No. 634,918. Patented Oct. 17, 1899.

J. H. SMITH.

CALIPERS.

(Application filed May 17, 1899.)

(No Model.)

Fig. 1.

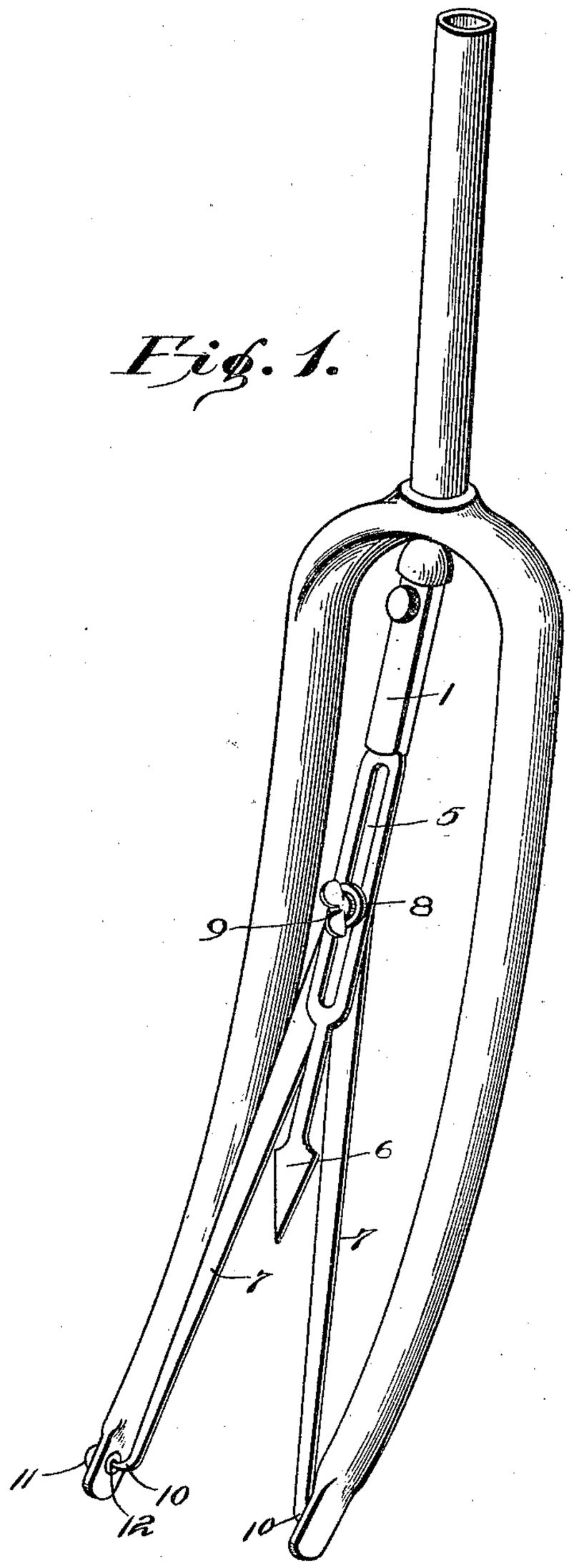
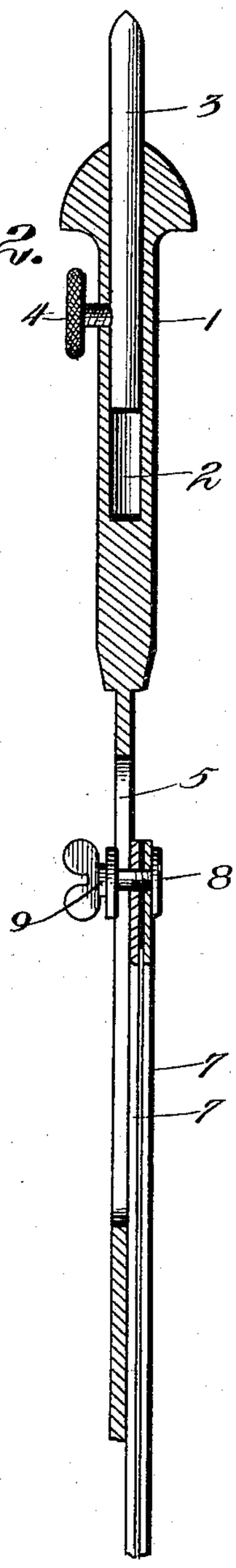


Fig. 2.



Witnesses
Clarence H. Wacker.
E. C. Boyle

J. H. Smith Inventor

By his Attorneys,

Cahow & Co.

UNITED STATES PATENT OFFICE.

JAY HARLEY SMITH, OF CHICO, CALIFORNIA.

CALIPERS.

SPECIFICATION forming part of Letters Patent No. 634,918, dated October 17, 1899.

