April 12, 1949. H. A. COWLES ET AL 2,467,190

SELF-ERECTING EASEL

Filed Oct. 5, 1945

FIG. 1.

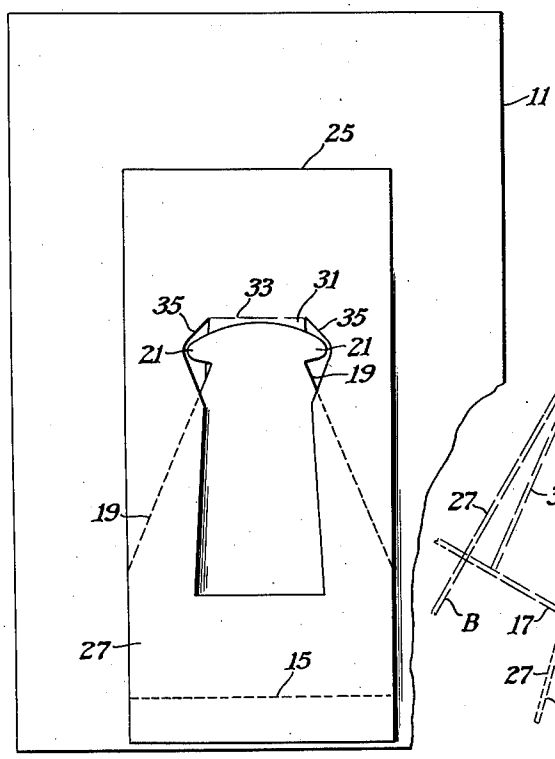


FIG. 2.

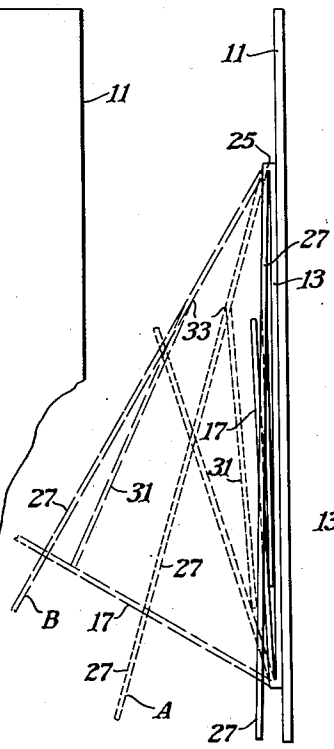


FIG. 3.

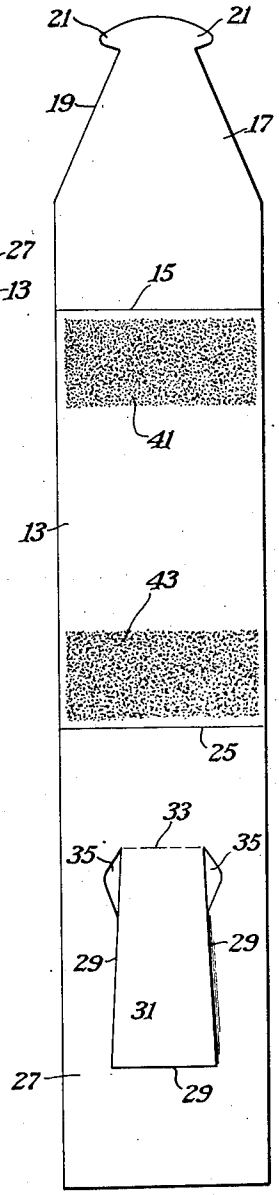
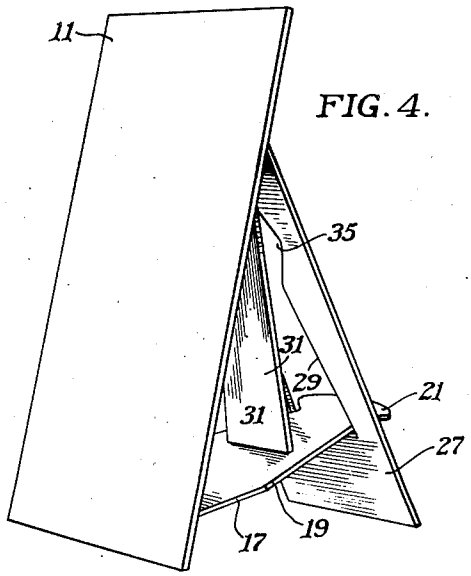


FIG. 4.



