

July 23, 1963

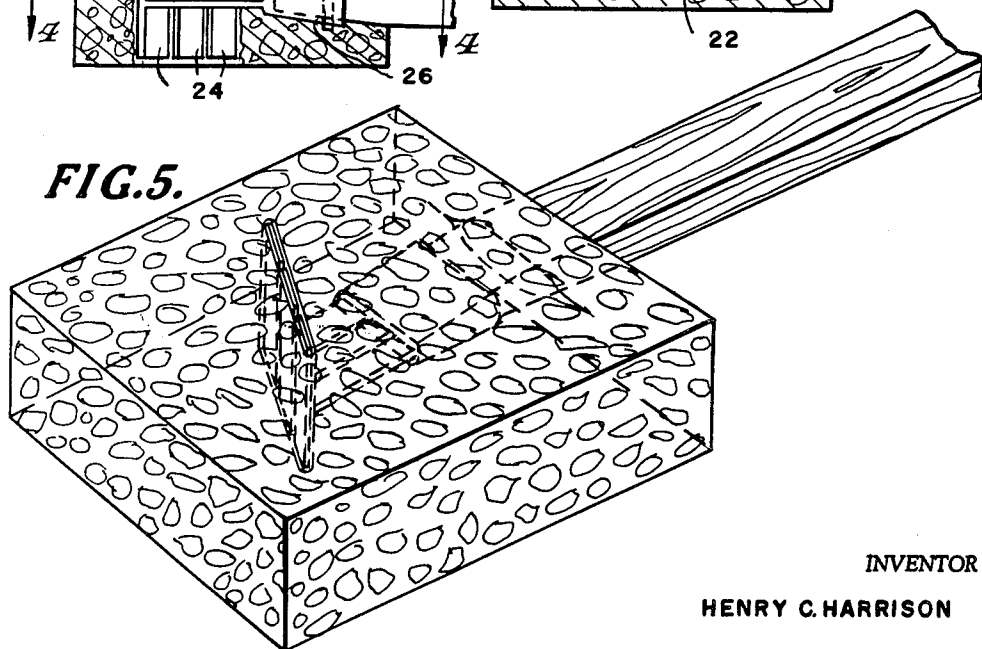
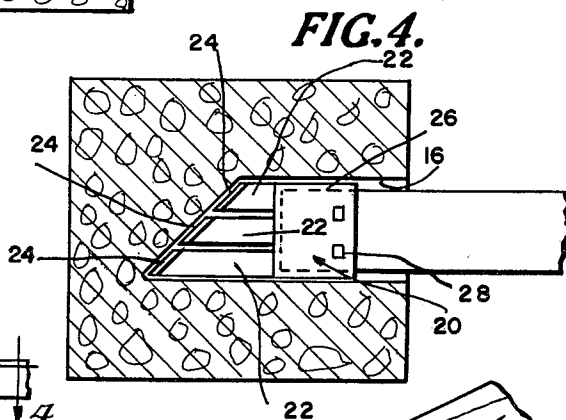
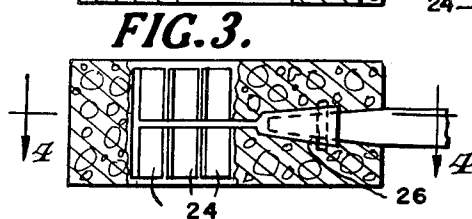
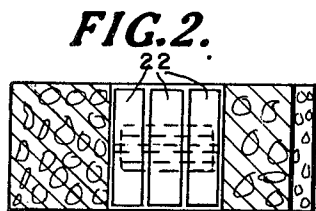
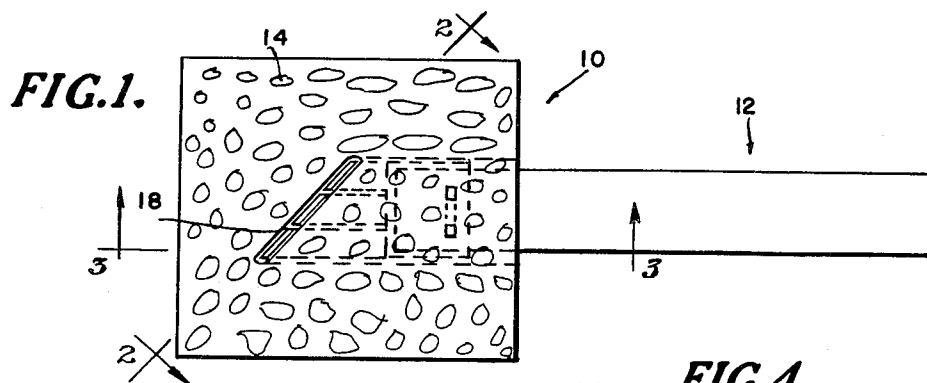
H. C. HARRISON

