(No Model.)

J. M. ANDERSEN.

TROLLEY WIRE HANGER.

No. 529,058. Patented Nov. 13, 1894.

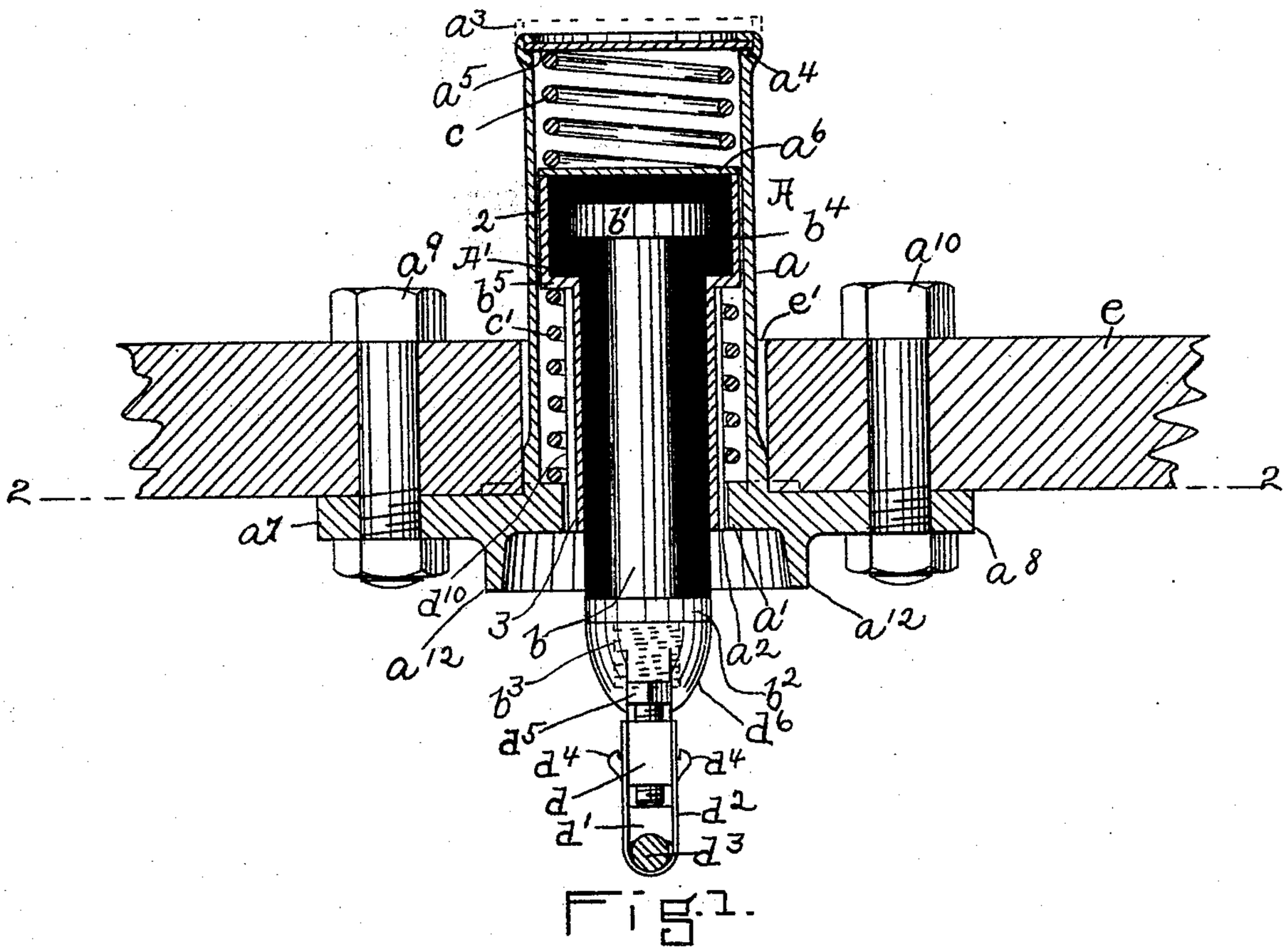

Fig. 1.

