Dec. 17, 1929. J. F. BREWER 1,740,389

DRAWING BOARD

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Fig. 1.

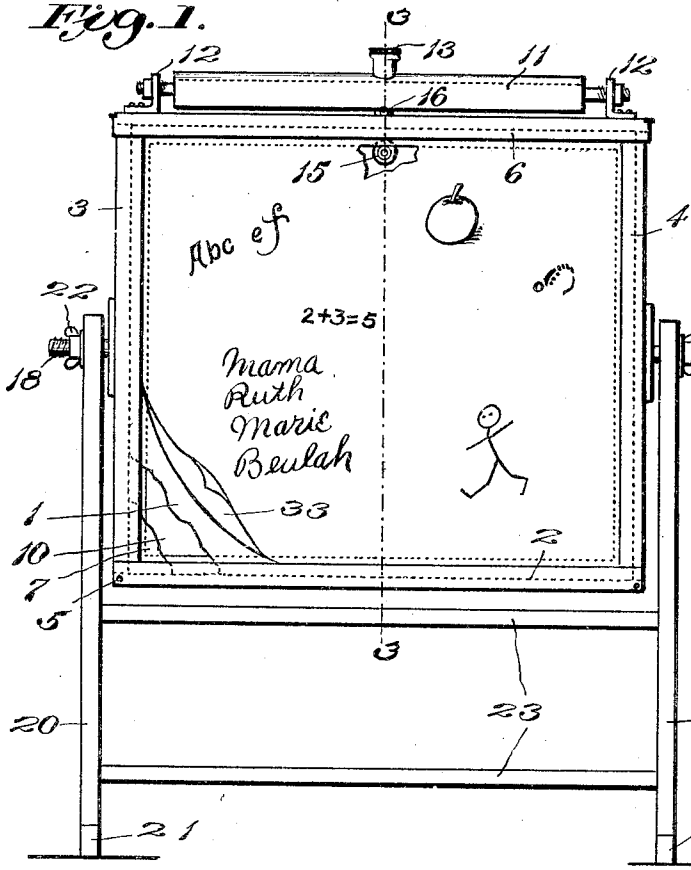


Fig. 2.

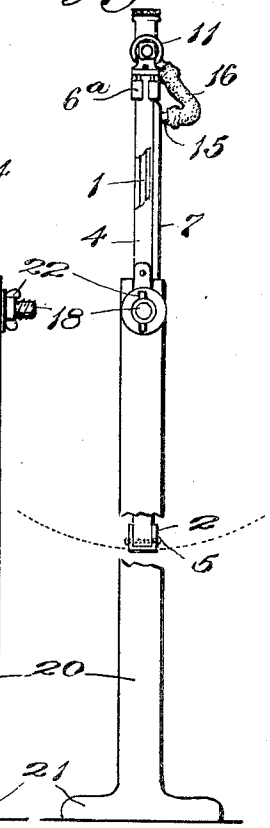


Fig. 12.

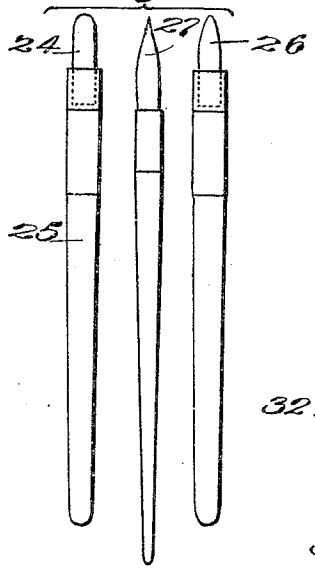


Fig. 13.

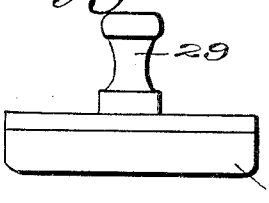
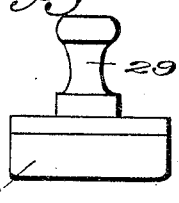


Fig. 14.



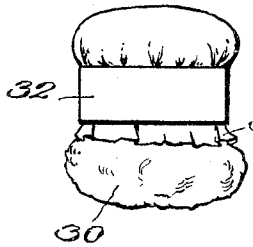


Fig. 15.

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DRAWING BOARD

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Fig. 4.

