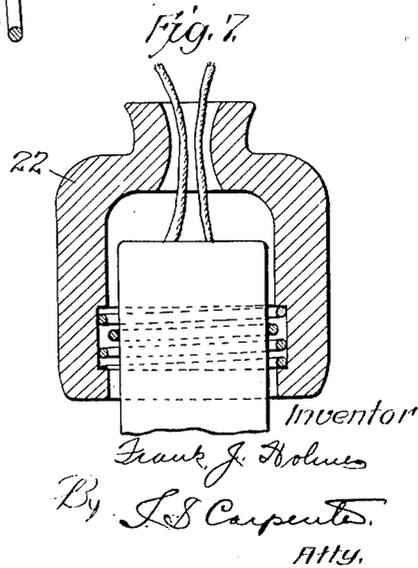
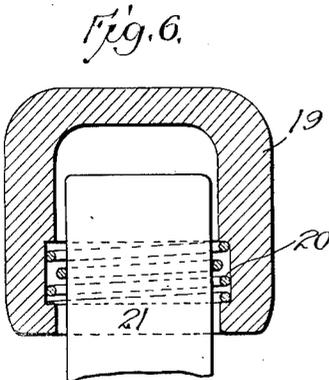
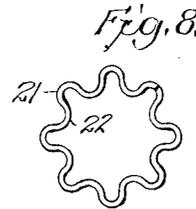
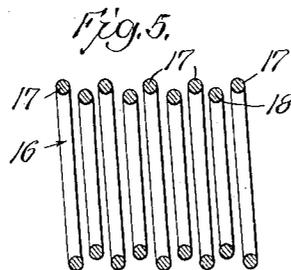
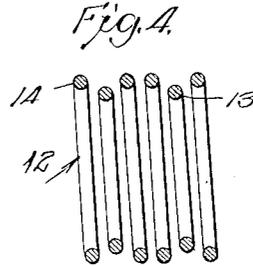
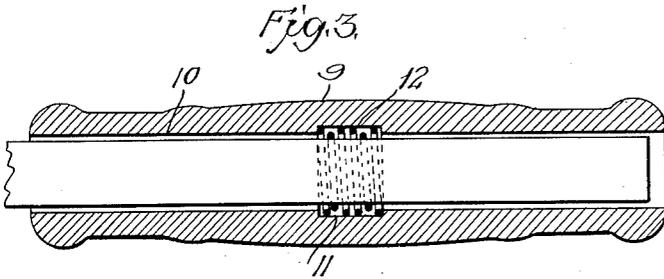
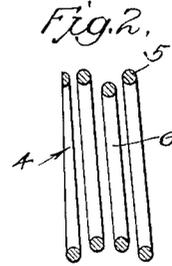
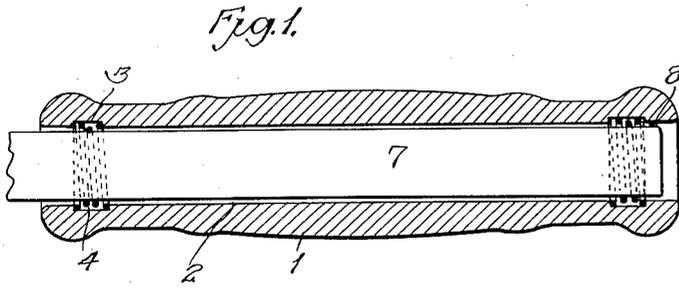


April 14, 1931.

F. J. HOLMES
HANDLE AND THE LIKE
Filed Dec. 18, 1926

1,800,254



UNITED STATES PATENT OFFICE

FRANK J. HOLMES, OF MAPLEWOOD, NEW JERSEY

HANDLE AND THE LIKE

Application filed December 18, 1926. Serial No. 155,695.

My invention relates to improvements in handles, knobs and the like, and is more particularly directed to that type of device which is adapted to be removably connected to a tool or any suitable appliance.

The object of my invention is to provide a device adapted to receive therein a tool or appliance and in which any shocks imparted to the tool will be retarded from being transmitted to the hand of the operator.

Another object of my invention is to provide a device of the class described having therein means for supporting within the same the shank of any suitable tool or appliance which is inserted therein.

