

No. 826,782.

PATENTED JULY 24, 1906.

J. GRÜNDL.
TROLLEY.

APPLICATION FILED DEC. 11, 1905.

Fig. 1.

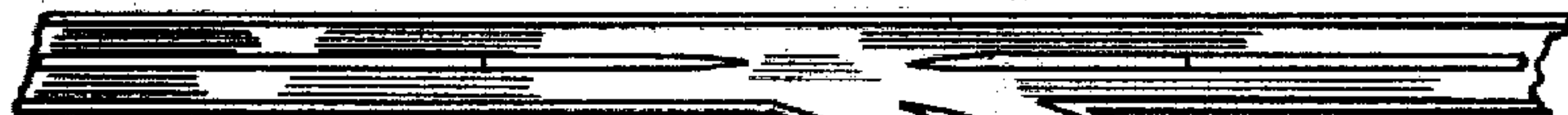


Fig. 2.



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Fig. 3.

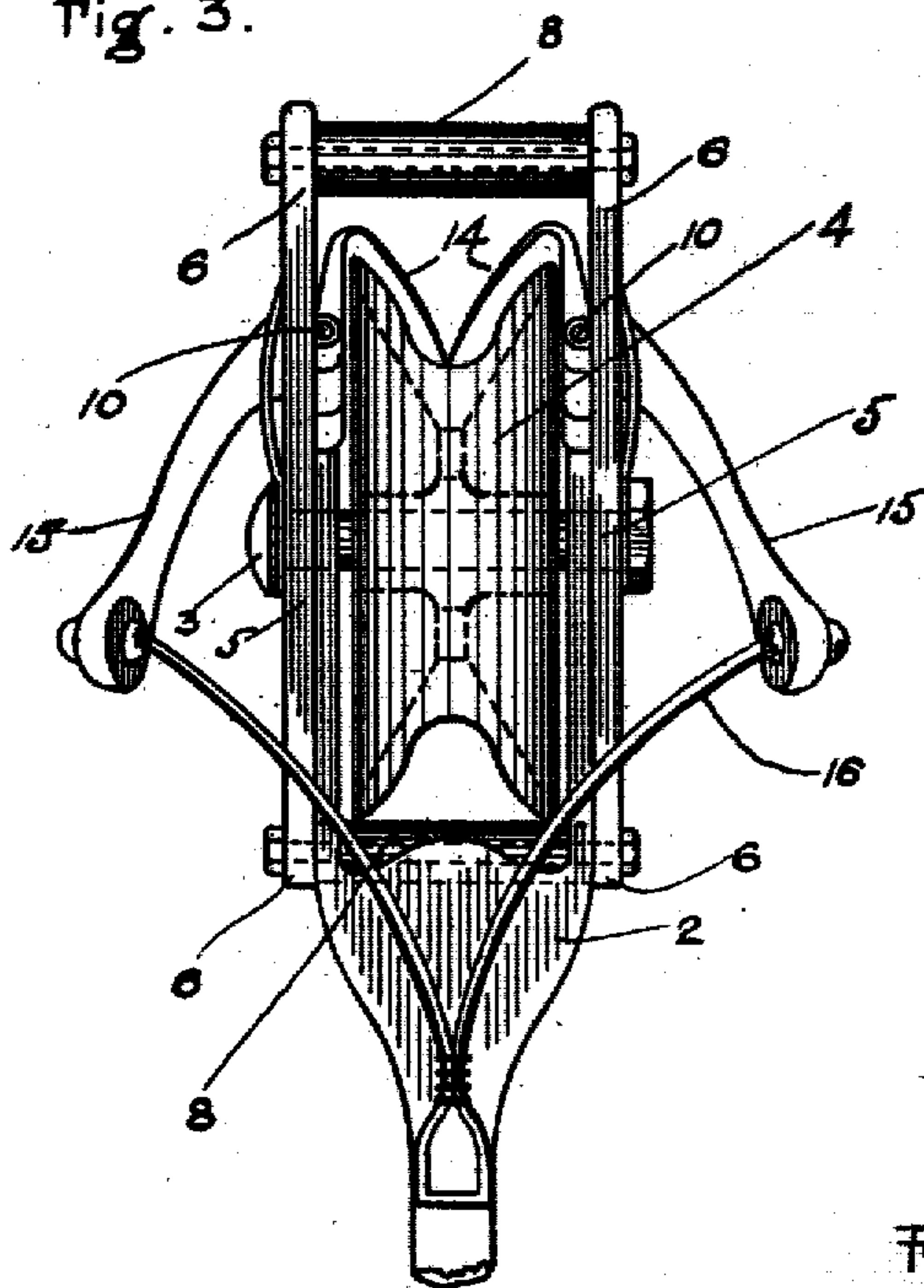


Fig. 4.

