

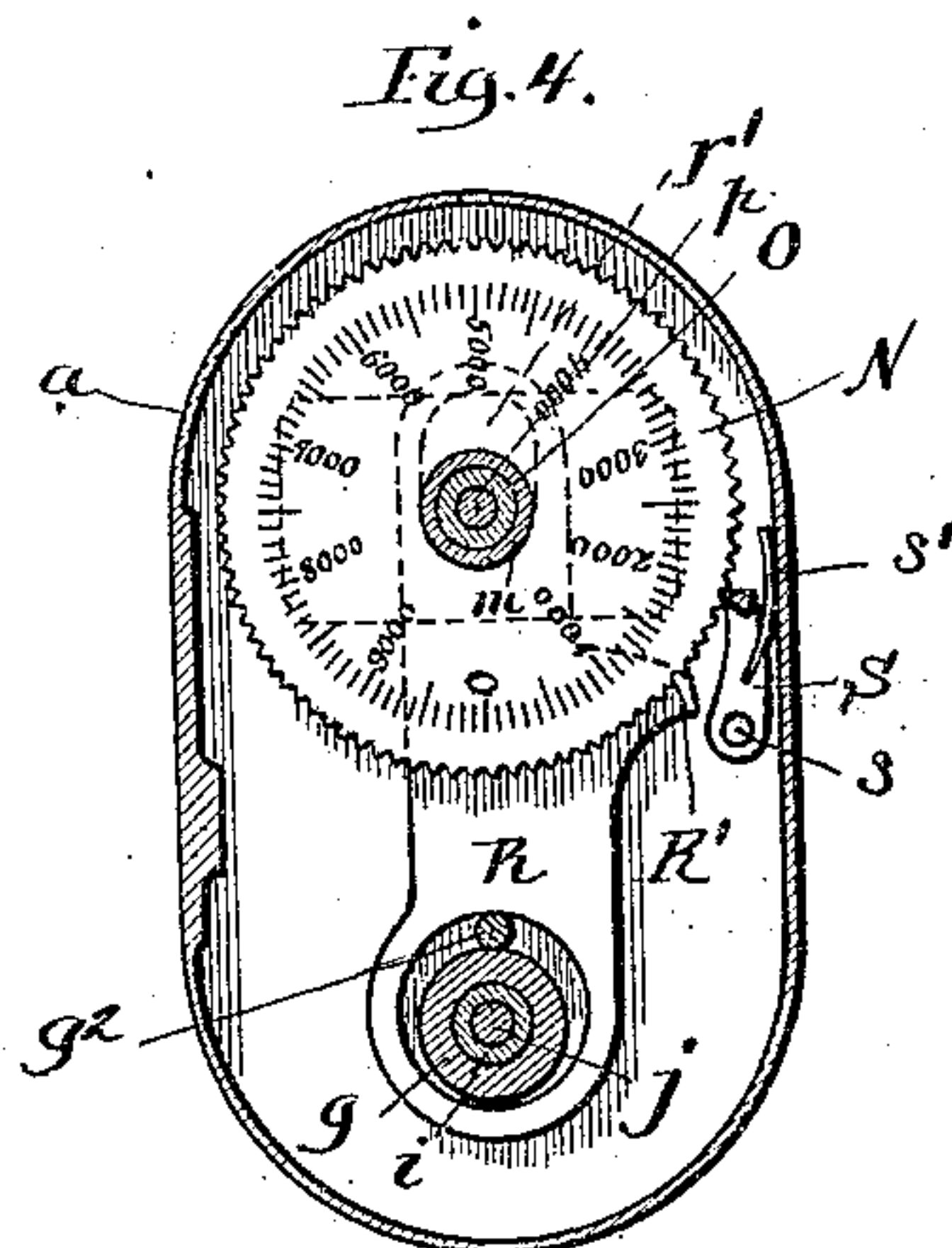
