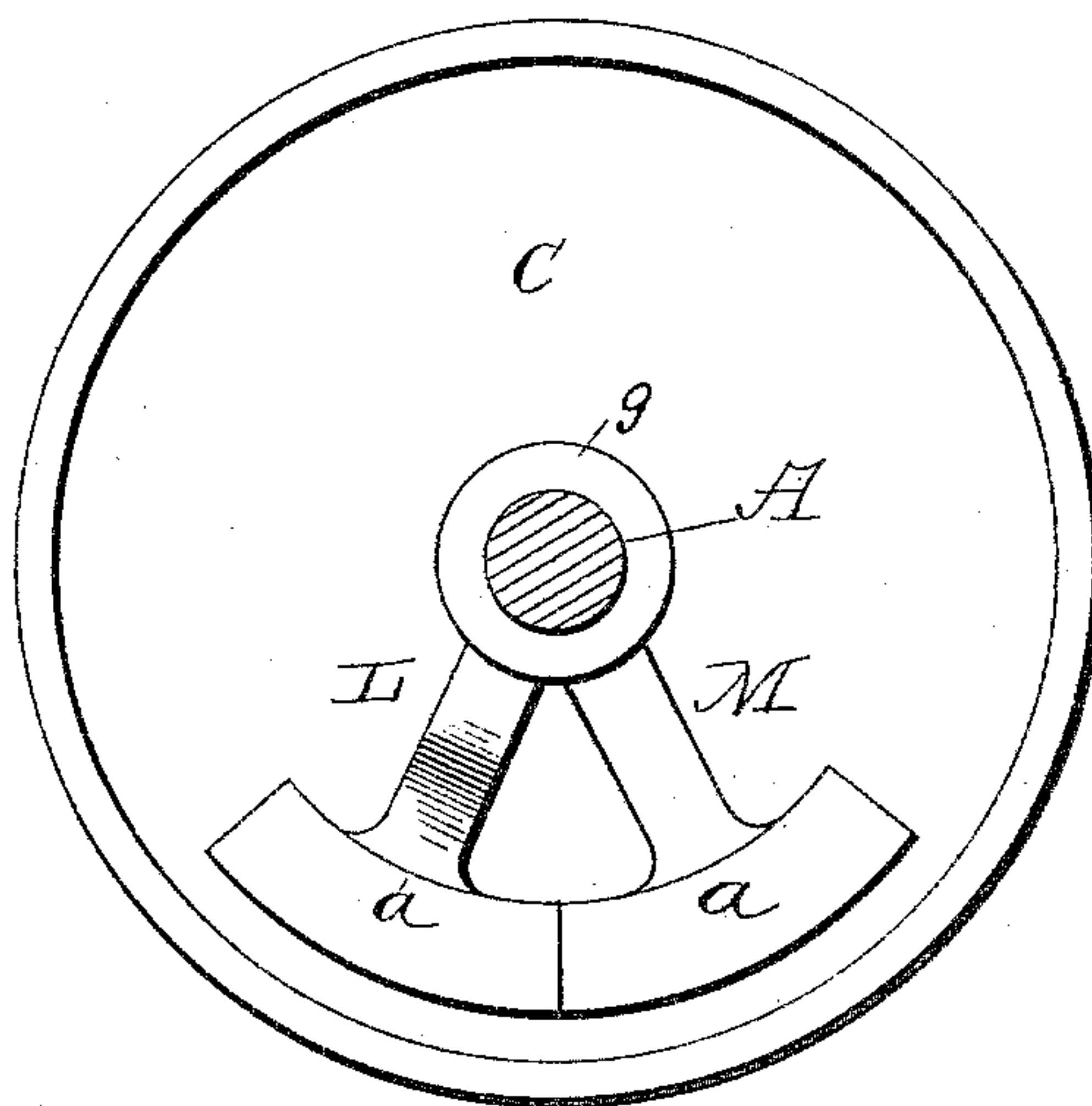
