

No. 735,639.

PATENTED AUG. 4, 1903.

A. J. WIGGIN.  
AXLE LOCKING DEVICE FOR TROLLEY HARPS.

APPLICATION FILED FEB. 7, 1902.

NO MODEL.

Fig. 1.

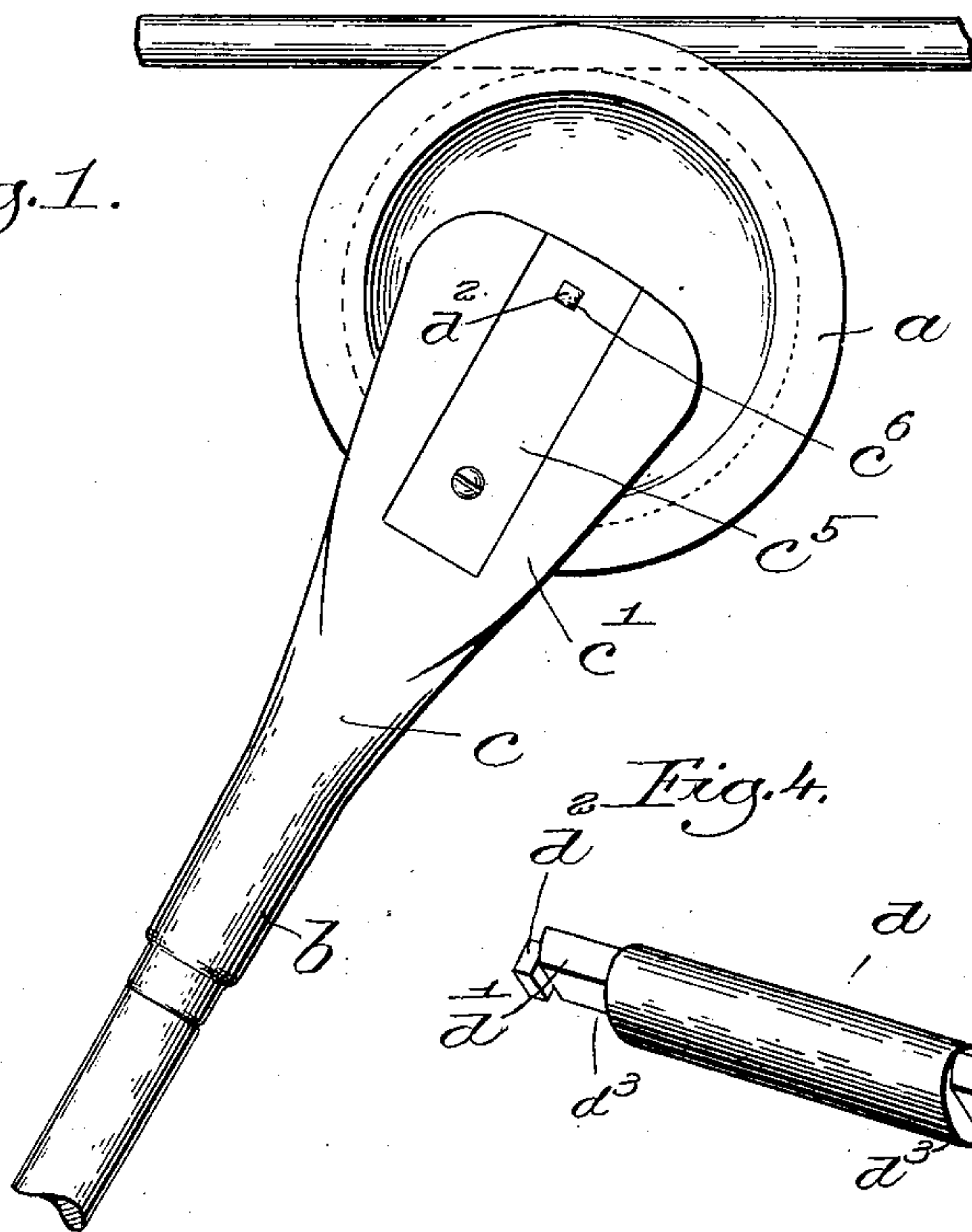


Fig. 4.

