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METHOD AND MEANS FOR FORMING SANDING BLOCKS

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2 Sheets-Sheet 1

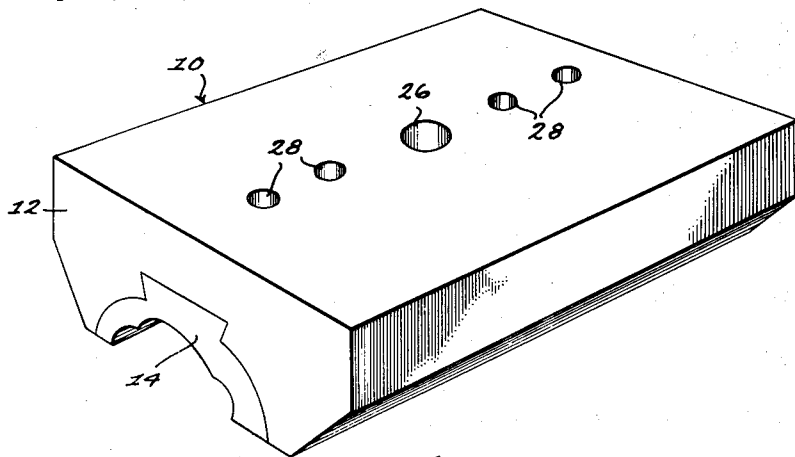


Fig. 1

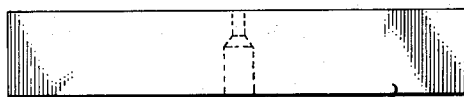
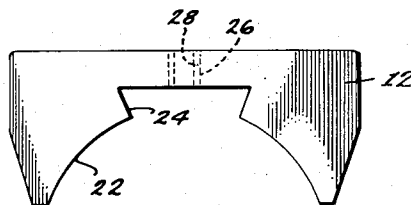


Fig. 2

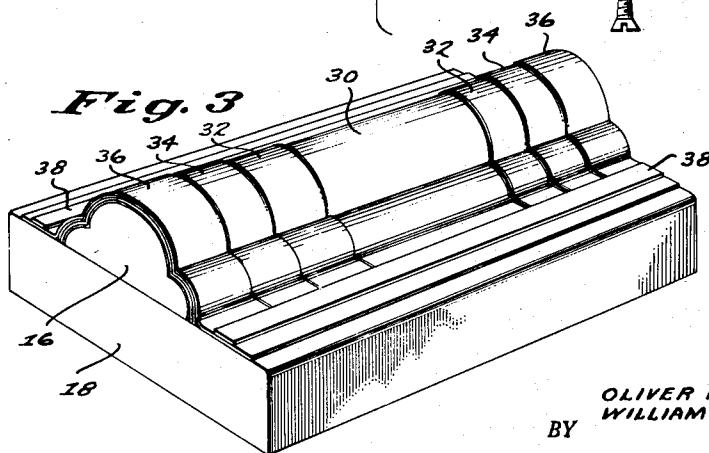


Fig. 3

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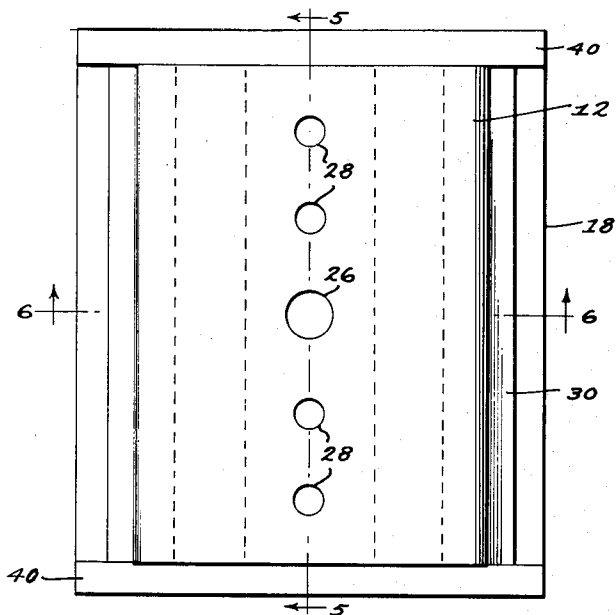


