Oct. 22, 1957 R. C. SHERRY 2,810,197

DRAFTING INSTRUMENTS

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Fig. 1

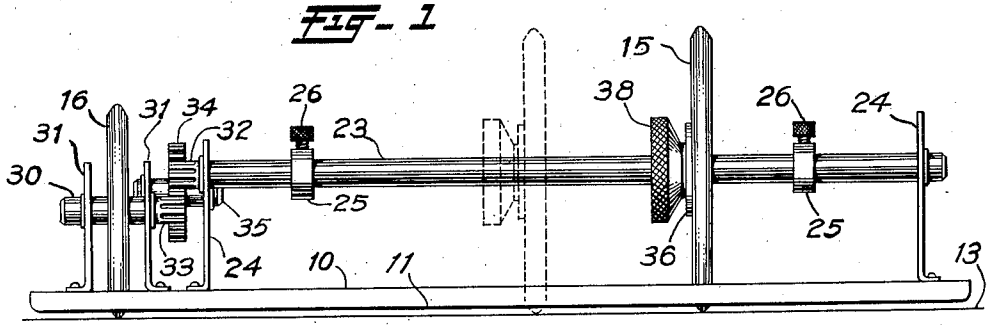


Fig. 2

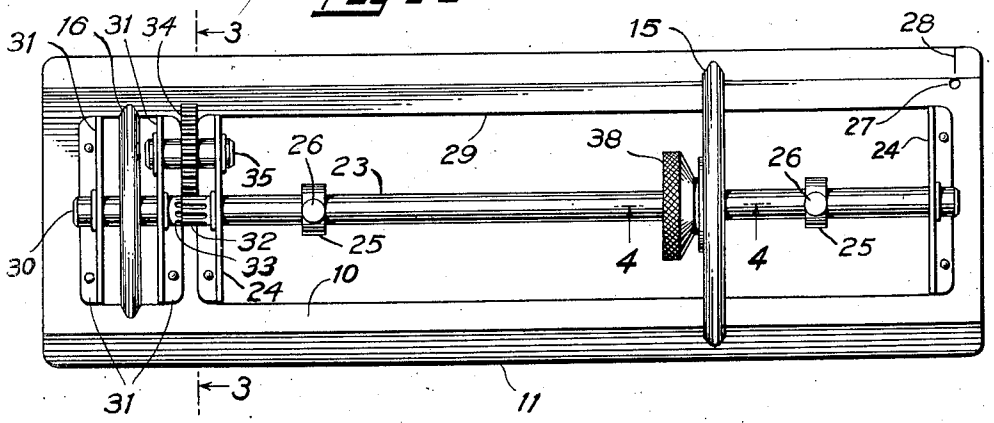


Fig. 3

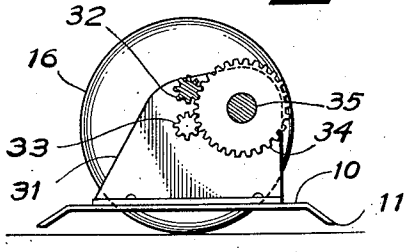
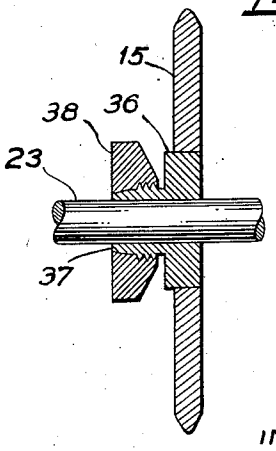


Fig. 4



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FIG. 5.

