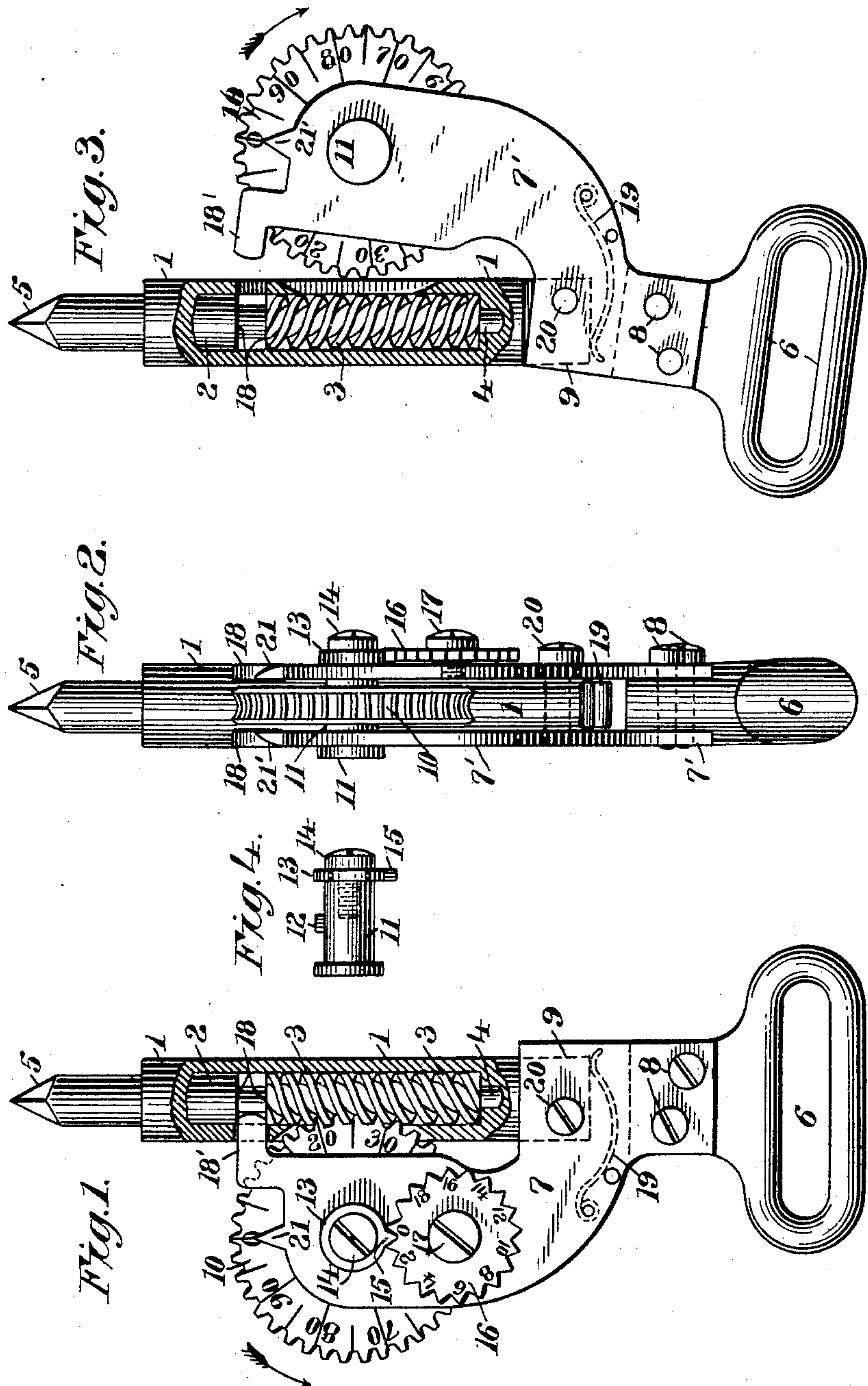


(No Model.)

A. B. CALKINS.
SPEED MEASURE.

No. 435,013.

Patented Aug. 26, 1890.



Witnesses
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- BY -
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UNITED STATES PATENT OFFICE.

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SPEED-MEASURE.

SPECIFICATION forming part of Letters Patent No. 435,013, dated August 26, 1890.

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To all whom it may concern:

Be it known that I, ALMON B. CALKINS, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Speed-Counters; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to revolution speed-counters, and particularly to that class operated by hand, as hereinafter more fully described, and particularly pointed out in the claim.

The object of my invention is to combine in a cheaply-constructed counter many advantages not found in more expensive instruments for ascertaining the revolutions of shafting or other revolving bodies.

Heretofore hand-counters have been made with a hand-piece, a holder projecting therefrom, a spindle placed longitudinally within such holder and arranged to be revolved therein, that portion of such spindle projecting without the holder having an angular point to engage with the center or axis of a revolving shaft, a portion of the spindle within the holder being threaded to engage a dial gear-wheel having figures and graduations on its face, combined with a stationary pointer to indicate the number of revolutions. Before applying the instrument it is necessary, first, to set the dial by bringing the zero-mark thereon to the pointer, a watch being held in one hand while the counter is manipulated with the other. To obtain a correct reading, the zero-mark on the dial-face of the counter-wheel and the hand of the watch from some point on its face should start simultaneously. This is a difficult operation, as three things will have to be watched at the same time—viz., the point of the counter-spindle, the center of the revolving shaft, and the watch. In my improved device the dial-wheel is so arranged that at the will of the operator it can be thrown in and out of mesh with the screw of the revolving spindle, thus

enabling the operator to set the dial-wheel at zero while the spindle is engaged with the revolving shaft, after which the whole attention of the operator can be given to the watch. The engaging of the dial-wheel with the spindle-screw at the proper time will require no attention on the part of the operator, except a slight movement of the hand.