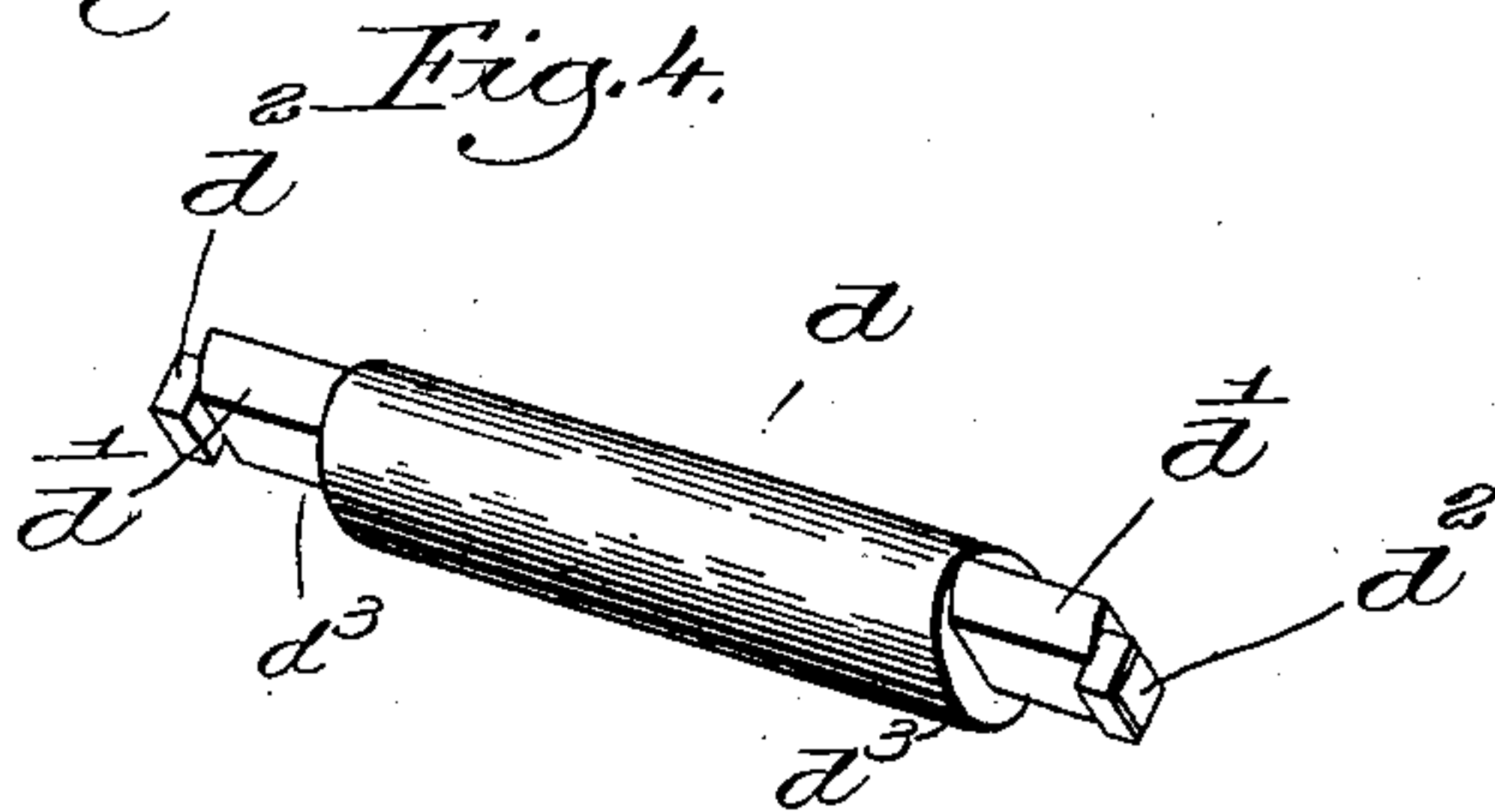


Fig. 2.

