

May 6, 1947.

M. GRYNIUCK

2,420,132

DETACHABLE HEAD WRENCH

Filed Nov. 27, 1945

FIG. 1.

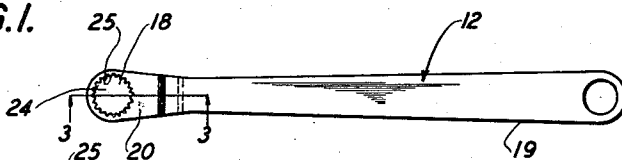


FIG. 2.

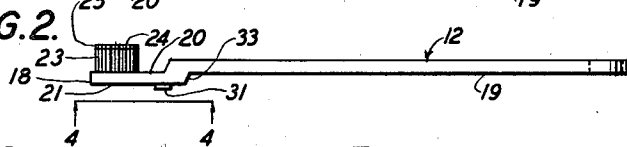


FIG. 3.

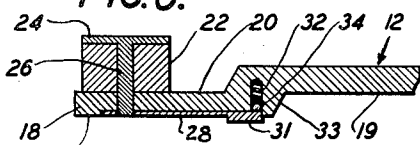


FIG. 4.

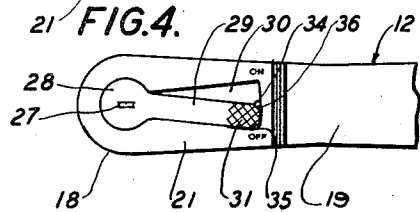


FIG. 5.

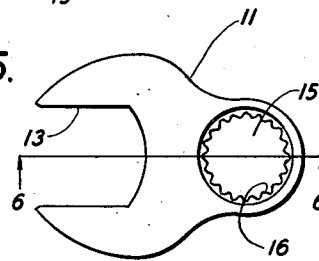


FIG. 6.

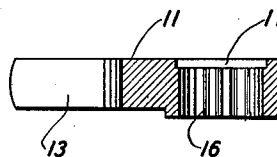


FIG. 9.

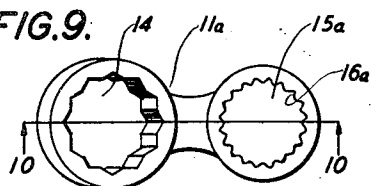


FIG. 7.

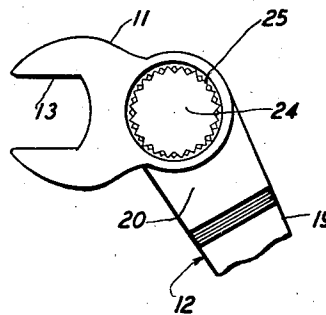


FIG. 10.

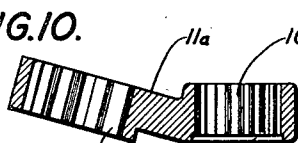
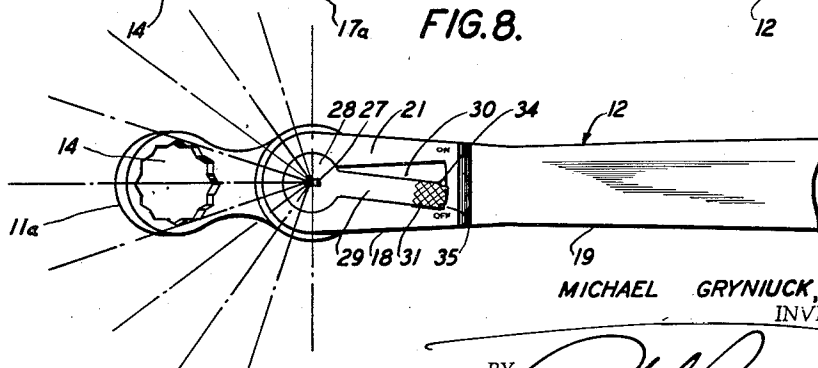


FIG. 8.



MICHAEL GRYNIUCK,
INVENTOR.

BY

W. H. Farlow
ATTORNEY

UNITED STATES PATENT OFFICE

2,420,132

DETACHABLE HEAD WRENCH

Michael Gryniuck, Los Angeles, Calif.

