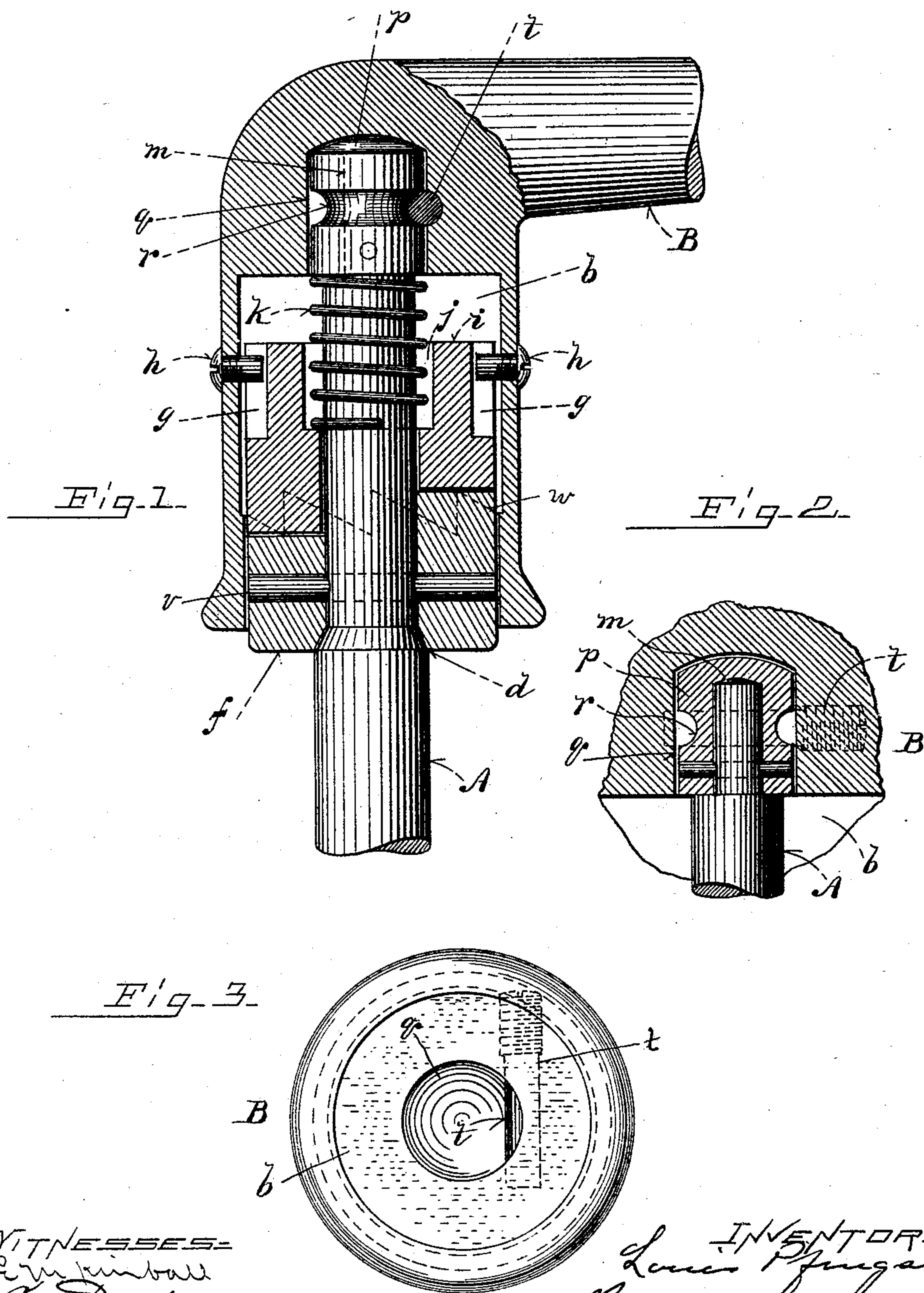


(No Model.)

