Sept. 23, 1952 L. J. DU MAIS ET AL 2,611,427

PORTABLE PICTURE SCREEN

Filed Dec. 16, 1948

FIG. 1

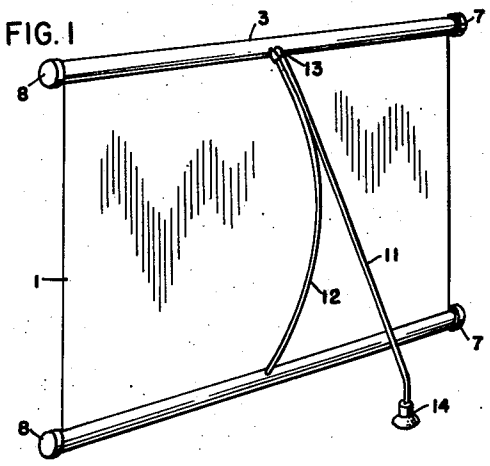


FIG. 8

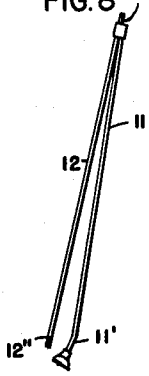


FIG. 2

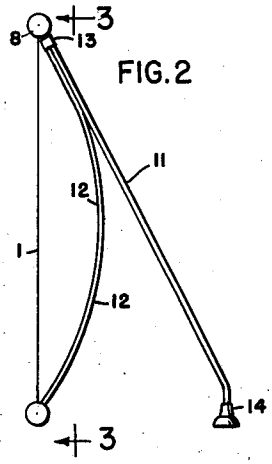


FIG. 3

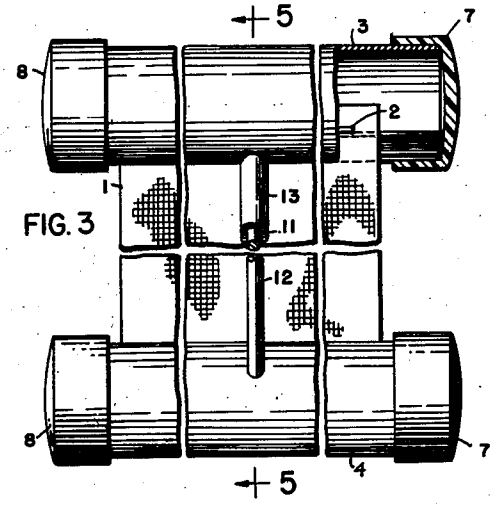


FIG. 4

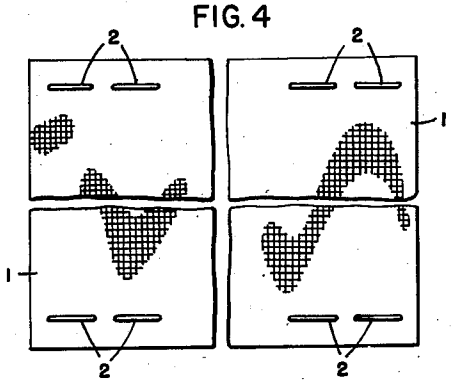


FIG. 5

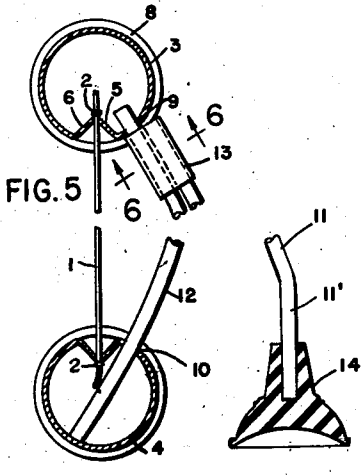


FIG. 6

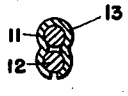
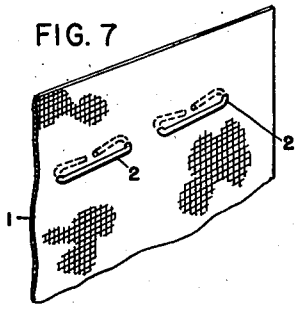


FIG. 7



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PORTABLE PICTURE SCREEN

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5 Claims. (Cl. 160—329)

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This invention relates to improvements in portable picture screens and like apparatus whereon visual objects are to be viewed.