Fig. 4

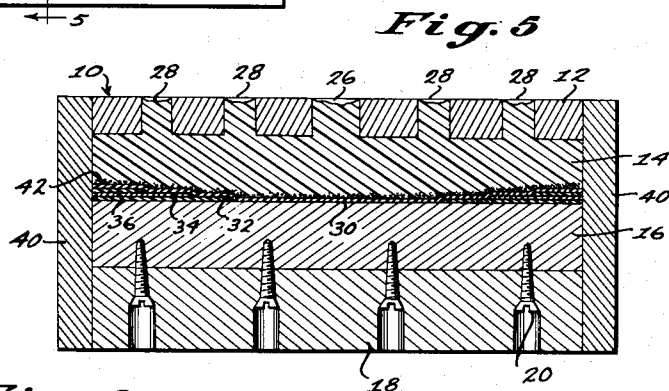


Fig. 5

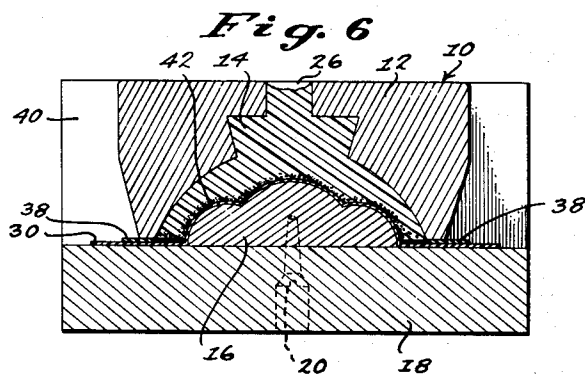


Fig. 6

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METHOD AND MEANS FOR FORMING SANDING BLOCKS

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12 Claims. (Cl. 18—39)

This invention relates to sanding blocks of the type used in the profile sanding of wood molding and the like, and more particularly to an improved sanding block of this sort that is uniquely formed with an exceptionally serviceable pressure face liner of plastic material, and to the method and means for forming a sanding block with such a liner.

Heretofore sanding blocks have been formed according to standard practice either from a block of solid material such as wood, or from a relatively more resilient material such as hard block felt. In either case, the technique of forming the blocks has characteristically consisted in cutting a reverse profile of the wood molding to be sanded in one face of the sanding block material being used to form a pressure face for pressing a sanding belt against the molding during the sanding operation. The cutting of this profile in the sanding block pressure faces has commonly been done by hand, and has involved painstaking and laborious shaping and fitting to obtain satisfactory accuracy. As a different sanding block having the particular profile required must be provided for each different wood molding to be sanded, and as these sanding blocks become worn rather rapidly when formed of the usual materials heretofore employed, the problem of forming and maintaining an adequate supply of these sanding blocks for carrying out profile sanding operations has been particularly burdensome and costly, especially in continuous automatic sanding operations and where relatively heavy sanding pressures are used as is now generally thought to be desirable.

According to the present invention there is now provided a sanding block that may be easily and quickly formed with a pressure face conforming accurately to the profile of the wood molding to be sanded, and that can be made very substantially more wear resistant and serviceable than has heretofore been possible. Briefly described, the sanding block of the present invention is characterized by a pressure face liner formed of a dimensionally stable plastic material and bearing on its exposed face an impression of the wood molding profile to be sanded.

This pressure face liner is formed in accordance with the present invention by casting it over a length of the wood molding to be sanded so that the pressure face profile is obtained accurately from the wood molding profile itself. For this purpose, a sanding block length of the wood molding to be sanded (i. e., a length of this wood molding equal to the length of the sanding block to be formed) is used directly as a part of the casting mold, and a sanding block body member formed with a liner cavity is used as another part, so that in addition to obtaining an accurate pressure face impression of the wood molding profile, the pressure face liner member is also cast directly on the sanding block body member in the course of being formed. As a result, the sanding blocks of the present invention may be readily formed with excellent accuracy while requir-

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ing only a fraction of the time and expense heretofore necessary for sanding block preparation.