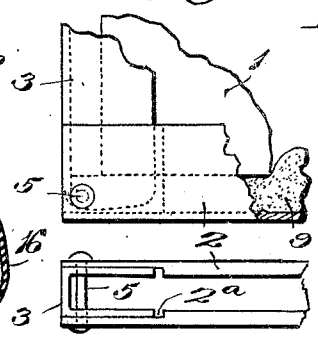


Fig. 8.

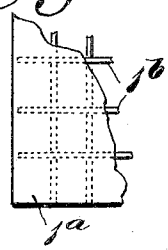


Fig. 6.

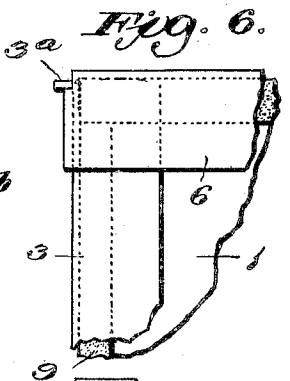


Fig. 5.

Fig. 7.

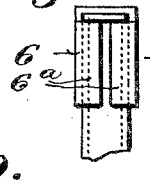


Fig. 3.

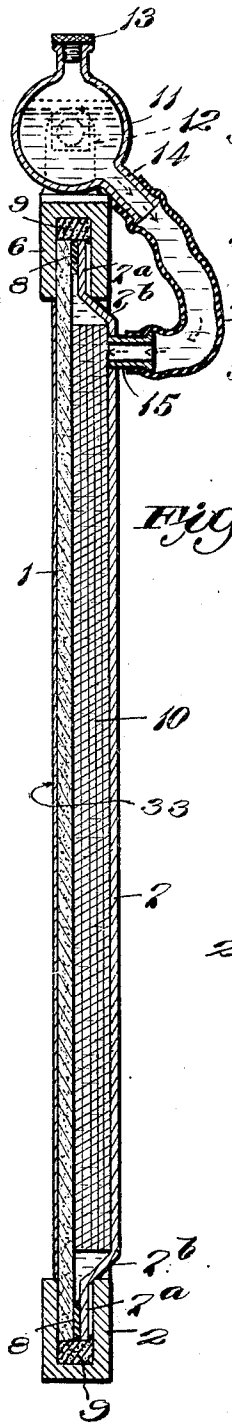


Fig. 9.

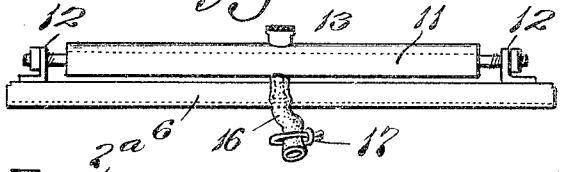


Fig. 10.

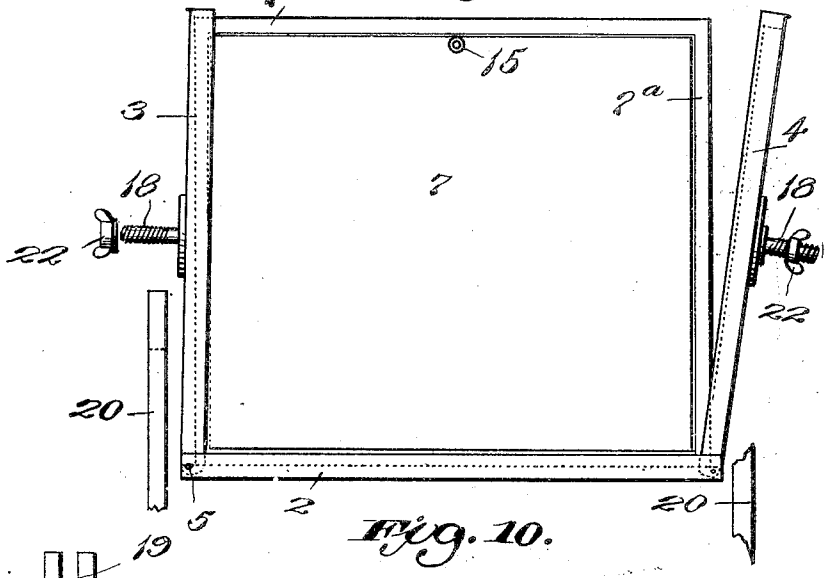
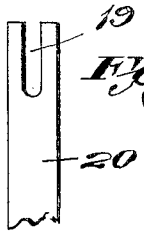


Fig. 11.



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UNITED STATES PATENT OFFICE

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DRAWING BOARD

Application filed January 13, 1928. Serial No. 246,477.