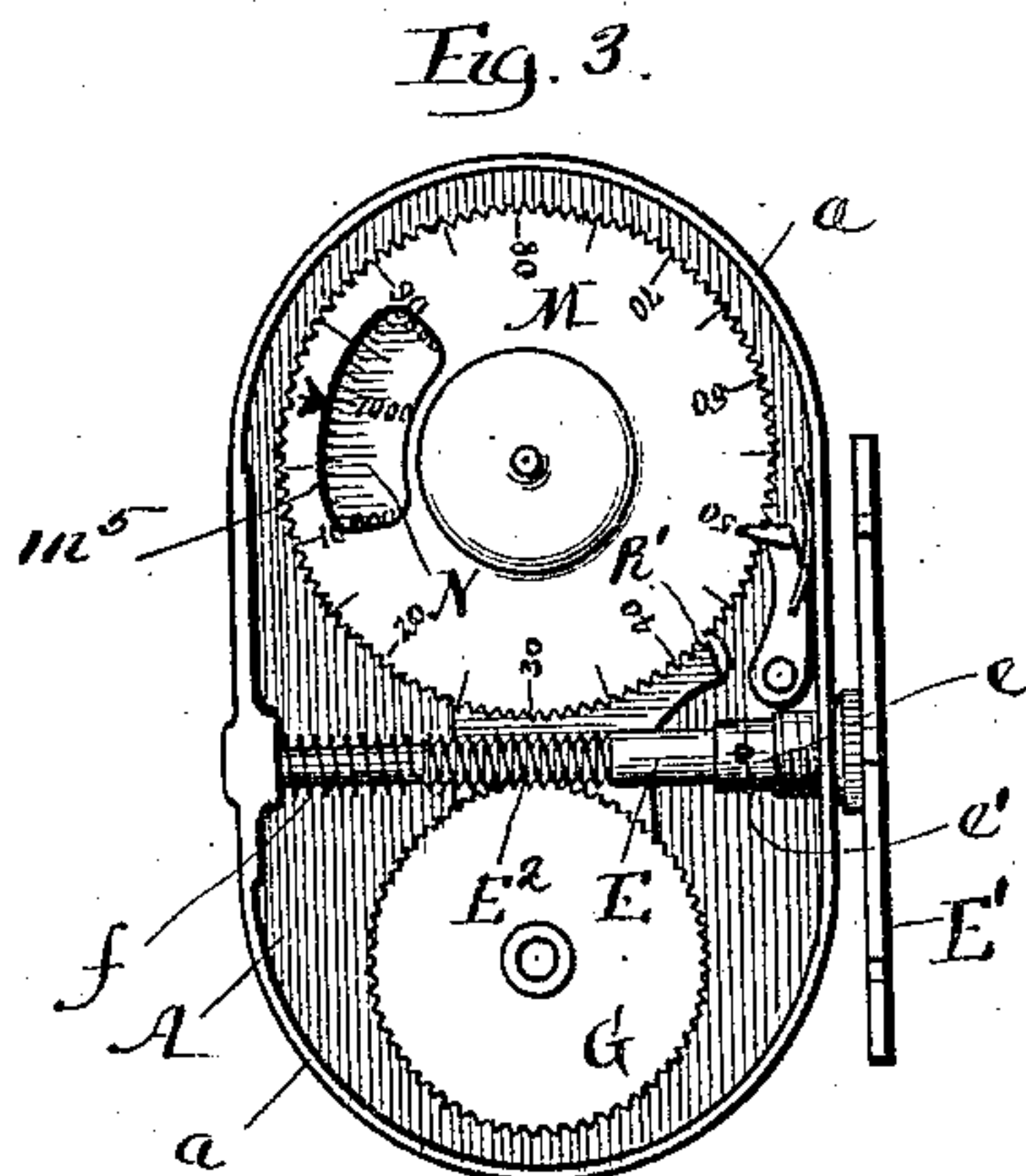
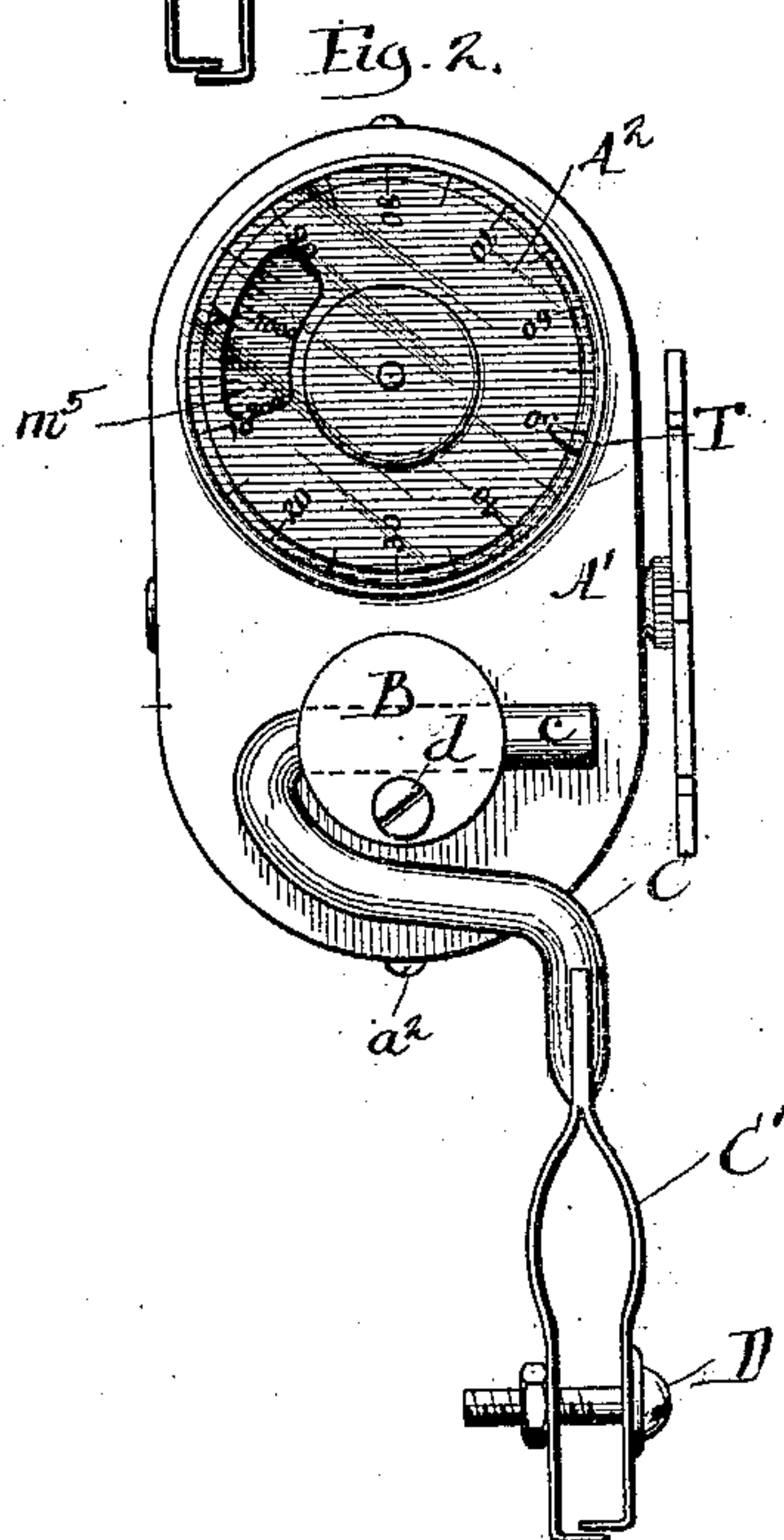
