Jan. 30, 1968 H. LEIF 3,365,827

SELF-HANGING PICTURE FRAME

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Fig - 1.

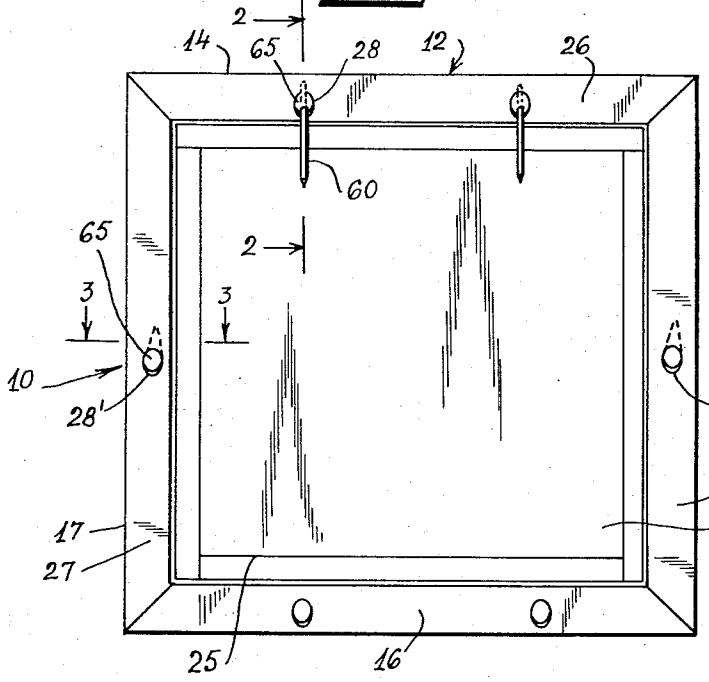


Fig - 4.

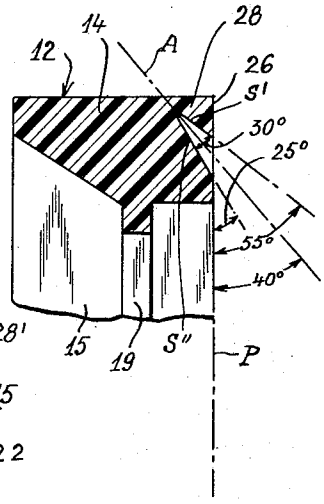


Fig - 2.

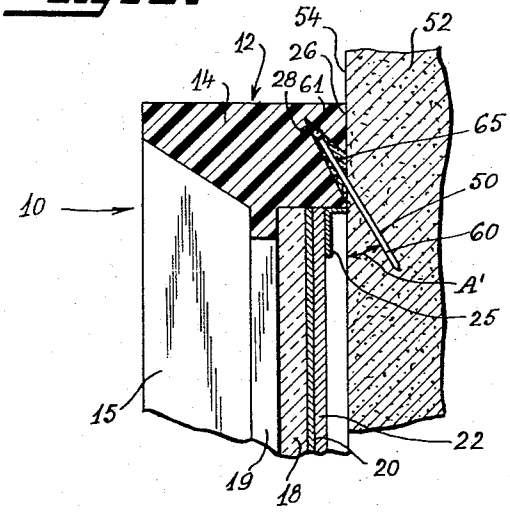
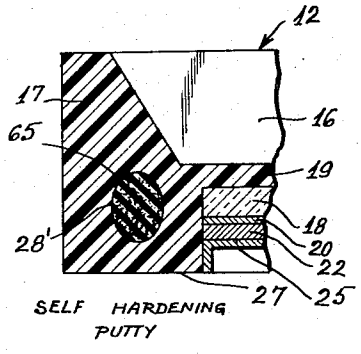


Fig - 3.



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Fig. 5.