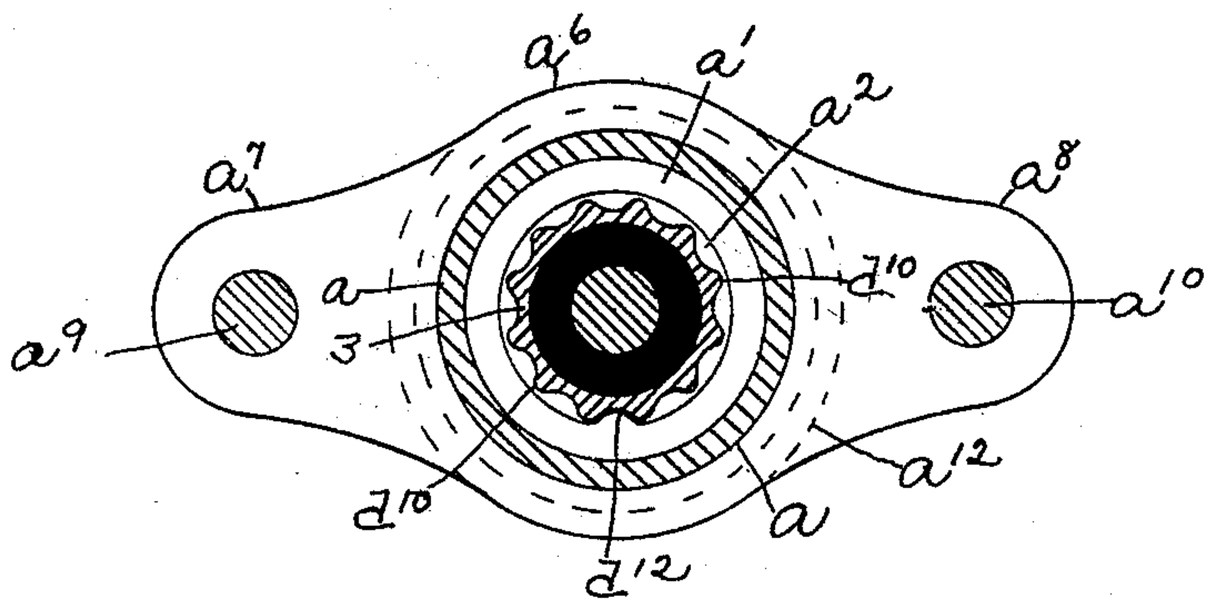

Fig. 2.

WITNESSES.

Matthew M. Blunt.

J. Murphy.

INVENTOR.

Johan M. Andersen

by Jas. H. Churchill

ATT'Y.

UNITED STATES PATENT OFFICE.

JOHAN M. ANDERSEN, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ALBERT ANDERSON, OF SAME PLACE.

TROLLEY-WIRE HANGER.

SPECIFICATION forming part of Letters Patent No. 529,058, dated November 13, 1894.

Application filed July 19, 1894. Serial No. 517,989. (No model.)

To all whom it may concern:

Be it known that I, JOHAN M. ANDERSEN, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Trolley-Wire Hangers, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to trolley-wire hangers, and is embodied in a hanger of that class employed to suspend the trolley wire from beneath bridges and like structures extended over the roadway, and has for its object to provide a more efficient hanger for the purpose specified. These trolley-wire hangers of the class referred to, as now commonly constructed, consist of an insulator movable in and out of a metal socket, which, as now constructed, is closed at its top, and open at its bottom for the reception of the insulator, the latter being retained in its socket by a cross bar or plate bolted to the bottom or underside of the said socket and provided with an opening through which the insulator is extended. Trolley-wire hangers of the class referred to, are defective, in that the insulator is liable to become worn or chafed off by the reciprocating movement of the insultator through the cross bar or plate, which practically forms the bottom of the said socket, and they are further defective in that, the insulator is free to be turned or rotated in its socket, which in practice is objectionable, as the insulator is liable to unscrew or work loose from the clip or ear holding the trolley-wire.

My present invention has for its object to provide a trolley-wire hanger in which the above defects are avoided, and I accomplish the desired result by a novel construction of hanger as will be described.

Figure 1 represents in section and elevation a trolley-wire hanger embodying this invention, and Fig. 2, a horizontal section of the hanger on the line 2—2, Fig. 1.

In accordance with this invention, the socket A is preferably made as herein shown, it consisting of a body portion a preferably tubular in form and provided at one end, which will be hereinafter referred to as the lower end, with an inwardly projecting flange a' of the same shape as the body portion a, which flange forms an opening a^2 for the passage through it of the shank or stem of the insulator A'.

