The present invention relates to socket wrench kits, and is particularly concerned with kits adapted to hold a plurality of socket wrenches and other actuating devices in a convenient and accessible assembly.

One of the objects of the invention is the provision of a socket wrench kit which is more compact than the kits of the prior art, particularly when the kit is opened for selection of a socket wrench, so that the kit may be opened in a tool bag or the like and the wrenches used without removing the whole kit from the bag.

Another object is the provision of a socket wrench kit comprising a plurality of socket wrenches, a wrench lever, a ratchet lever, and a holding device in which the component parts are secured together in a novel and conveniently accessible manner.

Another object is the provision of a novel holding device for socket wrenches, wrench lever, ratchet lever and stub shaft, which is more compact, more conveniently used and more economically manufactured than the devices of the prior art.

Other objects and advantages of the invention will be apparent from the following description and from the accompanying drawings in which similar characters of reference indicate similar parts throughout the several views.

Referring to the drawings, of which there are three sheets,

Figure 1 is a plan view of a socket wrench kit assembly with the wrench lever partly broken away to show the ratchet lever;

Figure 2 is an elevation view of the same;

Figure 3 is an elevation of the right end of Figure 2;

Figure 4 is an elevation of the left end of Figure 2;

Figure 5 is a view in perspective of the holding device for the socket wrenches and actuating devices;

Figure 6 is a sectional view taken on the line 6-6 of Figure 5;

Figure 7 is a sectional view taken on the line 7-7 of Figure 2;

Figure 8 is an end view of the wrench holding device partially opened with the wrenches removed;

Figure 9 is an elevation view of a modified form of socket wrench kit;

Figure 10 is an elevation view of the right end of Figure 9;

Figure 11 is an elevation view of the left end of Figure 9; and

Figure 12 is a view in perspective of the wrench and lever holding device with the wrenches and lever removed.

Referring to Figures 1 and 2, 20 indicates my socket wrench kit or assembly in its entirety, the kit of this embodiment comprising a plurality of socket wrenches 21 of conventional form, a ratchet lever 22, a wrench lever 23, a combined stub shaft and screw driver 24, and a holding device for the foregoing elements indicated in its entirety at 25.

The socket wrenches comprise a plurality of metal members provided with non-circular sockets 26 at one end for receiving the wrench 23 on the stub shaft 24, and having wrench sockets at the other end varying in size from the smallest socket wrench on the left to the largest on the right.

The ratchet lever 22 may consist of any conventional type of ratchet lever having a socket 27 adapted to receive one end of the stub shaft 24, the socket 27 having the usual one way ratchet connection with the handle 28. The wrench lever 23 comprises an elongated hexagonal bar having one end 29 bent down at substantially right angles, and either end of the wrench lever 23 is adapted to be received in any of the sockets 26 of the socket wrenches 21, being retained therein by frictional engagement of a spring pressed ball 30 with the interior of the sockets 26. The wrench lever is provided with the usual projections 31 pinched out of the bar for limiting movement of the wrench into the socket 26 of a socket wrench.

The stub shaft 24 consists of a short length of hexagonal bar provided with projections 31, and spring pressed balls 30 adjacent each end of the hexagonal portion, and the stub shaft 24 may also have one end 32 formed like a screw driver. The exact details of the socket wrenches, ratchet lever and wrench
lever may be varied, as the present invention relates particularly to the assembly or kit which holds said devices.

The holding device for the wrenches and levers preferably consists of an elongated sheet metal container 33 which is tapered longitudinally so as to conform substantially to the width of the socket wrenches and to automatically arrange the wrenches in order of size when placed in the receptacle. The container or receptacle 33 may have a base 34 of substantially trapezoidal form, having upwardly turned flanges 35 and 36 at each side and flanges 37 and 38 at each end for retaining the wrenches on the base 34. The container 33 is thus provided with sides of sufficient height to keep the socket wrenches 21 will be retained therein when the retaining member 39 is in the position shown in Figures 1 to 4.

The retaining member 39 may also comprise a sheet metal member having a flat base 40 bounded at each side by upwardly projecting flanges 41 and 42, and the base 40 may conform substantially to the outline of the ratchet lever 28, in order to enclose and protect the same and provide a finished appearance. Thus the base 40 is provided with a relatively wide portion at 43 for receiving the end of the ratchet lever, the base tapering at 44 with the handle of the ratchet lever, and the balance of the base being substantially as wide as the handle of the ratchet lever to the end 45 of the ratchet lever.