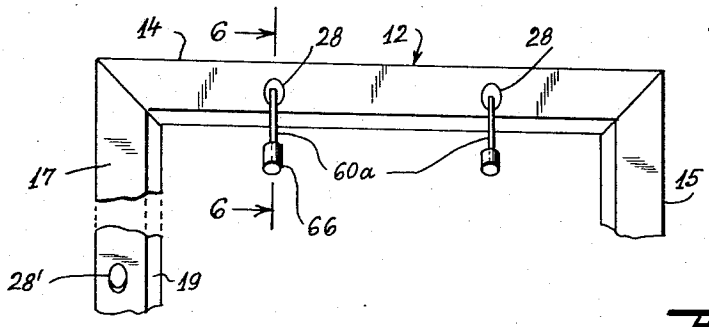


Fig. 11.

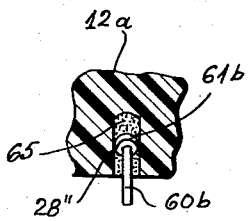


Fig. 8.

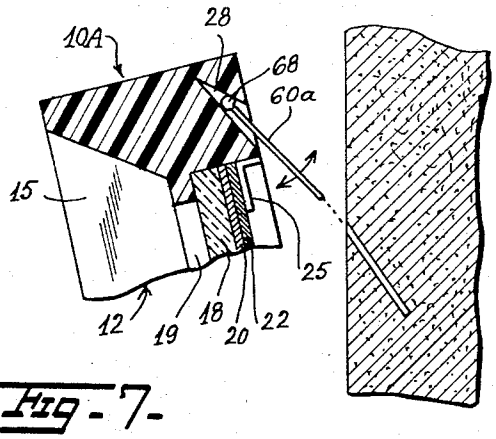


Fig. 6.

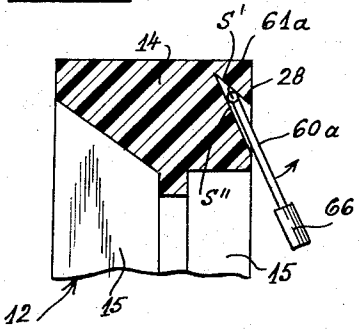


Fig. 10.

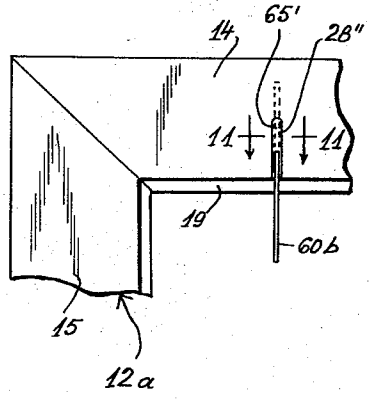


Fig. 7.

PLIABLE SELF HARDENING RESIN

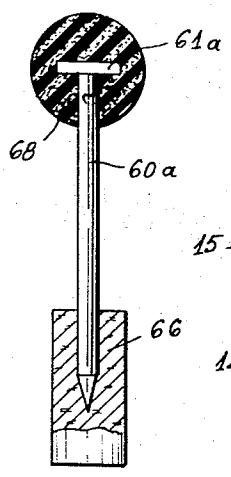
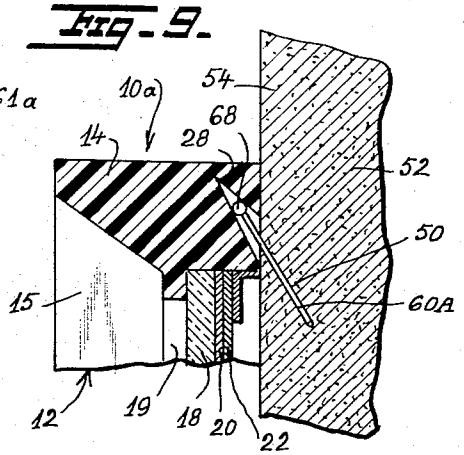


Fig. 9.



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SELF-HANGING PICTURE FRAME

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1 Claim. (Cl. 40—152.1)

ABSTRACT OF THE DISCLOSURE

A self-hanging picture frame that avoids the use of picture hooks, screw eyes, picture hanging wire and other similar accessories conventionally used in hanging frame pictures. The picture frame is formed with a blind bore into which a pin, nail or other fastening element may be adjustably fitted. The bore is angled to the flat back surface of the picture frame. The bore is filled with self-setting plastic material to lock the fastening element in place.