The tubular body portion a of the socket A is made of larger diameter at its upper end as at a^3 to form a shoulder a^4 upon which rests a removable cap, cover, or end piece a^5, which may and preferably will be secured to the body portion by bending over upon the said cap, the enlarged extension a^3 of the body portion a, as shown in Fig. 1, the normal position of the enlarged portion a^3 being indicated by dotted lines in said figure. The body portion a, at its lower end, is provided with an external flange a^6 having projecting arms a^7 a^8 provided with suitable holes for the reception of fastening devices, herein shown as bolts a^9 a^{10}, and the said external flange is provided on its under side with a depending preferably inclined flange or skirt a^{12} to shed the moisture and protect the insulator from rain &c.

The socket A before having its top or upper end closed by the cap a^5 has inserted into it an insulator A', which may and preferably will be made of the construction herein shown, it consisting essentially of a metal rod b provided at its upper end with an enlarged head b' and having at its lower end a collar or flange b^2, beyond which the said rod b is preferably provided with screw threads as indicated by the dotted lines b^3 in Fig. 1. The metal rod b and its head b' are incased within a mass b^4 of insulating material, which in practice is preferably molded upon the said rod and head, the insulated rod b forming the shank or stem of the insulator. The insulating material b^4 is shaped to correspond to the form of the rod b and its head b', and in accordance with this invention, the insulating material is protected against contact with the metal surface of the socket by means of a metal sleeve b^5 consisting of two parts 2, 3 preferably integral with each other, the part 2 being of larger diameter than the part 3 and inclosing the insulating material about the metal head b', and the part 3 being made of such diameter as to readily permit it to pass through the opening a^2, the part 3 being

made of such length as to cover the desired portion of the insulating material surrounding the metal rod b to protect the same against contact with the flange a' of the socket, when the insulator is in operative position. The metal part 3 does not cover the entire length of the shank or stem of the insulator, but leaves a portion of the insulating material near the collar or flange b^2 on the said shank uncovered, so as to prevent any possible danger of the current jumping from the flange b^2 to the metal part 3 and thence to the socket A. In other words, the part 3 of the metal sleeve does not cover the lower portion of the insulating material enveloping the rod b, in order that the insulating property of the hanger may be preserved.

In practice, it has been found desirable to provide the insulator with a yielding movement within its socket, so as to avoid destructive action to the trolley wheel and the trolley wire, when the trolley wheel passes beneath the hanger, and this is provided for by placing within the socket A preferably two springs c c', the spring c being interposed between the cap a^5 and the washer a^6, which may and preferably will be of insulating material, and which serves to protect the upper end portion of the insulating material b^4 from cutting action by the spring c, and the spring c' encircles the part 3 of the metal sleeve b^5, it bearing against the under side of the part 2 of the metal sleeve b^5 and the internal flange a'.

The metal bolt or rod b of the insulator, in practice, has secured to it a trolley wire clip, which may be of any usual or suitable construction, but which in the present instance, is shown as of substantially the same construction as that shown and described in another application, Serial No. 516,890, filed by me July 9, 1894, it consisting of a metallic body portion d provided at its opposite ends with spring arms d' and having a substantially U-shaped piece d^2 passed underneath the trolley wire d^3 and secured to the opposite sides of the body portion d as by ears or locking fingers d^4, which project through slots in the sides of the U-shaped piece d^2. The spring arms d^7 of the clip are forced into engagement with the upper surface of the trolley wire d^3 by clamping bolts d^5. The body portion d of the clip is shown as provided with an enlargement or boss d^6 having a threaded socket adapted to be screwed upon the threaded end of the bar b.

It is desirable in practice after the trolley-wire has been screwed to the bridge, insulator to prevent the said insulator from being turned or rotated in its socket, in order to preserve the trolley wire in a straight line and prevent the said trolley wire being detached from its insulator, by the insulator unscrewing from the clip, which might be caused by the vibration of the trolley wire, as is liable in practice, and to accomplish this result, I have provided the part 3 of the metal sleeve b^5 with longitudinal flutes, ribs or projections d^{10}, and have provided the annular flange a' with a projection d^{12} of suitable shape to fit between two adjacent longitudinal ribs d^{10} as represented in Fig. 2, which projection d^{12} constitutes one form of locking device against rotary action or movement of the insulator.

By means of the fluted or corrugated metal sleeve 3 and the projection d^{12}, the insulator is maintained in its correct working position, and in order to bring the insulator into its correct working position, the insulator may be forced into its socket by hand until the fluted sleeve has been disengaged from the locking nose or projection d^{12}, and when thus disengaged, the insulator is free to be turned in its socket until the trolley wire clip has been brought into its correct working position, after which the inward pressure upon the insulator may be relieved, and the spring c will force the insulator downward into its normal position, represented in Fig. 1, with the locking projection d^{12} in engagement with the proper fluted or longitudinal ribs on the metal part 3 of the sleeve. The spring c' acts as a yielding support for the insulator and resists the downward action of the spring c. In practice, it is usual to secure the hanger when applied to a bridge, to a wooden timber e by the bolts a^9 a^{10}, the said timber being provided with a suitable opening or hole e' through which the metal socket is extended.