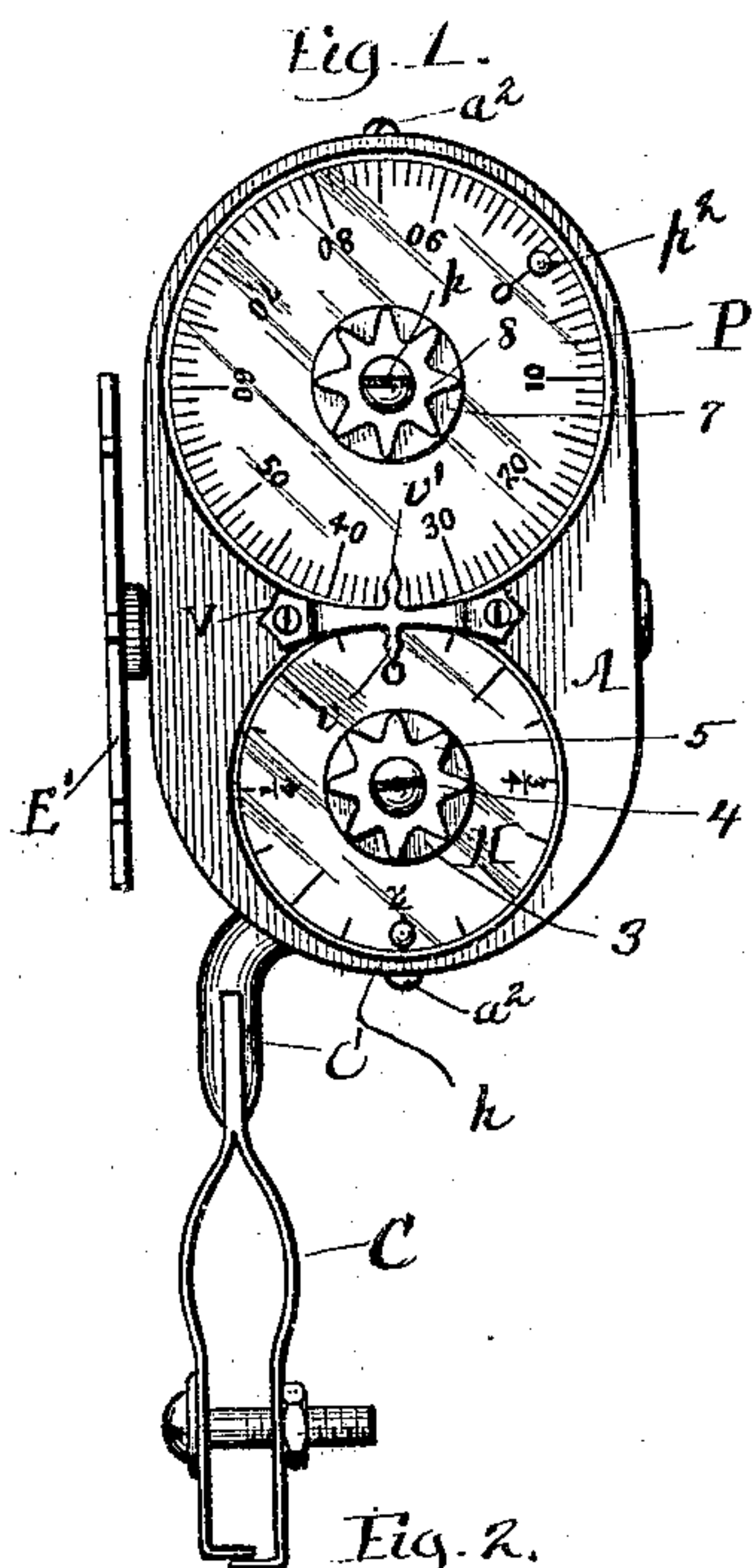
(No Model.)