To more fully understand my invention, reference is had to the accompanying drawings, forming a part of this specification.

Figure 1 represents a side elevation of the counter and broken sectional view of the spindle-holder. Fig. 2 represents a top plan. Fig. 3 represents a side elevation of the reverse side shown in Fig. 1, also a broken sectional view of the spindle-holder. Fig. 4 represents a detail view.

Its construction and operation are as follows: 1 represents the spindle-holder; 2, a spindle journaled therein; 3, a threaded portion of the spindle; 4, a reduced portion of such spindle stepped in holder 1; 5, an angular point of the spindle to engage with the center of a revolving shaft; 6, a handle; 7 7', side pieces secured to handle 6 by screws 8, said handle keeping the side pieces 7 7' a sufficient distance apart to admit tenon 9 of the spindle-holder 1; also dial-wheel 10, which wheel is secured on pin 11 by key 12. Said pin is also journaled in the sides 7 7'. 13 is a collar secured to such pin by screw 14, said collar having dog 15; 16, a multiplying-wheel journaled on screw 17 of side piece 7', said wheel having teeth to engage with dog 15; 18, a groove in the spindle 2; 18', projections of the side pieces 7 7', which projections engage with the side walls of such groove and retain such spindle in the holder 1; 19, a spring secured to one of the side pieces, the free end of which spring exerts a pressure on tenon 9 of the spindle-holder 1 to keep dial-wheel 10 and screw 3 engaged. When necessary to apply this instrument, the pointer 5 of the spindle 1 is inserted into the center of a revolving shaft, and with sufficient pressure in the direction of the axis of such shaft to prevent such point from slipping the spindle will instantly revolve with the shaft. A slight downward pressure on the handle 6, with such handle as a lever, and the engagement of the point of the spindle with the shaft as the fulcrum, will cause the frame

composed of the side pieces 7 7' to swing upward on screw 20, which screw connects such side pieces with spindle-holder 1, and will carry such dial-wheel 10 out of contact with spindle-screw 3. (See Fig. 1.) The zero-point of such dial-wheel may then be brought to the pointer 21 in readiness to begin the count. When the hand of the watch has reached the exact point from which the time will be reckoned, the operator will release the pressure on the handle 6, when the dial-wheel will, by the action on the spring 19, engage with the spindle-screw; such engagement being instantaneous, no time is lost, and a correct reading is obtained. The number of teeth of the dial-wheel 10 are so proportioned with the pitch of the spindle-screw, that one revolution of such wheel will indicate one hundred revolutions of the spindle. The multiplying-wheel 14 (see Fig. 3) has twenty teeth. One revolution of such wheel means twenty revolutions of the dial-wheel 10 and two thousand revolutions of the spindle 2. The dial-wheel and multiplying-wheel require no attention until the operation of timing is completed. If the revolutions have exceeded one hundred, then the tooth of the multiplying-wheel pointing to the axis or center of the dial-wheel will give the number of revolutions in hundreds, and the graduation on the dial-wheel 10 at the pointer 21, added to the number on the multiplying-wheel, will give the exact number of revolutions of the spindle 2. The pointer 21 of side piece 7 (see Fig. 1) may be used in connection with the graduations on that side of the dial 10 shown in this view for a left-hand count. If necessary, a multiplying-wheel similar to wheel 16 may be attached to side piece 7' but as this would add to the expense of construction, and as it would only be required in a few instances, the figures on dial-wheel 10

numerate in this view in the opposite direction from the side shown in Fig. 3, it being in this case a simple matter to take the reading on the multiplying-wheel 16 in the opposite direction.

The throw-out feature of the dial-wheel and the multiplying-wheel, combined with such dial-wheel for obtaining a long count, together with simplicity of construction, makes it a cheap, reliable, and useful instrument.

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

The combination, in a speed-counter, of the spindle 2, having the threaded portion 3 and groove 18, spindle-holder 1, having at one end the tenon 9 and at the opposite end a chamber to receive the threaded spindle, combined with the side pieces 7 7', which side pieces embrace the tenon of the spindle-holder and pivoted thereto and arranged to swing on such pivoted connection dial-wheel 10, rigidly mounted on pin 11, which pin is journaled in the side pieces, collar 13, having dog 15, said dog engaging with the multiplying-wheel 16, which wheel is journaled to one of the side pieces, spring 19 to act against the spindle-holder to preserve the engagement of the dial-wheel with the threaded portion of the spindle, and projections 18' of the side pieces to engage with the groove 18 of said spindle to retain such spindle within its holder, all substantially as shown and set forth.

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

ALMON B. CALKINS.

Witnesses.

GEO. D. PHILLIPS,
SIG. LOEWITH.