

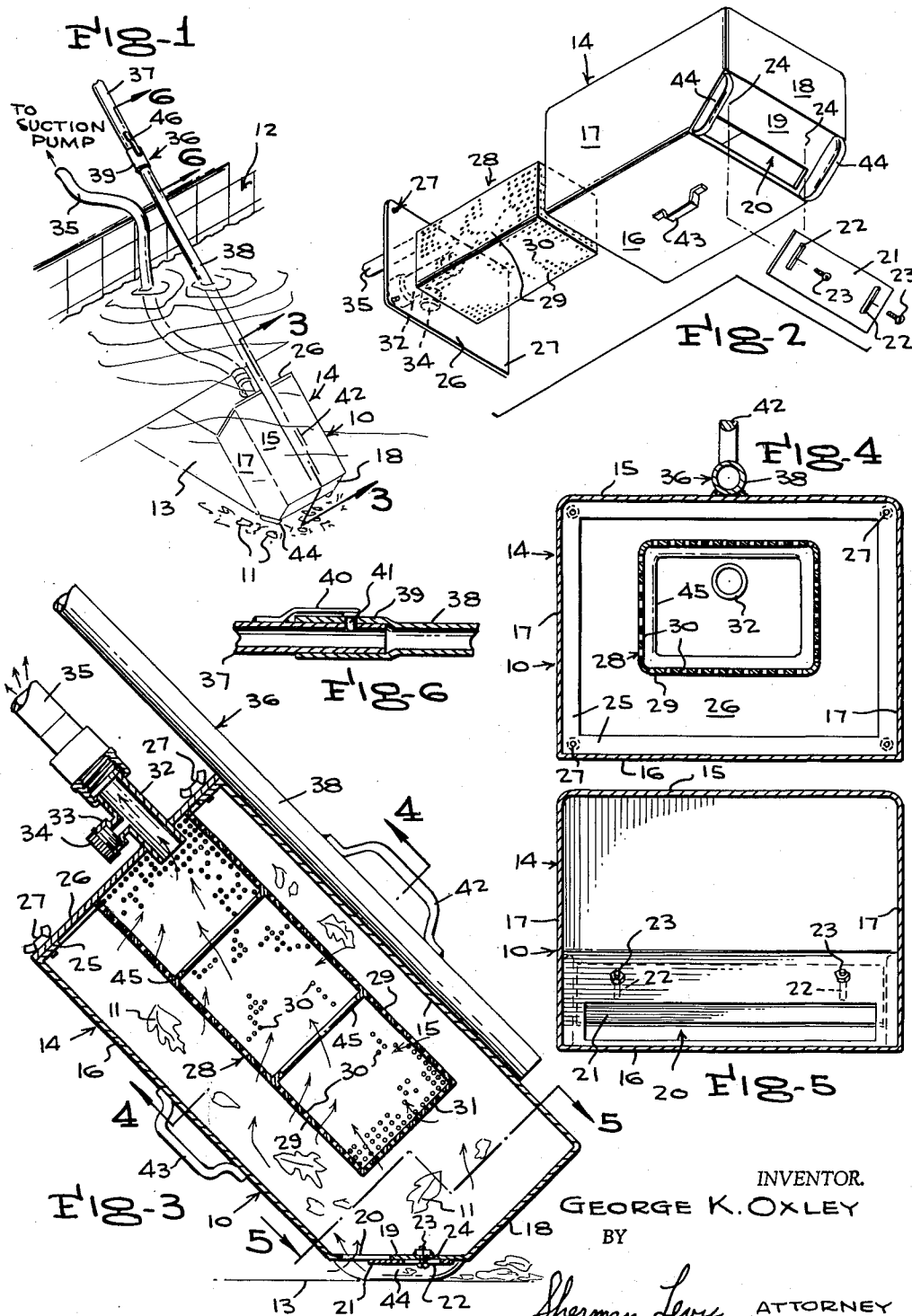
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G. K. OXLEY

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DEBRIS CLEANER FOR SWIMMING POOLS

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INVENTOR.
GEORGE K. OXLEY
BY

Sherman Levy ATTORNEY

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DEBRIS CLEANER FOR SWIMMING POOLS

George K. Oxley, 3903 Whann Ave., McLean, Va.