This invention concerns a self-hanging picture frame. The invention avoids the use of picture hooks, screw eyes, picture hanging wire and other similar accessories conventionally used in hanging frame pictures.

According to the invention, there is provided a picture frame having angularly disposed blind bores in which sharp pins, brads, nails, spikes or other sharp members can be adjustably fitted. The bores are angled to the back surfaces of the picture frame. When the frame is mounted on a wall, the pins fit into preformed holes in the wall, the pins are self adjusting in the bores in the picture frame. The bores are preferably tapered or conical in shape to wedge the ends of the pins securely therein. The bores may be filled with self-setting plastic material to lock pins to be easily extracted for resetting to remount the picture frame in another location.

It is therefore a principal object of the invention to provide a picture frame with blind bores having mounting pins adjustably disposed therein.

A further object is to provide a picture frame as described, with self setting plastic material to set and lock the pins in the bores.

Still another object is to provide self-hanging, mounting means for picture frames, small mirrors, plaques, clocks, bric-a-brac, and similar items having flat back surfaces.

A further object is to provide self hanging means for mounting flat back articles on vertical flat walls which articles have hard or fragile bodies so that nails and screws cannot be driven into them.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings and to the appended claims in which the various novel features of the invention are more particularly set forth.

FIG. 1 is a rear view of a framed picture embodying the invention.

FIG. 2 and FIG. 3 are enlarged fragmentary sectional views taken on lines 2—2 and 3—3 respectively of FIG. 1 showing the framed picture mounted on a wall.

FIG. 4 is a fragmentary sectional view similar to a part of FIG. 2 showing the frame per se.

FIG. 5 is a rear view of part of a picture frame embodying another form of the invention.

FIG. 6 is an enlarged sectional view taken on line 6—6 of FIG. 5.

FIG. 7 is a further enlarged sectional view taken through a mounting pin.

FIG. 8 and FIG. 9 are fragmentary sectional views of a frame picture showing steps in mounting the frame picture of FIGS. 5–7 on a wall.

FIG. 10 is a fragmentary enlarged elevational view similar to a part of FIG. 5, illustrating another form of the invention.

FIG. 11 is a further enlarged fragmentary sectional view taken on line 11—11 of FIG. 10.

Referring first to FIGS. 1–4, there is shown a frame and a picture assembly 10 including a rectangular frame 12 having four molding rails or sides 14–17 attached to each other at beveled ends thereof. The frame carries a transparent panel 18 set into the frame and abutting a ridge on the frame 19. A picture 20 is abutted to the panel 18 rearwardly thereof and a backing board 22 abuts the back of the picture. Adhesive tape 25 extends around the periphery of the backing board and inner sides of the rails. To the extent described the frame and picture assembly 10 is conventional.

In the flat rear side 26 of each of the upper and lower rails 14, 16 are two horizontally spaced blind bores 28. In the flat rear side 27 of each of the vertical side rails 15, 17 is a blind bore 28'. The bores 28 and 28' are tapered in form and preferably conical with their apical ends extended upwardly and forwardly from the flat rear side of each rail. The axis A of each bore is disposed at approximately an angle of 40° to the flat plane P of of the back of the frame 12, as clearly shown in FIG. 4. The bore preferably has an apical angle of 30°. Thus the upper side S' of the bore is about 55° from plane P while the lower side S'' of the bore is about 25° from plane P. The purpose of this construction is clearly illustrated in FIG. 2.

A hole 50 is formed in wall 52 disposed axially in a downwardly and inwardly extending direction. The hole is located at an angle A' extending anywhere from 25° to 55° stated above. Pins, brads or nails 60 are inserted into the bores 28 and 28' with their heads 61 as close to the apices of the bores as possible. Then the pointed ends of the pins 60 are inserted into holes 50 by pushing lightly on the front of the frame 12. The pins 60 will rotate in the bores to assume angles parallel to holes 50. The heads 61 will be jammed into the apices of the bores. The framed picture assembly 10 can easily be lifted off the pins 60 by pulling the assembly upwardly and outwardly.

