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C. R. DANIELS
GOLF-SHOE CALK WRENCH

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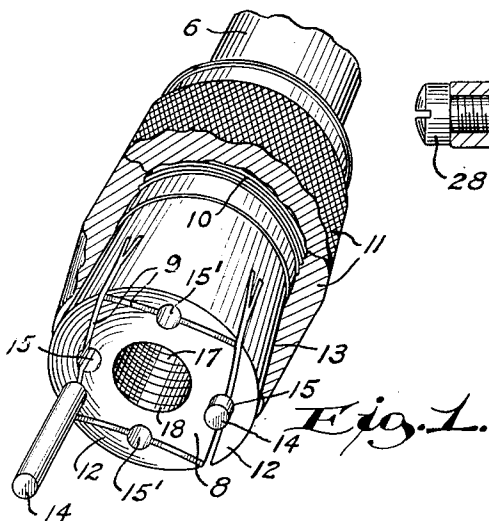


Fig. 1.

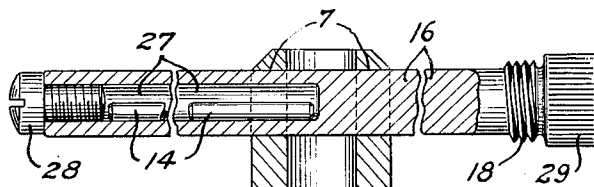


Fig. 2.

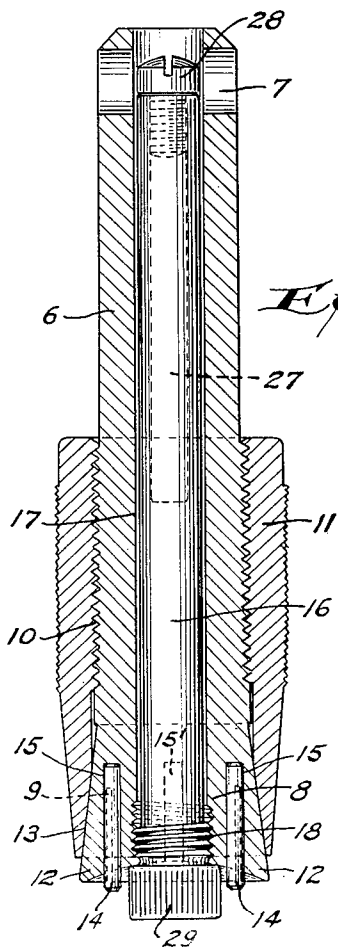
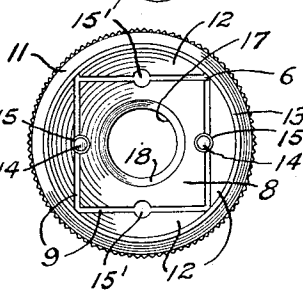


Fig. 3.

Fig. 4.



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GOLF-SHOE CALK WRENCH

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2 Claims. (Cl. 81-90)

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The present invention relates generally to improvements in devices for applying and removing shoe sole calks, and relates more specifically to various improvements in the construction and operation of wrenches for effecting attachment and removal of golf shoe calks or the like.

The primary object of this invention is to provide an improved calk manipulating wrench unit which is simple and compact in construction, flexible in its adaptations, and highly effective in use.

Many types of athletic shoes are provided with sole calks adapted to prevent foot slippage, and these calks as applied to golfers' shoes have been relatively standardized and are made removable or detachable, so that they may be readily replaced whenever desired. The present standard golf shoe calk comprises a metal conical spike formed integral with one side of a relatively wide base flange having an integral threaded projection extending centrally away from its opposite side and adapted to coact with an internally threaded bushing firmly secured to the sole of the shoe. The base flanges are usually of circular or polygonal shape; and each of these flanges is provided with diametrically opposite socket openings or flats disposed on opposite sides of the protruding spike, and adapted to coact with similarly spaced pins of a spanner wrench which is operable to apply and remove the calk. Since the span or spacing of the flats or socket openings of the calks produced by different manufacturers, varies slightly, it is necessary at present, to utilize a special spanner wrench for each different type of calk. Then too, the spanner pins of the present wrenches are not conveniently renewable, and since these pins are frequently bent or broken by abuse or excessive wear, it is extremely desirable to have the pins readily replaceable and to also have spare pins constantly available. The prior wrench assemblies do not make provision for such convenient renewal, and are moreover rather bulky thus making it difficult to carry them in limited spaces.

