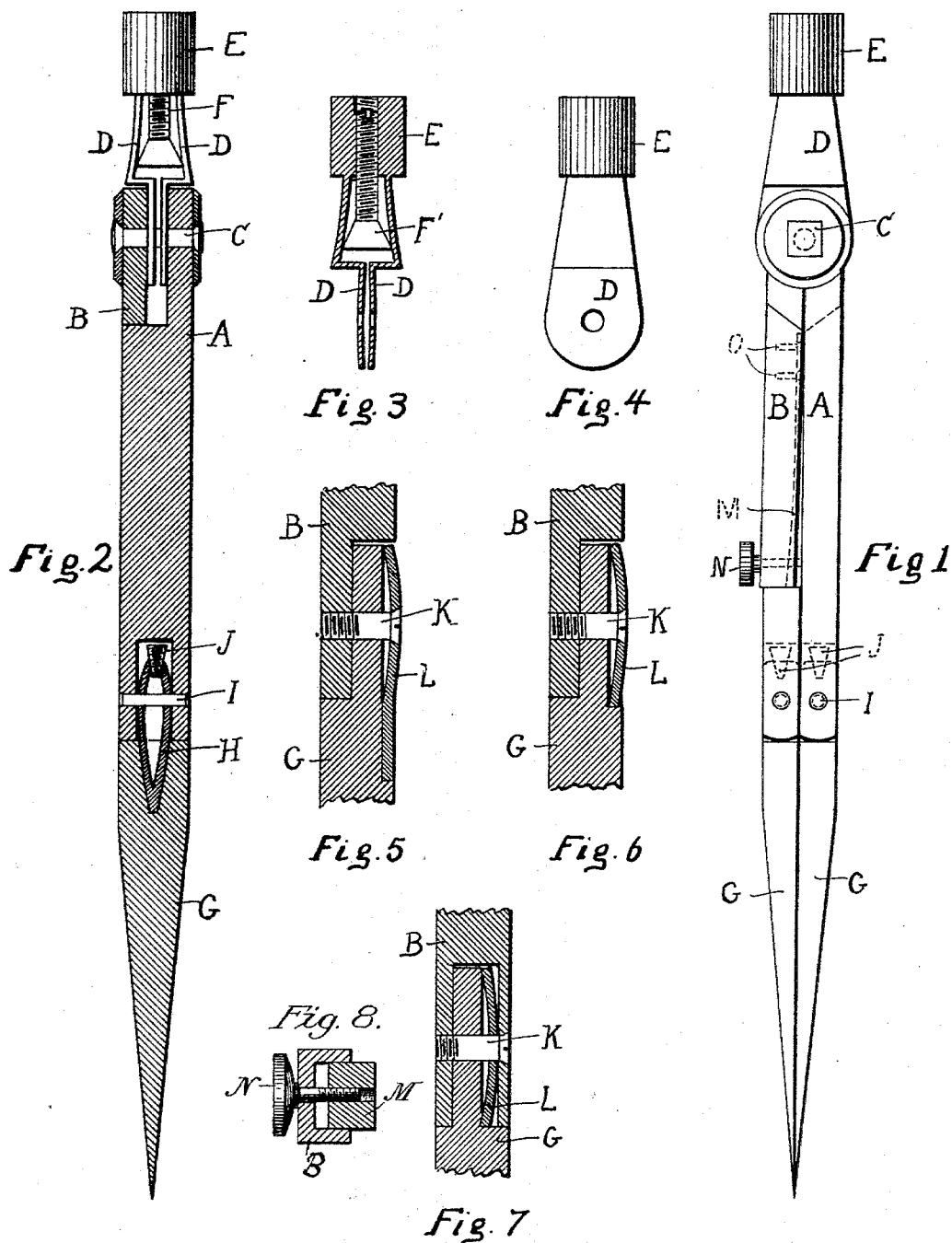


(No Model.)

A. K. CROSS.
DRAWING INSTRUMENT.

No. 584,139.

Patented June 8, 1897.



Witnesses
E. M. Newton
Geo. H. Bartlett.

Inventor.
A. K. Cross

UNITED STATES PATENT OFFICE.

ANSON K. CROSS, OF BOSTON, MASSACHUSETTS.

DRAWING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 584,139, dated June 8, 1897.

Application filed March 26, 1896. Serial No. 584,965. (No model.)

To all whom it may concern:

Be it known that I, ANSON K. CROSS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Drawing Instruments; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to use the same.

This invention relates to the form of the joints for drawing instruments which is described and secured by Letters Patent of the United States No. 555,803, dated March 3, 1896, and particularly to an improved construction of the joint shown in the above patent, and also of the application of the principle to the joint often formed in the central part of the limbs of drawing instruments.

