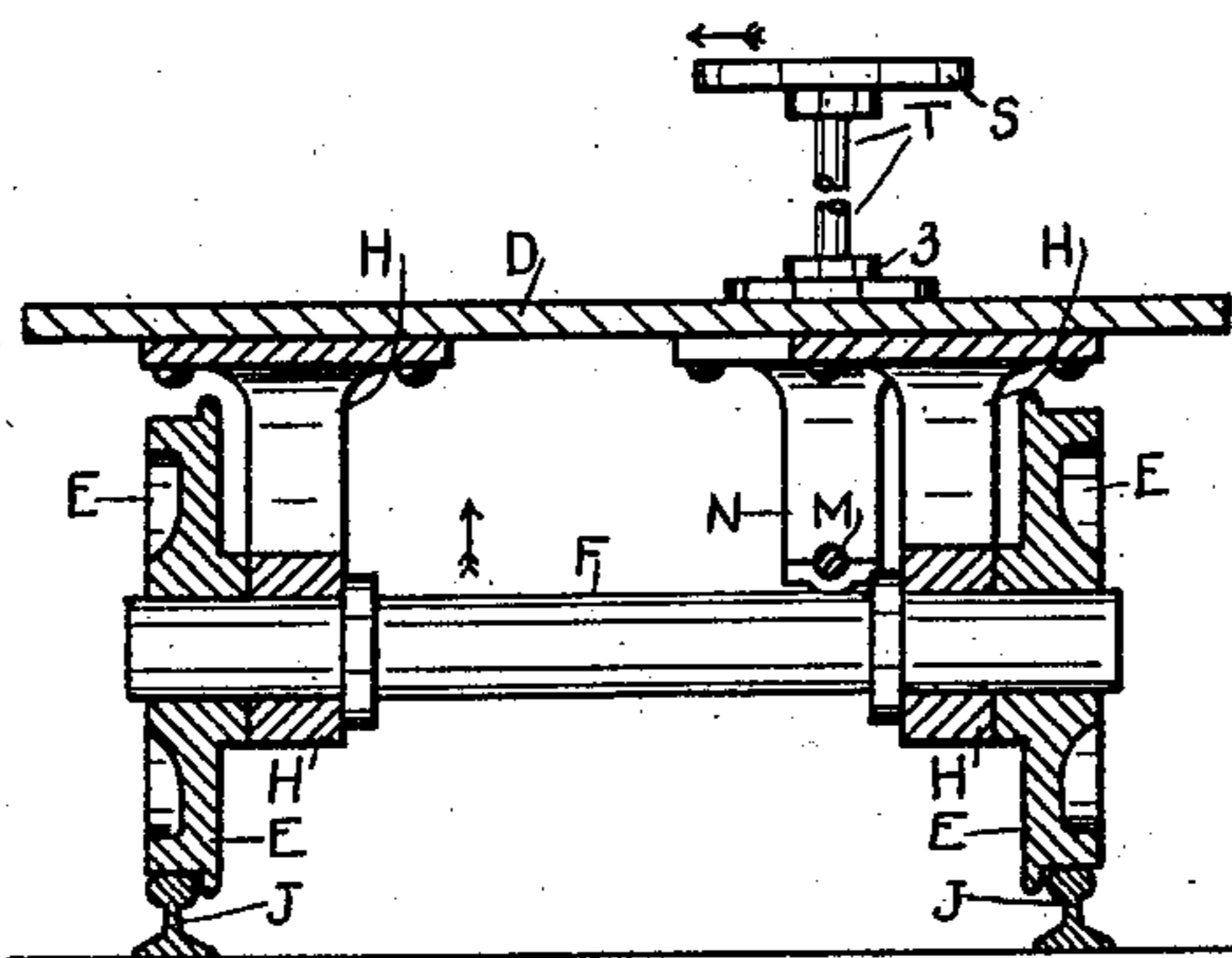


Fig. 4.

