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PERFORATED ABRASIVE FACED SCRUBBING PAD

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Fig. 1.

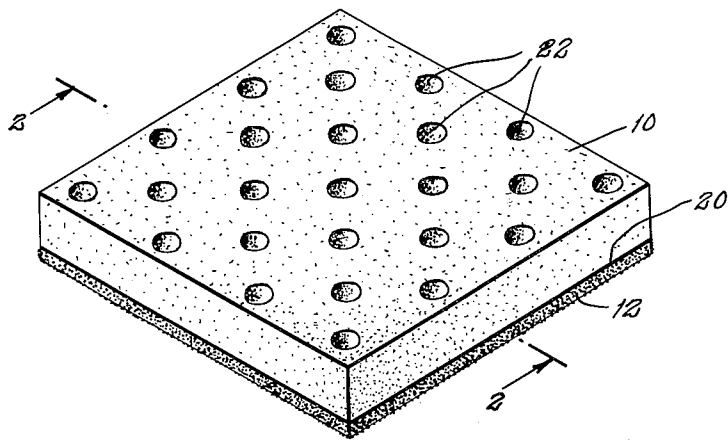


Fig. 2.

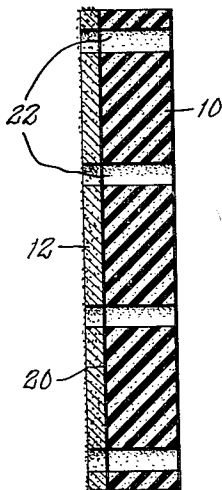


Fig. 3.

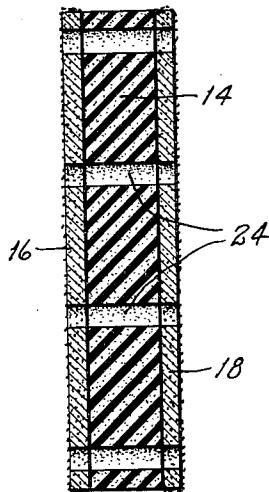
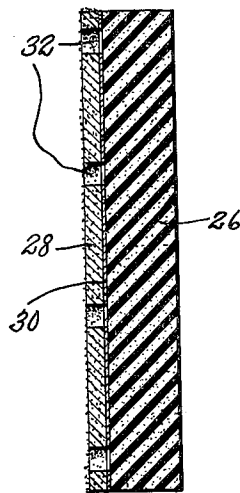


Fig. 4.



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PERFORATED ABRASIVE FACED
SCRUBBING PAD

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1 Claim. (Cl. 51-185)

This invention relates to an improved cleaning pad
having an abrasive coating on at least one face thereof.

Abrasive faced cleaning pads have come into wide
use for many purposes in recent years as a substitute for
steel wool and similar cleaning abrasives. One such pad
in common use today consists of a rubber or plastic foam
backing, having a coating of silicon carbide fixed to one
face thereof. These pads have been generally effective
but they are not completely efficient because the appli-
cation of the abrasive to the face of the backing mate-
rial produces a zone at which the two are joined through
which liquid will not pass with the result that the sur-
face being worked on receives only the liquid which is
applied thereto by the abrasive face of the pad, or which
is otherwise applied.

This invention, therefore, contemplates an abrasive
pad having liquid passages extending to the abrasive face
such that all parts of the surface of the article being
worked on may be supplied with the passage of liquid
through the abrasive face of the pad at a plurality of
contiguous points within the area of the abrasive sur-
face.

It is a further and more specific object of the inven-
tion to provide an abrasive pad having a flexible back-
ing of liquid absorbing material, which backing, in ef-
fect, comprises a liquid holding reservoir, in combination
with means for conducting liquid from the absorbent
backing through a generally liquid impervious zone, and
to the abrasive face of the pad.

It is the most specific object of the invention to pro-
vide an abrasive pad having a flexible backing of rubber
or plastic foam which comprises a liquid absorbing and
holding reservoir, in combination with a plurality of con-
tiguous liquid passages extending through the foam base
and through the abrasive facing on the pad such that
liquid held in the absorbent base can be discharged
through the passages to the area of the work being pro-
cessed by the abrasive face of the pad.

These and other objects and advantages of the inven-
tion will become clear upon perusal of the following de-
tailed description when read in light of the drawing
forming a part hereof, and in which drawing like ref-
erence numerals indicate like parts, and in which:

FIG. 1 is a perspective view of a preferred form of
the improved cleaning pad comprising the invention;

FIG. 2 is a sectional view on line 2-2 of FIG. 1;

FIG. 3 is a sectional view of a modified form of the
cleaning pad herein; and

FIG. 4 is a sectional view of still a further modifica-
tion of the cleaning pad herein.

FIGS. 1 and 2 of the drawing disclose a cleaning pad
having a backing member 10 and a coating of abrasive
material 12 fixed to one face thereof, while that form
of the invention shown in FIG. 3 discloses a modifica-
tion in which a backing member 14 has a layer of abra-
sive material 16 and 18 affixed to the opposite faces
thereof. In the pads of FIGS. 1-3 liquid passages 22
and 24 extend through the backing member and through
the coating of abrasive material, while that form of the
invention shown in FIG. 4 illustrates a structure in which
liquid passages are formed in the coating of abrasive
only.