The present invention is described in further detail below in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view illustrating generally the arrangement of a sanding block embodying the present invention;

Fig. 2 is an exploded view in end elevation of the basic mold elements employed in forming a sanding block such as is illustrated in Fig. 1;

Fig. 3 is a further perspective view related generally to Fig. 1 and illustrating the arrangement of a length of wood molding to be sanded for use in forming a sanding block with a pressure face liner in accordance with the present invention;

Fig. 4 is a plan view of a mold assembled for casting a pressure face liner member in accordance with the present invention;

Fig. 5 is a section of the mold taken substantially on the line 5—5 in Fig. 4, and illustrating the form of the cast liner therein; and

Fig. 6 is a section taken on the line 6—6 in Fig. 4, and in which the cast liner is also illustrated.

In Fig. 1 of the drawings, the sanding block embodying the present invention is indicated generally by reference numeral 10, and as shown comprises a sanding block body member 12, and a pressure face liner 14. The body member 12 will usually be formed most conveniently of wood, although it might be formed of a variety of other suitable materials too if desired.

The pressure face liner 14 is formed of a plastic material according to the present invention, as previously noted. The plastic material used is one that is heat resistant and a dimensionally stable one in the sense that it is a relatively firm unyielding material when finally formed. Also, the plastic material used is one that is adapted for casting, as distinguished from pressure molding, and one that may be thermoset to a dimensionally stable final form as noted above. Examples of such plastic materials that may be used to good advantage in accordance with the present invention are Durez casting resin No. 7421A and Marblette resin No. 69, both of which are phenolic resins.

As mentioned above, the sanding block body member 12 is employed according to the present invention in conjunction with a length of the wood molding to be sanded for forming a casting mold for the pressure face liner 14, and Fig. 2 of the drawings illustrates generally the manner in which this is done. In Fig. 2, the wood molding to be sanded is indicated at 16 in relation to a mold base member 18, which may also be suitably formed of wood, and on which the wood molding length 16 may be mounted as by fastening screws 20. The sanding block body member 12 is adapted to serve as the upper casting mold part by being formed with a longitudinal cavity 22 having a greater transverse extent than that of the profile of the wood molding 16 to be sanded. This cavity 22 may, if desired, be formed with a reentrant portion as at 24 for anchoring the liner 14 on the body member 12; and a pouring aperture as at 26, together with a suitable number of riser apertures 28, are formed in the body member 12 to extend from its back face through to the cavity 22.

In preparing the wood molding 16 for use in forming the casting mold for the plastic liner 14, a piece of the molding 16 is cut to sanding block length and mounted on the base member 18 as illustrated in Fig. 3. Then, in order to provide a parting surface, the length of wood molding 16 is covered with a smooth heat-resistant facing 30. This facing 30 is arranged on the wood molding 16 in accordance with the present invention in a thickness

sufficiently approximating the thickness of a sanding belt so that an expanded profile impression of the wood molding 16 will be made in the cast liner 14 for accommodating a sanding belt to run smoothly between the liner pressure face and the wood molding to be sanded. Preferably, this facing 30 comprises a vinyl film tape carrying a pressure-sensitive adhesive on one of its faces so that it may be secured on the wood molding 16 in accurate conformance with the molding profile. Such tapes may be obtained readily in a thickness of about .010" which we have found is a very satisfactory thickness in relation to usual sanding belt thicknesses which normally range from about .015" to .017".

Although not a necessary feature of a sanding block formed in accordance with the present invention, it is also possible with a tape of this sort to arrange a series of contiguous transverse tape strips adjacent each end of the length of wood molding 16 as at 32, 34 and 36, and in an increasing number of layers toward each end as illustrated, so as to form the pressure face impression in the liner 14 with a sanding belt entrance and exit taper which in many cases is particularly useful in facilitating the application of a sanding belt to the work during profile sanding operations. When such an arrangement of transverse taper forming strips 32, 34 and 36 are used, these strips are preferably arranged on the length of wood molding 16 and the base member 18 first, and then covered with a continuous facing sheet 30 of the tape that extends over the entire length of the wood molding 16 and the mold base 18 so as to smooth over and round off the stepped arrangement of the transverse strips 32, 34 and 36. Compensation for the irregularities produced by these tape strips at 32, 34 and 36 may be made by placing corresponding tape strip layers 38 on the mold base 18 at the sides of the length of molding 16 to provide for sealing off the casting mold at this point. Alternatively, a sanding belt entrance and exit taper may be obtained in the sanding block 10 by grinding or otherwise machining a suitable radius or taper at the ends of the liner 14 after it is formed.

