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SANDING BLOCK

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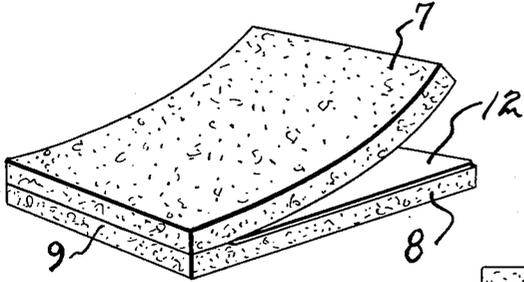


FIG. 1

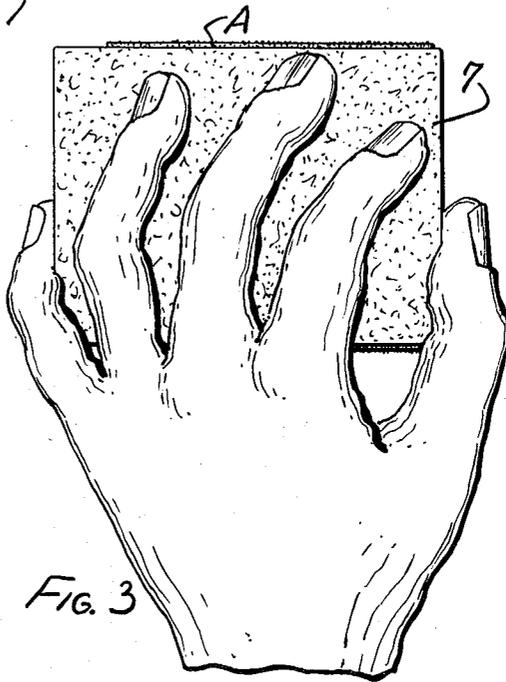


FIG. 3

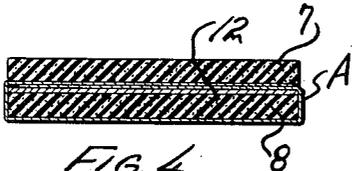


FIG. 4

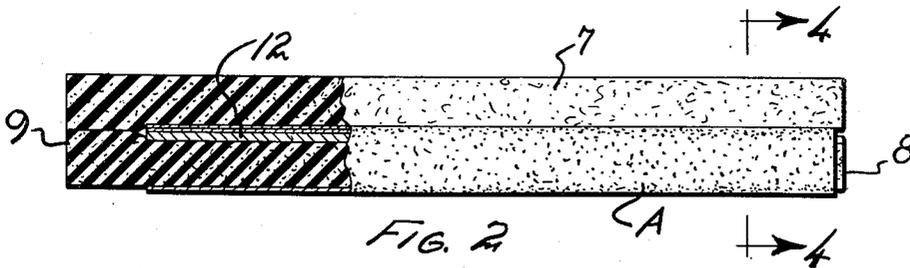


FIG. 2



FIG. 5

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SANDING BLOCK

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7 Claims. (Cl. 51-187)

This invention relates to devices for holding and manually employing sandpaper and other flexible sheet abrasives. This application comprises a continuation-in-part of my co-pending application S. N. 429,457 filed May 13, 1954, now abandoned.

In the past, sanding blocks and holders of various forms have been utilized to reinforce and distend a flexible abrasive sheet and some have had provision for attachment of the sandpaper to the block or body to restrict slippage and wear and to effectively utilize most surfaces of the sheet by various foldings. Such devices, to my knowledge, have made no adequate provision for comfort and prevention of abrasion of the worker's hand and fingers in manipulating a device, and have been rather complicated and required time and effort in the folding and application of the abrasive sheet thereto.

It is an object of my invention to provide an extremely simple and highly efficient sanding block adapted to be manufactured economically and affording adequate protection against abrasion to the fingers in use as well as comfort to the hand in manipulation of the device.

Another object of my invention is the provision of a sanding block of highly efficient nature which may be easily loaded with the abrasive sheet and which will hold such an abrasive sheet in several positions and in such a manner to permit substantially complete utilization of the entire abrasive surface area thereof.