2 Sheets—Sheet 1.

J. ROGGINGER.
CYCLOMETER.

No. 554,460.

Patented Feb. 11, 1896.



Witnesses:

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Inventor:

J. Rogginger

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

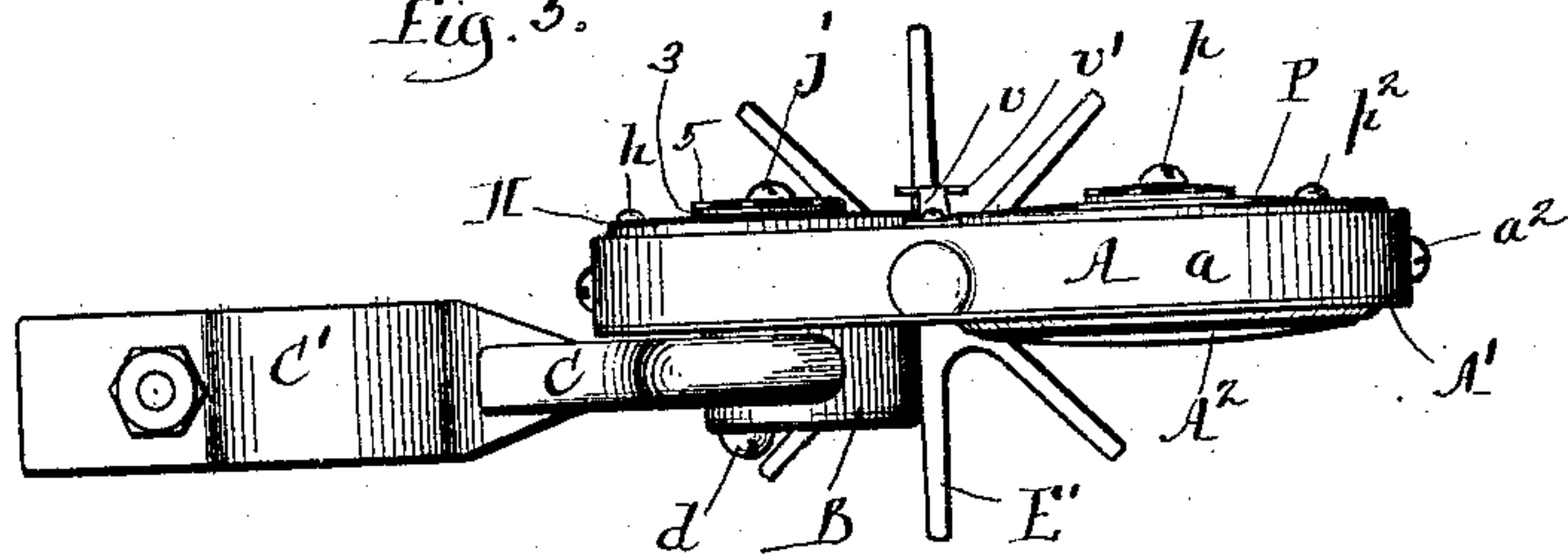


Fig. 6

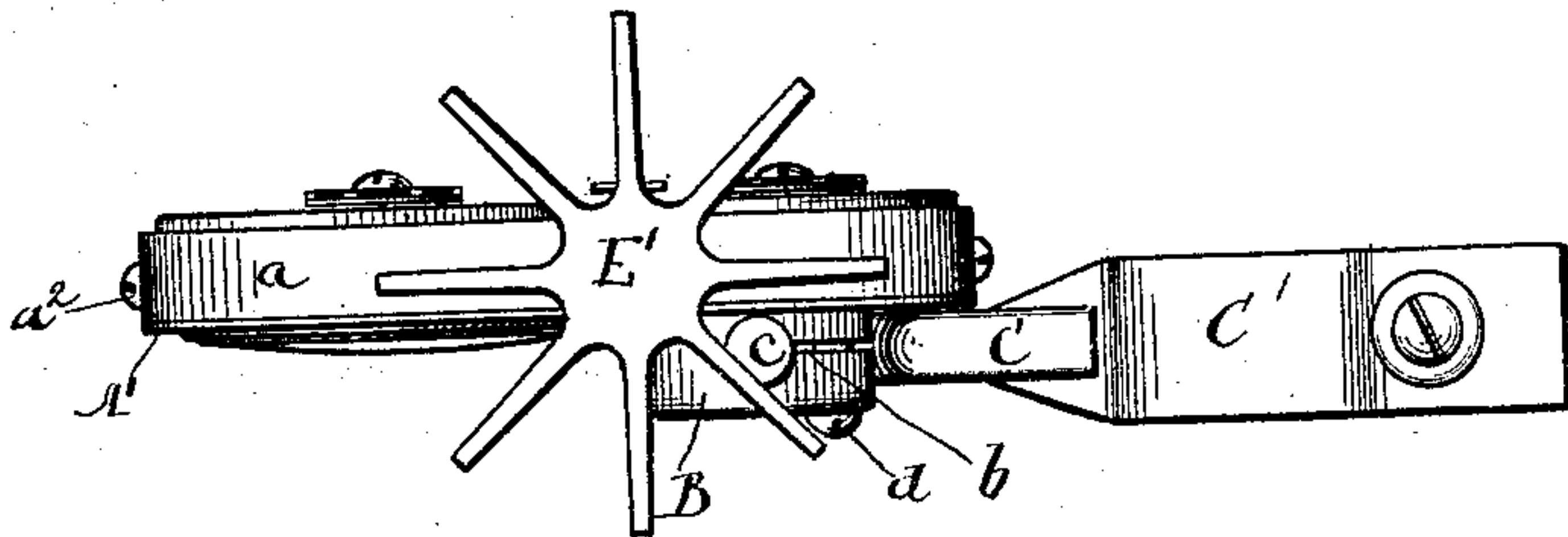


Fig. 7

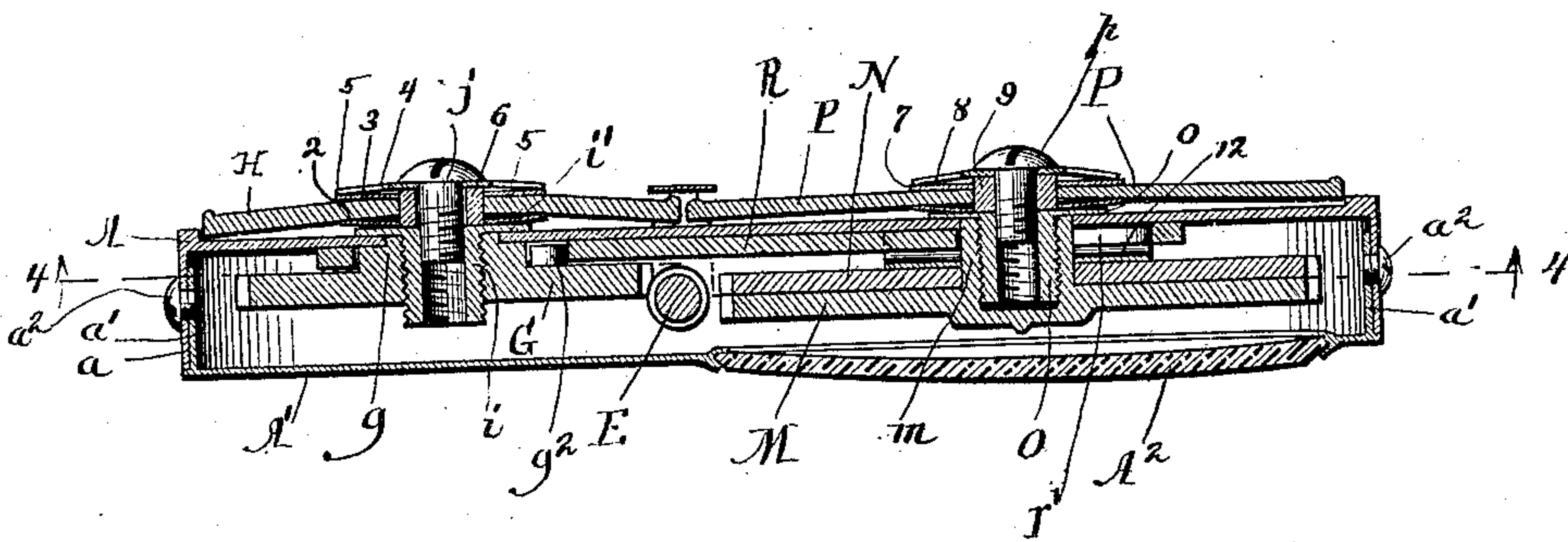


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN ROGGINGER, OF CHICAGO, ILLINOIS, ASSIGNOR TO LOUIS SCHLESINGER, OF SAME PLACE.

CYCLOMETER.

SPECIFICATION forming part of Letters Patent No. 554,460, dated February 11, 1896.

Application filed July 29, 1895. Serial No. 557,430. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROGGINGER, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Cyclometers, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

In the manufacture of cyclometers, particularly of the kind more especially adapted for use in connection with bicycles, it is highly desirable that the construction shall be exceedingly light, durable and simple, in order to add as little weight as possible to the machine and withstand the jarring action incident to the travel of the machine. It is desirable also that the construction shall be such that the rider from his position upon the wheel can readily read the dials.

