(No Model.)

R. H. BEACH.

CLIP FOR TROLLEY WIRES.

No. 556,876. Patented Mar. 24, 1896.

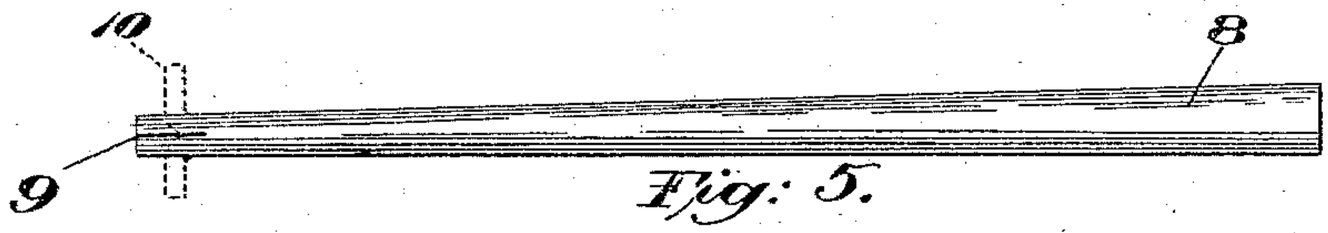

Fig: 5.

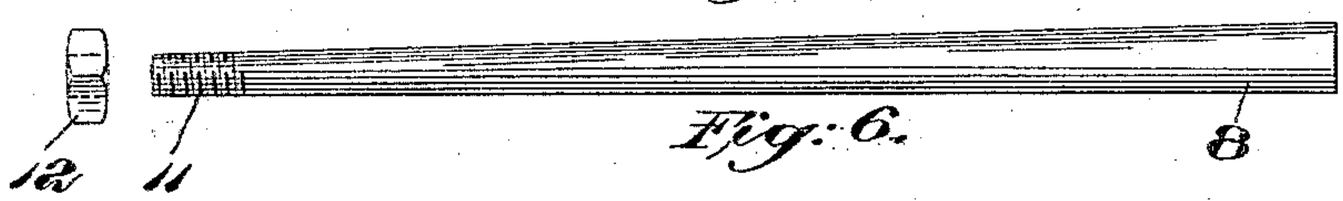

Fig: 6.

