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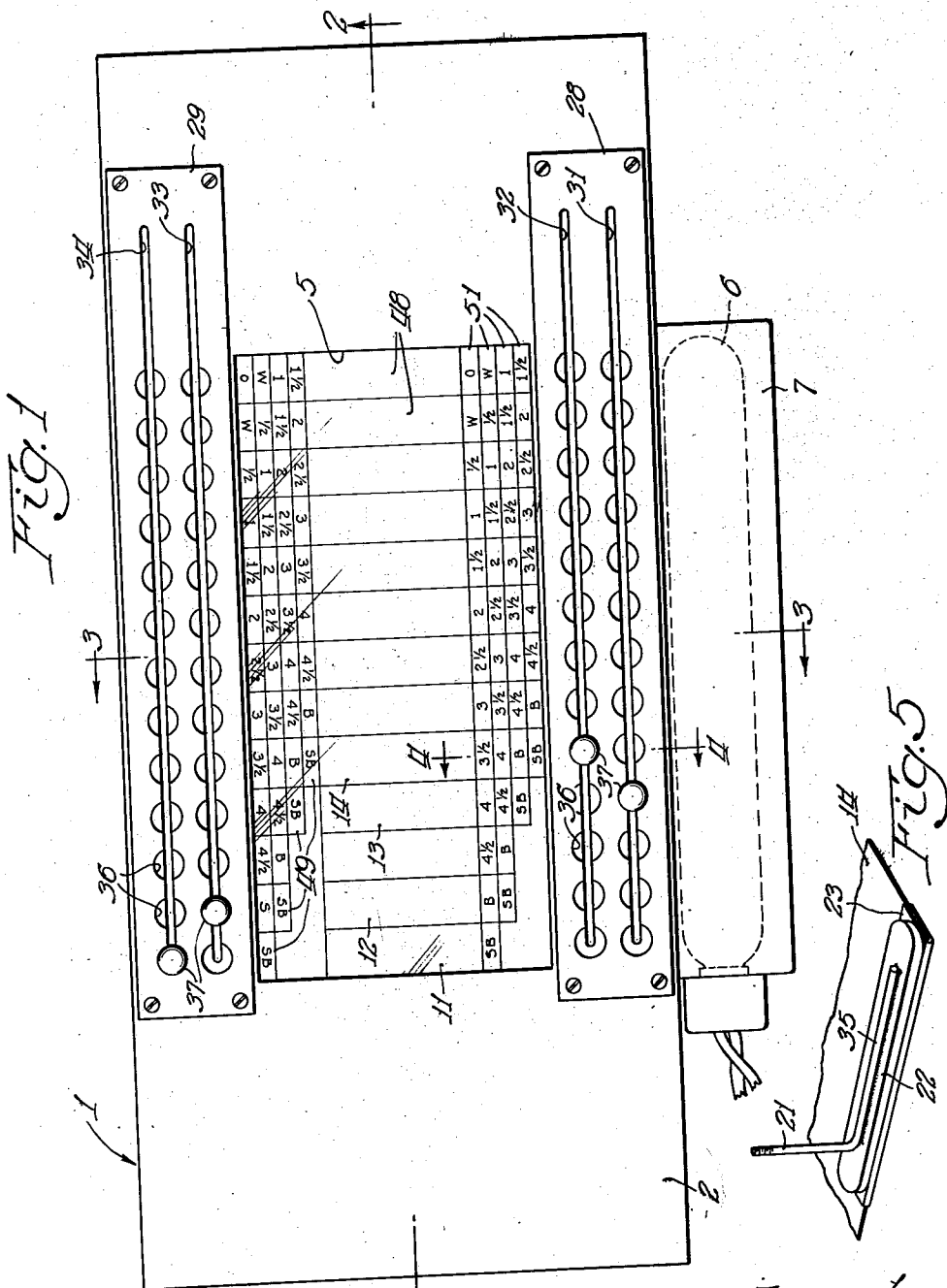
H. C. OLSON