The length of wood molding 16 prepared in the manner described above is employed as the bottom portion of a casting mold for the sanding block liner 14, the casting mold being completed by disposing the sanding block body member 12 over the prepared length of wood molding 16 and closing the ends of the longitudinal cavity 22 in the body member 12 by end plates or the like as at 40, so that a mold space is formed by the body member cavity 22 over the prepared length of wood molding 16. Accordingly, plastic material may be poured into this mold cavity through the body member aperture 26 to cast the sanding block liner 14 with an impression in its exposed face of the profile of the wood molding length 16. After casting and suitable curing of the plastic liner 14 has been completed, the body member 12 may be removed with the cast liner 14 secured thereon for use directly as the complete sanding block 10.

The nature of the plastic material from which the liner 14 is formed according to the present invention has already been described above, and the liner 14 may be formed from such plastic material alone if desired. In addition, however, this plastic material may be modified to enhance its physical characteristics further, in accordance with the present invention, by providing it with an especially hard wear resisting pressure face and by incorporating in it a dry lubricant.

In order to obtain the especially hard wear resisting surface mentioned above, a substantial proportion of discrete glass particles may be included in the plastic casting mix. Suitably, these glass particles may be in the form of spherical glass beads, and we have found that such glass beads of 28 to 35 mesh size (i. e., the size that will pass mesh openings from .0235" to .0164") give very satisfactory results. Preferably, the size of glass beads used should be no smaller than this because a pronounced

abrasive action is reached with smaller sizes, although the glass bead size might be further increased for further avoiding any abrasive effect so long as a suitably discrete particle size is retained that is satisfactorily dispersible in and compatible with the casting resin. When such glass beads are incorporated in the plastic casting mix they are adapted by reason of their weight for sinking by gravity to the bottom of the mold space as the casting mix is poured and cured, with the result they are concentrated at and adjacent the pressure face of the liner 14 as indicated at 42 in Figs. 5 and 6, during the casting process. Accordingly, these glass beads 42 dispose themselves naturally for providing a hard wear resistant pressure surface on the liner 14 in the course of formation of the liner 14.

As a dry lubricator for the liner 14, we have found that molybdenum disulfide may be incorporated in the plastic casting mix to good advantage for this purpose. The molybdenum disulfide is fully compatible with the plastic materials adapted for forming the liner 14 in accordance with the present invention, and may be dispersed therein so that it is always available at the pressure face of the liner 14 for lubricating and thereby improving the manner in which a sanding belt will run over the pressure face of the liner 14. Also, graphite might be used as the dry lubricant if desired.

As an example of the manner in which glass beads and molybdenum disulfide may be incorporated in the plastic casting mix for the purposes noted above, we have found that a good concentration of glass beads at the liner pressure face and a well lubricated pressure face are obtained with a plastic casting mix in which by volume two thirds parts of glass beads (28 to 35 mesh size) and one third parts of molybdenum disulfide are incorporated for each part of plastic.

The present invention has been described in detail above for purposes of illustration only and is not intended to be limited by this description or otherwise except as defined in the appended claims.

We claim:

1. The process of forming a sanding block adapted for profile sanding of wood molding and the like which comprises forming a mold cavity over a length of the wood molding to be sanded by disposing thereover in spaced relation a sanding block body member, and casting a sanding block pressure face member of dimensionally stable plastic material in said mold cavity as a liner on said body member with an impression of the profile of said wood molding formed therein.

2. The process of forming a sanding block adapted for profile sanding of wood molding and the like which comprises covering a length of the wood molding to be sanded with a smooth heat-resistant facing of approximate sanding belt thickness, forming a mold cavity over said covered length of wood molding by disposing thereover in spaced relation a sanding block body member, and casting a sanding block pressure face member of dimensionally stable plastic material in said mold cavity as a liner on said body member with an impression of the profile of said covered wood molding formed therein.

