United States Patent [19]

Gentils

[11] **3,745,662**

[45] **July 17, 1973**

[54] **BOW COMPASSES**

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[22] Filed: **Nov. 16, 1972**

[21] Appl. No.: **307,295**

[30] **Foreign Application Priority Data**

Nov. 16, 1971 France 7140919

[52] **U.S. Cl.** ..... **33/154 F,** 33/27 B, 33/153 F

[51] **Int. Cl.** **B43l 9/00**

[58] **Field of Search** ..... 33/27 B, 148 E, 148 F, 33/148 G, 148 R, 149, 152, 153, 154, 156, 157, 155, 150, 151

[56] **References Cited**

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Primary Examiner—Harry N. Haroian

Attorney—Robert E. Burns et al.

[57] **ABSTRACT**

A pair of bow-compasses having the upper ends of its legs assembled by a bow-shaped spring engaging notches formed externally of said ends, the inner faces of said legs comprising each a disk-shaped projection of semi-circular configuration and an adjacent slot of same radius and substantially same width as the disk for receiving the disk of the other leg; a screw-rod with a central control knob has its screw-threaded ends of opposite pitch engaged in nuts, each nut being pivotally mounted on a pin of elongated cross-section and formed with a radial slot of a width slightly greater than the minor dimension of said cross-section, and smaller than the major dimension of said cross-section.

