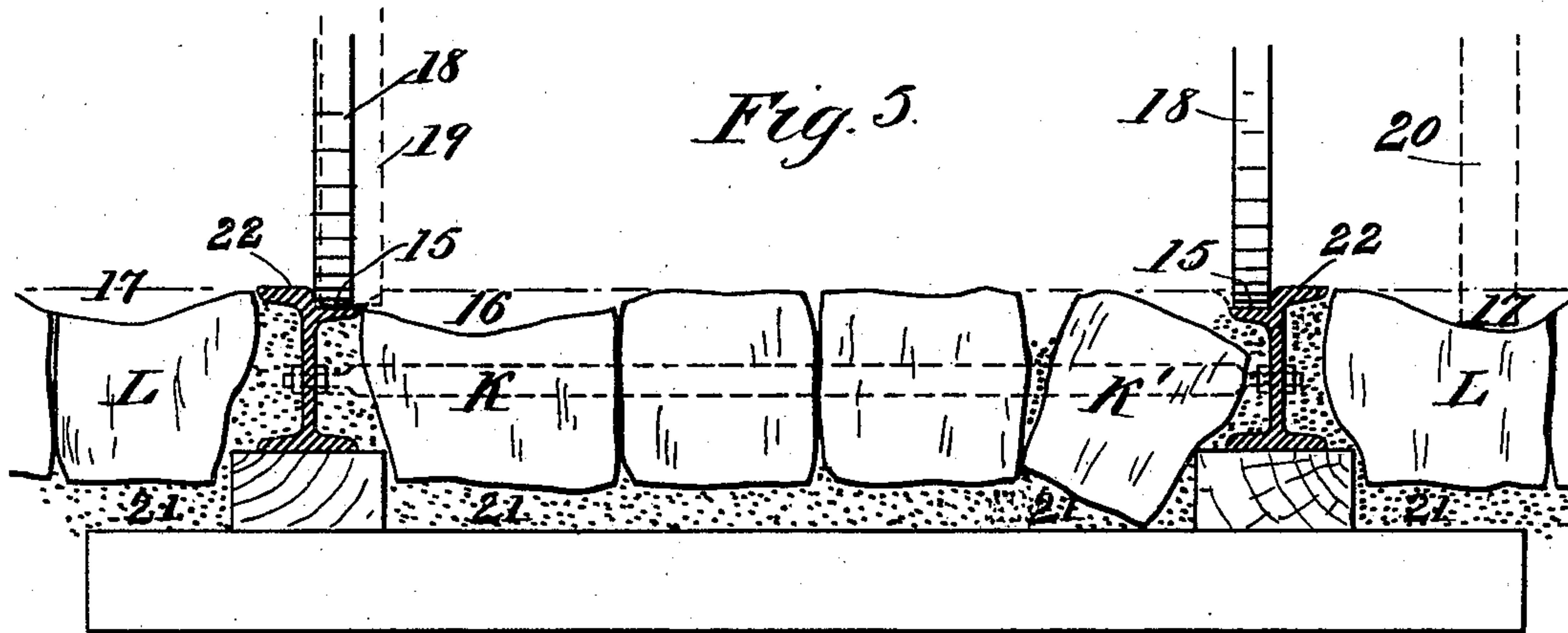