Application filed May 17, 1899. Serial No. 717,275. (No model.)

To all whom it may concern:

Be it known that I, JAY HARLEY SMITH, a citizen of the United States, residing at Chico, in the county of Butte and State of California, have invented a new and useful Calipers, of which the following is a specification.

My invention relates to calipers, and particularly to a device for accurately locating the axle-centers on the tips of bicycle-forks, and also adapted for use in other analogous relations where a relation between a vertical line and a horizontal line is required to be accurately determined.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims, it being understood that the improvement is susceptible of various changes in the form, proportion, size, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a view of an instrument constructed in accordance with my invention applied in the operative position of a bicycle-fork to show the operation thereof, the axle-opening in one of the fork-tips having been bored and fitted with a removable plug, also forming a feature of my invention. Fig. 2 is a sectional view of the calipers.

Similar reference characters indicate corresponding parts in both figures of the drawings.

The device embodying my invention consists of a shank or body 1, which is preferably hollow to form a socket or guide 2, in which is fitted a center pin 3 to engage the socket or opening in the crotch of a bicycle-fork or analogous device, the upper end of the body having an annular central enlargement concentric with the socket 2 and adapted to present an effective bearing-surface to the edge of the opening in the crotch of the fork-crown, in which it is adapted to be partially inserted. The pin 3 is secured in its adjusted positions by means of a set-screw 4. This shank or body portion of the instrument, in addition to its socket portion, embodies a flattened portion having a longitudinal slot 5, beyond which is arranged a pointer or indicator 6. Also connected with the shank are the caliper-legs 7 by means of a pivot 8, having a clamping or set screw 9, and the free ends of said legs are provided with outwardly-extending center points 10, adapted for indicating the marks at which the axle-centers are to be formed in the fork-tips.

In operation the center pin at the upper end of the shank or body portion of the instrument is inserted in the opening or socket at the crotch of the bicycle-fork, and the pointed extremities of the legs are separated to occupy a position between the fork-tips and indicate the points of the axle-centers, the intermediate pointer or indicator which is arranged between the legs serving as a medial line from which the deflection of each leg from a vertical line may be measured, and hence the accurate perpendicularity of a line connecting the points of the caliper-legs with relation to a line connecting the extremity of the pointer and the axis of the center pin may be established.

It will be understood that while the device embodying my invention is particularly designed and adapted for use in connection with determining the axle-centers of bicycles, it may be used with equal advantage in connection with other operations requiring accuracy in analogous particulars. After one of the axle openings or bearings has been formed in a fork-tip a plug 11, as shown in Fig. 1, may be fitted therein, said plug having a center socket 12 for the reception of the point of one of the caliper-legs.

In practice after the plug is inserted the center pin 3 is entered in the perforation in the crotch of the fork-crown and the enlarged head of the body is held tightly in engagement with the edge of the perforation. One of the caliper-legs is then adjusted with its outwardly-directed point in the socket 12 of the plug 11 and the other caliper-leg is disposed with its outwardly-directed point against the opposite fork-tip. The pointer 6 is adjusted to bisect the angle of the caliper-legs, and in this adjustment of the pointer a pair of inside calipers, a rule, or other measuring device may be employed, and when the pointer is properly centered it will be found that the points of the legs lie in a line perpendicular to the line connecting the tip of the pointer and the center of adjustment of the legs, said legs being equal in length.

Having described my invention, what I claim is—

1. A caliper having a shank or body portion having an enlarged head and provided with a concentric socket, a center pin fitted in said socket, a set-screw for securing the center pin at the desired adjustment, legs mounted for angular and longitudinal adjustment upon the shank or body portion, and means for securing said legs at the desired adjustment, substantially as specified.

2. A caliper having a shank or body having an enlarged head and provided with a longitudinal socket concentric with the head, a pin adjustable in the socket, a pointer or indicator extended longitudinally from the body portion and formed integral therewith, caliper-legs, a longitudinal slot in the body, and a clamping device engaging the slot of the body portion and pivotally connecting the legs therewith.

3. A caliper, having a body portion provided with an enlarged head and having a longitudinal socket concentric with the head, a pin adjustable in the socket, a pointer or indicator extending longitudinally from the body portion and formed integral therewith, caliper-legs, a longitudinal slot in the body, and a clamping device engaging the slot of the body portion and adjustably and pivotally connecting the legs therewith.

4. A caliper having a body portion provided with an enlarged head fixed thereto, a socket concentric with the head, a pin adjustable in the socket, a screw adapted to clamp the pin against movement, a pointer or indicator extending longitudinally from the body portion and formed integral therewith, caliper-legs, a longitudinal slot in the body, and a clamping device engaging the slot of the body portion and pivotally and adjustably connecting the legs therewith.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAY HARLEY SMITH.

Witnesses:
J. D. MARCH,
C. N. HOWARD.