

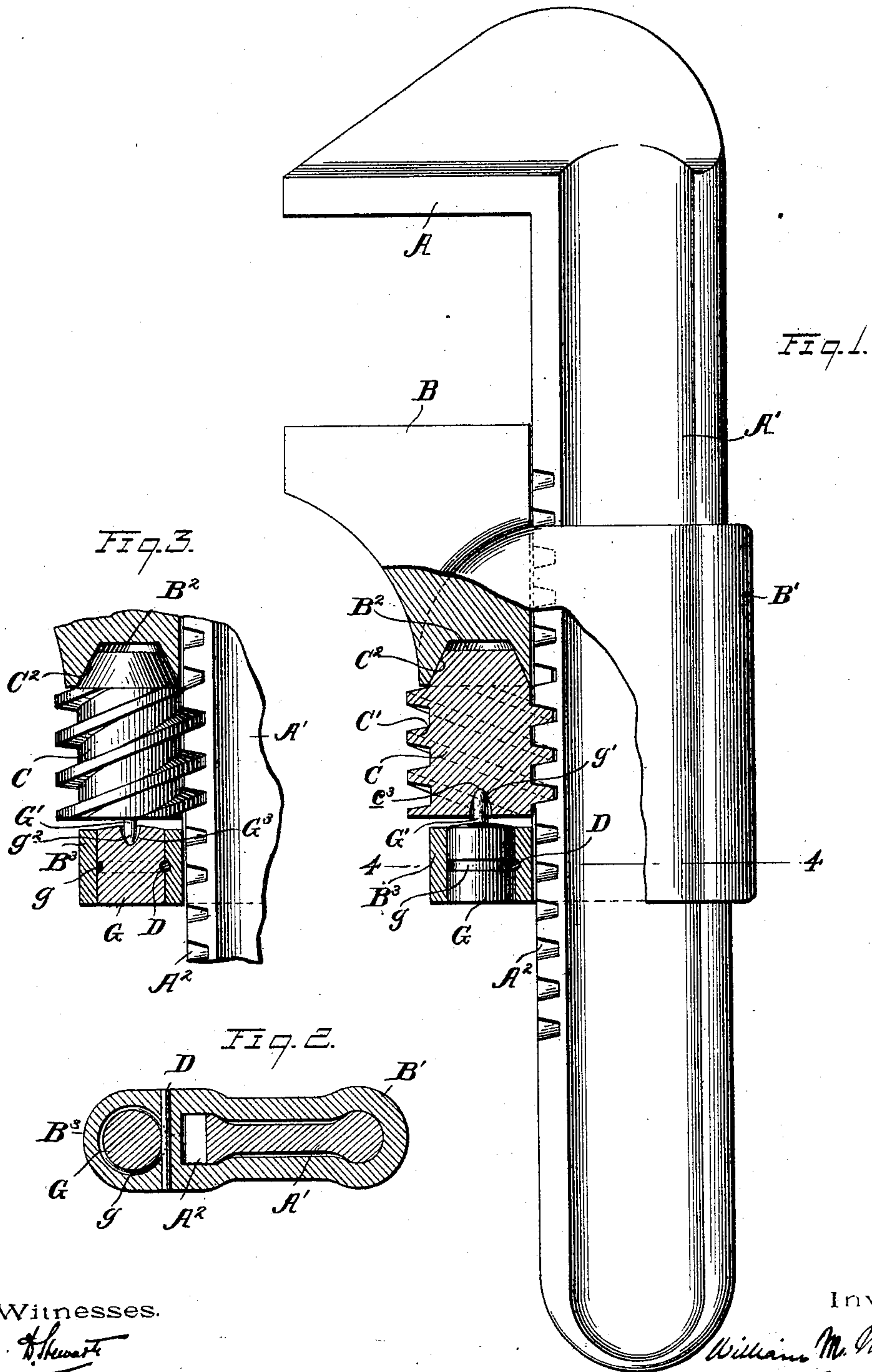
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W. M. NORCROSS.
WRENCH.

(Application filed Apr. 9, 1898.)

(No Model.)



Witnesses.

H. H. H.
Harry D. D.

Inventor.

William M. Norcross
Francis F. Chambers
his Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM M. NORCROSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
THE BIDDLE PURCHASING COMPANY, OF SAME PLACE AND CAMDEN,
NEW JERSEY.

WRENCH.

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To all whom it may concern:

Be it known that I, WILLIAM M. NORCROSS, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Wrenches, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to the construction of wrenches, and particularly to the type of wrenches in which the movable jaw can be closed by the simple application of pressure—such, for instance, as are described in the patents to Milton Wenger, granted December 1, 1896, and numbered 572,185—the object of my invention being to simplify the construction of the wrench and particularly to so combine the adjusting-nut with the wrench as to give it greater freedom to accommodate itself to the rack and to the clutch-surface in connection with which it works.

The nature of my improvements will be best understood as described in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a side elevation, partly in section, of a wrench embodying my improvements. Fig. 2 is a cross-sectional view on the line $x x$ of Fig. 1, and Fig. 3 a fragmentary view illustrating a modification.

A is the jaw, and A' the shank, of what I will refer to as the "fixed member" of the wrench, while B is the jaw, and B' what may be termed the "shank," of the movable member of the wrench, the said so-called "shank" being of looped form or provided with a transverse passage through which the shank A' of the fixed member passes.