The object of the invention is to provide a simpler construction of the main joint than that described in the patent above and to enable the better grades of drawing instruments to be made more cheaply and to be more durable than those now in use through the application of the adjusting-spring to all the joints of the instruments. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a pair of dividers. Fig. 2 is a side view showing a vertical section through the center of leg A; Fig. 4, a front view of the head with its adjusting-spring; Fig. 3, a section through the head and adjusting-spring. Figs. 5, 6, and 7 are sections through a limb of the divider, showing different ways in which the spring may be applied to the joint in the limb. Fig. 8 is a cross-section of the limb, taken through the regulating-screw N and showing how the spring M is fitted within the limb.

Similar letters refer to similar parts throughout the several views.

The limbs A and B of the dividers are formed of solid metal. They are connected at the top by a pivot C. This pivot passes through the two parts D D of a spring which presses the limbs apart and against the heads of the pivot or against washers placed upon the pivot. This spring is intended to be stiff enough to cause the friction required to hold the limbs in any position with reference to

each other in which they may be placed. The two parts D D of this spring may be formed separately and connected to the head E or inserted in it, or they may be formed of one piece and secured to the head E. This form of spring is preferable to the one shown in Patent No. 555,803, though its action is the same. In cheap grades of instruments the spring may be secured directly to the head E, or so shaped as to form the head, and no regulating-screw to vary the pressure of the spring will be required. I prefer, however, to provide a screw by means of which the two parts D D may be forced apart to increase the friction of the spring. This regulating-screw may be attached to any convenient place so as to act in the direction of the length of the spring or of its breadth, or at right angles to the two parts of the spring. The screw J is threaded directly to the two parts of the spring, and being of a cone form it presses them apart. I prefer to use in the head a screw F, threaded centrally in the head E and having a conical end F', which acts as a wedge when the screw is turned. If desired, a wedge may be used in place of the screw to regulate the pressure of the spring.

The parts D D may have their ends through which the joint-pivot passes brought close together by bending the two parts, or, in the case of the cheaper instruments, they may be of one principal curvature throughout. In this case more space between the limbs A and B is required for the spring. The form of the parts D D is not material and the parts may be connected to the limbs independent of the joint-pivot. I prefer, however, to have the joint-pivot pass through the ends of the springs D D.

The joint-pivot C may be headed at each end upon the parts A and B or upon washers, or it may have the form of a screw and be threaded to one of the washers; but the washers should be prevented from turning upon the screw in order that the friction required to hold the legs may be obtained without the use of a very powerful spring.

In order that the head E may be turned without causing motion of either limb, a small thin washer may be placed between each part of the spring and each limb.

The joint formed in the limbs of the best drawing instruments is as subject to wear as that at the head and more difficult to keep in order or repair. The use of the spring for this joint is desirable, as the spring always exerts its pressure and does away with the necessity for exact workmanship in all the parts, so that a perfect working joint may be obtained very cheaply which will be more durable than any other form of joint.

Fig. 2 shows a joint in which the form of spring shown in the head above is used. This spring may be inserted in and secured in various ways to the lower part of the limb. It may be expanded by means of the screw J, or in place of the rivet I the pivot may be formed of a screw which may be used to compress the parts of the upper leg-section upon the spring. The form in which the spring may be applied is immaterial, as a spring in this joint has never been used, and may be applied in many different ways which will embody my idea.

Figs. 5, 6, and 7 are sections of the limb-joint showing different constructions which make use of the spring and regulating-screw, but in place of the rivet I a screw is used which serves as a pivot and also as the regulating-screw. Of these different forms I prefer to use that shown in Fig. 7, in which the spring is not secured to the lower leg-section, but is prevented from turning upon it by resting in slight depressions formed in the sections.

In Fig. 1 this improved spring and joint is shown used in connection with the common form of hair-spring by which the dividers may be adjusted to any space without motion of the limbs on each other.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In drawing instruments having two members or limbs pivotally connected, the approximately V-shaped spring having the junction of its two members and also the main body of said members situated above the pivot and between the two limbs of the instrument, and the pivot passing through the two limbs of the spring, said spring extending above the joint of the instrument to form its head substantially as described.

2. In drawing instruments having two members or limbs pivotally connected the approximately V-shaped spring having the junction of its two members and also the main body of said members situated above the pivot and between the two limbs of the instrument, the pivot passing through the two limbs of the spring, and means whereby the tension of said spring may be increased to regulate the friction of the two limbs of the instrument substantially as described.

3. In drawing instruments having two members or limbs pivotally connected the approximately V-shaped spring having the junction of its two members and also the main body of said members situated above the pivot and between the two limbs of the instrument, and having its thrust in the direction of the pivot to hold by friction the two limbs of the instrument, the pivot passing through the two limbs of the spring and the two limbs of the instrument, and a screw by means of which the tension of said spring may be regulated to vary the friction which holds the two limbs of the instrument substantially as described.

Dated this 24th day of March, A. D. 1896.

ANSON K. CROSS.

Witnesses:

CHAS. F. PERKINS,
HERBERT W. TROWBRIDGE.