May 15, 1951 F. E. REBITZER 2,552,868

PIVOTED COMPASS OR DIVIDER

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Fig. I

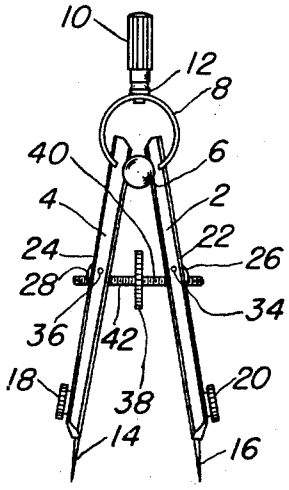


Fig. II

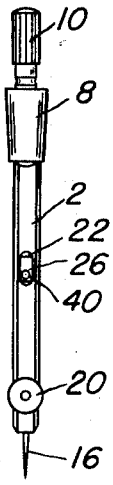
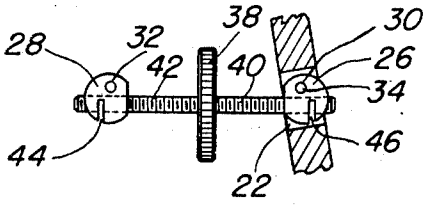


Fig. III



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PIVOTED COMPASS OR DIVIDERS

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4 Claims. (Cl. 33—154)

1

This invention relates to a type of drawing instrument such as a compass or dividers widely used in drafting and designing work of all kinds. In particular it relates to such an instrument of the "bow" type, although it may also be useful in other types. By an instrument of the center "bow" type is meant one in which the radius or spacing is adjusted by a knurled wheel situated between the legs. The knurled wheel is provided with both a left hand and right hand threaded screw on opposite sides. These screws act in nuts secured to each of the legs. It is necessary that these nuts pivot with respect to the legs. In the instruments of this type known in the art, the means used to pivot the left and right hand threaded nuts, has been more complicated than necessary and expensive and either the action of the screws in adjusting the spacing of the legs has been very stiff or there has been "play" between the legs and the screws which was apparent on pushing the legs together at their ends.

An object of this invention is to provide an improved means of pivoting the left and right hand threaded nuts with respect to the legs of a bow compass or dividers, which is simple, precise and may be produced in large quantities at relatively low cost.

Another object of the invention is to provide an instrument capable of smooth adjustment without "play."

The method of obtaining these and other objects of the invention will become more apparent from the following description taken in connection with the accompanying drawing in which:

Fig. I is a view in front elevation showing the improved instrument.

Fig. II is a view in side elevation showing the improved instrument.

Fig. III is a view in enlarged front elevation showing only the knurled wheel with attached left and right hand screws and nuts, and part of one leg member in section.

Referring to Fig. I, the legs 2 and 4 are held against the pivot pin 6 by the spring 8. The pivot pin 6 may take a form which is generally cylindrical; for example, it may be a cylinder having its outer surface annularly indented to receive the legs 2 and 4. A fingerpiece 10 is secured to the spring 8 as for example by a threaded tip 12 engaging a threaded hole in the spring 8.

If the instrument is to be used as a pair of dividers the lower extremity of each leg may be provided with a steel point 14 and 16 as shown. These points may fit removably into holes in

2

each of the legs 2 and 4 and be held therein by the set screws 18 and 20 or by any other convenient means known in the art. For example, the members 18 and 20 may be threaded as nuts and the steel points 14 and 16 fit into holes perpendicular to the axes of threaded pins not shown. These threaded pins engage the internal threads in members 18 and 20. Tightening the members 18 and 20 pulls the steel points 14 and 16 into slots on the inside of the legs 2 and 4 and secures them to the legs.

Slots 22 and 24 are provided in each of the legs 2 and 4. The nuts 26 and 28 fit in these slots 22 and 24. The nuts 26 and 28 are in the form of flat discs with substantially plano parallel surfaces of such thickness as to fit closely in and engage the walls of the slots 22 and 24. The threaded holes run through the nuts 26 and 28 parallel to the plano parallel surfaces of the nuts. The nuts 26 and 28 are also provided with holes 30 and 32 perpendicular to the plano parallel surfaces, but not intersecting the threaded holes. Pins 34 and 36 pass through holes 30 and 32 as well as through legs 2 and 4 and form axles about which the nuts 26 and 28 may pivot.