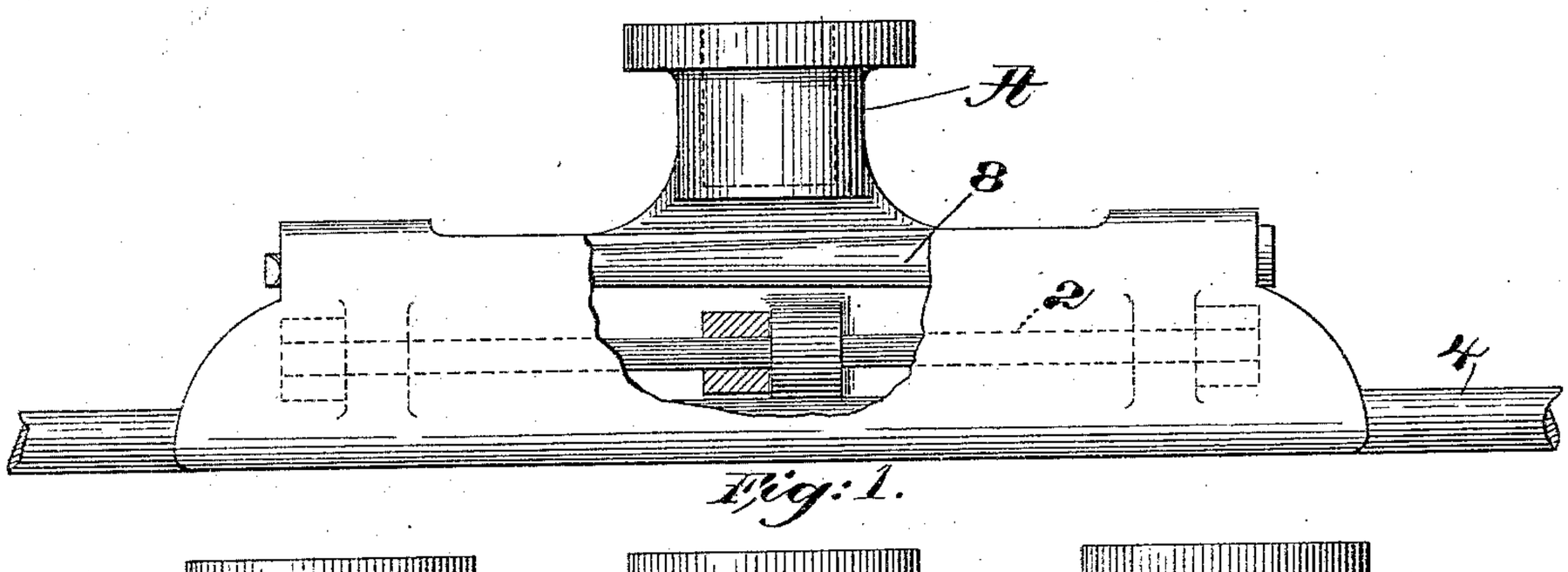

Fig: 1.

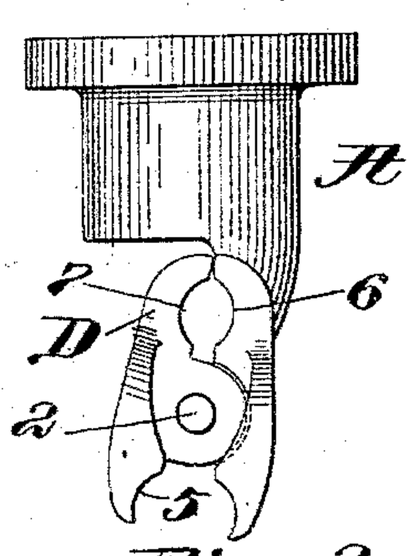

Fig: 3.

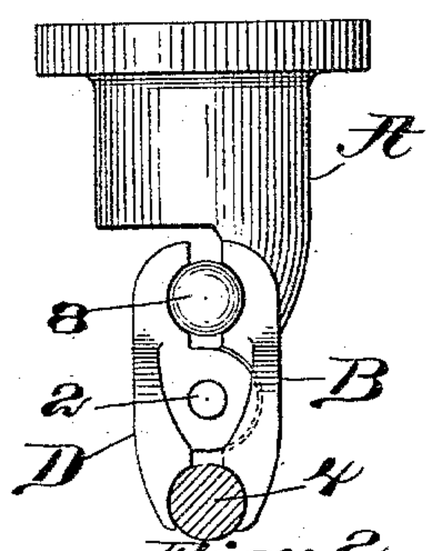

Fig: 2.

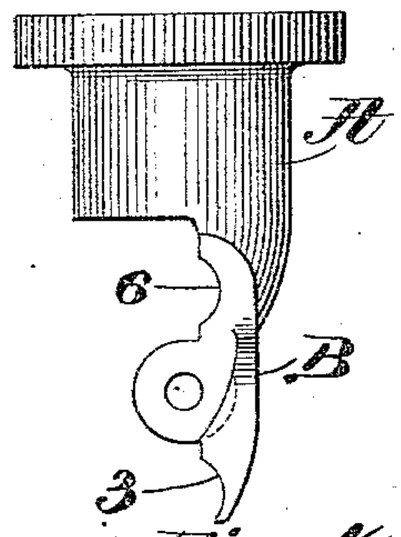

Fig: 4.

