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J. FALK

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DRILL KIT

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Fig. 1

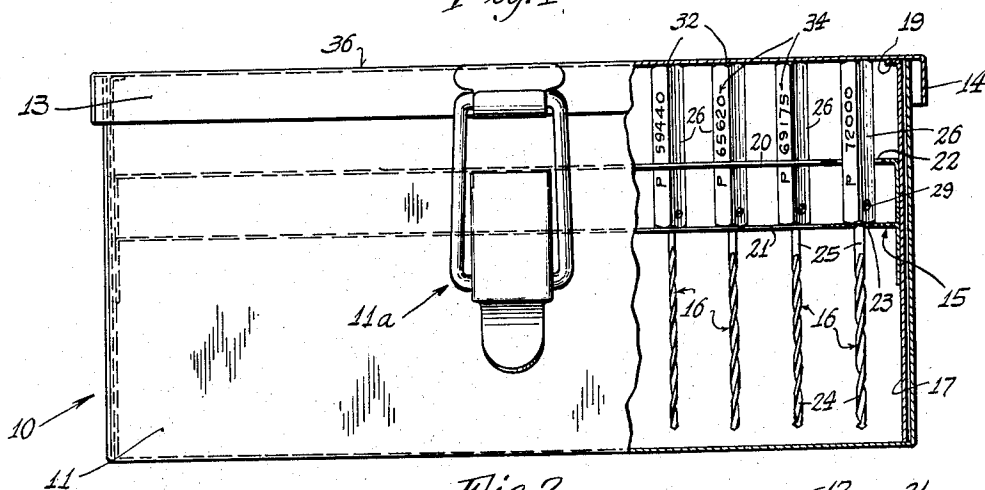


Fig. 2

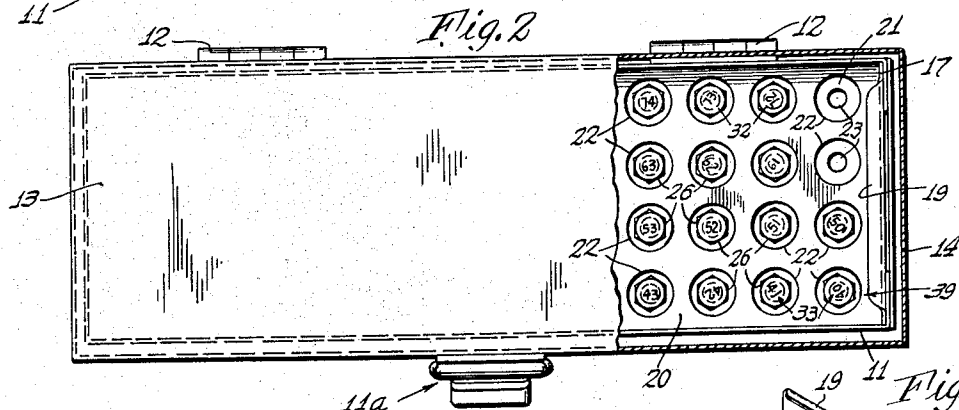


Fig. 3

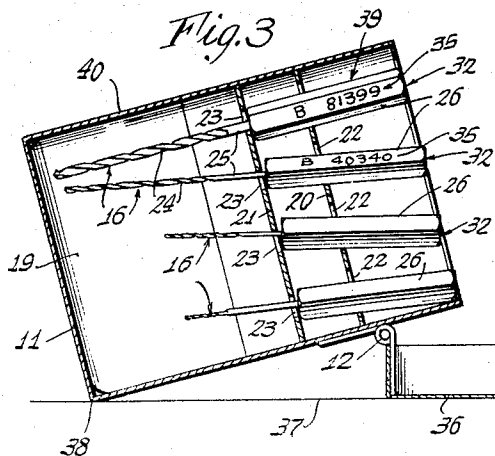


Fig. 4

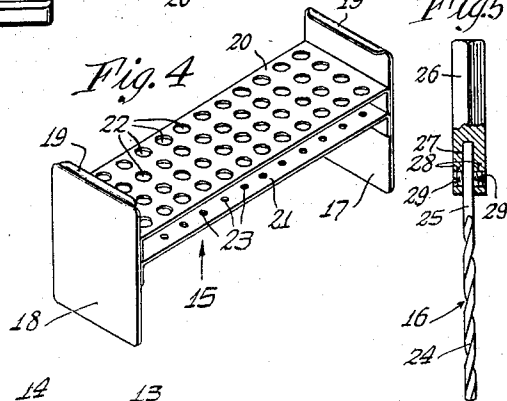
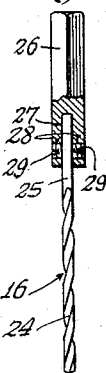


Fig. 5



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DRILL KIT

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4 Claims. (Cl. 206—17)

The present invention relates to improvements in a container for the storage of drills, and more particularly, to a kit containing a plurality of various sized drills for use in the cleaning, removing and enlarging of gas orifices such as are found in gas appliances.

Heretofore, it has been the practice to carry such drills, many of which are very fine, in the tool box with other tools which rendered the tools subject to damage, and many of the tools were readily lost. In an effort to overcome this difficulty, the tools were loosely enclosed in a box. This had the disadvantage, however, that the tools were not readily accessible.

An object of the present invention is to provide a drill kit in which a quantity of drills may be compactly stored and in which the drills are maintained in spaced relation to prevent damaging of one another.

A further object of the present invention is to provide a compact drill kit as set forth above in which, though the drills are closely spaced, each drill is so arranged as to be readily accessible when wanted.

Another object of the present invention is to provide a drill kit in which each individual drill is so positioned that the marking denoting its size is readily ascertainable without requiring any handling of the drills.

A further object of the present invention is to provide a drill kit in which the kit, when in use, utilizes a portion of the container as a tray to prevent loss or damage to drills which are removed from their normal storage position.

Still another object of the present invention is to provide in a drill kit for each drill to have its individual handle in which the replaceable cutting portion of the drill can be readily clamped and/or aligned with the handle.

