(No Model.) 2 Sheets—Sheet 1.

WALTER VANDER HEYDEN WILLSON.

CLUTCH FOR STREET CAR BRAKES.

No. 348,306. Patented Aug. 31, 1886.

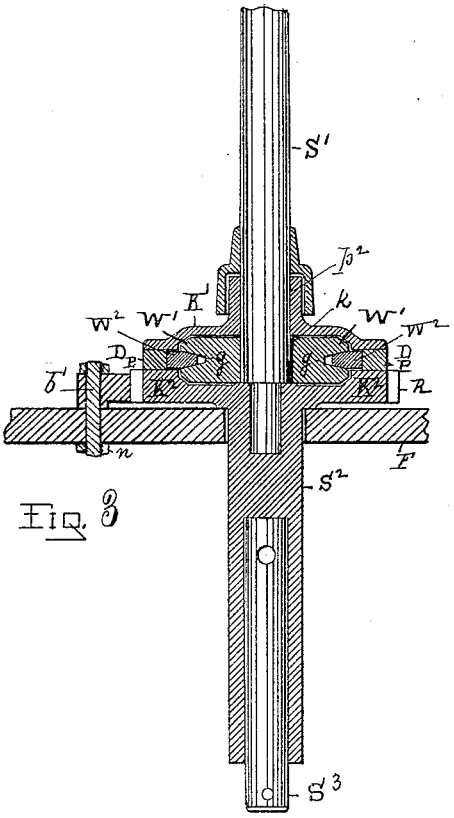

Fig. 3

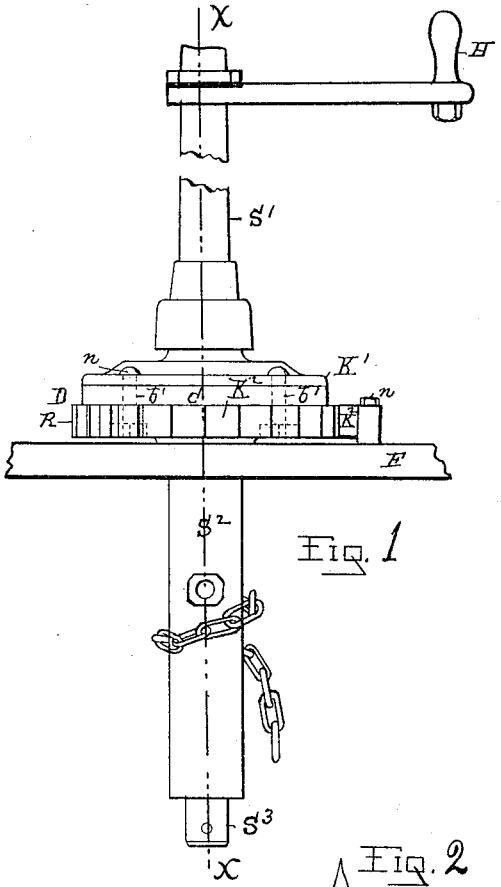

Fig. 1

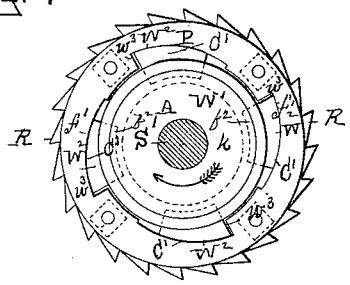

Fig. 4

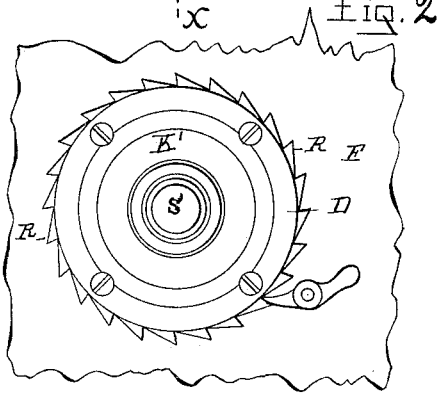

Fig. 2

WITNESSES:

Geo. A. Darby.

Charles E. Brinkhall

INVENTOR

Walter Vanderheyden Willson

by W. E. Hagan his Atty

(No Model.) 2 Sheets—Sheet 2.

WALTER VANDER HEYDEN WILLSON.

CLUTCH FOR STREET CAR BRAKES.