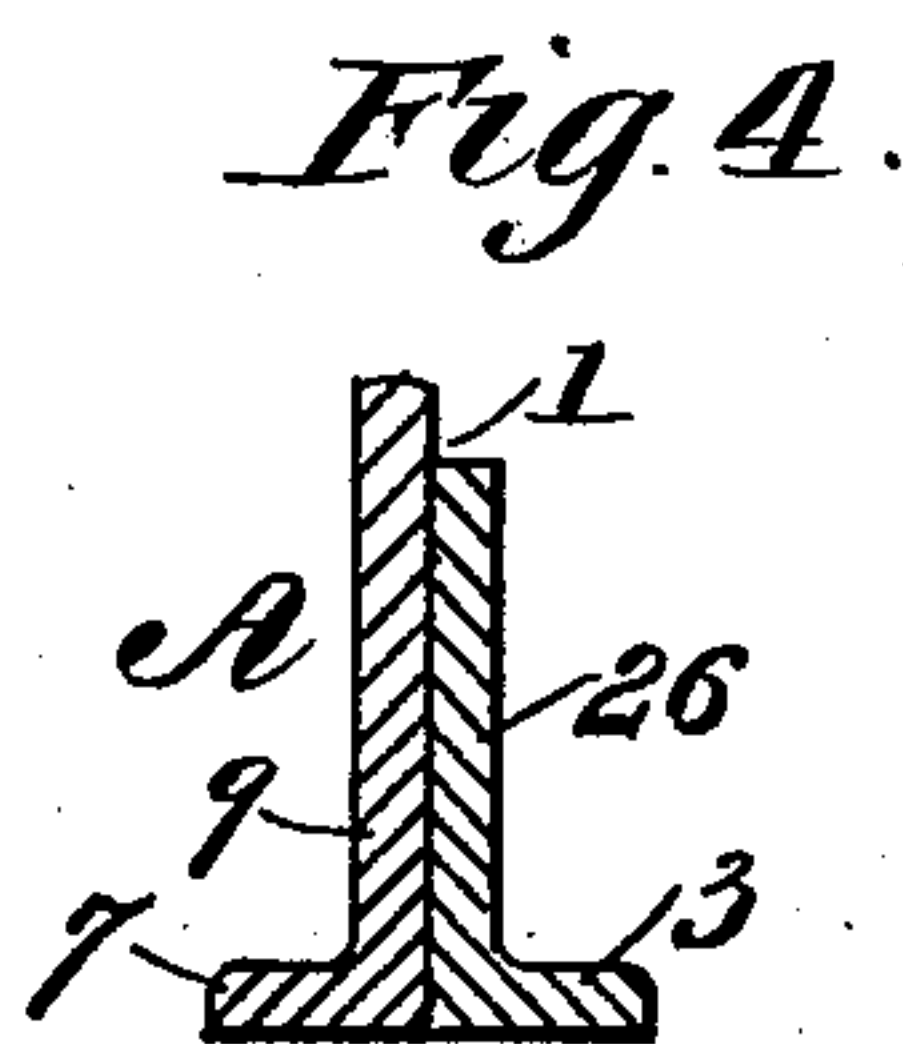
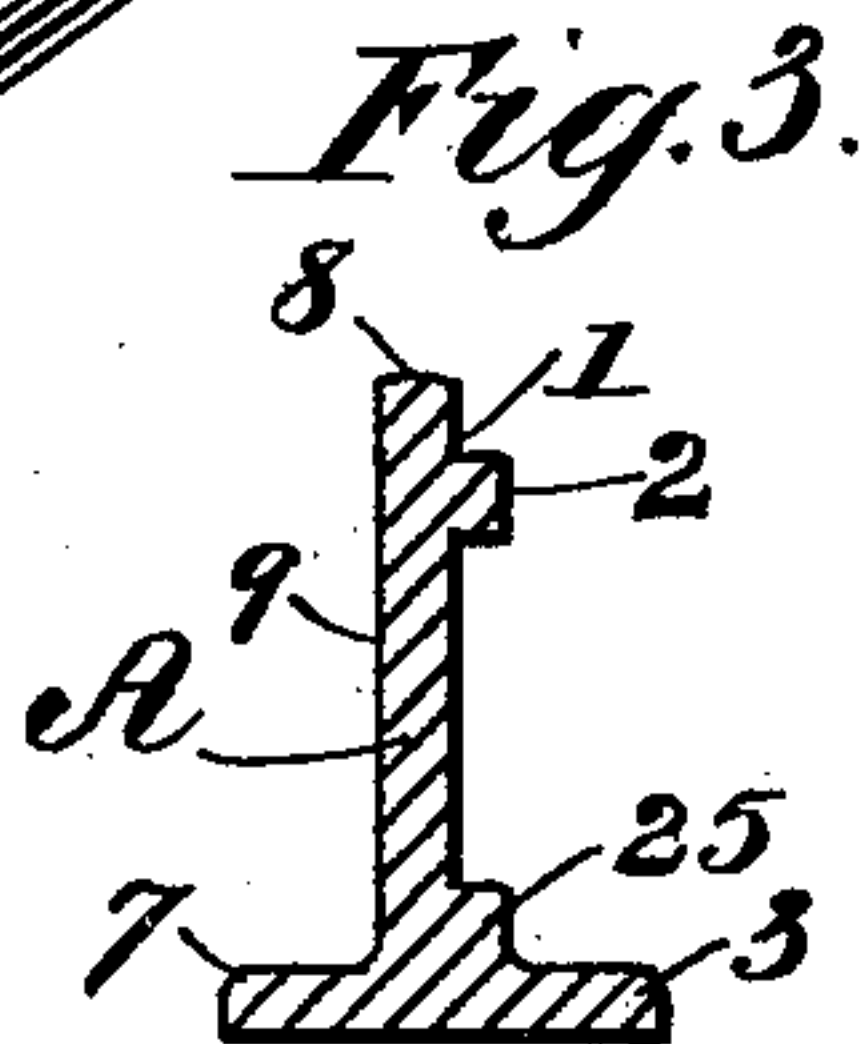