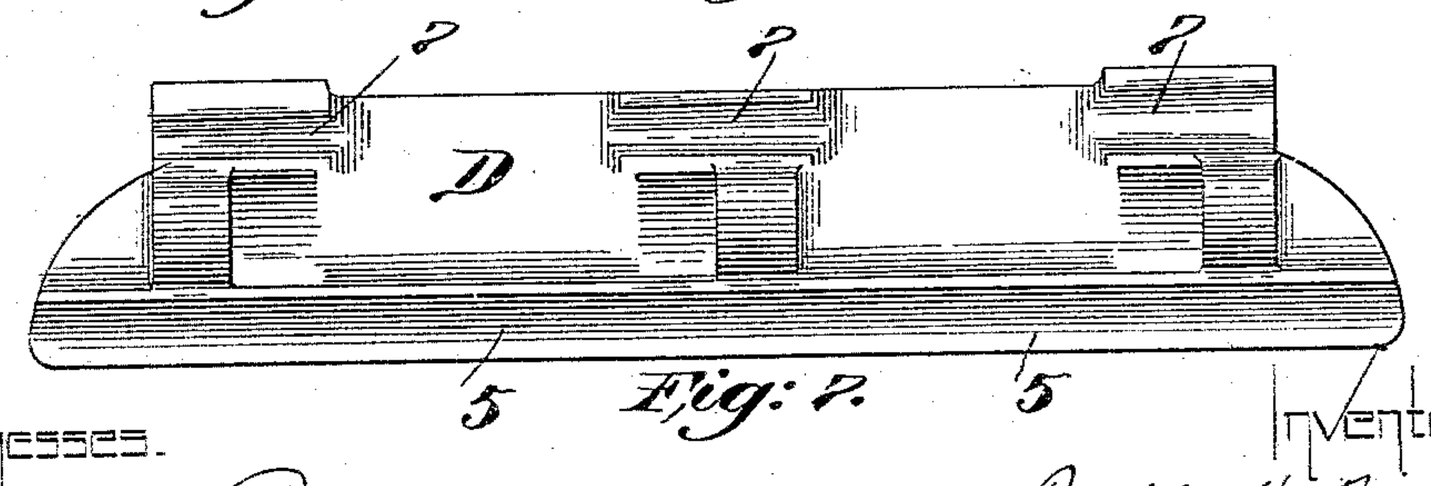

Fig: 7.

Witnesses.

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UNITED STATES PATENT OFFICE.

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CLIP FOR TROLLEY-WIRES.

SPECIFICATION forming part of Letters Patent No. 556,876, dated March 24, 1896.

Application filed April 17, 1895. Serial No. 546,026. (No model.)

To all whom it may concern:

Be it known that I, RALPH H. BEACH, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Clips for Trolley-Wires, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide an improved clip for use in securing trolley-wires of electric railways in position; and it consists in the device hereinafter set forth, comprising pivoted clamping members adapted to engage and securely hold the trolley-wire, and provided with means for locking the said members when they are in engagement with the wire, all as more particularly described in the following description of a device embodying my invention.

The novel features of my invention are pointed out and clearly defined in the claims at the end of this specification.

In the accompanying drawings, to which reference is made in this specification, Figure 1 is a side view of a clip embodying my invention, a portion of one of the clamping members being broken away to show more clearly the construction and showing a portion of a trolley-wire in position. Fig. 2 is an end view of the device shown in Fig. 1, the trolley-wire being in section. Fig. 3 is a similar view with the trolley-wire omitted, the jaws of the clip being shown as open and the retaining-key or locking device withdrawn. Fig. 4 is a similar view, one of the jaws being removed. Fig. 5 is a side view of the retaining device or key removed. Fig. 6 is a similar view showing a modified form of key. Fig. 7 is a side elevation of the movable clamping member, showing the inside thereof.

My device is simple and will be readily understood from the following description and the accompanying drawings.

Referring to said drawings, A is a boss or socket, into which may be screwed or otherwise secured the lower end of an insulator connection or other suitable supporting device. The said part A is preferably formed integral with one of the clamp members B, which is of the shape shown and which is provided, preferably about midwidth thereof, with lugs or projections which receive the pivoted rod or pin 2, by means of which the two clamping members are secured together.

Near the lower edge of the member B is formed lengthwise thereof a longitudinal groove or depression 3, which engages the trolley-wire 4, and between which and a corresponding groove or depression 5 in the other clamping member D the trolley-wire is secured. Near the upper edge of the clamping member B and lengthwise thereof is formed a groove or depression 6, and the movable clamping member D is provided with a similar groove or depression 7. These grooves or depressions are substantially parallel with the grooves which engage the trolley-wire, but are formed with a slight taper from end to end of the said members B D—that is, the opening formed by said grooves between said jaws is gradually smaller in cross-section from one end of the said members to the other, as shown. The grooves 6 and 7 are formed to receive a key or securing device 8, which is formed tapering to correspond to the taper of the opening formed between the grooves 6 and 7.