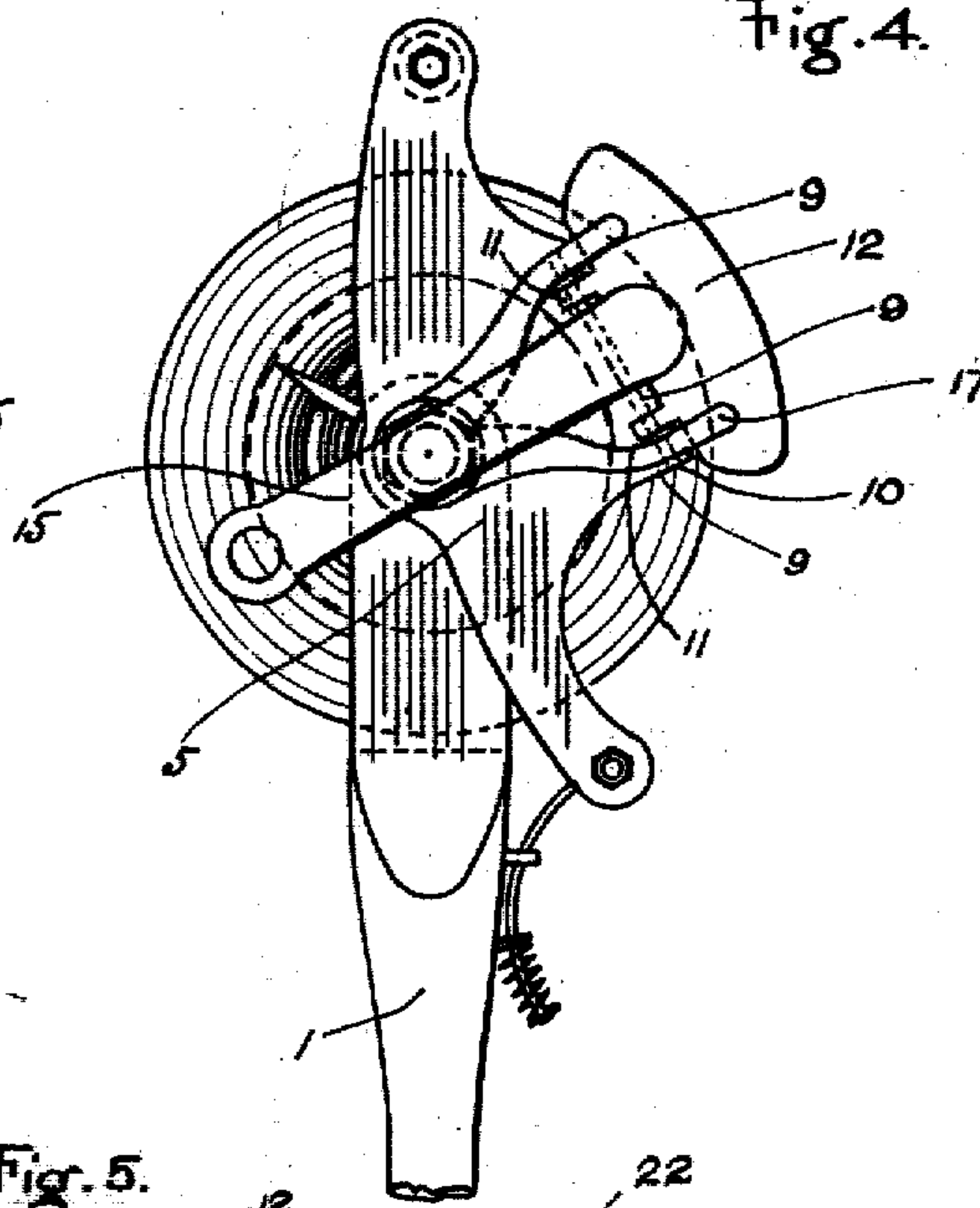
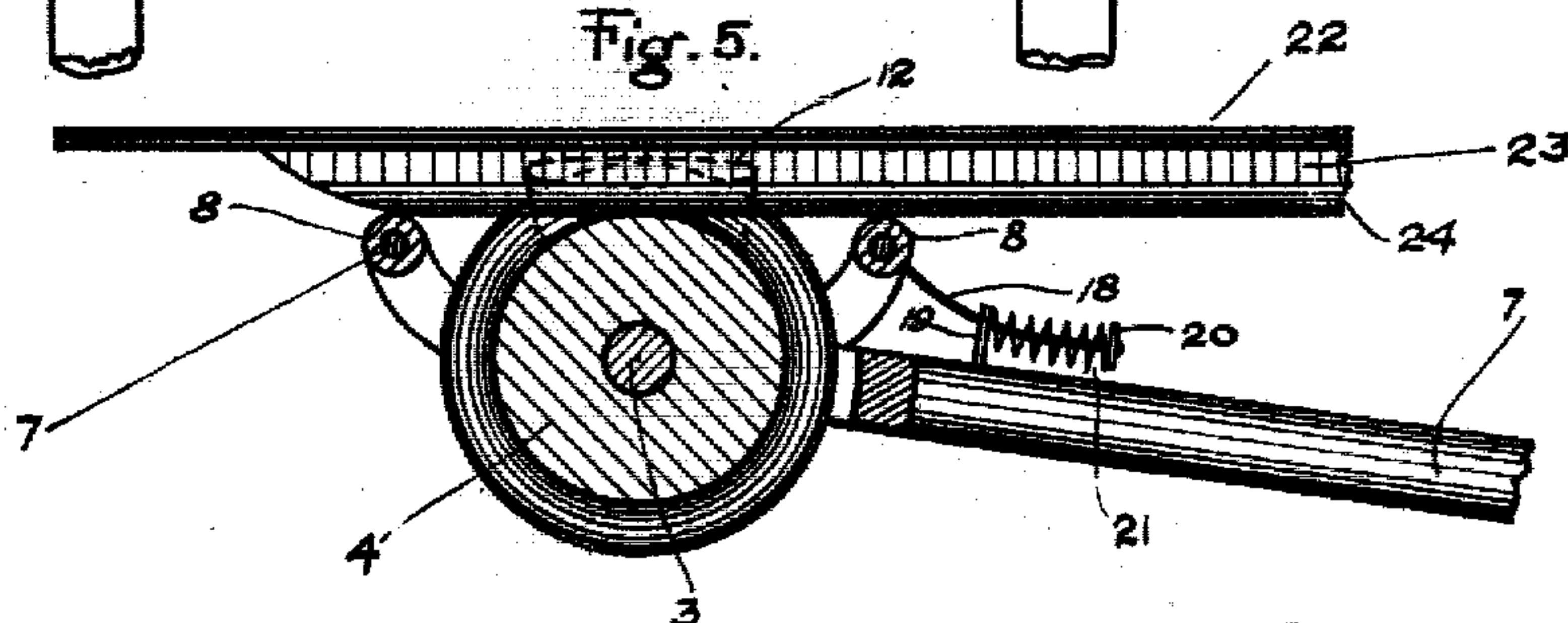