The flanges 41 and 42 likewise conform to the shape of the ratchet lever 28, and these flanges are provided with upwardly extending ears 46 and 47 adjacent the socket end of the ratchet lever, and upwardly extending ears 48 and 49 adjacent the handle end of the ratchet lever. The ears 46 to 49 are each bent over at substantially right angles to form retaining flanges 50, 51, 52 and 53 adapted to engage above the ratchet lever 28 when the parts are in the position shown in Figure 1.

It will thus be observed that the ratchet lever 28 may be laid on the base 40 with the handle end pointing toward the retaining flanges 52 and 53, and the ratchet lever may be slid beneath the retaining flanges 50 to 53, the upwardly projecting ears 46 to 49 resiliently engaging the sides of the ratchet lever to retain it in place and prevent it from sliding out when the kit is opened.

The retaining member 39 is also provided at the opposite end with a pair of upwardly projecting flanges 54 and 55 one on each side of the space beyond the end 45 of the ratchet lever 28, and a tongue 56 may be pressed up out of the base 40 in order to confine the stub shaft 24 in the space between the tongue 56 and the ratchet lever 28.

For this purpose also the flanges 54 and 55 may curve outwardly slightly at 57 and 58 to make room for the stub shaft 24, and the flanges 54 and 55 may curve inwardly at their upper ends 59 and 60 for the purpose of resiliently engaging the sides of the wrench lever 23 adjacent one end thereof. The wrench lever 23 may then be placed with its end 29 in the socket of the ratchet lever 29, and the opposite end of the wrench lever 23 may be held by the resilient fingers 59 and 60, thereby confining the stub shaft 24 beneath the wrench lever 23.

It will thus be observed that the ratchet lever 28 is employed for holding the wrench lever 28 in the assembly of my socket wrench kit, thereby simplifying the construction of the holding device and utilizing the structure of the ratchet lever for assembling the parts of the kit.

The retaining member 39 is also provided at each end with downwardly extending flanges 61 and 62 located to engage outside the flanges 37 and 38 carried by the receptacle 33, and the flanges 61 and 62 may be pivotally connected to the flanges 37 and 38 respectively by screw bolts 63 passing through the flanges 61 and 62 and threaded in the flanges 37 and 38. The apertures for the screw bolts 63 are preferably located at the rear end bottom corners 64 of the flanges 37, 38, 61 and 62, so that the retaining member 39 may pivot back and forth without interference with the tops of the socket wrenches 21.

The flanges 37, 38, 61 and 62 may be provided with supplementary pressed projections 65 adapted to engage within each other when the parts are in the closed position shown in Figure 2 to resiliently retain the retaining member in the closed position. Our holding device for the socket wrench kit is preferably constructed of sheet steel so that the parts are resilient and the flanges retain the shape given them in their construction, without the necessity of welding the corners of the receptacle or other parts.

By pivoting the retaining member 39 upon the longitudinal axis of the receptacle 33, our wrench kit may be opened without materially increasing its size, as distinguished from the devices of the prior art, in which the length of the kit is doubled when the device is opened. Furthermore, a kit of the present construction may be opened in a tool bag without removing the kit from the tool bag, thereby reducing the danger of losing the kit by permitting it to lie around outside of the bag, and increasing the accessibility of the socket wrenches 21. The kit may also be opened more quickly, requiring a shorter range of movement for opening the entire kit when a wrench is to be selected, and it is not necessary to disturb the entire assembly of wrenches merely to use a certain socket wrench.

Referring to the embodiment shown in Figures 9 to 12, this socket wrench kit is adapted...
to support the socket wrenches and lever without the ratchet lever and stub shaft, but the present embodiment is similar in form to the preceding construction in many of the details of construction and in having its retaining member 39 pivoted on a longitudinal axis relative to the receptacle 33. The receptacle 33 is provided with a similar base 34 of substantially trapezoidal form having lateral flanges 35 and 36, and an upwardly projecting flange 37 at one end similar to the device of the preceding embodiment.

At the opposite end the upwardly projecting flange 66 may be of substantially the same height as the flanges 35 and 36 to adapt the same for use with the retaining member 39, which in this embodiment has a slightly different shape.

