

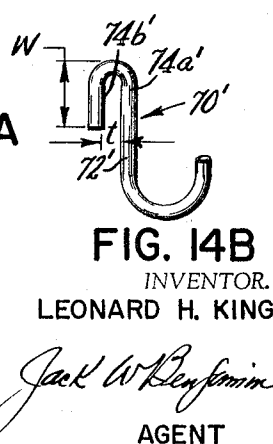
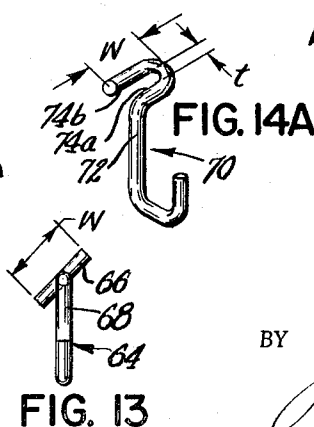
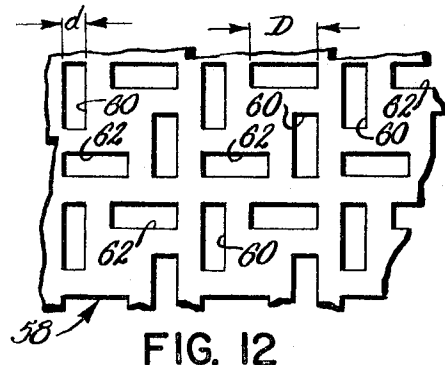
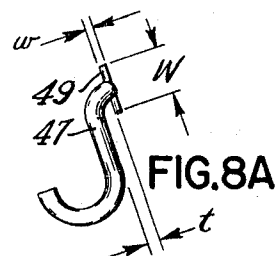
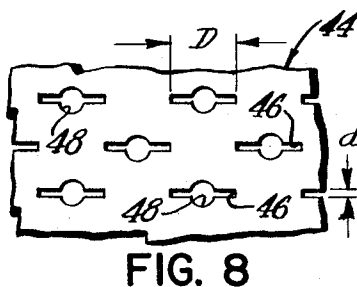
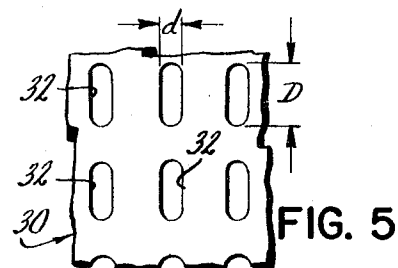
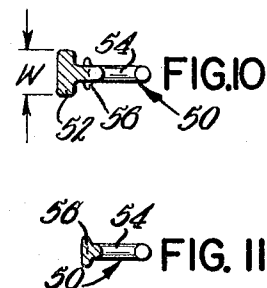
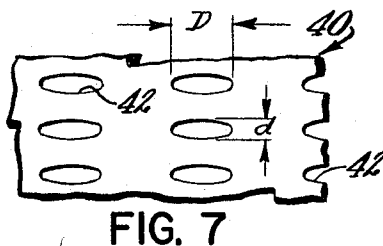
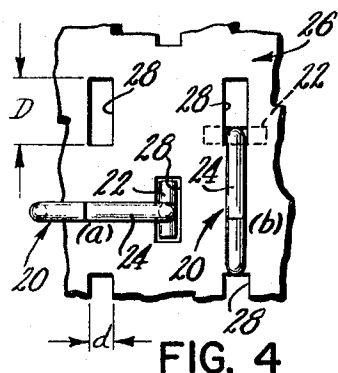
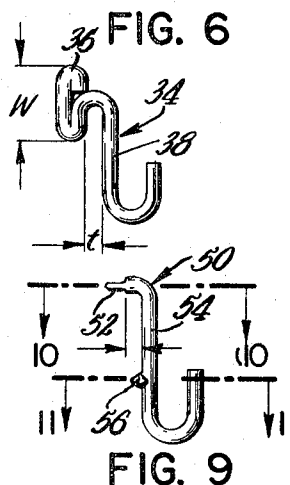
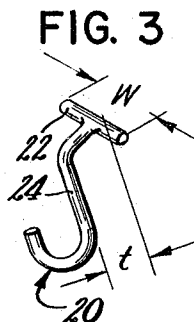
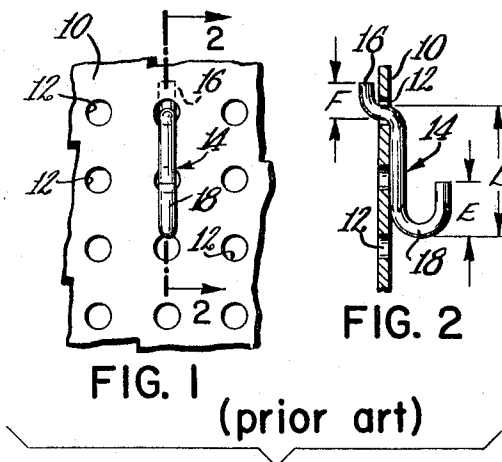
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APERTURED DISPLAY BOARD AND HARDWARE THEREFOR