Fig. 5.



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TROLLEY.

No. 826,782.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed December 11, 1905. Serial No. 291,244.

To all whom it may concern:

Be it known that I, JOHN GRUNDL, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in attachments for trolley-harps; and the invention has for its primary object the provision of novel means in connection with a trolley-harp for retaining the trolley-wheel of said harp upon the trolley-wire or electrical conduit over which it travels.

Another object of this invention is to provide a novel form of attachment for trolley-harps which will insure a perfect engagement of a trolley-wheel with a trolley-wire, and in this connection I have devised novel means in connection with my improved attachment for preventing the same from interfering with the overhead construction of electrically-operated cars.

20 The attachment is constructed whereby it can be easily and quickly operated to withdraw the trolley-wheel in connection with which it is used from a trolley-wire; also novel means for normally retaining the attachment in a fixed position relative to the harp and wheel with which it is used.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described and then specifically pointed out in the claims, and, referring to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

45 Figure 1 is a bottom plan of a trolley-board used in connection with bridges under which a trolley-wire extends. Fig. 2 is a side elevation of the same. Fig. 3 is a bottom plan of my improved attachment as applied to a trolley harp and wheel. Fig. 4 is a side elevation of the same. Fig. 5 is a longitudinal sectional view of a trolley harp and wheel, illustrating the same in connection with the trolley-board illustrated in Figs. 1 and 2 of the drawings.

55 In the accompanying drawings I have illus-

trated the upper end of a trolley-pole 1, carrying a conventional form of harp 2, in which is mounted a pin or bolt 3, having journaled thereon within the harp a conventional form of trolley-wheel 4.

