No. 721,379. PATENTED FEB. 24, 1903.

N. E. MARTIN.

CALIPERS OR DIVIDERS.

APPLICATION FILED APR. 26, 1902.

NO MODEL.

Fig. 1.

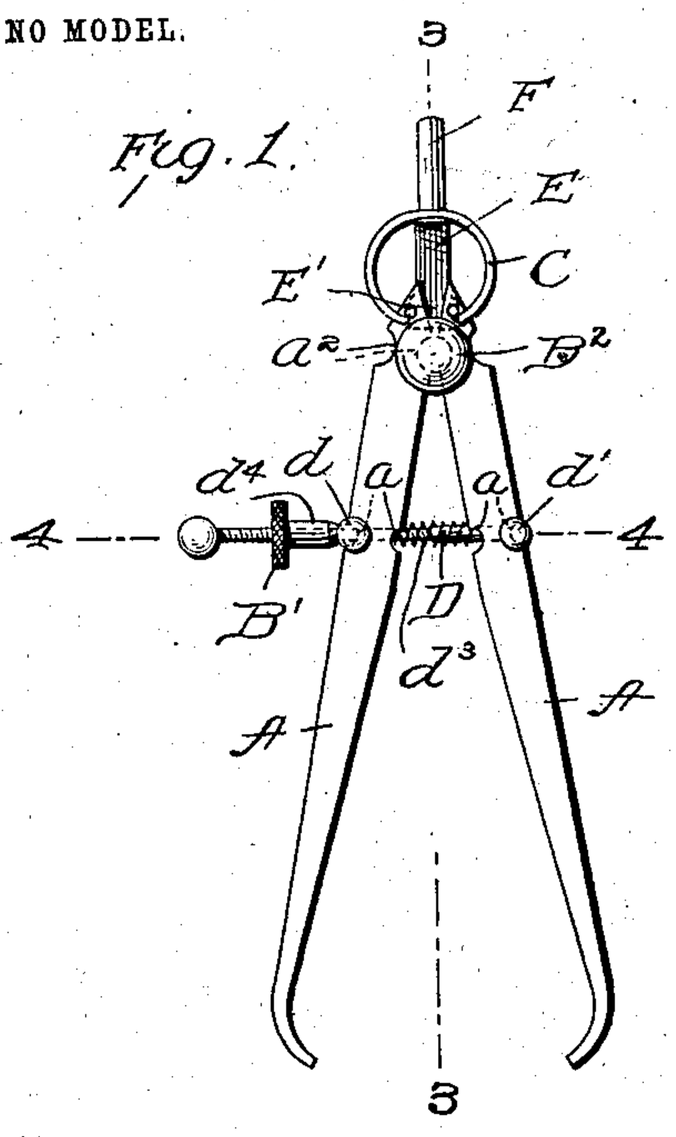


Fig. 2.

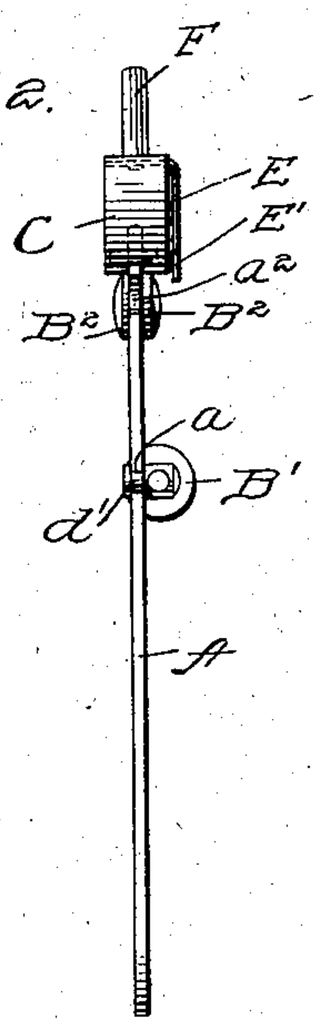


Fig. 3.