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3,310,271

APERTURED DISPLAY BOARD AND HARDWARE THEREFOR

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This invention relates to display boards and in particular to that class of board known as an "apertured board" and to hardware for use therewith.

Apertured boards are in common use for the display and storage of tools and other articles. Generally they comprise a sheet of resin-bonded wood chips or other synthetic composition. A plurality of round holes are formed therein, the holes generally being of $\frac{3}{16}$ inch diameter. Hooks and various other clamps to support the tools or articles are hung in the holes. These hooks are formed of $\frac{1}{8}$ inch steel wire.

One common fault of this type of installation is that the hooks have a very short arcuate engaging portion in order to permit them to pass through the hole. Accordingly, any slight jarring tends to dislodge the hooks, making them a nuisance to use. Various devices have been proposed to overcome this fault, but as far as is known none have been wholly successful. For example, auxiliary spring clips of light gage wire are used to hold the hooks in place.

The present invention provides an apertured board having novel appearance in that an elongated slot is employed in lieu of the customary round hole. In combination therewith, a hook member having a cross member key at the end is used. The cross member is sized to fit in the elongated slot and to lock against the back of the apertured board when either angularly turned or otherwise moved relative to the aperture, thereby preventing the hook from falling out. The present device is inexpensive to manufacture, need not cost any more than present devices, and yet overcomes the faults of the prior art device.

Accordingly, it is an object of this invention to provide an improved apertured board.

It is another object to provide an apertured board having a novel appearance.

A particular object is to provide an apertured board having elongated holes in lieu of the conventional round holes.

Still another object is to provide an apertured board having elongated holes arrayed in a horizontal or vertical pattern or in a combination of horizontal and vertical patterns.

A further object is to provide an apertured board wherein the elongated holes have either a straight or irregular periphery or a combination of straight and irregular portions.

A different object is to provide an apertured board having a self-locking hook member.

A still further different object is to provide a self-locking hook member for the above mentioned type of apertured board.

Another object is to provide an improved, hook member having an integral locking member.

A further object is to provide an integral locking member parallel to the axis of the hook member.

An additional object is to provide an integral locking member transverse to the axis of the hook member.

Still another object is to provide an integral locking member disposed at an angle to the axis of the hook member.

Yet another object is to provide an improved hook member having a secondary key member integral therewith.

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These and other features, objects and advantages of the invention will, in part, be pointed out with particularity and will, in part, become obvious from the following more detailed description of the invention, taken in conjunction with the accompanying drawing which forms an integral part thereof.

In the various figures of the drawing like reference characters designate like parts.

