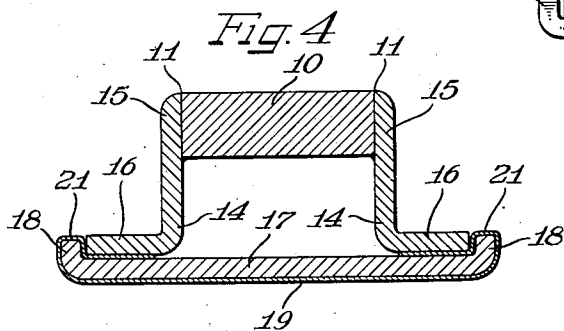
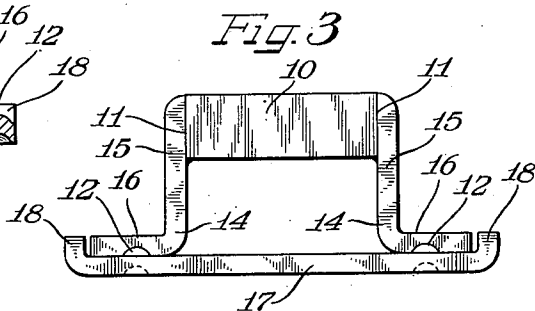
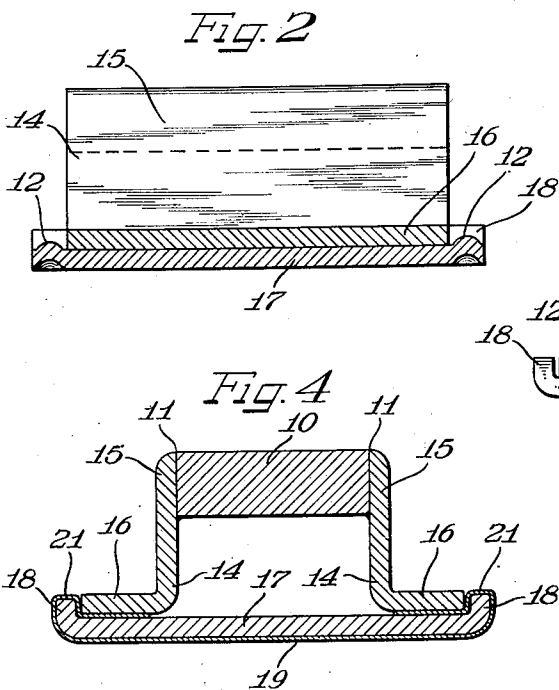
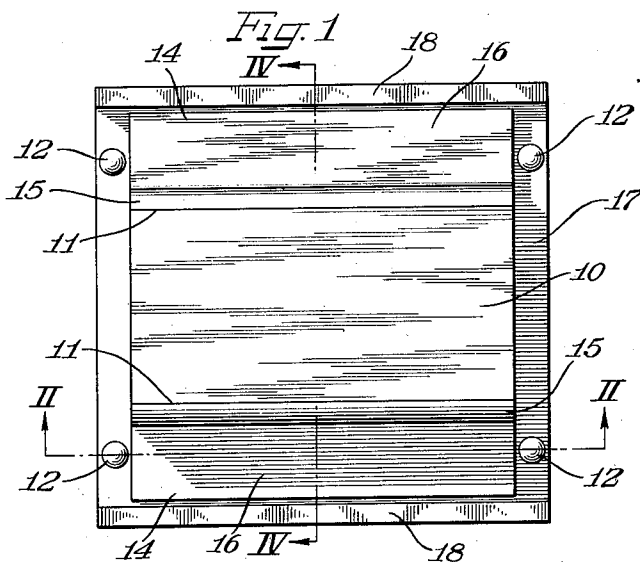


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MAGNETIC SANDPAPER HOLDER

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MAGNETIC SANDPAPER HOLDER

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This invention relates to a sandpaper holder and method whereby sandpaper may easily be held in place in a holder. More specifically, this invention relates to a method and apparatus whereby sandpaper is held in place in a holder by means of magnetic attraction between two metal pieces.

