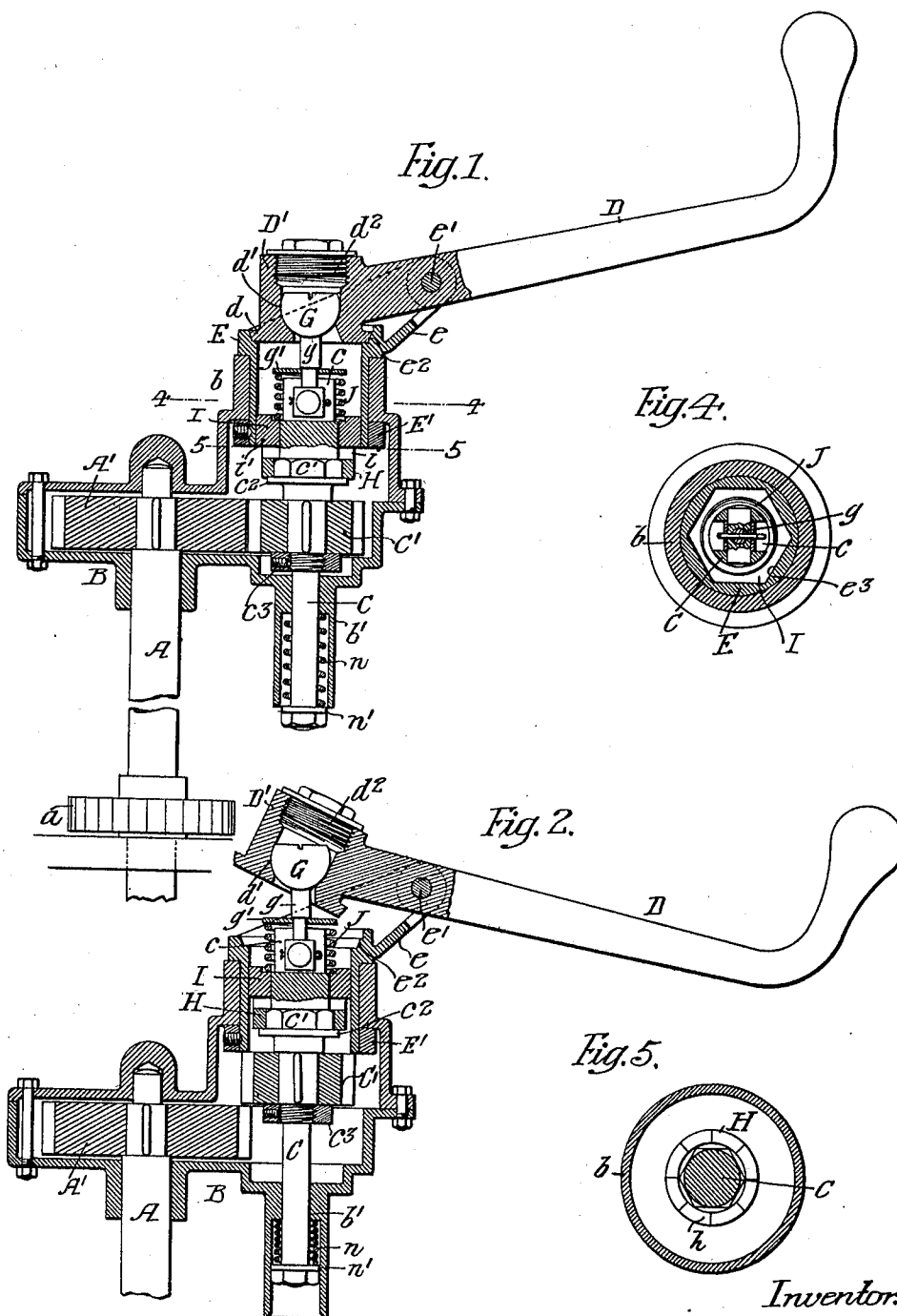


W. S. ADAMS.
BRAKE HANDLE.
APPLICATION FILED FEB. 17, 1911.

1,004,519.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.



