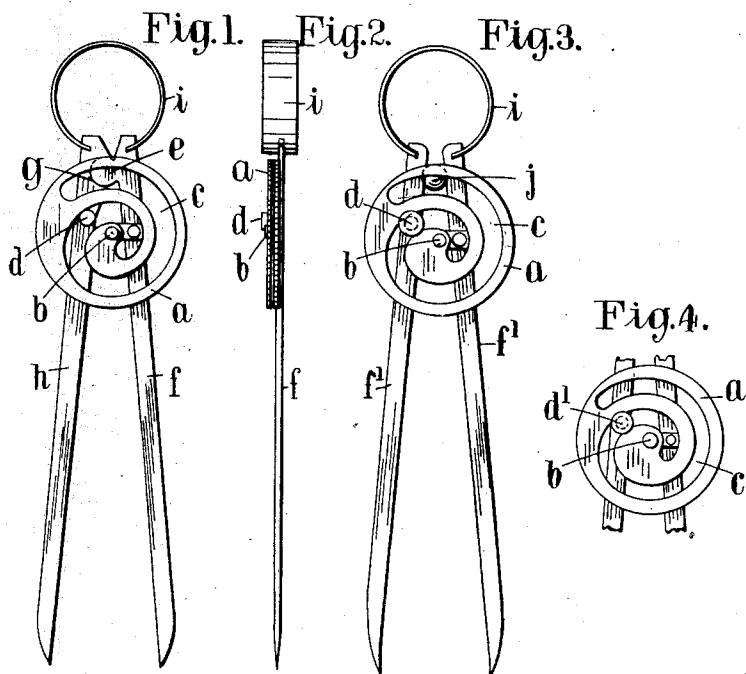
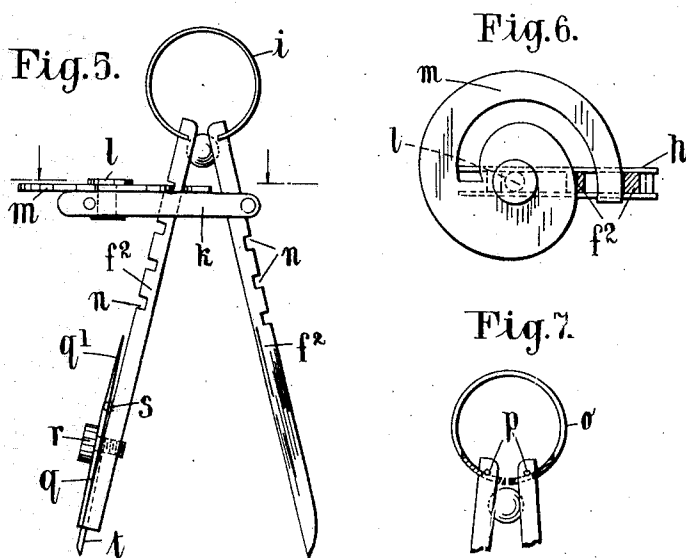


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DIVIDER OR COMPASS
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DIVIDER OR COMPASS.

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This invention relates to dividers or compasses used by metal and wood workers, draughtsmen and others for describing circles, transferring distances and like purposes.

According to this invention an improved construction of divider or compass is provided comprising a cam rotatably mounted on a pin or support attached or connected to one limb or leg of the dividers or compass in such a manner that in the rotation of the cam the periphery thereof moves in contact with the other limb or leg, or a part secured thereto, whereby the distance between the points or feet of the limbs or legs can be varied. With this arrangement the limbs or legs may be connected by a simple hinge or pivotal joint and the cam may be constructed to hold the limbs or legs in any position of adjustment, or a spring hinge or joint may be provided to move the limbs or legs in one direction, the position in which they are held being determined by rotational adjustment of the cam. The said invention also comprises improved forms of hinge or spring joints between the limbs or legs for use in association with the cam device above referred to. The improvements herein described are moreover applicable to callipers and like measuring instruments.

In the accompanying drawing:

Figure 1 shows a divider or compass constructed according to this invention provided with one form of hinge or joint between the limbs or legs thereof.

Figure 2 is a side view thereof.

Figure 3 is a view similar to Figure 1 illustrating another form of hinge or joint.

Figure 4 is a detail view of a modified arrangement of parts shown in Figure 1.

Figure 5 is a side view, and

Figure 6 a sectional plan of a modified arrangement of the cam adjustment device.

Figure 7 is a detail view of a modified spring hinge connection for the limbs or legs of the improved divider or compass.