It is an object of this invention to provide a holder for sandpaper in which magnetic attraction is used to maintain the sandpaper in place.

Another object is to provide an easily fabricated metal holder for sandpaper.

A further object is to provide a method whereby sandpaper may be held in place in a metal holder by means of a permanent magnet.

In accordance with the general features of this invention, there is provided a permanent magnet, a shunt piece for this magnet, the bottom of which serves as a backing for sandpaper, and flat engaging surfaces between the magnet and the shunt piece whereby a clamping pressure may be maintained on the edges of sandpaper folded around the shunt piece and between the engaging surfaces of the magnet and shunt.

Other objects and features of this invention will more fully appear from the following detailed description taken in connection with the accompanying drawings which illustrate a single embodiment thereof and in which:

Figure 1 is a top plan view of the sandpaper holder;

Figure 2 is a sectional view taken along the line II—II of Figure 1;

Figure 3 is a front elevational view of the holder; and

Figure 4 is a sectional view taken along the line IV—IV of Fig. 1, showing a piece of sandpaper in position with marginal portions clamped between the pole pieces and shunt plate.

As shown on the drawings:

In the accompanying drawings reference numeral 10 designates a permanent magnet composed of a magnetic material such as iron or other ferromagnetic alloy. The magnet 10 is preferably square or rectangular in area. Opposite sides of the magnet 10 constitute poles 11 as shown in Figures 1, 3 and 4.

A pair of pole pieces 14 are connected to the poles 11 of the magnet 10 as by soldering. The pole pieces 14 are in the shape of angle irons with sides 15 and 16. The edge of the side 15 of each of pole pieces 14 coincides with a surface of the magnet 10 and the magnet and pole pieces thereby cooperate to form a grip for easy handling. The pole pieces 14 are composed of a soft

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magnetic material such as soft steel and consequently the structure comprising the magnet 10 and the angle irons 14 may be considered as a horseshoe magnet with the outward flaring portions 16 serving as poles.

The surfaces of the sides 16 of the pole pieces 14 facing away from the magnet 10 are disposed to engage a flat surface on a plate 17 through a layer of sandpaper. The plate 17 serves as a shunt to provide a path of low reluctance for the magnetic flux between the pole pieces 14. Opposite sides of the plate 17 have portions 18 which are turned slightly in the same direction. The plate 17 is preferably square or rectangular in shape and has margins extending a short distance beyond the limits of the sides 16 of the pole pieces 14 as shown particularly in Figure 1. The magnetic attraction existing between the members 16 and the plate 17 is utilized to maintain sandpaper firmly in place. As illustrated in Figure 4, a piece of sandpaper 19 is placed against the lower surface of the shunt plate 17, with its marginal portions, as at 21, turned up and around the upturned portions 18 of the plate 17, to give a large surface area for the application of the clamping action between the members 16 and the plate 17.

In order to prevent relative lateral movement between the members 16 and the plate 17 a series of bosses 12 are struck up in the plate 17 by means of force applied, as by a punch, to the undersurface of the plate 17. The bosses 12 cooperate with the turned up section 18 of the plate 17 to hold the magnet and angle iron assembly in place.

To place sandpaper in the holder it is only necessary to separate the magnet assembly from the plate 17 by force, wrap the sandpaper around the plate 17, as illustrated in Figure 4, and replace the magnet assembly in order to hold the sandpaper in place by means of magnetic attraction.

Since the force acting upon the sandpaper is entirely dependent upon the strength of the magnet it is important that a magnetic material of high permeability and magnetic strength be used in the magnet 10. A suitable type of magnet is the so called "Alnico" magnet composed of an alloy of aluminum, nickel, cobalt, and iron. Alnico magnets of varying compositions as to alloying ingredients are well known in the art.