Application November 27, 1945, Serial No. 631,142

5 Claims. (Cl. 81—58)

1

This invention relates to wrenches particularly of the detachable head type.

Some of the important objects of the invention are:

To provide improved common fastening means for securing detachably a plurality of different sized heads to the handle comprising the body portion of the wrench; to provide improved means for conserving approximately 50% of the material to obtain the same range of wrench sizes; to provide improved means for obtaining a set of different sized wrenches attachable to a common handle which can be made more economically because of the simplicity and low manufacturing costs and thereby sold with profit for less than ordinary wrenches; to provide an improved wrench for use in constricted operating space, owing to the angular range of adjustment afforded the head in relation to the shank of the tool; and to provide a common fastening means for both open and box end heads.

A further object of the invention is to provide a superior locking means for securing the head of the wrench to the handle portion thereof.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing, which illustrates what at present is deemed to be a preferred embodiment of the invention using alternate heads,

Fig. 1 is a face view in plan of the wrench apart from the head.

Fig. 2 is a side elevation of the device shown in Fig. 1.

Fig. 3 is a fragmentary section taken on line 3—3 of Fig. 1 on an increased scale.

Fig. 4 is a fragmentary view looking in the direction of the arrows 4—4 in Fig. 2 on an increased scale.

Fig. 5 is a plan view of an open ended head adapted to be secured to the handle of Fig. 1, said head being drawn to a larger scale than the handle.

Fig. 6 is a section taken on line 6—6 of Fig. 5 to show the splines and locking recess in the head.

Fig. 7 is a fragmentary side elevation showing the head lockingly applied to the handle in one of its various adjusted positions.

Fig. 8 is a fragmentary plan view on an increased scale of the handle applied to a box head, radially extending lines indicating the several adjustments of the head.

Fig. 9 is a plan view of a box head adapted to be

2

applied to the handle interchangeably with the heads shown in Figs. 5 and 7.

Fig. 10 is a section taken on line 10—10 of Fig. 9.

Referring in detail to the drawing, the wrench provided by this invention, in general, comprises a head and a handle which are detachably connected with each other. Said head may consist of an open end head 11 as shown in Figs. 5, 6 and 7, or a box end head 11a as shown in Figs. 8, 9 and 10, either being interchangeably detachable with the handle 12.

The head 11 is provided with a nut-receiving aperture 13 and the head 11a is provided with a nut receiving aperture 14. Said heads 11 and 11a being otherwise constructed similarly only the head 11 will now be referred to and the letter a will be attached to the numeral indicating a like part in the alternate head.

In a parallel spaced relation to the nut-receiving aperture 13, the head 11 is provided with a handle-receiving aperture 15, one end portion of which is provided with a plurality of shoulders, splines or teeth 16, while the other end portion 17 is unsplined or internally smooth, the internal diameter or greatest cross-width of said smooth portion being at least equal to or greater than the diameter or cross-width between opposite splines or teeth of the splined portion.

The handle 12 may be constructed in a variety of ways but preferably consists of a streamlined metal bar the head end portion 18 of which is slightly offset in relation to the remaining portion 19 which constitutes the handle portion of the wrench in general. The offset end portion 18 has a bottom offset face 20 and a top offset face 21, said bottom face 20 carrying a circular insert part 22 which is attached in any suitable way (as for example by welding) to said bottom offset face. The circular part 22 is provided with a plurality of circumferentially arranged splines, teeth or shouldered portions 23 (see Fig. 2) which interfit with the splines, teeth or shouldered portions 16 or 16a when the heads 11 or 11a are operatively connected to prevent relative turning of the handle and head in their assembled relation.

A locking means is provided to prevent separation of the head 11 or 11a from the handle 12 when such parts are assembled for use, said locking means comprising a plate-like disk 24 provided with a plurality of teeth 25 (see Fig. 7) which register with the teeth 23 at the time the

part 22 is being inserted within the aperture 15

and which unregisters therewith to overlie the adjacent teeth 16 of the respective head.

