

W. H. KEMPTON.
TURNBUCKLE.
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1,438,601.

Patented Dec. 12, 1922.

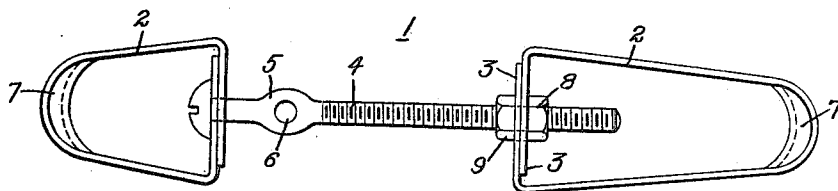


Fig. 1.

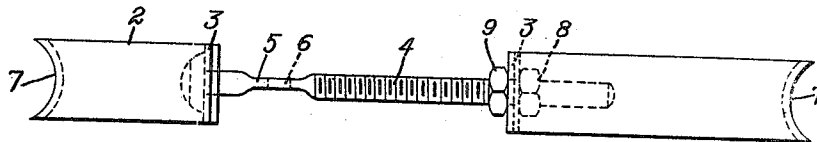


Fig. 2.

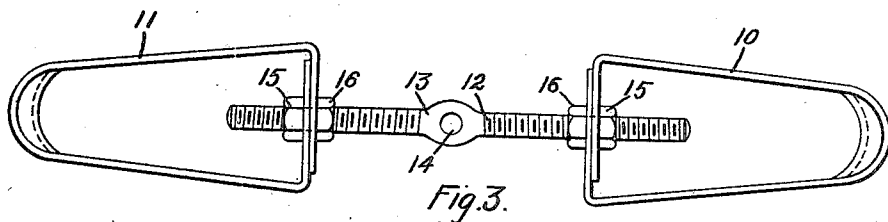


Fig. 3.

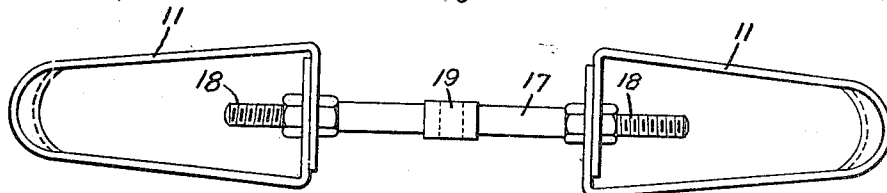


Fig. 4.

WITNESSES:

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WILLARD H. KEMPTON, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

TURNBUCKLE.

Application filed February 25, 1919. Serial No. 279,129.

To all whom it may concern:

Be it known that I, WILLARD H. KEMPTON, a citizen of the United States, and a resident of Wilkesburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful improvement in Turnbuckles, of which the following is a specification.

My invention relates to turnbuckles and it has, for its primary object, the provision of such articles which shall be durable, light in weight and of simple construction.

Heretofore, turnbuckles have ordinarily been constructed of forgings or castings and such construction necessarily develops a comparatively heavy device which is oftentimes of greater mass than the tension which it is to withstand necessitates. In view of this, one object of my invention is to construct turnbuckles which may be made light in weight but of sufficient mechanical strength to withstand any tension to which they may be subjected.

Another object of my invention is the provision of turnbuckles which may be constructed by employing a comparatively small number of inexpensive tools.

Another object of my invention is the construction of turnbuckles in which material may be employed which has been discarded or scrapped on account of not being useful in the construction of larger articles.

A still further object of my invention is the provision of turnbuckles which may be employed as adjustable strain insulators.

With these and other objects in view, my invention will be more fully described, illustrated in the drawings, in the several views of which corresponding numerals indicate like parts, and then particularly pointed out in the claims.

In the drawings, Fig. 1 is a plan view of a turnbuckle constructed in accordance with my invention; Fig. 2 is a side elevation of the turnbuckle shown in Fig. 1; Fig. 3 is a plan view of a modified form of turnbuckle embodying my invention, and Fig. 4 is a side view of a turnbuckle embodying a modification of my invention.

In practicing my invention, I may construct a turnbuckle by employing short strips of metal or metal straps which may be bent to form loops having their ends overlapped. The ends of the strips may be

provided with suitable openings which may be alined, when the ends are overlapped, to receive a connecting-member. The connecting-member may be an ordinary bolt threaded at one end and having, preferably, a flattened portion adjacent the other end. The bolt may be disposed in the openings in the overlapped ends of the loops and suitable nuts threaded upon the bolt to secure the loops in spaced relation.