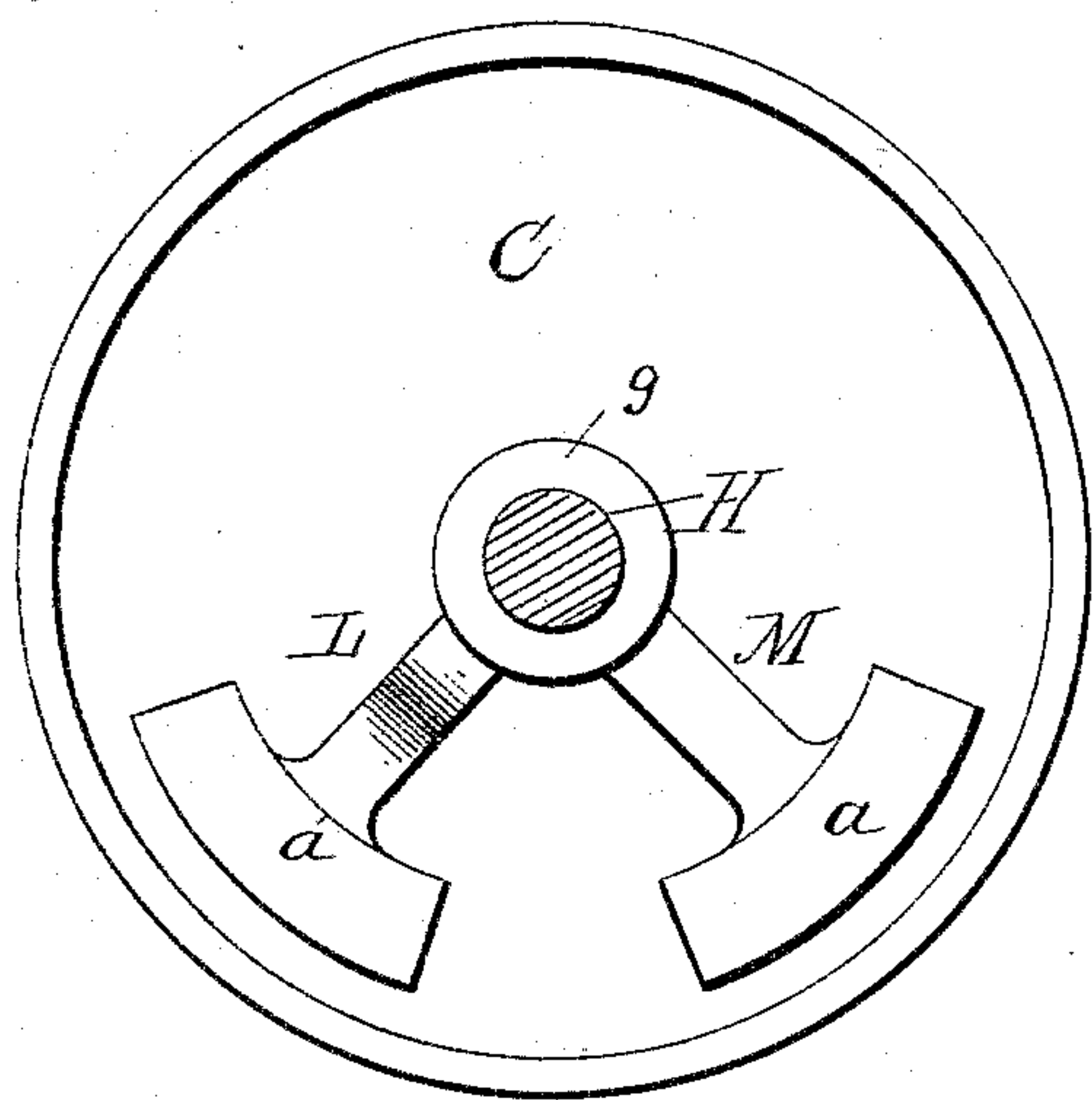