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SELF-ERECTING EASEL

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5 Claims. (Cl. 248—35)

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The present invention relates to easels such as are attached to the back of pictures, calendars, or advertising displays for holding them in an upstanding position. Such easels, especially those on advertising displays, must be inexpensive, yet sturdy enough to hold the display securely. In the past, easels which have been so designed as to be rapidly erected have usually been insecure, while those easels which have been secure and firm have usually required more or less complicated manipulation by the fingers, in order to erect them.

An object of the present invention is the provision of a self-erecting easel which can be easily set up without any special manipulation, and which locks itself securely in erected position so as to hold the article to which it is attached in an upright position without danger of accidental collapse.

Another object is the provision of an easel which, while having the above-mentioned characteristics of ease and quickness of erection, is at the same time inexpensive and easy to manufacture, and easy to apply to the advertising display or other article to which it is to be attached.

Still another object is the provision of an easel so designed and constructed that it may be manufactured in quantity by an establishment specializing in the production of such easels, and may be shipped in compact form to the advertising display printer or other establishment needing easels, and may be easily and quickly applied by such other establishment to the advertising display.

A further object of the invention is the provision of a quick erecting and self-locking easel made entirely from a single piece of fiber board, cardboard, or the like, by a die cutting operation, and so designed that it may be entirely cut by a single press operation, without requiring multiple operations.

These and other desirable objects are accomplished by the construction disclosed as an illustrative embodiment of the invention in the following description and in the accompanying drawings forming a part hereof, in which:

Fig. 1 is a rear elevation of a display with the easel of the present invention in collapsed position;

Fig. 2 is an edge view of the display showing the easel in collapsed position in full lines, and illustrating the opening of the easel in dotted lines;

Fig. 3 is a plan of the easel in the initial flat form in which it is manufactured; and

Fig. 4 is a perspective view of a display with the easel in fully erected position.

The same reference numerals throughout the several views indicate the same parts.

Referring now to the drawings, there is indicated at 11 a diagrammatic illustration of any

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advertising card or display, picture, calendar, etc., with which an easel is to be used to hold the member 11 in an approximately upright but slightly inclined position.

The easel of the present invention comprises, as best seen in Fig. 3, a single piece of fiber board, cardboard, or the like, cut and scored to provide a central portion 13 separated by the score line 15 from a tongue portion 17, the end of which is tapered as at 19 and which terminates in laterally extending lugs or hooks 21 as shown.

At the opposite end of the central section 13, there is another score line 25 separating the section 13 from a foot section 27 of rectangular outline. This foot section, near its middle, is cut along three sides as indicated at 29 to form a locking section 31 of generally rectangular but slightly tapered form, hinged to the foot section 27 at the score line 33. Near the base or hinged end of the locking section 31 are lateral cut-outs 35, the material of which is entirely removed and discarded so that these cut-outs form lateral notches at the upper end of the space left in the foot member 27 when the locking member 31 is displaced out of the plane of the member 27.

The score lines 15 and 25 and 33 may be either pressed scores or cut scores, depending on the material from which the easel is constructed, and the thickness thereof. The scores should be of such a character that the material may be easily bent at the score lines but will retain a reasonable amount of resiliency and will tend to spring back to original plane position when displaced therefrom by bending at the score line. Good results have been attained by making the easel from cardboard or chip board having a thickness of about forty points (one point being 0.001 of an inch) using cut scores at the points 15, 25, and 33, each score being cut about one-third of the way through the thickness of the material. It is noted that all of the cuts of these scores extend in from the same face of the material, so that a single die cutting operation suffices for forming the entire easel, without the necessity of turning the material over to cut any scores on the opposite face.

The portion 13 of the easel may be affixed to the member 11 in any suitable manner, as for example by stapling, but it is preferred to provide this portion 13 with adhesive, either of the pressure-sensitive type or of the moistening type, so that the easel assembly may be quickly and easily applied to the display with which it is to be used. For example, the manufacturer of the easel (who is not necessarily the manufacturer of the complete display) preferably applies gum or mucilage to the portion 13 of the easel, either over the entire area of the portion 13, or to two separate areas 41 and 43 at the two ends thereof, as shown in Fig. 3. Then a supply of the easels is shipped, either in flat form

or folded, to the printer or other person who is to make up the advertising displays, and he moistens the adhesive 41, 43 and then presses the easel against the back of the display 11, whereupon it adheres thereto.