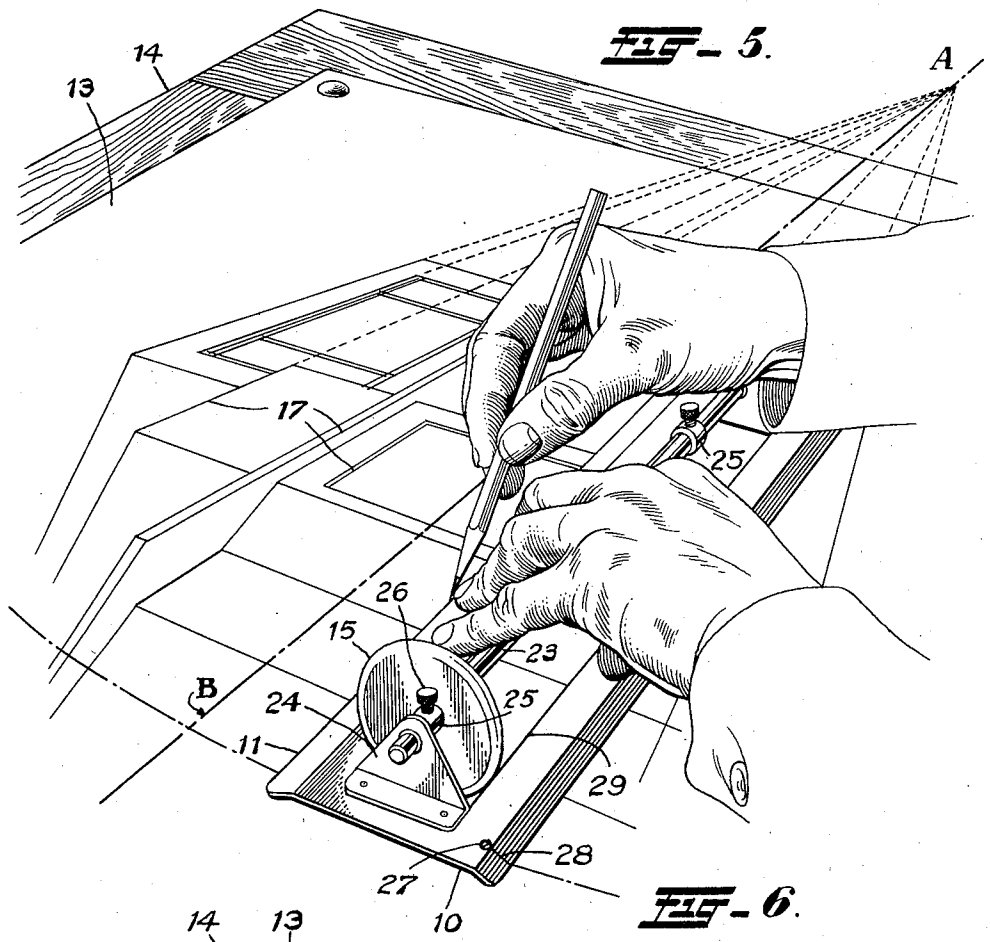
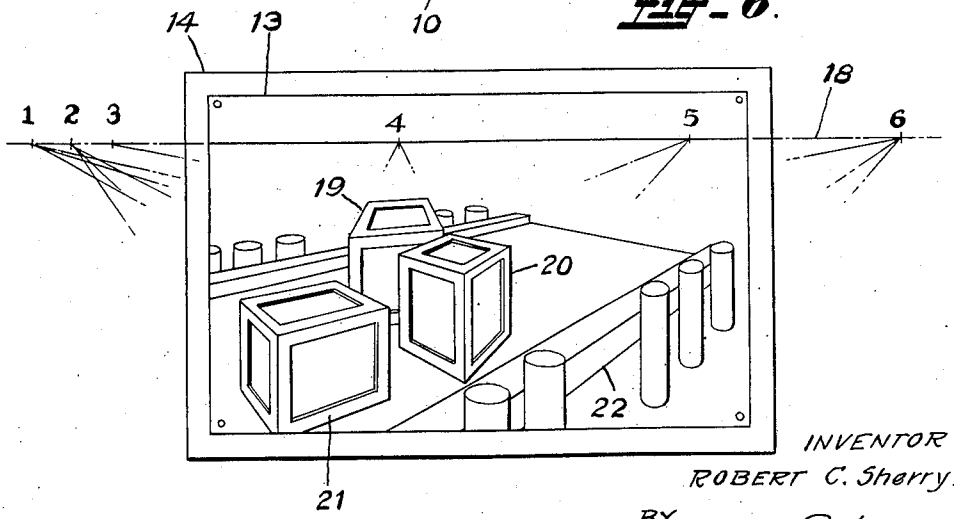


FIG. 6.