My invention has for its object to provide a light, simple, cheap, and durable construction of cyclometer, and this object has been accomplished by the novel features hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

Figure 1 is a plan view of my improved cyclometer. Fig. 2 is a similar view from the opposite side. Fig. 3 is a view from the back or under side with the cover removed. Fig. 4 is a view in longitudinal section on line 4 4 of Fig. 7. Fig. 5 is a view in side elevation looking in the direction of the arrow, Fig. 1. Fig. 6 is a view, in side elevation from the opposite side of that shown in Fig. 5. Fig. 7 is a view in central vertical section upon an enlarged scale. Fig. 8 is a perspective of a spring-plate on one of the ratchet-wheel hubs.

A designates the case of my improved cyclometer, this case being preferably of the shape shown in the drawings and having the side or rim a over which fits a lid or cap A' . This lid or cap A' is preferably held in place by means of lugs a' extending inwardly therefrom at its ends and provided with holes to receive the set-screws a^2 . The bottom or lid A' of the casing is preferably formed with a sight-opening covered by a glass plate A^2 to permit the inspection of the figures arranged upon the side of the gear-wheels immediately

above it. By the removal of the lid A' ready access can be had to the mechanism within the casing A in order to clean or repair the same or to reset the wheels. To the outside of the lid or cover A' is preferably connected a boss B formed with a longitudinal slit or opening b and with a transverse seat or perforation to receive the arm c of the bracket C , whereby the cyclometer is held in position upon the machine. A set-screw d passing through a threaded hole in the boss B enables the sections of the boss to be clamped onto the arm c in order to retain the casing A in proper position. The bracket C is provided with spring-metal arms C' perforated to receive a through-bolt D , whereby the arms will be securely fastened to one of the front forks of the machine-frame, as will be readily understood by those familiar with this class of devices.

In the side wall a of the casing A are journaled the ends of a worm-shaft E , (see Fig. 3,) this shaft being preferably formed of sections united together to permit the shaft to be readily set in place. Preferably the main section of the shaft E will be formed with a head e , perforated to receive the inner end of the shorter or outer section of the shaft, these sections being joined together by a pin e' . To the outer end of the shaft E is connected the sprocket or spur wheel E' , that receives motion from a suitable striker-pin, (not shown,) attached to the wheel of the machine in manner well understood. Preferably the reduced portion of the inner section of the shaft E is encircled by coil-spring f , that bears upon the side of the casing adjacent the end of the shaft and so guards the shaft against accidental rotation. With the screw-threaded portion or worm E^2 of the shaft E engage the teeth of a gear-wheel G , with which is connected a dial H , whereby each individual mile or fractions thereof will be registered. By preference the connection between the gear-wheel G and the dial H is effected as shown more particularly in Fig. 7 of the drawings—that is to say, the gear-wheel G is formed with a hub g having a reduced portion that projects upwardly through the top plate of the casing A , this hub being interiorly threaded to receive a correspondingly-threaded stem

or bushing i , the flanged head i' of which rests upon the upper end of the hub g of the gear-wheel G. By this means the gear-wheel G can be accurately held in position without danger of unnecessary friction. The dial II is attached to the bushing i by means of a screw j , that passes through the dial and enters a threaded hole formed in the bushing i . By preference also a washer 2 is interposed between the under side of the dial II and the headed end i' of the bushing i , and a similar washer 3 rests upon the upper face of the dial II, and upon this upper washer is placed a plate 4, preferably of spring metal, the arms 5 of which plate bear upon the washer 3 and thus hold the dial with sufficient force to prevent its accidental turning and insure its movement with the bushing i as the latter is revolved by the operation of the gear-wheel G. To prevent the binding of the dial, I prefer also to fit a short sleeve 6 around the screw j , this sleeve serving to take the pressure when the screw is forced inward very tightly. The sleeve 6 sets within an opening formed centrally of the dial II.

At the opposite end of the casing A are mounted the ratchet-wheels M and N, arranged in the same horizontal plane as the gear-wheel G and upon the opposite side of the worm-shaft E. The ratchet-wheel M is preferably formed with a hub m that extends upwardly through the ratchet-wheel N and through the top plate of the casing A, and this hub m is formed with a threaded opening to receive the correspondingly-threaded bushing O, the expanded cap or head o of which bears upon the upper end of the hub m outside the casing A. Upon the end o of the bushing O rests the dial P, that is held in place by means of a screw p , the threaded end of which passes into a correspondingly-threaded hole formed in the bushing O. Preferably a washer 7 and friction-plate 8 are interposed between the head of the screw p and the dial P, and by preference also a short sleeve 9 encircles the screw p and serves to receive the thrust of the screw-head when the screw p is screwed tightly to place. The ratchet-wheel N fits loosely upon the hub m of the ratchet-wheel M, and above this ratchet-wheel N and loosely encircling the hub m is the spring plate or washer 12, the upturned outer ends of which bear upon the under side of the top plate of the casing A. The outer face of the ratchet-wheel M near its periphery is marked with a series of figures indicating miles up to one hundred and the lower face of the ratchet-wheel N is marked with figures and points indicating hundreds of miles up to ten thousand, and in order to permit the figures and points upon the ratchet-wheel N to be readily seen the ratchet-wheel M will be formed with a segmental slot or sight-opening m^5 opposite that part of the ratchet-wheel N upon which the figures and points are marked.

