Dec. 21, 1937. M. F. READ 2,102,745

ABRASIVE PAD

Filed Aug. 24, 1936

FIG. 1.

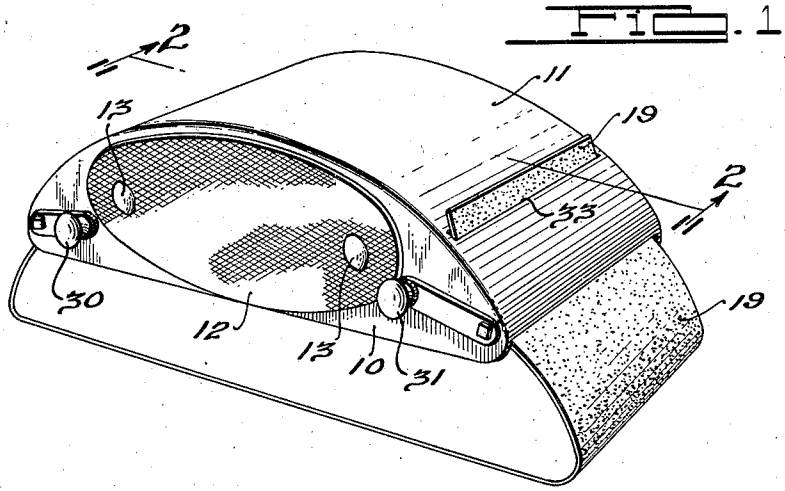
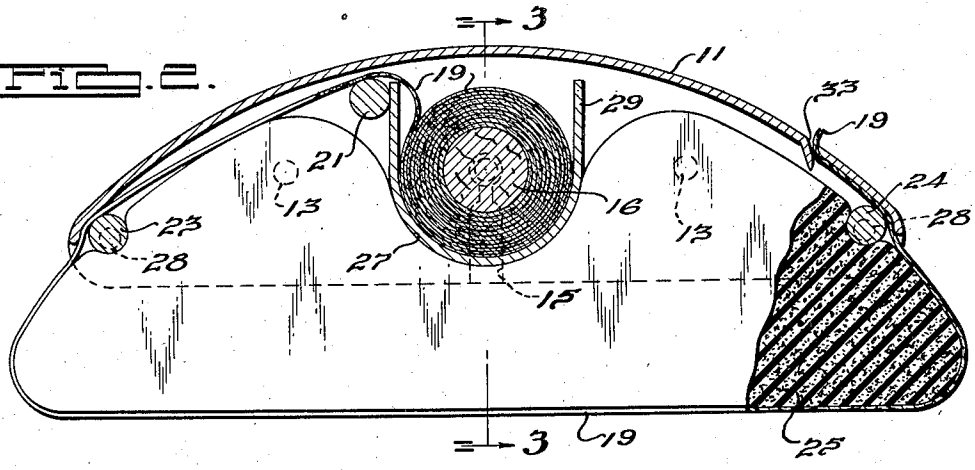


FIG. 2.



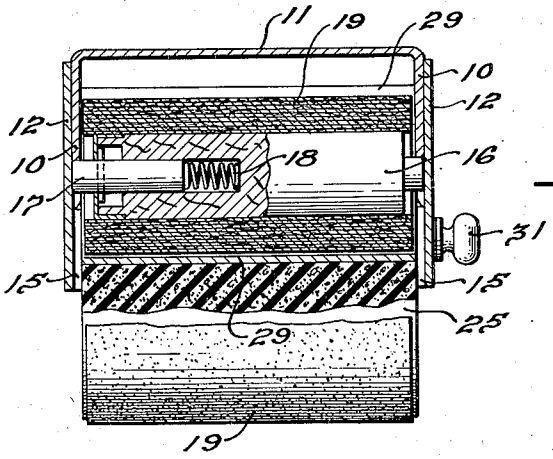


FIG. 3.

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ABRASIVE PAD

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3 Claims. (Cl. 51—187)

This invention relates to a device for holding abrasive material. More particularly, it relates to a structure conveniently adapted to fit the hand and including means for conveniently renewing the abrasive surface thereof.

In sanding or polishing surfaces preparatory to applying varnish, lacquer, wax or other finishes thereto, it is the practice of the workman to rub the surface by hand with abrading or polishing paper or cloth. It is unsatisfactory to use a plane surfaced block as a backing for the paper due to irregularities and undulations in the surface, such as are particularly present in the surface of metal automobile bodies. It is further virtually essential that any backing utilized for the purpose of supporting the paper or cloth abrasive sheet must be of a construction which easily adapts and conforms itself to the surface being polished.