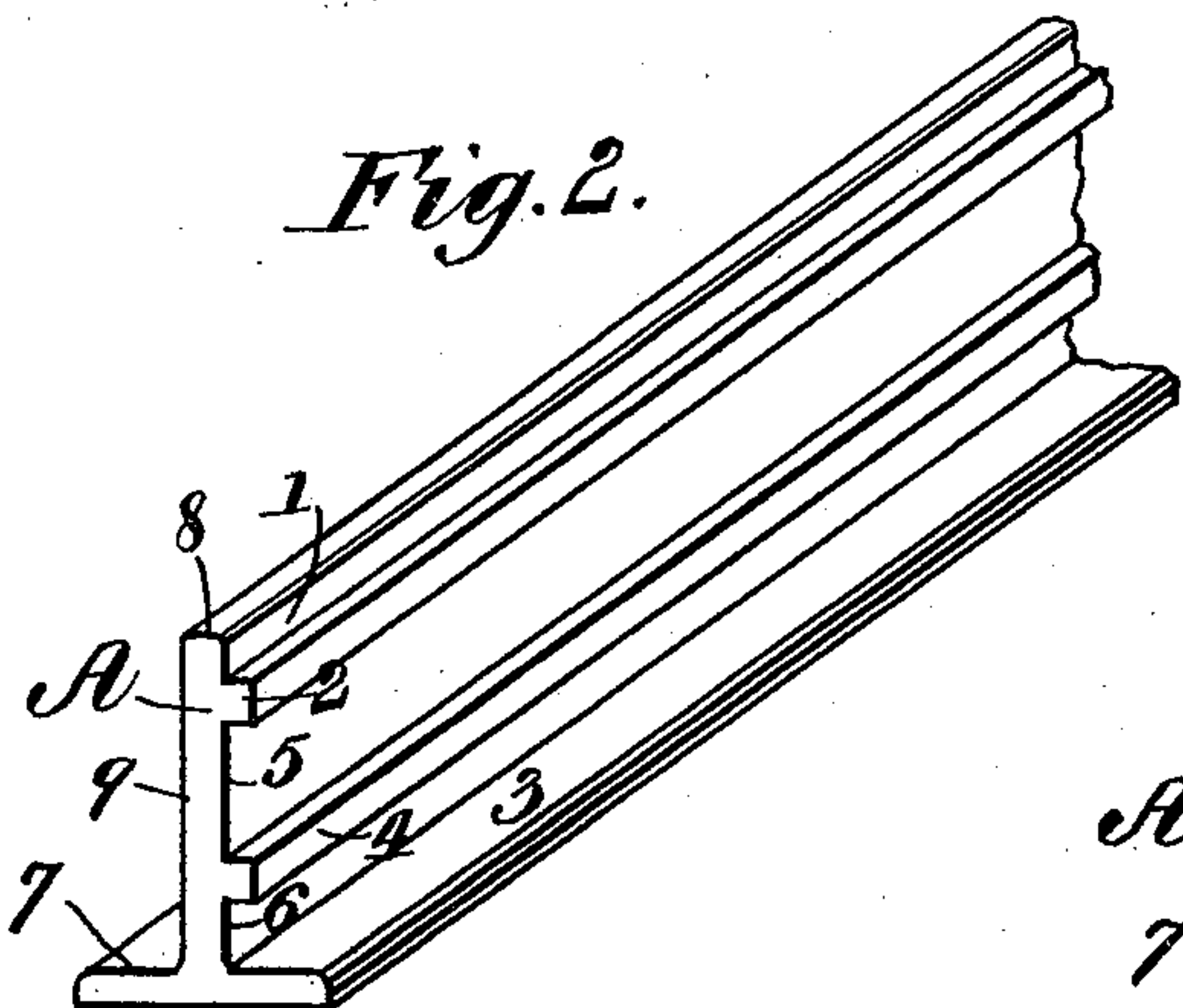