A connecting-member of modified form may be provided by employing a straight rod which may be oppositely threaded at its ends to receive similarly threaded nuts for holding the loops in spaced relation upon the connecting-member. Furthermore, if it is desired to insulate the loops from each other, a connecting-member may be provided by employing fibrous material impregnated with a suitable binder. The impregnated material may be wound to form a tube into the ends of which oppositely threaded studs may be inserted, and the body thus assembled may be subjected to heat and pressure in a mold to compact the fibrous material and to harden the binder.

In Fig. 1 is shown a turnbuckle 1 comprising a plurality of looped metal straps 2. The loops 2 may be provided by employing a flat metal strap which may be bent into any desirable form and so that its ends 3 overlap. The overlapped ends 3 may be drilled to provide an opening suitable to receive a connecting-member 4. The connecting-member 4, here shown, comprises an ordinary stove bolt which may be flattened adjacent the head end, as indicated at 5, and an opening 6 may be provided therein to receive a pin or like implement which may be employed in turning the bolt, the flattened portion being also suitable for turning the bolt by means of a wrench or other like implement. It will be obvious that the opening provided in the overlapped ends of the loop through which the flattened portion of the bolt must pass should be of sufficient width to permit passage of this enlarged portion. However, the bolt may be inserted in the opening in the overlapped end members of the loop and afterwards flattened and by so doing, the removal or displacement of the bolt from the loop may be prevented. The cable-receiving ends 7 of the loops 2 may be curved inwardly to pro-

vide a smooth non-abrasive surface for the engaging cable or tie-wire. A nut 8 may be threaded upon the end of the bolt 4 and a jam-nut 9 may be employed to avoid loosening of the strain-nut 8 under vibrations or shocks.

A modification of my invention is shown in Fig. 3 in which a plurality of loops 10 and 11 may be held in spaced relation by employing a metallic connecting-member 12 oppositely threaded at its ends and having, preferably, a flattened intermediate portion 13 provided with an opening 14. Obviously, with a connecting member of this type, a plurality of nuts 15 and 16 will be necessary, at each end of the connecting-member 12, to secure the loops 10 and 11 in spaced relation upon the connecting-member.

A connecting member 17, shown in Fig. 4, may be constructed which corresponds to the connecting-member 12 employed in the turnbuckle shown in Fig. 3. The connecting-member 17 may be made an insulator by employing fibrous material impregnated with a suitable binder such as a phenolic condensation product. The fibrous material, which may be paper, duck or muslin, may be impregnated with a phenolic condensation product and rolled to form a tube into the ends of which threaded studs 18, which may be metal, may be inserted and the body thus assembled may be disposed in a suitable mold and subjected to heat and pressure to compact the fibrous material and to harden the binder. The intermediate portion 19 of the connecting-member 17 may be of rectangular form which may be so shaped when the rolled fibrous material is subjected to heat and pressure in the mold. A connecting-member of this type possesses high dielectric strength as well as being almost as strong mechanically as the previously described metal connecting-members. By employing such a connecting-member, the turnbuckle above described may be employed as an adjustable strain insulator.

A turnbuckle provided by my invention is primarily intended for relatively light duties but it may be constructed of such pro-

portions as to make it efficient for heavy work. A light-weight turnbuckle of this type is particularly adapted for use in airplane construction where it is desirable to adjustably connect certain strain wires and guy ropes.

Although I have specifically described a plurality of forms of turnbuckles which may be constructed in accordance with my invention and pointed out an application therefor, it is obvious that minor changes may be made in the construction thereof and many applications found therefor, and I desire that no limitations shall be imposed except such as are indicated in the appended claims.

I claim as my invention:

1. A turnbuckle comprising a plurality of looped metal straps the inner ends of which overlap and a threaded connecting member.

2. A turnbuckle comprising a plurality of looped metal straps, the loops being inwardly curved at their cable-receiving ends, a connecting-member oppositely threaded at its ends and having an intermediate flattened portion provided with an opening and a plurality of nuts adjustably securing the ends of the straps in spaced relation upon the connecting-member.

3. A turnbuckle comprising a plurality of looped metal straps, the loops being inwardly curved at their cable-receiving ends, a screw-threaded bolt having a flattened portion provided with an opening adjacent one end and a plurality of nuts adjustably securing the ends of the straps in spaced relation upon the bolt.

4. A turnbuckle comprising a plurality of looped metal straps, the loops being inwardly curved at their cable-receiving ends, an insulated connecting-member oppositely threaded at its ends and having an intermediate flattened portion provided with an opening and oppositely placed nuts adjustably securing the loops in spaced relation upon the connecting-member.

In testimony whereof, I have hereunto subscribed my name this 19th day of Feb., 1919.

WILLARD H. KEMPTON.