3,098,253

CLEANING DEVICE

Filed April 26, 1962

3 Sheets-Sheet 1



INVENTOR

HENRY C. HARRISON

BY

Cushman, Kirby + Cushman
ATTORNEY

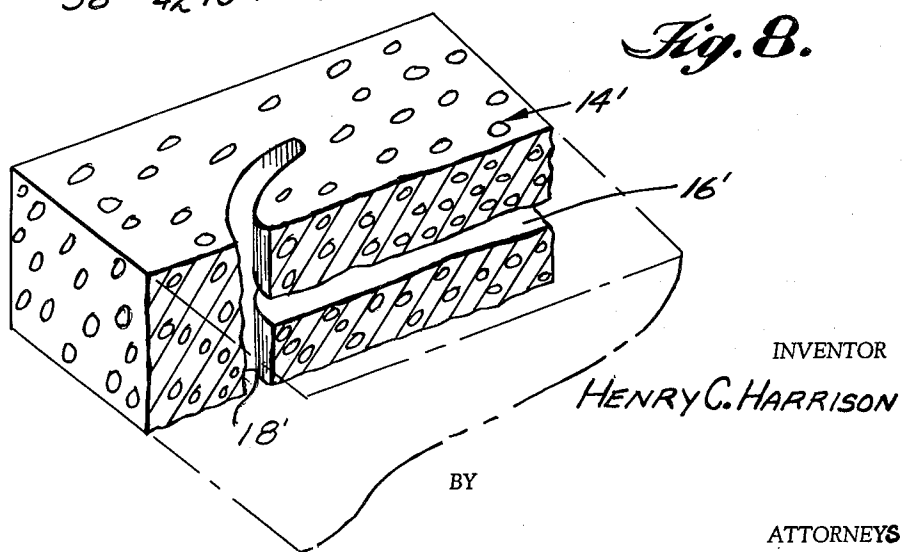
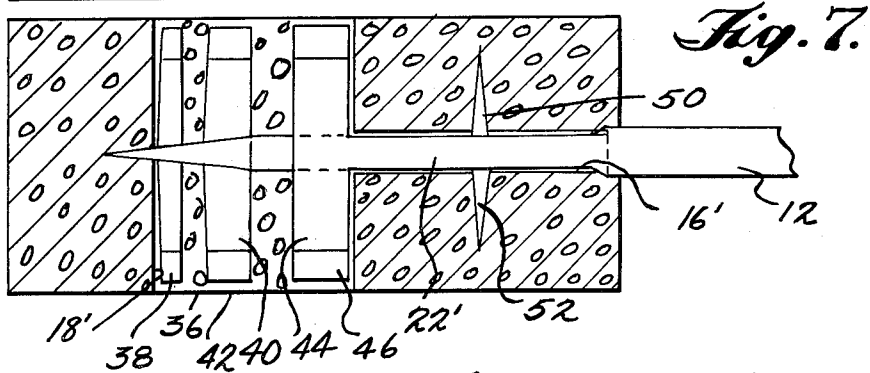
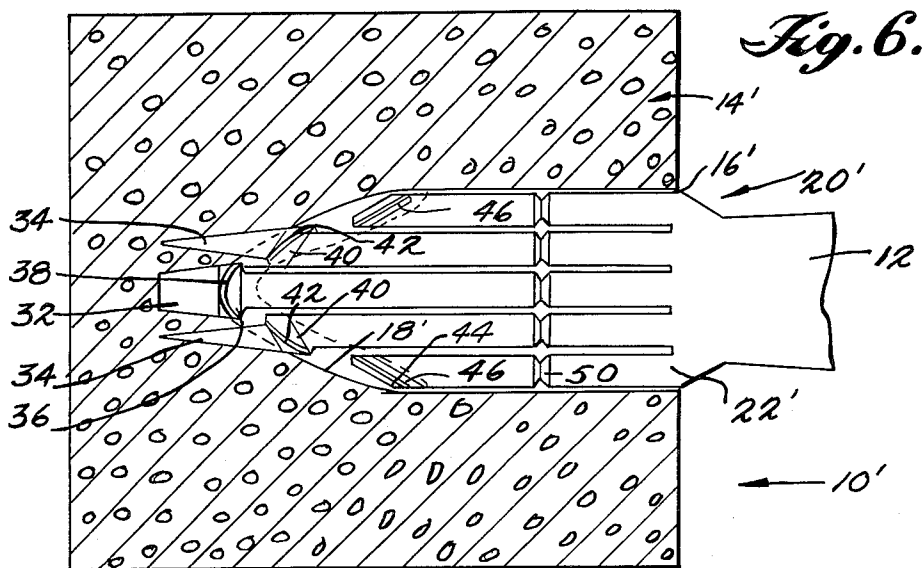
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3 Sheets-Sheet 2