A² indicates a rack made up of threads of long pitch formed on the upper surface of the shank A'. The upper portion of the movable member, which extends above the rack A² when in position, is formed with a receiving-socket, in which is placed the adjusting-nut C. The front abutment of this socket, that immediately in the rear of jaw B, is formed or provided with a friction-surface, as indicated at B², adapted to form one member of

a friction-clutch and preferably of conical form, as shown. The rear abutment of the adjusting-screw socket is indicated at B³, and is preferably made, as shown, with a passage extending through it from front to rear. The adjusting-nut C is formed with threads (indicated at C') of long pitch, corresponding to that of the rack A² and with a friction-surface (indicated at C²) adapted to rest against and form the second member of the friction-clutch, of which the friction-surface B² is also a member.

G is a removable plug or abutment insertible through the rear of the opening or passage in the fixed abutment B³ and is held in place therein by any convenient securing device—for instance, by a pin D, which, as shown, passes through the lateral walls of the abutment B³ and through a groove g in the movable abutment.

To the extent above described my wrench is practically the same as that shown and described in the patent to Wenger above referred to and numbered 572,185. In the said patent, however, the rear end of the adjusting-nut is chambered out to the diameter of the movable plug or abutment G, which extends forward into the said chamber, forming a rear bearing upon which the adjusting-nut turns, and the front end of the adjusting-nut has also a cylindrical perforation in it, through which a pin extending out from the front of the plug G extends into a recess lying in front of the conical clutch-surface in the rear of the movable jaw, this pin forming a bearing upon which the front end of the adjusting-nut turns, and it will be readily understood that the bearings in the front and rear of the adjusting-nut will prevent the nut from adjusting itself either to the teeth of the rack upon the fixed member of the wrench or to the surface of the friction-clutch member upon the movable member of the wrench, so that in case there is any inaccuracy in the formation or fitting up of the wrench it will be effectively operated; and the object of my invention is, as before stated, to provide for a mode of securing the adjusting-nut in the socket of the movable member of the wrench which will permit it sufficient freedom of

motion in lateral directions to enable it to conform the pitch of its threads to the pitch of the threads upon the rack and the surface of its friction-bearing to the surface of the friction-bearing at the front of its socket, and to this end I dispense with the pin which in the former construction served as a bearing for the front end of the adjusting-nut, relying upon the friction-surface of the clutch to hold the front end of the nut in approximately correct position and prevent its retraction from the socket. Of course the engagement between the members of the friction-clutch may be supplemented by a retaining-pin; but if used such pin should not be of such a character as to serve as a bearing or interfere with a sufficient (of course very slight) freedom in the front end of the adjusting-nut to move laterally. In place of the bearing-surface provided in the Wenger wrench at the rear end of the adjusting-nut I form a socket at the rear end of the nut, as indicated at C^3 , preferably with slightly-flaring walls and with a rounded bottom, as indicated at c^3 , and extending out from the front end of the plug or abutment G, I provide what I may call a "centering-pin" G' , which enters the socket C^3 and serves to hold the rear end of the adjusting-nut in position in the socket of the movable member of the wrench, while giving it the slight but sufficient freedom to twist or move laterally, which is needed to enable it to accommodate itself to the pitch of the threads on the rack and the surface of the friction-clutch member in the rear of the movable jaw.

Of course the pin G' , in place of being a rigid extension from the plug G, as indicated in Fig. 1, may extend into a socket, as indicated at G^3 , Fig. 3, its rear end g^2 abutting against the bottom of the socket with freedom for some lateral play therein.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench having fixed and movable members one provided with threads of long pitch and the other having a socket for holding an adjusting-screw and a clutch-surface at one end of said socket, the combination with said members of an adjusting-nut having at one end a clutch-surface adapted to engage that on the wrench member aforesaid

and made with a thread adapted to engage with the threads on the clutch member, a removable abutment adapted to form an end wall of the recess for the adjusting-screw and a centering-pin extending between the said abutment and the adjusting-screw arranged to hold the said screw in position in the socket while permitting it some freedom of lateral and longitudinal movement.

2. In a wrench having fixed and movable members one provided with threads of long pitch and the other having a socket for holding an adjusting-screw and a clutch-surface at one end of said socket, the combination with said members of an adjusting-nut having at one end a clutch-surface adapted to engage that on the wrench member aforesaid, at the other end a socket as C^3 and made with a thread adapted to engage with the threads on the clutch member, a removable abutment adapted to form an end wall of the recess for the adjusting-screw and a centering-pin extending between the said abutment and the socket C^3 of the adjusting-screw arranged to hold the said screw in position in the socket of the wrench member while permitting it some freedom of lateral and longitudinal movement.

3. In a wrench having fixed and movable members one provided with threads of long pitch and the other having a socket for holding an adjusting-screw and a conical clutch-surface at one end of said socket, the combination with said members of an adjusting-nut having at one end a conical clutch-surface adapted to engage that on the wrench member aforesaid and made with a thread adapted to engage with the threads on the clutch member, a removable abutment adapted to form an end wall of the recess for the adjusting-screw and a centering-pin extending between the said abutment and the adjusting-screw arranged to hold the said screw in position in the socket while permitting it some freedom of lateral and longitudinal movement, the front end of the nut being held in the socket solely by the engagement of the conical clutch members.

WILLIAM M. NORCROSS.

Witnesses:

CHAS. F. MYERS,
D. STEWART.