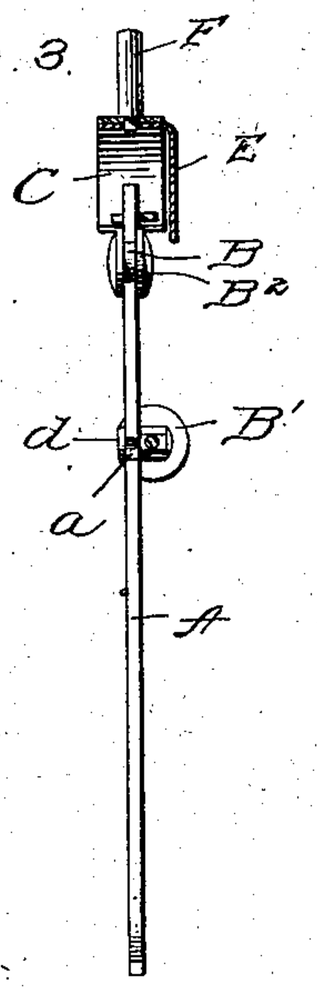


Fig. 4.

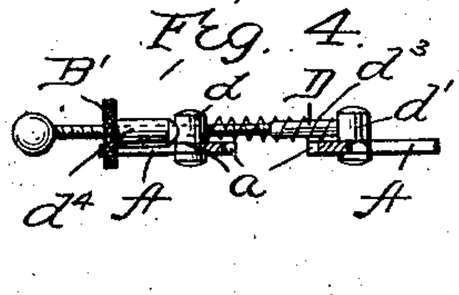


Fig. 5.

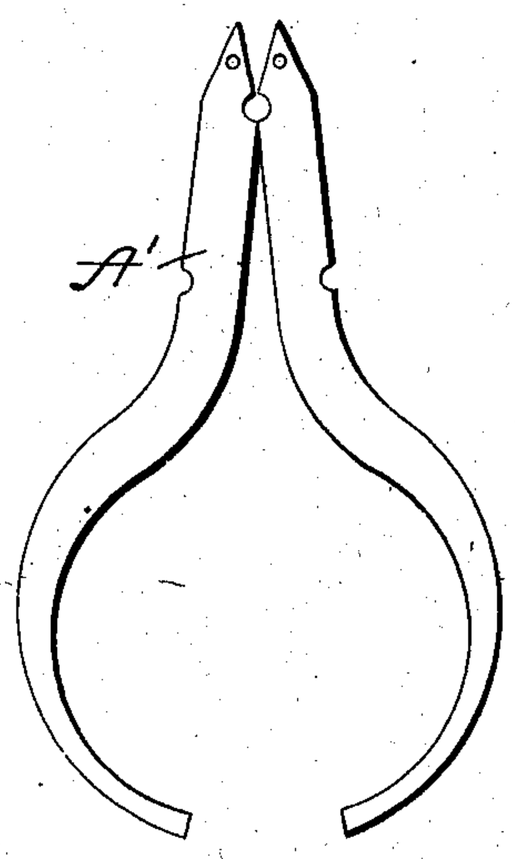
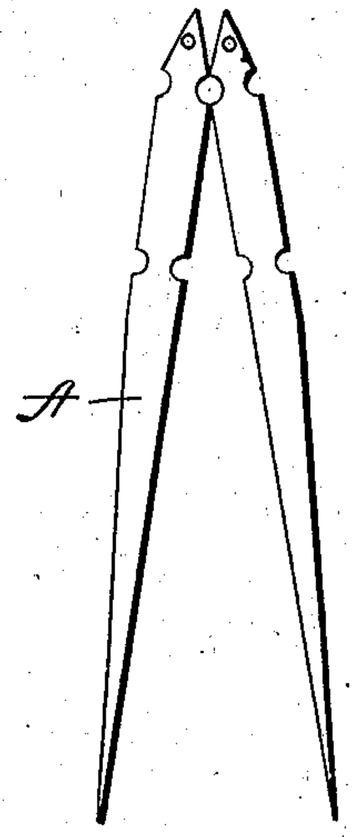


Fig. 6.



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UNITED STATES PATENT OFFICE.

NATHAN E. MARTIN, OF GREENFIELD, MASSACHUSETTS.

CALIPERS OR DIVIDERS.

SPECIFICATION forming part of Letters Patent No. 721,379, dated February 24, 1903.