2,196,271

COMPOSITE COLOR SCALE

Filed Feb. 25, 1938

3 Sheets-Sheet 1



Witness:  
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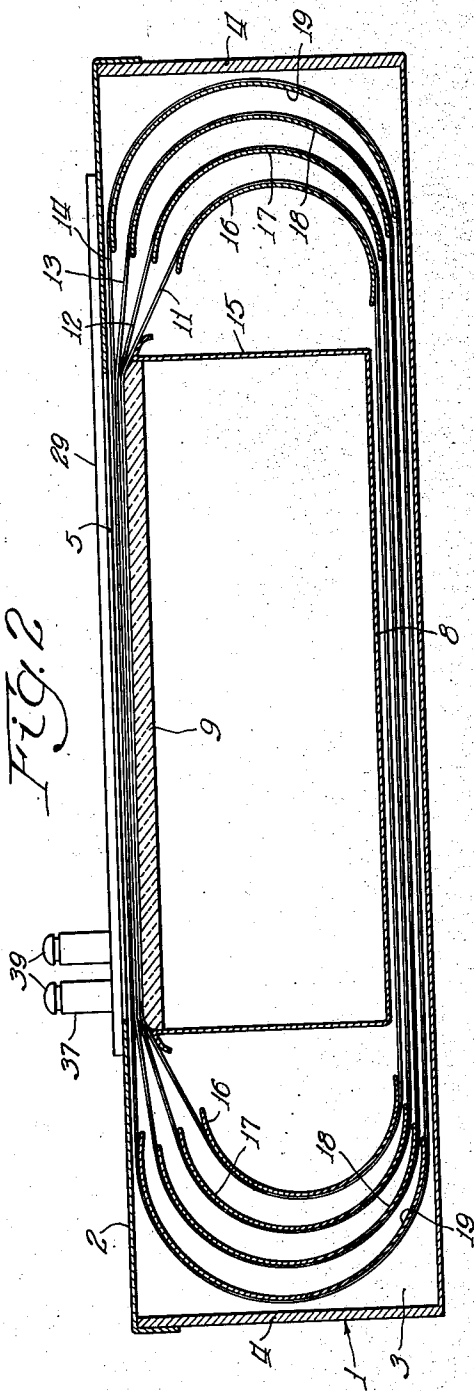
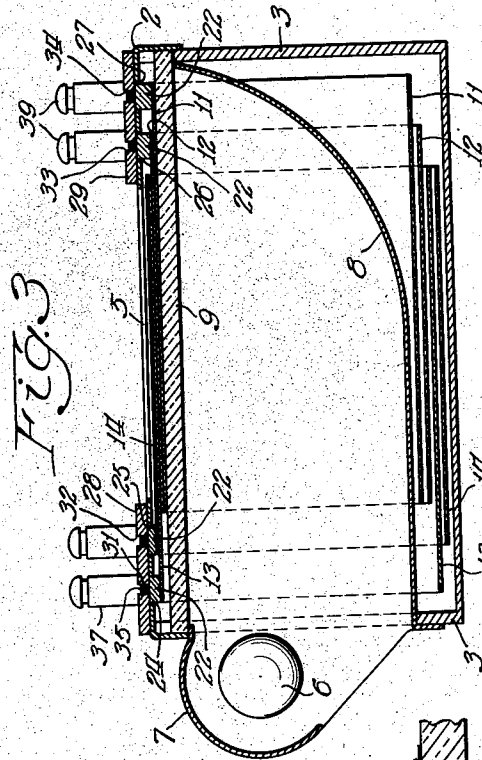
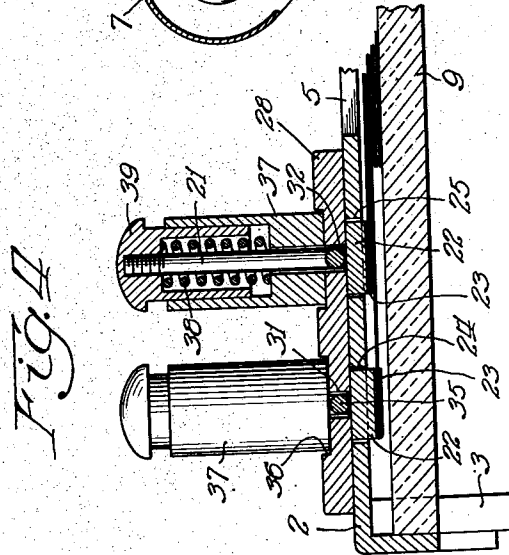
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 6