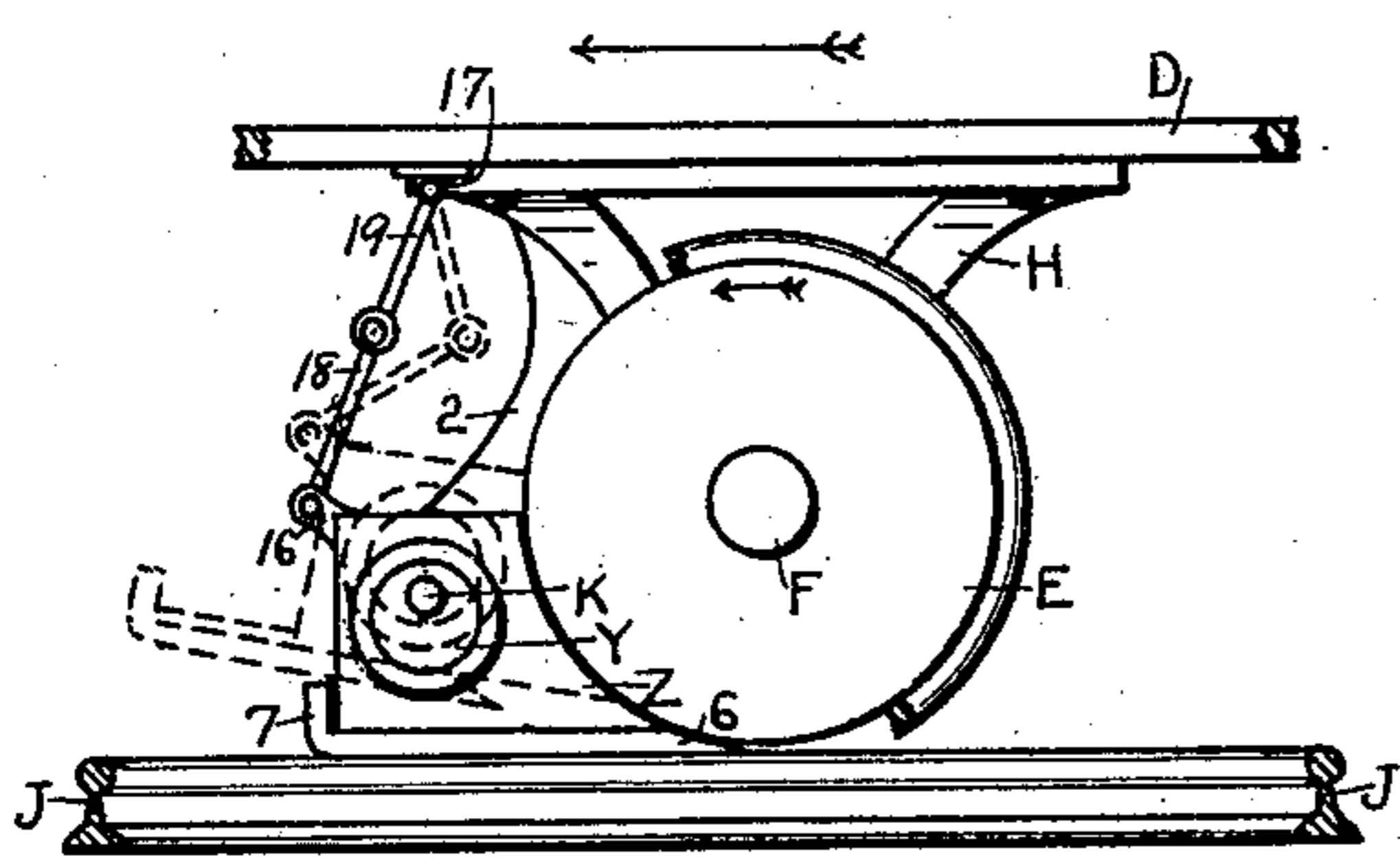


Fig. 5.