Still another object is the provision of an efficient sanding block of the character described which will be light and particularly adapted for manipulation and which will float in water, facilitating its use in wet sanding operations.

A further object is the provision of a sanding block of the type described which makes provision at the heel or one of the edges thereof of an efficient squeegee for wet sanding operations.

A still further object of my invention is the provision of a sand block of the type set forth which is adapted for efficient use in substantially all sanding operations including sanding of convex or concave contours or curved surfaces, sanding and leveling of rough coats or putty, and dead leveling of a flat surface.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same parts throughout the several views and in which:

Fig. 1 is a perspective view showing an embodiment of our block with the upper and lower sheet-retaining lips parted for insertion of the flexible abrasive strip;

Fig. 2 is a side elevation view partly in longitudinal section of the block shown in Fig. 1 with a strip of abrasive sheet folded in operative position and secured within the block.

Fig. 3 is a plan view.

Fig. 4 is a cross section taken on the line 4-4 of Fig. 2; and

Fig. 5 is a vertical section taken longitudinally through an alternative form of the invention.

My sanding block comprises a generally rectangular body constructed from a solid, resiliently compressible or yieldable and flexible material of a nature which will provide sufficient bulk and rigidity for block sanding on woodwork, metal and for leveling surface coats, but nevertheless with sufficient resiliency to conform to various contours in general sanding operations. While a number of materials are available which can satisfactorily be utilized for the body of my block, I have found that foam rubber of the closed-cell type gives highly satisfactory, and perhaps optimum, results.

The generally rectangular body is preferably (but not necessarily) of a length to be conveniently grasped and retained between the thumb and third finger of the average human hand and of a width preferably to receive in parted state a folded strip or sheet of conventional size abrasive with the end portions of said sheet overlapping. A block approximating four inches in length, three inches in width and one-half inch in thickness is found highly satisfactory, but, of course, it is to be understood that these dimensions may be substantially changed to suit various circumstances all within the scope of my invention.

The thickness of the body is split lengthwise throughout the greater portion of its length as clearly shown in the drawings, to provide upper and lower elongated holder lips 7 and 8, leaving an interconnected heel portion or vertical edge 9 extending preferably the full width of the body. The lower lip 8 is preferably approximately the thickness of the upper holding lip 7 to constitute the receiver for the folded flexible abrasive strip A.

With the body constructed and slit in the manner disclosed, the split ends of the body opposite heel 9 may readily be spread apart as shown in Figure 1 to readily accommodate the reception and folding of the abrasive sheet.

The body of the form of my invention illustrated in Figures 1, 2 and 4 is constructed of two independent blocks of the special material, the heel portion 9 being formed by adhesively and permanently bonding opposing surfaces of the two blocks or pieces together along a narrow area through the full width of the body formed. Of course the pieces might also be joined together by stitching or stapling. A number of adhesive cements are available on the market which make possible the permanent bonding of the material to form a stronger bond than if the body were made from an integral block molded or split as shown in Fig. 5.

A stiffening element 12, which in the form shown, comprises a substantially rigid metal plate, which may be constructed of hard drawn aluminum, is mounted on the block to provide planar stiffening thereof. In the preferred form, the stiffening plate 12 is similar in configuration and area to that of the upper and lower lips and is mounted in the slit between said lips to extend to the heel of the block and to be gripped by the lips. Plate 12 may be readily removed from the block by merely separating the lips and pulling the plate from the slit. The block will thereby be permitted to flex.

In the use of my sanding block, the abrasive sheet is preferably folded about the lower lip 8 of the body to envelop the plate 12 in the manner clearly illustrated in Fig. 4 with the intermediate abrasive portion of the sheet lying below the bottom of the lower lip 8, and with the ends of the sheet overlapped by inward folding extending between the holding lips 7 and 8. Because the block is substantially symmetrical about the slit, the abrasive sheet could as well be folded around the upper lip. So folded and received upon my sanding block, it will be noted that

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only the greater portions of the longitudinal edges of the lower lip 8 are covered with abrasive material, leaving the heel portion 9 and forward edges of both lips 7 and 8 uncovered and leaving all of the external surfaces and edges of the upper lip 7 devoid of abrasive material. The lips and plate 12 cooperate in gripping the portions of the abrasive sheet in the slit.

