Sept. 9, 1969 H. PRICE ET AL 3,465,461

ADJUSTABLE PICTURE FRAME

Filed Aug. 3, 1967 2 Sheets-Sheet 1

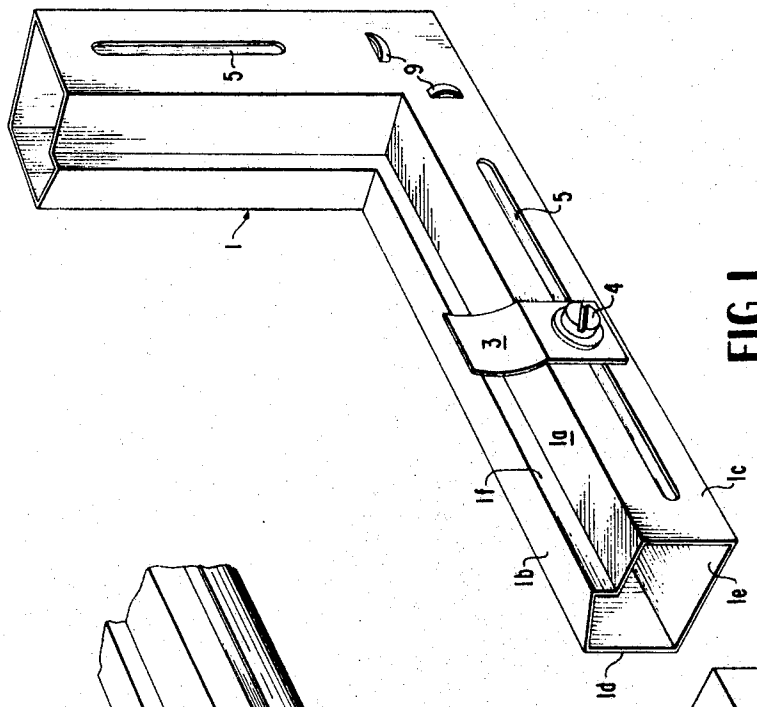


FIG. 1

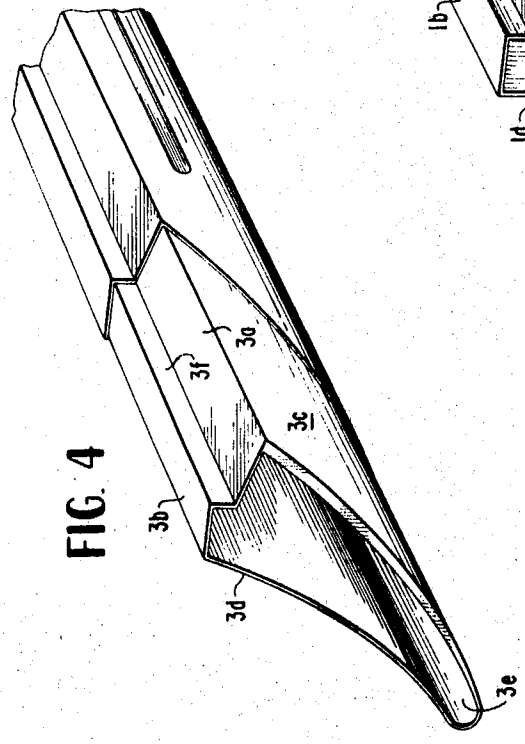
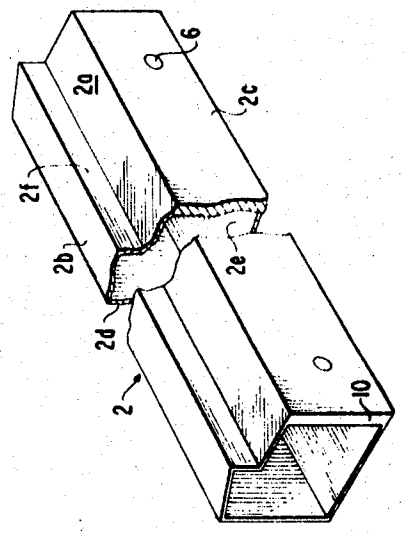