The walls of the grooves 6 and 7 may be cut away, as shown in Fig. 7, for the purpose of saving metal and reducing the weight of the device—that is to say, the tapering pin 8 need not bear upon the members B D at more than three points, as three points of contact, one at each end and one in the middle lengthwise of the jaws, will be sufficient to give the securing-pin a firm bearing and lock the jaws when they are in a closed position in engagement with the trolley-wire. By causing the securing pin or key to take bearing at both ends, and also intermediate the latter against the two clamp members, the tendency of the latter to spring is counteracted. The entering or small end of the tapered retaining-pin 8 is preferably split, as shown at 9, Fig. 5, so that when the pin is forced into position between the members B D the small end thereof, which should project slightly beyond the ends of the said members may be separated, the halves formed by the cut 9 being turned in opposite directions, as indicated by the dotted lines at 10 in said Fig. 5. In this way the

said retaining-pin may be quickly and effectively secured in place and prevented from working loose. When the pin is to be withdrawn, the outwardly-turned ends 10 are straightened or brought together again, and the pin may then be withdrawn.

Instead of splitting the smaller end of the retaining-pin 8 and bending the halves thereof outwardly in the manner described, the said end of the pin may be screw-threaded, as shown at 11, Fig. 6, and a nut 12 screwed onto the said threaded end after the pin is in position between the members B D.

The movable clamp member D is also provided with lugs or projections through which the pivotal connection or pin 2 passes, the projections on the said member D being so arranged with reference to the projections on the member B that the projections on one member will project past and lie beside the projections on the other member when the two members are secured together, as shown in Fig. 1. There are three lugs or projections on each clamping member through which the pivotal connection 2 passes—namely, one at each end of the clamping member and one at an intermediate point. This insures great strength and efficiency in the clip and prevents springing of either member thereof.

The lower edges of the jaws B D, which are provided with grooves 3 and 5, which engage with the trolley-wire, are thinned down so as to present no obstruction to the passage of the trolley, and the said grooves are a sufficient size to embrace or engage with a sufficient portion of the surface of the trolley-wire to prevent the wire from being withdrawn from the said grooves when the clamp is closed upon the said wire. The clip is very easily applied to the trolley-wire and secured, it being only necessary to place the trolley-wire in grooves 3 and 5, insert the key or retaining-pin 8 and drive it firmly home in the tapered grooves 6 7. The small end of the pin would then project slightly beyond the end of the jaws at the upper edge thereof, as shown, and the two portions of the split end of the said pin are then bent in opposite directions, thus securing the key firmly in place. It is to be noted that the key 8 extends longitudinally from end to end of the said clamping members and effectively prevents any portion of the jaws from springing apart when the clips are in engagement with the trolley-wire.

What I claim is—

1. The combination with the two clamping members, provided at both ends and intermediate the latter with corresponding projections or lugs having pivotal connection to unite the said members, grooved along their lower edges to receive the trolley-wire between them, and also formed along their upper edges with tapering grooves to receive between the members a securing device, of a tapering securing rod or pin fitting said tapering grooves and having bearing within said grooves at both ends of the members as well as intermediate the ends, to prevent the springing of the members, substantially as described.

2. The combination with the two clamping members, provided at both ends and intermediate the latter with corresponding projections or lugs having pivotal connection to unite the said members, grooved along their upper edges to receive between the members a securing device, of a tapering securing rod or pin fitting said tapering grooves and having bearing within said grooves at both ends of the members as well as intermediate the ends, to prevent the springing of the members, the said rod or pin having the small end thereof split and spread to prevent the retraction of the rod or pin, substantially as described.

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

RALPH H. BEACH.

Witnesses:

DALLAS FLANNAGAN,

HENRY A. WISE.