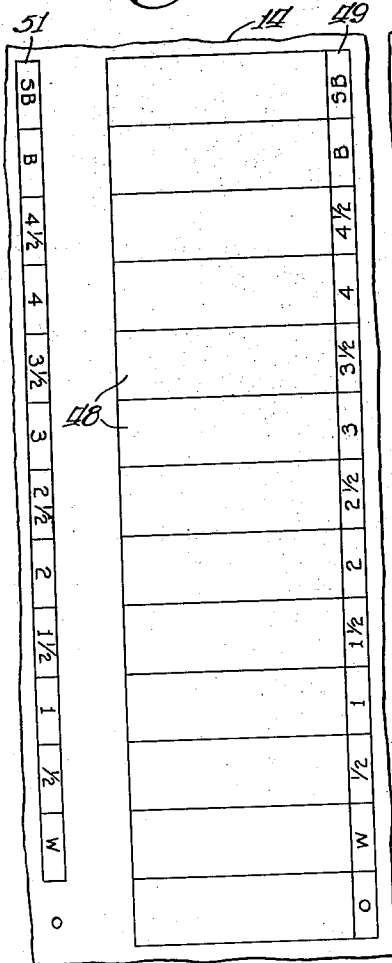


Fig. 7

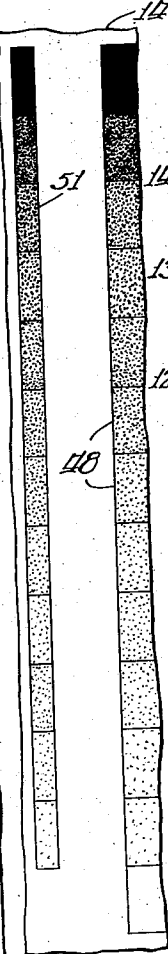


Fig. 8

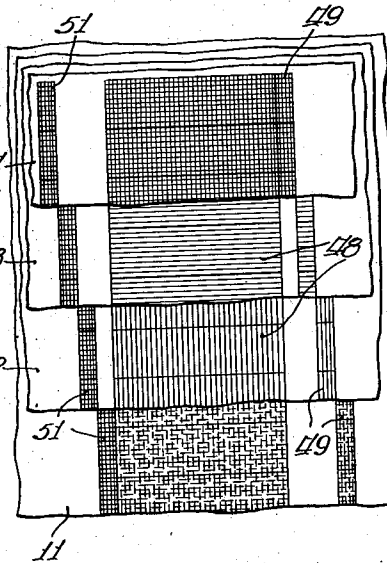
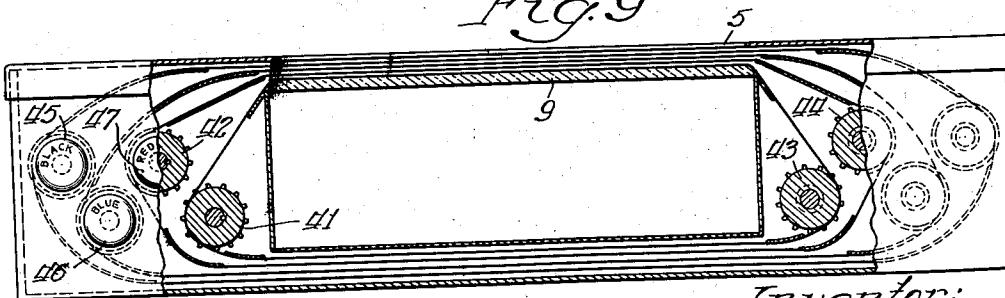


Fig. 9



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## UNITED STATES PATENT OFFICE

2,196,271

## COMPOSITE COLOR SCALE

Hilmer C. Olson, Chicago, Ill.