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Fig. 5

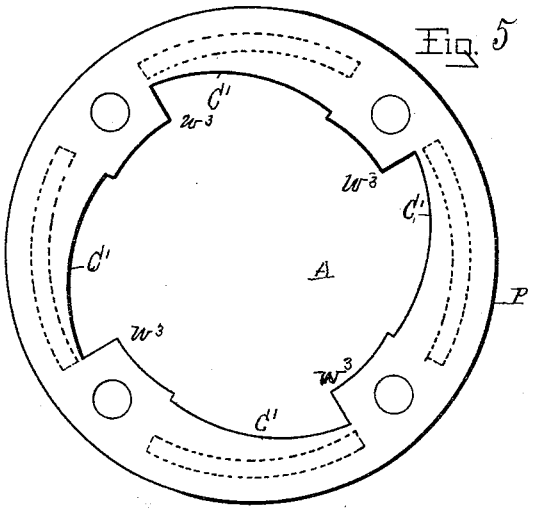
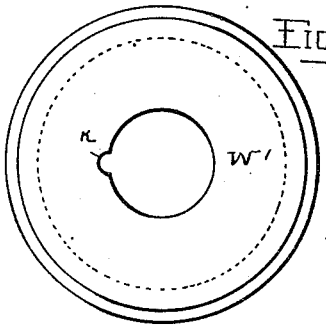


Fig. 6



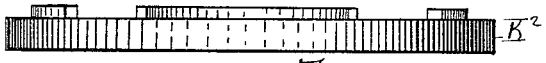


Fig. 7

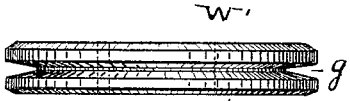
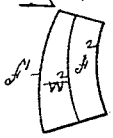


Fig 8

Fig. 9



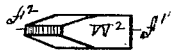


Fig. 10

WITNESSES:

Geo. A. Darby.

Charles F. Burnell

INVENTOR

Walter Vanderheyden Willson

by W. E. Hagan his Atty

UNITED STATES PATENT OFFICE.

WALTER VANDER HEYDEN WILLSON, OF BRUNSWICK, NEW YORK.

CLUTCH FOR STREET-CAR BRAKES.

SPECIFICATION forming part of Letters Patent No. 348,306, dated August 31, 1886.

Application filed June 12, 1886. Serial No. 204,910. (No model.)

To all whom it may concern:

Be it known that I, WALTER VANDER HEYDEN WILLSON, of Brunswick, county of Rensselaer, State of New York, have invented new and useful Improvements in Clutching Mechanism for Street-Car Brakes, of which the following is a specification.

My invention relates to clutching mechanism, and more particularly to that class of it which is used in connection with a ratchet and detent to operate the brake-shaft and brake of street-cars, although it may be equally well applied to actuate drills or other mechanism requiring the same function of operating parts.

Accompanying this specification, to form a part of it, there are two plates of drawings, containing ten figures, illustrating my invention, with the same designation of parts by letter-reference used in all of them.

Of these illustrations, Figure 1 shows a side elevation of my improved clutching mechanism applied to operate the chain-shaft and chain of a street-car brake. Fig. 2 shows a top view of the mechanism illustrated at Fig. 1. Fig. 3 shows a section taken on the line *x x* of Fig. 1. Fig. 4 shows a top view of the mechanism with the upper cap removed and with the clutch-shaft shown in transverse section. Figs. 5, 6, 7, 8, 9, and 10 show views of detached parts of the apparatus.

The several parts of the mechanism thus illustrated are designated by letter-reference, and the function of the parts is described as follows:

The letter S′ designates the clutch-shaft, and as having the operating crank-arm H. The letter W′ designates a wheel that is keyed to said shaft at *k*, so as to turn with it. The letter *g* designates a wedge-form groove that is made in the perimetral face of the said disk-form wheel W′.

The letter D designates the housing or case that incloses the clutching mechanism, and this case or housing is produced by means of an upper dish-form cap, K′, that has a passage-way, p^2, through it for the clutch-shaft S′, a cam-plate, P, that has the centrally cut-out area A, with the latter having on its inner edge the cams C′ and stops w^3, and a dish-form bottom or base-plate, K^2, to the bottom of which latter is attached the sleeve S^2, which is keyed to the brake-chain shaft S^3.

While I have shown the cap-plate K′ and cam-plate P as made separately, they may be made in one piece, if desired, and connected to the bottom or base plate by bolts and nuts; or, if desired, the bottom plate and cam-plate may be made in one piece and connected to the top plate by bolts and nuts to form the case or housing D.

