April 11, 1944. F. INSLER ET AL 2,346,582

MAGNETIC BOARD

Filed Oct. 6, 1941

Fig. 1.

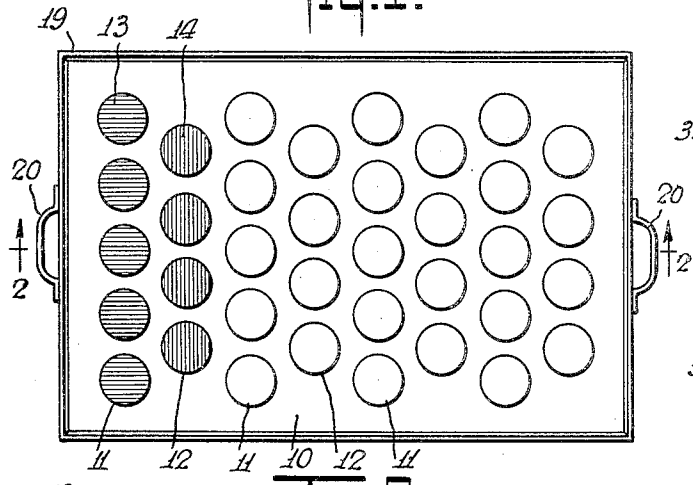


Fig. 5.

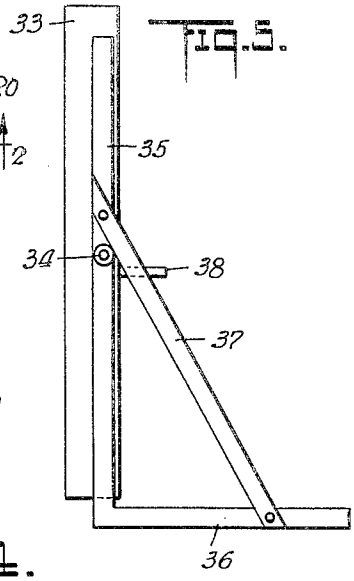


Fig. 2.

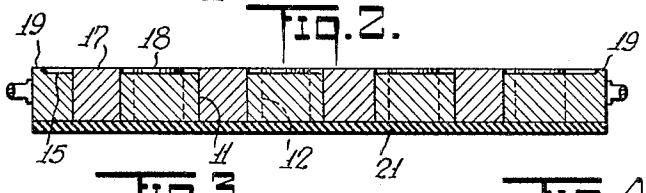


Fig. 3.

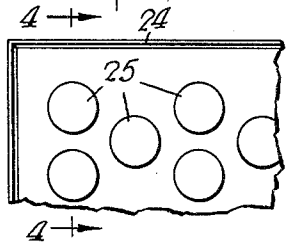


Fig. 4.

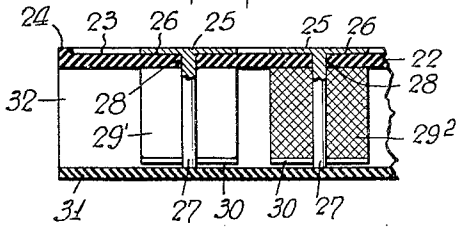
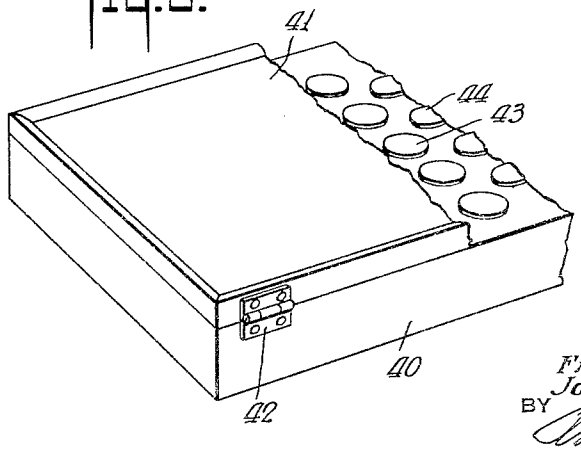


Fig. 6.



INVENTORS
Frank Insler
Joseph Fakler
BY
ATTORNEY

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MAGNETIC BOARD

Frank Insler, Bronx, and Joseph Fakler, Richmond Hill, N. Y.

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6 Claims. (Cl. 40—142)

The present invention relates to a magnetic device and it particularly relates to a magnet'c make-up board for holding and exposing articles to be photographed.