This invention relates to writing or drawing boards such as may be used in place of the customary blackboard.

One of the main objects of the invention is to devise a writing or drawing board of this character, which shall be absolutely dustless. A further object is to provide a board from which the writing or drawing can be quickly and completely erased when desired, leaving the surface in its original condition. Still another object is to provide a drawing board which may have a white surface, as distinguished from the dark surfaces commonly employed. As a result of such white surface, the drawing or writing may be done in different colors, blended or combined as desired.

To the above ends, the invention contemplates a drawing or writing surface which is maintained damp or moist, and on which the lines may be made by means of sticks or crayons of water-color pigment. The writing surface itself is of such a nature that the pigment does not penetrate it, but may be readily removed or erased by means of a soft wet pad or the like.

In order that the invention may be readily understood, reference is had to the accompanying drawings, forming part of this specification, and in which:—

Figure 1 is a front view of my improved drawing board, the same being shown as mounted upon an easel;

Figure 2 is a side elevation thereof, parts being broken away;

Figure 3 is a vertical transverse section on an enlarged scale, substantially on the line 3—3 of Figure 1;

Figures 4 and 5 are a fragmentary side elevation and edge view respectively showing the construction of one corner of the frame which I employ;

Figures 6 and 7 are side and end elevations respectively, showing the construction of another corner of such frame;

Figure 8 is a fragmentary view of a slight modification;

Figure 9 is a rear elevation of the upper member of my improved frame, showing a water reservoir carried thereby;

Figure 10 is a rear elevation of my improved drawing board showing the frame partly removed therefrom;

Figure 11 is a fragmentary side view of a portion of the supporting easel;

Figure 12 is a view illustrating different means by which the marking material may be applied to the board;

Figures 13 and 14 are side and end elevations respectively of a blotting or absorbent pad which I may employ to remove surplus water; and

Figure 15 is a side elevation of an eraser for removing the marks or lines from the board.

In the following description and claims, I shall use the term "drawing board" as a generic term designating a board, slab, sheet or other support on which drawings, writing, or marks of any description can be made.

Referring to the drawings in detail, I preferably form my improved drawing board proper, of a body or slab of some rigid porous material such as unglazed earthenware, plaster of Paris, natural stone or artificial stone made from hydraulic cement or the like mixed with suitable materials. By the word "porous" I mean that this slab or body must be permeable to a liquid such as water, so that water applied to one part thereof will spread or diffuse itself throughout the mass.

I have found, in practice, that an excellent slab can be prepared by molding plaster of Paris upon a glass sheet, rubbed with a light coating of a solution of paraffin or the like to prevent sticking. When the plaster of Paris has set and is removed from the glass, it will be found to have a very smooth hard surface, capable of being marked or written upon in the manner hereinafter described. Possibly in some cases it may be necessary to lightly sandpaper the smooth surface of such a slab in order to remove the glaze and open the pores. It is desirable, however, in preparing such a porous slab, that its surface should not be so porous that the pigment will permeate the same. In order to avoid this excess porosity, I have found it sometimes desirable to apply to the surface a filler such as a thin solution of shellac, resin-

ous material, varnish, enamel, or the like. The object of such filler is not to completely seal the pores of the slab, but to regulate the porosity to the desired extent, until just the proper degree of permeability is obtained.

In the drawings, the numeral 1 designates a porous slab such as I have described, and it is preferably molded in rectangular form, as shown. In some cases, if desired, in order to give additional strength, the slab may be reinforced, as indicated at 1^a in Figure 8 by means of wire mesh 1^b or the like, of rust proof material.