As shown in Figures 1 and 2, the improved divider or compass comprises a cam in the form of a plate or disc *a* mounted to rotate on a pin *b* projecting from one limb or leg of the divider or compass, and having a spiral groove *c* therein through which a pin *d* on the other limb or leg projects. The cam thus lies close against the limbs or legs with its plane parallel to the plane in which the limbs or legs move as they open and

close, and by rotation of the cam the distance between the pins can be adjusted. Any suitable hinge or joint may be provided between the limbs or legs but preferably this hinge or joint is formed by a lug *e* on one limb or leg *f* fitting in a notch *g* in the other limb or leg *h*, the contacting surfaces of the lug and notch being made circular to allow of rotational movement of the lug in the notch, as required to permit opening and closing movements of the limbs or legs which when thus constructed can be conveniently stamped out of sheet metal. The extremities of the limbs or legs are acted upon by a bent leaf or like spring *i* tending to move the points or feet of the limbs or legs apart and holding the pin *d* pressed against one side of the spiral groove *c*. By thus providing a spring in addition to the hinge joint slackness or backlash due to wear of the parts is taken up, but the spring *i* can be eliminated provided that the pin *d* fits closely in the groove *c* as shown in Figure 4.

In Figure 3 the pin has a slight shoulder formed at its outer end to engage over the edge of the groove in the cam. The pin may be formed with a large head the diameter of which is greater than the width of the groove, as shown in Figure 4, and this head *d'* can be used to keep the cam close against the limb or leg in which the pin is fixed. By employing a pin fitting closely in the groove and having a head such as *d'* any convenient form of joint between the limbs or legs can be provided and the use of a spring becomes unnecessary.

A modified arrangement of the hinge or joint is shown in Figure 3 wherein the extremities of the limbs or legs *f'*, *f'* are drawn together by a spring *i* while at a position inside the line along which this spring acts, a ball *j* is held in cups or recesses formed in the limbs or legs. The constructions of joint shown in Figures 1 and 3 provide means for preventing longitudinal displacement of the limbs or legs and at the same time dispense with the employment of a hinge pin such as is usually provided in dividers or compasses.

Intead of arranging the cam flatly against the limbs or legs of the divider or compass, the said limbs or legs may be passed through a link or loop *k* (Figure 5) which is adjustable longitudinally along the limbs *f*, *f* and is constructed to support a pin *l*

having rotatably mounted thereon a cam m bearing against the outside of one limb or leg to press the latter towards the opposite limb which bears against the inside of the link or loop or against a pin secured transversely in the link for this purpose. The spring i acts to move the limbs or legs f^2 apart, and by adjusting the cam rotationally on the pin l , the limbs or legs can be adjusted to a desired position and retained set in this position by the cam m .

The outside faces of each limb or leg f^2 may have notches n formed therein in pairs one on each limb or leg to receive a part of the link or loop and the edge of the cam, respectively. A number of such notches may be provided spaced apart at desired distances, and the link and cam can then be brought to positions to engage opposite notches. In some cases a ball or roller may be inserted in the notch or notches in one limb to provide an antifriction bearing for the edge of the cam.

In the constructions above described, the edge of the cam may be graduated to facilitate the control of or measurement of the amount of movement of the cam in setting the limbs or legs of the divider or compass in any position to which they can be adjusted.

A convenient form of joint between the limbs or legs of the improved dividers comprises a bow of spring steel o , Figure 7, having holes cut near to the ends thereof through which the ends of the limbs or legs are respectively passed. These ends of the limbs or legs have notches cut therein into which edges of the holes in the spring are inserted to prevent the limbs or legs from slipping longitudinally in the holes. Holes for pins p are also formed in the extremities of the limbs or legs, the pins being inserted in these holes after the limbs or legs have been passed through the holes in the springs, the pins then serving to limit the rocking movement of the limbs or legs in the holes in the spring.

The limbs or legs may be provided with interchangeable points or feet, such as the foot q shown in Figure 5, which is pivoted to the limb or leg f^2 by a set screw r and held in the required position by a recess

in the pivoted foot q engaging over a projection s on the limb or leg. By slackening the screw r the foot q can be reversed so as to serve for holding a pencil t as shown, or so that the point q' , which may be a scribing point, calliper point or the like can be brought into use.

I claim:

1. A divider having in combination two limbs, a fulcrum bearing associated with one limb and the other limb having a notch to receive said bearing, a spring acting upon one extremity of each of the limbs and tending to turn the limbs relatively about said bearing, a support carried on one limb between the free end thereof and the fulcrum bearing, and a cam mounted on said support and engaging the other limb to determine the angular separation of the limbs.

2. A divider having in combination two limbs, a lug carried by one limb, the other limb having a notch to receive said lug to connect said limbs and form a fulcrum bearing, a spring acting upon one extremity of each limb and tending to turn the limbs relatively about said bearing, a support carried on one limb between the free ends thereof and the fulcrum bearing, a plate mounted on said support and having a cam groove therein, and means on the other limb to engage in said cam groove to determine the angular separation of the limbs.

3. A divider having in combination two limbs, a fulcrum bearing between said limbs, a spring acting upon one extremity of each of the limbs and tending to turn the limbs relatively about said bearing, a support carried on one limb between the free end thereof and the fulcrum bearing, a plate having a cam groove therein rotatably mounted on said support and means on the other limb engaging in the said cam groove to determine the angular separation of the limbs.

4. A divider comprising pivotally connected limbs, a support adjustable to predetermined positions on one limb, and a plate having a cam groove therein rotatably mounted on the said support and means on the other limb in contact with the periphery of the said cam groove.

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