

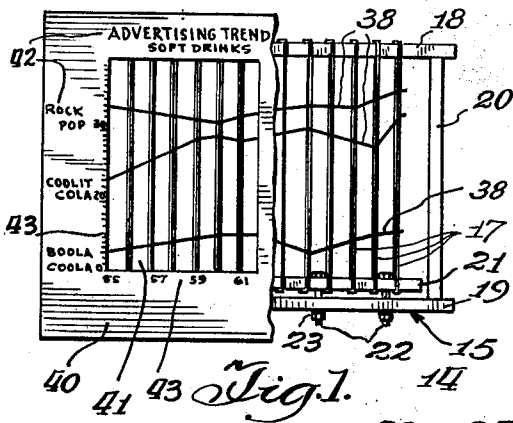
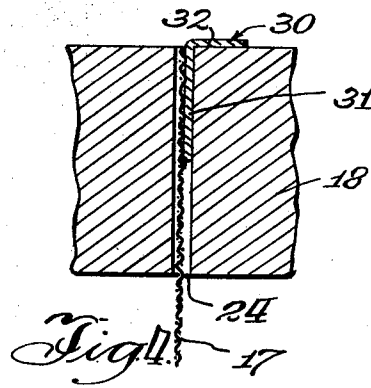
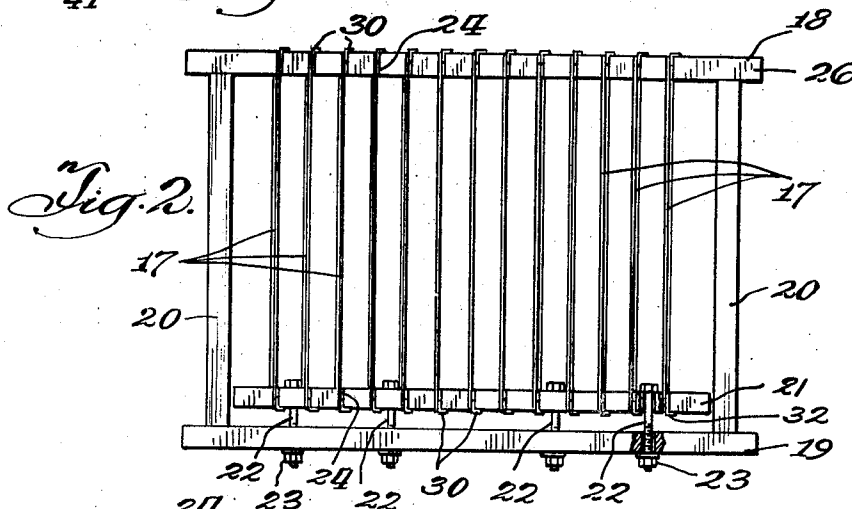
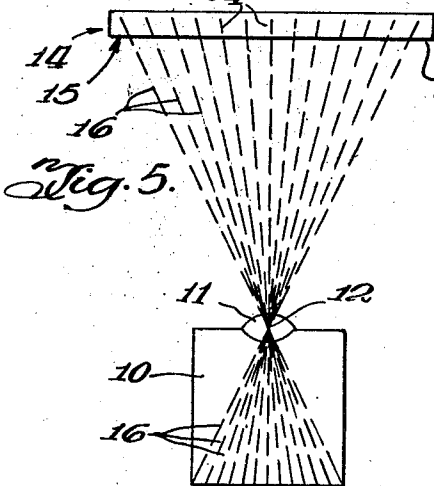
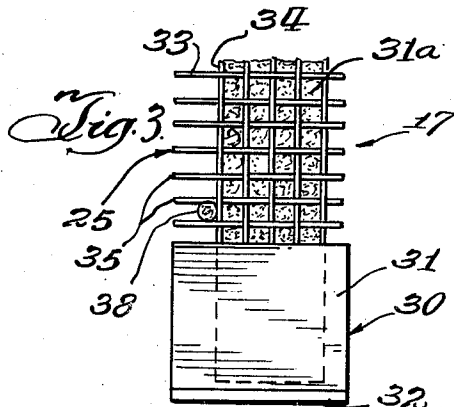
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GRAPH PREPARATION DEVICE

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GRAPH PREPARATION DEVICE

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3 Claims. (Cl. 116-130)

This invention relates to the graphic arts, and more particularly to a device used in the preparation of graphs.