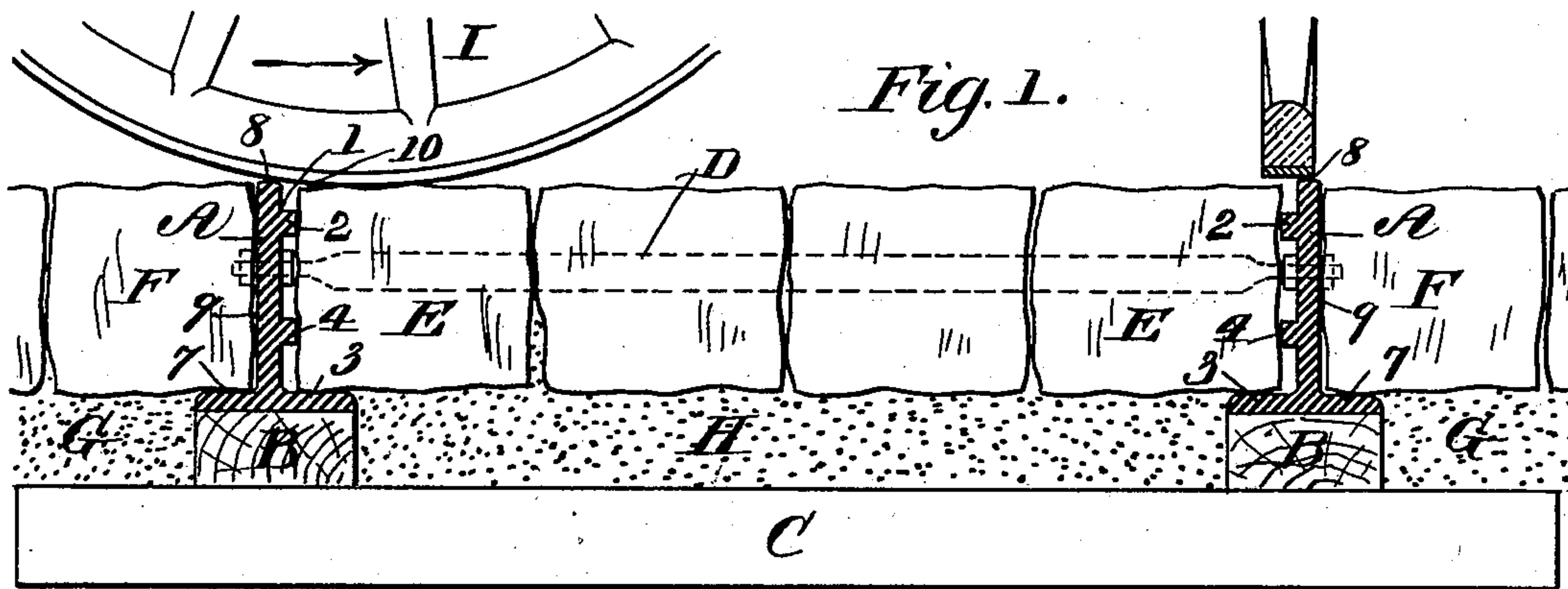