It will be noted that the pole pieces 14 and the magnet 10 combine to form an assembly which may be easily held by the hand. While the length along the handle formed by the pole pieces 14 and the magnet 10 is normally about the width

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of the hand, it may be seen that a wider or narrower magnet and pole piece assembly may be used. It will, of course, be understood that various other details of construction may be varied through a wide range without departing from the principles of this invention, and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

We claim as our invention:

1. A sandpaper holder comprising a thick permanent magnet the yoke of which is shaped to provide an easy hand grip, a shunt for the poles of said magnet consisting of a flat plate composed of a magnetic material, said plate having margins extending slightly beyond the limits of the magnetic poles, and bosses spaced at intervals along the margins of said plate to prevent slippage between said magnet and said plate, said magnet and said plate cooperating to maintain in place sandpaper wrapped around said plate.

2. A sandpaper holder comprising a permanent magnet, pole pieces for said magnet, said pole pieces being composed of angle irons one edge of which is permanently attached to said magnet, the other edges of both angle irons flaring outward from said magnet, said magnet and angle irons cooperating to form a hand grip, a shunt for said pole pieces consisting of a plate of magnetic material having margins extending slightly beyond the flared edges of said angle irons and bent in the same direction outside of said angle irons, and bosses extending in the direction of the bent edges from the ends of said plate, said bosses and bent edges of said plate preventing relative movement between said plate and said pole pieces.

3. A sandpaper holder comprising a pair of angle irons of equal length, a permanent magnet with poles substantially the length of said angle irons, each pole of said magnet being permanently attached to one of said angle irons along one edge thereof, said angle irons being disposed with the edges not attached to said magnet poles to extend outward from said magnet in order to allow said angle irons to serve as pole pieces, a shunt for said pole pieces consisting of a plate of magnetic material having margins extending slightly beyond the flared edges of said angle irons and bent toward the magnet outside of said angle irons, and bosses extending toward the magnet from the ends of said plate, said bosses and turned sides of said plate preventing relative movement between said plate and said pole pieces.

4. A sandpaper holder comprising a permanent magnet, said magnet being composed of an alloy containing aluminum, cobalt, nickel and iron commonly known as Alnico, pole pieces for said magnet, said pole pieces being composed of angle iron one edge of which is permanently attached to said magnet, the other edges of both angle

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irons being turned outward from said magnet, said magnet and angle irons cooperating to form a hand grip, a shunt for said pole pieces consisting of a plate of magnetic material having margins extending slightly beyond the turned outward edges of said angle irons and bent toward said angle irons, and bosses extending toward said magnet from the ends of said plate, said bosses and turned sides of said plate preventing relative movement between said plate and said pole pieces.

5. A holder for non-magnetic sheet material comprising a permanent magnet assembly including pole pieces providing spaced surfaces and a shunt plate of soft magnetic material serving as a backing for said non-magnetic material and having surfaces conforming to said spaced pole surfaces, said plate and pole pieces having portions outside of said surfaces cooperating with each other to prevent relative surface movement therebetween without separation of said surfaces, whereby said non-magnetic material may be positioned on said shunt plate as a backing with portions of said material extending between said conforming surfaces and held in position by the magnetic attraction of said magnet assembly for said shunt plate.

6. A holder for non-magnetic abrasive sheet material comprising a permanent magnet having outwardly flaring poles providing spaced surfaces, a plate shunted across said poles having conforming surfaces, and a plurality of spaced protuberances formed on said plate cooperating with adjacent portions of the poles of said magnet to prevent any substantial relative movement of said conforming surfaces over each other, said plate being adapted to serve as a backing for said non-magnetic abrasive sheet material and to hold the sheet material in place between said conforming surfaces by the clamping pressure provided by the magnetic attraction between said plate and said poles, and said protuberances serving to prevent relative shifting movement of said plate and said pole pieces during relative movement of the holder over a surface to be abraded.

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