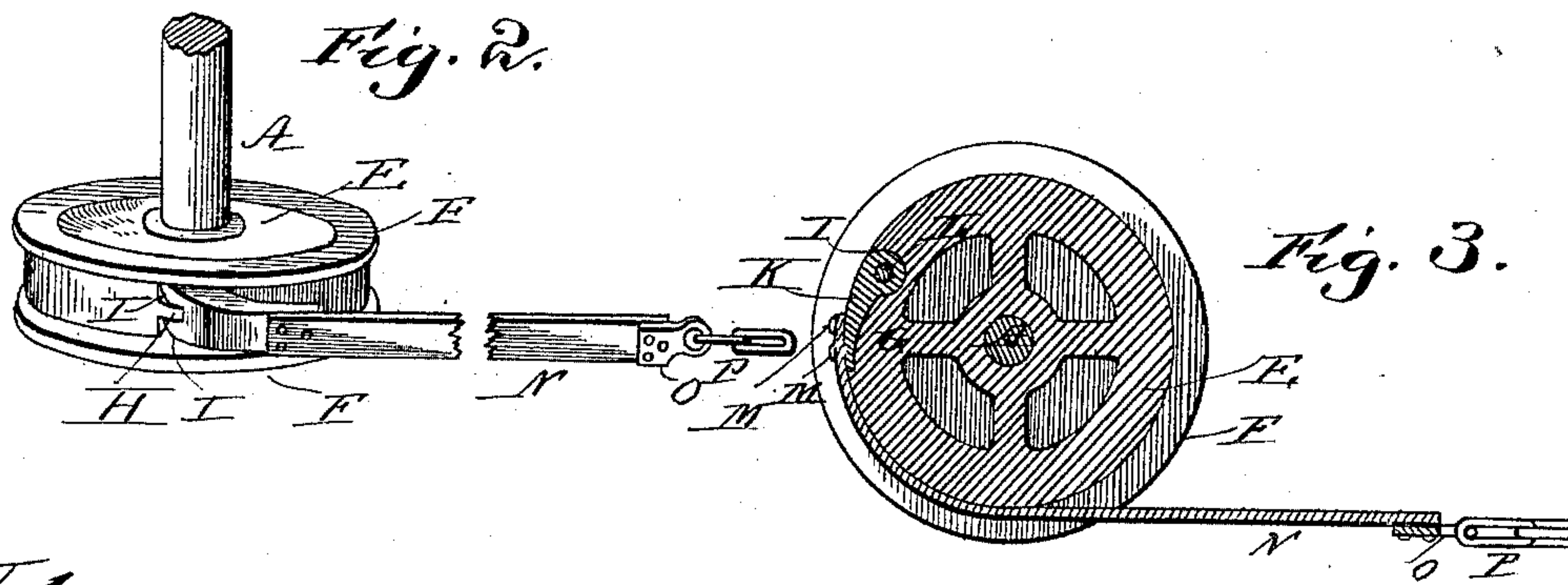
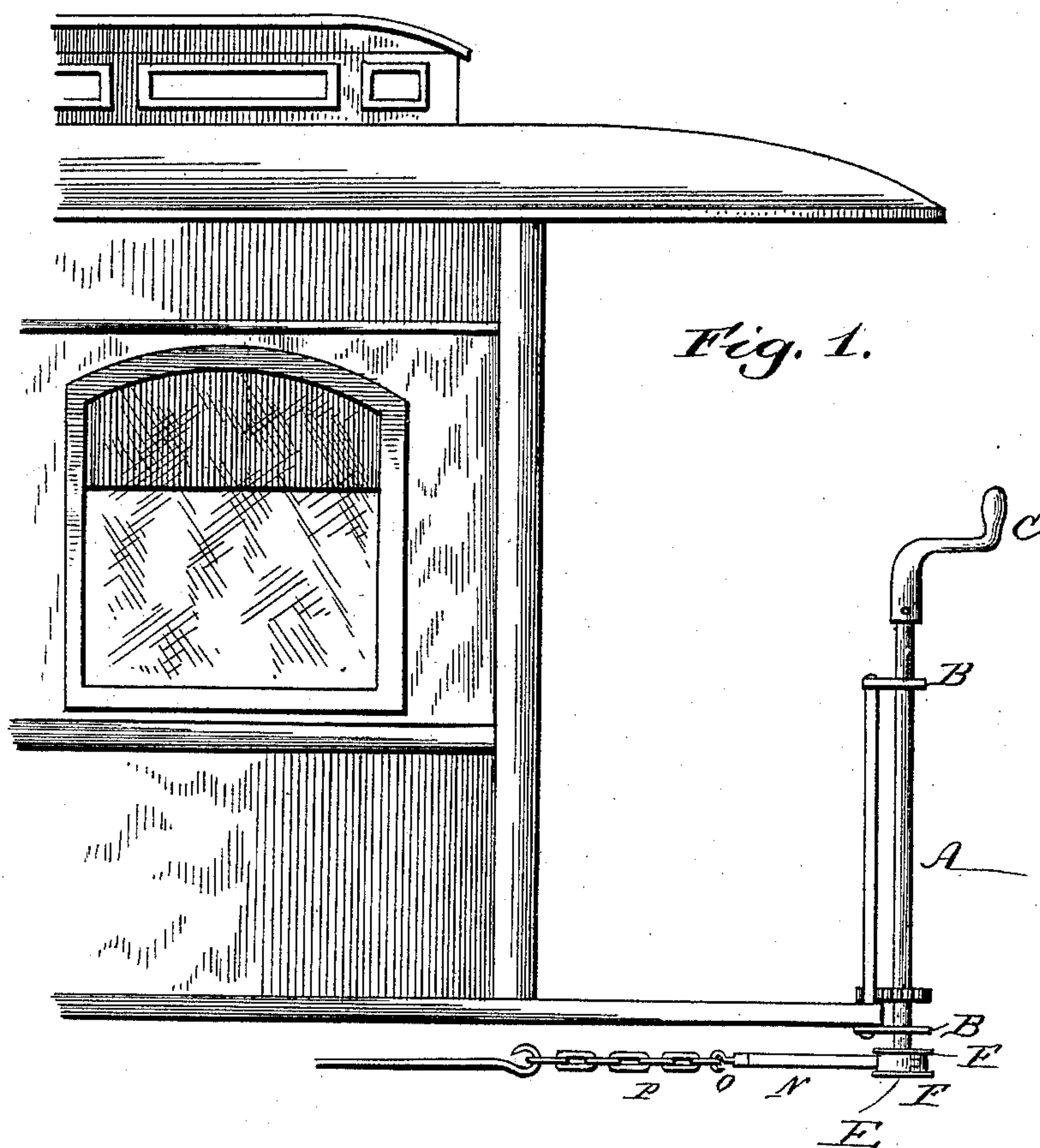