The means whereby the rocking of the disk 24 is performed to register and unregister with the teeth as aforesaid consists of a circular shaft 26 which is preferably constructed integral with the disk 24, said shaft extending with a workable fit axially through the part 22 and the offset end portion 18. The end of the shaft 26 which protrudes beyond the offset end portion 18 is provided with a square shoulder 27 (see Figs. 4 and 8) which is journaled in a like aperture located in the circular head 28 of the operating lever 29, there being a recess 30 in the top face 21 in which said lever and head 28 operate from "off" to "on" position and vice versa. Said lever carries an elevated knurled portion 31 at its free end which extends slightly above the face 21 and which is engageable by the finger of the hand to rock the lever 29 and in turn the disk 24 back and forth to the selected positions.

In order to lock the lever 29 either in the "on" or the "off" positions, a hole 32 is provided in the stock of the handle comprising the offset 33 for mounting the spring-pressed ball 34, said ball occupying a locking relation with the lever 29 by virtue of the locking apertures 35 and 36 in the lever in which a portion of the ball's periphery rests.

Although it is believed the operation will be understandable from the foregoing, the following will be added for the sake of clearness.

Positions of the lever 29 shown in the "off" positions in Figs. 4 and 8 indicate the registered position of the teeth 23 with the teeth 25, whereas in Fig. 7 in the "on" position the teeth 25 have been rocked so as to overlie the teeth 16 of the head thereby locking the head and handle in their assembled relation.

Fig. 8 illustrates the number of adjustments that can be made of the head with respect to the handle. This adjustment is a feature especially where the wrench is being used in close operating quarters, for not only can the handle be detached from the head to make adjustments but the head can be separately adjusted in relation to the work. By the fine adjustments afforded either by detaching the handle and adjusting it in relation to the head applied to the work or adjusting the head first in relation to the work independently of the handle and maintaining a constant travel adjustment of the handle of the wrench in relation to the work will accomplish satisfactory operation of the wrench under the most difficult circumstances.

What is claimed is:

1. In a device of the kind described, a head provided with a nut receiving aperture and a shouldered handle receiving socket extending in a parallel spaced relation to said nut receiving aperture, a handle, means detachably securing said handle to said head, said means comprising a shouldered projection extending from one side of said handle and fittable within the socket of said head, the shoulders of each of the projection and socket interlocking with each other when operatively connected to maintain a fixed relation of the parts when assembled, locking means for securing said head and handle when associated as aforesaid, said locking means including a rockable locking part forming a continuation of said shouldered projection and provided

with shoulders to register with the shoulders of said projection when the latter is being inserted within the socket of said head, and means carried by said handle and operatively connected to said locking part to rock it to unregister its shoulders with the shoulders of said projection and in turn register them with the shoulders of said shouldered socket, there being an unshouldered space forming a continuation of the shouldered socket in the head providing for the free movement the locking part to and from a locking position with the shoulders of said shouldered socket.

2. The subject matter of claim 1, and means carried by said handle and operatively connected to the means for operating the locking part to maintain the latter part in a locked relation with said head.

3. The subject matter of claim 1, and means carried by said handle and operatively connected to the means for operating the locking part to maintain the shoulders of the latter part in a registered relation with the shoulders of said shouldered projection.

4. A wrench of the kind described comprising a head member having a nut receiving aperture and a handle member detachably connectable with said head for operating the latter, a socket carried by one of said members and an insert part carried by the other of said members insertable in said socket, a portion of the length of said socket being splined and the remaining portion being unsplined, said insert part being peripherally splined to, when inserted, interfit with the splines of said socket, a disk carried by said insert part and its associated member for locking said head member and handle member when operatively connected, said disk being peripherally splined and adapted to be rocked to and from a position wherein its teeth between splines register and unregister with the teeth between splines of said insert part, the splines of each of said disk and insert part being in register when said insert part is being inserted into said socket, and means carried by the member to which the insert part is attached for rocking the splines of said disk from a registrable relation with the splines of said insert part to an unregistrable relation therewith, whereby the teeth between splines of said disk overlie the teeth between splines of said socket, the diameter of the unsplined portion of said socket being at least equal to or greater than the diameter between the tips of opposite teeth of said disk to provide for the free rocking of said disk.

5. The subject matter of claim 4, and means operatively connecting said rocking means and its carrying member to maintain said disk in either of its locking or unlocking positions.

MICHAEL GRYNIOCK.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,641,415	Dahlstrand	Sept. 6, 1927
1,822,428	Zilliox	Sept. 8, 1931

FOREIGN PATENTS

Number	Country	Date
4,162	British	Feb. 19, 1904