After the slab has been prepared, it is preferably mounted in a rectangular metallic frame. This frame comprises a bottom member 2, side members 3 and 4 hinged to the bottom member as at 5, and a top member 6. All of these members are U-shaped in cross section, as shown in Figure 3, and the upper member 6, which is bodily removable from the other members, is preferably secured to the members 3 and 4 by the means shown in Figures 6 and 7. Referring to these figures, it will be seen that the ends of the sides of the member 6 are extended and bent around the edge of the member 3 (or 4) as shown at 6^a in Figure 7. The upper portion of these bent over ends is cut away to provide a slot, and through this slot projects a lug or tongue 3^a formed at the end of the outer edge of the member 3. This makes a rigid interlocked connection. Other methods of constructing and assembling the frame can of course be employed without departing from the spirit of the invention. Behind the slab or board proper, I provide a backing which is preferably formed of sheet metal. This backing is designated by the numeral 7, and is best shown in Figure 3. It is preferably pressed into the shape of a shallow pan having marginal edge portions 7^a, disposed in a plane parallel to but offset from the plane of the body or bottom, and connected therewith by sloping or inclined intermediate portions 7^b. A packing or gasket 8 of soft rubber or the like is interposed between the slab 1 and the edges 7^a of the backing or pan, as shown in Figure 3, and the whole is then set in the above described frame, the inclined portions 7^b abutting against the edge of the frame and causing the gasket 8 to be clamped between the slab and edge of the backing. In addition to the gasket 8, soft rubber strips or cushions 9 are placed in the bottom of each of the frame members 2, 3, 4, and 6, and when the slab and backing are mounted in the frame, and the frame members assembled and locked together as described, these soft rubber strips are strongly compressed and bear tightly against the edges of the slab, so as to constitute a seal to prevent leakage or seeping of the water from the slab.

The space between the slab 1 and the backing 7 is preferably filled with a mass of absorbent material, such as loose blotting paper or the like, and this constitutes a diffusing pad which serves to absorb the water applied as hereinafter described and distribute it over the rear surface of the slab or drawing board.

In order to supply water to the absorbent diffusing pad, I provide a water reservoir 11, preferably of elongated cylindrical form, and mount this in brackets 12, secured to the upper frame member 6. This water reservoir is provided with a filling opening 13 and with a downwardly directed discharge nipple 14. A similar nipple 15 is set into the rear of the pan or backing 7, near its upper edge, and a short piece of rubber tubing 16 or the like is fitted over the two nipples and serves to conduct water from the reservoir 11 to the diffusing pad between the pan and slab. A pinch cock 17, shown in Figure 9, or other suitable regulating device, may be used to control the flow of water as desired.

The drawing board above described may conveniently be mounted in a supporting frame or easel, as best shown in Figure 1. To this end, trunnions 18, threaded at their outer ends, are secured to the side members 3 and 4 of the frame, and are adapted to rest in notches 19 formed at the upper ends of a pair of vertical frame members 20. These are provided with extended feet or pedestals 21 and are united by means of cross bars 23. Wing nuts 22 are threaded on the trunnions 18 and by screwing up these nuts so as to bear against the frame members 20, the drawing board may be frictionally maintained in any desired angular position, as will be readily understood.

For writing or marking on my improved drawing board, as above described, I may conveniently employ crayons made of suitable water-color pigments. These crayons are of course water soluble, and they work best when so treated as to be relatively soft. This may be done by incorporating with the pigment some non-hardening water soluble binder such as glycerine. I have found, however, that water-color pigment may be formed into sticks or crayons of the desired hardness by the following simple method. Pigment in the commercial form known as "pan water color" is first subjected to the action of moisture until it becomes soft. It is then molded into the form of the desired crayon. Upon standing, such crayon gradually hardens. When the desired degree of hardness is reached, the crayon is then placed in a bottle and tightly closed by means of a rubber stopper or the like. When it has remained in this condition for some time, the pigment appears to set and thereafter retains indefinitely the same degree of hardness which it had acquired at the time of placing it in the sealed bottle.

While I have described the above method

of forming water-color crayons, I do not wish to be limited to such method, as other successful methods will readily suggest themselves to those skilled in the art.

These crayons may be made with blunt points as shown at 24 in Figure 12, or with more or less tapered points, as indicated at 26, and in either case, they are, in practice, preferably used in holders 25, in order to protect them from the effect of handling. It is also quite possible to apply water-colors to my improved drawing board by means of an ordinary artist's brush such as indicated at 27 in Figure 12.

The drawing board having been constructed of a slab of the proper porosity and mounted in the frame and supplied with water, as described, can be readily written or marked upon by means of the water-color crayons referred to. It is only necessary to apply the crayon to the board with a very light touch. The contact of the water-color pigment with the wet surface of the board results immediately in dissolving the pigment at the extreme tip of the crayon, and as the crayon is moved along, this dissolved water-color is deposited on the surface of the board, leaving an exceptionally brilliant mark. For the making of pictures and the like, these sharp bright lines may be shaded or blended by means of a brush or other instrument, as desired.

The effect is particularly pleasing because of the fact that, when using plaster of Paris, the surface of the board is substantially white, thus giving full value to the different colors which may be employed.