Referring now to the drawings:

FIG. 1 is a view in elevation of a prior art apertured board showing the hook mounted therein;

FIG. 2 is a sectional, elevational view taken along lines 2—2 of FIG. 1;

FIG. 3 shows one embodiment of the present invention in perspective;

FIG. 4 is a front elevational view of an improved apertured board showing the hook member of FIG. 3 in two positions;

FIG. 5 is a front elevational view of an alternative apertured board configuration;

FIG. 6 is a side elevational view of an alternative embodiment of the improved hook member;

FIG. 7 is a front elevational view of another alternative configuration of the improved apertured board;

FIG. 8 is a front elevational view of still another alternative configuration of the improved apertured board;

FIG. 8A is a pictorial view of an alternative embodiment of the improved hook member;

FIG. 9 is a side elevational view of still another alternative embodiment of the improved hook member;

FIG. 10 is a sectional plan view taken along line 10—10 of FIG. 9;

FIG. 11 is a sectional plan view taken along line 11—11 of FIG. 9;

FIG. 12 is a front elevational view of yet another universal configuration of the improved apertured board;

FIG. 13 is a front elevational view of another, universal hook member; and

FIG. 14A and FIG. 14B are pictorial and side elevational views, respectively, of alternative slide-type hook members.

Referring now to the drawing, in FIGS. 1 and 2 there is shown a conventional prior art hook and apertured board. The apertured board 10 is a composition sheet having a plurality of round holes 12 formed therein. The hook member 14 is generally in the shape of a J or an L having its upper end terminating in a short, offset leg 16 adapted to be slipped through one of the holes 12 and having the other lower end terminating in a longer bend 18. Typically, the front surface of leg 16 is spaced from the rear surface of the body portion of the hook $\frac{3}{16}$ inch for use with an apertured board having the usual $\frac{1}{8}$ inch thickness. The other dimensions of a typical hook would be as follows:

L equals $1\frac{1}{2}$ inches.

E equals $\frac{1}{2}$ inch.

F equals $\frac{3}{8}$ inch.

It will be appreciated that because of the shortness of leg 16, and the need for the spacing between the offset leg and the rear surface of the apertured board, this hook is readily dislodged from the aperture board.

On the other hand, the present invention utilizes a hook 20 of substantially the same dimension but, as shown in FIGS. 3 and 4, in lieu of the simple leg 16, there is provided a key member 22 integral with and perpendicular to the axis of body portion 24. Apertured board 26 (FIG. 4) is provided with a plurality of vertically disposed elongated slots 28 dimensioned to receive the key member when the hook is held in horizontal position (a). When the hook is released, it drops and automatically assumes position (b) with key member

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22 securely positioned behind the rear surface of the apertured board. It should be pointed out that the width W of the key member is substantially the same size as the length D of slots 28 and somewhat larger than dimension d (FIG. 4). Accordingly, the embodiment of the hook shown in FIG. 3 could be used with apertured board 26 wherein the slots have straight side walls and end walls. The same hook could also be used with apertured board 30 shown in FIG. 5 which has a plurality of vertically aligned slots 32 having straight side walls and rounded end walls.

Another embodiment of the hook member is shown in FIG. 6. Hook member 34 has a vertically disposed key member 36 parallel to the axis of body portion 38. To utilize this embodiment, apertured board 40 (FIG. 7) is provided with a plurality of horizontally disposed oval slots 42 defined by spacedly opposed end walls having a small radius of curvature and spacedly opposed side walls having a larger radius of curvature. Dimension (D) is substantially the same size as width W of the key member 36 and dimension d is somewhat smaller than width W . This embodiment of the hook member also requires that it be inserted into the apertured board in a horizontal position and be allowed to assume the vertical position to be locked.

While the hook member 34 has been described as being usable with the apertured board of FIG. 7, it is evident that it may also be utilized in conjunction with apertured board 44 (FIG. 8) which has a plurality of rectangular slots 46. Apertured board 44 includes the additional feature of an arcuate notch 48 in the side walls of each slot. The notch is a portion of a diameter equal to the circular cross section of the hook member body portion. Thus, means are provided for preventing lateral movement of the hook since the length of the hook between the body portion and the key member is seated in the notch when the hook member is assembled to the apertured board. While a notch 48 is required only in the bottom side edge of each slot, two opposed notches are shown so that the apertured board may be oriented in either of two ways with the slots horizontal. Also, the symmetry of two opposed notches may be preferred for esthetic reasons. Further, the use of the two opposed slots and a central notch permits the employment of a heavier gage hook member without a corresponding reduction in area of the supporting apertured board. Thus, as shown in FIG. 8A, shank 47 is sized to mate with notch 48 and key 49 is of a much smaller dimension w , suitable for passing through slot 46 having width d . It is of course understood that if slots 46 were oriented 90° from that shown, the key 49 would also be oriented 90° from the position illustrated.