The use of graphs is highly effective for clearly presenting statistical data. For example, graphs showing comparative sales figures, trends, and so forth, provide an effective presentation before any number of people. A major drawback to the use of graphs is the time consumed, and cost, in their preparation. When deadlines must be met the time required in preparing accurate and attractive graphs often precludes their use.

Graphs are often photographed to provide color slides which may be projected before a large group. Slides are a favorite mode of presenting pictorial matter to a large group, and permit combining pictures, textual matters, and graphs in a consistent and convenient manner. Aside from costly graphs made by a skilled illustrator, other methods of preparing graphs for photographing are generally inadequate, in part at least because they lack a pleasing and professional appearance when projected from the finished slide.

The primary object of this invention is to provide a new and improved graphic arts device.

Another object is to provide a new and improved device for rapidly making graphs.

Still another object is to provide a new and improved graphic arts device which may be repeatedly used in making various graphs.

A further object is to provide a new and improved graphing device having a base on which strands may be removably attached to indicate a graph line. A related object is the provision in such a device of a base having a plurality of spaced apart strips for adjustably receiving the strand. Another related object is the provision of such a device for receiving flexible strands in the form of colored yarn.

A still further object is the provision of a new and improved graphic arts device including a base having a plurality of spaced apart strips for removably holding strands extending across the strips to form a graph. A related object is the provision of such a base wherein the strips are each in planes passing through a common point forwardly of the strips, so that as viewed from this point only the front edges of the strips are visible, and upon being photographed the strips are obscure or appear as light lines. Another related object is the provision of such strips in the form of wire cloth having a front edge defined by outer ends of spaced apart wires for receiving strands extending across the strip.

Other objects and advantages will become readily apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a fragmentary front view of a graph preparation device illustrating a preferred embodiment of the invention;

FIGURE 2 is an enlarged front view of a base of the device;

FIGURE 3 is an enlarged fragmentary side view of a strip member removed from the base;

FIGURE 4 is an enlarged fragmentary vertical sectional view of an end of a strip member installed on the base; and

FIGURE 5 is a diagrammatic view illustrating the graph preparation device operatively associated with a camera for photographing a graph.

The invention is, in brief, directed to a graphic arts

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device for making graphs, and is particularly suited for preparing graphs or charts to be photographed as in making slides. The device has a base to which strands defining graph lines may be quickly, accurately and removably attached. This construction is such that the device is of a permanent nature and may be repeatedly used in making various charts or graphs. In the preferred embodiment the base has a plurality of parallel strips of wire cloth with front edges defined by free ends of cross wires. The strands forming the graph lines are preferably colored knitting yarn received between adjacent cross wires which is large enough to be visible and readily available in bright colors. The strips of wire cloth are held in a frame and lie in planes converging at a common point or line so that only the front edges of the strips are visible from this point. Therefore, when the optical center of a camera lens is positioned at this point and directed toward the base the strips are almost obscure or photographed merely as light lines, and the cross strands indicating graph lines are relatively prominent. Means is provided for tensioning the strips of wire cloth so that they are straight and tight for more effectively holding the yarn strand and providing a more attractive graph. An overlay on the base frame has an opening or cut-out exposing pertinent portions of the graph. The overlay may carry suitable indicia and textual matter coordinated with the graph lines.

Referring to the drawings, FIGURE 5 diagrammatically illustrates an arrangement incorporating a graph preparation device 14 for use in making photographs of the graph. A suitable camera 10 having lens means 11 with the optical center at point 12 is generally aligned with the center of a base 15 of the graph preparation device. Dashed lines 16 graphically illustrate rays, one from each of a plurality of strand holding strips 17 of the base 15.

Referring to FIGURES 1 and 2, the base 15 is illustrated in the preferred embodiment in the form of a rigid frame having an upper member 18, a lower member 19, and opposed side members 20. Strips 17 are mounted on frame member 18 and a tensioning second member 21. Tensioning member 21 is adjustably mounted on lower frame member 19 by means of a plurality of bolts 22 having heads seated on tensioning member 21 and extending through aligned holes in the tensioning member 21 and lower frame member 19, the bolts receiving nuts 23 for adjusting the spacing between frame member 18 and tensioning member 21. By loosening nuts 23, strips 17 may be inserted in slots 24 in frame member 18 and tensioning member 21. In the preferred embodiment slots 24 are so arranged that strips 17 have front edges or faces 25 generally coplanar and parallel to each other.

