

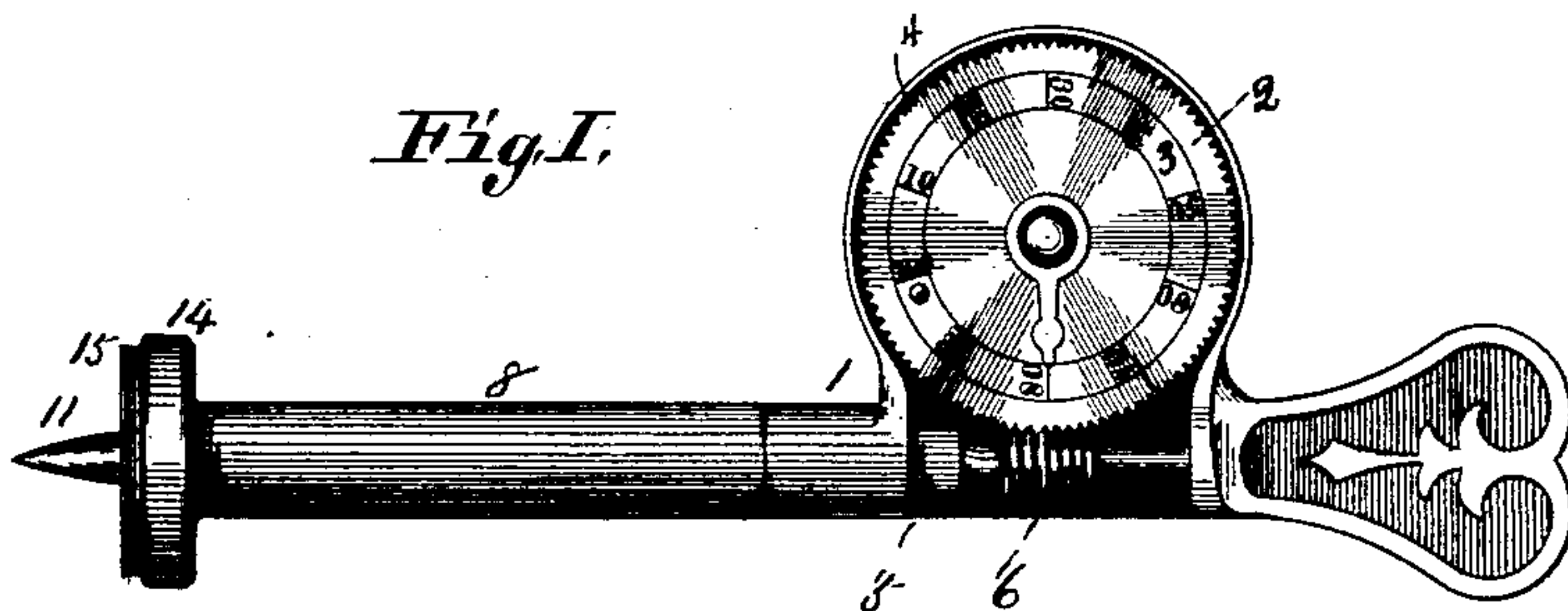
(No Model.)

