

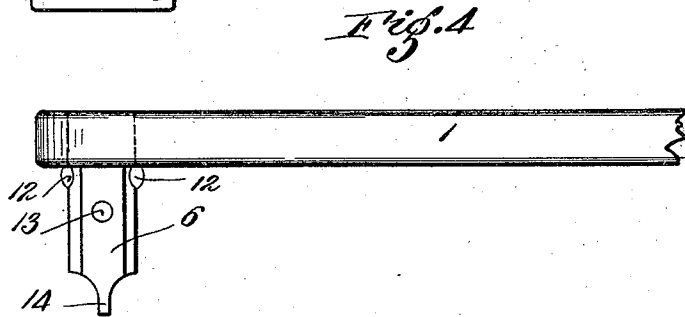
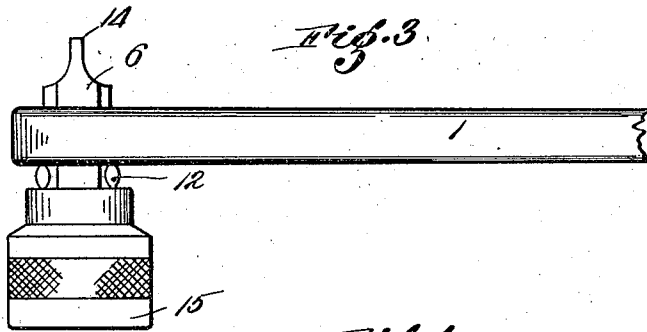
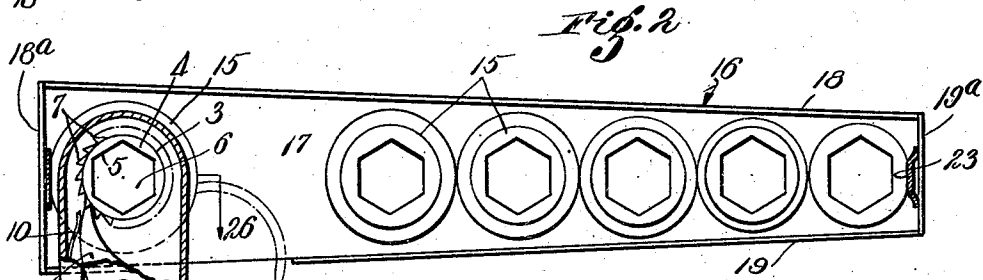
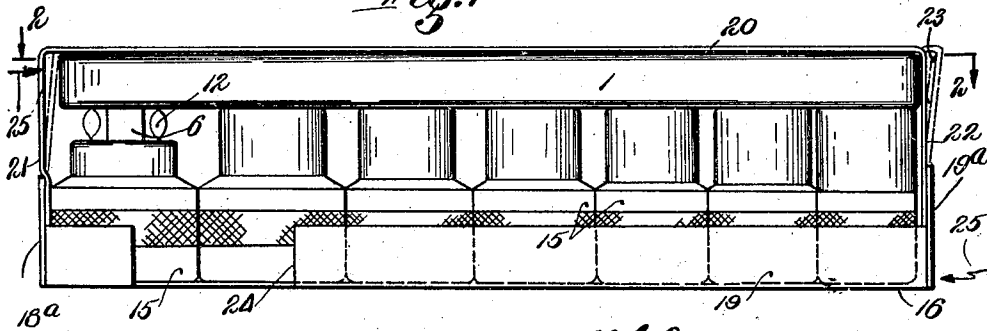
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SOCKET WRENCH SET

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UNITED STATES PATENT OFFICE.

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SOCKET-WRENCH SET.

Application filed April 3, 1926. Serial No. 99,538.

This invention relates to socket wrench sets comprising a plurality of sockets of different sizes and a single handle adapted to be fitted to any selected socket of the set.