Inasmuch as in conventional automotive vehicle polishing operations it has become the practice to wet the abrasive material from time to time, the only practical method of accomplishing this is to dip the entire abrasive pad into water and consequently the resilient material must be of such construction that it will not readily absorb quantities of water, which greatly accelerate its depreciation.

It is a primary object of the present invention to provide an article of this general class in which convenient means are provided for mounting a supply roll of abrasive paper in order that the same may readily be accessible as it is desired to renew the abrasive on the surface of the pad.

Further, the present invention contemplates the provision of a construction in which a housing is provided which is adapted to receive a resilient pad of such construction that it will not absorb water and will inherently conform itself to the surface to be polished.

Still further, the present invention contemplates the provision of a construction in which simple and effective means are provided for locking the ends of the abrasive material passing over the surface of the resilient pad in order that the resiliency of the pad may conveniently be utilized for tensioning the exposed abrasive strip.

Many other and further objects and advantages of the present invention will become clearly apparent from the following specification when considered in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of one embodiment of the invention, illustrating the parts of the same in position for use;

Fig. 2 is an enlarged longitudinal sectional view, taken substantially on the line 2—2 of Fig. 1, illustrating in detail the internal construction and arrangement of parts;

Fig. 3 is a transverse sectional view, taken substantially on the line 3—3 of Fig. 2, illustrating in detail the mounting of the supply roll interiorly of the enclosing housing.

With more particular reference to the drawing, the specific embodiment of the invention illustrated therein includes a housing which may be conveniently formed from a single integral section of sheet metal stamped to substantially the configuration shown. While the specific configuration of the housing illustrated is not material to the present invention, it has been found desirable to provide the housing structure of a general shape adapted to conveniently fit the end of the user and thus eliminate sharp corners and make a device generally easily handled. The housing as shown comprises a pair of side portions 10 which are interconnected by an integral arcuate portion 11. The side portions 10 may have affixed thereto plates 12, the faces of which are roughened in order to provide a surface which may conveniently be gripped. The plate 12 may be conveniently secured to the side portion of the housing 10 by means of suitable rivets 13.

The side portions 10 of the housing member are each provided with substantially vertically extending slots 15, which slots are normally covered by the knurled plate 12. These slots 15 serve to together provide means for mounting a roller 16 interiorly of the housing structure. The roller may include a spring pressed plunger 17 which is normally urged axially outwardly by means of a coil spring 18 in order that the axial portion of this roller will be urged into engagement with the inner surface of the plate 12 and keep the roller in position. The roller 16 serves to carry a suitable supply of abrasive tape 19 which may be cloth or paper such as is common in the art.

An idle roller 21 is journaled for rotation in the side members and it will be seen that the peripheral surface of this roller lies adjacent to the supply roll of tape 16, and that the tape therefrom passes over the roller 21 along the interior surface of the arcuate portion 11 of the housing. A pair of eccentric rollers 23 and 24 are mounted adjacent the respective ends of the arcuate portion 11 of the housing and these rollers are each eccentrically mounted with re-

spect to their shafts. The shafts of these rollers are journaled for rotation in the side members 10 of the housing and it will be appreciated by reference to Fig. 2 that these rollers are so positioned that rotation thereof will cause the eccentric surface of the roller to frictionally engage the adjacent portion of the arcuate wall 11 of the housing in which the rollers are mounted. The purpose and function of these rollers 23 and 24 will appear more clearly hereinafter.

A resilient pad member 25 is provided having a portion adapted to extend within the housing and a portion adapted to extend therefrom exteriorly of the housing. While the pad 25 may be formed of any suitable relatively soft, highly resilient material, such, for example, as sponge rubber, it has been found particularly desirable to form this pad of synthetic rubber of the sponge type in which the structure of the rubber is formed to provide a plurality of voids each isolated from one another by means of thin walls of synthetic rubber. Sponge of this type is particularly adaptable for use in connection with pads of the type disclosed in this application because it is often found necessary in use of abrasive materials of this type to dip the entire abrasive pad in water and it is essential therefore that the pad be of a structure which will not absorb water in any substantial amount. The pad 25 is molded to a shape so that it will fit within the housing structure and is provided with a recess 27 in its central portion to allow clearance for the supply roll of abrasive type 19. The pad is likewise provided with recesses 28 and 29 which are adapted to fit around the rollers 23 and 24 and it will be appreciated that these recesses serve to aid in positioning the pad accurately within the housing with which it is associated.

Due to the fact that the sponge pad 25 is compressed to some extent when the apparatus is in use, it has been found desirable to provide a protective housing 29 to separate the supply roll of abrasive tape 19 from the pad 25. This housing merely serves the purpose of preventing frictional engagement of the supply roll with the pad which might normally hinder the rotation of the former. The housing 29 may conveniently be formed from a section of sheet metal bent to substantially U shape and may be loosely disposed within the housing and retained in position by pad 25.