Application February 25, 1938, Serial No. 192,490

## 1 Claim. (Cl. 38-14)

The invention relates to color meters or the like, and more particularly to devices comprising a plurality of comparative color scales.

The invention has among its objects the construction of a device which is simple in operation, of durable construction, and very efficient for the purposes set forth.

Another object of the invention is the production of a device comprising a plurality of color scales of known color value, and which may be selectively combined to produce any desired shade or tint.

Another object of the invention is the production of a device wherein any given combination of colors may be readily broken down into individual components and the particular color value of each individual component ascertained.

A further object of the invention is the production of such a device wherein the relative black and white color value, as well as the individual color value, is given and may be readily ascertained for any given color.

A further object of the invention is the production of a device of the kind described wherein the various colors may be selectively combined to produce any of the desired combinations.

This composite color scale of known values is extremely valuable in its many uses to the artist, engraver, printer, natural color photographer, dyer, paper manufacturer, and many others.

It is very useful to the artist in making color separation drawings, and likewise to the engraver as a guide for photographic separation negatives, etchings, correcting, finishing, and proofing color process plates, etc.

It will save time and material throughout the process of making color plates and is an aid in the making of better color plates. Likewise, it will save time for the printer in preparation, and will aid the production man in analyzing and ordering corrections on color proofs. Similarly, the color photographer will find the device extremely valuable in the field of natural color photography. The dyer and paper maker will also find use for the device in mixing colors for dyeing materials, etc., or in the production of colored paper.

It will be seen from the above that the composite color scale of known values can be used in all cases where transparent colors or dyes are used to form a given color and to analyze the composition of the latter.

Many other objects and advantages of the construction herein shown and described will be

obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claim.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 represents a plan elevational view of the device;

Fig. 2 is a sectional view taken on the line 2-2 of Fig. 1;

Fig. 3 is a sectional view taken on line 3-3 of Fig. 1;

Fig. 4 is a sectional view taken on the line 4-4 of Fig. 1;

Fig. 5 is a perspective view showing the manner in which the selective positioning means is attached to a scale;

Fig. 6 is a plan view of one of the scales;

Fig. 7 is a fragmentary plan view of a scale showing the manner of graduating the color values;

Fig. 8 is a fragmentary view of the composite scale showing the individual colors composing the same; and

Fig. 9 is a partial sectional view of the device showing a slightly different construction for selectively positioning the individual scales.

Referring to Figs. 1, 2, and 3, the device comprises a container designated generally by the numeral 1, consisting of a cover member 2, side walls 3, and end walls 4. The cover 2 is provided with a cut out portion 5 through which the color scales are to be viewed. This opening is illuminated by means of the lamp 6 and reflectors 7 and 8. A piece of crystal glass 9 extends across the opening 5 and supports the scales 11, 12, 13, and 14. These scales are of Celluloid or any other flexible transparent material, preferably one that is substantially colorless. These scales, of which there are four in number in the present device, each consist of an endless band of material and extend around the light reflecting chamber 15, said bands being guided at either end of the container by the curved plates 16, 17, 18, and 19 which extend transversely from one side wall 3 to the other, and may be held in place by soldering or any other suitable means. Attached to the band 14 is a threaded stud 21 formed of suitable material and attached to a plate 22 which is soldered or attached to a very thin metal strip 23 of shim metal or the like, which is then bent back upon itself to clamp the transparent band