My invention resides in a novel attachment which I use in connection with the harp 2 and mount upon the outer ends of the pin or bolt 3, this pin or bolt 3 being slightly longer than the ordinary pins or bolts used at present in order to accommodate the members 5 5 of my improved attachment. Each member is provided with outwardly-extending pierced arms 6 6, and between the outer ends of said arms are mounted transverse rods 7 7. Journaled upon the rods 7 7 are hard-rubber rollers 8 8, the object of which will be presently described. Each member directly above the ends of the pin or bolt 3 is provided with pierced lugs 9 9 9, and mounted between these lugs by pins 10 10 are lugs 11 11 of blocks 12 12. Each block is angular in cross-section and has its upper edges beveled inwardly, as at 14, in order that when the blocks lie in engagement with each other, as clearly illustrated in Fig. 3 of the drawings, V-shaped entrances will be formed between the ends of the blocks, the object of which will be presently described. Each block is provided with an outwardly-extending depending arm 15, the free ends of said arms being connected together by a stirrup 16, to which a rod (not shown) may be attached to permit of the blocks 12 12 being swung outwardly, this being accomplished by pulling upon the stirrup 16.

To normally hold the blocks 12 12 in engagement with one another, whereby they will span the trolley-wheel 4, U-shaped springs 17 are mounted upon the ends of the pin or bolt 3, said springs extending upwardly and engaging the outer vertical faces of the blocks 12 12.

To normally retain the attachment in one position relative to the trolley-pole and harp, I form the roller 8 nearest the trolley-pole 1 in two parts and mount a curved arm or wire 18 upon the rod 7 between the two parts of the roller. The arm or wire 8 extends rearwardly toward the pole 1 and passes through a lug 19, carried by the pole 1, the end of the wire being provided with a head 20, and interposed between said head and the lug 19 is a coiled spring 21, which is adapted to return the attachment to its normal position when the same has been moved therefrom.

In Fig. 5 of the drawings I have illustrated a trolley-board 22, such as is ordinarily used under bridges for conveying a trolley-wire. The board 22 carries a depending rib 23, which supports a rod 24, to which a trolley-wire is attached upon entering beneath the bridge and leaving the same or at each end of a tunnel, as the case may be. By referring to Fig. 5 of the drawings it will be observed that the blocks 12 12 extend upwardly upon each side of the board, engaging the sides of the rib 23 and retaining the trolley-wheel 4 in engagement with the rod 24. When in this position, the rollers 8 travel upon the rod and normally retain the attachment in a horizontal position relative to said rod and the board 22. This is also true in connection with an ordinary trolley-wire, the rollers 8 8 engaging said trolley-wire and preventing the attachment from swinging when in use, which might occasion the blocks 12 12 to separate and permit of the trolley-wheel becoming disengaged from its electrical conduit or wire. I have provided the blocks 12 12 with V-shaped entrances in order that the blocks may be easily separated when passing onto the rib 23 of the board 22, also when passing wire hangers and the like obstructions, the springs 17 being adapted to return the blocks to their normal position immediately after such obstructions have been passed.

I preferably construct my improved trolley attachment of strong and durable metal which will withstand rough usage to which such attachments are subjected.

It will be noted that various changes in the construction and operation of my improved attachment as are permissible by the appended claims may be resorted to without departing from the spirit and scope of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a trolley, the combination with the harp carrying an axle having its ends extending beyond the sides of the harp, of plates mounted on said extended ends and having

arms projecting in opposite directions therefrom, a roller journaled in the outer ends of one pair of arms, a rod mounted in the outer ends of the other pair of arms, a two-part roller on said rod, a curved arm connected to said rod and provided on its outer end with a head, a lug through which said curved arm moves, and a spring on the arm between the head and said lug, lugs carried by said plates, trolley-wire-retaining blocks having lugs pivoted to the aforesaid lugs on the plates and having inwardly-curved portions lying over the trolley-wheel, bow-springs mounted on the extended ends of the axle and having their free ends bearing against the outer face of said blocks, depending arms carried by said blocks, and a stirrup connecting the free ends of said depending arms, substantially as described.

2. In combination with a trolley-pole, a harp thereon, an axle mounted in the harp and having its ends extended beyond the sides thereof, and a trolley-wheel mounted on said axle, a pair of plates mounted one on each end of the extended axle, each plate provided with arms extending in opposite directions therefrom, a rod mounted in the outer end of one pair of arms, a roller on said rod, a rod mounted in the outer end of the other pair of arms, a two-part roller on said last-mentioned rod, a curved arm connected to said last-mentioned rod and extending through a lug on the trolley-pole, trolley-wire-retaining blocks pivotally attached to said plates and having curved portions overlying the trolley-wheel, bow-springs mounted on the extended ends of the axle and having their free ends bearing on the outer face of said blocks, and means connected to the free ends of said arms to move said free ends toward each other, as and for the purpose described.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN GRÜNDL.

Witnesses:

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W. C. HEITZ.