

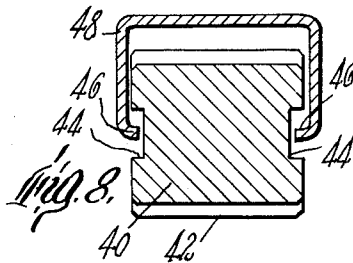
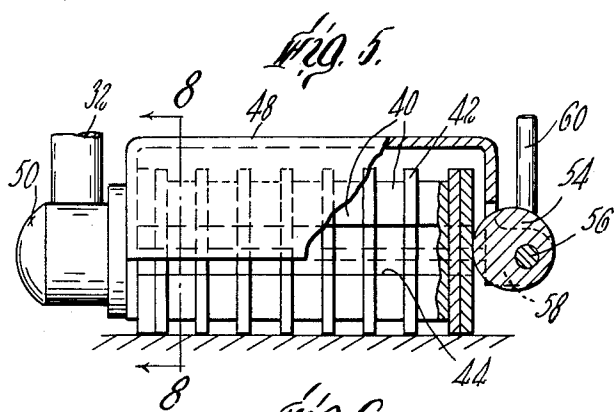
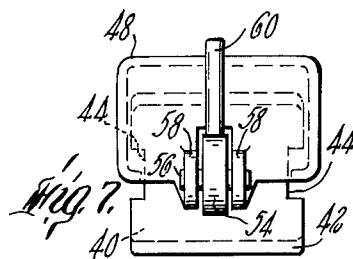
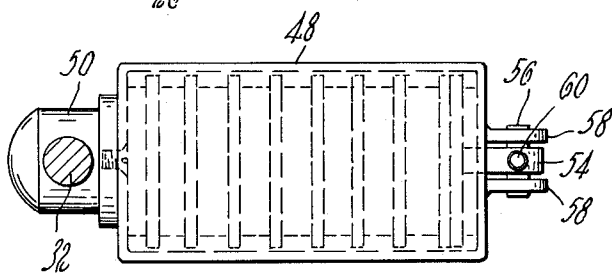
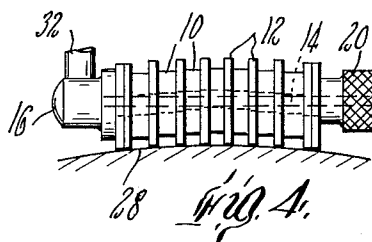
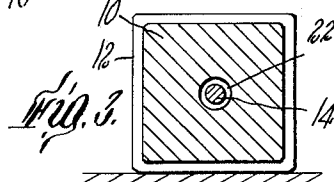
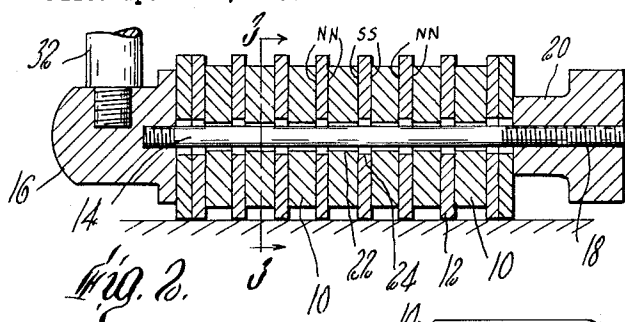
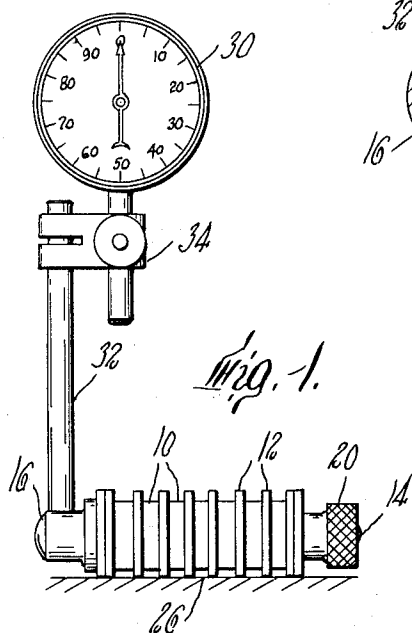
Aug. 28, 1962

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3,051,875

MAGNETIC BLOCK

Filed April 13, 1959



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3,051,875

MAGNETIC BLOCK

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Filed Apr. 13, 1959, Ser. No. 805,937

1 Claim. (Cl. 317-159)

This invention relates to a magnetic block adapted to cling to an iron or steel object and to support a dial gauge or the like. It is common practice to employ a magnetic block for this purpose, but the object of the present invention is to provide a block which is especially adapted to cling effectively to surfaces which are uneven or non-plane. To this end, my improved block is a composite of several magnets which are relatively adjustable and which are rigidly clamped together when adjusted relatively to one another.