2 Claims, 9 Drawing Figures

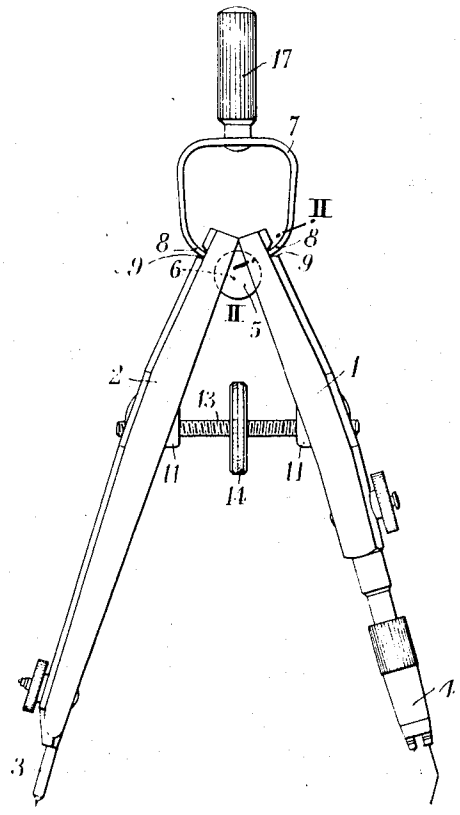


Fig. 1

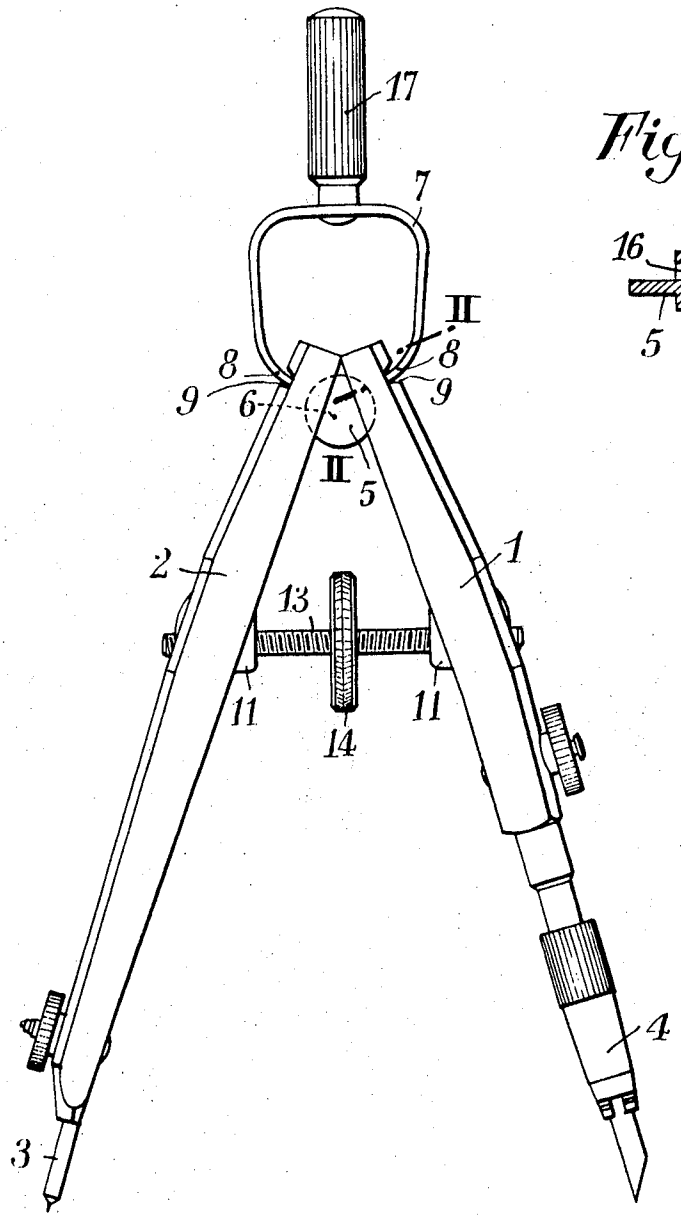


Fig. 2

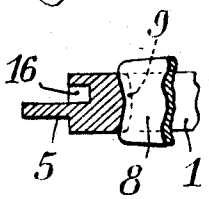


Fig. 3

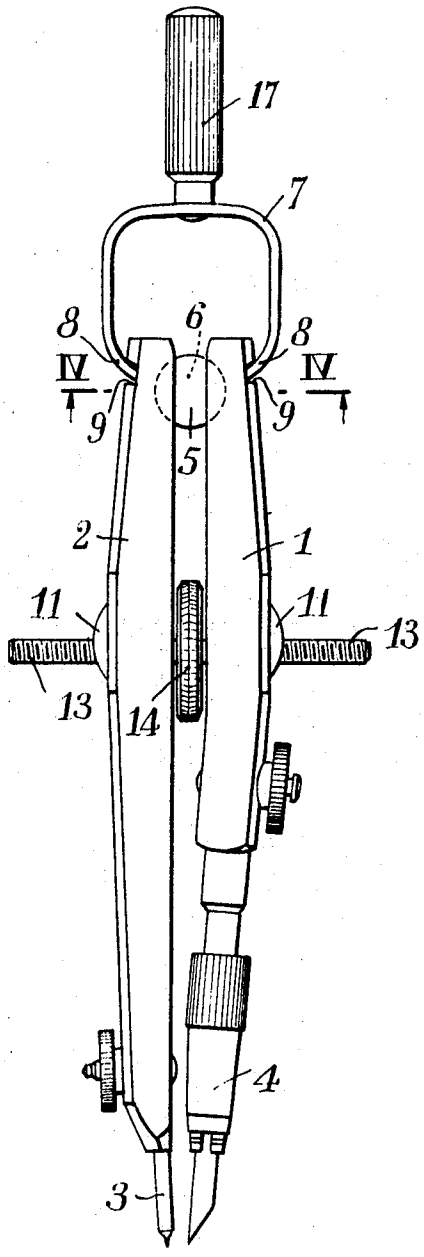


Fig. 4

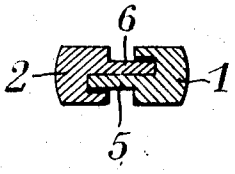


Fig. 5

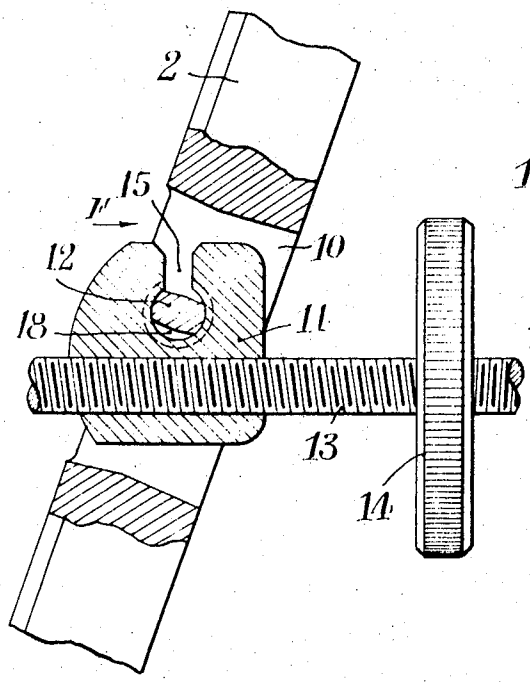


Fig. 6

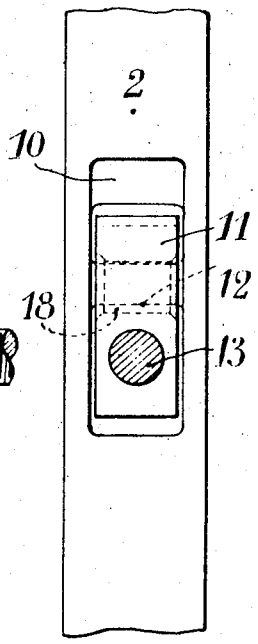


Fig. 7

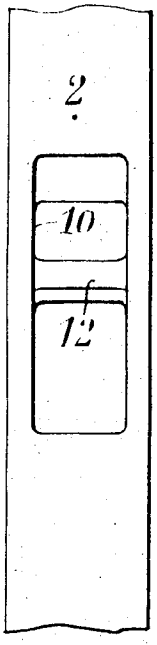


Fig. 8

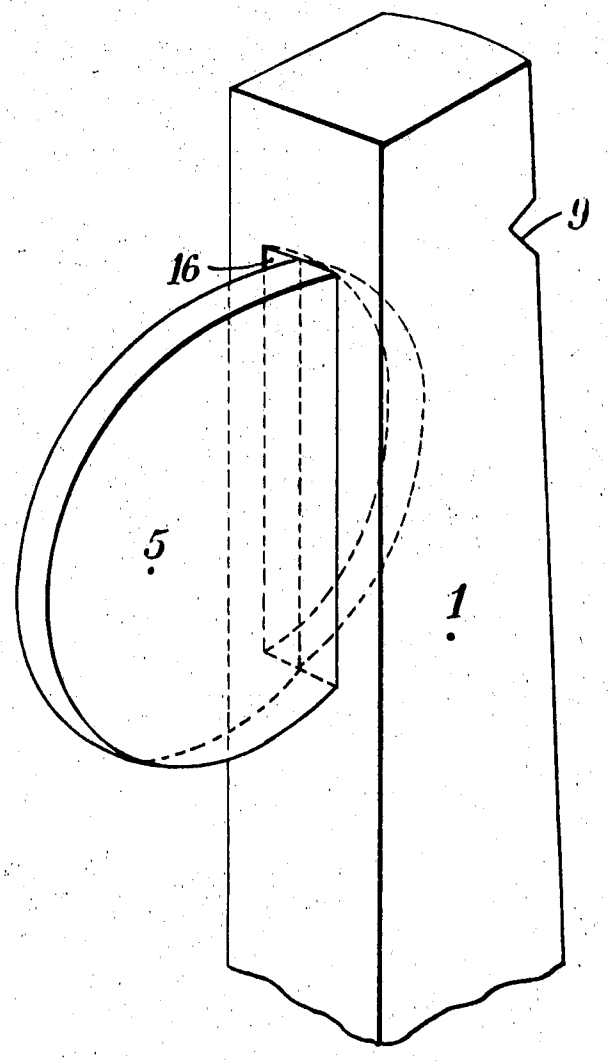
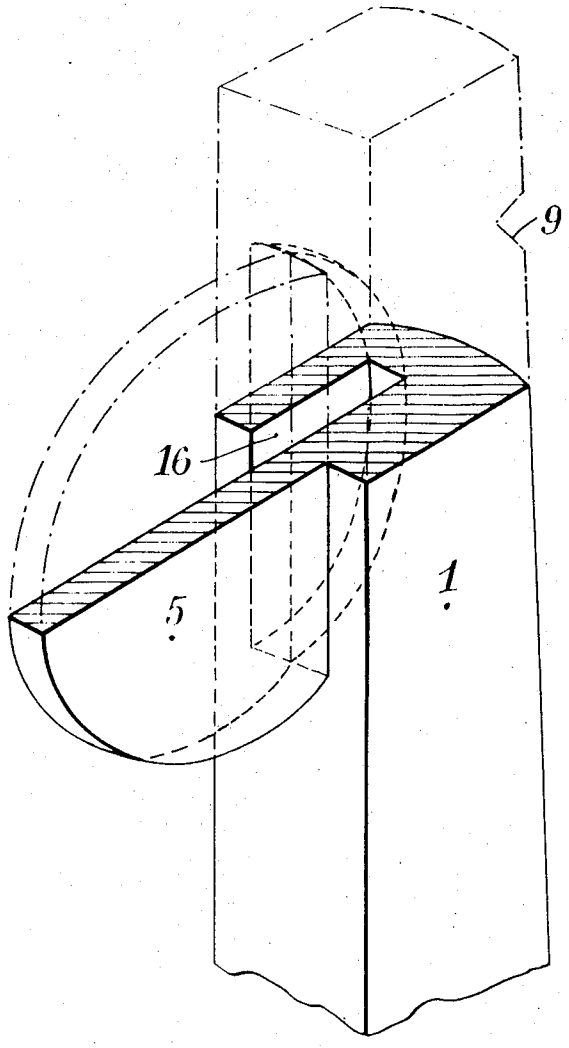


Fig. 9



BOW COMPASSES

BACKGROUND OF THE INVENTION

The present invention relates in general to compasses and has specific reference to a pair of bow-compasses.

Known bow-compasses usually comprise two legs pivotally assembled at one end thereof, a bow-shaped clamping spring constantly holding said legs in their assembled condition, the spring ends engaging suitable notches formed in the outer faces of said legs, and a knurled control knob rigid with a central portion of a screw-rod formed with opposite screw pitches on either side of said knob and adapted to engage corresponding nuts pivotally mounted in opposite cavities formed in the relevant legs.

However, in such known bow-compasses, the pivotal connection of the legs presents sometimes a lateral play, that is, it is somewhat loose in the axial direction of the pivotal connection.

Accordingly, it is one object of the present invention to provide an improved bow-compass with legs which are pivotally assembled without any lateral play.

SUMMARY OF THE INVENTION

Bow-compasses according to the present invention are characterized in that each compass leg comprises at one end a projection having substantially the shape of a semi-circular disk projecting from the inner face of said leg, and a corresponding semi-circular slot adjacent to, and of same radius as, said semi-circular disk, and adapted to snugly receive the semi-circular disk of the other leg, the disk of each leg being constantly urged for engagement in the semi-circular slot of the other leg by the bow-shaped spring.