The easel, in its initial closed form, has the tongue portion 17 folded back through 180° about its hinge line 15, to lie against the back of the central portion 13, and the foot portion 27 is likewise folded back about its hinge line 25 through approximately 180°, to lie on the back of the central portion 13. In folding these parts 17 and 27 back on their hinge lines, the locking member 31 is also folded inwardly about its hinge line 33, to displace it inwardly from the plane of the member 27, and lies next to the rear side of the central portion 13. Then the tongue portion 17 comes next, overlying the portion 31, and finally, on top of the tongue portion 17, lies the foot portion 27. When the parts are all folded down to collapsed position, the lateral hooks 21 of the tongue portion lie in the cut out spaces 35, as indicated in Fig. 1, and the entire assembly is relatively flat, occupying only a thin space on the rear side of the main display member 11, so that a quantity of such display members with easels attached may be readily stacked without occupying an undue volume.

To erect the easel, the main display member 11 is picked up and held approximately level, with the collapsed easel on the under side thereof. Ordinarily, the natural resiliency remaining in the score lines 15, 25, and 33, aided by the force of gravity due to the weight of the parts 17, 27, and 31, will immediately cause these parts to tend to spring out, away from the back of the member 11. If the resilience of the hinge joints and the force of gravity is not sufficient, a single flip of the wrist is all that is required to cause the parts to spring to erect position.

In the action of erection, the foot member 27 and the tongue member 17 simultaneously swing outwardly away from the back of the central portion 13 of the easel structure. The lateral hooks 21 on the tongue 17 assume a position outside (or to the rear of) the foot member 27, while the rest of the tongue member remains inside or to the front of the foot member 27, and the locking member 31 remains inside or above the tongue member 17, with the bottom end of the locking member resting on top of and sliding over the upper face of the tongue member 17. The outward swinging motion of the parts continues until the tongue member 17 swings down to the bottom of the large opening or slot in the foot member 27, which stops further downward motion of the tongue member, and until the foot member 27 swings outwardly into contact with the lateral hooks 21 on the tongue member, which stops further outward swinging of the foot member. In this position, the foot member 27 and the tongue member 17 are approximately perpendicular to each other. Simultaneously with these two outward swinging movements of the members 17 and 27, the locking member 31 swings rearwardly about its hinge 33, with the bottom edge thereof scraping over the top surface of the tongue 17 until it reaches nearly but not quite a perpendicular position with respect to the tongue member 17, at which time the locking member 31 wedges or jams on the top surface of the tongue member 17, which prevents further outward swinging movement of the locking member 31 toward the plane of the foot member 27. The locking member 31 in this wedged position prevents upward motion of the tongue member, while the tapered portion 19 of the tongue member prevents inward collapsing motion of the foot member 27.

Hence, in the erected position all the parts of the easel are interlocked with each other and cannot be displaced from erected position without first forcibly pushing the lower end of the locking member 31 in toward the back of the display member 11, releasing the tongue member 17 so that it can fold upwardly toward the back of the display 11 and thus allow the foot member 27 to fold downwardly toward the back of the display 11. The foot member 27 acts as a strut extending obliquely downwardly and rearwardly from the article to be supported to the flat supporting surface, while the tongue member 17 may be described as a tie member holding the strut against swinging movement.

In Fig. 2 the initial collapsed position of the parts is shown in full lines, while the first set of dotted lines indicated at A shows the position of the parts in the early stages of the erection of the easel, and the other set of dotted lines B indicates the parts in their final erected position. Fig. 4 also shows the parts in their final erected position.

It is to be noted that the foot member 27 has a broad flat lower edge which furnishes adequate support for the display 11 against sideways tilting, as well as against falling rearwardly. In fact, with the broad flat foot 27, this easel may be effectively used on advertising displays which have a curved lower edge (such as a circular or elliptical disk) and which are, consequently, unstable in a lateral direction.

The ease of applying the easel to the display is enhanced by proportioning the parts so that, when the easel is folded up to its collapsed position, the lower edge of the foot portion 27 comes flush with or just above the lower edge of the display member 11, as indicated in Fig. 1. With this arrangement, the lower edge of the foot member 27 serves as a guide for positioning the easel structure on the back of the display member. It is a very easy matter to moisten the adhesive 41 and 43 of the already collapsed easel, and then to press the easel on the back of the display 11 in a position with the bottom edge of the easel flush with or just above the bottom of the member 11, as shown. It is then known that the easel is properly placed on the member 11, and no special measurements or guide marks are needed for the placing thereof.