FIG. 4



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ADJUSTABLE PICTURE FRAME

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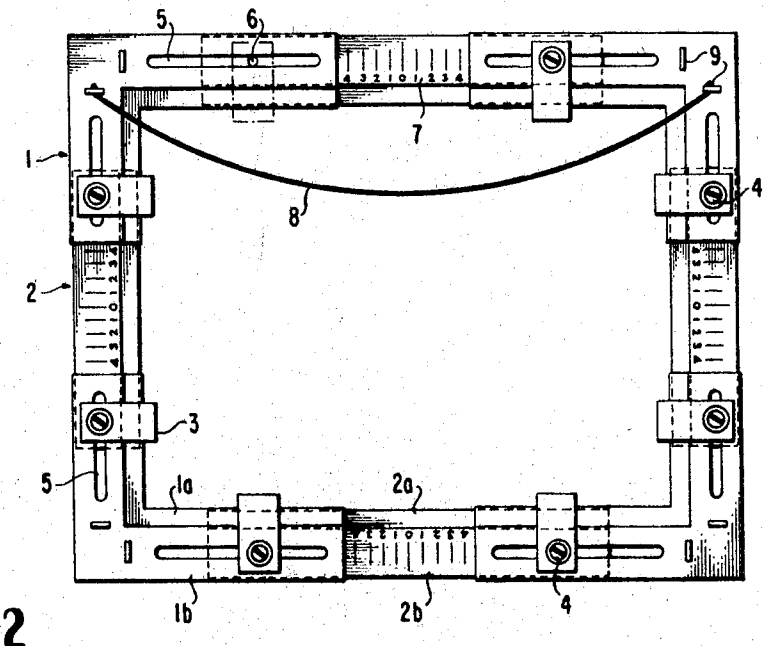


FIG. 2

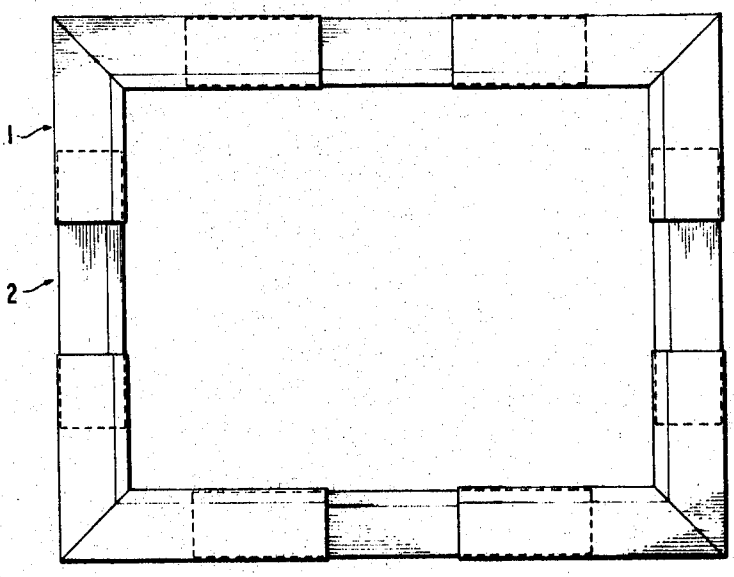


FIG. 3

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ADJUSTABLE PICTURE FRAME

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Int. Cl. G09f 1/12
U.S. Cl. 40—155 4 Claims

ABSTRACT OF THE DISCLOSURE

An adjustable picture frame which is assembled and adjusted by means of screws with integral washers passing through spring steel retainers and elongated adjusting slots located in the eight arms of four hollow corner portions of the frame assembly, the picture being fastened from the back by then threading the screws into holes provided in expander members of slightly smaller dimension than the corner members but of identical configuration thereto and telescopically slidable therein.

This invention relates to an adjustable frame for pictures, prints, paintings, on canvas, paper, plywood or any other sheet material, whether flexible or rigid. More particularly, the frame of the present invention is instantly adjustable to frame the reproduction without imparting any stress or strain thereto to cause damage to the painting. The present frame is adjustable within the range of its parts without the need for any tools or implements by the simple operation of merely sliding the frame parts together and, by hand, tightening the parts with screws which are provided with integral washers. Once the frame is assembled, the picture is held firmly in place in the frame by steel spring retainers which are held under controlled compression by turning the same screws that assemble the frame so that no undue stress is placed upon the picture.