INVENTOR

HENRY C. HARRISON

BY

ATTORNEYS

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Fig. 9.

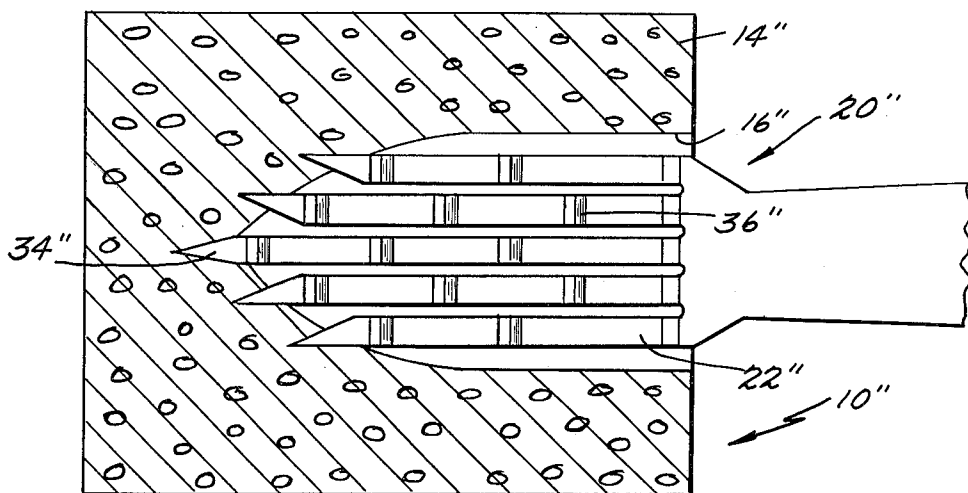


Fig. 10.

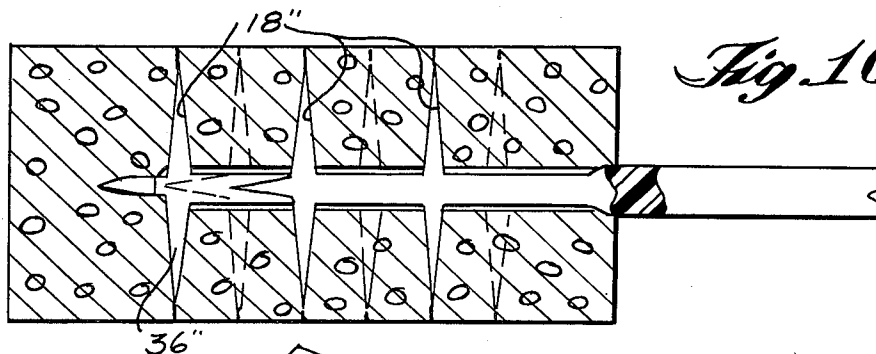
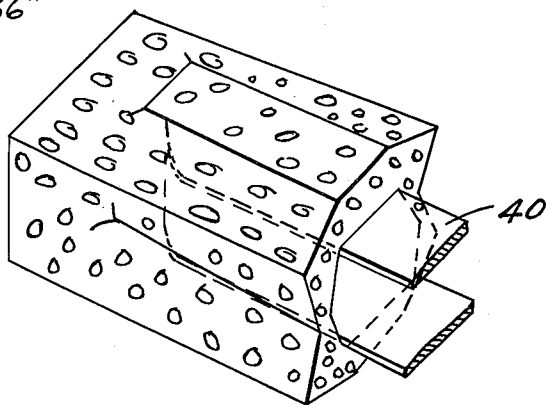


Fig. 11.