(No Model.)

W. PIERPOINT.  
STREET RAILWAY.

No. 590,792.

Patented Sept. 28, 1897.



Witnesses:  
C. L. Smith.  
Philip B. Smith.

Inventor.  
William Pierpoint,  
By Attorney  
Henry E. Parker.



# UNITED STATES PATENT OFFICE.

WILLIAM PIERPOINT, OF YONKERS, NEW YORK.

## STREET-RAILWAY.

SPECIFICATION forming part of Letters Patent No. 590,792, dated September 28, 1897.

Application filed June 1, 1897. Serial No. 638,949. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM PIERPOINT, a citizen of the United States, and a resident of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Street-Railways, of which the following is a specification.

My invention relates to street-railway construction, and the objects are to prevent the use of the tracks by wagons and carriages, to preserve the flush surface of the pavement, and also to reduce the coefficient of friction of the rolling-stock.

Heretofore the depressed portions of the exposed surface of the rails have been so broad as to allow vehicle-wheels to travel therein and not only obstruct the car traffic, but also wear away the edges of the pavement-blocks adjacent to the insides of the rails as well as plowing ruts in the outside blocks, thereby destroying the flush surface of the pavement, especially when teams are compelled to turn out and the tires of the wheels grind on the said edges of the pavement in leaving the rut. The street thereby requires constant and expensive repair or is rendered unevenly worn and in bad condition for teams and carriages. Further, according to constructions heretofore employed the stones or blocks of the pavement adjacent to the rails have uncertain foundations to rest on and become tilted and depressed at various angles for lack of uniform support. This tilting is especially apt to occur when the tracks are used by wagon traffic and the stones near the rails receive more than their share of pressure.

My invention consists in an improved railway-rail and also in certain improved arrangement of paving in conjunction therewith, adapted in construction to reduce the depressed portion or rabbet of the exposed surface of the rail and form between the tread of the rail and the combined pavement a narrow groove which is sufficiently narrow to prevent the entrance therein of ordinary vehicle-wheels, but nevertheless sufficient to admit and guide the flange of the car-wheel.

My invention also consists in an improved formation of the rail with a narrow tread and rabbet and broad base-flanges adapted

to let in and support the pavement-blocks uniformly along the length of the rail, insuring a permanent pavement-surface, so that the combined rail and stone form an almost continuous flush surface, over which vehicle-wheels may pass smoothly in any direction without jar or injury to the vehicle or wear to the pavement.

Referring to the accompanying drawings, Figure 1 is a cross-section of a street-railway road-bed, illustrating my invention. Fig. 2 is a perspective view showing the general formation of the rail. Figs. 3 and 4 illustrate modified forms of cross-section. Fig. 5 shows the construction in general use heretofore, indicating the defects of the same.

The rails A A, Figs. 1, 2, 3, and 4, are laid in any suitable or usual manner, being herein illustrated as resting on stringers B B, supported by cross-ties C. The gage of the rails may be maintained by usual tie-rods D. (Indicated by dotted lines.)

The rails A have a narrow rabbet at 1, the rib 2 projecting at a distance less than the width of a carriage-wheel tire and forming a vertical abutment for the paving-blocks E. A broad flange 3 is provided at the base of the rail to furnish a support for the latter and also to support the said blocks E of the pavement. A second rib 4 may be provided in order to offer a further abutting surface. The grooves 5 and 6 between the ribs allow the rail to be made of light construction and may also receive some of the irregularities of the stone, thus requiring less accuracy in shaping or dressing the latter. The lower rib 4 may be consolidated with the flange 3, as indicated at 25 in Fig. 3. The vertical abutment may also be formed of a continuous surface 26, as indicated in Fig. 4. The rail A also has a flange 7, which aids in supporting it and also furnishes a support for the outside stone blocks F.