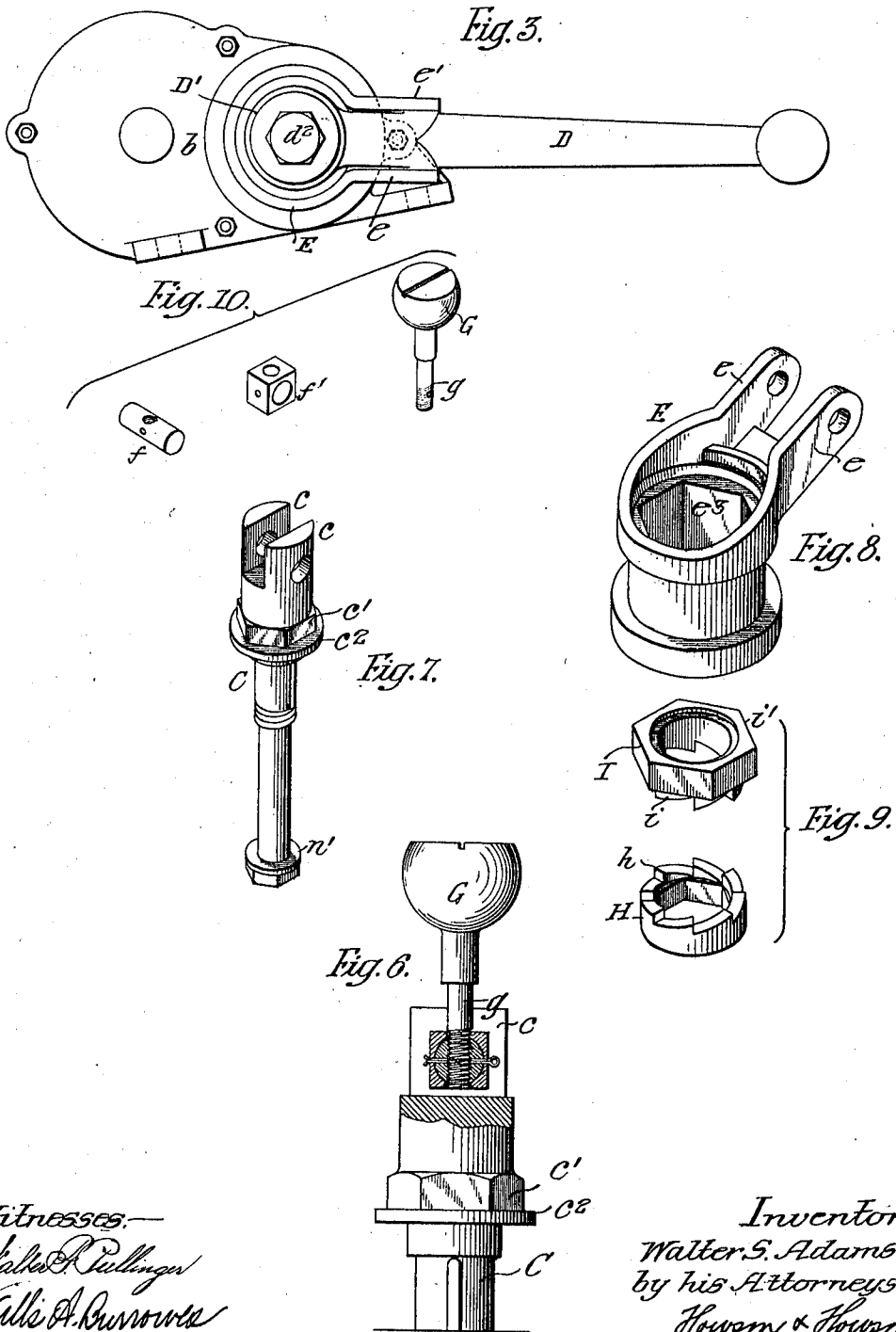
Witnesses
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Wills A. Burdette

Inventor:—
Walter S. Adams
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Hewson & Howson

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UNITED STATES PATENT OFFICE.

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BRAKE-HANDLE.

1,004,519.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed February 17, 1911. Serial No. 609,150.