INVENTOR.
HENRY C. HARRISON
BY
Cushman, Darby & Cushman
ATTORNEYS

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3,098,253

CLEANING DEVICE

Henry C. Harrison, 94 Bayview Ave.,
Port Washington, N.Y.Filed Apr. 26, 1962, Ser. No. 190,466
16 Claims. (Cl. 15—118)

This invention relates to cleaning devices and in particular to a new and improved cleaning device incorporating the desirable cleaning features of a conventional sponge material with a scraping tool. This application is a continuation-in-part of my copending application Serial No. 50,763 filed August 19, 1960, now abandoned.

Conventional sponges have gained wide acceptance in the cleaning of such kitchen articles as pots, pans, and the like, as well as other domestic and commercial applications. By their very resilient, porous nature, however, conventional sponges are largely ineffective in cleaning surfaces which are particularly dirty, as in instances where a hard crust has formed on the surface of the article to be cleaned.

In these cases where a hard, crusty material it to be removed, steel wool, solvents, or a more rigid scraping tool must be utilized, in order to effectively clean the surface. While such procedures, of course, properly clean the surfaces, the person is nevertheless required to have a plurality of cleaning tools available for each phase of the cleaning operation. While combination cleaning tools have been devised, as where one tool is on one end of a handle and another tool is on the remaining end of the handle, such cleaning devices are merely aggregations of well-known tools. Only a single tool is used at a time, and therefore, if an object is to be scraped, there would be no accompanying means for simultaneously applying soap and water to this area. Likewise, if an area is being cleaned, as with a sponge and soapy water, no provision is made for effectively scraping the area at the same time. A clear need is thereby realized for a single, efficient cleaning device of a permanent and durable nature, which will incorporate the desirable characteristics of a conventional sponge with a scraping tool—thus effectively removing hard, crusty material on different surfaces by simultaneously scraping and scrubbing the surface to be cleaned.

This invention relates to a cleaning device incorporating such desirable features by obviating the need for requiring a plurality of tools on hand for cleaning and washing various articles and surfaces, thus permitting a person to do a more rapid and efficient job of washing and cleaning.

An object of my invention is accordingly to provide a cleaning device which incorporates the desirable features of a conventional sponge with a scraping tool, in a novel manner.

Another object of my invention is to provide a conventional sponge having a new and improved scraping tool disposed therein, in a manner so as to avoid undue wear and breakdown of the cleaning device over an extended period of time.

According to this invention, there is provided a sponge having a scraping tool disposed therein in a permanent manner, the scraping tool of plastic, or an otherwise strong and flexible material, so formed as to produce a chisel-like scraping surface. Accordingly, there is provided a sponge having first and second passages therein communicating with one another. The first passage communicates with opposite surfaces of the sponge, while the second passage communicates with the first passage, and extends transversely to another sponge surface. A scraping tool is carried within the sponge passages, a plurality of fingers are carried in the second passage, and terminate with transverse chisel members carried in the first passage.

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Still another object of my invention is to provide a combination sponge and scraping tool which is light weight, easy to use, inexpensive, commercially desirable, and capable of extended rough use without decreasing its effectiveness.

Still further according to this invention there is contemplated the provision of a scraping tool having plurality of parallel, spaced fingers adapted to be carried within a rectangular sponge, the fingers having transversely extending gripping cleats joined thereto to fix the assembly within the sponge. Some of the fingers also carry pointed tangs at their free ends which are pierced into the sponge material, while transverse chisel members are joined to the fingers, so as when viewed in a plan, lie in a generally symmetrically curved line. At least some of these chisel fingers have obliquely curved edge to facilitate engagement with differently curved surfaces.

This invention also contemplates a new and improved method of assembling the scraping tool within the sponge to provide a rigidly joined assembly.

Still further objects, advantages, and novel features of my invention will become apparent in the specification and claims, taken in connection with the accompanying drawings.