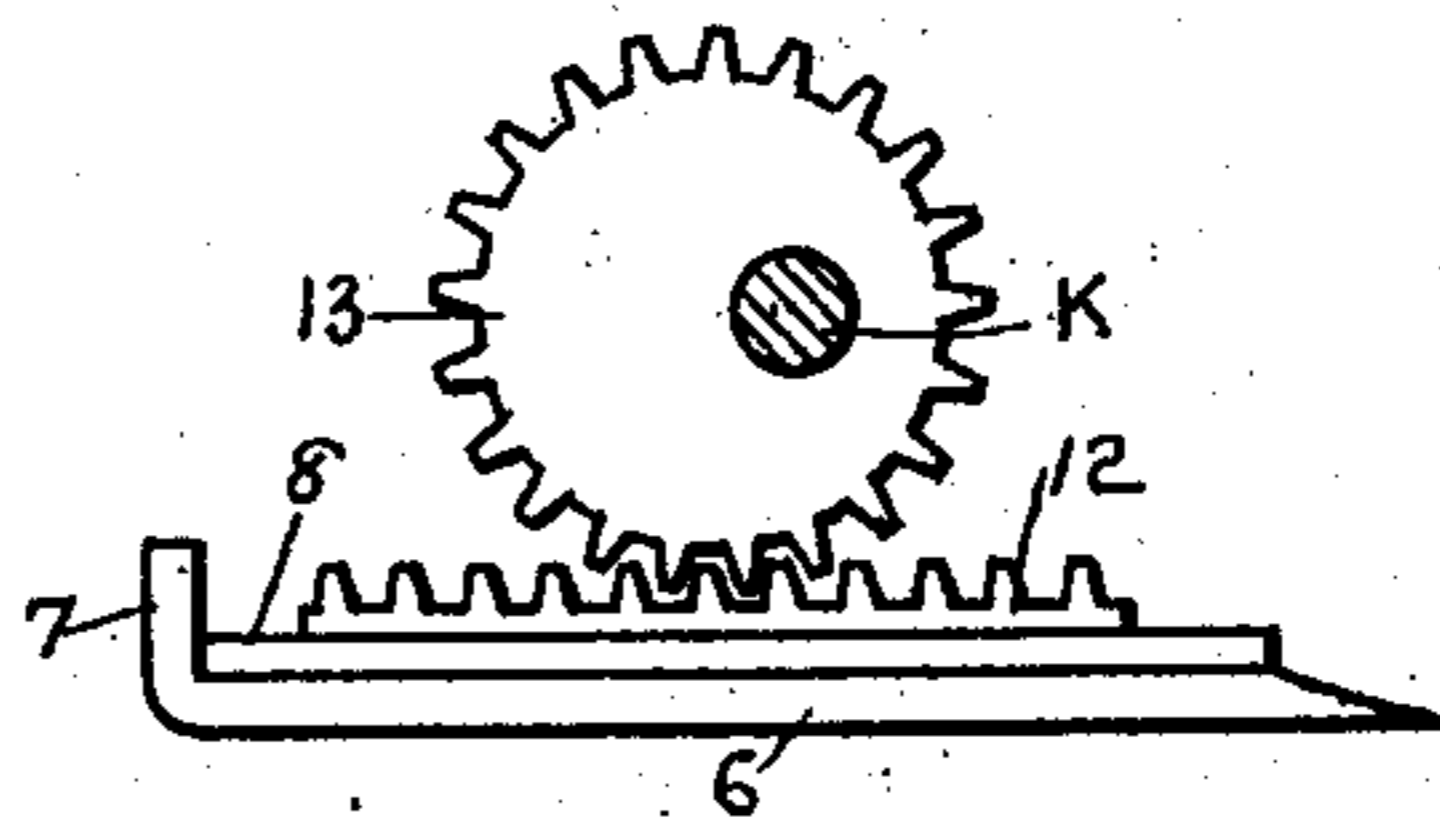


Fig. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

STEPHEN HARRY POCOCK, OF HAMILTON, CANADA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 690,769, dated January 7, 1902.

Application filed May 25, 1901. Serial No. 61,835. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN HARRY POCOCK, a citizen of Canada, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, 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.

My invention relates to improvements in railroad and street car wheel-brakes, in which a brake is arranged and devised in such a manner that the same may be applied to one or more pairs of wheels of a car and operated to stop or to partially stop the wheels in a most direct and efficient manner.

The objects of my invention are, first, to gradually stop a car or a train of cars in a most satisfactory manner, and, second, to fully stop the cars in a very short period of time in case of emergency without any detriment to the wheels. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the invention as applied to a car, the brakes being disengaged and in normal position. Fig. 2 is a longitudinal side elevation of Fig. 1 as viewed from the position of the broken vertical line A A in Fig. 3 of the drawings. In this view, Fig. 2, the teeth on the horizontal plane of the slidable brake-shoe are not shown in order that the view may be less complex relative to the spiral wheels, as shown. Fig. 3 is an end elevation of Fig. 1 of the drawings and partly in section as viewed from the rear or right-hand end of the car and through the broken line B B of Fig. 1 of the drawings. Fig. 4 is an end elevation in section through the broken vertical line C C of Fig. 1 of the drawings as viewed from the rear end of the car. Fig. 5 is a side elevation of the friction brake-block with shoe, showing the lower position of said brake and shoe as engaged with the face of a car-wheel and the rail, the car-wheel being slightly raised from the rail, also the same device when raised to its higher position, this higher position of the brake and shoe being shown in broken lines. Fig. 6 is

a side elevation of one of the detached electric spur-wheels shown geared into the spur-rack of the slidable shoe.