To all whom it may concern:

Be it known that I, WALTER S. ADAMS, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Brake-Handles, of which the following is a specification.

My invention relates to certain improvements in hand operated mechanism for car brakes.

One object of the invention is to provide means for readily releasing the brake without allowing the handle to rotate.

A further object is to provide means for applying the brake without making a full turn of the handle.

These objects I attain in the following manner, reference being had to the accompanying drawings, in which,—

Figure 1, is a sectional elevation of my improved brake mechanism showing the parts in gear; Fig. 2, is a view similar to Fig. 1, showing the parts out of gear and in position to release the brake; Fig. 3, is a plan view of Fig. 1; Fig. 4, is a sectional view on the line 4—4, Fig. 1; Fig. 5, is a sectional view on the line 5—5, Fig. 1; Fig. 6, is an enlarged view of part of Fig. 1; Fig. 7, is a perspective view of the pinion carrying the spindle; Fig. 8, is a detached perspective view of the bearing on which the handle is mounted; Fig. 9, is a detached perspective view of the two ratchets; and Fig. 10, is a detached perspective view of the ball, block and pivot pin.

A is the shaft, carrying at its lower end the ordinary ratchet wheel *a*, with which engages a pawl actuated by the foot of the motorman or driver, and usually on this shaft is a drum for the reception of the brake chain, or the shaft may be geared to a second shaft carrying the drum, if desired.

My invention relates wholly to the means for actuating the main shaft A. Secured to the upper end of the shaft A is a gear wheel A' mounted within the casing B forming the bearing for the upper end of the shaft A, and the bearing for the pinion carrying spindle C. Secured to this spindle is the pinion C' which, when in the position illustrated in Fig. 1, meshes with the gear wheel A' and through which motion is imparted from the handle D to the shaft A. In the upper end *b* of the casing B is mounted a bearing E having a bracket *e* and extending through the bracket and through the handle

is a pivot pin *e'* on which the handle D is mounted. The handle has a beveled flange *d*, which fits on a beveled seat *e²* in the bearing E when the handle is in the normal position, preventing the access of dirt or other foreign matter to the mechanism within the casing. Secured to the bottom of the bearing E is a ring E' which confines the bearing to the portion *b* of the casing. This bearing is free to rotate but cannot move vertically.

The spindle C is made, as clearly illustrated in Fig. 7, and is forked at its upper end forming bearings *c—c* for a pin *f* on which is mounted a block *f'*. This block and pin are attached to the stem *g* depending from the ball G. By this construction the stem must move vertically with the ball as the handle D is moved on its pivot. Directly below the bearings *c—c* on the spindle is a hexagonal flange *c'*, and below this flange is an annular seat *c²*. Mounted on this seat *c²* is a ratchet ring H, Fig. 9, which is shaped to conform to the hexagonal flange *c'* so that the spindle must turn with this ring. This ratchet ring has teeth *h* which mesh with teeth *i* on a ratchet ring I having a hexagonal flange *i'* adapted to the hexagonal opening *e³* in the bearing E, Fig. 8. A spring J is confined between the grooved upper surface of the ratchet ring I and a washer *g'* on the stem *g* of the ball G. This spring tends to force the upper ratchet ring I into engagement with the lower ratchet ring H so that when the handle is turned in one direction the spindle C will be turned and motion will be imparted to the shaft A. When the handle is moved in the reverse direction, the teeth of the ratchet ring I will slide over the teeth of the ratchet ring H as the spring yields, thus the handle may be ratcheted to apply the brake. The ball G is mounted in a socket *d'* in the head D' of the handle and closing the socket is a screw cap *d²*. By removing this screw cap the ball can be detached after the cotter pin confining the stem *g* to the pivot pin *f* is withdrawn. In the upper portion of the ball is a slot for the reception of the end of a screw driver. By this construction the shaft A can be immediately released from the control of the handle by pressing down the outer end of the handle from the position illustrated in Fig. 1, to the position illustrated in Fig. 2, lifting the pinion C

clear of the gear wheel A', and when the shaft is released from the control of the foot pawl, the brakes will be immediately released.

