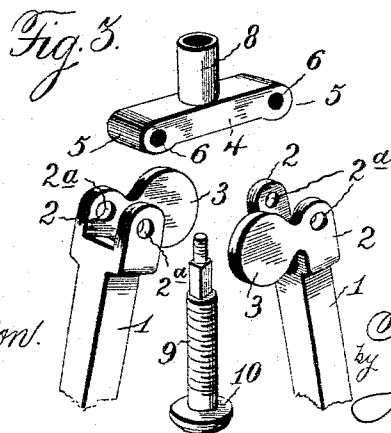
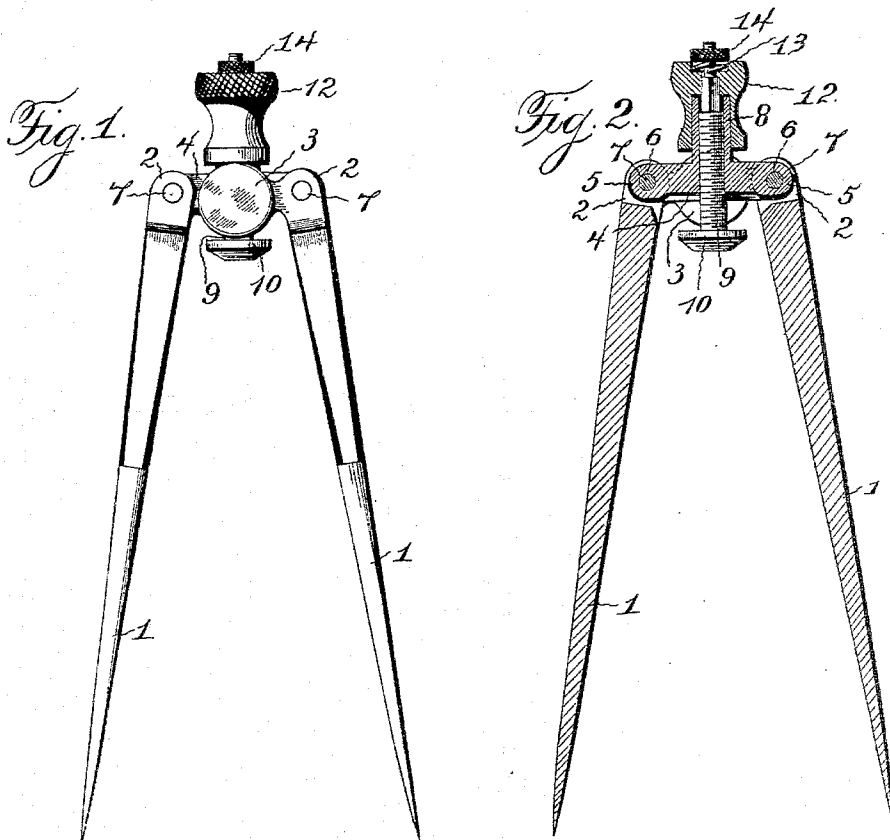


(No Model.)

A. C. SCHAEFER.
CALIPERS OR DIVIDERS.

No. 531,971.

Patented Jan. 1, 1895.



Witnesses:
Jas. E. Hutchinson.
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UNITED STATES PATENT OFFICE.

AUGUST C. SCHAEFER, OF ST. PAUL, MINNESOTA.

CALIPERS OR DIVIDERS.

SPECIFICATION forming part of Letters Patent No. 531,971, dated January 1, 1895.

Application filed August 30, 1894. Serial No. 521,739. (No model.)

To all whom it may concern:

Be it known that I, AUGUST C. SCHAEFER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Calipers or Dividers, of which the following is a specification.

My invention relates to dividers, in which category may be included all forms of compasses, circular pens, and calipers, as well as all implements of like character, my purpose being to provide and combine with an instrument of this type simple and easily operated means whereby the legs may be distended, or contracted, by using the same hand that operates the implement, and without requiring the employment of the other hand. It is my purpose, also, to so construct an attachment of this character and to combine the same with an instrument of the type referred to in such manner that an extremely delicate and accurate adjustment can be obtained and maintained for any required time, without its exactness being impaired by accidental strain upon the diverging legs, and without liability that the parts will become subject to play by reason of wear. It is my purpose, finally, to simplify the construction, reduce the number of parts, and improve the operation of mechanically adjusted dividers and similar implements, and to provide extremely simple means for taking up and compensating the wear of the parts, whereby perfectly accurate adjustments may be made at all times.

To these ends the invention consists in the novel features of construction and in the parts and new combinations of parts hereinafter fully explained and then particularly pointed out in the claims which conclude this specification.

To enable others to fully understand and to make and use my said invention I will describe the same in detail, reference being had for this purpose to the accompanying drawings, in which—

Figure 1, is an elevation of a pair of dividers, having my invention combined therewith. Fig. 2, is a view of the same parts, the pivotally connected portions being shown in central section. Fig. 3, is a detail perspective, showing the upper portions of the limbs of the dividers separated from each other and from

the intermediate pivotal link, and placed in approximately correct relative position.