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As stated above, abrasive faced cleaning pads consist-
ing of a backing member and a coating of abrasive ma-
terial are well known. In the formation of such pads
and specifically in the application of the abrasive coat-
ing thereon, there is formed a coating on the face of
the backing material which is impervious to the passage
of liquids. This impervious coating, depending on the
manner in which the abrasive material is applied, may
comprise the entire abrasive layer or at least an imper-
vious zone 20 at the juncture of the abrasive coating
12 and the backing material 10, as indicated in FIGS.
1 and 2. The impervious surface of the pad resulting
from the application of the abrasive material reduces
the efficiency of the pads because liquids useful in the
cleaning or abrading action cannot pass through the
pad and must, therefore, be separately applied to the
surface being operated on. The pad is, therefore, made
much more efficient by forming a plurality of liquid
ducts 22 which extend through the abrasive facing 12
and through any liquid-resistant zones, such as the jun-
cture 20 between the backing member 10 and the abrasive
face 12.

The utility of the passages 22 is particularly marked
when the backing member 10 is absorbent and will re-
tain a substantial quantity of liquid which, during use, is
expelled through the passages 22 to the area of the
abrasive pad face.

In a preferred form, the backing 10 consists of a rub-
ber or plastic foam, which is not only absorbent, but is
also flexible. The abrasive element of the pad face 12
may be selected from a wide variety of abrasives suit-
able for the purpose and among those successfully used
has been silicon carbide. The abrasive coating can be
formed on the backing material in a number of ways,
such as by first mixing the abrasive particles with a wa-
terproof glue or cement and then spreading the mixture
on the backing 10. Alternately, the backing material
10 may be coated with a waterproof cement or glue and
the abrasive particles may then be sprinkled over the
coated surface while the coating is still wet.

When the abrasive coating is formed by first mixing
the abrasive particles with a glue or a cement, the entire
abrasive layer appears to constitute a barrier to the pas-
sage of liquids. In the case where the backing 10 is
first coated with a glue or cement there is apt to be
formed a barrier zone, such as the zone 20, which com-
prises the principal part of the adhesive coating. In cas-
es wherein the backing material 10 is in the form of
rubber or plastic foam, the adhesive material by which
the abrasive particles are fixed to the face of the back-
ing, may constitute a mild solvent for the foam backing
and in such cases, the liquid impervious zone 20 will
again be formed.

After the adhesive coating 12 has been fixed to the
backing 10, this operation preferably being performed
on relatively large sheets of the backing material, the
sheets so coated are perforated in any suitable manner
to form the liquid passages 22 therein. The orientation
of the liquid passages 22 in respect to each other is of
importance only to the extent that they be provided in
sufficient numbers to permit the relatively free passage
of liquid from the backing 10 to the face of the abra-
sive coating 12, such that when pressure is applied to the
backing, liquid absorbed within the backing will flow
through the passages 22 onto the work area at the face
of the pad.

The modified form of the invention illustrated in FIG.
3 in all respects may be the same as that shown in FIGS.
1 and 2, with the exception that a pair of abrasive faces
16 and 18 are employed. It will be noted that when
both faces of the backing material 14 are provided with
an abrasive coating, the liquid passages 24 therein serve

the specially useful purpose not only of providing for the egress of liquid to the face of the pad which is being used, but they also control the ingress of liquid into the absorbent backing material 14 which is enclosed between the abrasive faces 16 and 18.

As indicated, the preferred embodiment of the invention utilizes a flexible, absorbent backing material, such as rubber or plastic foam, but certain advantages of the invention are realized even if the backing material does not absorb substantial amounts of liquid and even though it is of a rigid nature.

In FIGS. 1 through 3, the liquid passages extend not only through the liquid impervious zone at the face of the pads but also through the body of the backing material on which the abrasive faces are formed. This structure is a convenient one particularly when the abrasive coatings are formed directly on the backing material and, indeed, the through-liquid passages assist in channeling the treating liquid to the face of the pad so formed. It should be understood, however, that the important feature of the invention is the formation of the contiguous passages through the portions of the structure which do not ordinarily pass liquid readily. Therefore, particularly in cases wherein the backing material is an absorbent material such as rubber or plastic foam into which and through which liquids pass with ease, the liquid passages need be formed only in the liquid barrier at the face of the backing material. A form of pad having liquid passages through the abrasive face of the pad only is shown in FIG. 4, wherein the base material 26 is a sheet of rubber or plastic foam to which a preformed layer of abrasive material 28 has been affixed. The pad illustrated in FIG. 4 can be made by securing an abrasive sheet 30 to the face of the backing material. In such event, the liquid passages 32 need extend only through the abrasive material and its carrier sheet 30, such passages being formed conveniently before the abrasive-carrying sheet is affixed to absorbent backing material 26.

While the fundamentally novel features of the invention have been illustrated and described in connection with specific embodiments of the invention, it is believed that these embodiments will enable others skilled in the art to apply the principles of the invention in forms departing from the exemplary embodiments herein, and such departures are contemplated by the claim.

I claim:

A unitary abrasive cleaning pad comprising a flexible body of liquid absorbent backing material, a substantially homogeneous coating layer on and contiguous with a surface of said body and adherent thereto, said homogeneous coating layer consisting essentially of a water-immiscible adhesive which is solidified in the final article and which exists in said coating layer as a flexible continuous phase and a solid abrasive material in fine granular form existing in said coating layer as a discontinuous phase, and a plurality of apertures extending through said coating layer and through said body of backing material, whereby an aqueous liquid may pass into said absorbent body of backing material and from said body of absorbent backing material through said apertures to the face of said coating layer.

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