No. 709,923. Patented Sept. 30, 1902.

T. E. McCOLLUM.

MOMENTUM CAR BRAKE.

(Application filed Jan. 2, 1902.)

(No Model.)

Fig. 1.

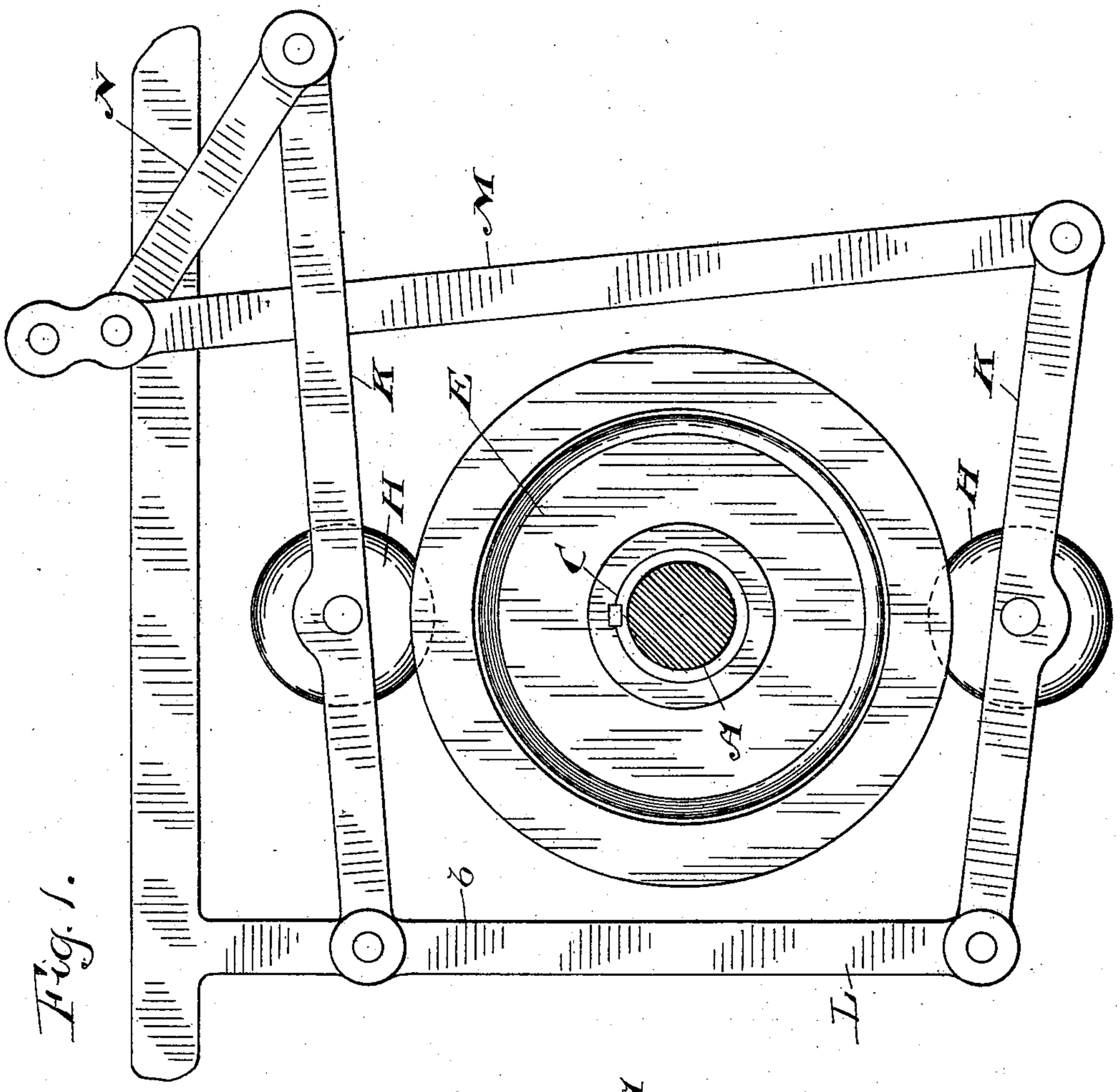
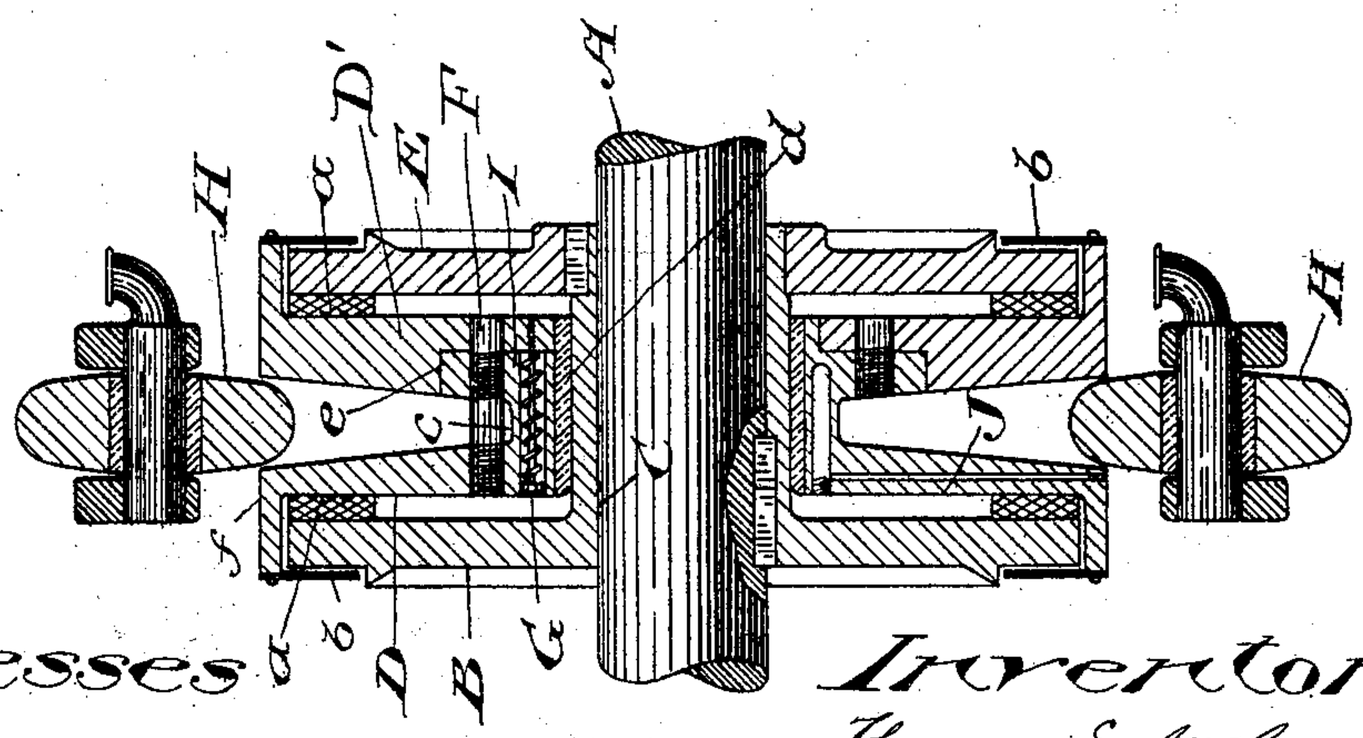