It is therefore a more specific object of my present invention to provide an improved wrench assembly especially adapted for manipulation of such relatively standardized golf shoe calks, and which obviates all of the above mentioned difficulties and objections.

Another specific object of the present invention is to provide an improved spanner wrench which may be readily set or adjusted to accommodate different socket opening spacings of various types of calks.

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A further specific object of this invention is to provide an improved replaceable pin type of calk wrench, wherein extra pins may be kept constantly available for replacement, within the unit.

5 Still another specific object of the invention is to provide an improved calk wrench unit which may be partially dismantled and arranged in compact unitary condition, but which may be conveniently assembled ready for normal use.

10 An additional specific object of my invention is to provide an improved collet type of spanner wrench especially adapted for applying and removing golfers' shoe calks, and which may be manufactured and sold for diverse uses, at moderate cost.

15 These and other specific objects and advantages of the present invention will be apparent from the following detailed description.

A clear conception of the several features constituting my present improvement, and of the specific construction and mode of utilizing golf shoe calk wrenches embodying the invention, may be had by referring to the drawing accompanying and forming a part of this specification, wherein 20 like reference characters designate the same or similar parts in the various views.

Fig. 1 is a fragmentary part sectional perspective view looking toward the spanner pin receiving end of one of my improved collet wrenches, showing one of the pins removed from its clamping socket;

Fig. 2 is a central longitudinal section through the improved collet type of spanner wrench showing the actuating cross-bar arranged within the wrench spindle for compact storage or transportation;

Fig. 3 is another central longitudinal section through the same wrench, showing the parts in action as applied to a standard golf shoe calk which is also shown in section; and

Fig. 4 is a bottom view of the improved collet wrench with the actuating cross-bar or handle omitted.

While the invention has been shown and described herein as being advantageously applicable to a collet type of spanner wrench especially adapted to apply and remove golfers' shoe calks, it is not my desire or intention to unnecessarily restrict the scope or utility of the improved features by virtue of this limited embodiment.

Referring to the drawing, the improved collet wrench shown therein, comprises in general a main hollow spindle 6 having a transverse through opening 7 near one end and being provided with a tapered head 8 and parallel saw cuts 9 at its

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opposite end, while its medial portion has external screw threads 10 formed thereon; an externally knurled sleeve or collar 11 embracing the spindle 6 and having internal screw threads near one end coacting with the screw threads 10 of the spindle, while its opposite internal end portion is provided with a tapered bore 13 which is cooperable with the four resilient jaws 12 formed on the spindle head 8 by the intersecting saw cuts 9, to press these jaws 12 inwardly; a pair of cylindrical spanner pins 14 adapted to cooperate with or to be inserted within diametrically opposite cylindrical recesses or sets of holes 15, 15' formed in the spindle head 8 at the several saw cuts 9; and a wrench manipulating cross-bar or handle 16 adapted to snugly engage the spindle openings 7 during normal use, but being insertible within the central spindle bore 17 and adapted to be retained therein by screw threads 18 when not in use.

The main spindle 6 is preferably formed of non-corrosive relatively resilient metal so that the jaws 12 will always be outwardly biased, and while only two sets of parallel grooves or saw cuts 9 have been shown, more sets of these grooves and resultant jaws 12 may be provided. The spacing of the diametrically opposite sets of recesses or pin receiving holes 15, 15' is such that one set of pins 14 will fit the pin receiving flats or sockets 19 of one type of calk 20 as shown in Fig. 3, whereas the other set of pins coacting with the recesses 15' will be spaced apart a greater or lesser distance so as to fit the corresponding flats or sockets of another type of calk. Each of these metal calks 20 has a tapered spike 21 formed integral with one side of a base disc 22 in which the flats or sockets 19 are formed; and also has a central screw threaded projection 24 formed integral with the opposite side of its base disc, and adapted for coaction with the internal screw threads of metallic receiving bushings 25 firmly attached to a shoe sole 26, fragments of which are shown in section in Fig. 3.