L. PFINGST.
CAR BRAKE.

No. 487,768.

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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 487,768, dated December 13, 1892.

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To all whom it may concern:

Be it known that I, LOUIS PFINGST, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Car-Brakes, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional elevation showing my improved brake-handle; Fig. 2, a transverse section looking from the left in Fig 1, the brake-rod being shown in elevation; and Fig. 3, a bottom plan view of the handle removed.

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

My invention relates especially to changeable brake-handles for car-brake mechanism, the object being more particularly to improve the operation of the movable clutch member and method of mounting the same in the brake-handle.

In the drawings, A represents the brake rod or staff, which is reduced slightly at its upper end, forming a beveled annular shoulder *d*. The extreme upper end of the staff is reduced, forming a spindle *m*. On said spindle I secure a cap or collar *p* by means of a pin or set-screw. Said cap is of greater diameter than the adjacent portion of the staff and preferably has its outer end or head convex, as shown. An annular groove *r* is formed in the outer face or periphery of said cap.

The brake-handle B is of the ordinary form and construction, excepting as hereinafter described. A clutch member *f* is secured by a pin *v* to the staff, the mouth of the staff-opening being countersunk to receive the beveled shoulder *d*, which acts as a stop or guide to locate said clutch member when adjusting it on the staff. The fixed member *f* is toothed at *w* on its upper edge. A loose clutch member *i* is fitted to rotate on the staff and is toothed to engage its companion member *f*. Said member *i* is provided in its outer face with a series of vertically-arranged rectan-

gular slots *g*, opening through its upper edge. Around the staff-opening of said member it is recessed, forming an annular chamber *j*. A coiled spring *k* is disposed around the staff and rests on the clutch member *i* at the bottom of the chamber, said spring butting against the cap *p*.

The handle B is of the ordinary crank shape employed on street-cars and is chambered vertically at *b* to receive the clutch mechanism. The bottom of the chamber *b* is also chambered at *q* to receive the cap *p*. A screw-bolt *t*, having a threaded head and smooth shank, is turned horizontally through the brake-handle into the chamber or socket *q* and projects into the groove *r* of the cap *p*, preventing the withdrawal of the handle therefrom, while permitting it to be rotated freely. A series of screws *h* are turned laterally through the side wall of the handle-chamber *b* and project, respectively, into the vertical slots *g* of the loose clutch member. The ends of the screws are unthreaded to permit the free play of the member thereon while locking it against rotation independently of the handle.

In use the handle is employed to set up the brake in the ordinary manner.

In order to obtain the required amount of purchase necessary to set the brake conveniently as the load on the vehicle varies and the position of the brake-shoes on the car in relation to the wheel is changed thereby, the ordinary dog is employed to lock the staff when the brakes have been set up.

By reversing the handle B or moving the same backward the teeth of the movable clutch member *i* ride the teeth of its companion member, said movable member being carried by the screws *h* on the handle-slides vertically on the staff against the pressure of the spring *k*, which holds the teeth of the clutch members continuously engaged. This arrangement of parts permits the handle to be reciprocated or "pumped" in setting the brake, all the effectiveness of a ratchet-brake mechanism being maintained without the liability of breaking or wearing of the pawl, as frequently happens in such mechanism.

The caps or collars *p* are interchangeable and protect the staff from becoming worn by

contact with the screw-bolt *t*. As there is very little lateral pressure against said cap, the staff is not particularly weakened by reducing it to form the spindle *m*. By providing a bearing on said cap for the spring *k*, instead of permitting such spring to bear against the handle, the wear is confined to the comparatively-inexpensive interchangeable part, instead of being borne by the more expensive and important members.