3. The process of forming a sanding block as defined in claim 2 and further characterized in that said smooth, heat-resistant facing comprises a vinyl film tape carrying a pressure-sensitive adhesive on one face thereof.

4. The process of forming a sanding block adapted for profile sanding of wood molding and the like which comprises providing a sanding block length of the wood molding to be sanded, covering said length of wood molding with a heat-resistant vinyl film tape of approximate sanding belt thickness and securing said tape in accurate conformance with the profile of said wood molding, forming a mold cavity over said covered length of wood molding by disposing thereover in spaced relation a sanding block body member, and casting a sanding block pressure face member of dimensionally stable plastic

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material in said mold cavity as a liner on said body member with an impression of the profile of said covered length of wood molding formed therein.

5. The process of forming a sanding block as defined in claim 4 and further characterized in that said length of wood molding is covered by first arranging a series of relatively narrow strips of said vinyl film tape transversely in contiguous relation adjacent each end of said length of wood molding and in an increasing number of layers toward each end, and placing a continuous sheet of said vinyl film tape over the entire length of said wood molding including the end portions at which said tape strips are arranged.

6. The process of forming a sanding block adapted for profile sanding of wood molding and the like which comprises forming a mold cavity over a sanding block length of the wood molding to be sanded, and casting a sanding block pressure face member in said mold cavity with a dimensionally stable plastic material containing a substantial proportion of glass particles dispersed therein, whereby said glass particles gravitate to the pressure face of said sanding block member and form a hard wear resistant surface thereat.

7. The process of forming a sanding block adapted for profile sanding of wood molding and the like which comprises forming a mold cavity over a sanding block length of the wood molding to be sanded, and casting a sanding block pressure face member in said mold cavity with a dimensionally stable plastic material containing a substantial proportion of a dry lubricant selected from the group consisting of graphite and molybdenum disulfide dispersed therein, whereby said dry lubricant is made available at the pressure face of said sanding block member continuously during use thereof.

8. The process of forming a sanding block adapted for profile sanding of wood molding and the like which comprises forming a mold cavity over a sanding block length of the wood molding to be sanded, and casting a sanding block pressure face member in said mold cavity with a dimensionally stable plastic material containing by volume about two-thirds parts of discrete glass particles and about one-third parts of molybdenum disulfide dispersed therein for each part of plastic material, whereby said glass particles gravitate to the pressure face of said sanding block member and form a hard wear resistant surface thereat, and said dry lubricant is made available at said pressure face continuously during use of said sanding block member.

9. A mold adapted for forming a sanding block to be used in the profile sanding of wood molding and the like, said mold comprising a sanding block length of the wood molding to be sanded, a sanding block body member having a longitudinal cavity in the pressure face thereof, said cavity being of greater transverse extent than that of

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the profile of said wood molding, and means for disposing said body member over said length of wood molding and enclosing said cavity as a mold space for casting a pressure face liner of plastic material for said body member in said cavity with an impression of the profile of said length of wood molding formed in the exposed face of said liner.

10. A mold adapted for forming a sanding block to be used in the profile sanding of wood molding and the like, said mold comprising a sanding block length of the wood molding to be sanded, said length of wood molding having the entire profile thereof covered with a smooth, heat-resistant facing of approximate sanding belt thickness, a sanding block body member disposed over said length of wood molding, said body member having a longitudinal cavity in the pressure face thereof, and said cavity being of greater transverse extent than that of the profile of said wood molding, and means for closing the ends of said cavity and thereby forming a mold space for casting a pressure face liner of plastic material on said body member with an impression of the profile of said length of wood molding formed in the exposed face thereof.

11. A mold as defined in claim 10 and further characterized in that the facing for said wood molding profile comprises a vinyl film tape secured by a pressure sensitive adhesive in accurate conformance with said profile.

12. A mold as defined in claim 11 and further characterized in that a series of relatively narrow strips of said vinyl film tape are arranged transversely in contiguous relation adjacent each end of said length of wood molding and in an increasing number of layers toward each end, and a continuous sheet of said vinyl film tape is secured over the entire length of said wood molding including the end portions at which said tape strips are arranged.

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