5 In order to return the spindle and the handle to their normal positions, as soon as the handle is released I provide a spring *n* which is mounted on the lower end of the spindle C and confined between a shoulder
10 *b'* on the casing B and a washer *n'* on the end of the spindle C. The pinion C' is prevented from turning on the spindle C by a key or feather and is held in place by a nut *c*³ adapted to the threaded portion of
15 the spindle.

By constructing the mechanism as illustrated the main brake shaft A can be placed close to the vestibule casing and consequently the brake mechanism will not occupy as much space as is occupied by a
20 brake of the ordinary construction.

By the above construction it will be seen that I am enabled to apply the brakes with considerable power, ratcheting the handle
25 instead of making a full turn and I dispense with the dangerous practice of releasing the handle and allowing it to turn rapidly.

I claim:—

30 1. The combination in a car brake operating mechanism of a main shaft, a gear wheel thereon, a spindle, a pinion mounted on the spindle, a pivoted brake handle connected to the spindle so that on moving the
35 brake handle on its pivot the pinion will be moved out of mesh with the gear wheel to release the shaft.

2. The combination of a main shaft, a gear wheel thereon, a spindle, a pinion carried by the spindle, a pivoted handle by
40 which the spindle is raised and lowered to move the pinion out of mesh and into mesh with the gear wheel, with ratchet mechanism interposed between the handle and
45 spindle for turning said spindle.

3. The combination of a main shaft, a gear wheel thereon, a spindle, a pinion secured to the spindle, a ball mounted at the
50 end of the spindle, a pivoted handle having a socket adapted to receive the ball, a bearing to which the handle is pivoted, and ratchet mechanism between the bearing and the spindle.

4. The combination of a main shaft, a gear wheel secured thereto, a spindle, a pinion secured to the spindle, a ball connected to the spindle, a bearing, a handle pivoted to the bearing and having a socket to receive the ball so that on tilting the handle
60 the spindle will be raised so as to move the pinion out of mesh with the gear wheel, ratchet mechanism between the bearing and

the spindle by which the spindle is turned on the lateral movement of the handle, and a spring for returning the spindle to its normal position with the pinion in engagement
65 with the gear wheel when the handle is released.

5. The combination of a main shaft, a gear wheel secured thereto, a spindle, a pinion secured to the spindle, a casing forming
70 a bearing for the spindle and the main shaft, a bearing mounted so as to turn in the casing, a handle pivoted to the bearing having a socket, a ball mounted in the
75 socket and attached to the spindle, a ratchet ring mounted to turn with the spindle, a second ratchet ring mounted to turn with the bearing, the teeth of one ratchet ring meshing with the teeth of the other ring,
80 a spring carried by the spindle, and adapted to yieldingly press upon the ring carried by the bearing so that on reciprocating the handle laterally the spindle and main shaft
85 will be moved in one direction only.

6. The combination in a car brake operating mechanism, of a main shaft, a gear wheel thereon, a spindle having a pinion meshing with the gear wheel, a casing in which the spindle and the shaft are mounted,
90 said spindle having a forked end, a block mounted in the forked end, a ball having a stem adapted to the block, a bearing mounted to turn in the casing, a handle pivoted to the bearing and having a socket in which
95 the ball is mounted, a ratchet ring secured to the spindle and a ratchet ring mounted in the bearing and free to move toward and from the ratchet ring carried by the spindle, a spring pressing upon said ratchet
100 ring, and a spring to return the spindle to its normal position after it has been raised to disengage the pinion from the gear wheel.

7. The combination in a car brake operating mechanism, of a main shaft, a gear
105 wheel thereon, a spindle having a pinion meshing with the gear wheel, a casing, a bearing mounted in the casing, ratchet mechanism between the bearing and the spindle, a handle pivotally mounted on the
110 bearing and having a socket, a ball mounted in the socket and connected to the spindle, the handle having a flange fitting in a seat on the bearing when the handle is in its normal position so as to close the space
115 within the bearing.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WALTER S. ADAMS.

Witnesses:

WM. E. SHUPE,
WM. A. BARR.