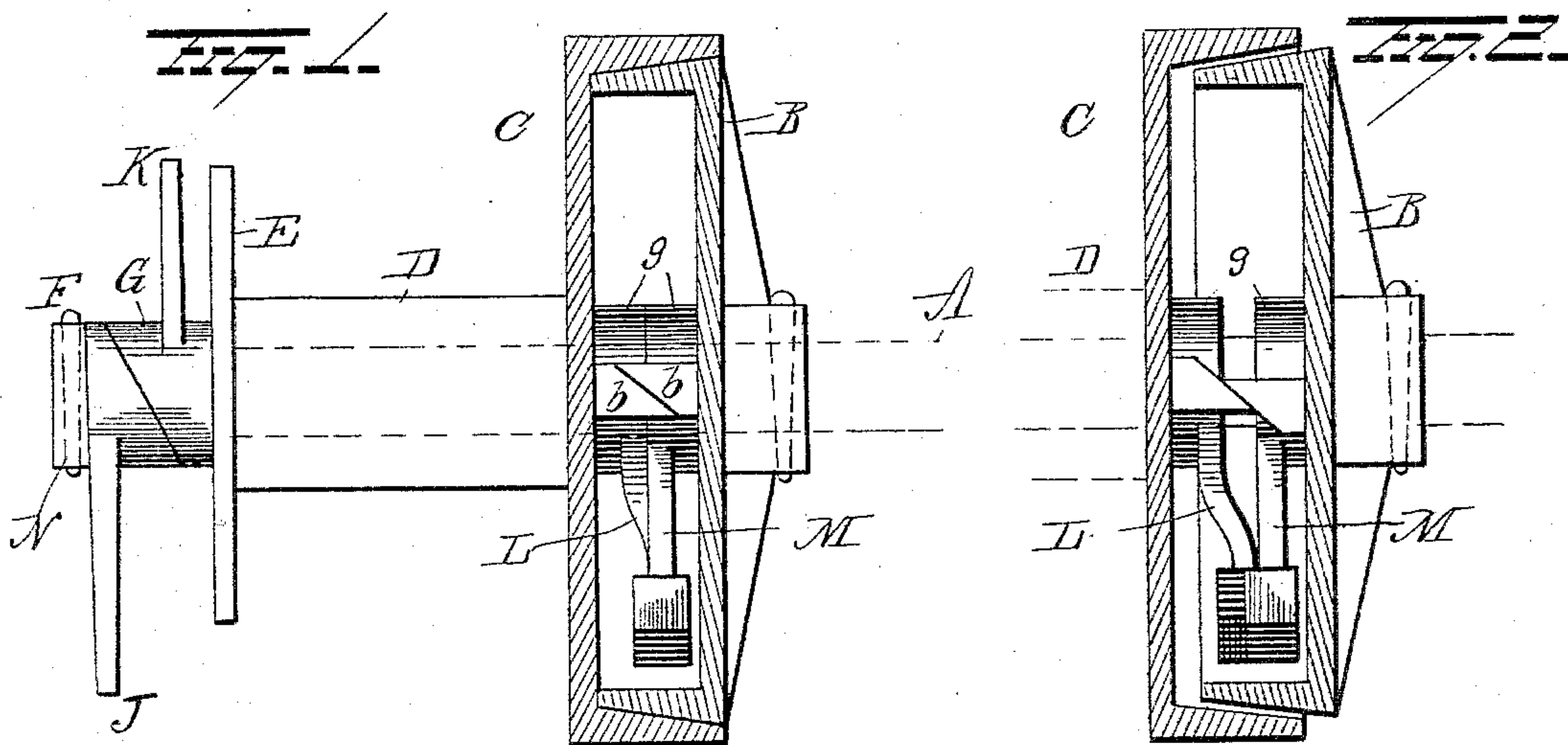