For a more complete understanding of the invention, reference may be had to the following description thereof, and to the drawing of which—

FIGURE 1 is an elevational view of the block employed as a support for a dial gauge;

FIGURE 2 is a sectional view, on a larger scale, of the block shown in FIGURE 1;

FIGURE 3 is a section on the line 3—3 of FIGURE 2;

FIGURE 4 is an elevational view of the block shown in FIGURE 1 mounted on a non-plane surface;

FIGURE 5 is a plan view of a modified form of the invention;

FIGURE 6 is a side elevation of the block shown in FIGURE 5, a portion being broken away;

FIGURE 7 is an end elevation of the block shown in FIGURE 5; and

FIGURE 8 is a section on the line 8—8 of FIGURE 6.

The embodiment of the invention illustrated in FIGURES 1, 2, 3 and 4 consists of a series of relatively flat magnets 10 arranged in face-to-face relation and in alternation with inner spacers 12. The individual magnets are similarly shaped and they have any desired contour provided that one side edge is straight. In the embodiment illustrated on the drawing, as indicated in FIGURE 3, the magnets may have a square contour, the length and width being considerably greater than the thickness as shown in FIGURE 2. The material of the magnets is preferably such as can be highly magnetized and has a high degree of magnetic retentivity. Several well known materials are available for this purpose, such as hardened tool steel, alnico and other magnetic alloys. The magnets 10 are magnetized in such a way that the poles are at the opposite broad faces, north polarity being on one broad face, south polarity being on the other broad face. The magnets are arranged, as indicated in FIGURE 2, in face-to-face relation, the opposing faces of successive magnets having similar polarity. Between each pair of successive magnets, is interposed a spacer 12, the spacer being longer and wider than the magnets so that a margin projects beyond the contours of the magnets for the entire periphery thereof. The spacers, however, are somewhat thinner than the magnets. The spacers are made of soft iron or equivalent magnetic permeable material.

To hold the elements of the block together in assembled relation, a tie rod or bolt 14 may be employed. One end of the bolt 14 is secured to an end piece 16, the other end being threaded as at 18 to receive a thumb nut 20. The bolt 14 extends through a hole 22 in each magnet 10 and a hole 24 in each spacer 12, these holes being preferably central and being larger in diameter than the bolt 14 so that a limited amount of lateral displacement is permitted between the several magnets 10 and spacers 12. This lateral adjustability of the magnets and spacers, when the nut 20 is loosened, permits the spacers to adjust themselves to either a plane surface

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such as illustrated at 26 in FIGURE 1 or to a curved or irregular surface such as is illustrated at 28 in FIGURE 4. When the spacers have adapted themselves to the irregularities of any surface to which the block is to be attached, the nut 20 is tightened so that the spacers and magnets are securely clamped together.

FIGURE 1 illustrates a customary use for a magnetic block, this use being to support a dial gauge 30 by means of a rod 32 which projects from the end fitting 16 and suitable connecting means 34 which permits the adjustment of the gauge 30 to any convenient position for observation.

A magnetic block having other connecting means for holding the magnets and spacers in assembled relationship is illustrated in FIGURES 5 to 8. This block consists of flat magnets 40 alternating with spacer members 42 in face-to-face engagement. The magnets and spacers have notches 44 in opposite side edges. These notches receive inturned flanges 46 along side edges of a housing 48 which partially surrounds the block. The notches 44 are of such a size as to permit limited lateral adjustment or relative movement between the several magnets and spacers. The spacers can thus engage a plane surface or adjust themselves to a curved or irregular surface provided that the irregularities of curvature are not too large. When the spacers have adjusted themselves to any given surface, the magnets and spacers are then locked securely in their adjusted position by means of a clamping device which may consist of an end fitting 50 secured to one end of the housing 48 and an eccentric clamping device such as is illustrated in FIGURES 5, 6 and 7. This device, as shown, consists of a disk 54 eccentrically mounted on an axis 56 which is carried by a pair of brackets 58. The disk 54 is rocked by a convenient handle 60 so that it presses tightly against one end of the series of magnet spacers, clamping this series against the other end of the housing 48 and the fitting 50. These two constructions are merely illustrative of means by which the assembled magnets and spacers may be permitted lateral adjustment but can be firmly clamped together in any adjusted arrangement.

I claim:

A magnetic block comprising a series of magnets each having a length and width exceeding by several times the thickness thereof, each of said magnets having opposite polarities at its broad faces with a pole on one face of one magnet of a like polarity with respect to that on an opposing face of a successive magnet, an iron spacer between each two successive magnets, each spacer being of greater length than the length of a magnet, each said magnet and spacer having a central hole through the thicknesses of the spacers and magnets, a bolt in said holes of a diameter substantially less than that of said holes, said bolt extending loosely through all of said holes in said spacers and magnets, and quick release means on an end of said bolt for releasably tightly clamping together said magnets and spacers in any adjusted positions of the spacers with respect to the magnets and the bolt.

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