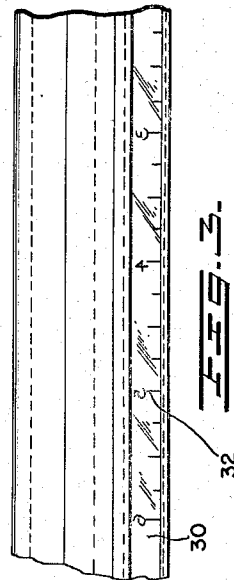
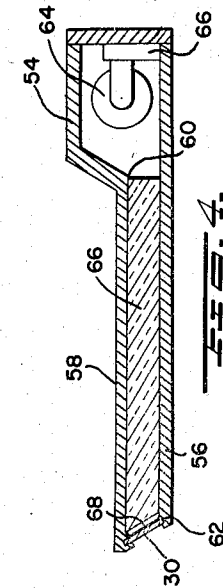
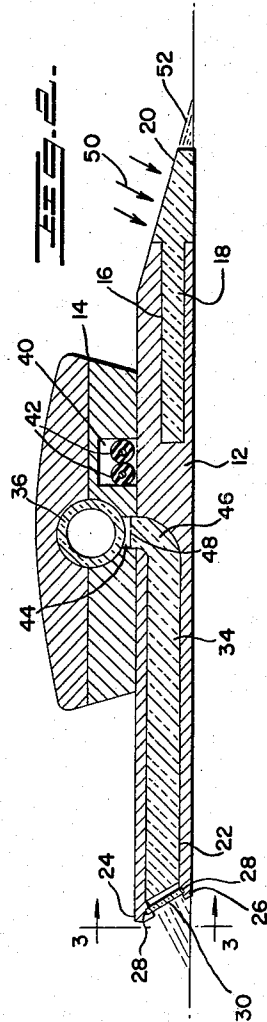
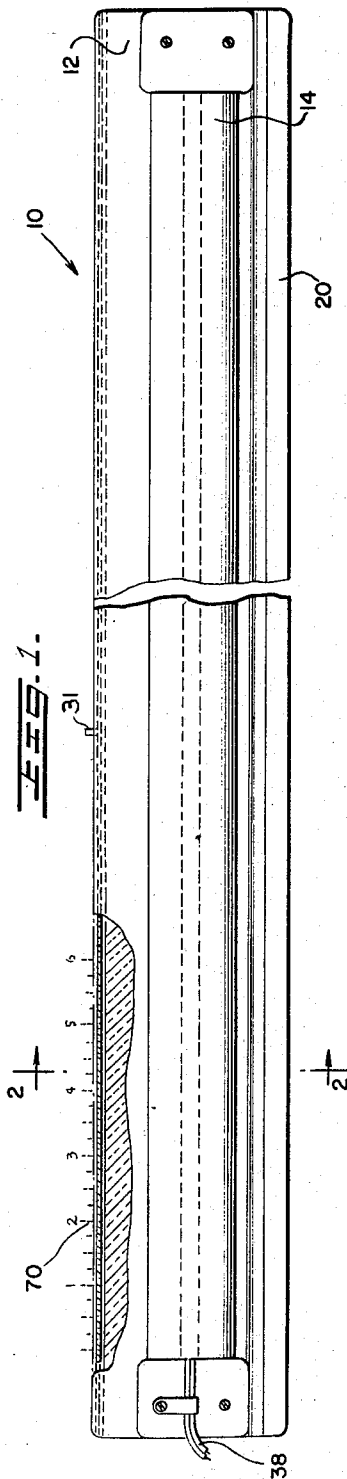


Oct. 13, 1959

J. A. BURKE, JR
DRAFTING INSTRUMENT
Filed Jan. 31, 1957

2,908,081



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2,908,081

DRAFTING INSTRUMENT

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Application January 31, 1957, Serial No. 637,466

3 Claims. (Cl. 33—107)

The present invention relates generally to the art of geometric drafting instruments and has specific reference to a scaled rule and a straight edge for guiding scribing instruments such as pens, pencils and the like.

In the use of typical ruled scales for laying out distances in drafting practices it has been necessary to mark points as they are visually projected in extension from scaled reference points on a ruler. Accurate visual projection of such reference projection points is difficult when dealing with fine tolerances, and such difficulty is increased in the typical ruler construction by the shadowing or shading by the rule body of those areas adjacent the body of the rule where the reference points are to be located.

It is therefore a general object of the present invention to provide a unique and greatly improved drafting instrument which provides useful advantages over prior structures of the same general utility.

Another object of this invention resides in the provision of a new and improved drafting instrument which takes the form of a combination ruled scale and guiding straight edge for scribing implements.

A still further object of this invention lies in the provision of a drafting instrument in the form of a scaled rule wherein the scaled division marks are light projected onto the drafting surface permitting the fast and accurate superimposed scribing of the projected marks directly on the drafting surface.

Still another object of this invention is the provision of a new and improved drafting instrument of the type hereinbefore described wherein the light projection of the scale division marks additionally serves to illuminate the normally shadowed areas on the drafting surface adjacent the body of the ruler.