For assemblies 10 of greater weight, the bores 28 and 28' can be filled with a self hardening plastic substance 65 such as linseed oil putty. This substance will permit the pin 60 to be inserted fully into the bore and the pin will rotate to accommodate to the angle of hole 50. Thereafter the putty will harden to lock the pin in its augular position which results in a very stable mounting of the framed picture.

The framed picture assembly can easily be removed from the wall by pulling upwardly and outwardly of the wall. Either the pins 60 will come out of holes 50 or the pins 60 with solid cones of putty 65 will come out of tapered bores 28 or 28'. For remounting the frame picture in another location the procedure outlined above will be repeated. After new holes 50 are made in the wall, fresh putty will be inserted into the bores 28 or 28' and new pins 60 will be set into the bores and fitted into the holes 50. The framed picture hangs flush with the wall. No hooks, screw eyes, picture wire or other such picture hanging accessories are required.

FIGS. 5–9 illustrate another mounting for a framed picture assembly 10*a* in which parts corresponding to those of FIGS. 1–4 are identically numbered. The frame 12 has blind, tapered bores 28 or 28' formed therein in the same manner as described in connection with FIGS. 1–4. Pins 60*a* have heads 61*a* embedded in balls 68 of resilient plastic material; see FIG. 7. The plastic material is preferably one of a type which hardens on standing

over a period of time. The pins have removable cork plugs **66** at their ends to facilitate manual insertion of the pins into the bores **28** or **28'**. FIGS. 5, 6 and 8 show a pin **60***a* inserted into a bore **28**. The resilient ball **68** retains its spherical configuration and the shank of the pin is pivotable as indicated by arrows in FIGS. 6 and 8. When the framed picture assembly is mounted on wall **52**, the pin **60***a* will pivot to conform with the angular position of hole **50** and the ball **68** will deform and assume a tapered configuration, corresponding to the conical shape of the apex of bore **28** or **28'** as shown in FIG. 9. The head **61***a* of the pin will thus be wedged immovably into the bore in the rails of the frame. When the enveloping ball **68** hardens in its deformed shape, the pin **60***a* will be locked in the bore in the same angular position as that of the hole **50** in which the pin extends.

The framed picture assembly **10A** can easily be removed from the wall by pulling it upwardly and outwardly of the wall. Either the pins **60***a* will come out of the holes **50** or the pins with hardened balls **68** will come out of bores **28** or **28'**. If the pins remain in the bores, they can easily be pulled out of the tapered bores for replacement with other pins.

Instead of employing conical bores **28** and **28'** the bores in the rails of frame **12***a* can be formed at flat slots. As shown in FIGS. 10 and 11, tapered, flat bore **28''** has a width substantially equal to the width of the head **61***b* of pin **60***b*. The pliable self hardening plastic substance **65'** substantially fills the bore around the pinhead and upper end of the shank of the pin. The pin is pivotable in a vertical plane perpendicular to the flat rear side of frame **12***a*, and is locked in position when plastic filling **65'** hardens.

In all forms of the invention described, the pins rotate in vertical planes to conform with the angular positions of the holes in the walls. Thereafter, the pliable or resilient, self hardening balls or fillings of the holes lock the pins in rigid alignment with the holes in the walls. The framed picture assemblies are flush mounted to the walls.

The invention is especially useful when applied to articles having flat back surfaces, in which nails or screws cannot be driven. Conical or flat tapered bores can be drilled or the bores can be molded into the flat back surfaces of the articles when the articles are fabricated. The articles are thus rendered self hanging, since they can then be mounted on any flat vertical wall by the use of simple straight pointed pins, nails or other straight elements. The articles are readily removed for relocation elsewhere.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claim.

What is claimed is:

1. Mounting means for an article having a flat rear surface, comprising a blind bore formed in said surface, said bore being tapered in form with an upper apical end and disposed axially at an acute angle to said surface, a pin having one end disposed in said bore and pivotable in a vertical plane, the other end of said pin extending outwardly of the bore for insertion into an angularly disposed hole in a wall, whereby, upon mounting, the pin rotates in the bore to conform to the angular disposition of said hole in the wall, and a pliable self-hardening substance in said bore surrounding said one end of the pin for locking the pin a position conforming to the angle of the hole in the wall.

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WENCESLAO J. CONTRERAS, *Examiner.*