In order to transmit motion from the gear-wheel G, which for convenience may be termed

the "fraction-wheel," to the ratchet-wheels M and N, which for convenience may be termed the "totalizing-wheels," I employ the mechanism next to be described. Upon the upper face of the gear-wheel G adjacent its hub g is fixed an eccentric-pin g^2 , and around this pin g^2 and the hub g fits the yoke-shaped end of the driving-arm R, the opposite end of this arm R being formed with a long slot or opening r' that loosely receives the hub m of the ratchet-wheel M, the driving-arm R located immediately beneath the top plate of the casing. The driving-arm R is provided with a pawl R' arranged to engage the peripheral teeth of the ratchet-wheels M and N. With the teeth of these ratchet-wheels also engages a check-pawl S that is pivotally connected to the casing, as at s , this check-pawl being forced into normal engagement with the teeth of the ratchet-wheels by means of a spring s' .

From the foregoing description it will be seen that when motion is transmitted from the machine-wheel to the sprocket or spur wheel E' and to the worm-shaft E² the gear-wheel G will be revolved and like revolution will be thus imparted to the indicator-dial II attached to the hub of this wheel. As the gear-wheel G is thus revolved the eccentric-pin g^2 will transmit a back and forth and swinging movement to the driving-arm R, thereby causing the pawl R' of this arm to revolve the ratchet-wheels M and N. The periphery of the ratchet-wheel M is formed with ninety-nine teeth, while the periphery of the ratchet-wheel N is formed with one hundred teeth—that is to say, there is a difference of one in the number of teeth with which these wheels are provided. Consequently while the wheels M and N are revolved by the driving-arm R and its pawl R', it will be seen that at each complete revolution of these wheels the ratchet-wheel N will make a slight additional movement beyond the movement of the wheel M, and this movement will equal the space between the points marked upon the face of the wheel N. Hence it will be seen that at each complete revolution of the wheel M, which will indicate a hundred miles, the relative position between the wheels M and N will be shifted the distance of one point upon the wheel N and this point will indicate upon this wheel the distance of one hundred miles traveled by the machine. The ratchet-wheels M and N thus totalize the number of miles traversed by the machine until such number reaches ten thousand. Upon the inside of the casing A a pointer T projecting from pawl S extends slightly over the ratchet-wheel M, enabling the extent of revolution made by this ratchet-wheel to be readily noted.

The dials II and P are furnished respectively with a pin or projection h and p^2 located at the zero-points of the dials, and to the top plate of the casing is fixed a bar V carrying the pointers v and v' that project,

respectively, above the dials H and P. The dial H has its upper face marked with a series of points and figures indicating the fractions of one mile, while the dial P has its face marked with a series of points and figures indicating miles up to one hundred.

At the beginning of a ride the dials will be turned until the projections h and p^2 are brought beneath the pointers v and v' , the projections h and p^2 permitting the dials to be readily shifted. It will be understood, of course, that this shifting of the dials will in no wise disturb the fraction-wheel G or the totalizing-wheels M and N, since the dials are frictionally connected with their respective wheels. The exposed faces of the dials will permit the rider to readily observe the distance traveled, while by inspecting the totalizing-wheels through the glass A^2 upon the under side of the casing the total number of miles traveled beyond one hundred and up to ten thousand can be readily noted.

By arranging the fraction-wheel and the totalizing-wheels in the same horizontal plane and at opposite sides of the worm-shaft E, I am enabled to use a very shallow casing, and by the driving mechanism shown the movement is readily and effectively transmitted from the fraction-wheel to the totalizing-wheels. By attaching the dials to their respective wheels in the manner above described these dials can be readily shifted when desired, and all unnecessary friction incident to the rotation of the wheels and dials can be avoided.

It is manifest that, instead of employing revolving dials, revolving pointers might be used, and other changes within the knowledge of the skilled mechanic may be made without departing from the spirit of the invention. So, also, any equivalent means may be used for the spur or sprocket wheel E', and I do not wish the claims to be limited specifically to a construction embodying such wheel.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cyclometer the combination with an inclosing casing, of a worm-shaft extending across said casing and journaled therein and having one end projecting therethrough and provided with means for receiving motion from the vehicle-wheel, a gear-wheel engaging said worm-shaft at one side thereof, an indicator connected to the shaft of said gear-wheel, and one or more totalizing-wheels mounted within the casing at the opposite side of said worm-shaft and arranged to revolve in a plane substantially parallel with the plane of said gear-wheel, the shaft of one of said totalizing-wheels being extended outside the inclosing casing and provided with an indicator frictionally connected thereto and means for transmitting motion from said gear-wheel to said totalizing-wheels, substantially as described.

