(No Model.)

L. S. STARRETT.

CALIPERS OR DIVIDERS.

No. 411,537. Patented Sept. 24, 1889.

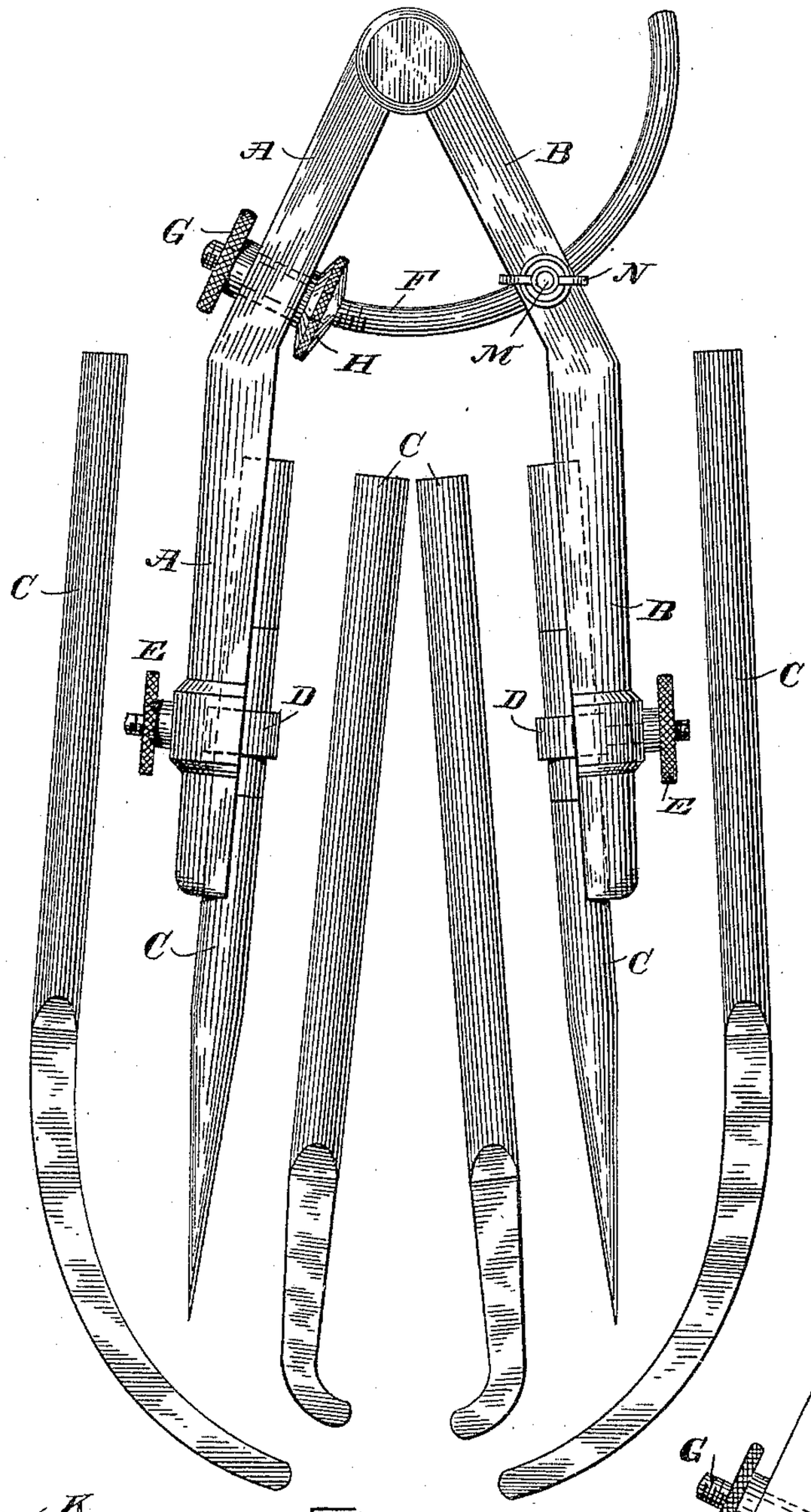

Fig. 1.

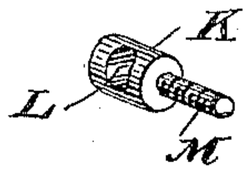

Fig. 3.

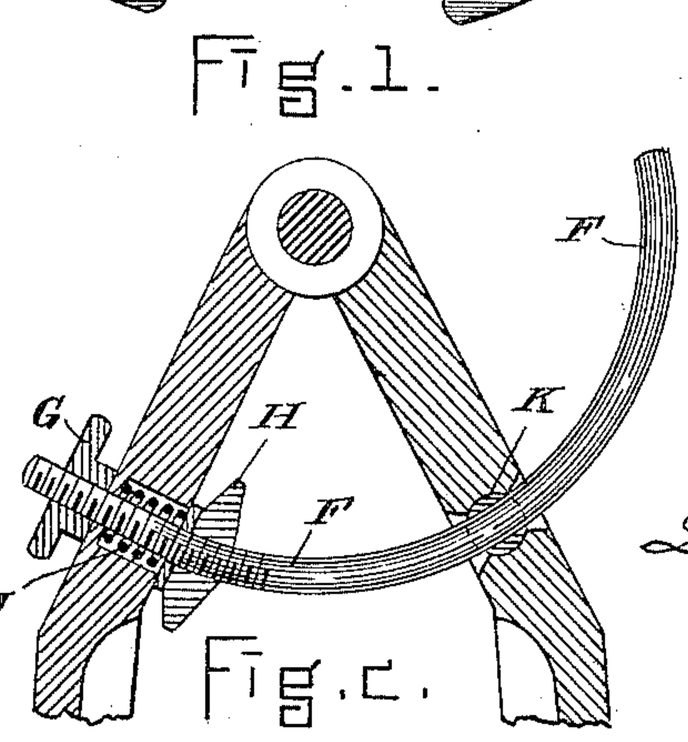

Fig. C.