The purpose of tapering the sides of the locking member 31 is so that the hole or slot in the foot member 27 which receives the end of the tongue 17 will increase slightly in width in a downward direction, to obviate any accidental sticking of the tongue 17 at an intermediate position in this opening as the easel is being erected. With a slight taper of a few degrees, as shown, the neck portion of the tongue 17 (just behind the hooks 21) slides smoothly down the entire length of the opening or slot left by the displacement of the locking member 31 out of the plane of the foot member 27. The taper of the portion 19 of the tongue 17 is considerably greater, however, than the taper of the locking member 31, the taper 19 being for the purpose of providing shoulders or abutment surfaces for holding the foot member 17 outwardly in its fully erected position and preventing inward swinging thereof toward the member 11. The function of the cut-outs 35 is to provide a wide portion of the slot so that

the hooks 21 of the tongue portion may readily pass through this wide portion during the initial collapsing or folding up of the easel from the flat form shown in Fig. 3 to the collapsed form shown in Fig. 1 and in full lines in Fig. 2.

It is seen from the foregoing disclosure that a construction is provided which admirably fulfills the above-mentioned objects of the invention. It is to be understood that the foregoing disclosure is given by way of illustrative example only, rather than by way of limitation, and that without departing from the invention, the construction may be varied within the scope of the appended claims.

What is claimed is.

1. A self-erecting easel for supporting an article in an upstanding position on a flat surface, said easel including a strut member hinged to said article at an elevation substantially above the bottom thereof and resiliently tending to swing rearwardly from said article so as to extend in an oblique direction downwardly and rearwardly from its hinge toward said flat surface, said strut member having a slot therein, a tie member hinged to said article near the bottom thereof and resiliently tending to swing rearwardly from said article, said tie member having a free end lying approximately in the upper end of said slot when the easel is collapsed and being adapted to slide down the length of said slot in said strut member to the bottom thereof as said easel is moved from collapsed position to erected position and having abutment portions engaging said strut member to hold said strut member from swinging movement about its hinge when said tie member is at the low end of said slot, and a locking member hinged to said strut member and extending downwardly therefrom into engagement with the upper surface of said tie member to hold said tie member immovably in tying relation to said strut member.

2. A self-erecting easel for holding an article in an upstanding position on a flat support, said easel comprising a single piece of fibrous sheet material cut, scored, and folded to provide a central section for attachment to the rear face of said article to be supported, a strut section hinged to said central section by a score line at the upper end of said central section and extending downwardly therefrom, said strut section resiliently tending to swing rearwardly away from said central section, a locking section cut from said strut section along three sides and resiliently hinged to said strut section along a fourth side, said locking section when displaced from the plane of said strut section leaving an open slot in said strut section, and a tongue section resiliently hinged to said central section by a score line at the bottom of said central section, said tongue section resiliently tending to swing rearwardly away from said central section, said parts when collapsed being capable of folding so that said locking section lies against the back of said central section, said tongue section overlies said locking section, and said strut section overlies said tongue section, and said parts resiliently tending to swing outwardly away from said central section so that said strut section will stand at a substantial angle to said central section, said tongue section will likewise stand at a substantial angle to said central section and approximately perpendicular to said strut section to engage in the slot in said strut section to hold the strut section against swinging movement, and said locking section will wedge against said tongue section to hold said tongue section in effective position.

3. A collapsible easel adapted to be erected from a folded collapsed position to an erected and locked position by the resiliency and inertia of the parts when the easel is subjected to a sudden movement, said easel when erected being adapted to support an article in an upstanding position on a flat surface, said easel including a strut section resiliently hinged to the article to be supported at a substantial elevation above the bottom thereof, a tongue section resiliently hinged to said article near the bottom thereof, and a locking section partially cut from said strut section and resiliently hinged to said strut section near the top thereof, said locking section when displaced from the plane of said strut section leaving a slot of substantial length in said strut section, said tongue section having a narrow neck portion capable of extending through and sliding longitudinally along said slot, said parts being of such dimensions that when they are folded to collapsed position they lie substantially flat against each other with the locking section innermost, the tongue section outside of the locking section, and the strut section outside of the tongue section, and with the neck portion of the tongue section approximately at the top of said slot, so that when said parts are subjected to a sudden movement in a direction approximately perpendicular to the general planes of the folded parts, the resiliency of the hinge joints and the inertia of the parts will cause all three of said sections to swing outwardly, the neck portion of the tongue section sliding downwardly along said slot to the bottom thereof and the bottom end of the locking section sliding along the top surface of the tongue section toward the outer end thereof to wedge the tongue section into fixed position at the bottom of said slot.

4. A construction as described in claim 3, in which said slot has a portion of gradually increasing width from an intermediate point of its length to the bottom thereof, to assist easy downward sliding of said neck portion along said slot.

5. A construction as described in claim 3, in which said tongue section has a wider portion outwardly beyond said neck portion, and in which said slot at its upper end has a wide portion sufficient to accommodate said wider portion of said tongue section when the parts are in collapsed position, said slot below said wide portion being narrower than said wider portion but wider than said neck portion of said tongue section.

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