The present frame parts are preferably made of molded thermoplastic material which is available in colors and shades or which may be finished to simulate wood grains or precious metal leaf; the molded light weight parts are not cumbersome to handle, to assemble or to adjust and are low in cost and are desirable for paintings in the home. The present frame parts for small as well as larger pictures may be of extruded aluminum, extruded magnesium, or similar rigid, light weight, strong alloy which can be formed in the special cross section configuration described in greater detail hereinbelow.

Schools, community centers, public buildings and art galleries exhibit a great variety of art. The sizes of pictures are not uniform. The present tendency requires that exhibitors continuously change their displays. It is impractical and uneconomical to stock a different frame for each possible size of picture. Retailers and framing shops also encounter the problem of carrying huge inventories in order to supply the customer's varied needs. It is too costly to buy the pictures preframed if one is to meet the taste requirements of the art gallery critics, directors and supervising committees. It is rare that any known picture is shown without at some time being reframed to reflect changes in taste. Therefore, there is a real need for a framing system which will permit an economical solution to the problem.

Adjustable picture frames have long been known but are not satisfactory because of the serious limitations of picture size to which they are specifically adapted. In short, many of the known frames are of the type adjustable within narrow limits, such as between 8" x 10" up to 10" x 14" without permitting precise adjustments within the range so that the framed document or reproduction has a poor appearance based on non-alignment and gaps. These conventional prior frame parts employ pre-set holes and are complex in structure.

U.S. Patent No. 2,790,259 uses tapping screws in an involved frame, the adjustment of the frame calling for the use of cumbersome tools and being limited within the range of its parts. Similarly, U.S. Patent No. 2,581,843 describes adjustable frames which may be made of plastic; but the "adjustable" frames disclosed in the two patents mentioned above have the disadvantage that only a few adjustments are permitted within limited spacings and each assembly requires special tools.

Still other types of adjustable frames are known, such as U.S. Patent No. 2,824,398 and U.S. Patent No. 2,819,549 which require a large inventory of different sizes of parts. Along this line of adjustable frame development, it has been proposed to use fixed slots, as in U.S. Patent No. 2,866,286, but the slots have the disadvantage of having closed ends which limit the utilization for all sizes of pictures and they present a poor appearance of the framed picture in the form shown.

Indeed, one of the earliest patents in the art, U.S. Patent No. 2,078,744, has proposed a frame which is not disassembled for separate storage of the frame parts and the simplicity and economy of this early frame are apparent in comparison with the later commercially unsuccessful attempts in the later patents above referred to.

It is an object of the present invention to avoid the disadvantages in the adjustable picture frames of the foregoing patents and to provide a frame which is easily disassembled for storage, which is universally reusable for the infinite variety of picture sizes shown, for example, in the home, and which will meet the requirements for color, shade and texture to truly reflect the tastes of the critic, exhibitor, art gallery committee or owner.

It is a further object of the present invention to provide a simple, complete and self-contained frame unit which, within the range of its parts, is infinitely adjustable.

Another object is to provide an infinitely adjustable picture frame which is assembled instantly and manually, without the need for any tools.

Another object is to provide a simple, infinitely adjustable frame which not only frames the picture but also holds it firmly in place without any assembling means other than the same screws which are used in the manual adjustment and assembly of the frame.

Other objects will become evident to those skilled in the art from the following specification and the drawings attached hereto which form a part of the specification and in which:

FIGURE 1 is a perspective and a sectional view of the corner of the frame broken away to show the expander mid-section of the frame;

FIGURE 2 is a back view of the frame showing how it is assembled and adjusted and the relationship of the parts to each other, as well as the means for hanging;

FIGURE 3 is a front view of the assembled frame as it is visible to a viewer of the picture; and

FIGURE 4 is a perspective view, partly in section, of a modification of the frame structure in which the cross section of the exposed front of the frame presents an elongated ovoid appearance emphasizing a curved rather than the angular aspect of FIGURE 1.