Still another object of the present invention is to provide a device that may be adjusted upon the article received therein and having means for resiliently supporting the article, which at the same time limits its outward movement within the device.

Another object of the invention is to provide a device that is spaced from the engaging portion of the article and resiliently held therefrom.

In the accompanying drawings:—

Figure 1 is a longitudinal sectional view taken through the device, which I have herein illustrated as a handle, showing the same as being applied to a suitable operating tool.

Figure 2 is an enlarged detail view, in section, showing the means employed therein for retaining the tool within the handle and at the same time supporting it free of the handle bore.

Figure 3 is a modified form of the invention showing a handle having therein one retaining means, the same being constructed in such a manner that a support for the tool is provided at two points.

Figure 4 is an enlarged detail view of the retaining means illustrated in connection with Figure 3.

Figure 5 is a further modified form of a retaining means that may be employed in the handle in a manner similar to that illustrated in Figure 3, wherein the tool is supported at two or more points.

Figure 6 illustrates the invention as being applied to the end of any suitable device

wherein a removable handle or closure is provided.

Figure 7 further shows the invention as being applicable to terminal caps and the like; and

Figure 8 illustrates a further modified form of the retaining means wherein the same result is accomplished with one strand of wire.

Referring to the accompanying drawings in detail, wherein like reference characters denote corresponding parts throughout the several views, the numeral 1 indicates the body of a device which I have herein illustrated as a handle, the same being formed of any suitable material and of any desired shape, but by way of illustration I have disclosed the same as being of a cylindrical structure.

The handle 1 is provided with a central bore or opening 2 which extends, as disclosed in Figure 1, entirely through the body, and adjacent each end of the bore 2 I have formed channels or grooves 3, within which is positioned the means for supporting the article and permitting its movement with respect thereto.

The means which I have provided for supporting and retaining the article within the handle is in the nature of a coiled spring 4, which may be formed of round or flat spring wire, in fact any desired resilient material, the same being constructed in such a manner that the end coils 5 are of a larger diameter than the intermediate coils 6, the latter serving to receive therein the engaging portion of a suitable article or tool 7 while the former are adapted to expand under tension and retain the spring unit within the channels 3.

In using a handle of this structure it may be desired to provide means for limiting the movement of the article with respect to the handle and to accomplish this end I have provided upon the inner end of the article a lug or rib 8 which when the tool is pulled outward to its limit, wherein proper support is provided within the handle, the rib 8 will engage the smaller coil and thus prevent its further movement, except when manually removed therefrom by force. When an article is received within the handle and its

retaining means, it will be noted that upon the initial insertion of the article within the retaining means, the smaller coil will be expanded sufficiently to permit the passage therethrough of the article, and yet give enough tension to maintain the article in a desired position within the handle. Furthermore, upon the expansion of the smaller coil similar action will be imparted to the larger coils and this action further assists in retaining the spring within its proper place in the handle. By reason of this specific structure I have provided means for retaining an article within a handle and at the same time resiliently supporting the same therefrom to prevent any jars which may be imparted to the article from being transmitted to the handle, and at the same time providing a space around the article for the circulation of air thereabout.

As disclosed in Figure 3 I have illustrated a handle having therein one retaining spring, which if desired may be positioned within the handle as shown, or at any desired point within the bore, preferably at such a point that the article will be supported free of the handle.

In this structure I have provided a handle 9 having therein the usual bore 10 midway of which is formed a channel or groove 11 in which the modified form of spring 12 is placed.

Upon referring to Figure 4 it will be noted that the spring 12 is formed of a number of coils, the second coil 13 from each end being of a smaller diameter than the end and intermediate coils 14 and these smaller coils, which are two or more, are adapted to grip and support an article at two or more adjacent points within the handle, while the end and intermediate coils are large enough to grip the interior of the channel, thus firmly grasping the article and retaining the same within the handle.

The article which is received within the handle bore may be of any desired shape and the results derived from the device will be the same, provided of course, that the retaining spring is of sufficient diameter to receive therein the article and hold the same immovably with respect thereto.