A further object and advantage of this invention is the provision of a drafting instrument of the type described which is of a simple, non-complex and relatively inexpensive design and construction.

Still other objects and advantages of this invention will become more readily apparent to those skilled in the art when the following description is read in the light of the accompanying drawings.

In the accompanying drawings:

Fig. 1 is a top plan view of the preferred embodiment of the rule constituting the present invention with fragmentary portions broken away for clearer illustration.

Fig. 2 is a vertical section taken on line 2—2, Fig. 1.

Fig. 3 is a side elevational view from the vertical plane indicated by line 3—3, Fig. 2.

Fig. 4 is a sectional elevation similar to Fig. 2 of a modified embodiment of this invention.

The nature of the present invention may be described in general terms as relating to a drafting instrument including in combination a ruled scale and a straight edge which consists of an elongated flat body portion, an upstanding handgrip extending longitudinally and substantially centrally of the body portion, at least one lon-

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gitudinal edge being formed of a light transmitting material and having a central projection extending transversely of the body portion to a point adjacent the longitudinal center thereof, the opposed longitudinal edge of the body portion supporting in an upwardly and outwardly inclined position a transparent panel carrying scale indicia thereon, a sheet of light transmitting material carried centrally within the body portion throughout the length thereof and extending laterally from a point adjacent the innermost face of the transparent panel to a point adjacent the longitudinal center of the body, and a light source within the handgrip portion in light conducting communication with the innermost edges of the projection of the first named edge forming member and the light conducting sheet extending outwardly to the transparent panel.

As is best illustrated in Figs. 1 and 2 of the drawings, the drafting instrument, generally designated at 10 constituting the present invention, consists of an elongated flat rectangular body portion 12 having an upstanding handgrip member 14 extending longitudinally of the upper face thereof. One vertical longitudinal edge of the body portion or member 12 is horizontally keyed as at 16 substantially centrally of the edge throughout the length thereof and receives a complementary tongue or projection 18 therein which carries a pen or pencil guiding formation 20 thereon in substantially integral lateral projection or extension of the body portion 12.

The second longitudinal edge of the body portion 12 is undercut in a vertical plane and is keyed horizontally inwardly of the body portion throughout its length centrally of its vertical depth as at 22 providing an upper lip 24 and a lower lip 26. The upper and lower lip portions 24 and 26 are grooved as at 28 in aligned opposition to each other and said opposed grooves receive and retain in upwardly and outwardly inclined disposition a transparent panel 30. As is best seen in Fig. 3 of the drawings, the transparent panel 30 carries thereon ruled scale indicia 32 consisting of reference marks indicating linear measurement in typical ruler fashion except that the reference mark indicia appear as a mirror image of the actual scale designations when viewed in side elevation looking in the direction of the body portion of the instrument. Simplified application of such mirror image designations could be easily accomplished by applying the indicia in right reading fashion on the inner face of the transparent panel.

Associated with the horizontal key 22 is a sheet 34 of light transmitting material which completely fills the key and which terminates adjacent the longitudinal centerline of the handgrip portion 14 of the instrument. That longitudinal edge of the sheet 34 adjacent the inner face of the transparent panel 30 is undercut so as to extend in spaced parallel relationship with the inner face of the panel.

Located longitudinally within the handle portion 14 is an elongated light source 36 such as a phosphorescent tube of the like which is energized from an external source through lead in wires 38 connecting in one end of the handle member. The handle member is provided with a longitudinal passage 40 therethrough to accommodate the necessary wiring 42 for completing the circuit through the length of the bulb or light tube 36.

The handle portion 14 directly beneath the light tube 36 is provided with a vertical passage 44 throughout the length of the bulb or tube which communicates at its lower end with the innermost end of the key 22, and the sheet 34 of light transmitting plastic material is provided with an upturned innermost end 46 which places the normal longitudinal inner edge 48 of the sheet horizontally within the passage 44 directly beneath the light tube or bulb 36.

In construction of the drafting instrument above described it is contemplated that the light transmitting members 18 and 34 would be formed from any suitable transparent or translucent light-bending plastics such as the polystyrenes and the polyacrylic and polymethacrylic esters for example, "Lucite" brand acrylics.

In the illustrative embodiment of the present invention shown in Figs. 1 and 2 of the drawings the projection or tongue piece 18 of the straight edge guide member 20 terminates short of the light tube 36 and has no light conducting communication therewith. Accordingly, in this embodiment light (daylight or artificial) will be absorbed by the longitudinal, flat upper surface of the guide piece 20, as shown by arrows 50, to be emitted along the guiding edge, as at 52, to illuminate the adjacent drafting surface.

However, it is fully contemplated, as evidenced by the hereinbefore general statement and certain of the herein-after appended claims, that the tongue or projection piece 18 may be formed integrally with the sheet member 34 in normal projection thereof laterally of the body portion of the instrument to provide for the application of light from the light source 36 to the inner end of the tongue or projection piece 18 which will conduct or transmit the light therethrough to be emitted as at 52 in a manner typical to the characteristics of the light conducting material utilized.