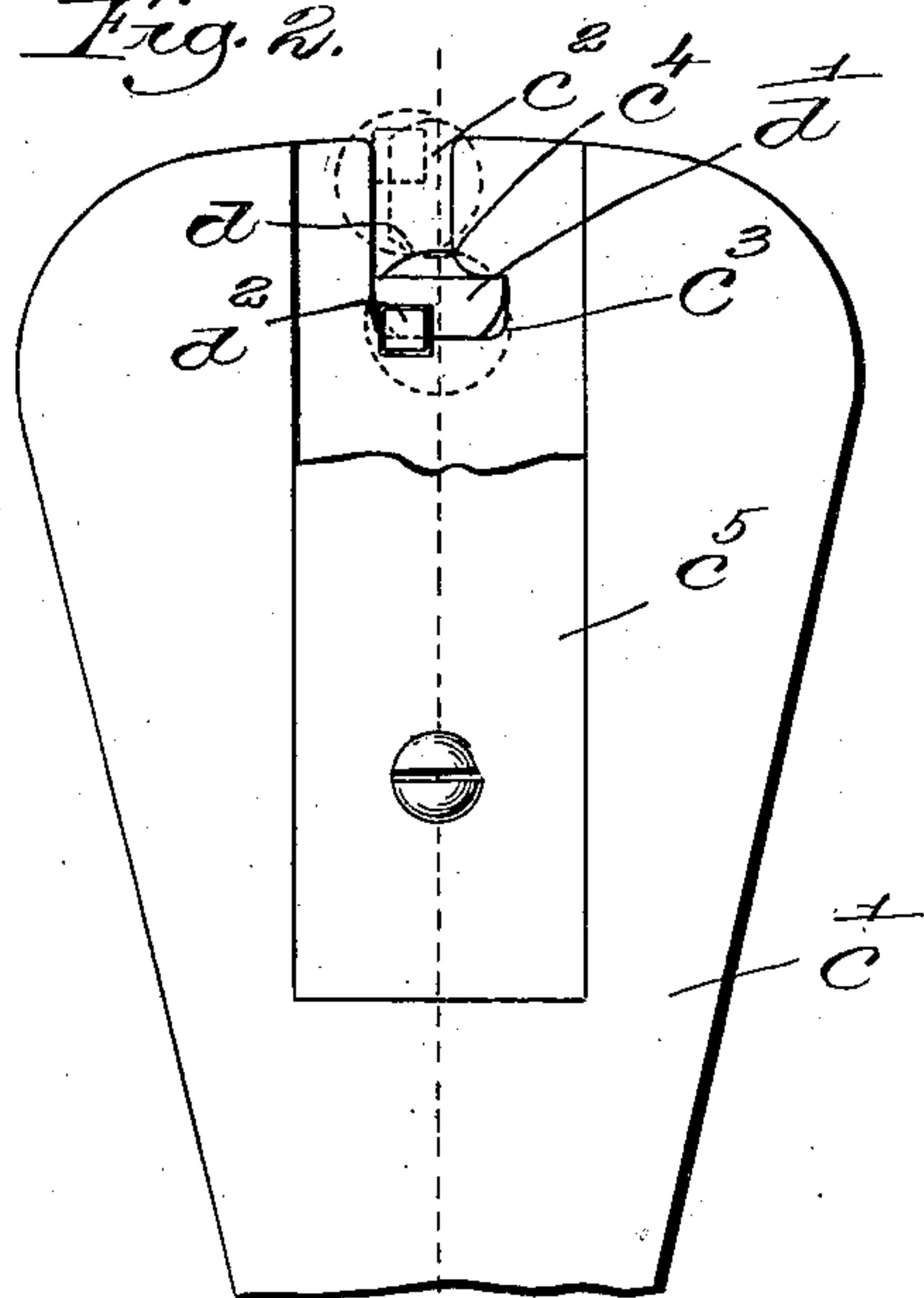