The main objects of this invention are to provide a new and improved portable picture screen or like apparatus comprising a minimum number parts and which is readily portable; to provide a device of this character having a pair of horizontally arranged tubes, one on the upper marginal edge and one on the lower marginal edge of a screen fabric, a map or other flexible sheet to be displayed or extended and securely anchored thereto; to provide a device of the aforesaid character having a pair of semi-rigid holding rods one adapted to spread and hold the two tubes in their outermost extended positions and the other to simultaneously support the tubes and flexible sheet and position it in operative position; to provide a device of the character described in which each tube is provided with a horizontal narrow slot extending endwise of the tube and the tube slot is adapted to receive one end of the flexible material; to provide a device of this character wherein the tube is provided with end caps adapted to anchor the flexible sheet end in the tube by compressing the tube; and to provide a device of this character which is simple in construction and operation, inexpensive to manufacture, containing no operating parts which can readily get out of order, and a device wherein all parts are readily removable and replaceable without the aid of any tools.

An illustrative embodiment of this invention is shown in the accompanying drawings in which:

Figure 1 is a perspective view taken from the rear of the device of the present invention shown in opened or operative position.

Fig. 2 is a side elevational view thereof.

Fig. 3 is an enlarged detail side view, taken on the line 3—3 of Fig. 2 and showing parts in section and broken away.

Fig. 4 is a fragmentary face view of the picture screen fabric showing the staples in place along the upper and lower marginal ends thereof.

Fig. 5 is a cross-sectional view taken on the line 5—5 of Fig. 3; parts being shown broken away.

Fig. 6 is a cross-sectional view taken on the line 6—6 of Fig. 5.

Fig. 7 is an enlarged fragmentary perspective view of a corner of the screen fabric.

Fig. 8 is a side elevational view of the supporting rods.

Referring in detail to the drawings, the present invention comprises a flexible picture screen fabric 1 having a series of staples 2 anchored therein along the upper and lower margins of the fabric as clearly shown in Fig. 4.

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The tube members 3 and 4 are preferably constructed of a semi-rigid, lightweight material and are of a length slightly longer than the width of the fabric 1 and each tube is slit longitudinally. The marginal portions 5 and 6 immediately adjacent the slit are bent inwardly and diagonally in a manner whereby the free longitudinal edges of the portions 5 and 6 terminate just short of actual abutment against each other to form a pair of jaws. Preferably, the width of the slit or slot formed by the free ends of the diagonally disposed members 5 and 6 should approximate the thickness of the material 1, so that when the upper and lower portions of the material 1 are placed in the tubes 3 and 4 respectively, such placement can only be accomplished by sliding the material 1 edgewise through one end of the tubes. A further reason for preferring this endwise insertion of the fabric 1 is to prevent displacement or tearing out of the staples 2.

It will now be apparent that when tension is exerted on the fabric by spreading the tubes 3 and 4 apart from one another, the staples 2 will bear against the free longitudinal edges of the portions 5 and 6 and tend to urge them together whereby to firmly grip the fabric in the jaws.

End caps 7 and 8, preferably constructed of plastic, are friction fitted on the ends of each tube 5 and 6 whereby to present a finished appearance to the tubes. However, the end caps 7 and 8 have a second function, that is, to insure closure of the jaws of the tube to the extent that the longitudinal edges of the fabric 1 are in abutting relation thereto at all times. This is accomplished by producing an end cap wherein the inner diameter thereof is smaller than the diameter of the tube before the fabric is inserted therein. This, also, insures a positive friction fit whereby the end caps 7 and 8 are not likely to be displaced.

Each of the tubes 3 and 4 are provided with apertures 9 and 10 respectively, each being located medially of the ends of the tubes for the reception of the supporting means shown in Fig. 8. The supporting means comprises a pair of resilient rods 11 and 12 which are held together in substantial parallelism by the clip or clamp 13 which is positioned on the upper end of the rod 11 and adjacent the upper end of the rod 12. The

clamp 13 is clinched so as to form a rigid connector. The upper end 12' of the rod 12 is adapted to be inserted in the aperture 9 contained in the tube 3 while the lower end 12'' is adapted to be inserted in the aperture 10 of the tube 4. It will be noted from Fig. 5 that the tube 3 is now supported on the upper end by the clamp 13 while the lower end 12'' extends through the aperture 10 and the end thereof abuts or bears against the inner face of tube 4.

As shown in Fig. 2, the rod 12 bows outwardly away from the fabric 1 when positioned in the two tubes as aforesaid and the rod 11 projects outwardly and extends in a diagonal plane whereby to support the unit in its open or operating position as shown in Figs. 1 and 2. The lower end of the rod 11 is slightly bowed inwardly as at 11' and a rubber suction cup 14 is secured thereto. See Fig. 5. The suction cup prevents the rod 11 from slipping or sliding and insures proper positioning of the unit in its open or operating position.