Application filed April 26, 1902. Serial No. 104,889. (No model.)

To all whom it may concern:

Be it known that I, NATHAN E. MARTIN, a citizen of the United States, residing at Greenfield, Franklin county, Massachusetts, have invented certain new and useful Improvements in Calipers or Dividers, of which the following is a specification.

My invention relates to calipers or dividers; and the object of the invention is to provide a simple, efficient, and durable construction in which the parts may be readily detached and reassembled or replaced. I have also aimed to provide a construction in which the various parts are of such a simple nature that they may be produced at a minimum cost and easily and quickly assembled to produce the completed article.

I have illustrated the invention in the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a view at right angles to Fig. 1; Fig. 3, a section on line 3 3 of Fig. 1; Fig. 4, a section on line 4 4 of Fig. 1. Figs. 5 and 6 are detail views of modified forms of arms.

In the drawings, A A represent the arms or members of the calipers, which are duplicates of each other. These arms are mounted to swing on a pivot B, their upper ends being drawn together to cause the lower ends to tend to move outwardly by a suitable spring C, which bears against the outer ends of the members, as shown. The ends of the spring C are bifurcated to form a recess in which the upper ends of the arms rest. The lower ends of the members are limited as to their outward movement by a cross bar or rod D, to which are connected the lugs d d', which project laterally from the rod and engage notches a in the edges of the arms or members. These lugs have recesses to receive the edges of the recesses of the arms or members whereby they are held against lateral movement. One of the lugs is slidably mounted on the rod, preferably by passing the rod through an opening in the lug, and a thumb-screw B′ serves to adjust the movable lug on its rod, and thus to adjust the arms of the calipers in relation to each other. I prefer to employ a helical spring d^3 on the rod between the lugs and to place a washer d^4 between the thumb-screw and the movable lug.

The pivot upon which the caliper-arms swing is simply a button having two heads B^2, connected by a shank B, the distance between the heads corresponding exactly to the thickness of the caliper-arms. The caliper-arms are provided with notches a^2, which register with the pivot or shank B and hold the arms against longitudinal displacement.

The arms when inserted in position are held from moving out of the space between the heads of the buttons by the ends of the circular spring, which hold them forced into position. Pins on the upper ends of the arms engage with the inner surface of the spring near the opposite ends thereof and hold the spring against slipping off from the upper ends of the arms.

A flat spring-plate E is connected to the circular spring and extends across into proximity into the space between the ends thereof. The width of the end E′ of this spring-plate is such that for the purposes of detaching the arms when the lower ends of the arms are swung into proximity this flat spring-plate may be pushed in between the separated ends of the circular spring to hold them apart. At this time the arms may be readily detached by removing the adjusting cross-rod and allowing the arms to spring outwardly until the pins slip outwardly from between the engaging ends of the spring.

F represents a handle connected to the upper end of the circular spring for the purpose of manipulation.

It will be observed that I have made the arms reversible by placing the recesses on opposite sides thereof, and thus the caliper is adapted for use either for inside or outside measurement.

Owing to the manner in which the parts are connected without the use of screws, rivets, or the like, the separation and replacement of the parts is instant, occupying only a few moments of time.

The arms may be made in various shapes, according to requirements, either curved, as shown at A′ in Fig. 5, or straight, as at A^2 in Fig. 6, or, in fact, in any form desired. In the form shown in Fig. 5 notches are needed in one side only.

Having thus described my invention, what I claim is—

1. A caliper comprising a pair of arms hav-

ing a detachable pivotal connection, a detachable spring tending to separate the lower ends of said arms, lugs detachably engaging the sides of said arms, a rod connecting said lugs and a nut threaded on said rod for adjusting the lugs thereon, substantially as described.

2. A caliper comprising a pair of arms, a pivot near the upper ends on which said arms rock, a circular spring having its ends bearing against the outer edges of said arms above the pivot, means for holding said spring in place, and means for adjusting the arms against the tension of the spring, and a spring-plate located at one side of said spring and adapted to hold the ends thereof separated in separating and assembling the parts, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

NATHAN E. MARTIN.

Witnesses:
BURT H. WINN,
LYMAN W. GRISWOLD.