In use with the abrasive sheet properly applied in the manner described, the body is grasped as shown in Figure 3, preferably between the thumb and little finger of a hand with the thumb disposed at either heel or opposite end and with the three intermediate digits of the hand disposed upon and placed against the upper lip or leaf of the body to apply pressure transversely of the block. The block may then be readily manipulated over level, unlevel or contoured surfaces and the fingers or fingernails are never subjected to abrasive action from the sheet A, they being always comfortably positioned and protected by the somewhat compressible solid material of the block, including the heel 9 and free ends of the lips 7 and 8 and the upper surface of the upper lip 7. The plate 12 will impart planar rigidity to the block to maintain the lower lip and the contiguous abrasive surface in a plane for flat sanding and leveling work. Even though the block has planar rigidity it is transversely yieldable to permit the upper lip to be compressed and to conform to the shape of the finger tips urged thereagainst.

In sanding operations, pressure can be efficiently applied with necessary control and optimum handling and manipulation of the block for level surfaces as well as for contours, concave or convex. In contour work, the flexibility and resiliency of the block material makes not only possible, but optimum general sanding operation.

In wet sanding operations, my block will float upon the water in the event that it is dropped and, because of the non-absorbent, preferably closed-cellular structure, will not sop up water in the body thereof. In water sanding operations, it is often necessary to wipe away sanding residue and moisture on the surface sanded. The heel 9 of my block provides an efficient squeegee enabling the operator to quickly wipe away residue while retaining the same sanding block in hand for further manipulation.

When it is desired to sand a rounded or irregularly contoured surface, plate 12 may be removed to permit the block and abrasive sheet to flex when manipulated over the surface so as to conform to the contour thereof. The abrasive sheet may thereby engage the work with substantially equal pressure over the entire area thereof.

In Fig. 5 is illustrated a sanding block which may be the product of either an integral body member 11 of rugged somewhat compressible but non-absorbent material, sliced medially of its thickness to provide the slot 11a extending from one end thereof through the full thickness of the block to a heel portion 11b at the opposite end. Slot 11a may be formed by sawing or cutting the material or the entire composite body 11 may be molded out of suitable material to produce, in mold form, the slot 11a.

In all of the forms of the invention, it will be noted that the retaining lips of the block are readily parted at the free ends thereof to facilitate insertion of the abrasive flexible sheet. The sheet is preferably folded with the ends thereof overlapping and, of course, when the exposed surface of the sheet is consumed in sanding, the sheet may be rearranged with one of the free ends disposed downwardly beneath the heavier lip and thereafter the other flap or free end may be disposed beneath the first to fully consume substantially all of the available abrasive material, in such rearrangement the fold lines being altered preferably to leave a tab or end which may be disposed between the lips for retention. Of course, the sheet may be wrapped around the lip without encompassing the stiffening plate.

Earlier herein in describing the form of the invention shown in Figs. 1 and 2, reference was made to the several

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types of available cements which make possible the permanent bonding of the material to form a stronger bond than if the body is integrally made. As an example of such a cement, the all-purpose cement made by Barge Cement Manufacturing Co. of Towaca, New Jersey, has been found highly satisfactory for the purpose intended.

From the foregoing, it will be seen that I have provided an extremely simple and economical sanding block which is adapted to retain and facilitate reception of abrasive sheet material; which is highly efficient for manipulation and good sanding operations upon level or irregular, or convex or concave surfaces and which has particular effectiveness and applicability for wet sanding operations.

The sanding blocks presently employed do not avoid placement of the worker's fingers and fingernails upon the abrasive material. With my improved structure, none of the fingers or nails need ever contact any edges of the abrasive sheet. Furthermore, the manipulative convenience and the comfort of the slightly compressible material at the top of the block is a substantial feature in heavy or long sanding operations.

Whereas the now conventional sanding blocks are adapted primarily for flat surface use only, through flexibility of the inherent block material and the combination of parts, my structure is equally applicable and effective for sanding convex and concave surfaces as well as planar surfaces. It will also be understood that, while the drawings show a lower lip 8 of substantially equal area and width to the upper lip 7, if desired the lower lip, because of the thickness of the abrasive sheet, may be slightly narrower.