2. In a cyclometer, the combination with an inclosing casing, of a worm-shaft extending across said casing and having one end projecting therethrough and provided with means for receiving motion from the vehicle-wheel, a gear-wheel engaging said worm-shaft at one side thereof, an indicator connected to the shaft of said gear-wheel, two totalizing-wheels mounted upon the same shaft within the casing and at the opposite side of said worm-shaft and arranged to revolve in a plane substantially parallel with the plane of said gear-wheel, the peripheries of said totalizing-wheels being provided with teeth, means for engaging the teeth of said totalizing-wheels and whereby motion is transmitted thereto from the shaft of said gear-wheel, and an indicator arranged outside the inclosing casing and adjustably connected to the shaft of said totalizing-wheels, substantially as described.

3. In a cyclometer, the combination with an inclosing casing, of a worm-shaft extending across said casing and having one end projecting therethrough and provided with means for receiving motion from the vehicle-wheel, a gear-wheel engaging said shaft at one side thereof, a disk-shaped indicator arranged outside the casing and connected to the shaft of said gear-wheel, one or more totalizing-wheels mounted within said casing at the opposite side of said worm-shaft and arranged to revolve in a plane substantially parallel with the plane of said gear-wheel, a disk-shaped indicator adjustably connected to the shaft of said totalizing-wheels and arranged outside the inclosing casing and in substantially the plane of said before-mentioned indicator, a fixed pointer for each of said indicators and means within the casing whereby motion is transmitted from the shaft of the gear-wheel to said totalizing-wheels, substantially as described.

4. In a cyclometer, the combination with an inclosing casing, of a worm-shaft extending across said casing and having one end projecting therethrough and provided with means for receiving motion from the vehicle-wheel, a gear-wheel engaging said worm-shaft at one side thereof, an indicator connected to the shaft of said gear-wheel and arranged outside the inclosing casing, two totalizing-wheels mounted within the casing at the opposite side of said worm-shaft and arranged to revolve in a plane substantially parallel with the plane of said gear-wheel, the peripheries of said totalizing-wheels being provided with teeth, means for engaging the teeth of the totalizing-wheels and whereby motion is transmitted thereto from the shaft of said gear-wheel, and an indicator arranged outside said casing and adjustably connected with the shaft of said totalizing-wheels, one of said totalizing-wheels being provided with numerals upon its face, and being cut away to expose therethrough the numerals on the face of the other totalizing-wheel, substantially as described.

5. In a cyclometer, the combination with a shallow inclosing casing provided on its under side with a covered sight-opening, of a worm-shaft extending across said casing and having one end projecting therethrough and provided with means for receiving motion from the vehicle-wheel, a gear-wheel engaging said worm-shaft and arranged in the plane of the length of said casing, an indicator located upon the top of said casing and connected to the shaft of said gear-wheel, one or more totalizing-wheels mounted within said casing and arranged to revolve in a plane substantially parallel with the plane of said gear-wheel, the peripheries of said totalizing-wheels being provided with teeth, means for engaging the teeth of the totalizing-wheels and whereby motion is transmitted thereto from the shaft of the gear-wheel, an adjustable disk-shaped indicator located on the top of said inclosing casing and connected with the shaft of said totalizing-wheels, one of said totalizing-wheels being provided with numerals on its face and being cut away to expose therethrough and through the sight-opening of the casing the numerals on the face of the other of said totalizing-wheels, substantially as described.

6. In a cyclometer, the combination with an inclosing casing, of a worm-shaft journaled in said casing, a gear-wheel at one side of said worm-shaft and engaging therewith, said gear-wheel having frictionally connected thereto an indicator arranged on the outside of said casing, totalizing-wheels within said casing and arranged in substantially the same horizontal plane as said gear-wheel, an indicator connected with one of said totalizing-wheels and arranged outside the casing in proximity to said first-mentioned indicator, and means for transmitting motion from said gear-wheel

to said totalizing-wheels, substantially as described.

7. In a cyclometer, the combination with an inclosing casing, of a gear-wheel sustained therein, said gear-wheel having an interiorly-threaded hub projecting through the inclosing casing, a bushing engaging said hub, an indicator mounted upon said bushing, and a screw whereby said indicator is frictionally connected to said bushing, substantially as described.

8. In a cyclometer, the combination with a worm-shaft, and with a gear-wheel engaging therewith and having an interiorly-threaded hub, an interiorly and exteriorly threaded bushing engaging said threaded hub, an indicator in frictional engagement with said bushing and a screw for connecting said indicator to said bushing, substantially as described.

9. In a cyclometer, the combination with an indicator and with a wheel whereby movement is transmitted to said indicator, of a screw for holding said indicator in place, and a short sleeve encircling said screw and serving to receive the pressure when the screw is forced firmly to place.

10. In a cyclometer, the combination with an inclosing casing, of a worm-shaft within said casing, a gear-wheel engaging said worm-shaft, a dial located upon the outside of said casing, said gear-wheel being provided with a hub extending outside the casing and a boss having an expanded head arranged outside the casing and adapted to rest upon the outer end of said hub, substantially as described.

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Witnesses:

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