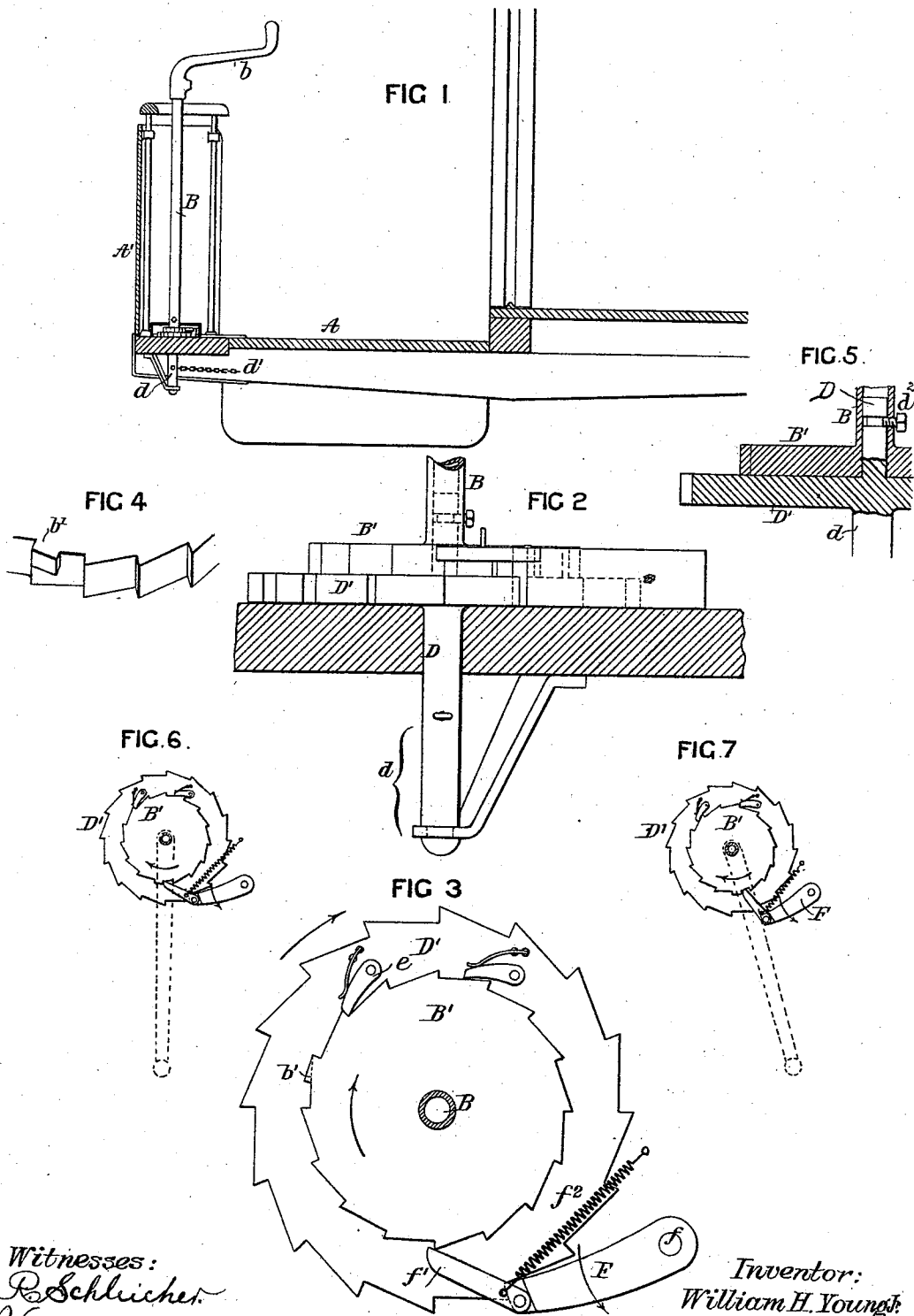


(No Model.)

W. H. YOUNG, Jr.
RATCHET MECHANISM.

No. 528,353.

Patented Oct. 30, 1894.



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UNITED STATES PATENT OFFICE.

WILLIAM H. YOUNG, JR., OF PHILADELPHIA, PENNSYLVANIA.

RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 528,353, dated October 30, 1894.

Application filed May 31, 1894. Serial No. 513,054. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. YOUNG, Jr., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Ratchet Mechanism, of which the following is a specification.

My invention relates to ratchet mechanism such for instance as that used in connection with brakes of motor cars and other hand brakes where it is desirable to automatically throw the pawl into or out of engagement with the ratchet wheel.