14 which may be glued thereto, if desired, as a further securing means. Each transparent band is provided with a similar stud and associated parts. Slots 24, 25, 26, and 27 are provided to receive the plates 22 of each band, and it will be noted from Figs. 3 and 4 that the width of each band and the location of the scales thereon (to position the latter) are dependent on the location of the respective slots. In other words the bands 13 and 14 will extend laterally beyond the opening 5 to the respective slots on one side thereof, and the bands 11 and 12 to their respective slots on the opposite side of the opening 5. The slots in the cover member 2 are of a size to receive the plate 22. Reinforcing the cover member adjacent the slots are the plates 28 and 29 provided with the slots 31, 32, 33, and 34, respectively, of a size to receive the stud 21, the portion 35 of the stud 21 engaging the respective slots to provide a guide for the bands. The plates 28 and 29 are provided with indents 36 adapted to receive the members 37 which are carried by the stud 21. To maintain the members 37 in engagement with the indents 36, the spring 38 and cap 29 are provided, the latter maintaining the spring under compression which will then tend to force the member 37 into the indents 36, the member 37 and cap 39 providing a convenient knob for positioning the scales. The number of indents adjacent any slot will depend on the number of graduations on the respective color scales located on the transparent bands, there being one indent for each graduation. Thus, by sliding the studs 21 along the slots, any desired portion of the various scales may be positioned in the opening 5.

In Fig. 9 is illustrated a slightly modified construction of the device employing similar bands which travel over the toothed rollers 41, 42, 43, and 44, there being two for each band located at opposite ends of the container. In this construction, the bands are perforated adjacent their edges, the perforations engaging the teeth on the particular roller. Projecting from the container, are knobs 45, 46, and 47, one for each color, the knob for roller 41 being omitted in the drawings. Thus, by turning the knobs, any portion of the bands may be displayed in the opening 5. The remainder of the device, particularly the color scales, are exactly the same in either construction.

As shown in Figs. 6, 7, and 8, each of these scales, only one of which is shown in Figs. 6 and 7 for illustrative purposes, comprise a different color, the device shown and described having color scales of black, red, blue, and yellow. Obviously, more or fewer scales may be used if desired, depending on the colors necessary. Fig. 7 illustrates the various graduations of color on any one of the scales, the scales shown being graduated in thirteen different color values ranging from zero to solid color, each graduation 48 being of a known color value. As shown in Fig. 6, these scales are provided with a column 49 indicating the values of the respective graduations of that

particular color and on the opposite side, a similar column 51 giving the black and white color values for that particular scale. Fig. 8 shows the manner in which the colors are superimposed one upon the other, 11 representing the yellow scale, 12 the red scale, 13 the blue scale, and 14 the black scale, showing the manner in which the respective columns 49 and 51 of each band are staggered so that none of them will be superimposed upon the other whereby all columns will be visible at the same time although their respective scales may be over or underlying the others as the case may be.

Referring to the scales 49 and 51, it will be noted that the scales read from zero or no color through white  $\frac{1}{2}$ —1,  $1\frac{1}{2}$ —2,  $2\frac{1}{2}$ —3,  $3\frac{1}{2}$ —4,  $4\frac{1}{2}$ , black and solid black, each of these numbers or letters representing known color values.

These various colors and shades of colors may be formed on the transparent bands by any suitable method or means; for example, printing, lithographing, the so-called colored carbon tissue printing method, or the so-called wash-off photographic process.

It will be seen from the above that any method which provides even coloring of the various graduations without blotching or spotting would be satisfactory.

In conclusion, it will be seen from the above description that I have produced a composite color scale or meter in which both the color and the black and white value of each individual shade or tint is given, and in which any combination or combinations of tints or colors may be produced, the color, as well as the black and white values making up the combination being read directly from the scale.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

In a color scale, a light chamber, one side of which is transparent, a plurality of endless bands having suitable color scales thereon encircling said light chamber and overlying the transparent side thereof, a substantially uniform source of light in said chamber and a reflector positioned therein to diffuse light rays from said source through the transparent side of the chamber and said scales, a container enclosing said scales and supporting said chamber, said container having a portion thereof, opposite the transparent side of said chamber, through which said scales are visible from the exterior thereof, and means accessible from the exterior of said container for selectively positioning said scales over the transparent side of the light chamber.