5 These sets are commonly included in the tool kit of an automobile and are often provided with an enclosing case or holder which retains all the sockets and the handle in a compact assemblage, thus preventing their
10 loss or injury. This invention is particularly intended to provide an improved form of holder of simple, inexpensive and durable construction and devoid of detachable parts, and adapted to prevent accidental dis-
15 lodgment of the parts of the set, while permitting them to be removed for use with a minimum degree of trouble.

Further objects of the invention will be apparent from the detailed description
20 which follows and will be specifically pointed out in the appended claims.

Referring to the drawings—

Fig. 1 is an elevation of the improved holder with the sockets and handle assembled therein;
25

Fig. 2 is a horizontal section on the line 2—2 of Fig. 1 with a portion of the handle broken away to show the internal construction;

30 Fig. 3 is an elevation of the handle with one of the sockets attached thereto; and

Fig. 4 is an elevation of the handle and stud in position for use as a screw-driver.

35 The handle is indicated generally at 1 and in the present case consists of two complementary shell-like members which may be struck out from sheet metal and may be fastened together as indicated at 2 (Fig. 2) by spot welding, or in any other suitable
40 manner. There is an aperture 3 near the larger end of the handle in which is pivoted for rotation a collar 4 having a polygonal aperture 5 therein for the reception of a connecting stud 6. The collar 4 is provided
45 with external ratchet teeth 7 which are adapted to be engaged by a pawl 8 which is pivoted at 9 between the two members of handle 1. The pawl 8 is urged toward the ratchet teeth by a spring 10 fastened
50 to the inside of the handle.

55 While one desirable form of handle is herein disclosed, it is to be understood that so far as the present invention is concerned, the specific type of handle employed is in general immaterial, and that the collar 4

or its equivalent may be fixed instead of rotary if desired. The handle 1 is provided with a notch 11 (Fig. 2) at the opposite end from the collar 4 for a purpose to be later described.

60 The stud 6 is provided with struck-out lugs 12 for limiting its entrance into the aperture 5 of the collar 4 and is also provided with two spring-pressed balls 13, one of which is shown on Fig. 4, the other being
65 concealed within the collar. These balls provide sufficient friction between the stud 6 and the side wall of the aperture 5 and the inside of a wrench socket respectively to retain the stud in position. The stud 6 ter-
70 minates at one end at a relatively short distance from the lugs 12, this end of the stud preferably being blunt, while the opposite end of the stud preferably extends to a
75 greater distance beyond the lugs 12 and terminates in a screw-driver blade 14. Fig. 4 shows the stud in place in the handle for use as a screw-driver, while Fig. 3 shows the stud in place in the handle in the reverse
80 position so that the blunt end may be engaged with a wrench socket 15 without danger of interference with a bolt head or nut engaged by the socket.

85 The handle may be engaged with any one of a number of different sized sockets 15 of which seven are shown in this set. A holder, generally indicated at 16, is adapted to hold the handle and the sockets in assembled relation and to provide against accidental displacement thereof.

90 The holder 16 comprises a tray portion 17 having side walls 18 and 19 and end walls 18^a and 19^a. The sockets 15 are intended to be seated in the tray 17 in regular order of their size, the tray being tapered from one
95 end toward the other for that purpose. When assembled the handle and stud are normally engaged with the largest of the sockets shown at the left-hand end of the tray in Figs. 1 and 2, the stud being in the
100 position shown in Fig. 4 with the screw-driver 14 extending within the socket and the blunt end of the stud substantially flush with the upper surface of the handle.

