No. 733,185. PATENTED JULY 7, 1903.

J. GRADY.

BRAKE HANDLE.

APPLICATION FILED FEB. 19, 1903.

NO MODEL.

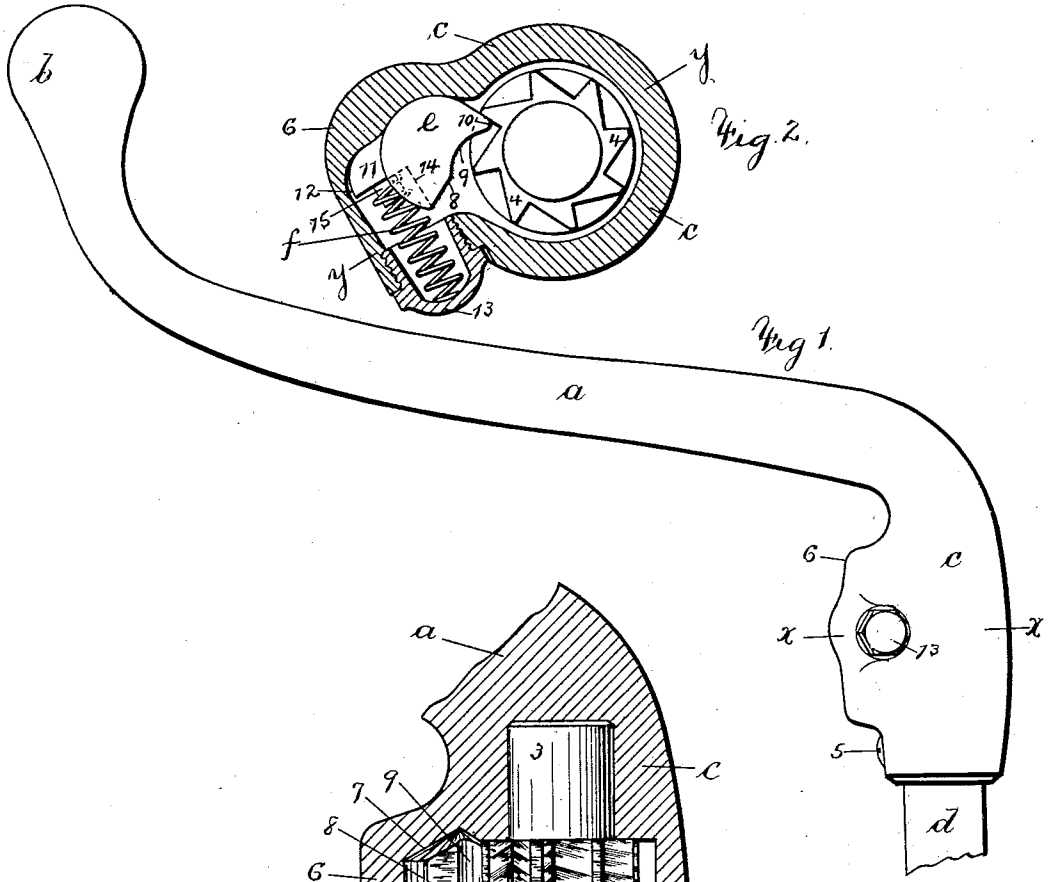


Fig. 2.

Fig 1.

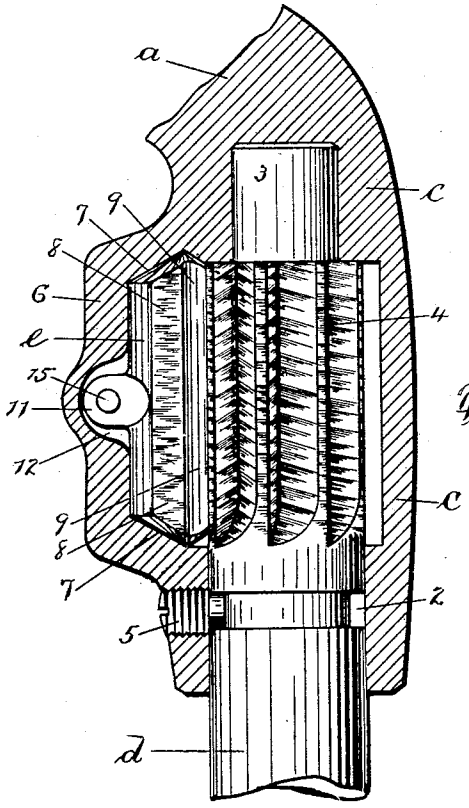


Fig 3.

Witnesses
A. D. Berrell
Chas. E. Smith

Inventor
James Grady
per Harold Sewell
Atty

THE NORRIS PETERS CO. PHOTO-LITHO. WASHINGTON, D. C.

No. 733,185. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

JAMES GRADY, OF NEW YORK, N. Y., ASSIGNOR TO THE COLUMBIA MACHINE WORKS AND MALLEABLE IRON COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

BRAKE-HANDLE.

SPECIFICATION forming part of Letters Patent No. 733,185, dated July 7, 1903.

Application filed February 19, 1903. Serial No. 144,021. (No model.)

To all whom it may concern:

Be it known that I, JAMES GRADY, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented an Improvement in Brake-Handles, of which the following is a specification.

My invention, while applicable to brake-handles generally, relates particularly to brake-handles for use on street-cars, with the object of increasing the adaptability of such structures.