As may best be seen in FIGURE 5, slots 24 extend transversely across respective front faces 26 of frame member 18 and tensioning member 21 and rearwardly from these front faces at differing angles so that pairs of generally aligned slots in these members lie in planes extending through a common point, as best illustrated in FIGURE 5 these planes pass through point 12. More particularly, in the preferred embodiment these planes pass through a common line passing through point 12 and parallel to front edges 25 of strips 17.

These strips have opposite wide sides in facial relationship with sides of the respective slots. Each strip, which in the preferred embodiment is a strip of wire cloth such as suitable window screen wire, has a longitudinal axis extending between members 18 and 21, and a relatively wide body extending rearwardly from front face 25. Each body is in a plane containing the respective front edge and passing through common point 12, and is behind the respective front edge so that it is not visible from

point 12. Thus a photograph or slide taken with camera 10 arranged as shown in FIGURE 5 shows only front edge or face 25 of each strip and these faces will be substantially obscure or appear merely as thin lines.

Each strip 17 has at opposite ends a bracket 30 which has a wide body 31 facially secured to a wide side of the strip body, in any suitable manner as by an adhesive. In the preferred embodiment woven screening is used for strips 17, and an epoxy resin 31a forms a web between the longitudinal and cross wires to provide a bond for the firm and yet flexible body of the strip. Each bracket 30 has a transverse outer end 32 engaging the outer face of the respective frame member 18 or tensioning member 21 to firmly hold the strips 17 in their respective pair of slots when nuts 23 are tightened to tension these strips. With reference to FIGURE 3, it should be noted that the rear edge of each bracket 30 extends slightly rearwardly from the rear edge of strip 17 and engages the back wall of the respective slot, thus protecting the rear ends of the cross wires from being crushed against the back of the slots, and accurately seating the strip in its pair of slots.

As may best be seen in FIGURE 3, each screen strip has at least one longitudinally extending wire omitted adjacent its front edge 25 so that fingers in the form of ends 33 of the cross wires extend outwardly from the front longitudinal wire 34. The outer ends 35 of each cross wire are aligned and define front edge 25 of the respective strip.

One or more strands 38 are received and held by strips 17. In the preferred embodiment these strands are received between adjacent cross wire ends 33, as shown in FIGURE 3. In the preferred embodiment of the invention intended for use in making colored slides, the strands 38 are preferably of colored knitting yarn which is available in a vast number of different colors.

In making a graph a strand 38 is anchored to one of the frame members 20, then accurately positioned over strip front edges 25 in any desired position and pressed lightly past the front face so that it is received between a pair of adjacent cross wire ends 33 of each strand. The strand extending between the strips forms the desired line graph. A scale (not shown) may be placed under frame 20 to facilitate stringing strands 38. The screen mesh is preferably of such size as to receive the strands with a snug fit, but not so tightly as to appreciably deform the strand. The appearance of the graph is substantially the same if the yarn is impaled on the fingers, but this is less convenient.

An overlay 40, here in the form of an opaque plate or sheet having at least one window 41 positioned over base 15 and conceals the frame and tensioning member 21 so that only a desired portion of the graph, that is, strips 17 and strands 38, is visible through the window. The over-

lay may be provided with suitable indicia, as legends 42 and suitable scales 43, along the bottom and left-hand margins of window 41. The ordinate scale is suitably related with wire ends 35; and it has been found that woven screening material is particularly adapted for this purpose as the wire spacing is substantially equal to the widely used agate measurement. If desired the overlay may be removably secured to the frame in any suitable manner. A suitable background is preferably provided behind the base 15.

While I have shown and described a preferred embodiment of my invention, it is to be understood that the invention is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims.

I claim:

1. A graph preparation device comprising: a generally rectangular frame; a stretcher member inside the frame spaced from and generally parallel with a side member of said frame, said members each having a front face and a row of slots, each slot in one member being generally aligned with a slot in the other member, forming a plurality of pairs of slots, each pair of slots defining a plane, said planes passing generally through a common line forwardly of said front faces; a plurality of strips of woven wire cloth received in said slots, said strips having relatively thin front edges defined by the ends of cross wires extending forwardly from a longitudinal wire, for receiving a flexible strand between adjacent cross wire ends; and means attached to said stretcher member and to the adjacent side of said frame for tensioning said strips.

2. The graph preparation device of claim 1 wherein said strips of wire cloth are impregnated throughout substantially their entire extent with means bonding the longitudinally extending and cross wires together.

3. The graph preparation device of claim 1 wherein said slots open through a face of the member and each strip has brackets secured to either end thereof, each strip being removably received in the slots of a pair, and each bracket having a surface engaging opposed surfaces of the members.

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