The retaining member 39 comprises an elongated sheet metal member having a substantially flat base 67 and a downwardly projecting flange 61 similar to the preceding embodiment. At the opposite end, however, the base 93 may be made substantially wider and provided with a downwardly projecting flange 68, a flange 69 parallel to the base 67 and a pivot flange 70. The flanges 61 and 70 may be pivoted to the flanges 37 and 66 on the receptacle 33 by screw bolts 63 as in the preceding embodiment, and these flanges may also be provided with similar complimentary depressions 65 for retaining the device in closed position. If desired, a hole may be drilled in one of the flanges instead of forming a depression 65, the hole co-operating with the projection on the adjacent flange in substantially the same way.

The flange 69 of the retaining member 39 is provided with an aperture 71 adapted to receive the end 29 of the wrench lever and the retaining member is provided at each side with flanges 72 and 73 extending upwardly from the base 67 at an angle of substantially sixty degrees to conform to the shape of the hexagonal wrench lever 23. At the end of the retaining member 39, opposite to the end for the aperture 71, this member is provided with upwardly projecting flanges 74 and 75 which may be bent over at their ends forming retaining flanges 76 and 77, conforming substantially to the shape of the hexagonal wrench lever 23, and adapted to receive the same. It will thus be observed that the wrench lever 23 may have its straight end slid beneath the flanges 76 and 77, and the resilient character of these flanges will still permit sufficient pivotal movement so that the right angle end 29 of the wrench lever 23 may be moved into the aperture 71.

A conventional spring pressed ball on the end 29 of the wrench lever 23 will retain the lever in the aperture 71, and the edges of the aperture 71 will prevent longitudinal sliding movement of the lever 23 so that its opposite end is retained by the flanges 76 and 77. This embodiment may likewise be provided with a set of socket wrenches 21 of conventional form, each having a socket adapted to receive either end of the wrench lever 23 and having sockets of varying size for use as wrenches. One of the sockets 21 may have an end 32 formed like a screw driver, if desired.

It will thus be observed that the socket wrench kits of the present invention provide a convenient and accessible assembly of socket wrenches and actuating devices which is more compact than the devices of the prior art and which may be quickly and economically manufactured by stamping the same of sheet metal.

As the retaining member for the socket wrenches is pivoted on a longitudinal axis of the kit, all of the socket wrenches may be made accessible for selection by a very slight movement of the parts, and the kit may be opened in a tool bag or the like without disturbing the assembly of wrenches or without removing the kit from the bag.

While we have illustrated and described a specific embodiment of our invention, many modifications may be made without departing from the spirit of the invention, and we do not wish to be limited to the precise details set forth, but desire to avail ourselves of all changes within the scope of the appended claims.

Having thus described our invention, what we claim is new and desire to secure by Letters Patent of the United States is:

1. In a socket wrench kit, the combination of a longitudinally tapered container having a base and upwardly projecting retaining flanges for holding a plurality of socket wrenches, with a retaining member having downwardly extending pivot flanges at each end, said pivot flanges being pivoted to the end retaining flanges of said container, interlocking formations carried by said pivot and end flanges for holding said retaining member in closed position, ratchet lever retaining flanges carried by said retaining member, and wrench lever retaining flanges carried by said retaining member.

2. In a socket wrench kit, the combination of a longitudinally tapered container having a base and upwardly projecting retaining flanges for holding a plurality of socket wrenches, with a retaining member having downwardly extending pivot flanges at each end, said pivot flanges being pivoted to the end retaining flanges of said container, interlocking formations carried by said pivot and end flanges for holding said retaining member in closed position, ratchet lever retaining flanges carried by said retaining member, wrench lever retaining flanges carried by said retaining member, a ratchet lever carried by said ratchet lever retaining flanges, and a wrench lever having one end.
disposed in a socket in said ratchet lever and the other end held by said wrench lever retaining flanges.

3. In a socket wrench kit, the combination of a longitudinally tapered container having a base and upwardly projecting retaining flanges for holding a plurality of socket wrenches, with a retaining member having downwardly extending pivot flanges at each end, said pivot flanges being pivoted to the end retaining flanges of said container, interlocking formations carried by said pivot and end flanges for holding said retaining member in closed position, ratchet lever retaining flanges carried by said retaining member, wrench lever retaining flanges carried by said retaining member, a ratchet lever carried by said ratchet lever retaining flanges, a wrench lever having one end disposed in a socket in said ratchet lever and the other end held by said wrench lever retaining flanges, and a stub shaft carried between said retaining member and said wrench lever.

In witness whereof, we hereunto subscribe our names this 6th day of October, 1928.

NORRIS F. MCNAUGHT.
EDWARD HENRY PETERSON.