A valuable and striking feature of my invention resides in the fact that the brilliant lines and colors produced, as above described, can be completely erased with exceptional ease. All that is necessary is to lightly rub the surface of the board with a soft pad of raw cotton or the like, which has been moistened with water. A desirable eraser for this purpose is shown in Figure 15, in which 30 designates the cotton pad. This is conveniently enclosed within a cloth cover 31, held on by a suitable band 32.

The application of the wet cotton pad to the surface of the drawing board results in immediately and completely washing off the water-colors, leaving the surface clean and white as before.

If, as a result of the erasing operation, or, for any other reason, the surface of the board should be covered with an excessive amount of water, this may be removed by applying the absorbent pads of blotting paper or the like, such as shown at 28, 29 in Figures 13 and 14.

While it is possible to obtain good results with a bare porous slab, as described, I have found that even better results can be obtained by placing upon the surface of such a slab a specially selected sheet of thin flexible material, pervious to water. Various kinds of so-called water-proof and other hard finished paper may be employed for this purpose, but I have discovered that perhaps the best results are obtained by using certain types of viscose. A commercial form of this material is known as cellophane, and consists of an exceptionally thin, tough and transparent sheet. It does not disintegrate under the action of water and its surface is extremely smooth. Although ordinarily regarded as water-proof, it nevertheless appears to be porous, since water readily permeates through it.

Such a sheet may, if desired, be cemented on the surface of the slab. I find it preferable, however, to simply lay the sheet upon the slab, where it is held in position merely by the viscosity of the water. When dampened, it becomes exceedingly soft and pliable, and may be smoothed out upon the slab where it will adhere so closely as to be almost invisible. At the same time, the sheet can be readily stripped off and removed, should it become worn or marred, and thus the drawing surface can be constantly renewed. This sheet is indicated at 33 in Figures 1 and 3.

While I have described the board as white, it is obvious that dye or pigment can be used for imparting to the slab any desired color. Moreover, the sheets of cellophane or the like which may be employed are manufactured in different tints or colors.

While I have described a drawing board comprising a rigid slab, I do not wish to limit myself to this, since, where a sheet such as 33 is employed, it is possible to support it upon a fibrous base or a slab formed, for example, of hard pressed wood pulp or cardboard, fiber board, or the like.

From the foregoing, it will be apparent that I have provided an improved drawing board on which brilliant lines or marks can be readily produced in any desired color and with a very light pressure, and from which such marks or lines may be easily and completely erased absolutely without dust, and it is thought that the many advantages of my invention will be readily appreciated without further discussion.

What I claim is:—

1. A drawing board comprising a porous body, and means for maintaining said body moist.

2. A drawing board comprising a smooth surfaced porous rigid slab, and means for maintaining said slab moist.

3. A drawing board comprising a porous body, and means for continuously supplying water to said body to keep it wet.

4. A drawing board comprising a porous slab having a front and a rear face, and means for feeding water to the rear face of said slab to keep the front face moist.

5. A drawing board comprising a porous

slab having a front and a rear face, an absorbent diffusing pad in contact with the rear face of said slab, and means for feeding water to said absorbent pad to maintain said slab in a moist condition.

6. A drawing board comprising a porous slab having a front and a rear face, an absorbent diffusing pad in contact with the rear face of said slab, means for feeding water to said pad, and means for sealing the edges of said slab and pad to prevent the escape of water therefrom.

7. A drawing board comprising a porous slab having a front and a rear face, an absorbent diffusing pad in contact with the rear face of said slab, means for feeding water to said pad, and a frame in which said slab and pad are mounted, said frame having means for preventing the escape of water from the edges of said slab and pad.

8. A drawing board comprising a porous body, a frame in which said body is mounted, a water reservoir carried by said frame, and means for supplying water from said reservoir to said porous body to maintain the latter damp.

9. A drawing board comprising a rigid porous body, a water-permeable sheet superposed on the surface of said body, and means for maintaining said body and sheet in a moist condition.

10. A drawing board comprising a porous body, a thin, flexible, water permeable sheet covering said body and constituting the drawing surface, and means for supplying water to said body and sheet to keep them wet.

11. A drawing board comprising a porous slab, a sheet of viscose superposed upon said slab to constitute the drawing surface, and means for maintaining said slab and sheet in a moist condition.

12. A drawing board comprising a rigid slab or support having a smooth face, and a sheet of viscose superposed on and adhering to said smooth face to constitute the drawing surface.

In testimony whereof I affix my signature.

JAMES F. BREWER.