E. C. SMITH.  
SPEED INDICATOR.

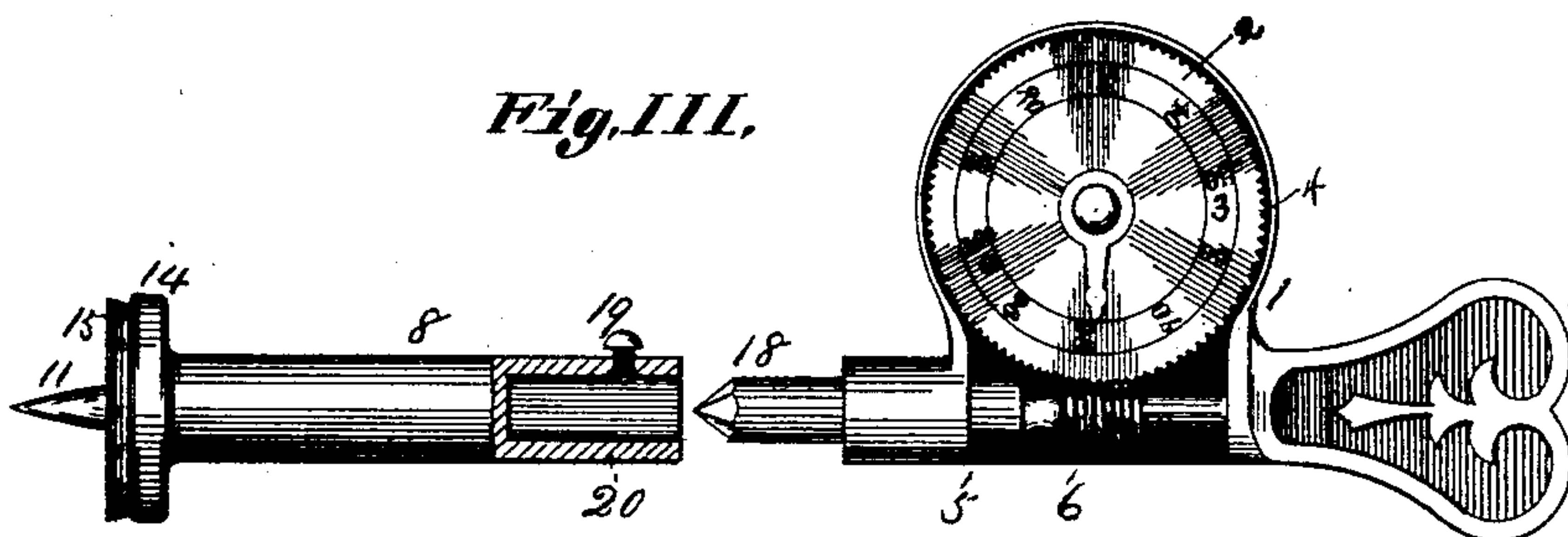
No. 397,395.

Patented Feb. 5, 1889.