As shown in FIGS. 1, 2 and 3, the frame consists of four identical recessed rectangular hollow corner members 1 and telescopically sliding therein four hollow expander elongated mid-section members 2 which are slightly smaller in dimension than the corner members and of similar recessed rectangular cross section so as to be slidable into the corner members. When the expander

members are pushed all the way into the inner corner portions of the corner members, the frame is at its minimum size.

The generally rectangular cross sections of the expander mid-section members 2 and of each of the arms of the corner members 10 facilitate sliding movement along the horizontal shadow box surface or ledge 1*b* and 2*b* or the corner and expander respectively which project forwardly from the picture in full view of the observer.

The frictional engagement of the frame to the picture is effected at the back of the picture by the spring steel retainer member 3 which is uniquely shaped to apply adequate pressure over a significant area at the back of the picture to firmly hold the corner of the picture in proper vertical and horizontal alignment to the corner member and expander member against surfaces 1*f* and 2*f*.

As seen in FIG. 1, the corner and expander members can be of substantially rectangular cross section, or as seen in FIG. 4, they can be of elongated ovoid cross section with surfaces 3*a*, 3*b*, 3*c*, 3*d*, 3*e* and 3*f* corresponding to the rectangular embodiment shown in FIG. 1. They can also be of any other suitable configuration as long as they provide certain features explained hereinafter.

The back of each of the corner portions is indicated by 1*c*, the front by 1*d*, the inner side by 1*a* and 1*b* and the outer side by 1*e*. Similarly, the back side and front of the expander mid-section portions are numbered, in FIG. 1, 2*c*, 2*d*, 2*a* and 2*b*, and 2*e*, thereby providing corresponding slight ledges 1*f* and 2*f* in the corner and expander portions respectively.

The inner side of each of the expander mid-section portions and the arms of the corner portions have a slightly recessed portion, 2*a* and 1*a* respectively, toward the back of the side, and a slightly elevated portion, 2*b* and 1*b* respectively, toward the front of the side. The elevations 2*b* and 1*b* and the recesses 2*a* and 1*a* may meet at an angle, as shown in FIG. 1, or may be formed by a curve, not shown. The slight ledges 1*f* and 2*f* hold the picture firmly when the spring steel retainers 3 are screwed against the ledges in the assembly of the frame, as is explained below.

The back wall of the expanded mid-section portion is molded or extruded in double thickness, as shown at 10 of FIG. 1, to provide threads for a screw. Each of the four expander sections is provided with two holes 6 in the back wall which are threaded to receive a screw, the holes being placed near each end of the double thickness back wall.

The back walls of each arm of the corner portions are provided with elongated continuous adjusting slots 5 through which a screw may be passed at any point therein, so that the adjustments may be infinite within the limits of the length of the elongated slot.

On the back of each of the expander mid-section members there is provided a centering scale 7 with the zero at the mid-point and the scale from one upwards on each side of the zero, the number of points on the scale being determined by the general size range of the expander members.

Eight screws 4 with integral washers are provided and eight springs steel retainers 3 are also provided with the frame unit, the retainers each having a hole proportioned to receive the screw 4 near one end and being slightly curved toward the other end, to provide a springing action against the sides of the picture to be retained and framed.

To assemble the frame and picture quickly and firmly without tools, the picture is placed face downward on the temporarily assembled frame with the four expander mid-section portions telescoped by the four corner portions. The frame is then adjusted by sliding the expander mid-sections further into the corner portions to fit the picture snugly. Working from the back of the picture and frame, each of the eight screws 4 is passed through the hole in the steel spring retainer 3 and through the elongated adjusting slot 5 of the back wall of the corner portion; and then the screw is threaded by hand into the hole in the double thickness back of the expander mid-section portion. The integral washer on the screw maintains the frame in firm assembly and the spring steel retainer holds the picture firmly in place.

Two hooks 9 are provided on the back of each arm of each of the corner portions, as shown in FIGS. 2 and 1, and by means of a fastening wire 8 threaded through these hooks, the frame can be hung horizontally or vertically, as the need may be.

