Nov. 22, 1927. 1,649,951

T. A. ENGLISH

ADJUSTABLE CONNECTION

Filed March 15, 1923

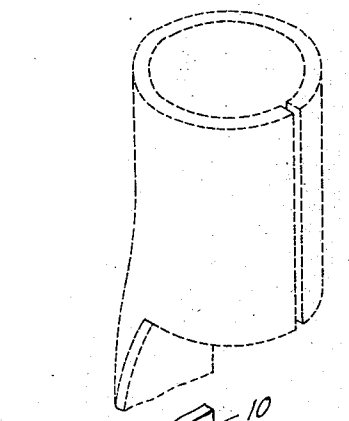


FIG. 4

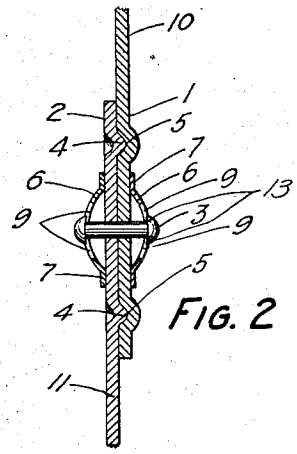


FIG. 2

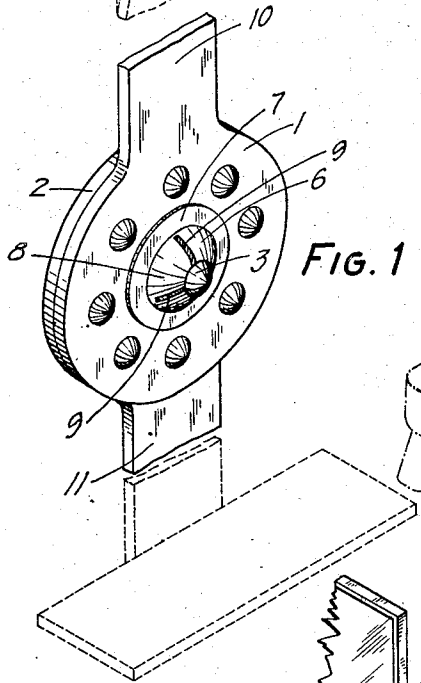


FIG. 1

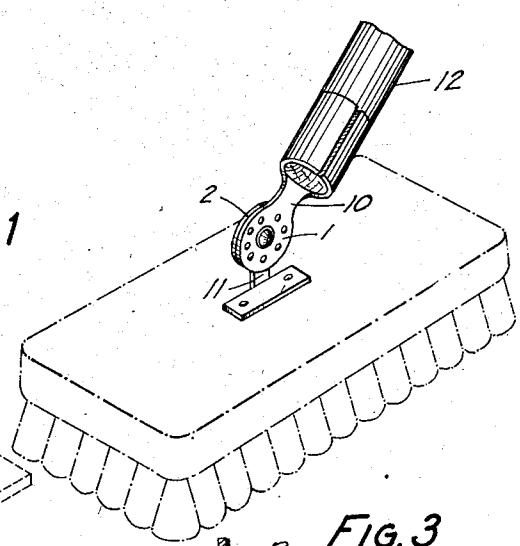


FIG. 3

FIG. 5

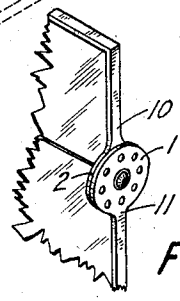


FIG. 6

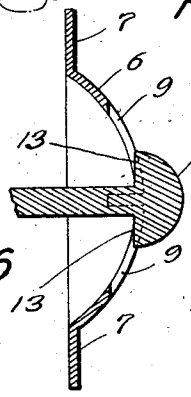


FIG. 7.

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UNITED STATES PATENT OFFICE.

THOMAS A. ENGLISH, OF RENSSELAER, NEW YORK.

ADJUSTABLE CONNECTION.

Application filed March 15, 1923. Serial No. 625,330.

My invention relates to connections and particularly to hinged connections, applicable to various articles, which permit the parts connected thereby to be easily adjusted in various angular relations to each other and which will retain the adjusted relation under the stresses arising in the ordinary uses for which the article is intended.

My invention is an improvement on the general type of connection disclosed in Letters Patent No. 1,416,626 issued to me on May 16, 1922, and is particularly adapted to the uses therein illustrated.

The objects of my invention are to provide a device of this general character in which the surfaces, which move in contact with each other under considerable pressure, are perfectly smooth and of large extent, thus minimizing wear, and in which these surfaces are maintained in movable contact by a permanently adjusted resilient means adapted to take up frictional wear.

These and other objects and advantages will appear more fully as the description is read in connection with the accompanying drawings in which—

Fig. 1 is a perspective view of the device embodying my improvement.