It will, of course, be understood that various changes may be made in the form, detail, arrangement and proportion of the parts without departing from the scope of my invention.

What is claimed is:

1. A block for holding and manipulating an abrasive sheet comprising a generally rectangular body constructed of a yieldable solid material and having dimensions to be held and manipulated by a human hand with application of pressure upon the upper side thereof, said body intermediate of its thickness being longitudinally split to afford upper and lower lips of substantial and similar areas and to further form a heel or interconnecting portion of narrow width; and a substantially rigid stiffening plate similar in area and configuration to said lower lip and engaging the same to impart planar rigidity to the body but permit transverse yielding thereof when the same is manipulated with such a rectangular abrasive sheet folded and wrapped around the lower lip and held thereon by pressure applied by a human hand on said body.

2. A block for holding and manipulating an abrasive sheet comprising a generally rectangular body constructed of a flexible and yieldable material and having dimensions to be held between the thumb and little finger of a human hand with application of pressure on the upper side thereof, said body intermediate of its thickness being longitudinally split to afford upper and lower lips of substantial and similar areas and to further form a heel or interconnecting portion of narrow width, and a stiffening plate mounted in the slit between said lips and extending to said heel to cooperate with said lips in gripping such an abrasive sheet wrapped around one of said lips and overlapped in the slit, and said plate imparting planar rigidity to the body but permitting transverse yielding thereof when pressure is applied thereon.

3. The structure recited in claim 2 and said stiffening plate being removably mounted in the slit between the lips to permit the body to flex and conform to the contour of the work when said plate is removed.

4. A sanding device for working an object, comprising an abrasive sheet, a generally rectangular and yieldable body of dimensions to be held and manipulated by a human hand, said body having opposite ends, said body

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having an upper surface through which pressure may be applied in manual operation and also having a bottom surface, said bottom surface having a heel portion adjacent one of said ends and also having an engaging portion, said abrasive sheet overlying and being carried only on said engaging portion of said bottom surface, and said body being constructed and arranged for retaining said abrasive sheet in fixed position thereon, whereby said body may be manipulated with said abrasive sheet engaging such an object for sanding the same and the position of the body need be changed only slightly when sanding to bring said heel portion of the bottom surface to bear against the object and squeeze liquid and other matter therefrom.

5. A device for carrying an abrasive sheet in operating position in a sanding operation, comprising a generally rectangular and yieldable body of dimensions to be held and manipulated by a human hand, said body having opposite ends and said body having an upper surface to which pressure may be applied in manual operation and also having a bottom surface, said bottom surface having a heel portion adjacent one of said ends and also having an engaging portion, said body intermediate of its thickness being longitudinally split adjacent to and along said engaging portion of the bottom surface to afford upper and lower lips of areas similar to the area of said engaging surface portion, the lower lip receiving the abrasive sheet over said engaging portion and therearound and cooperating with the upper lip in gripping and holding the abrasive

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sheet in stationary position thereon, whereby when the abrasive sheet is applied to the lower lip, the body may be manipulated for operating the abrasive sheet in the sanding operation and the position of the body need be changed only slightly to bring said heel portion of the bottom surface to bear against the object being sanded and wipe a surface thereof.

6. The invention as set forth in claim 5 wherein said body is formed of floating and resilient material having a multiplicity of closed cells therein for imparting buoyancy to the body, whereby the device with an abrasive sheet applied thereto may be temporarily stored in floating condition upon a quantity of liquid during a wet sanding operation.

7. The structure set forth in claim 5 wherein said body is constructed from two superimposed lip-forming thicknesses of closed-cell foam rubber, the two thicknesses being integrally bonded together adjacent said heel surface portions.

References Cited in the file of this patent

UNITED STATES PATENTS

1,562,414	McKnight	Nov. 17, 1925
2,102,745	Read	Dec. 21, 1937
2,112,593	Campbell	Mar. 29, 1938
2,417,356	Field	Mar. 11, 1947
2,446,183	Larson	Aug. 3, 1948