The spanner pins 14 are preferably formed of suitable metal, and are adapted to rather loosely fit the spindle holes 15, 15' when the collar 11 has been withdrawn and the resilient jaws 12 are spread apart, but are also capable of being clamped firmly against the spindle head 8 when the collar 11 is screwed toward the headed end of the spindle 6. Since these pins 14 wear rather rapidly, and frequently break off, it is desirable to provide several spare pins, and in order to permit such spare pins 14 to be conveniently stored, I have provided the actuating handle 16 with a central bore or pocket 27 at its end remote from the screw threads 18, and have also provided a closure or pin confining screw 28 for the pocket 27, as clearly shown in Fig. 3. The externally threaded end of the cross-bar or handle 16 may furthermore be provided with an externally serrated knob 29 for facilitating insertion and removal relative to the central spindle bore 17 as depicted in Fig. 2, so that an exceedingly compact wrench unit free from external projections when not in use, is provided.

When the improved wrench assemblage is stored away or being transported, the various parts may be compactly positioned with a pair of pins 14 inserted within a selected set of the receiving holes 15, 15' and with the handle 16 and its extra pins 14, confined within the spindle bore 17, as in Fig. 2. In order to place the assemblage in condition for normal use, it is only necessary to release the handle threads 18 from

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the spindle 6, to thereafter withdraw the handle 16 bodily from within the spindle bore 17, and to finally insert the handle within the transverse spindle end openings 7 as in Fig. 3. The collar 11 should then be rotated to cause the screw threads 10 to urge the tapered bore 13 against the jaws 12 so as to force these jaws inwardly into firm clamping engagement with the pins 14, whereupon these pins may be applied either to the flats of a calk 20 having a polygonal base disc 22, or to the sockets 19 of a calk 20 having a circular base disc 22 as illustrated in Fig. 3. The calk 20 may thereafter be either attached to or removed from a threaded receiving bushing 25 by merely turning the spindle 6 in the proper direction with the aid of the transverse handle 16; and subsequent restoration of the tool to the condition shown in Fig. 2 may be just as readily effected.

From the foregoing detailed description of a typical embodiment of the invention, it should be apparent that I have in fact provided an improved collet wrench especially applicable to golf shoe calks 20, and which is simple and compact in construction, flexible in its adaptations, and highly efficient in use. The collar 11 coacts with the spindle jaws 12 to firmly but detachably clamp the pins 14 within the holes 15, 15', and by selecting the proper set of receiving holes, these pins 14 may be caused to properly cooperate with diverse types of calks 20 having either perforated or polygonal base flanges or discs 22. The removability of the cross-bar or handle 16 and the provision of the spindle bore 17 and screw threads 18 whereby the handle may be concealed within the main spindle 6 as in Fig. 2, make the dismantled unit extremely compact for storage and carrying purposes; and the provision of storage space for spare pins 14 within the handle 16 does not enhance the bulk of the assemblage, but does make it possible to quickly replace lost or broken pins. The various parts of the improved collet wrench are so simple that they may be readily produced and assembled at moderate cost, and each element is of sturdy construction thereby providing a durable wrench unit. The invention has gone into highly satisfactory commercial use, and it is not necessarily confined to the golfing field but may also be advantageously applied for other purposes.

It should be understood that it is not desired to limit this invention to the exact details of construction or to the precise mode of use, herein shown and described, for various modifications within the scope of the appended claims, may occur to persons skilled in the art; and it is also contemplated that specific descriptive terms used herein be given the broadest possible interpretation consistent with the disclosure.

I claim:

1. In a calk wrench, a unitary spindle of resilient stock having a turning handle associated with one end and also having an integral enlargement at its opposite end provided with transverse sets of parallel slots forming integral jaws of segment shaped cross-section all movable toward a unitary polygonal central core constituting a rigid integral part of the spindle, each diametrically opposite pair of said jaws being interchangeably cooperable with the adjacent faces of said core and with a pair of differently spaced calk driving pins, and means cooperable with said enlargement to force said jaws into clamping engagement with the pins.

2. In a calk wrench, a unitary spindle of re-

silient stock having a turning handle associated with one end and also having an integral externally tapered enlargement at its opposite end provided with transverse sets of parallel slots forming integral longitudinally tapered jaws of segment shaped cross-section all movable toward a unitary polygonal central core of uniform cross-section constituting a rigid integral part of the spindle, each diametrically opposite pair of said jaws being interchangeably cooperable with the adjacent faces of said core and with a pair of differently spaced calk driving pins, and means cooperable with the tapered exterior of said enlargement to force said jaws into clamping engagement with the pins.

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