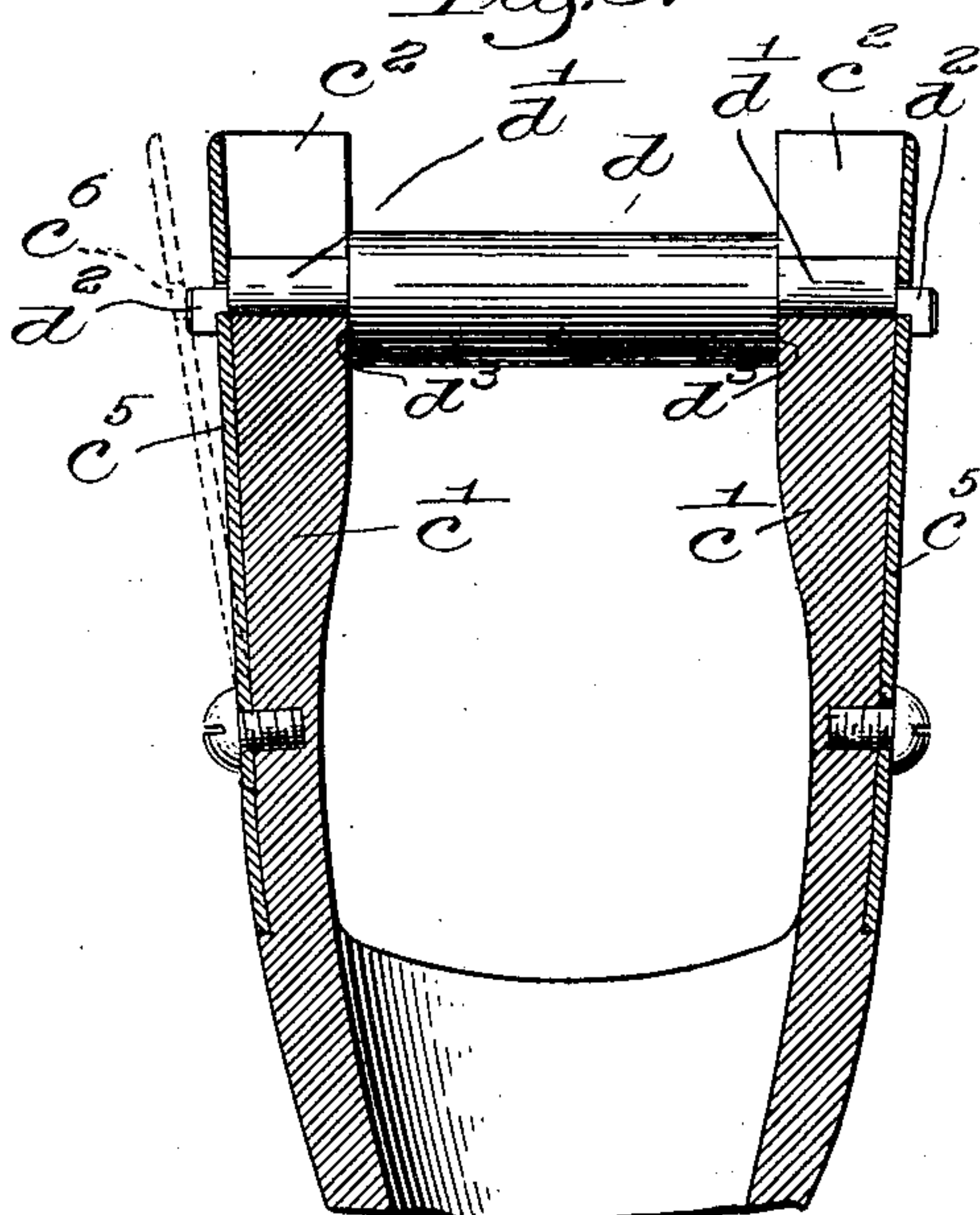