These objects are accomplished by providing a kit including a covered container for the drills, said kit having a tray or stand therein including a plurality of spaced plates having apertures adapted to receive and support the drills, the aperture in the lower plate being smaller than the diameter of the handle of the drill so as to be engaged by the bottom of the handle and support the drill thereon, while an aperture in the upper plate surrounds the handle and permits lateral tilting of the handle universally to permit the tools to be maintained in close juxtaposition in storage, yet the handles of adjacent tools to be tilted laterally to afford access to the desired tool handle when it is required to be removed from the kit.

A feature of the present invention resides in novel tools in the kit in which the drill and its shank can be readily replaced in the handles.

Another feature of the invention resides in providing the handles of the tool with suitable identifying indicia and also with indicia indicating the normal B.t.u. per hour passed by an orifice formed by the drill, thereby making it unnecessary to consult the usual chart for this information.

Other objects and advantages will become apparent from a consideration of the following detailed descrip-

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tion of the invention taken in connection with the accompanying drawing wherein an embodiment of the preferred form of the invention is shown. However, it is to be understood that the invention is not to be limited to the details disclosed but includes such variations and modifications as fall within the spirit of the invention and the scope of the claims.

Referring to the accompanying drawing:

Fig. 1 is an elevation of the drill kit with a portion of the container being shown in section.

Fig. 2 is a plan view thereof with a portion of the cover removed.

Fig. 3 is a sectional view of the drill kit showing one manner in which it may be positioned for use.

Fig. 4 is an isometric view of the stand for containing the drills.

Fig. 5 is a view, partly in section, of an individual drill including its handle.