To disassemble the unit, the tube 3 is held in one hand and the upper end 12' of the rod 12 is withdrawn from the aperture 9 and the lower end 12'' of rod 12 is drawn out of the aperture 10 in tube 4. Because of the resiliency of the rods 11 and 12 and the clamp 13, they will return to normal as shown in Fig. 8. The tube 3 is then held in both hands and is used as a roller on which the fabric 1 is rolled so as to form a compact unit. The supporting rods 11 and 12 are then placed parallelly along the tube 4 and the entire unit may be stored away in a compact unit.

Although the embodiment described was directed to picture screens, it should be now apparent that maps, pictures and other objects may be employed in place of the scren fabric described. It should also be apparent that although the foregoing description alludes to the use of a flexible material to be mounted between and to the parallelly disposed tubes, a stiff material may also be employed but in that event the same could not be rolled up on one of the tubes for compact storage purposes.

It is to be understood that some of the details shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

We claim:

1. In a device of the class described, a pair of elongated tubes each containing a longitudinal slot extending from end to end of each of said tubes with the slots facing each other, the marginal portions adjacent the tube slot being bent inwardly of the tube and diagonally toward each other whereby the free longitudinal edges terminate short of actual abutment and form a pair of jaws, the free edges of said portions being raw, a sheet of flexible material, the upper and lower ends of said material adapted to be retained in said tubes respectively, means positioned on said material adjacent the upper and lower ends thereof and in a plane substantially parallel thereto, whereby to form a series of spaced protuberances on said material, cap means on the ends of each of said tubes having a smaller internal diameter than the outer diameter of said tubes to compress said tubes and securely anchor the upper and lower ends of said material and said protuberances in said respective tubes, and spring means to spread said tubes apart and support said tubes whereby said material is positioned in a substantial vertical plane, the spreading of said tubes by said supporting means exerts tension on said material and causes said protuberances on said material to bear against the jaws of said respective tubes whereby to further close the same and additionally grip said material and prevent accidental displacement thereof from said tubes.

2. The device according to claim 1 whereby said supporting means comprises a pair of parallelly disposed resilient rods anchored together adjacent the upper end thereof, the upper and lower ends of one of said rods being removably secured in each of said tubes respectively substantially medially of the ends of said tube, and the upper end of said anchoring means being positioned against the surface of said upper tube, to support the same.

3. In a portable picture screen, comprising two tubular members, each having a screen-receiving slot therein with the slots facing each other, the free edges forming the slot in the tubular members being directed radially inwardly in spaced juxtaposition, forming angularly opposed screen-gripping and biting edges, spaced means on opposite edges of the screen and provided therein for engaging said gripping edges of the tubular members, and a yieldable support interposed between said tubular members, and associated therewith.

4. In a device of the class described comprising a pair of elongated tubular members each containing a longitudinal slot, the marginal portions adjacent the tube slot being bent inwardly of the tube and diagonally toward each other whereby the free edges terminate short of actual abutment and from a pair of jaws, the free edges of said portions being raw, a piece of material, spaced protuberances on and adjacent the upper and lower edges of said material, all lying in a plane parallel to said upper and lower edges of said material, the upper edge of said material and said protuberances adjacent thereto contained and seated in one of said tubes, and the lower edge of said material and said protuberances adjacent thereto contained and seated in the other of said tubes, caps on the ends of each of said tubes having a smaller internal diameter than the outer diameter of said tubes, for forcing said jaws of respective slots toward each other and grasping and biting said material and securely anchoring said material in said tubes thereto, and spring means for spreading said tubes apart and tensioning said material.

5. In a device of the class described, a pair of elongated tubes each containing a longitudinal slot extending from end to end of said tubes, the marginal portions adjacent the tube slot being bent inwardly of the tube and diagonally toward each other whereby the free longitudinal edges terminate short of actual abutment and form a pair of jaws, a sheet of flexible material, the upper and lower ends of said material retained in said tubes respectively, spaced means positioned on said material adjacent the upper and lower ends thereof and in a plane substantially parallel thereto whereby to form a series of protuberances on said material, cap means on the ends of each of said tubes to substantially close said jaws in each of said tubes and anchor the upper and lower ends of said material in said respective tubes, the jaws forming a seat against which said protuberances abut, and removable means anchored to said tubes to spread said tubes apart and for sup-

porting said tubes whereby said material is positioned in a substantially vertical plane.

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