The object of my invention is to so construct the device as to throw the pawl into or out of engagement with the ratchet wheel without the aid of the foot, but by simply manipulating the handle in a manner described hereinafter.

Heretofore it has been usual to have a pivoted dog engaging with a ratchet wheel which is held in place by a spring and released by the foot, or put in place by the foot and released automatically. By my invention this foot dog is done away with and the catching and releasing accomplished through the medium of the handle.

In the accompanying drawings, Figure 1, is a sectional view of the front platform of a car illustrating my invention. Fig. 2, is a side view of my improved ratchet mechanism. Fig. 3, is a plan view. Fig. 4, is a perspective view of a part of one of the ratchet wheels. Fig. 5, is a sectional view showing the arrangement of the two ratchet wheels; and Figs. 6 and 7, are diagrams illustrating the action of the device.

A is the platform of the car.

A' is the dasher.

B is the vertical brake shaft having a brake handle *b* of the ordinary construction. At the base of the shaft B is a ratchet wheel B'.

D' is a ratchet wheel somewhat larger in diameter than the wheel B' and situated directly under it. This ratchet wheel D' is secured to or forms part of the chain shaft D around the portion *d* of which is wrapped the brake chain *d'*. The chain shaft D passes up into the shaft B, as shown in Fig. 5, and is held in place by a set screw *d²* which enters an annular groove in the head of the shaft

D and allows the two shafts to turn freely one independent of the other.

The teeth of the ratchet wheel B' are arranged in the reverse direction to the teeth of the ratchet wheel D', and the pawl *e* carried by the ratchet wheel D' engages with the teeth of the wheel B' so that when the shaft with its ratchet wheel B' is turned in the direction of the arrow, Fig. 3, it will also turn the ratchet wheel D' through the pawl. I may use two or more pawls, as shown in Fig. 3, and the pawls may be half spaced as shown in said figure, so that while the ratchet D' can be only moved by the handle in the direction indicated in Fig. 3, the ratchet wheel B' can be moved in both directions, so that the handle can be vibrated if it is desired for the driver or motorman to place the handle in a position so as to get a favorable leverage.

F is a pawl which engages with the teeth of the ratchet wheel D'. This pawl is pivoted at *f* and carries a secondary pawl *f'* which can be acted upon by the ratchet wheel B'. A spring *f²* holds the pawl in place against the ratchet wheel D' and also holds the pawl against the ratchet wheel B'. The majority of the teeth of the ratchet wheel B' do not affect this pawl *f'*, but there is a half tooth *b'*, clearly shown in Figs. 3 and 4, set in a reverse direction, which, when the ratchet wheel B' is turned to the position shown in Fig. 6, will act on this pawl *f'* and as the ratchet wheel is turned back in the direction shown in Fig. 7, it will act as a lever and force the pawl F out of engagement with the teeth of the ratchet wheel D', as indicated in said figure, thus releasing the ratchet wheel D' and consequently the brake. I preferably arrange the handle in respect to this tooth *b'* so that the handle will be toward the operator when he wishes to disengage, so that in order to disengage he will have to reverse the handle to that point, pushing against the pawl *f'* and throwing the pawl F out of engagement with the ratchet wheel D' and release the brake.

While I have described my invention in connection with the braking mechanism of cars my improved automatic ratchet mechanism may be used in connection with other

devices, such as hoists, tackle in general, and in fact any place where it is wished to catch or release the pawl automatically.

I claim as my invention —

5 1. The combination in car brake mechanism, of the handle, brake shaft, the brake chain shaft, ratchet wheel on said chain shaft, a pawl and means for throwing the pawl into
10 and out of engagement with the ratchet wheel by the action of the brake shaft, substantially as described.

2. The combination of the ratchet wheels B' and D', a pawl on said ratchet wheel D' engaging with the teeth on the ratchet wheel
15 B', a pawl F engaging with the teeth of the ratchet wheel D' and a supplemental pawl acted upon by a tooth on the wheel B' so that when the tooth comes into engagement with the supplemental pawl it will throw the pawl

out of engagement with the ratchet wheel 20 D', substantially as described.

3. The combination of the chain shaft D, its ratchet wheel D', a brake shaft mounted above the chain shaft, a ratchet wheel on said brake shaft, pawl on the ratchet wheel D' en- 25 gaging with the ratchet wheel B', a tooth b' on the ratchet B', a pawl F engaging only with the ratchet D', a supplemental pawl pivoted to said pawl F adapted to be acted upon by the tooth b of the ratchet B' when the said
30 wheel is reversed, substantially as described.

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

WILLIAM H. YOUNG, JR.

Witnesses:

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WILLIAM A. BARR.