Fig. 2 is a cross sectional view.

Fig. 3 is a perspective view of my device as applied to a cleaning implement.

Fig. 4 is a perspective view illustrating how one part of my device may be constructed to engage a handle or other round member to be connected.

Fig. 5 is a perspective view illustrating how one part of my device may be constructed to apply to a flat surface.

Fig. 6 is a perspective view illustrating the application of my device to a windshield.

Fig. 7 is an enlarged, fragmentary, section showing the coaction of the rivet and the resilient means to prevent relative movement.

Similar numerals refer to similar parts.

My device comprises two metallic members, 1 and 2, preferably in the form of circular disks and of substantially the same size, which are secured together by a rivet or other suitable means, 3, passing axially through the disks. Concentrically disposed in relation to the rivet, 3, is a series of equally spaced projections, 4, in the member, 2, which are adapted to interfit with a similarly disposed series of depressions, 5, in the member, 1. These projections and depressions may, of course, be formed in different ways depending to some extent upon the material of which the members, 1 and 2, are composed. For example, if these members be cast, the projections and depressions may be readily cast therein. I find however, that a very satisfactory connection for many uses may be cheaply made by stamping the members, 1 and 2, from sheet metal and at the same time, embossing the projections and depressions therein.

Referring to Fig. 2, it will be noted that the heads of the rivet do not contact with the members, 1 and 2, but are spaced therefrom by the resilient washers, 6. The washers, 6, are of metal possessing suitable resilient characteristics, and are formed with an outer annular portion, 7, adapted to rest flat against the members, 1 and 2, and an embossed center portion, 8, which engages, at its center, the head of the rivet, 3, passing therethrough. In order that the washers, 6, may be rendered resilient, they are slotted along two diameters at right angles to each other, as shown at 9, so as to separate the embossed central portion into four equal quadrantal portions. By using washers of this type, it will be evident that by setting up the rivet heads so as to produce some initial pressure upon the flexible quadrantal portions, the members, 1 and 2, will be held firmly together in any adjusted relation and yet the washers will be sufficiently resilient to permit the slight separation of the members necessary to effect a change in adjustment.

In effecting an adjustment there will be no movement of the rivet heads upon the washers because, in the process of riveting, portions, 13, from the heads will be forced into the slots, 9, as shown in Fig. 7, which will make this relation fixed. It will therefore be obvious that the flat, annular portions of the washers will move upon the outsides of the members, 1 and 2, and, as the surfaces in moving contact are of substantial area, the wear will be minimized.

The members, 1 and 2, have tangs or shanks, 10 and 11, respectively, which may be of any form for attaching my connection to various objects, and to illustrate this, I have shown in Fig. 4 how a tang may be constructed to engage a round member such as a staff or handle, and in Fig. 5, how it

may be constructed to attach to a flat surface at right angles to the plane of the connection.

In use, for example, as applied to the brush or mop shown in Fig. 3, the staff or handle, 12, may be set at any angle desired in relation to the surface over which the implement is to be used. The initial compression of the washers will be sufficient to hold the projections, 4, in engagement with the depressions, 5, thus fixing the angular relation of the staff and brush, and, whenever it is desired to change this angle, it may be easily done by holding the brush firmly against the floor and simultaneously exerting a little additional strength on the staff so that the members, 1 and 2, will move relative to each other until the desired angle is found. In effecting this adjustment the projections, 4, will rise out of the depressions, 5, with which they have been immediately engaged, and the spring washers will be compressed and force the projections into consecutive engagement with the depressions as they are reached in turning the members, 1 and 2, in relation to each other.

What I claim is:

1. An adjustable connection comprising two disks in intimate contact mounted upon a common axial shaft, a series of projections on one disk concentric with said shaft and adapted to interfit with a like series of depressions on the other disk, and separate resilient means at each end of said shaft having flat annular portions in contact with said disks, and convex sector portions integral with said annular portions in compression against the enlarged end of the shaft.

2. In an adjustable connection comprising two substantially coextensive disks in frictional contact, the combination with a pivot pin connecting said disks, of two resilient washers each having a non-resilient portion of substantial area in moving contact with a disk, and a resilient portion in fixed relation to and compressed against an upset end of the pivot pin.

3. An adjustable connection comprising substantially coextensive disks, a common axial shaft therefor, and a resilient means at each end of said shaft for holding said disks in intimate contact; said means being provided with an annular, non-resilient portion of substantial area in contact with a disk and a resilient center portion, integral therewith, comprising a plurality of spaced, convex sectors adapted to receive portions of the shaft therebetween to prevent relative movement of said shaft and said means, whereby wear is prevented.

THOMAS A. ENGLISH.