Referring now to the drawings:

FIGURE 1 is a plan view of the combination sponge and scraper;

FIGURE 2 is a section view taken substantially along 2—2 of FIGURE 1;

FIGURE 3 is a full section view taken substantially along 3—3 of FIGURE 1 with portions of the sponge material removed for clarity;

FIGURE 4 is a section view taken substantially along 4—4 of FIGURE 3 showing more clearly the scraper in FIGURE 1;

FIGURE 5 is a perspective view of the sponge and scraper assembly;

FIGURE 6 is a plan view generally in section of a modified embodiment of the combination sponge and scraper;

FIGURE 7 is an elevation view generally in section of the sponge and scraper shown in FIGURE 6;

FIGURE 8 is a broken-out, partial perspective view of the sponge shown in FIGURES 6 and 7;

FIGURE 9 is a sectional plan view of still another modified embodiment of the combination sponge and scraper;

FIGURE 10 is an elevation view generally in section of the sponge and scraper shown in FIGURE 9; and

FIGURE 11 is a perspective view of the sponge during a preliminary assembly step.

Referring now to FIGURE 1 the cleaning device is shown generally at 10, having a handle 12 extending therefrom, as will become apparent. The cleaning device 10 includes a generally rectangular cellulose sponge 14 having a longitudinal passage 16 communicating with a surface of the sponge 14. A second passage 18 is preferably disposed in a perpendicular plane to the horizontal plane of the first passage 16 and at an angle of 45° thereto. The second passage 18 is of a shallow, generally rectangular configuration, in communication with opposed outside surfaces of the sponge 14, as best shown in FIGURES 2 and 3.

Disposed within passageways 16 and 18 is a scraping tool 20 of a correspondingly shallow, rectangular configuration for snug engagement therein.

Molded on one end of the scraping tool 20 are a plurality of fingers 22 of nylon integrally terminating in upright chisel members 24 disposed perpendicular to the fingers 22. Other suitable plastic materials which can be employed for the fingers and chisel members include

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elastomeric polyurethan, hard rubber, irradiated polyethylene, and the like. The fingers 22 are shown as being of a progressively decreasing length and the chisel members 24 extending transversely upright therefrom, form an angle of e.g., 45° to the longitudinal axis of the scraping tool 20. While preferably a plurality of chisel fingers is provided, a single chisel member may be substituted therefor.

The scraping tool 20 has at its opposite end a ferrule or cup-shaped recess 26, which is adapted to engage the handle 12. The handle 12 may be engaged within the ferrule 26 by permanent or removable means. For instance, the handle 12 may be engaged within the ferrule 26 by means of a staple 28 or by a conventional cementing or bonding agent. Alternately, the handle 12 may be engaged within the ferrule 26 by friction alone. The scraping tool 20 is preferably bonded or otherwise fixedly secured within the inner wall of passage 16.

It is noted that the sponge is preferably of a one-piece construction, the passage and chamber therein being provided by molding means or by otherwise slitting the sponge 14. Further, while the second chamber 18 is shown communicating with the exterior of the sponge, the chamber may alternately be wholly within the sponge 14 as would be accomplished by molding procedures.

The scraping tool 20 is assembled within the sponge 14 which has the first passage 16 and second passage 18 provided therein, merely by moistening the sponge material and sliding the scraping tool through the passage 16 and forcing chisel members 24 within the second passage 18. The scraping tool 20 has a bonding material placed thereon prior to insertion within the passage 16 and is thus fixedly engaged therein. Alternately, a handle need not be provided at all, and the end of the passageway 16 communicating with the exterior of the sponge may be closed by bonding.

A surface having a hard crust formed thereon is cleaned merely by immersing the sponge in soapy water and manually abutting the chisel edges in contact with the surface to be cleaned. By the chisel action of the members 24, the hard material is effectively removed therefrom. Additionally, the feature of having a plurality of fingers of strong, flexible material such as nylon, permits the person using the cleaning device to clean surfaces which are not flat, and are otherwise difficult to clean.