In the drawings the floor or framework of the car is indicated by D, the car-wheels by E, the transverse revolving axles by F, the axle-bearings by H, and the rails by J. The bearings H are secured to the under side of the floor or frame D of the car. These bearings H are provided with front stationary arms 2, which act as bearings for the transverse shaft K. The said front arms 2 support the transverse shaft K. It will be readily understood that bearings for the transverse shaft could be secured to the car-frame and be sufficiently strong and steady to serve the purpose set forth.

The car is provided with a longitudinal operating-shaft M, which is capable of revolving in stationary bearings N, which are secured to the under side of the frame D of the car. The spiral gear-wheel P is secured on this shaft M, and spiral gear-wheel R is secured to the transverse shaft K. This spiral gear-wheel P gears into and revolves the spiral gear-wheel R with its shaft K.

Above the car-floor D and at the front end of the car is a manipulating wheel or handle S, which is secured on the vertical shaft T, (shown broken,) that the same may be extended to a convenient height. The shaft T is capable of revolving in the stationary bushing U in the floor of the car and has a collar 3 to rest on said bushing. The lower end of the shaft T has a bevel gear-wheel V secured thereto. Said gear-wheel gears into the bevel gear-wheel W, which is secured on the longitudinal shaft M to revolve the same.

The ends of the transverse shaft K are provided with eccentrics Y, which are secured to the shaft. These eccentrics are capable of a revolving motion in the friction brake-blocks Z. The usual side flanges of the eccentrics Y retain said friction brake-blocks in position on said eccentrics. These friction brake-blocks have a suitable concave face to conform with the running-face of the car-wheels E in order that when the concave face of the brake-blocks Z are applied to the running-face of the car-wheels E the said concave of the brake-blocks Z may fit the face of the said

wheels E and have a large and extended friction-surface brought to bear against the said face of the car-wheels. It will be noticed that in Figs. 1 and 2 of the drawings the flanges of the car-wheels E have a portion broken away. The object of this is to show the face of the wheels E more clearly and the relative position of the brake-wheels Z to the face of said car-wheels.

- 10 The lower parts of the friction brake-blocks are provided with slidable brake-shoes 6, with end lips 7 and horizontal dovetail tongues 8, which are capable of sliding in the horizontal grooves 9 in the lower part of the brakes Z. These grooves 9 conform to the dovetail tongues 8 in shape to prevent the slidable brakes 6 from leaving their proper position on the brakes Z. The inner parts of the slidable brakes 6 have horizontal projections 10, which have spur rack-teeth 12. The transverse shaft K is provided with eccentric spur-wheels 13, secured on the shaft K in eccentric form, that when the eccentrics Y perform their function in bringing the brake-blocks Z against the car-wheels E the teeth of the spur-wheels 13 and the teeth 12 of the slidable brakes 6 shall be engaged. The spur-wheels 13 are positioned out of center on the shaft K and are positioned similar to the eccentrics Y and operate with the said eccentrics, and when the eccentrics bring the brake-blocks Z toward the rails J and at the same time toward the car-wheels E the brake-shoes are forced toward the face of the wheels E. The way the car runs is indicated by arrows, and the way the operating parts of the mechanism revolve to bring the brake-blocks to the car-wheels in the manner described is also indicated by arrows.
- 40 The upper and forward parts of the brake-blocks Z are provided with lugs 16, and the lugs 17 are secured to the under side of the car-floor D above said brake-blocks. An arm 18 is pivoted to the lugs 16, and an arm 19 is pivoted to the lugs 17, and the other ends of the two said arms 18 and 19 are pivoted together to form a pivotal elbow to allow the brake-blocks to rise and to descend to engage the car-wheels E. These pivotal elbow-arms 18 and 19 as connected are also for the purpose of preventing the brake-blocks Z from leaving their proper and desired position on the eccentrics Y.

It will be noticed that the ends of the longitudinal shaft M are broken to indicate that the shaft may be extended to other cars for a similar purpose, also that the brake-blocks Z may be limited to apply to one pair of car-wheels or the same system may apply to more pairs of car-wheels and cars.