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8 Claims. (Cl. 15—1.7)

The present invention relates to a device for use in cleaning out swimming pools or the like whereby debris, leaves, stones or other such matter can be conveniently removed from the bottom of a swimming pool.

The primary object of the present invention is to provide a device or implement which is adapted to be moved along the bottom of a swimming pool, wherein with the device operatively connected to a suitable source of vacuum pressure, leaves, stones, twigs or other foreign matter will be readily sucked up or removed from the swimming pool so that the water in the pool will not be contaminated by such foreign matter.

A further object is to provide a swimming pool cleaning implement of the type stated which includes handles for facilitating the manual manipulation thereof, and wherein the present invention is provided with an inlet opening for the passage therethrough of the debris or other foreign matter, there being a means provided for varying the effective size of the inlet opening as desired or required.

Still another object is to provide such a swimming pool cleaning device that is economical to manufacture and efficient in operation and which is rugged in structure and foolproof in use.

These and other objects of the invention will become apparent from a reading of the following specification and claims, together with the accompanying drawing, wherein like parts are referred to and indicated by like reference characters and wherein:

FIG. 1 is a perspective view illustrating the device of the present invention in use for cleaning out debris from a swimming pool.

FIG. 2 is a perspective view showing the parts disassembled or separated.

FIG. 3 is an enlarged sectional view taken on the line 3—3 of FIG. 1.

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 3.

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 3.

FIG. 6 is an enlarged sectional view taken on the line 6—6 of FIG. 1.

Referring in detail to the drawings, the numeral 10 indicates the device of the present invention which consists of an implement or tool that is particularly suitable or useful in cleaning out foreign matter or debris as indicated by the numeral 11 in FIG. 3, as for example when such foreign matter is to be cleaned out or removed from the bottom 13 of a swimming pool which is indicated generally by the numeral 12 in FIG. 1.

As shown in FIG. 3 for example, the device 10 of the present invention includes a hollow support member which is indicated generally by the numeral 14, and the support member 14 includes spaced parallel top and bottom walls 15 and 16 as well as spaced parallel side walls 17, and the support member 14 further includes a front end wall 18 which has an inclined portion 19 contiguous thereto for a purpose to be later described. The inclined portion 19 is provided with an elongated opening 20, and the numeral 21 indicates a plate which is adjustably mounted contiguous to the inclined portion 19, and the plate 21 is mounted for movement into and out of opened or closed relation with respect to the opening 20 whereby the plate 21 can be used for varying the effective size of the inlet opening 20 as desired or required.

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The plate 21 may be provided with spaced apart slots 22, and the numeral 23 indicates securing elements such as screws which are adapted to be extended through the slots 22 and into engagement with threaded apertures 24 so that by loosening the securing elements 23, the plate 21 can be shifted to the desired location and then the securing elements 23 can be tightened to maintain the plate 21 immobile in its adjusted positions.

The rear of the support member 14 is adapted to be provided with an inwardly directed flange portion 25, and the numeral 26 indicates an end member which is arranged contiguous to the flanged portion 25, and the end member 26 is adapted to be connected to the flanged portion 25 as for example, by means of securing elements 27.

The numeral 28 indicates a hollow body unit which is arranged within the support member 14, and the body unit 28 includes a plurality of wall portions 29 which each have a plurality of spaced apart apertures or openings 30 therein, as for example as shown in FIG. 3. The body unit 28 is adapted to be secured to or formed integral with the end member 26. The numeral 31 indicates the apertured end wall of the body unit 28.

There is further provided a conduit 32 which has an end thereof communicating with the interior of the body unit 28 as shown in the drawings, and the conduit 32 is suitably secured to the end member 26. The numeral 33 indicates a fitting which is secured to or formed integral with the conduit 32, and a plug 34 is detachably mounted in the fitting 33. The numeral 35 indicates a suction line or hose which is adapted to be detachably connected to the outer end portion of the conduit 32, and the hose 35 is adapted to be connected to a suitable source of vacuum pressure.