FIG. 9 illustrates a modified hook member 50. Whereas the key portion in FIG. 6 was formed by a bending operation, key portion 52 of hook member 50 is formed by deforming the material in a plane perpendicular to body portion 54, such as by swaging. A secondary perpendicularly aligned key 56 may also be swaged in body portion 54. When mounted on the apertured board, key member 52 will engage a slot therebelow to minimize lateral movement of the hook member. Apertured boards 26 and 30 will both accommodate hook member 50 which is mounted in the same manner as hook member 20.

While the embodiments of the hook members discussed thus far have been associated with particular slot shapes, it should be clearly understood that the invention is not so limited. Thus, the slots of any one apertured board could assume the shape of any other apertured board slots. However, there is up to this point the limitation that perpendicular key members must be used with apertured boards mounted so that the slots are vertical and parallel key members must be used with apertured boards so that the slots are horizontal. In each instance, the

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hook member must be angularly turned 90° after inserting to achieve locking.

FIG. 12 and FIG. 13 illustrate a "universal" apertured board and hook member, respectively. Apertured board 58 is comprised of a plurality of vertically disposed slots 60 and a plurality of horizontally disposed slots 62. As mentioned hereinabove, the slots may have the shape shown in any of the embodiments, but for convenience they are shown as rectangles with straight side and end walls. It will be noted, however, that the slots are arranged in a repetitive geometric pattern whereby, regardless of the orientation of the board, horizontal and vertical slots are always presented so that any of the aforementioned hook member embodiments may be employed. However, it is contemplated that a universal hook member 64 be used. Key member 66 is disposed at an angle to the axis of the body portion 68. Thus, a single hook member could be used in any of the slots regardless of their orientation. Of course, something less than a 90° turn is required to lock the hook member in place.

Yet another hook member 70 is illustrated in FIG. 14A. Body portion 72 is formed with a contiguous key member defined by a reverse bend having legs 74a and 74b. The key member is disposed in a plane at a right angle to the plane of the longitudinal axis of the body portion and is offset to one side thereof. Whereas hook member 70 is utilized with a horizontal slot, a modification thereof, hook member 70' is shown in FIG. 14B. The key member is defined by a reverse bend comprising legs 74a' and 74b' contiguous with and disposed in a plane parallel to body portion 72'. In the last mentioned embodiment, one of the legs of the key member is disposed behind the apertured board and one is positioned in front in the assembled condition. By making the length W of the rearward leg the same length as the longer dimension D of the slot, the twist-to-lock action is not needed since it is only necessary to slide the hook to the lefthand end of a horizontal slot or to the bottom end of a vertical slot. The scope of the present invention encompasses either a right or a left side opening hook member 70.

While the embodiment of FIG. 14B bears a superficial resemblance to the prior art shown in FIG. 2, it does point out an important feature of the present invention. The prior art required apertures larger than the diameter of the hook member so that the short offset leg 16 could easily be inserted. However, this resulted in the hooks hanging loosely where they were likely to be dislodged. The present invention avoids this by providing a snug fit between the key member and the planar surfaces of the apertured board. Dimension t in each embodiment is substantially the same as the thickness of the apertured board whereas in the prior art, a considerable difference in comparable dimensions was required. The key member in each embodiment is inserted as described and then displaced relative to the slot either by turning or sliding. Because a generous clearance is not required to insert the hook member, a tight fit is obtained when the hook is finally positioned.