The tread 8 of the rail is narrow, and the surface 9 is flush with the outer edge of the tread 8, thereby forming an abutment for the stones or blocks F. Suitable sand and gravel or other filling may be laid at G H and between the ties C in any suitable or usual manner. The tread 8 of the rails is permitted to project slightly above the surface of the pavement, as shown in Fig. 1, so that the cor-



ner 10 of the stone will escape contact with a vehicle-wheel, such as I, passing in the direction indicated by the arrow, and be thereby preserved against initial wear or breakage, for it will be seen that the concussion of a wheel rolling as indicated will be received at the middle of the stone E and not at the edge, as would be the case in the ordinary construction. (Shown in Fig. 5.)

In Fig. 5, according to the method now in common use, the broad rabbets 15 of the rails J offer a smooth way for vehicles to run in, and the bulk of the traffic is consequently attracted to the car-track. An excessive wear and pressure on the pavement-blocks K K' L results, producing a bad street-surface. Ruts 16 will be formed by the grinding action of the tires every time the vehicle is compelled to turn off from the track to let a car pass, and ruts are also formed by the constant wear of the horses' hoofs in the same channels. The majority of vehicles are gaged to fit the track-gage, so that the wheels will travel at 18 18. Heavy trucks of broader gage are driven so that the wheels at one side will run at 19 on the rail and at the other side will run at 20 on the outside pavement, wearing ruts at 17. The lack of firm support for the blocks, as at 21, will result often in the tilting of the blocks, as at K', further hastening the ruin of the pavement or requiring constant and expensive repairs.

By means of my improved construction the attraction of vehicles to the tracks is entirely abolished, since it can be of no advantage to the haul to follow the line of the rails, nor is there any channel broad enough to admit the tire of a vehicle-wheel and make it possible to follow the rails. Consequently the traffic will be dispersed over the street, and the wear and pressure on the pavement-blocks will be distributed equally, avoiding the formation of ruts. Cars will be able to make better time by having clear tracks, and the road-bed will receive no more than its share of wear and can be more cheaply maintained.

It will be seen in Fig. 5 that the tread 22 of the rail is of considerable width, while in my improved rail A the tread 8 is much narrower and is rounded. The contact-surface between the car-wheels and the rails being thus minimized the coefficient of friction or draft power required to propel the car is correspondingly reduced and economized. The width of the tread may, however, be varied, but it is important that the flange 7 of the rail shall project materially beyond the tread of the rail

in order to form a support for the blocks F of the pavement, as aforesaid.

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

1. As a new article of manufacture, a street-railway rail having a suitable tread and a rabbet at the top, flush sides adapted for the close abutment of the pavement, and a base projecting beyond the sides.

2. As a new article of manufacture, a street-railway rail of inverted-T shape in cross-section, having its base-flanges projecting beyond the tread and rabbet of the rail, adapted for the reception of the paving-blocks in proximity to the tread and over and upon said flanges.

3. As a new article of manufacture, a street-railway rail having a projecting bottom flange, and having a side surface flush with the top of the rail, forming a vertical abutment for the paving-blocks.

4. As a new article of manufacture, a street-railway rail having a bottom flange, and having one or more ribs on one side of its vertical portion projecting beyond the tread of the rail, adapted to support the paving-blocks but separate them slightly from said tread.

5. In a street-railway, the combination of a rail having a suitable tread, a vertical abutment below and projecting beyond the tread, and a bottom flange projecting beyond said abutment, and paving-blocks resting on said flange and against said abutment and rising above the same opposite the tread, forming between said blocks and said tread, a narrow groove of less width than the tires of vehicle-wheels for the purpose set forth.

6. In a street-railway, the combination of a rail having a suitable tread, a vertical abutment below and projecting beyond the tread, and a bottom flange projecting beyond said abutment, and paving-blocks resting on said flange and against said abutment and rising above the same opposite the tread to a level slightly below the tread, forming a narrow groove for the passage of the flanges of the car-wheels, the pavement edge of said groove being protected by the more prominent edge of the rail, as set forth.

Signed at the city, county, and State of New York this 29th day of May, A. D. 1897.

WILLIAM PIERPOINT.

Witnesses:

PHILIP H. FETT,

C. L. SMITH.