The knurled wheel 38 is provided with left and right hand threaded screws 40 and 42 which engage the left and right hand threaded nuts 26 and 28. The knurled wheel 38 and the left and right hand threaded screws may be one integral member as shown.

The nuts 26 and 28 are provided with slots 44 and 46. The function of the slots 44 and 46 is to divide the thread of nuts 26 and 28 into two parts which engage the screws 40 and 42 more or less independently. Since it is impossible for the engagement to be exactly the same in the two independent parts, the slots will effectively take up any "play" between the threads of the nuts 26 and 28 and the screws 40 and 42. If some play is still present between these coacting threads, the nuts 26 and 28 may be either compressed or stretched in the direction parallel to the axis of the thread to take up the play. This will result in some bending of the nuts at the planes of the slots 44 and 46.

By turning the knurled wheel 38, the spacing between the points 14 and 16 may be extended or reduced as desired and the nuts of 26 and 28 will pivot about the pins 34 and 36 to retain a proper alignment without producing any strain in the instrument.

Having thus described the invention, what is claimed is:

1. A drafting instrument of the bow type com-

prising two legs pivotally attached at one end, both of said legs being provided with slots, nut members in both of the slots, said nut members having surfaces engaging the walls of the slots in said legs, each of said nut members having a threaded hole, each of said nut members having a hole perpendicular to the longitudinal axis of the threaded hole at a point spaced laterally from that axis and the walls of the threaded hole, each of said nut members having a slot perpendicular to the longitudinal axis of the threaded hole and intersecting the threaded hole dividing said nut member into two threaded parts, pins passing through both of said legs and through the perpendicular holes in both of said nut members, said pins forming axles about which said nut members may pivot, a wheel for adjusting said legs, oppositely threaded screws carried on each side of said wheel coaxial therewith, said screws engaging the threaded holes in said nut members so that the two threaded parts of each of said nut members engage said screws independently.

2. A drafting instrument of the bow type comprising two legs pivotally attached at one end, both of said legs being provided with slots, nut members in both of the slots, each of said nut members having substantially plano-parallel surfaces engaging the walls of the slots in said legs, each of said nut members having a threaded hole having its longitudinal axis extending substantially parallel to said plano-parallel surfaces of said nut members, each of said nut members having a hole perpendicular to the longitudinal axis of the threaded hole at a point spaced laterally from that axis and the walls of the threaded hole, each of said nut members having a slot perpendicular to the longitudinal axis of the threaded hole and intersecting the threaded hole dividing said nut member into two threaded parts, pins passing through both of said legs and through the perpendicular holes in both of said nut members, said pins forming axles about which said nut members may pivot, a wheel for adjusting said legs, oppositely threaded screws carried on each side of said wheel coaxial therewith, said screws engaging the threaded holes in said nut members so that the two threaded parts of each of said nut members engage said screws independently.

3. A drafting instrument comprising two legs pivotally attached at one end, at least one of said legs being provided with a slot of substantially uniform cross section passing completely through said leg in a direction parallel to the direction in which said legs pivot, and having substantially plano-parallel inner walls, a nut member with substantially plano-parallel surfaces in the slot, said plano-parallel surfaces engaging said substantially plano-parallel walls of the slot in said leg, said nut member having a threaded hole having its longitudinal axis extending substantially parallel to said plano-parallel surfaces of said nut member, mounting means on said one of said legs providing an axis for said nut member perpendicular to the longitudinal axis of said threaded hole at a point spaced laterally from that axis and the walls of the threaded hole and forming an axle about which said nut member may pivot and a threaded screw engaging said threaded hole for adjusting the legs.

4. A drafting instrument comprising two legs pivotally attached at one end, at least one of said legs being provided with a slot, a nut member in the slot, said nut member having a threaded hole and a slot perpendicular to the longitudinal axis of the threaded hole and intersecting the threaded hole dividing said nut member into two threaded parts, mounting means on said one of said legs providing an axis for said nut member perpendicular to the longitudinal axis of said threaded hole and forming an axle about which said nut member may pivot and a threaded screw engaging said threaded hole for adjusting the legs so that the two threaded parts of said nut member engage said screw independently.

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