A handle which is indicated generally by the numeral 36 is operatively connected to the support member 14, and as shown in FIG. 6, the handle 36 consists of a plurality of sections such as the sections 37 and 38 which are detachably connected together, and the numeral 39 indicates overlapping end portions of the sections 37 and 38, and a suitable spring latch or keeper 40 is adapted to have a pin 41 for engaging registering apertures or openings in the overlapping portions 39 in order to maintain the sections such as the sections 37 and 38 selectively detachably connected together.

As shown in FIG. 3, handles or hand grips 42 and 43 are adapted to be suitably connected to the device for facilitating the manual handling or manipulation thereof.

As shown in the drawings a pair of spaced parallel skids or shoulders 44 are arranged contiguous to the inclined portion 19 and are suitably affixed thereto so that when the device is being used the skids or shoulders 44 will engage the bottom 13 of the swimming pool.

From the foregoing, it will be seen that there has been provided a device which is especially suitable for use in cleaning out swimming pools, as for example when leaves, stones, twigs or other debris or foreign matter is to be removed from swimming pools. While the present invention has been described particularly in use for cleaning out swimming pools, it is to be understood that it can be used for other purposes, as for example the present invention can be used for cleaning out debris or foreign matter from the tanks or the like.

In use, with the parts arranged as shown in the drawings, it is to be noted that the hose 35 is adapted to be connected to a suitable conventional source of vacuum pressure or suction pump, so that by manually gripping or holding the handle 36, the device 10 can be readily guided or moved along the bottom 13 of a swimming pool such as the swimming pool 12. With the suction line 35 connected to the conduit 32, and with the conduit

32 communicating with the interior of the inner body unit 28, it will be seen that with the opening 20 contiguous to the bottom 13, the leaves, debris or foreign matter 11 will be sucked in or drawn in through the opening 20 into the interior of the hollow support member 14.

As the device is moved along the bottom of a swimming pool, the shoulders 44 provide a convenient bearing surface to help guide the device on the bottom 13 of the swimming pool. The plate 24 is adjustably connected to the inclined portion 19 so that the plate 21 can be positioned at different locations in order to provide a means for varying the size of the opening 20 and this provides a means for controlling the rate of intake of debris or the like through the opening 20. The inclined portion 19 is arranged at an angle relative to the front end wall 18 so that debris will have a tendency to be sucked in with maximum facility or effectiveness. The hand grips such as the hand grips 42 and 43 facilitate manual manipulation or handling of the device. Similarly the elongated handle 36 is adapted to be gripped by a person standing at a convenient location so that by gripping the handle 36 the device 10 can be moved along the bottom of a swimming pool in the desired manner in order to effectively clean the entire area of the swimming pool. The handle 36 is adapted to be made up of a plurality of separable sections such as the sections 37 and 38 which are releasably connected together in any suitable manner as for example by means of the spring keeper 40 as shown in FIG. 6. This arrangement permits the parts of the handle to be separated from each other so as to facilitate storage or shipment of the implement when the device is not being used. Thus, by this construction the parts can be readily taken apart in order to insure that the device will occupy a minimum amount of space when the same is not being used for the desired purpose.

It is to be noted that the hose 35 is adapted to be detachably connected to the pipe or conduit 32 so that the hose 35 can be disconnected from the conduit 32 when desired. The plug 34 can be unscrewed or removed from the fitting 33 so as to provide a convenient means for cleaning out the interior of the support member 14 whenever desired. Thus, by removing the plug 34 a conventional garden hose or the like can be connected to the fitting 33 whereby water can be permitted to flow in through the fitting 33 and then through the conduit 32 into the interior of the body unit 28, and then due to the provision of the apertures 30, the water will flow out into the interior of the support member 14 and wash the foreign matter or debris out through the opening 20. Other suitable means can be used for cleaning out the interior of the support member 14. For example in installations where a reverse pressure system is available, instead of having suction applied to the interior of the body unit 28, such a reverse flow mechanism can be actuated in such a manner as to cause water under pressure to be supplied through the hose 35 and through the conduit 32 into the body unit 28 whereby this water under pressure will blow out or force out the foreign matter or debris through the opening 20. It is to be understood that when the device is being cleaned out that the device is removed from the swimming pool and held in a suitable location such as contiguous to a trash receptacle or the like, and the provision of the hand grips and handles helps insure that the implement can be conveniently manipulated or moved to the desired location in the most advantageous manner. The provision of the apertures 30 insures that water can flow through such apertures, and these apertures are preferably of a size so that the water can flow therethrough but the debris or trash will be retained exteriorly of the body unit 28 so that there will be no clogging up of the parts of the equipment which are to be kept clean and free of trash or debris. The hose 35 is flexible so as to permit the device to move from place to place as desired.