In the embodiment of the invention shown in the drawing, the drill kit is generally indicated by the reference numeral 10 and includes a container or box 11. The box is substantially rectangular in cross-section though other shapes, if desired, may be employed. Attached to one side of the box there are hinges 12 for pivotally mounting a cover 13. As shown, the hinges 12 are fastened to one side of the box below the top edge thereof for reasons which will hereinafter be apparent. The cover includes bent-over edge portions 14 which by themselves constitute a tray and which when the cover is in closed position overlap the top edges of the box.

A catch, generally indicated by the reference numeral 11a, is provided to secure the cover to the box when the cover is closed.

Positioned within the box 11 there is a stand 15 for maintaining drills 16 in closely spaced relation yet for providing ready accessibility for each drill. The stand includes two end support members 17 and 18 which may be legs; however, in the embodiment illustrated they have a configuration substantially like the ends of the box. The upper end portion 19 of each support member is bent over to provide a lip which may be grasped to remove the stand from the box. Extending between the support members are upper and lower plates 20 and 21 respectively. The ends of the plates are fastened to the support members so that the plates are parallel to each other and perpendicular to the support members with the lower plate spaced above the bottom of the box a distance sufficient to maintain the drills, when supported thereby, out of contact with the bottom of the box. The upper plate 20 is provided with a plurality of apertures 22 which are spaced as shown, though other formations may be employed. The lower plate is provided with smaller apertures 23 in like formation and which are aligned with their corresponding apertures in the upper plate 20.

Each drill 16 consists of a cutting and/or reaming portion 24 merging into a shank portion 25 and a separable handle 26. The drills are preferably sized from a No. 40 to a No. 80 inclusive in order to provide a substantially complete assortment. The handle 26 of the drill is elongated, polygonal in cross-section and has an axial bore 27 into which the shank end 25 of a drill is positioned. Heretofore the shanks have been permanently secured to the handle by solder or swaging. The present invention provides for the ready removal and replacement of a broken or dulled drill by having the shank releasably clamped to the handle. This is accomplished by providing two radially extending threaded holes 28 in which set screws are positioned. In addition to enabling the ready replacement of a drill within the handle, the diametrically opposite mounting of the set screws 29 permits adjustment

of the drill so that its axis can be aligned with the axis of the handle.

As shown in Figs. 1 and 3, the handle 26 is larger than the shank portion of the drill and when a drill is placed in the stand, the cutting and shank portions of the drill extend through the apertures formed in the lower plate. The handle 26 is substantially smaller than the apertures 22 in the upper plate but is larger than the apertures 23 in the lower plate so that when the drill is inserted the handle rests on the lower plate. Preferably the end of the handle engaging the lower plate is flat and normally supports the drill in a vertical position. However, because of the size of the aperture 22, the drill handle can be tilted laterally in all directions and provides universal movement. The drills are thus maintained closely spaced yet they are readily accessible to the user by reason of the fact that adjacent handles can be readily tilted laterally away from the selected drill so as to enable the fingers of a user to be inserted into gripping relation with the handle when it is desired to remove or replace a drill in the kit.

As shown in Figs. 1 and 2, the drills have their upper end 32 visible upon opening of the cover and also a portion of their length. To provide for ready identification of each drill size, the size of each drill is stamped or otherwise marked as at 33 on the top end portion of the handle. Moreover, since the drill kit of the instant invention is for particular use in the gas distributing field, each drill has imprinted as at 34 on one of the flat sides of the handle, the B.t.u./hr. which normally would flow through an orifice of the same size as the drill. This manner of identifying the size of the orifice is marked not only for the B.t.u./hr. for propane gas but also for butane gas, indicated at 35. Such identification of drill size obviates a repairman consulting a chart for correlating the drill size to the gas flow.

Shown in Fig. 3 is a sectional view of the drill kit illustrating one manner in which it is positioned when in use. The cover 13 is open and its flat outer top surface 36 rests on a flat plane or support 37 while the end 38 of the box also rests on the same support. In this position identification of each drill is readily apparent, each drill is easily accessible and yet the drills will not fall out of the box. Moreover, when a plurality of drills are removed from the container they may be placed in the cover rather than back into the stand without causing damage or loss of the drill. The cover in effect thereby constitutes a tray for receiving and containing loose drills during use of the kit.