(No Model.)

J. F. PFETCH.  
CAR BRAKE.

No. 462,993.

Patented Nov. 10, 1891.



Witnesses:  
J. B. Mc Ginn  
C. M. Buckley

Inventor:  
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by Connolly Bros  
Atty



# UNITED STATES PATENT OFFICE.

JACOB F. PFETCH, OF ERIE, PENNSYLVANIA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 462,993, dated November 10, 1891.

Application filed April 16, 1891. Serial No. 389,146. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB F. PFETCH, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to car-brakes and has special relation to brakes for street-cars; and the invention has for its object the provision of novel means for connecting the brake mechanism with the brake-rod, and for arranging such connection that the brake may be put on to the fullest extent by a partial revolution of the brake-handle.

There is, perhaps, no portion of the equipment of street-railway cars that requires the same amount of care and attention as the brake mechanism, and this is specially true of such cars as are propelled at a rapid rate through the city streets by cables or electricity, for if the brake mechanism should fail at a critical moment, and the liability to fail is always greatest at such time owing to the suddenness and force with which the brake is then put on, the lives of passengers or pedestrians would be put in jeopardy. It has been found that the part of the brake mechanism which is most likely to give way under the strain imposed in sudden emergencies is the portion of the brake-chain which is wrapped and unwrapped on the brake-shaft every time the brake is applied and released, and the danger of breaking is caused by the chain wearing away at the points where the links cross, due to the immense amount of grinding action under heavy strain, caused by winding and unwinding the chain on the rod every time the car is stopped and started. This wearing of the chain, which is surprisingly rapid, is only discoverable on the closest inspection and then by separating the links in the hands and is often overlooked by car-inspectors.

My invention consists in the provision of a novel substitute for the portion of the chain ordinarily used on a car-brake to wind around the brake-rod, and in carrying my invention

into effect I substitute for that portion of the chain a strong flexible strap of metal, preferring to use well-tempered spring-steel, such as is used for band-saws, and secure this strap at one end to the chain or rod leading to the brake-levers, and at the other end attach it by a hinged link to a band-wheel set fast on the brake-rod.

My invention further consists in the novel construction, combination, and arrangement of parts hereinafter set forth and specifically claimed.

Referring to the accompanying drawings, Figure 1 is a side elevation of a portion of a car with my improved brake attached thereto. Fig. 2 is a perspective view of the brake-rod and its connection with the brake-chain, the brake being let off. Fig. 3 is a sectional view of the same with the brake put on.

A designates the brake-rod, journaled in brackets B B and provided with the usual handle C and ratchet-wheel D.

Upon the brake-rod A is firmly fixed a pulley or band wheel E, having a flat smooth periphery with a flange F at each edge. A socket is formed at G in the rim of the wheel E, and a lug H projects into said socket and is embraced by the ears I I of a curved tapering tongue K, that fits into the socket G and fills out the same, so as to preserve the circular contour of wheel E. A pintle L passes through the ears I I and the lug H and pivotally secures the tongue to the wheel. To the free end of the pivoted tongue K is attached, by rivets M M or in any other appropriate manner, a short flat section or band N, of strong elastic metal, as spring-steel, and to the other end of the band N is attached a link O, by means of which the band is connected to the chain P, leading to the brake-levers.

The device being constructed and arranged as above described is operated in precisely the same manner as the ordinary chain-brake; but by reason of the wheel E being of considerably greater circumference than the brake-rod A, to which in the ordinary brake the chain is directly attached, only a small part of a revolution of the brake-handle is required to strongly and effectively apply the brakes. The band N being simply wound and unwound

around the wheel E, there is practically no wearing action whatever of the band or wheel, and the band will last an indefinite time and will be always reliable and can be of sufficient strength to easily withstand any possible strain to which it can be subjected in use.

Having fully described my invention, I claim—

1. In a brake for cars, the combination, with the brake-levers and the brake-rod, of a flat flexible metallic band connected to said levers and attached to and adapted to be wound around said rod, substantially as described.

2. In a car-brake, the combination, with the brake-levers and a flexible metallic band connected to said levers, of a brake-rod, a pulley or band wheel fixed on said rod, and means, substantially as described, for pivotally con-

necting the end of said band to the wheel, as set forth.

3. In a car-brake, the combination, with the vertical brake-rod A, and the band-wheel E, fixed on said rod and having the socket G and lug H, of the tongue K, pivotally attached to said lug, and the flat metallic band N, having one end attached to said tongue and the other end connected to the brake-levers, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of March, 1891.

JACOB F. PFETCH.

Witnesses:

JOHN S. RILLING,  
JOS. B. CONNOLLY.