In making up displays to be photographed, it is usually laboriously necessary to cut out the devices and then to paste them in position upon a base or support and then to set them up where they may be studied prior to reproduction or photographing.

Usually the first set-up or arrangement is unsatisfactory, and frequently repeated rearrangements and revisions of the set-up are necessary to achieve the final desired result, with each set-up either requiring a complete destruction of the earlier set-ups and the cutting out or formation of new arrangements a time-consuming and laborius repair even when the cut-outs or devices are applied by way of detachable cements upon a base.

It is among the objects of the present invention to provide an improved set-up or display board of the character above described, which will enable a ready adjustment of the design or set-up and a more rapid progress from the first to the second or to subsequent studies prior to reproduction or photography without prolonged pasting and cutting operations and with assurance that the studies and displays may be made with a minimum of skill and without expensive equipment or apparatus.

Still further objects and advantages will appear from the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only, and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects, it has been found most satisfactory according to one embodiment of the invention to provide a base consisting of a plurality of rows of a spaced high magnetic strength alloys, a number of cores of which may be preferably arranged in staggered, although closely adjacent, rows over the entire face of a base or board to carry the various displays.

The ends of the magnetic cores may directly project upon the board itself to receive the removable displays.

Or there may be placed upon such magnetic base containing the staggered rows of magnetic cores, a removable sheet or hinged board, preferably non-magnetic, forming a part of the display unit.

Desirably the objects to be placed upon the board may consist of thin cut sheets of magnet'c metals or alloys or thicker sheets of magnetic metal alloys which are to be cut, but the position of which is to be regulated.

The positioning, the staggering and alternation of the poles of these magnets over the entire face of the board enables a ready adjustment, removal and replacement of the elements of the display w'th assurance that the designs or elements when placed upon the board will be held firmly in position without inadvertent misplacement or displacement during reproduction or photography.

In the drawing which shows several specific embodiments of the present invention by way of illustration, but to the details of which the present invention is by no means restricted, since many changes and alternatives are possible,

Fig. 1 is a plan view of one form of a magnetic board according to the present invention;

Fig. 2 is a transverse sectional view upon the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary top plan view of an alternative construction;

Fig. 4 is a fragmentary transverse sectional view upon the line 4—4 of Fig. 3 showing alternative forms of magnetic holders;

Fig. 5 is a side view of an alternative mounting construction; and

Fig. 6 is a fragmentary perspective view partly broken away, of another alternative arrangement.

Referring to Fig. 1, there is a base-board 10 in which have been bored a plurality of openings 11 and 12 in alternating rows, which openings are filled with the rows of permanent magnetic cores or cylinders 13 and 14 of a permanent magnetic alloy such as an aluminum nickel alloy, such as Alnico, or similar alloys having high coercive force.

It will be noted that the board is cut away or dished as indicated at 15 in Fig. 2, to permit the upper ends 17 and 18 of the alternating rows 13 and 14 to project slightly above the recessed face 15.

The edge of the board as indicated at 19, is elevated so that it will be flush with the upper faces of the rows of magnetic cores 13 and 14.

It will be noted in the preferred construction as shown in Figs. 1 and 2 not only are the rows staggered as indicated at 13 and 14, but the alternating rows 11 and 12 are of different polarity so that the projecting ends of one row will be north poles while the projecting ends of the next adjacent row will be south poles.

In the form shown in Figs. 1 and 2, the opposite ends of the board are provided with the handles 20, while the base of the board is covered by a sheet or plate 21.

If desired in making up a display, sheet metal articles of a magnetic material or having a thin metallic backing or of laminated construction, one of the laminations consisting of a magnetic material, may be placed upon the board as shown in Figs. 1 and 2 and arranged and rearranged

and studied to give the desired effect which then may be photographed.

The size and intensity of the magnets 13 and 14 are so regulated that the objects will be held firmly against inadvertent or accidental movement upon the board while at the same time deliberate application of the hands or manipulation will serve to displace or move the objects or remove them from the board.

Usually it is desired to cover the entire face of the board of Figs. 1 and 2 with a sheet of a non-magnetic material such as paper or even a fabric, to give the desired backing, the fabric being suitably colored or carrying a mottled or other decorative background design.

By lifting or drawing off the paper or fabric, which may be flexible or stiff, from the face of the board, the various objects which are held onto the board by the magnetic stress exerted by the magnets 13 and 14 through the paper or fabric will be simultaneously disengaged.