Reference is now to FIGURES 6-8 which show a modified embodiment 10' of the cleaning device 10 in FIGURES 1-5. A rectangular cellulose sponge 14' carries a scraping tool 20' in a longitudinal passage 16' which passage terminates in communication with a second transverse passage 18' of generally parabolic, ellipsoidal or similarly covered configuration. The scraping tool 20' carries a plurality of parallel, closely spaced fingers 22', in cantilever fashion, the fingers 22' being of symmetrically decreasing length with respect to the central finger. The innermost or central finger 22' carries a flat knife-like edge 32 which extends beyond the second passage 18' and is thereby pierced into engagement with the sponge material. The fingers 22' adjacent the central knife edge 32 carry sharply pointed tangs 34 which likewise pierce the sponge material, as is apparent. The outermost of these five fingers 22' conveniently are freely positioned within the passage 16', their free ends terminating within the second passage 18' in the sponge 14'. Joined to each of the fingers 22' are a plurality of chisel members extending transversely of the opposed sides of the fingers 22'. In this regard, the second passage 18' in the sponge 14' extends from the top to the bottom so that, upon compression of the sponge 14' the chisel members are exposed a sufficient amount to coact against the surface to be cleaned. The central member 36 has curved free scraping edges 38 conforming generally to the central configuration of the second passage 18'. The next

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adjacent fingers 22' carrying the tangs 34 also carry members 40 having curved scraping edges 42. In this respect, the curved scraping edges 42 are obliquely positioned with respect to the longitudinal axis of the fingers 22' so as to present a greater effective cleaning action when moved back and forth with respect to the longitudinal axis of the tool 20'. The next fingers 22' spaced outwardly of the chisel members 40 likewise carry members 44 having flat scraping edges 46 positioned obliquely with respect to the longitudinal axis of the fingers 22' to thereby provided an effective cleaning action.

The fingers 22' also each carry a pair of opposed, transverse cleats 50, 52 which pierce the sponge material to fixedly maintain the scraping tool 30 within the sponge 14.

By virtue of the configuration of the scraping edges 38, 42 and 46, the cleaning device 10' is advantageously adapted to engage both flat surfaces, and the interior and exterior fillets of pans, dishes and the like. The cleaning device 10' in FIGURES 6-8 is formed as follows: the vertical or transverse, symmetrically curved passage 18' is molded in or cut from the rectangular sponge 14', and the first passage 16' formed in a like manner, terminating at its inner end with the passage 18. Conveniently, shoehorn-type plates or blades are inserted in the passage 16' to separate the opposed walls and the scraper unit 20' is inserted. Due to the fact the chisel members 36, 40, 44 are resilient and the sponge material 14 is easily flexed, these chisel members are conveniently positioned within the passage 18', the tangs 34 and the knife edge 32 piercing the sponge material. The shoehorn blades are withdrawn and the cleats 50 and 52 pierce the sponge material, fixing the tool 20' therein. Such an arrangement provides a more secure joint than a bonding material such as glue, and additionally prevents adverse stressing of the fingers 22 during use.

Referring now to FIGURES 9-11, there is shown still a further embodiment of the present invention. A cellulose sponge 14'' has a longitudinal passage 16'' intermediate the upper and lower surfaces of the sponge. A number of transverse passages 18'' in the form of slits, extend between the top and bottom of the sponge 14''. The scraping tool 20'' carries a plurality of parallel and closely spaced fingers 22'' in cantilevered fashion, the fingers being of symmetrically decreasing length with respect to the central finger. Each of the fingers 22'' carries a sharply pointed tang 34'' which extends beyond the inner end of the longitudinal passage 16'' so as to pierce the sponge material.

Each of the fingers 22'' carries a plurality of chisel members 36'' which extend transversely of the opposed surface of the fingers 22''. In this regard, the transversely slitted passages 18'' are aligned with these chisel members 36'' when the cleaning device 10'' is assembled (FIGURE 10). As best shown in FIGURE 9, the chisel fingers 36'' are staggered with respect to the chisel fingers in the adjacent fingers 22''.

The slitted passages 18'' extending through the sponge 14'', as stated, are operative to expose the chisel members 36'' by the compression of the sponge material so that they are operative to engage the surface to be cleaned. In order to provide a maximum effective contact of these chisel members 36'' with the surface to be cleaned, the edges of these chisel members 36'' may be set at varying oblique angles with respect to the longitudinal axis of the sponge, and may assume a curvature similar to the embodiment shown in FIGURES 6-8. Likewise, the chisel members 36'' may be of varying height to conform to the curvature the fingers 22'' assume when the edges are placed against a curved surface to be scraped and cleaned.