Centering scale 7 which is provided on each of the expander members in the embodiment shown in FIG. 2 simplifies indexing of the frame to a center point at the top, bottom and sides of the painting to permit quick assembly and accurate adjustment of the frame.

From the foregoing description of two of the embodiments of the invention adapted for low cost manufacture, it can be seen that infinite adjustments can be made by quick and simple manipulation of the eight screws, two at each corner, through the spring retainer members and through the slots into the holes of the expander members. Infinite adqustments are possible by the degree to which the expanders are slid into the corner sections. The centering scales permit assembly and accurate adjustment of the frame prior to the insertion of the picture. The result is an exceedingly simple, adjustable rigid frame with the possibility of an infinite number of adjustments limited only by the sizes of the frame parts. With a very small inventory of differently sized parts, the retailer, frame shop, school and gallery can instantly have a large variety of overall frame sizes.

Stiff impact-resistant thermoplastics, such as acrylonitrile-butadiene-styrene (ABS), high impact propylene ethylene polymer, rigid butadiene styrene polymer, etc., can be extruded in thin section to admirably serve all of the purposes of the present invention. Extruded aluminum and aluminum alloy members may be used which are rigid yet resilient and which possess desirable structural characteristics as pointed out in U.S. Patent No. 3,297,075.

We claim:

1. An adjustable generally rectangular picture frame comprising:

four hollow corner members (1) each consisting of two right angle hollow arms of generally four sided configuration, a back wall (1*c*), front wall (1*d*), inner side wall (1*a*, 1*b*) and outer side wall (1*e*), said inner side wall having an intended ledge portion (1*f*) for supporting a corner of the picture held by the frame, the back wall of each of said arms having an elongated adjusting slot (5) through which a screw (4) can be passed to be located at any point thereof and the ends of the arms remote from the corner junction being open;

four hollow mid-section open ended expander members (2) of identical four sided configuration to said hollow corner arm members but of slightly smaller dimension to be slidable in a hollow arm of a corner to form a double thickness thereat, the inner side wall (2*a*, 2*b*) of each expander member having an intended ledge portion (2*f*) which lies in substantially the same plane as the ledge portion (1*f*) of the corner and which thereby jointly supports the edge portions of the picture away from the corner, the back of each of said expander members having a plurality of holes near the ends thereof;

a plurality of thin generally flat steel spring retainers (3) having a flat portion with a hole at the bottom for passage of a screw (4) and having an inwardly curved top portion in bearing engagement with a picture in the frame which is adapted to apply pressure evenly to the picture upon tightening of the screw;

a plurality of screws (4) for attaching the corner members to the expander members and to press said retainers against the back of the picture and the frame;

said frame being disassembled, assembled and adjusted by inserting each of said screws through the hole in each of said steel spring retainers, through said elongated adjusting slot in said arm of the corner while telescoping the expanders to the size of the picture and then by tightening the screws into the threaded holes at the inner double thickness back portion of the expander member.

2. An adjustable picture frame as claimed in claim 1 wherein each of said expander members is provided with a centering scale to permit accurate adjustment of the frame to any predetermined size which falls within the size of the frame parts, said centering scale being provided on the back of the expander section.

3. An adjustable picture frame as claimed in claim 1 wherein hooks are provided on the backs of the arms

of each of said corner portions, said hooks being integral with the corner portion of the frame.

4. An adjustable picture frame as claimed in claim 1 wherein said frame is generally ovoid and is elongated to provide curved sides.

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654,290	11/1928	France.

EUGENE R. CAPOZIO, Primary Examiner

W. J. CONTRERAS, Assistant Examiner

U.S. Cl. X.R.

40—209

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,465,461 Dated September 9, 1969

Inventor(s) Herbert Price and Seymour Kesten

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Page 1, column 1, under the title:

Herbert Price, 509 W. 121st St., New York, N. Y. 10027, and Seymour Kesten, 113 Boise Drive, Syracuse, N. Y. 13210

Signed and sealed this 21st day of March 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

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