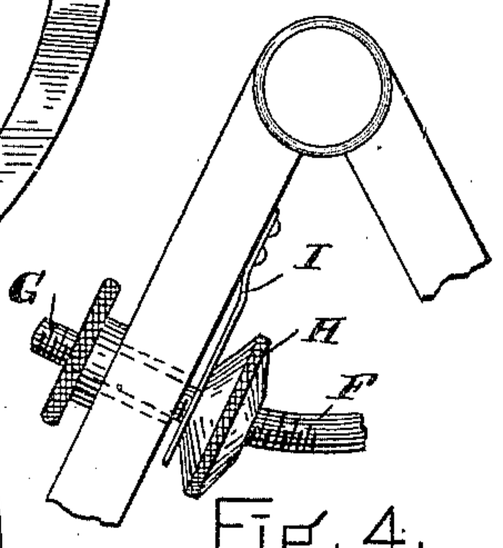

Fig. 4.

WITNESSES.

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LAROY S. STARRETT, OF ATHOL, MASSACHUSETTS.

CALIPERS OR DIVIDERS.

SPECIFICATION forming part of Letters Patent No. 411,537, dated September 24, 1889.

Application filed May 4, 1889. Serial No. 309,585. (No model.)

To all whom it may concern:

Be it known that I, LAROY S. STARRETT, of Athol, in the county of Worcester and State of Massachusetts, have invented certain new and useful improvements in Calipers or Dividers, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of calipers or dividers having an arc-shaped wing or brace reaching from one leg or arm to the other.

My improvement consists, first, in an auxiliary-milled nut upon the brace between the arms, in position for the adjusting-spring to bear against, instead of said spring acting directly on a solid shoulder of the brace, as heretofore. The object of this feature of construction is to admit of pressing back the spring by turning said auxiliary nut, after the fine adjustment has been made, the auxiliary nut then locking the spring and arm firmly against the adjusting-nut. The spring may be either a flat one, riveted to the inner face of the arm, as is commonly used, or a spiral spring encircling the brace and seated in a chambered cavity in the arm, which is the preferred form.

My second improvement includes a stud set in a recess in the other arm, perforated for passage of the wing or brace, such stud having a threaded prolongation to receive the binding thumb-nut.

These novel features are hereinafter described, and specified in the appended claims.

In the drawings, Figure 1 is a plan of dividers embodying my improvements, and showing, also, caliper-legs to be substituted for the divider-legs. Fig. 2 is a section through the head and arms of the instrument in the plane of the curved wing. Fig. 3 is a perspective detail of the stud detached, and Fig. 4 a detail of the locking-nut with a flat adjusting-spring.

A B represent the arms of the instrument pivoted to each other at their upper ends and furnished with interchangeable legs and arms C, held in longitudinal recesses of the arms by a clamping-ring D and nut E. The arms are connected near their upper ends by an arc-shaped wing, either of the usual flat form or of a form circular in cross-section, the latter being preferable.

Figs. 1 and 2 represent the wing F as a round rod threaded at one end, where it passes loosely through the arm A to receive the adjusting-nut G outside the arm and the locking-nut H between the arms. Said figures also show a coiled spring J surrounding this rod and seated in a recess in the arm A, into which it may be compressed by the movement of either nut. The advantage of this construction is that the instrument may be delicately set or adjusted by the nut G against the spring-pressure, and then locked fast in the desired position by screwing up the locking-nut H until it bears firmly against the inside of the arm A, pressing the spring J into the chambered seat. When a flat spring I is employed, as in Fig. 4, it presses back flat against the arm. This remedies the weak point in wing-dividers, which have heretofore been no stiffer than the adjusting-spring. With my improvement, the arms, when locked, are perfectly rigid, whether the chambered, spiral, or the plain flat spring is used. This result can only be attained by securing the arm B firmly to the brace or wing F. Heretofore the flat wing has been used and a set-screw bore by its point against the flat side thereof, the strain coming always on two or three threads of such screw. I set a stud K in the leg B, perforate it, as at L, Fig. 3, to receive the wing-rod F, and furnish its projecting stem with a long screw-thread M to receive a thumb-nut N of corresponding length. By tightening this thumb-screw the wing is clamped firmly, the perforated stud drawing it firmly into close contact with the wall of the aperture through the arm.

I claim as my invention—

1. In dividers or calipers, the pivoted arms, provided with a connecting wing or brace and an external adjusting-nut, in combination with a spring adapted to be compressed by said nut, and with a locking-nut between the arms for holding the parts firmly when adjusted, substantially as set forth.

2. In dividers or calipers, the pivoted arms A B and the brace or wing F, passing through both arms and secured to one by a suitable clamp, in combination with the nuts G H,

screwing upon the threaded end of said wing, and with the coil-spring J, surrounding said wing and compressible between said nuts into a recess in the leg A, substantially as set forth.

3. In dividers or calipers, the pivoted arms, the arc-shaped wing circular in cross section, passing transversely through them, and an adjusting-nut, in combination with a stud set in a recess in the arm B and perforated for passage of the wing through it, and provided with a threaded stem and a thumb-nut thereon for clamping the arm in position, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 6th day of April, A. D. 1889.

LAROY S. STARRETT.

Witnesses:
HENRY R. VAILLE,
HENRY M. BURLEIGH.