It will be seen by reference to Fig. 3 that the abrasive tape 19 passes from the supply roll 16 over the surface of the idle roll 21 and extends along the inner surface of the housing and over the eccentric roll 23. The ecentric rolls 23 and 24 have cranks 30 and 31 respectively secured to the outer end of the shafts thereof providing convenient manual means for urging the eccentric peripheral surfaces of these rolls into engagement with the interior surface of the arcuate portion 11 of the housing. It will be seen that, inasmuch as the tape 19 passes between the eccentric roll and the interior surface of the housing, this roll may be utilized for the purpose of locking the strip of tape against movement. After passing over the eccentric roll 23 the tape passes over the exposed surface of the resilient pad 25 and reenters the housing in the space between the eccentric roll 24 and the interior surface of the arcuate portion 11 of the housing. The arcuate portion of the housing immediately above the roll 24 may be preformed at this time of manufacture to provide a slotted opening 33 extending substantially the width of the housing and sufficiently wide to permit the end of the tape 19 to pass out of the housing at this point. It will be seen that the bottom surface of the resilient pad 25 is relatively flat and that this surface is substantially entirely covered by the strip of abrasive tape 19. It will be apparent that the portion of the tape extending over the pad 25 may be locked in engagement with the housing by means of the eccentric rolls 23 and 24 thus tensioning the exposed portion of the tape over the resilient pad 25.

It will be apparent that when the portion of the tape 19 covering the exposed surface of the pad 25 becomes worn, the rollers 23 and 24 may be rotated to permit the passage of the strip of abrasive tape thereover. The projecting end of the tape 19 which extends through the slot 33 may then be pulled until a fresh section of abrasive tape is disposed over the lower surface of the pad 25. The roller 23 may then be rotated to lock the inner end of the tape in position with respect to the housing and the outer end of the tape projecting through the slot 33 may be tensioned to compress the pad slightly and then the roller 24 may be locked to retain the tape and resilient pad in a tensioned condition.

It will be appreciated from the foregoing that the apparatus described is relatively simple in construction and of a type such that paper or abrasive tape may be conveniently brought into position over the surface of the resilient pad 25. It will be appreciated that the protective housing 29 serves to permit relatively free rotation of the supply roll despite the fact that the resilient pad 25 lies closely adjacent thereto. Further, it will be apparent that the portion of the tape which is tensioned over the exposed portion of the pad 25 serves to provide means for not only compressing the pad to the desired extent, but also for retaining the pad in assembled relation with respect to the housing. Consequently, it will be apparent that when the supply of abrasive tape on the roll 16 becomes exhausted it is an exceedingly easy matter to install a new supply roll.

It will be appreciated that the specific embodiment of the invention illustrated in the accompanying drawing described above shows but one specific form of the invention presented. Many other and further modifications thereof, falling within the scope of the invention as defined in the subjoined claims, will be apparent to those skilled in the art.

I claim as my invention:

1. An abrasive pad including, in combination, a housing, a rolled strip of abrasive tape, means within said housing for supporting said roll of abrasive tape, a resilient pad having a portion adapted to fit within said housing and a portion adapted to project therefrom, rolls at each end of said housing over which said tape is adapted to pass, means for urging said rolls against said housing to preclude movement of said tape thereover, said rolls serving to retain said tape in tensioned condition over the surface of said pad thereby retaining the same seated in said housing.

2. An abrasive pad including, in combination, a housing, a rolled strip of abrasive tape, means within said housing for supporting said roll of abrasive tape, a resilient pad having a portion adapted to fit within said housing and a portion adapted to project therefrom, rolls at each end of said housing over which said tape is adapted to pass, and eccentric mountings for said rolls whereby they may be urged against said housing to lock said tape against movement, said rolls when locked serving to retain said tape in ten-

sioned condition over the exposed surface of said pad thereby retaining said pad seated in said housing.

3. An abrasive pad including, in combination, a housing, a rolled strip of abrasive tape, eccentric rollers mounted adjacent the ends of said housing, means for adjusting said rollers to move the same into engagement with the housing, means within said housing for mounting said roll of abrasive tape, and a resilient pad having a portion adapted to fit within said housing and a portion extending therefrom, said tape passing from said supply roll between one of said eccentric rolls and the wall of said housing, said tape passing over the exposed surface of said resilient pad and between said other eccentric roll and the wall of said housing whereby the exposed section of said tape may be tensioned to retain said resilient pad seated within said housing.

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