As further illustrated in Figure 5 I have provided a retaining spring 16 which may be used in such a handle as disclosed in Figure 4, wherein two or more supporting points are provided within the same spring. Such a spring being formed so that the end coils 17, and every other one thereafter is larger than the second or alternate coils 18. This structure provides means wherein the article may be rigidly supported, at two or more points, with respect to the handle and at the same time resiliently supported therein.

In Figure 6 I have illustrated the form of spring as disclosed in Figure 1 as being ap-

plicable to a cap or the like 19, the spring 20 freely supporting the cap about the end of any desired article 21 to permit the circulation of air thereabout. If desired, the cap 19 may be in the form of a small handle as used upon heating elements adapted for heating liquids.

Figure 7 illustrates the invention as being applied to a terminal cap 22, wherein a spring having the characteristics of those hereinbefore set forth is employed.

In Figure 8 I have illustrated a spring which accomplishes the same result as those before described, but wherein the spring is formed from a flat wire, if desired, and provided with corrugations, thus providing large and small portions, 21 and 22, which are adapted to engage the channel of a handle or the like and the article inserted therein.

In the use of the invention, as disclosed in Figure 1, the handle is placed upon a tool or the like in a manner set forth, which expands the smaller coil and this expansion of the smaller coil is transmitted to the larger coils which in turn expands and grip the interior of the channel 3, thus firmly holding the tool within the handle. By reason of the fact that the bore of the handle is larger than the engaging portion of the tool, the small coil of the retaining unit will hold the tool in a floating position within the handle, thus eliminating from the handle any shocks imparted to the tool. In cases where it is desired to use the handle in connection with heating elements, the small coil holding the element free of the handle prevents the transmission of heat thereto.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said handle member, and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring being engaged with the tool part and having at least one turn which is of larger natural diameter than the opening in the handle member to exert an outward pressure against the handle member to aid in holding the latter in place.

2. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said

handle member, and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring being engaged with the handle member and having at least one turn which is of smaller natural diameter than the tool part to exert an inward pressure on the tool part to aid in holding the latter in place, said tool part being free to some extent to move with respect to said handle member except as restricted by said spring, whereby the spring affords a certain amount of resilient play between the tool part and handle member.

3. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said handle member, and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring being engaged with the handle member and having at least one turn which is of smaller natural diameter than the tool part to exert an inward pressure on the tool part to aid in holding the latter in place, the wall of said opening being spaced from the exterior of the tool part to provide a ventilating space therebetween which extends to at least one end of the handle member.

4. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said handle member and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring having at least one turn which is of larger natural diameter than the opening in the handle member, and at least one smaller turn which is of smaller natural diameter than and engages the tool part, whereby the resulting distortion of the spring holds both the handle member and the tool part frictionally and yieldably in proper relative positions.

5. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said handle member, the wall of said opening being recessed to provide an annular pocket larger than said opening, a spiral spring enclosing the tool part and disposed in said opening, said spring having at least one larger turn engaging the wall of said opening and at least one smaller turn of smaller natural diameter than and engaging said tool part.

6. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said handle member, and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring being engaged by the tool part and having a plurality of turns which are of larger natural diameter than the opening in the handle member to exert an outward pressure against the handle member to aid in holding the latter in place, said larger turns being

spaced by the other turns of the spring to provide spaced points of engagement between the handle member and the spring.

7. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by said handle member, and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring being engaged with the handle member and having a plurality of turns which are of smaller natural diameter than the tool part to exert an inward pressure on the tool part to aid in holding the latter in place, said smaller turns being spaced by the other turns of the spring to provide spaced points of engagement between the tool part and the spring.

8. In combination, a handle member having an opening therein, a tool part projecting into said opening so as to be enclosed by the said handle member and a spiral spring enclosing the tool part and interposed between the latter and the handle member, said spring having a plurality of turns which are of larger natural diameter than the opening in the handle member and a plurality of smaller turns which are of smaller natural diameter than the tool part, said larger turns exerting an outward pressure against the handle member and being spaced by the smaller turns to provide spaced points of engagement between the handle member and the spring, said smaller turns exerting an inward pressure against the tool part and being spaced by the larger turns to provide spaced points of engagement between the tool part and the spring.

In testimony whereof I have affixed my signature.

FRANK J. HOLMES.