The parts can be made of any suitable material and in different shapes or sizes as required.

The handle 36 can be made in different lengths as desired. With the present invention it is not necessary to drain the water from the swimming pool in order to clean the refuse, debris or the like from the bottom of the swimming pool. Also the present invention can be used for cleaning the sides of the swimming pool in a convenient manner. The body unit 28 is adapted to be braced interiorly as at 45 so as to help insure that the wall portions 29 will not inadvertently collapse when suction is applied thereto. Similarly, suitable braces can be provided for the other parts such as the support member 14, and such braces can be used wherever needed. The device can be made so that the front portion or other portion of the support member 14 can be conveniently opened in order to facilitate cleaning out of the interior thereof. The body unit 28 is preferably provided with a very large number of small apertures or openings in order to provide maximum suction area for the device to work in the desired manner. The present invention can be made at a low cost and there are no parts to ordinarily get out of order or break. Due to the provision of the securing elements 27, the parts can be separated as for example as shown in FIG. 2 when desired. That is, the securing elements 27 can be loosened in order to permit the member 26 and body unit 28 to be separated from the support member 14. It is to be noted that the body unit 28 is spaced inwardly from the support member 14 as shown in FIG. 3 so that there will be ample space between the body unit 28 and support member 14 for receiving the debris, refuse or the like which is picked up from the swimming pool. As examples of the materials that can be used for making certain of the parts, aluminum, plastics or the like can be used but it is to be understood that the present invention is not restricted to any particular materials for making the various elements or parts. The number of hand grips or handles such as the handles 42 and 43 can be varied as desired, and also such handles or hand grips can also be located on the side walls 17 of the support member 14 if desired in order to provide a further convenient means for turning or handling the device in a desired manner. The device can be suitably molded or fabricated as a one-piece unit, or it can be made so that the parts are separable.

The present invention is constructed so that debris will be prevented from getting into the filter of the swimming pool. The pull or handle 36 can be arranged in different locations, and for example this handle can be arranged on either or both sides of the device instead of on the top, and it can also be positioned at the bottom thereof, and the handle can be made so that it is entirely detachable from the support member. Also, the body unit 28 can be spaced forwardly from the end member 26 or it can be arranged as shown in FIG. 3.

The opening 20 can be arranged in different locations in the portion 19 to insure that the most advantageous vacuum effect is brought about.

In some instances the plate 21 can be omitted. The present invention can be used by pushing the same in a forward direction or by pulling the same in a backwards direction. The bumpers or skids or slides 44 may be positioned in different locations and may be made adjustable so that the location of the slides 44 can be changed or varied as desired. The bumpers 44 may have an opening therein to relieve the suction pressure and to help insure that the suction will bring about the desired results in the desired manner. If desired, a movable door can be provided to facilitate cleaning out of the interior of the device. The securing elements 27 may be of the type which can be manually manipulated or turned in order to facilitate rotation thereof.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:

1. In a swimming pool cleaner, a hollow support member including a top, bottom and side wall portions and a front end wall substantially perpendicular to said top and bottom wall portions, the lower edge of said front end wall being spaced above and forwardly of the front edge of the bottom wall, there being an inclined section arranged angularly with respect to said front end wall and bottom wall portion, and said inclined section extending between the front edge of the bottom wall portion and the lower edge of the front end wall, said inclined section having an opening therein, a hollow body unit arranged within and having surfaces spaced from said support member, and said body unit having a plurality of apertures therein, a conduit communicating with the interior of said body unit, and said conduit adapted to be connected to a source of vacuum pressure.