The topmost row of drills 39 when the container is positioned in the manner shown in Fig. 3, i.e. the row adjacent the side 40 of the box which is remote from the side having the cover hinged thereto, contains the largest drills in the set and they are not inclined as the other drills are because the center of gravity of the largest drills is normally located below the upper plate when the drills are vertically positioned and hence when the box is inclined, maintains these drills in their respective apertures in the plates in the manner shown.

In the embodiment shown, the handles are preferably formed from a non-rusting material, such as aluminum, while the drills are made from tool steel. The top of the handles of the drills are substantially aligned with the top of the box so that when the cover is closed, the axial movement of the drills is minimized.

From the foregoing, it will be appreciated that there has been set forth a drill kit in which a plurality of drills having handles may be compactly stored without damage to the drills. Notwithstanding the compactness, each drill is readily accessible and can be easily grasped by the user. In addition, the cutting portion of the drill is readily replaced in and aligned with the handle upon breakage or dullness thereof permitting reuse of the handle.

Variations and modifications may be made within the

scope of the claims and portions of the improvements may be used without others.

I claim:

1. A drill kit comprising a plurality of different sized drills, each drill having secured thereto an elongate handle which is larger than the drill; a container; a stand closely fitting and positioned within the container; said stand having two spaced horizontal plates located in spaced relation to the bottom of the container with each plate being formed with a plurality of closely spaced apertures, the corresponding apertures of each plate being substantially vertically aligned, with the apertures in the upper plate being materially larger than the handle and the apertures in the lower plate being smaller than the handle but larger than the drill, said drills being loosely fitted in corresponding apertures with the upper ends of the handle projecting above the upper plate and the lower ends resting on the lower plate with the drills disposed in the space between the lower plate and the bottom of the container, said drills having limited universal movement in the stand to thereby increase the accessibility to an adjacent drill.

2. A holder for supporting a plurality of different sized drills in substantially vertical position in a container with each drill having an elongate handle secured thereto which is larger in cross-section than its drill comprising, at least a pair of vertical support members; two spaced horizontal plates extending between the support members and secured thereto and spaced above the bottom of the container, each plate being formed with a plurality of closely spaced apertures with the corresponding apertures of each plate being substantially vertically aligned, the apertures in the upper plate being materially larger than the handle and the apertures in the lower plate being smaller than the handle but larger than the drill, said drills being loosely fitted in corresponding apertures with the upper ends of the handle projecting above the upper plate and the lower ends resting on the lower plate with the drills disposed in the space between the lower plate and the bottom of the container, said drills having limited universal movement in the holder to thereby increase the accessibility to an adjacent drill.

3. A drill kit comprising a plurality of different sized drills with each drill having a handle secured thereto of greater cross-section than the drill; a container open at the top and having a substantially rectangular cross-section; a cover hinged to one side of the container below the top edge thereof and having bent-edge portions overlapping the top edges of the container when in closed position; and a stand positioned within the container and being formed with spaced parallel upper and lower plates, said lower plate being spaced from the bottom of said container and said plates being formed with a plurality of closely spaced vertically aligned apertures into which the drills may be positioned for limited universal movement with the handles thereof resting on said lower plate and with the top edge of the handles being substantially aligned with the top of the container; the cover of said container when opened and horizontally positioned constituting a tray in which free drills may be contained and a support for holding the container inclined upwardly with the lower edge of the one side of the container being on the same horizontal plane as the cover, whereby the drills are inclined in the container yet accessible to the user and the cover constitutes a tray for containing loose drills.

4. The invention as defined in claim 3 in which the largest drills are positioned adjacent the side of the container remote from the side on which the cover is hinged and have their center of gravity normally located below the apertures in the upper plate thereby preventing them from falling out when the container is in its inclined position.

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