It is additionally pointed out that the panel member 30 forming the ruled scale longitudinally of one edge of the body portion may be of a transparent characteristic, as described, having opaque indicia thereon for the purpose of light projecting the indicia onto the adjacent drafting surface in a manner to be hereinafter described. However, it is additionally contemplated that the scale panel 30 may be opaque having transparent ruled scale indicia thereon to permit the light projection of the indicia onto the adjacent drafting surface.

Of the two above possible embodiments of the ruled scale structure, the first described transparent panel is preferred over the opaque panel since the indicia would be projected in negative onto the adjacent drafting surface making it more distinct and legible and at the same time permitting a greater emission of light from the conducting sheet 34 through the panel for illumination of the adjacent drafting surface to eliminate shadows and shading caused by the body portion of the drafting instrument.

In Fig. 4 of the drawings there is illustrated a modified embodiment in which the instrument consists solely of a light projected ruled scale without provision of a straight edge construction. In this modified embodiment an elongated rectangular housing 54 is provided along the length of one side with two horizontal, vertically spaced, co-extensive flanges 56 and 58 which define an opening 60 longitudinally of that side wall of the housing. In this construction the lower flange 56 terminates inwardly of the housing at a spaced distance from the outer extremity of the upper flange 58 and the extreme ends of the flanges are provided in direct opposition with grooves 62 for supporting an angularly inclined position the hereinbefore described transparent (or opaque) panel 30 on which the scaled indicia are carried.

Within the housing 54 an elongated light tube 64 is supported longitudinally and is provided with a battery source 66 operably connected thereto for energizing the light. A flat sheet of transparent or translucent light transmitting material 66 is positioned between the spaced flanges 56 and 58 to extend from the opening 60 in the housing wall outwardly to terminate in an angular edge 68 in closely spaced parallel adjacency to the inner face of the scale carrying panel 30.

It is fully contemplated that the battery source of electrical energy in the embodiment disclosed in Fig. 4 may be modified to provide for external connection to a wall outlet or the like as in the manner disclosed in the embodiment illustrated in Figs. 1 and 2 of the drawings just

as the earlier described embodiment could be modified for the inclusion of a battery source of electrical energy.

In the operation of the several illustrative embodiments of the present invention hereinbefore described light applied from the internal light source 36 (and 64) to the light transmitting or conducting member 34 (and 66) respectively will be conducted through these members in a manner common to the characteristics of the material to be emitted from the outermost edges of the material directly adjacent the inner faces of the panel members 30. Light emitted from these members will be projected through the panel members illuminating, in the case of a transparent panel, the normally shaded areas on the drafting surface adjacent the body portion of the instrument and serving to project the ruled indicia on the panel onto the drafting surface as shown at 70 in Fig. 1 of the drawings. By applying the ruled indicia to the inner face of the panel, or as mirror images to the outer face of the panel, the projected indicia would appear in right reading character on the drafting surface facilitating the quick and accurate laying out of reference points directly on the drafting surface in superimposed manner upon the projected indicia.

From the foregoing description and disclosures it is evident that a new and unique drafting instrument has been provided which functions to obtain greatly improved results over typical instruments heretofore used for the same general purposes. It is also apparent that various modifications may be made in the form of the invention without departing from the scope of the invention. For example, the scale panel 30 may be considerably shorter than the groove 28 so that the panel 30 and its indicia 32 may be slid longitudinally within the groove whereby zero on the scale may be placed at various positions on the drawing area. To facilitate movement of the scale panel 30 within the groove 28a a thumbpiece may be provided on the panel as shown at 31 in Fig. 1 of the drawing. It is also evident that a new and improved structure has been provided which attains and satisfies all of those objects and advantages heretofore set forth.

I claim:

1. A drafting instrument including an elongated body portion having a base adapted to lie on a drafting surface and at least one longitudinal edge, an indicia-carrying member along said one longitudinal edge of the drafting instrument, a source of light, means for applying light from the source of light to the indicia-carrying member from the body portion side thereof to project an image of the indicia carried by the indicia-carrying member adjacent said one edge of the body portion onto a drafting surface upon which the base of the instrument lies, said means for applying light from said source comprising a light-transmitting plastic material positioned between said indicia-carrying member and the source of light.

2. A drafting instrument including a body portion having a base adapted to lie on a drafting surface and at least one longitudinal edge, an indicia-carrying member along said one longitudinal edge, said indicia-carrying member being inclined upwardly and outwardly of the base portion of the body of the drafting instrument, a source of light, means for applying light from said source to the indicia-carrying member from the body portion side thereof to project an image of the indicia on the indicia-carrying member onto a drafting surface positioned adjacent said one longitudinal edge of the body portion, said means for applying light from said source comprising a light-transmitting plastic material positioned between said indicia-carrying member and said source of light.

3. A drafting instrument including an elongated body portion having a light transparent ruled scale along one edge thereof, opaque ruled indicia on said transparent scale, said scale being inclined upwardly and outwardly of the body portion, said scale indicia being applied to the transparent scale to read as mirror images from external-

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ly of said body portion, and means for applying light to the scale from the body portion side thereof whereby the mirror image indicia on the scale will be projected onto an adjacent surface in right reading form.

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