2. The structure as defined in claim 1 and further including handle means connected to said support member.

3. The structure as defined in claim 1 and further including means for varying the effective size of the opening in the support member.

4. In a device of the character described, a hollow support member including a top, bottom and side wall portions, and a front end wall substantially perpendicular to said top and bottom wall portions, the lower edge of said front end wall being spaced above and forwardly of the front edge of the bottom wall portion, there being an inclined section arranged angularly with respect to said front end wall and bottom wall portion, and said inclined section extending between the front edge of the bottom wall portion and the lower edge of the front end wall, and said inclined section having an opening therein, a hollow body unit arranged within and having surfaces spaced from said support member, and said body unit having a plurality of spaced apart apertures therein, a conduit communicating with the interior of said body unit, said conduit adapted to be connected to a source of vacuum pressure, handle means operatively connected to said support member, adjustable means for varying the effective size of the opening in the support member, and a pair of spaced parallel skids arranged contiguous to the opening in the support member.

5. In a swimming pool cleaning implement, an inner member, an outer member arranged in spaced apart relation about said inner member, said inner member having a plurality of spaced apart apertures therein, there being a space between the inner and outer members for receiving debris, a suction line operatively connected to said inner member, and said outer member including a bottom wall portion and a front end wall and said front end wall being arranged substantially perpendicular to said bottom wall portion, the lower edge of said front end wall being spaced above and forwardly of the front edge of the bottom wall portion, an inclined section arranged angularly with respect to said front end wall and bottom wall portion, and said inclined section extending between the front edge of the bottom wall portion and the lower edge of the front end wall, and said inclined section having an opening therein.

6. The structure as defined in claim 5 and further including an adjustable plate arranged contiguous to the opening in said outer member, and skids adjacent the opening in the outer member.

7. In a swimming pool cleaning implement, an inner member, an outer member arranged in spaced apart relation about said inner member, said inner member having a plurality of spaced apart apertures therein, a suction line operatively connected to said inner member, and said outer member including a bottom wall portion and a front end wall, said front end wall being substantially perpendicular to the bottom wall portion, the lower edge of said front end wall being spaced above and forwardly of the front edge of the bottom wall, there being an inclined section arranged angularly with respect to said front end wall and bottom wall portion, and said inclined section extending between the front edge of the bottom wall portion and the lower edge of the front end wall, and said inclined section having an opening therein, an adjustable plate contiguous to the opening in said outer member, skids arranged adjacent the opening in said outer member, an elongated handle connected to said outer member, and hand grips connected to said outer member.

8. A swimming pool cleaning tool comprising a hollow support member having flat wall surfaces and including spaced parallel top and bottom walls, spaced parallel side walls and a front end wall which is substantially perpendicular to said bottom wall, the lower edge of said front end wall being spaced above and forwardly of the front edge of the bottom wall, there being an inclined section arranged angularly with respect to said front end wall and bottom wall, and said inclined section extending between the front edge of the bottom wall and the lower edge of the front end wall, there being an elongated opening in said inclined section, a pair of skids affixed to said inclined section and projecting forwardly therefrom, a plate adjustably connected to said inclined section and said plate being mounted for movement into and out of closing relation with respect to said opening, a flanged portion on the rear of said support member, an end member arranged contiguous to said flanged portion and connected thereto; a hollow body unit arranged within said support member, and said body unit being affixed to said end member, and said body unit including a plurality of wall portions that are flat and which each have a plurality of spaced apart apertures therein, there being a space between the body unit and support member for receiving debris, refuse and the like that is picked up by the cleaning tool from the swimming pool, a conduit connected to said end member, a fitting connected to said conduit, a detachable plug engaging said fitting, a suction line detachably connected to said conduit, and said suction line adapted to be connected to a source of vacuum pressure, an elongated handle connected to said support member, and said handle including a plurality of sections detachably connected together.

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