105 The holder also comprises a handle retaining device, cover, or holding strip 20 having stiffly resilient end portions or abutments 21 and 22 which extend downwardly and are rigidly and fixedly attached to the
110 end walls of the tray 17 by soldering, weld-

ing or in any other suitable way. This holding strip 20 extends longitudinally over the handle 1 when the device is in assembled relation and holds it against upward displacement, the abutment members 21 and 22 being spaced to admit the handle between them. The end portion 22 of the strip 20 is provided with an inwardly directed boss 23 constituting a latch element which is adapted to engage in the notch 11 at the end of the handle when the parts are assembled, at which time there is a slight pressure exerted from the end 22 through boss 23, handle 1, stud 6, and the left-hand socket 15 in which the stud is inserted, and against the end 18^a of the tray 17. This pressure prevents any accidental dislodgment of any of the parts, as the sockets 15 may not be moved sidewise due to the side walls 18 and 19 of the tray 17 and are restrained from upward movement by the handle 1 above them. The side wall 19 is provided with an aperture 24 of a slightly greater width than the largest of the sockets 15 but out of registry with any one of the sockets when the parts are all assembled.

To remove the handle or the sockets from the device, it is necessary first to apply a diagonal pressure on the holder substantially in the direction of the arrows 25. This forces the holding strip 20 and the end portions 21 and 22 thereof into some such position as is shown in dotted lines in Fig. 1, thereby disengaging the boss 23 from the notch 11 and permitting the handle to be swung sidewise about the stud 6 to approximately the full line position shown in Fig. 2. Any one of the sockets 15, with the exception of that engaged with stud 6, may now be lifted upwardly until its bottom is above the top of the walls 18 and 19 and then slid from under the holding strip 20. When this is done, the endmost socket to which the stud 6 and handle 1 are connected, may be moved into registry with and then laterally out of the opening 24 in the side wall 19 as shown in dotted lines in Fig. 2 as indicated by the arrow 26.

In assembling the device for transportation or storage in the tool kit of an automobile or elsewhere, the reverse operations are performed, the only difference being that it is not necessary to apply pressure in an endwise direction to the holder in order to snap the handle back into the position shown in Fig. 1 with the boss 23 engaged with notch 11, since the curvature of the end of the handle shown at 27 acts as a cam to spring the handle into place.

I have thus provided an extremely simple assembly of socket wrenches with a substantially unitary holder which will positively retain all the parts against accidental dislodgment during transportation and prevent their loss. The device is equally effective

if some of the sockets are missing as the remainder are always prevented from dislodgment in the manner described. I do not wish, therefore, to be limited to the specific embodiment of the device herein shown and described, but merely by the scope of the appended claims.

I claim:—

1. A socket wrench set comprising a handle, an elongate support for holding a row of sockets, a handle retaining device extending longitudinally of the socket support and fixedly attached thereto at both of its ends, the retaining device comprising a resiliently yieldable element normally engaging the end of the handle to hold the latter in alignment with the row of sockets.

2. A socket wrench set comprising a handle, a receptacle for independent sockets, and a releasable resilient latch element fixedly attached to one end of the receptacle and normally engaging the end of the handle and thereby retaining said handle in normal position within the holder, the handle when in such position positively preventing removal of the sockets from the receptacle.

3. A socket wrench set comprising a handle, a holder for independent sockets, the holder having abutment elements at its opposite ends, said abutment elements being spaced to receive between them the handle member, one of the abutments having a locking element normally engaging a complementary element at one end of the handle whereby to retain the handle in the holder, the handle when so positioned constituting a stop to prevent removal of the sockets from the holder.

4. A socket wrench set comprising a handle, a tray having side and end walls, the tray being adapted to hold a plurality of sockets, a cover strip extending longitudinally of the tray and above the upper edges of the side walls of the latter, said strip having resilient end portions rigidly united to the end walls of the tray, one of the side walls of the tray having an aperture for the passage of a socket.

5. A socket wrench set comprising a handle, an elongate tapered tray having side walls and end walls and adapted to hold a plurality of sockets of graduated sizes, abutment members fixed to the end walls of the tray and projecting above the plane of the side walls of the latter, said abutment members constituting elements of a handle retaining device and being connected by a member extending longitudinally of and above the tray, said connecting member being adapted to overlie the handle when the latter is disposed above the row of sockets in the tray and connected at one end to the socket at one end of the row, the other end of the handle normally engaging an element

of one of said abutment members to retain it in position, the handle when disengaged from said element being adapted to swing laterally from below said connecting member about said endmost socket as an axis.