The timber e is secured beneath the bridge at such depth or distance as will leave sufficient space below the floor of the bridge to permit the socket A to be extended up through the timber e.

I have herein described the hanger as a bridge trolley hanger, and while it is particularly adapted for such use, I do not desire to limit my invention in this respect, as it may be used to advantage in other places as a hanger for the trolley-wire. When it is desired to remove the insulator from its socket, the cap a^5 may be removed by bending up the rim a^3 into the dotted line position shown in Fig. 1.

I claim—

1. A trolley wire hanger comprising the following instrumentalities, viz:—an insulator to which the trolley wire is secured, a socket for the reception of said insulator and in which the said insulator is capable of being turned or rotated, a protective sleeve on the said insulator, and a locking device engaging the said sleeve to retain the insulator in its adjusted position within the socket, substantially as described.

2. A trolley wire hanger comprising the following instrumentalities, viz:—an insulator provided with an enlarged head and with a shank or stem of smaller area in cross section, a socket for the reception of the said insulator provided with a removable cap at one end and with an inwardly projecting flange at its other end forming an opening of less area than the head of the insulator and through which the

said shank or stem is extended, a protective sleeve fitted on the shank of the insulator, and means to engage said sleeve, for the purpose specified.

3. A trolley-wire hanger comprising the following instrumentalities, viz:—an insulator provided with an enlarged head and with a shank or stem of smaller area in cross section, a socket for the reception of the said insulator provided with a removable cap at one end and with an inwardly projecting flange at its other end forming an opening of less area than the head of the insulator and through which the said shank or stem is extended, a fluted protective sleeve fitted on the said shank or stem, and a projection on the said inwardly extended flange to engage the fluted sleeve, for the purpose specified.

4. A trolley-wire hanger comprising the following instrumentalities, viz:—an insulator to which the trolley-wire is secured, a socket for the reception of said insulator and in which the said insulator is capable of being rotated or turned, and means to engage the said insulator to prevent its being turned or rotated from its adjusted position, substantially as described.

5. A trolley-wire hanger comprising the following instrumentalities, viz:—an insulator to which the trolley-wire is secured, a metallic socket in which the insulator is located and in which it is capable of being rotated or turned and moved longitudinally, a metallic sleeve fitted on said insulator and provided with longitudinal corrugations, ribs or projections, and means to engage said ribs or projections to prevent rotary movement of the insulator, and springs to act on the insulator in opposite directions, substantially as described.

6. A trolley wire hanger comprising the following instrumentalities, viz:—an insulator to which the trolley-wire is secured consisting of a shank or stem and an enlarged head, a socket for the reception of the said insulator, consisting of a body portion provided with a removable cap at its upper end, an inwardly projecting flange at its lower end forming an opening through which the said shank or stem is extended and a depending flange on its under side, a fluted metallic sleeve on the outside of the stem or shank of the insulator, a projection on the inwardly extended flange of the said socket to engage the said fluted sleeve, and springs within the said socket acting upon opposite sides of the head of the insulator, substantially as described.

7. A trolley-wire hanger comprising the following instrumentalities, viz:—an insulator to which the trolley-wire is secured, a metallic socket in which the insulator is located and in which it is capable of being rotated or turned and moved longitudinally, a metallic sleeve fitted on said insulator and provided with longitudinal corrugations, ribs or projections, and a locking device to engage said sleeve, for the purpose specified.

8. In a trolley-wire hanger, the combination with an insulator to which the trolley wire is secured, a socket for the reception of the said insulator and in which the said insulator is capable of a rotary and longitudinal movement, and means to lock said insulator in adjusted position against rotary movement, for the purpose specified.

9. A trolley-wire hanger provided with a metal socket consisting of a body portion provided at its lower end with an internal flange from an opening a^2, and normally open at its opposite or upper end, a cap or cover to close the said upper open end, arms extended from the lower end of the body portion and a depending skirt projecting below the said internal flange, substantially as described.

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

JOHAN M. ANDERSEN.

Witnesses:
JAS. H. CHURCHILL,
J. MURPHY.