Having thus disclosed the best embodiments of the invention presently contemplated, it is to be understood that various changes and modifications may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. An improved apertured board for use with removable, article supporting hooks, said apertured board comprising a plurality of elongated, noncircular apertures having a length dimension greater than a width dimension, the apertures being arrayed in a repetitive pattern, each of the apertures being defined by a pair of spaced, arcuate side walls and a pair of spaced, arcuate end walls, said end walls having a smaller radius of curvature than said side walls, the dimension between said end walls being

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substantially greater than the dimension between said side walls.

2. A hook member adapted to support an article on a board having a plurality of elongated, noncircular apertures each of which is defined by a pair of spaced side walls and a pair of spaced end walls, said hook member comprising:

- (a) a first portion adapted to support an article;
- (b) a body member having first and second ends, said first end being integral with said first portion; and
- (c) a key member integral with said second end of said body member, and disposed in a plane between 0° and 90° with respect to the plane of the axis of said body member, said key member being adapted to pass through an aperture of a board and be locked therebehind.

3. Article supporting means comprising, in combination:

- (A) a board having a plurality of elongated, noncircular apertures each having a length dimension greater than a width dimension, said apertures being arrayed in a repetitive pattern, each of the apertures being defined by a pair of spaced, arcuate side walls and a pair of spaced, arcuate end walls, the dimension between said end walls being substantially greater than the dimension between said side walls, said end walls having a smaller radius of curvature than said side walls; and

(B) a hook member comprising:

- (a) a first portion adapted to support an article;
- (b) a body member having first and second ends, said first end being integral with said first portion; and
- (c) a key member integral with said second end of said body member, said key member having a dimension substantially greater than the dimension between said aperture side walls and slightly less than the dimension between said aperture end walls, said key member passing through an aperture of said board and being locked therebehind.

4. The device in accordance with claim 2 wherein said key member is substantially thinner than said body member.

5. The device in accordance with claim 2 wherein said key member is contiguous with said body member and is defined by a pair of substantially parallel, confrontingly opposed legs spaced from each other, said legs being disposed in a plane perpendicular to the plane of said body member and when mounted on an apertured board, one of said legs is disposed in front of the board, the other of said legs being positioned behind the board.

6. The device in accordance with claim 2 wherein said key member is contiguous with said body member and is defined by a pair of substantially parallel, confrontingly opposed legs spaced from each other, said legs being disposed in a plane parallel to the axis of said body member.

7. The device in accordance with claim 2 wherein said key member is contiguous with said body member and is defined by a double thickness leg, the thicknesses being in abutment with each other and the axis thereof being disposed in a plane parallel to the axis of said body member.

8. The device in accordance with claim 2 wherein said key member is contiguous with and of thinner cross section than said body member, said key member being dis-

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posed in a plane parallel to the axis of said body member.

9. The device in accordance with claim 3 wherein said key member is disposed in a plane between 0° and 90° with respect to the plane of the axis of said body member.

10. The device in accordance with claim 3 wherein said key member is substantially thinner than said body member.

11. The device in accordance with claim 3 wherein said key member is contiguous with said body member and is defined by a pair of substantially parallel, confrontingly opposed legs spaced from each other by the same dimension as the thickness of said apertured board said legs being disposed in a plane perpendicular to the plane of said body member and when mounted on said board, one of said legs is disposed in front of said board, the other of said legs being positioned behind said board.

12. The device in accordance with claim 3 wherein said key member is contiguous with said body member and is defined by a pair of substantially parallel, confrontingly opposed legs spaced from each other by the same dimension as the thickness of said apertured board, said legs being disposed in a plane parallel to the axis of said body member.

13. The device in accordance with claim 3 wherein said key member is contiguous with said body member and is defined by a double thickness leg, the thicknesses being in abutment with each other and disposed in a plane parallel to the axis of said body member.

14. The device in accordance with claim 3 wherein said key member is contiguous with and of thinner cross section than said body member, said key member being disposed in a plane parallel to the axis of said body member.

15. The device in accordance with claim 3 including a second key member integral with said body member and facing in a direction opposite to said first portion, said second key being arranged to engage an aperture directly beneath the aperture in which said first key is disposed.

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