In carrying out my invention I construct the upper end of the brake-shaft with ratchet-teeth, and the base of the handle, which is made hollow, fits thereon, surrounding said teeth. Within said base I provide a pivoted quasi-cylindrical member having a pawl adapted to engage said ratchet-teeth, and I employ devices in connection with these parts for making the pawl operative when the handle is moved to apply the brakes and which permit the return or backward movement of said handle. The form given to the handle, save the hollow base at one end and a grip at the other end, is immaterial.

In the drawings, Figure 1 is a general elevation of my improved brake-handle. Fig. 2 is a horizontal section on line $x\,x$, Fig. 1; and Fig. 3 is a vertical section on line $y\,y$, Fig. 2. Figs. 2 and 3 are on the same, but an enlarged, scale for clearness.

a represents the handle, which may be of the usual or any desirable design, preferably terminating in the grip *b* at one end and the hollow base *c* at the other.

d represents the brake-shaft, provided with a circumferential recess 2, a reduced end 3, and a series of ratchet-teeth 4. The base of the brake-handle is adapted to fit over the end of the brake-shaft, and these parts are held in position by means of a screw 5, passing through the base *c* and having a reduced end passing into the circumferential recess 2. The base *c* is extended at one side, as at 6, to receive a quasi-cylindrical member *e*, having conical ends adapted to fit and be received in suitable pivotal bearings 7. The member *e* is cut away longitudinally at 8 and 9, forming a pawl 10, which engages the ratchet-teeth 4. The member *e* is also provided, preferably centrally and almost diametrically opposite the pawl 10, with a lug 11, fitting removably within a recess 12 in the extended side 6. A spring *f* extends between the face of the lug 11 and a hollow screw-cap 13, with which the base is provided, the member *e* being recessed at 14 to receive the spring *f*, and the spring may at one end be kept in place by means of a projection 15 on the lug, around which projection the spring passes.

It will now be apparent that in applying the brake the handle is turned clockwise, with the pawl 10 in contact with one of the ratchet-teeth 4. The lug 11 bears upon the wall of the recess 12, maintaining the positions of the pawl and tooth, whereby the continued movement of the handle causes the brake-shaft to turn. With the reverse movement the handle is ratcheted backward and the brake-shaft is held stationary by well-known devices. With this reverse movement the pawl 10 will slip over the ratchet-teeth 4, causing a partial turn of the member *e* and a compression of the spring *f*, with a return to the normal position of these parts every time the pawl 10 slips a ratchet-tooth.

I claim as my invention—

1. The combination with a brake-shaft having a series of ratchet-teeth at its upper end, of a brake-handle having a base adapted to fit over the end of said brake-shaft, means for securing the handle to said shaft, and a quasi-cylindrical member within the base of said handle with its axis in a plane parallel to the brake-shaft and adapted to engage the said ratchet-teeth and to bear upon the casing of the base of the brake-handle under such engagement when the handle is turned in one direction and to stop the said ratchet-teeth when the handle is turned in the opposite direction.

2. The combination with a brake-shaft having a series of ratchet-teeth at its upper end, of a brake-handle having a base adapted to fit over the end of said brake-shaft, means for securing the handle to said shaft, a quasi-cylindrical member, pivotal bearings therefor in the base of said handle, a pawl integral with

said quasi-cylindrical member and adapted to engage said ratchet-teeth of the brake-shaft, means for maintaining the said pawl in relation with one of the ratchet-teeth when the handle is turned in one direction, and means for returning the said quasi-cylindrical member to its normal position every time the pawl slips a tooth when the handle is turned in the opposite direction.

3. The combination with a brake-shaft having a series of ratchet-teeth at its upper end, of a brake-handle having a base adapted to fit over the end of said brake-shaft, means for securing the handle to said shaft, a quasi-cylindrical member, pivotal bearings therefor in the base of said handle, a pawl integral with said quasi-cylindrical member and adapted to engage said ratchet-teeth of the brake-shaft, a lug integral with said quasi-cylindrical member adapted to bear upon the inner walls of the base of the handle to maintain the relation between the pawl and one of the ratchet-teeth when the handle is turned in one direction, a cap adapted to screw into the base of the handle, and a spring extending between said lug and the interior of said cap for returning the quasi-cylindrical member to its normal position every time the pawl slips a tooth when the brake-handle is turned in the opposite direction.

4. The combination with a brake-shaft having a series of ratchet-teeth and a circumferential recess at its upper end, of a brake-handle having a base adapted to fit over the end of said brake-shaft, a screw passing through the base of the handle and into the said circumferential recess to secure the handle to the brake-shaft, a quasi-cylindrical member, pivotal bearings therefor in the base of said handle, a pawl integral with said quasi-cylindrical member and adapted to engage said ratchet-teeth of the brake-shaft, a lug integral with said quasi-cylindrical member adapted to bear upon the inner walls of the base of the handle to maintain the relation between the pawl and one of the ratchet-teeth when the handle is turned in one direction, a cap adapted to screw into the base of the handle, and a spring extending between said lug and the interior of said cap for returning the quasi-cylindrical member to its normal position every time the pawl slips a tooth when the brake-handle is turned in the opposite direction.

Signed by me this 13th day of February, 1903.

JAMES GRADY.

Witnesses:
GEO. T. PINCKNEY,
S. T. HAVILAND.