Fig. 3.



Witnesses:  
Adolph H. Hauer  
Herman J. Sartorius

Inventor:  
Albert J. Wiggins  
By Stanley Gregory



# UNITED STATES PATENT OFFICE.

ALBERT J. WIGGIN, OF KENNEBUNK, MAINE, ASSIGNOR OF ONE-HALF TO  
CHARLES A. BODWELL, OF SANFORD, MAINE.

## AXLE-LOCKING DEVICE FOR TROLLEY-HARPS.

SPECIFICATION forming part of Letters Patent No. 735,639, dated August 4, 1903.

Application filed February 7, 1902. Serial No. 92,995. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT J. WIGGIN, a citizen of the United States, residing at Kennebunk, county of York, State of Maine, have  
5 invented an Improvement in Axle-Locking Devices for Trolley-Harps, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.  
10 My invention is a device for removably locking the axle of a trolley to the trolley pole or "harp," as it is called.

My invention has for its purpose the provision of simple means for giving great  
15 strength and rigidity and yet permitting the ready removal or replacing of the axle in the harp for the purpose of fixing the trolley or otherwise adjusting or attending to that part of the apparatus; and to this end my invention resides in providing an axle which is automatically locked by a spring device while  
20 being held in position mainly by the stronger or body portion of the harp.

Further details and advantages of my invention will be pointed out in the course of  
25 the following description, reference being had to the accompanying drawings, in which I have illustrated one form of my invention.

In the drawings, Figure 1 is a broken detail  
30 showing in side elevation my invention applied to a usual street-car trolley and trolley-pole. Fig. 2 is an enlarged detail in side elevation, the trolley being removed and parts being broken away for the purpose of illustrating more clearly the novel features of my invention. Fig. 3 is a central vertical sectional  
35 view thereof. Fig. 4 is a perspective view of the axle.

It will be understood that the trolley *a* and  
40 trolley-pole *b* may be of any usual or preferred kind and also that the harp *c* may vary according to the requirements of its position and service, subject to the novel details thereof, which will now be explained.

Referring more particularly to Figs. 2 to 4,  
45 it will be seen that the harp *c*, as herein shown, comprises a casting having opposite projecting parts *c'*, each of which is provided at its upper end with a vertical recess *c<sup>2</sup>*, terminating at its lower portion in an offset or L-shaped  
50 part *c<sup>3</sup>*, preferably rounded at the corner *c<sup>4</sup>*,

and cooperating with this recess is a retaining device, shown as a leaf-spring *c<sup>5</sup>*, said spring being provided with an opening *c<sup>6</sup>*, herein shown as rectangular and located opposite the L part *c<sup>3</sup>* of the recess *c<sup>2</sup>*. 55

The axle *d* (shown in enlarged detail in Fig. 4) may in general be of any shape, size, and arrangement, being provided, however, at its ends with special construction for cooperating with the features already described, being for this purpose herein shown as cut away at its opposite ends to provide flattened or angular portions *d'*, preferably rectangular in cross-section, to move freely in the slot or recess *c<sup>2</sup>* without, however, permitting the axle to turn, and at the outer ends of these holding parts *d'* I provide projections *d<sup>2</sup>*, preferably angular and preferably located at the lower side opposite to the part *c<sup>3</sup>* of the notch or recess *c<sup>2</sup>* when the axle is in position and overhanging the bottom thereof. 65