(No Model.)

G. W. KING & H. M. BARNHART.
FRICTION CLUTCH.

No. 401,176.

Patented Apr. 9, 1889.



Witnesses.

Ed. Viningham.
V.E. Hodges

Inventor

Inventor
G. W. Knig.
J. M. Barnhart.

By ~~their~~ Attorneys

Suggatt & Suggatt

UNITED STATES PATENT OFFICE.

GEORGE W. KING AND HENRY M. BARNHART, OF MARION, OHIO.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 401,176, dated April 9, 1889.

Application filed December 24, 1888. Serial No. 294,482. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. KING and HENRY M. BARNHART, of Marion, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Friction-Clutches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

Our invention relates to an improvement in friction-clutches, and more particularly to that class of clutches commonly known as "cone-clutches."

15 The object is to provide means for spreading the cones apart immediately upon lateral pressure being removed therefrom, and for preventing these cones from coming accidentally in contact with each other when the
20 drum is not in operation.

With this end in view our invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a side elevation of the shaft and connected mechanism with the cones in section. Fig. 2 is a sectional view, showing the cones spread apart. Fig. 3 is a view of the female cone,
30 showing the position assumed by the gravity-weights when the cones are together, as in Fig. 1; and Fig. 4 is a similar view showing the position which the weights assume when the cones are spread apart, as in Fig. 2.

35 A represents a rotary driving-shaft, upon which the male and female friction-cones B and C are mounted. The former is keyed to this shaft and the latter is loosely mounted thereon and has integrally formed therewith
40 the drum D. The drum is designed to receive a belt, and the annular flange E is provided on its outer edge to keep said belt within bounds and prevent it from sliding off of the drum. Outside of this drum D a pair of
45 cams, F and G, are loosely mounted, a ring, N, being keyed or otherwise secured on the end of the shaft outside of the said cams to hold them on, and at the same time furnish an abutment against which the cams act when
50 operated to force the cones together. To this end the lever J of the outside cam is secured to hold it in place, while the lever K is in po-

sition to be turned one way or the other to force the male and female cones together, or permit them to separate by the impingement
55 of the inclined faces of cams F and G.

The description thus far merely sets forth the mechanism for forcing the cones together, whereby their contiguous faces are made to grip each other according to the already well-
60 known operation of such devices; but the essential feature of our present invention consists in the following mechanism, designed especially for forcing the cones apart as soon as the cams F and G are set to remove lateral
65 pressure.

A pair of gravity-weights, L M, are loosely mounted on the shaft A between the cones. These are made heavy and enlarged at their
70 outer ends, *a*, so that they will drop quickly to the position shown in Figs. 2 and 4 when allowed to, striking each other and remaining in this position. Now, in order to utilize the motion of these weights when they drop, and
75 also place them in position to drop again, the inclines *b b* are formed on the hubs *g* of the weights, and are always in contact with each other, but only along the full extent of their
80 faces when the cones are together and the weights apart, as shown in Figs. 1 and 2.

In operation, the moment the cams F and G are loosened from each other the weights
85 drop, thereby, through the contact of the inclines *b*, forcing the cones apart. In other words, when the weights are down and together, the cones are always separated; but, on the other hand, when the weights are separated the cones are together.

It is evident that slight changes might be resorted to in the form and arrangement of
90 the several parts described without departing from the spirit and scope of our invention; hence we do not wish to limit ourselves to the particular construction herein set forth; but,
95

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a shaft and clutch-sections thereon, of hubs located between the
100 sections and carrying gravity-weights and inclines for separating said sections, substantially as set forth.

2. In a clutch, the combination, with a

shaft and clutch-sections thereon, of hubs located on said shaft and carrying inclines and weights for forcing the clutch-sections apart, and cams for forcing the clutch-sections together, substantially as set forth.

3. In a clutch, the combination, with a shaft, a clutch-section fixed thereon, a clutch-section loosely mounted thereon, and a drum secured to the loose section, of hubs loosely mounted on the shaft between the clutch-sections and carrying inclines and weights

for separating the clutch-sections, and cams for holding the clutch-sections together, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

GEORGE W. KING.
HENRY M. BARNHART.

Witnesses:

J. E. DAVIDS,
CHAS. R. McCULLOUGH.