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS E. McCOLLUM, OF TORONTO, CANADA.

MOMENTUM CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 709,923, dated September 30, 1902.

Application filed January 2, 1902. Serial No. 88,234. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. MCCOLLUM, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Momentum Car-Brakes, of which the following is a specification.

The object of my invention is to devise a momentum-brake which will fit into a very narrow space on a car-axle and in which the wedge-wheels used in applying the brake are in motion only during the interval between the action of the motorman in applying the brakes and the stoppage of the car; and it consists, essentially, of two friction-disks fixed to the car-axle and between which two loose disks are carried, so held that they cannot rotate independently, but are longitudinally movable relative to one another to bring them into contact with the fixed disks, substantially as hereinafter more specifically described and then definitely claimed.

Figure 1 is a side elevation of my improved brake. Fig. 2 is a cross-section of the same.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A is a car-axle, and B a disk, preferably formed integral with the sleeve C, which is suitably keyed to the car-axle. On the other end of this sleeve is screwed the disk E, suitably keyed to hold it in position. Between the disks B and E are located the loose friction-disks D D'. The friction-disk D is preferably provided with the hub *c*, having a bearing on the sleeve C, which is provided with a suitable bushing *d* of antifriction metal. The disk D' has a bearing on the hub *c* and has a recess *e* formed therein to receive the flange I formed on the hub *c*. This arrangement makes the opening between the loose friction-disks sufficiently dust-proof for all ordinary requirements. The disks D D' are held from rotating independently by means of one or more bolts F, each of which, as shown, is screwed into the flange I and has a plain end on which the disk D' is free to slide. Between the fixed and loose friction-disks are located friction-rings *a*, preferably of compressed fiber. The disks D D' are provided with flanges *f*, extending outwardly over the fixed friction-disks and provided with the annular plates *b*, adapted to act as dust-excluders and oil-retainers. The loose friction-disks are forced into contact with the fixed friction-disks by means of the wedge-wheels H, which, by a suitable system of levers, may be forced between the loose disks D D'. The loose friction-disks are thus caused to rotate with the fixed friction-disks and so wind a chain on the drum formed by the hub *c*. When the wedge-wheels H are withdrawn, the friction-disks are disengaged by means of coiled springs surrounding bolts G, of which only one is seen in the drawings. Each bolt is screwed into the disk D', passing through an opening in the hub of the disk D, which opening is provided with a shoulder, against which one end of the spring bears, while the other end engages the head of the bolt.

A suitable oil-duct J is provided for oiling the apparatus.

I do not confine myself to any particular way of operating the wedge-wheels H; but in Fig. 1 I show them journaled on levers K, pivoted on a downward extension L of the truck-frame. A lever M is pivoted to one end of the lower lever K and at the other end is adapted for connection to the brake draw-rod. A link N pivotally connects the upper end of the lever M with the end of the upper lever K. When the lever M is drawn upon by the brake draw-rod, the link N is straightened and the levers K forced closer together, thus operating the wedge-wheels, as already described. The wedge-wheels are of course provided with suitable oil-cups.

It should be noted that one of the pins F is continued across the gap between the loose friction-disks and screwed into the disk D to form a connection for the brake-chain.

What I claim as my invention is—

1. In a momentum car-brake, two friction-disks fast on the axle, in combination with two friction-disks loose on the axle between the fixed disks; means whereby the loose disks are held so that they are free to move longitudinally with respect to one another but are held from rotating independently; means for winding a chain carried by one of the loose disks; and means for spreading the loose disks into contact with the fixed disks, substantially as described.

2. In a momentum car-brake, two friction-

disks fast on the axle, in combination with two friction-disks loose on the axle between the fixed disks; means whereby the loose disks are held so that they are free to move longitudinally with respect to one another but are held from rotating independently; means for winding a chain by the rotation of the loose disks; one or more wedge-wheels; and means for forcing the said wedge-wheels between the loose friction-disks, substantially as described.

3. In a momentum car-brake, a sleeve fast on the axle; a friction-disk fast on the sleeve at one end; and a friction-disk detachably secured to the other end of the sleeve, in combination with two disks loose on the sleeve between the fixed disks; means whereby the loose disks are held so that they are free to move longitudinally with respect to one another but are held from rotating independently; means for winding a chain carried by one of the loose disks; and means for spreading the loose disks into contact with the fixed disks, substantially as described.

4. In a momentum car-brake, a sleeve fast on the axle; a friction-disk fast on the sleeve at one end; and a friction-disk detachably secured to the other end of the sleeve, in combination with two disks loose on the sleeve between the fixed disks; means whereby the loose disks are held so that they are free to move longitudinally with respect to one another but are held from rotating independently; means for winding a chain carried by one of the loose disks; one or more wedge-wheels; and means for forcing the said wedge-wheels between the loose friction-disks, substantially as described.

5. In a momentum car-brake, two friction-disks fast on the axle, in combination with two friction-disks loose on the axle between the fixed disks; means whereby the loose disks are held so that they are free to move longitudinally with respect to one another but are held from rotating independently; means for winding a chain carried by one of the loose disks; means for spreading the loose disks into contact with the fixed disks; and spring mechanism normally tending to draw the loose disks together, substantially as described.

6. In a momentum car-brake, two friction-disks fast on the axle, in combination with a friction-disk loose on the axle between the fixed disks; a flanged hub formed on the said disk; a second disk loose on the axle and recessed to receive the flange on the said hub; one or more pins secured to one of the loose disks and loose in holes in the other; and means for spreading the loose disks into contact with the fixed disks, substantially as described.

Toronto, December 20, 1901.

THOMAS E. McCOLLUM.

In presence of—
J. EDW. MAYBEE,
JOHN G. RIDOUT.