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DRAFTING INSTRUMENTS

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Application July 1, 1954, Serial No. 440,597

3 Claims. (Cl. 33—77)

This invention relates to drafting instruments and more particularly to a tool, with straight-edge, for use in properly causing lines in perspective views to converge at a vanishing point whether that point be on or off of the drafting board.

Broadly considered, the invention proposes an instrument of the type indicated, of universal character enabling a choice of vanishing point to be selected at any desired distance from the view.

Likewise, in its broad aspect, the invention contemplates use of the same instrument interchangeably for drawing lines to different vanishing points at desired different distances from the drawing.

More specifically the invention provides means for establishing a reference arc for replacing the instrument on a drawing in proper position for making additional lines to converge at the same vanishing point as before.

In detail, the invention provides for selective setting of one of the tractors in its spacing from another.

A further feature is to provide for a plurality of adjusted settings and to make the settings conveniently repetitive so the instrument may be used to draw lines in any desired order to different vanishing points.

Other objects, advantages and improved constructions will become apparent to persons skilled in the art to which the invention appertains as the description proceeds, both by direct reference thereto and by inference from the context.

Referring to the accompanying drawings, in which like numerals of reference indicate similar parts throughout the several views;

Fig. 1 is a front elevation of an instrument in accordance with my invention;

Fig. 2 is a plan of the same;

Figs. 3 and 4 are sectional views on lines 3—3 and 4—4 respectively of Fig. 2;

Fig. 5 is a perspective view of the instrument in use; and

Fig. 6 is a plan of a drawing made by use of the instrument and showing the theoretical vanishing points for various parts depicted in that drawing.

In the specific embodiment of the invention shown in the accompanying illustrations, the instrument comprises a basal plate **10** having parallel front and back straight-edges **11** against which a pen or pencil may be guided for drawing lines. Marginally of the base next to said straight edges, the metal or other material of which the same is fabricated, tapers downward to have appropriate proximity to the supporting surface which normally is a sheet of paper or the like **13** mounted on a board or table **14**.

Axially parallel to said straight-edges are two tractors **15, 16**, shown as wheels of different sizes the bottom sector of each of which protrudes slightly below the bottom of plate **10** so that the instrument can be rolled thereby on the supporting surface. Said tractors are parallel to each other, and being of different sizes, the edge **11** is

displaced to non-parallel positions as the device is rolled on paper **13** due to the differential linear displacement of the peripheries of said tractors. It will be found that as shown in Fig. 5, lines **17** drawn on the paper along the edge **11** in various positions to which the device is rolled will all converge or intersect, if extended, at a common point A, which, for perspective drawings, constitutes the vanishing point. The perspective angle or vanishing point may be changed by locating said wheels closer together or further apart. Thus, if desired, a plurality of vanishing points shown at **1** to **6** in Fig. 5 on a common horizon **18** may be selected for convergence of lines of perspective drawings of various articles, such as crates **19, 20**, and **21** on a dock **22**.

In order to shift from one angularity to another, one wheel, **15**, is movable to desired location on a shaft **23** carried in upwardly projecting supports **24** near opposite ends of the basal plate **10**. Adjustable stops **25** are held, as by set screws **26**, at the selected positions on the shaft for enabling the wheel to be re-located at will, at those selected positions. Consequently some lines may be drawn to aline to one vanishing point and some to another, and thereafter other lines may be drawn to one or another of the same vanishing points by returning the wheel to the location on the shaft where located when the original lines to that vanishing point were drawn. Proper return of the instrument is aided by providing a pencil-receiving hole **27** next to one edge **11** and a mark **28** from the hole to the edge. By inserting a pencil in the hole and describing an arc on the paper by wheeling the device back and forth will enable the device to be placed on any one of the converging lines drawn from time to time with the mark **28** registering with the arc where it crosses such line. After adjusting the wheel to proper position, the edge **11** of the plate **10** is juxtaposed upon a basal line or upon a line already drawn toward the desired vanishing point, and at the same time registering the mark **28** with the arc crossing that line, and then by rolling the instrument to another position another line toward the same vanishing point may be drawn, and so on until the drawing is completed. The central part of basal plate **10** is cut away with an oblong opening **29** to accommodate the projection of the wheel **15** therethrough at any adjusted position.