Other objects, features and advantages of this invention will appear as the following description proceeds with reference to the attached drawings illustrating diagrammatically, by way of example, a typical embodiment of the present invention. In the drawings:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view of the bow-compasses with their legs in their open condition;

FIG. 2 is a section taken along the line II—II of FIG. 1;

FIG. 3 is an elevational view of the bow-compasses in their closed condition;

FIG. 4 is a section taken along the line IV—IV of FIG. 3;

FIG. 5 is a section showing on a larger scale the nut for the adjustment screw rod;

FIG. 6 is a side elevational view, taken in the direction of the arrow F of FIG. 5;

FIG. 7 is a view similar to FIG. 6 but without the nut;

FIG. 8 is a perspective view showing the pivoted end of a compass leg; and

FIG. 9 is a similar view, with parts shown in section, in order better to illustrate the interfitting parts.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The pair of bow-compasses according to this invention comprise essentially a pair of legs **1,2** carrying the one the "dry" point **3** and the other the pencil point **4** or the pen; these legs are hingedly or pivotally interconnected at one end by means of a pair of semi-circular disk-shaped projections **5, 6** cast directly with the legs

respectively, and each adapted to snugly engage a corresponding semi-circular slot **16**, of same radius and substantially same width as the semi-circular disk, and formed in each leg adjacent said semi-circular disk **5** or **6**, to permit the mutual engagement or interfitting of said semi-circular disks **5, 6** without any lateral play. The compass legs are kept in this mutual engagement by a bow-shaped spring **7** carrying externally of its top surface a knurled gripping knob **17**, the spring ends **8** engaging respective notches **9** in the outer faces of the legs **1** and **2** (see FIGS. **2, 8** and **9**).

On the other hand, each leg **1, 2** has formed intermediate its ends an aperture **10** of rectangular cross-section adapted to receive a nut **11** of plastic material such as Nylon or "Delrin", pivotally mounted to a transverse pivot pin **12** of elongated cross-section. Each nut which may be, as shown, integral with the associated leg, is engaged by the corresponding end of a screw-rod **13** carrying a central knurled control knob **14** rigid therewith, the screw-threaded portions of this screw-rod which extend on either side of said knob **14** having opposite pitches, as customary in the art.

Each nut **11** has formed therein a radial slot **15** of a width equal to, or slightly greater than, the minor dimension of the elongated cross-section of said pivot pins **12**, the major dimension of this cross-section being definitely greater than the width of said slot **15**. Thus, by properly positioning the parts it is possible to insert each nut **11** over the corresponding pivot **12**. After engaging the screw rod **13**, due to the relative angular positions assumed by the pins **12** and slots **15**, the nuts **11** are locked in position thereon, irrespective of the relative position of the compass legs **1, 2.**

This above-described arrangement is advantageous in that it improves considerably the rigidity of the bow-compass by constantly maintaining the two legs in a common plane irrespective of their angle of divergence. Moreover, the use of plastic nuts carried by the legs for engagement by said adjustment screw-rod permits of reducing the machining operation for the tapped holes, taking up any play by taking advantage of the elasticity of the nut material, improving the resistance to wear and tear of the device as well as the smoothness of the adjustment movements.

Of course, the configuration of these legs and also of the members secured thereto, as well as the configuration of the bow-shaped spring **7**, could be modified without departing from the basic principle of the invention.

What I claim is:

1. Bow-compasses, comprising a pair of legs pivotally assembled at one end thereof, each leg comprising at one end thereof a notch formed in its outer face and a disk portion of semi-circular configuration projecting from its inner face, and adjacent to said disk a semi-circular slot of same radius and substantially the same width as said disk for receiving the semi-circular disk of the other leg, a bow-shaped spring for constantly holding said legs in their assembled condition with their semi-circular disks fitted into the relevant semi-circular slots, the spring ends engaging the notches formed on the outer faces of said legs, respectively, and a knurled control knob rigid with a central portion of a screw-rod having screw-threaded portions of opposite pitches disposed on either side of said knob, and nuts receiving the threaded ends of said screw-rod and pivotally

mounted in opposite cavities formed in the legs, respectively, intermediate the ends of said legs.

2. Bow-compasses as set forth in claim 1, comprising a pivot pin of elongated cross-section extending across the cavity of each arm for pivotally supporting the relevant nut, each nut comprising a radial slot for the setting thereof on said pivot pin, the width of said radial slot being slightly greater than the minor dimension of the elongated cross-section of said pivot pin and smaller than the major dimension of said section.

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