6. A socket wrench set comprising a plurality of independent sockets, a handle therefor, a tray for holding said sockets in a row, the handle being normally affixed to the socket at one end of the row and extending over the other sockets, and means fixedly connected with the tray for preventing accidental dislodgment of the handle from such normal position whereby all the sockets are retained in position by the handle.

7. A socket wrench set comprising a plurality of independent sockets, a handle therefor, a tray for holding said sockets in a row, the handle being normally affixed to the socket at one end of the row and extending longitudinally over the row, and a cover or holding strip whose opposite ends are fixedly united to the tray and which extends longitudinally thereof above the handle, said cover or holding strip comprising an element having resilient engagement with the handle to maintain the latter in normal position and thereby to retain the row of sockets against accidental dislodgment.

8. A socket wrench set comprising a plurality of independent sockets of graduated sizes, a handle therefor, a tapered tray for holding said sockets in a row, the handle being normally affixed to the socket at one end of the row and extending longitudinally over the other sockets, and a cover strip rigidly united at each end to the tray and extending longitudinally thereof above the handle, said cover strip having resilient engagement with the handle to retain it in normal position, the tray being provided with a side wall having an aperture of substantially the diameter of the largest of the sockets but out of registry with any of the sockets when they are normally positioned, whereby in removing the sockets from the holder the handle must first be swung out of line with the tray, and one or more of the sockets must be removed so that the handle and socket affixed thereto may be slid along the tray to a position opposite to the aperture and removed laterally therefrom.

9. A socket wrench set comprising a plurality of independent sockets, a handle therefor, a tray for holding said sockets in a row, one end of the handle being normally engaged with the socket at one end and extending longitudinally over the row of sockets, the handle having a notch in its opposite end, a flexible member rigidly connected to the tray and projecting up at one end of

the latter, and a boss on said member adapted resiliently to engage said notch.

10. A socket wrench set comprising a plurality of sockets, a handle therefor, a tray for holding said sockets in a row, one end of the handle being normally affixed to the socket at one end of the row and extending longitudinally over the row of sockets, a flexible strip having both ends rigidly secured to the tray and extending longitudinally thereof above the handle, the handle having a latch element at its other end, and a complemental latch element on the strip adapted to engage the latch element of the handle, the handle being removable from the holding device by a diagonal pressure thereon disengaging the latch elements.

11. A socket wrench set comprising a plurality of independent sockets, a handle therefor, a tray for holding said sockets in a row, one end of the handle being normally attached to the socket at one end of the row and extending longitudinally over the row of sockets, a flexible strip rigidly connected to the tray extending longitudinally thereof above the handle, the handle having a notch in its opposite end, and a boss on the strip adapted to engage said notch, the tray being provided with side walls of such height that the sockets may only be removed from the tray after the handle has been removed from above them.

12. A socket wrench set comprising a plurality of independent sockets, a handle therefor, a tray for holding said sockets in a row, the handle being normally affixed to the socket at one end of the row and extending longitudinally over the row of sockets, a cover strip having downwardly directed resilient end portions rigidly attached to the opposite ends of the tray, said cover strip extending longitudinally above the handle, the handle having a notch in its end, a boss on one of the resilient depending portions of the cover strip adapted to engage said notch, the tray being provided with side walls which prevent the removal of the sockets when the handle is in normal position, one of said side walls being provided with an aperture of a slightly greater width than the diameter of the largest socket, the aperture being out of registry with any one of the sockets when the latter are in normal position, the handle being removable from the holder by a diagonal pressure on the ends of the tray and cover strip respectively thereby disengaging the boss from the notch, permitting the handle to be swung laterally from over the socket.

Signed by me at New Britain, Connecticut this 29th day of March, 1926.

WILLIAM BREWER TURNER.