Inasmuch as the one wheel is adjustable along the shaft, it is important that the shaft shall be parallel to the basal plate so the spacing of the plate from the paper will always be the same no matter where the wheel may be adjusted on the shaft. It is also necessary that both wheels shall rotate when either one rotates, and to obtain both of these results, the wheels are mounted on different shafts and a driving connection couples the shafts together. The construction involved to accomplish the desired result is a feature of the invention.

Describing said feature more in detail, it may first be stated that wheel **15** on shaft **23** is shown as the one of larger diameter. The wheel **16** of smaller diameter is mounted on a stub shaft **30** trunnioned in supports **31** projecting upwardly from the basal plate **10** at opposite sides of said smaller wheel. Since the shafts **23** and **30** support wheels of different diameters and the bottoms of both wheels project equal distances below the basal plate, the shafts are not alined with each other, but overlap with the shaft **23** above stub shaft **30** at ends thereof where projecting through their respective supports. As an economical and convenient mode of construction, said shafts may be of like diameter and may have teeth **32, 33** cut directly therein thereby providing pinion ends to said shafts. Said pinion ends mesh with an idler gear **34** on an axle **35** in turn mounted in adjacent supports **24** and **31**. This idler gear not only obtains rotation of equal

amount for the two shafts but requires the rotation of both to be in a common direction.

From the foregoing, it will be clear that, irrespective of the location of the laterally movable wheel, the basal plate will always have the same spacing from the paper, and yet said wheel may be adjusted to obtain the desired angularity of lines to a vanishing point. While it is within the scope of the invention to position the laterally movable wheel anywhere along its shaft desired and to rely upon frictional mounting to keep it at the location to which it is adjusted, it is preferable to provide for holding it with certainty at its adjusted position. As one example of means to accomplish this purpose, said wheel may be fixed on a hub **36** from which a threaded split collet **37** projects at one side and around the shaft. A nut **38** locks the collet **37** in tight engagement with the shaft, the collet being loosened by unscrewing the nut and adapted to be gripped by tightening the nut.

What is claimed is:

1. An instrument of the character described, comprising a basal plate providing a straight edge for drawing lines by contact of a scribing tool therewith, a pair of wheels constantly projecting equally through and carried by said plate, one of said wheels being of larger diameter than the other, a main shaft constantly parallel to said straight edge, means for adjustably holding one of said wheels at an adjusted location on said main shaft, a stub shaft rotatably mounting the other wheel thereon axially offset from said main shaft, and means interconnecting said shafts to rotate one from the other with equal angular displacement of both shafts and differential linear displacement of the peripheries of said wheels.

2. An instrument of the character described, comprising a basal plate providing a straight edge for drawing lines by contact of a scribing tool therewith, a pair of wheels constantly projecting equally through and carried by said plate, one of said wheels being of larger diameter than the other, a main shaft constantly parallel to said straight edge, means for adjustably holding one of

said wheels at an adjusted location on said main shaft, a stub shaft rotatably mounting the other wheel thereon axially offset from said main shaft, said shafts overlapping at proximate ends thereof and provided with pinions thereat of equal pitch diameter one to the other, and an idler in mesh with both of said pinions driving one shaft from the other with equal angular displacement of both shafts and differential linear displacement of the peripheries of said wheels.

3. An instrument of the character described, comprising a basal plate having a rectangular opening, a shaft constantly parallel to said opening and plate, a wheel adjustably mounted on said shaft and having a segment of its periphery projecting a fixed radial distance through said opening, a second shaft constantly parallel to and offset axially from the first said shaft, said shafts overlapping at proximate ends thereof, a gear drive connecting said overlapping ends of said shafts and rotating one from the other with equal angular displacement and both in the same direction, and a second wheel of different diameter than the aforesaid wheel and projecting a like radial distance through said basal plate as the first said wheel, said second wheel being fixed on said second shaft, and said wheels thereby being driven in unison with equal angular displacement and proportionately different peripheral displacement where projecting through said opening of the basal plate, whereby lines drawn at different positions to which the instrument is rolled will converge to a common vanishing point.

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