Having provided the parts substantially as above explained, it will be readily understood that if a trolley breaks, for instance, it can  
75 quickly be removed and another replaced simply by unsnapping the springs *c<sup>5</sup>* from engagement with the ends of the trolley, and then upon pulling the trolley straight out the axle will turn readily from the position shown in full lines in Fig. 2 to the position shown in dotted lines and be instantly removed from the harp, whereupon the broken wheel or trolley is slid off from the axle and replaced by another one, and then the ends of the axle  
85 are placed between the springs *c<sup>5</sup>*, the angular holding parts *d'* being placed vertically in the slot *c<sup>2</sup>* and when pressed down to the bottom of said slot turned horizontally to the position shown in Figs. 2 and 3, and as soon as they reach this position the springs *c<sup>5</sup>* at once snap over the lugs or projections *d<sup>2</sup>* and lock the axle rigidly in place. In this position the main strains are taken by the casting or body part of the harp and the springs themselves  
95 are simply required for retaining the axle in proper position to be held by the overhanging or L-shaped portion of the harp-recesses, while the projections *d<sup>2</sup>* prevent the parts *c'* from springing apart and the shoulders *d<sup>3</sup>* prevent them from springing together. 100

It will be understood that my invention is



capable of various embodiments different in details of construction, arrangement, and combination from the specific embodiment herein shown, and accordingly I wish it understood that I do not limit myself otherwise than as expressed hereinafter in the claims.

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

10 1. A device of the kind described, comprising a trolley-harp provided with a notch or recess, an axle adapted to fit removably in said trolley-harp and having an end angular in cross-section for cooperating with said  
15 notch or recess to prevent rotation of the axle, and automatic means for locking the axle in fixed position in said recess.

2. A device of the kind described, comprising a trolley-harp provided with an L-shaped  
20 notch or recess, an axle removably mounted in said harp and having an angular-shaped end for entering, in one position, the vertical part of said recess, and turning into another position for occupying the horizontal part of  
25 said recess, and means for locking the axle in the latter position.

3. A device of the kind described, comprising a trolley-harp provided with an L-shaped notch or recess, an axle removably mounted  
30 in said harp and having an angular-shaped end for entering, in one position, the vertical part of said recess, and turning into another position for occupying the horizontal part of said recess, and a spring carried by said harp  
35 and provided with means for interlocking with said axle for locking the latter in the latter position.

4. In a device of the kind described, a harp and a removable axle and trolley thereon, said  
40 harp having recesses for holding and interlocking with said axle, said axle and trolley being movable together into and out of interlocking position with said recesses in the

harp, and a spring locking device fast on the harp in position for embracing the end of the  
45 axle and locking the trolley and axle in the harp.

5. A device of the kind described, comprising a harp, having at its upper ends L-shaped recesses, an axle provided at its opposite ends  
50 with angular portions adapted, in one position, to drop into the vertical parts of said recesses and turn at the bottom thereof into the horizontal parts of the recesses, and opposite springs for locking the axle in the lat-  
55 ter position.

6. A device of the kind described, comprising a harp, having at its upper ends L-shaped recesses, an axle provided at its opposite ends with angular portions adapted, in one posi-  
60 tion, to drop into the vertical parts of said recesses and turn at the bottom thereof into the horizontal parts of the recesses, opposite pairs of springs for locking the axle in the latter position, said axle having projections,  
65 and said spring having openings to receive said projections when the axle is in operative position.

7. In a device of the kind described, comprising a trolley-harp, and an axle and trol-  
70 ley removably mounted therein, said harp having a recess opening upwardly at the end of the harp permitting the axle and trolley to be inserted and removed together, and a spring for securing said axle and harp in  
75 locked position, said spring being fast on one and normally interlocking with the other for preventing relative movement between the harp and axle.

In testimony whereof I have signed my  
80 name to this specification in the presence of two subscribing witnesses.

ALBERT J. WIGGIN.

Witnesses:

WALTER L. DANE,  
GERARDO L. ALLEN.