The letters W^2 designate wedges, each of which, on one of its ends, is provided with rectangular faces *f′* and at its other end with the wedge-form surfaces f^2.

The letters *b′* designate screw-bolts, adapted to pass through the base-plate K^2, the intermediate cam-plate, P, and cap K′, and thus secure these plates together by means of nuts *n*.

The letter F designates a part of the car-platform, and R a ratchet arranged in revolution on the rim of the base-plate K^2. The letter d^2 designates a spring detent or pawl pivoted to the platform and adapted to engage with the teeth of said ratchet.

The clutch-wheel W′, as arranged on the shaft S′ and keyed thereto, is placed within the area A of the cam-plate P, between the cap-plate K′ and base-plate K^2, and the wedges W^2 are also arranged in the said area, so that their rectilinear faces *f′* will abut against the vertical faces of the cams C′, between the stops W^2, with each of the wedges so placed that their wedging-surfaces f^2 shall be where they will enter the groove *g* of the wheel W′ when crowded inwardly by the engagement of the said cams. With the parts thus placed when the clutching-wheel W′ (by the action of the crank H) is turned in the direction of the arrow shown at Fig. 4, the clutching-wedges are forced into the groove *g* of the clutch-wheel W′ by the action of the cams C′ to securely lock the parts, so that the whole inclosure D, the sleeve S^2, and shaft S^3 are turned also by the movement of the crank in the indicated direction. When the clutch-wheel W′ is turned in a direction that is opposite to that given by the arrow at Fig. 4, then the said wheel moves the wedges from out the groove *g* and turns within the housing or case, and without actuating the sleeve S^2 to turn the shaft S^3, the

said sleeve being keyed to the shaft S^3, the function of the apparatus being to turn the shaft S^3. If desired, however, the latter may connect directly with the under face of the housing D and the sleeve S^2 be omitted, and the brake-chain M wound directly onto the shaft S^3, the sleeve S^2 performing merely the function of an intermediate connection between the housing or case and the shaft S^3. When the clutching-wheel and wedges are engaged so that the whole mechanism is turned to operate the shaft S^3, then the spring-detent d^2, engaging with the ratchet R, holds all the tension upon the brake thus attained, and by means of its lever end m when the detent is tripped this tension is released. As the chain-brakes are usually operated on street-cars, the crank is turned with a continuous movement to increase the brake-pressure on the wheels, and when, as it often occurs, that the crank in its rotation is at arms-length before the required tension upon the brake is had to move it further, is difficult from the position of the driver operating it. With my improvement when the crank is at arms-length it may be turned back to a more convenient position for applying power to it, or the crank may be reciprocatingly rotated for a short distance at a time to apply pressure little by little, and thus keep the crank-arm in a position where it is easily handled.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. In a clutching mechanism, the combination, with a shaft adapted to be rotated, of a housing or case that is made with a passage-way for said rotating shaft to turn therein and constructed with cams on its interior face, of a clutching-wheel that is keyed to turn with said shaft, and constructed with a wedge-form perimetral groove, said clutching-wheel being arranged within said housing, and wedges that are also arranged within said housing or case, adapted to be operated by said cams to engage with the perimetral groove of said clutching-wheel, substantially in the manner as and for the purposes set forth.

2. In a clutching mechanism, the combination, with a shaft adapted to be rotated, of a housing or case that is made with a passage-way for said rotating shaft to turn therein and constructed with cams and cam-stops on its interior face, of a clutching-wheel that is keyed to turn with said shaft, and constructed with a wedge-form perimetral groove, said clutching-wheel being arranged within said housing, and wedges that are also arranged within said housing or case, adapted to be operated by said cams to engage with the perimetral groove of said clutching-wheel, substantially in the manner as and for the purposes set forth.

3. In a clutching mechanism for a street-car brake, the combination, with the housing or case D, made with the passage-way p^2, cams C′, cam-stops w^2, and ratchet R, of the clutching-wheel W′, made with perimetral groove g, keyed to the shaft S′, and arranged within said housing, the wedges W^2, arranged within said housing relatively to the said cams and perimetral groove, as described, the sleeve S^2, attached to the under side of said housing and to the shaft S^3, and the detent d^2, constructed and arranged to be operated substantially as and for the purposes set forth.

Signed at Troy, New York, this 11th day of May, 1886, and in the presence of the two witnesses whose names are hereto written.

WALTER VANDER HEYDEN WILLSON.

Witnesses:

CHARLES S. BRINTNALL,

W. E. HAGAN.