I do not confine myself to employing the pin *v* for fastening the clutch member *f* to the staff, as any suitable means may be used. Again, by employing the removable and readily-interchangeable screw-pins *h* to enter the vertical slots *g* of the loose clutch member I am enabled to provide a strong, compact, and substantially-cylindrical handle-socket, which will snugly fit the periphery of the fast clutch member *f*, and thus prevent the entrance and accumulation of dust, grit, &c., within the handle-socket to the detriment of the working parts inclosed thereby; also, the wear between these pins and the walls of the slots *g* of the loose clutch member *i* will be largely borne by said pins, (especially if made of somewhat-softer material than that of the loose clutch member,) and these pins being readily removable to substitute new ones therefor the wearing qualities of the brake-rod-handle mechanism is largely increased and the snug fit and working of the parts maintained for a longer period than otherwise.

As is obvious, the strain in setting the brake is transferred from the handle initially through the pins *h* and slotted clutch member *i* to the brake-rod, and the wear is as great, if not greater, where the pins and slotted clutch member contact than elsewhere. Objection has been made against prior forms of brake-handle mechanism when such severe contact strain has been exerted against lugs or ears projecting from the periphery of the loose clutch member to enter in turn grooves made in the inner walls of the handle-socket because of the frequent breakage of such projecting lugs due to long or continued wear and strain upon the latter, and which thus renders useless said loose member. This I avoid, in effect, by the use of the pins *h*, which may be readily and inexpensively substituted by new ones upon appreciable wear of the former. Thus I am enabled to preserve intact the more expensive loose clutch member.

Having thus explained my invention, what I claim is—

1. The combination, with the staff, of a clutch member fast thereon, a companion member loose on said staff, a brake-handle chambered to receive the clutch mechanism, a socket in the bottom of said handle-chamber, a peripherally-grooved cap fast on the staff and fitted to work in said socket, a projection in the handle-chamber fitted to enter a depression in said loose member, a push-spring interposed between said cap and the loose member, and a removable projection in

the handle-socket entering the cap-groove, substantially as described.

2. The combination, with the staff, of a clutch member fast thereon, a companion member loose on said staff, a peripherally-grooved cap fast on the upper end of said staff and projecting beyond the periphery thereof, a brake-handle chambered to receive said clutch mechanism and socketed to receive said cap, a push-spring interposed between the cap and loose member, means for locking the loose member and handle against independent rotation, and a removable projection in the handle-socket working in the cap-groove, substantially as described.

3. The staff, a clutch member fast thereon, and a companion member free to rotate and to move up and down on said staff and provided with vertical slots in its periphery, as specified, combined with the handle and inclosing handle-socket, the latter being provided with pins passing through its walls, entering the vertical slots of the loose clutch member, and adapted to be readily removed from said handle-socket, substantially as and for the purposes set forth.

4. The staff provided at its upper end with a fast collar, a clutch member fast on the staff, and a companion member free to rotate and to move up and down on said staff and provided with vertical slots in its periphery, as specified, combined with the handle and inclosing handle-socket, the latter being provided with pins passing through its walls and adapted to be adjusted in said handle-socket to enter the vertical slots of the loose clutch member and collar, substantially as and for the purposes set forth.

5. The staff provided at its upper end with a fast collar or cap, a clutch member fast on the staff, and a companion clutch member free to rotate and to move independently up and down on said staff, combined with a handle having a socket which incloses the cap and clutch members, a spring interposed between said loose clutch members and cap, and devices to lock the handle-socket and loose clutch members against independent rotation, substantially as set forth.

6. The combination, with the staff reduced to form the shoulder *d* and provided with the spindle *m*, of the clutch member *f*, fast on said staff and butting against said shoulder, the grooved cap *p*, fast on said spindle, the loose clutch member *i*, chambered at *j* and provided with the vertical grooves *g*, a push-spring interposed between said cap and loose member, a brake-handle chambered and socketed to receive said clutch and cap, and removable projections on said handle, respectively fitted to work in the clutch member and cap-grooves, substantially as described.

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Witnesses:

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