The scraping tool 20'' is assembled within the sponge 14'' as follows: a slit is formed in the sponge as by a sharp knife to define the longitudinal passage 16'', or is formed by a pair of knives 40, 42, as shown in FIGURE

11. The knives 40, 42 are then separated from one another, stretching the slit into the form of the passage 16". With the blades 40, 42 still in this position shown in FIGURE 11, the scraping tool 20" is inserted therebetween. The blades 40, 42 are then withdrawn. The upper and lower surfaces of the sponge 14" are then pressed towards one another over the chisel members 36" so that they pass through the sponge material, thereby producing the slitted passages 18", one for each chisel member, extending through the outside of the sponge 14". This method of assembly provides a more satisfactory and inexpensive joint arrangement than glue and like adhesives, prevents adverse stressing of the fingers 22', 22" during use, and reinforces the sponge 14" to greatly extend its useful life. This embodiment of the invention also avoids the difficulty which may be experienced in fitting the chisel members into preformed transverse passages.

It will be apparent from the foregoing description that various modifications may be made to my invention without departing from the scope thereof. For instance, the angles of intersection between the passageway and the chamber may be varied and the configuration of the sponge may be altered. While preferably a synthetic cellulose sponge material is used, suitable equivalents will be obvious to one skilled in the art.

For example, there can be used a polyvinyl acetol sponge or a polyurethane sponge in place of the cellulose sponge; and, the features of this invention could be included in a natural sponge.

It is therefore intended that the description of the invention herein be considered in an illustrative sense only, the invention being limited only as to the scope of the claims.

What is claimed is:

1. A cleaning device comprising: a compressible sponge having opposed side walls and having first and second passages therein in transverse relationship to one another, said second passage communicating with at least one of said opposed side walls, and in communication with said first passage; scraping means of rigid but yieldable one-piece construction carried within said sponge and including substantially parallel fingers positioned within said first passage, and chisel members integrally joined to said fingers and positioned within said second passage, said chisel members including chisel edges adjacent the opposed sponge wall communicating with said second passage; and means securing said scraping means within said sponge passages.

2. Cleaning device defined in claim 1 wherein said securing means includes an adhesive bond therebetween.

3. Cleaning device defined in claim 1 wherein said securing means includes means extending from said scraping means in pierced engagement with said sponge.

4. Cleaning device defined in claim 1 wherein said second passage is in a plane substantially perpendicular to the plane of said fingers.

5. Cleaning device defined in claim 1 including handle means extending from said scraping means opposite to said fingers.

6. Cleaning device defined in claim 5 wherein said handle means and scraping means are of unitary, one-piece construction.

7. Cleaning device defined in claim 1 further including chisel members extending oppositely from said fingers to said other opposed wall.

8. Cleaning device defined in claim 1 wherein said chisel edges are wholly within said sponge when in the non-compressed state and extend beyond the said sponge wall when said sponge is transversely compressed.

9. Cleaning device defined in claim 1 wherein said second passage is generally in a flat plane, angularly intersecting the axis of said fingers, and said fingers are of cooperatively decreasing length.

10. Cleaning device defined in claim 1 wherein said second passage defines a symmetrically curved plane.

11. Cleaning device defined in claim 10 wherein said curved plane is symmetrically disposed with respect to the longitudinal axis of said fingers.

12. Cleaning device defined in claim 1 including a plurality of second passages positioned along said parallel fingers, and said chisel fingers are carried in longitudinally spaced relationship along said fingers and received by said second passages.

13. A device for cleaning a surface by scrubbing and scraping comprising: a compressible generally rectangular sponge, having a first passage therein terminating within the sponge at its inner end, and a second passage transverse to and communicating with said first passage and communicating with the opposed exterior surfaces thereof; a scraping means of one-piece construction and formed of a rigid but yieldable material having spaced and parallel fingers carried within said first passage, oppositely extending chisel members integrally joined to said fingers and positioned within said second passage, said chisel members having chisel edges at the free end thereof disposed wholly within said second passage when said sponge is in the non-compressed state and tang-like members extending from said fingers in pierced engagement with said sponge.

14. Cleaning device defined in claim 13 wherein said second passage is of symmetric segmentally curved configuration, the free extents thereof extending towards said fingers.

15. Cleaning device defined in claim 14 including an integral handle joined to said securing means opposite to said fingers.

16. Cleaning device defined in claim 13 wherein said chisel members are longitudinally spaced apart along said fingers, and said sponge has a plurality of slitted second passages aligned with said chisel members for snugly receiving the same.

References Cited in the file of this patent

UNITED STATES PATENTS

2,915,768 Hall ----- Dec. 8, 1959