In this manner the applicant is able to obtain a most convenient display and utility board which may be widely utilized in the preparation of displays or utilized for photography or reproduction.

In Figs. 3 and 4 a different method of mounting the magnets is shown. As shown best in Fig. 4, the board has an upper face plate 22 having a recessed portion 23, and a raised rim 24.

The top of the rim 24 is flush with the upper faces 25 and the heads 26 of the pin or rod members 27 which extend downwardly through the openings 28 in said plate 22.

Upon the portion of the various rods 27 extending below the board 22 are positioned alternately the permanent magnetic alloy cylinders 29', as for example of Alnico, illustratively shown at the left or solenoids 29^2 illustratively shown at the right of Fig. 4. These cylinders or solenoids are in the staggered and alternating rows as described in connection with Fig. 1. Each of the cylinders or solenoids 29 is held onto pins 27 by the tightly fitting holed discs 30. These pins 27 and their heads 26 may be of wrought iron or of a soft steel. The flux through the flat heads 26 is effective to retain even small armature blanks in position anywhere on the panel in the same manner as in the case of the embodiment of Figs. 1 and 2.

The lower ends of the pins 27 abut the baseboard 31. The top board 22 and the baseboard 31 may be held together by the side boards 32.

In the arrangement shown in Fig. 5, the magnetic board 33, which may be of the construction shown either in Figs. 1 and 2 or the construction shown in Figs. 3 and 4, is pivotally supported at 34 upon the upright 35, which upright in turn is supported by the foot member 36 and the oblique member 37.

The magnetic board may be swung into either vertical position as shown or into horizontal position, and the element 36 may be used as a catch to fix the board 33 either in vertical or in horizontal position.

In the construction shown in Fig. 6, the magnetic board 40 which may be of the same construction as already described in connection with Figs. 1 and 2 or Figs. 3 and 4, has a cover 41 which is hinged to the base magnetic board 40 by the hinges 42.

Various articles may be arranged upon the covering board 41, and they will be held in position by the magnetic force of the alternating and staggered rows of magnets 43 and 44. By lifting the cover 41, these objects may then be displaced and removed from the board.

Although the baseboard 10 of Fig. 1, or the elements 22, 31 and 32 of Fig. 4 may be made of any non-magnetic material, they have been preferably made of molded plastic materials such as molded Bakelite or cellulose acetate plastics such as Tenite.

The construction as shown is particularly suitable for the arrangement of various types of letters or designs or magnetic materials, and after the desired arrangement has been made, the arrangement may be readily photographed. Where non-magnetic sheets are to be held upon the board, strips of iron or steel may be employed to hold these sheets upon the board.

Many other changes could be effected in the particular features of the magnetic sign apparatus designed, and in methods of operation set forth, and in specific details thereof, without substantially departing from the invention intended to be defined in the claims, the specific description herein merely serving to illustrate certain elements by which, in one embodiment, the spirit of the invention may be effectuated.

What is claimed is:

1. A mounting for a magnet comprising a mounting board, a stem of magnetic material projecting through said mounting board and a centrally holed magnet fitted on said stem and means to retain said magnet against longitudinal movement along said stem.

2. A mounting for a solenoid coil comprising a mounting board, a headed stem of magnetic material projecting through said coil means to retain said magnet against longitudinal movement along said stem, said means comprising a holder tightly fitting about said stem and beyond said end.

3. A magnet mounting comprising a non-magnetic board having spaced rows of openings, stems of magnetic material having enlarged disk like heads, the stems projecting through said openings and the heads abutting the outer face of the board, cylindrical magnets having axial openings fitted onto said stems and locking disks on the ends of said stems.

4. A magnet mounting comprising a non-magnetic board having spaced rows of openings, stems having enlarged disk like heads, the stems projecting through said openings and the heads abutting the outer face of the board, cylindrical magnets having axial openings fitted onto said stems and locking disks on the ends of said stems, said stems being of a soft iron material.

5. A mounting for a magnet comprising a mounting board, a headed stem of magnetic material projecting through said mounting board and a centrally holed magnet fitted on said stem and disk means to retain said magnet against longitudinal movement along said stem.

6. A mounting for a permanent magnet comprising a mounting board, a headed stem of magnetic material projecting through said mounting board, said magnet being centrally holed and fitted on said stem and means to hold said magnet on said stem, said means comprising a disk concentric with said fitted stem and tightly fitted over the end thereof.

FRANK INSLER.
JOSEPH FAKLER.