The operation of applying the brake-blocks to a pair or to pairs of car-wheels is as follows: By the manipulation of the wheel S the vertical shaft T is revolved and also the bevel-gear V on the lower end of said shaft T. The wheel V revolves, as indicated by arrow, and revolves the gear-wheel W, with its longitu-

dinal shaft M, as indicated by arrow on said wheel W. Consequently the spiral gear-wheel P revolves the same way as the wheel W. The spiral wheel P gears into and revolves the spiral gear-wheel R on the transverse shaft K the way as indicated by arrows. At this time the eccentrics Y on the ends of said transverse shaft K bring the connected brake-blocks Z into friction engagement with the running-face of the car-wheels E, and thus the brakes are applied. The lower brake-shoes 6 are operated by the eccentric spur-wheel 13 on transverse shaft K when said shaft is revolved, as described. The eccentric wheels 13 revolve with the eccentrics Y. Consequently the eccentric wheels 13, which are geared into the teeth 12 of the shoes 6, bring the shoes into engagement with the lower front or face part of the car-wheels E. This engagement of the shoes 6 with the car-wheels E is very important, especially so in case of emergency. Then greater power may be applied to the operating mechanism and the car-wheels E operated upon will mount the engaging end of the shoes 6 and the said shoes will slide upon the rails J until the car or cars stop. This stopping of the cars is accomplished in a very short space of time and without any undue wear in one particular place on the face of the car-wheels, thus avoiding the grinding of flat spots on the face of the car-wheels. When the manipulating-wheel S is reversely revolved, the eccentrics Y and the intermediate mechanism connecting said wheel S and said eccentrics Y also reversely revolve. Consequently the eccentrics Y bring the brake-blocks Z upward and to the face of the car-wheels E to about the center of the wheels E. This reversed operation of applying the brakes is also satisfactory in stopping the cars and may be applied on ordinary occasions. This reverse movement of the operating mechanism slides the shoes 6 away from contact with the car-wheels E by the reverse revolving of the eccentric wheels 13, caused by said reverse movement of the wheel 5.

The arms 18 and 19, previously referred to, are pivotally connected to each other and to the car and the brake-blocks in such a manner as to allow the brake-blocks to perform their proper functions and at the same time preventing the lower engaging part of the brake-blocks from tipping onto the rails J.

Various changes in the form, proportion, and minor details of this invention may be resorted to without departing from the spirit and scope thereof. Hence

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a car-brake, a frame, a longitudinal shaft, bearings secured to said frame to support said shaft, a transverse shaft, bearings to support said transverse shaft, a spiral gear-wheel on the transverse shaft, a spiral gear-wheel on the longitudinal shaft, to revolve the transverse shaft, friction brake-blocks,

eccentrics secured on the transverse shaft, and capable of revolving in said brake-blocks, substantially as described and set forth.

2. In a car-brake, a frame, a transverse shaft, bearings to support said shaft, friction brake-blocks, eccentrics secured on said shaft to revolve in said brake-blocks, slidable shoes on the lower part of the brakes, rack-teeth on the inner sides of said shoes, eccentric gear-wheels secured on said shaft to gear into the teeth of the shoes and means to revolve said shaft to propel the brakes and the shoes, rails, substantially as described and set forth.

3. In a car-brake, a frame, a longitudinal shaft, bearings secured to the frame for said shaft, a spiral gear-wheel secured on said shaft, a transverse shaft, bearings to support the transverse shaft, a spiral gear-wheel on the transverse shaft to gear into the spiral gear on the longitudinal shaft, friction brake-blocks, eccentrics on the transverse shaft, said eccentrics capable of revolving in said brakes, pivotal arms pivotally connected to the upper part of the brakes and to the frame, and means to revolve the longitudinal shaft, substantially as described and set forth.

4. In a car-brake, a frame, a transverse

shaft, bearings to support said shaft, brake-blocks, eccentrics on said shaft to revolve in said brakes, slidable shoes on the lower part of the brakes, rack-teeth on the inner sides of said shoes, eccentric gear-wheels on said shaft to gear into said rack-teeth, pivotal elbow-arms, said arms pivotally connected to the upper part of said brakes and to the frame, and means to revolve said transverse shaft to engage the brakes, and the shoes, substantially as described and set forth.

5. In a car-brake, a transverse shaft, bearings secured to the car for said shaft, eccentrics secured on the ends of the shaft, brake-blocks on said eccentrics, slidable shoes on the lower part of the brake-blocks, teeth on the inner side of the shoes, eccentric gear-wheels on said shaft to gear into the teeth of the shoes, and means for revolving said shaft, substantially as described and set forth.

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

STEPHEN HARRY POCOCK.

Witnesses:

JOHN H. HENDRY,
B. E. HERALD.