The reference-numeral 1, in said drawings, indicates the legs of a pair of dividers, calipers, or other similar implement, or of a circular pen, or drafting instrument, said parts having any preferred construction according to the special function they are to perform. At its upper end each leg is provided with duplicate lugs 2, each having an opening 2^a, to receive a pivotal connection, or pintle, as hereinafter described. Upon their inner, or adjacent sides, each leg is also provided with a cam-lug 3, which is approximately circular in form, and having its center in, or slightly above, a line drawn through the center of the opening 2^a, at right-angles to the axial line of the leg 1. The cam-lugs 3 are substantially similar in form, so that when lapped one upon the other they will coincide, the pivotally connected ends of the legs 1 being separated by an interval equal to the diameter of the cam-lugs. The cam-lug on one leg is formed upon one of the duplicate lugs 2, and upon the other leg it projects from the alternately opposite lug 2, so that when brought into coincidence the two cam-lugs 3 are separated from each other by a space equal to the interval between the lugs 2. The legs are connected pivotally by means of a link 4, having lugs 5 at its ends which lie between the lugs 2 on the legs of the instrument, openings 6 being provided which receive pivotal connections, or pintles 7, the latter passing also through the openings 2^a, in the lugs 2. In the center of the link 4 is a sleeve, or tubular bearing 8, provided with a female thread in its interior, the upper end of said sleeve rising somewhat above the coinciding cam-lugs 3. Through the tubular bearing, or sleeve 8, and through an opening in the link 4, passes a threaded pin 9, meshing with the thread in the interior of the sleeve and provided on its lower end with a head 10 the diameter of the latter being such that its opposite sides underlie, and have contact with the lower edge of the two cam-lugs 3. The upper end of the threaded pin 9, which projects above the top of the sleeve 8, is squared or angular, and a cap 12 is fitted thereon, said cap being counter-bored to receive and turn upon the upper end of the sleeve 8, its circular edge abutting against the

upper edges of the cam-lugs 3, at a point diametrically opposite the head 10 of the pin 9. The extremity of the pin 9 extends through a central opening in the top of the cap and receives a spring washer 13, lying in a counter-sunk recess in the upper surface of the cap, and a nut 14, is screwed on the threaded end of the pin to hold the cap 12 in place.

By turning the cap 12 the threaded pin 9 will be caused to rise, or to descend, in the sleeve 8, according to the direction of revolution, and the cam-lugs 3 will partake of this movement, modified, however, by partaking also of the pivotal motion due to the connection of the legs to the link 4. In either direction of movement, the head 10 of the threaded pin 9 and the circular edge of the cap 12, will hug the lower and upper edges, respectively, of the cam-lugs 3, and will prevent all play of the legs 1. If the pin 9 is caused to descend in the sleeve 8, the legs will be spread, and as said pin rises, the legs will be contracted, or caused to approach each other. As the pitch of the thread on the pin 9 may be, and preferably is, quite low, the adjustment is rendered very delicate and accurate. The wear of the parts is readily taken up, and compensated by screwing the nut 14 farther down upon the threaded end of the pin 9, thereby always holding the circular edge of the cap and the head 10 of the pin 9, closely against the upper and lower edges of the cam-lugs 3, so that the instrument is at all times maintained in condition to do accurate and reliable work.

The dividers, or other instrument, can be easily and properly operated by one hand only, thus having the other free to be used as circumstances may require.

40 What I claim is—

1. A pair of dividers, or other similar instrument, comprising two legs pivotally connected at one end to an intermediate link and provided with cam-lugs projecting from the adjacent sides, a threaded bearing, a threaded pin engaging the same and having a head bearing against the edges of the cam-lugs, and a cap mounted on an angular portion of the threaded pin, its circular edge abutting against the edges of the said cam-lugs at a point diametrically opposite the head of the pin, substantially as described.

2. In a pair of dividers or other similar in-

strument, the combination with legs pivotally connected to an intermediate link, of a threaded pin engaging a central tubular bearing on said link, and provided with a head which bears against the lower edges of cam-lugs projecting from the adjacent sides of the pivotally connected ends of the legs, a cap having a central opening which receives an angular portion of said threaded pin, the circular edge of said cap bearing upon the upper edges of the cam-lugs, and a nut turned on the threaded end of the pin and adapted to hold the cap thereon and force it against the cam-lugs, substantially as described.

3. In a pair of dividers, or other similar instrument, the combination with legs each having two lugs at one end and a cam lug projecting from the edge of one of said lugs, of an intermediate link having lugs lying between and pivotally united with the lugs on the ends of the legs, a threaded pin tapped through a central tubular bearing on the link and having a head in contact with the lower edges of the cam-lugs, a cap having an angular opening to receive an angular portion of the threaded pin, the circular edge of said cap bearing upon the upper edges of the cam-lugs and a nut turned on the upper, threaded extremity of the pin and abutting on the cap, substantially as described.

4. In a pair of dividers, or other similar instrument, the combination with legs pivotally connected at one end to an intermediate link, of a threaded pin tapped through a central bearing on the link and having a head abutting against the lower edges of cam-lugs projecting from alternately opposite sides of the adjacent faces of the pivoted ends of the legs, a cap having an opening fitting an angular portion of the pin above its thread, the circular edge of said cap bearing on the upper edges of the cam lugs, a spring washer surrounding the threaded end of the pin, above the cap, and a nut screwed on said end against the washer, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

AUGUST C. SCHAEFER. [L. S.]

Witnesses:

FRANK JOHNSON,
FRED GOSEWISCH.