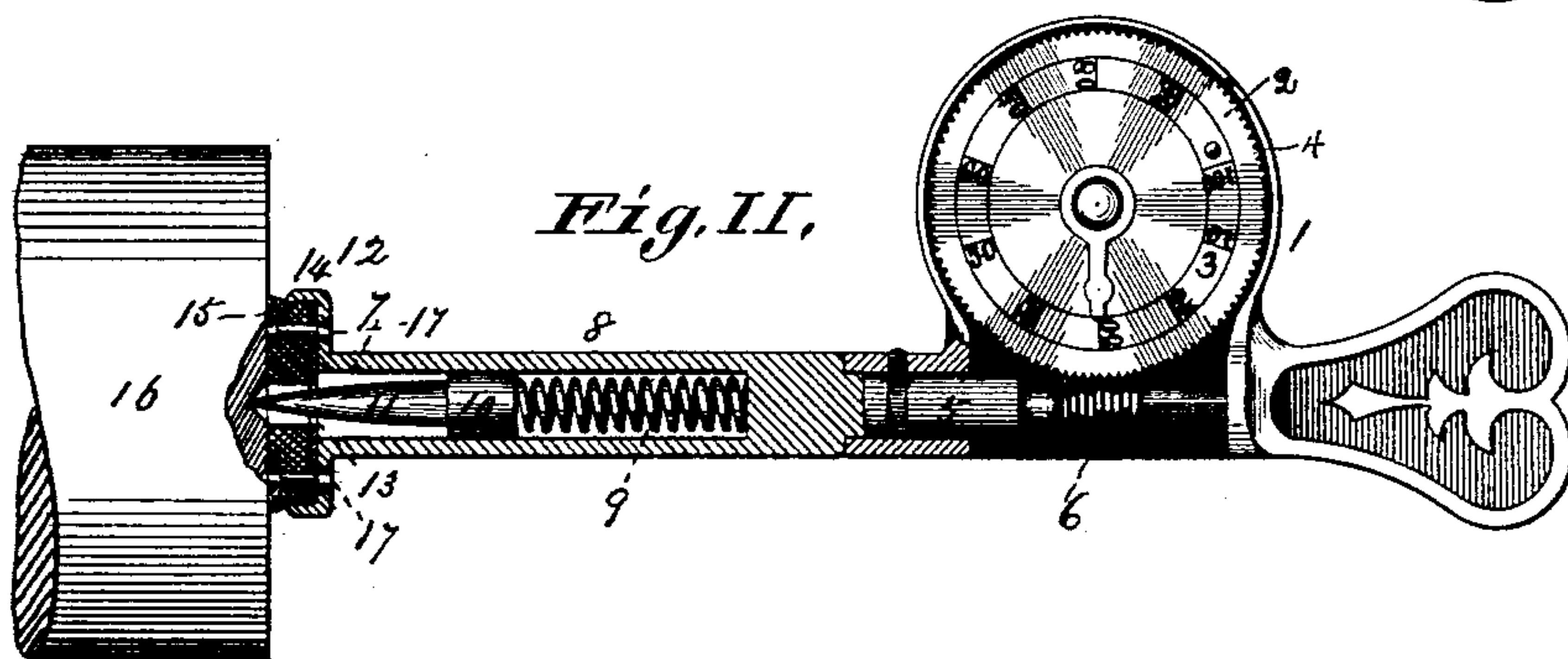
*Fig. I.*



*Fig. III.*



*Fig. II.*



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# UNITED STATES PATENT OFFICE.

EUGENE C. SMITH, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO  
CLIFTON C. SCUDDER, OF SAME PLACE.

## SPEED-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 397,395, dated February 5, 1889.

Application filed February 13, 1888. Serial No. 263,856. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE C. SMITH, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Speed-Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention has a retractible or retreating spring-point to engage in the center hole of a shaft whose speed is to be determined, and a friction-surface which may be forced against the end of the shaft or other rotating object to cause the rotation of the index-wheel.

Figure I is a side view of the instrument. Fig. II is partly in side view and partly in section, showing the instrument in the same form as in Fig. I, and in working position. Fig. III is partly in side view and partly in section, showing the improvement adapted for attachment to an ordinary speed-indicator.

No novelty is claimed in the frame 1, index-wheel 2 with its scale 3, nor peripheral worm-gear teeth 4; nor is any novelty claimed in the use of a spindle, 5, carrying a worm, 6, engaging the worm-gear 4.

In my improvement, as seen in Figs. I and II, the spindle 5 has a socket, 7, in an extension, 8, containing a spring, 9, and the head 10 of the center pin 11. At the mouth of the socket is a plate, 12, having a central hole, 13, through which the shank of the center pin passes. The hole 13 is of smaller diameter than the socket, so as to arrest the outward movement of the center pin by the impingement against it of the head 10. At the end of the socket is a cup, 14, to receive the plate 12, and a friction pad or disk, 15, which is forced into the cup. The friction-disk may be of rubber, leather, or any suitable soft substance which will take good hold of the shaft or other object, 16, against which it is pressed. Rivets or pins 17 are shown to prevent the rotation of the friction-disk 15. The cup may be dispensed with and the rivets depended on to hold the plate 12 and disk 15 in place; or other means may be employed for this purpose, with this caution that nothing hard shall project beyond the friction-surface 15, nor even be flush with said surface, for it is in-

tended that the friction-surface of the disk shall yield sufficiently to allow a very close contact with the object to which it is applied.

Where the improvement is made for attachment to an ordinary speed-indicator the extension or socket-piece 8 is formed with a socket, 20, fitted to receive the end 18 of the ordinary worm-spindle, and the parts are secured together by a set-screw, 19, or other suitable means.

It will be seen that all the elements of the improvement are contained in the attachment shown in Fig. III, its construction being similar to that shown in Fig. II as far as relates to the yielding friction-disk and retreating center pin.

In use of the instrument the end of the center pin, 11, is placed in the center hole of the shaft, or other object whose speed is to be tested, but only sufficient pressure is given to keep the pin in this position, so that the worm-spindle does not rotate. The whole attention may now be given to the watch and the instrument pushed forward until the friction-disk 15 bears against the end of the shaft 16, so that the worm-spindle is made to rotate with the same speed as the shaft, there being no slip between the surfaces.

I claim as my invention—

1. A speed-indicator having a rotary portion, and a soft friction-surface at the outer end of said rotary portion adapted for application to the object whose speed is to be determined, said friction-surface being transverse to the axis of rotation of said object, substantially as set forth.

2. A speed-indicator having a rotary portion, a retreating pin whose point is on the axis of rotation of said rotary portion, and a soft friction-surface at the end of the rotary portion through which the retreating pin passes, substantially as set forth.

3. The combination of the piece 8, having a socket, 7, containing a spring and giving bearing to a center pin, against which the outer end of the spring bears, and a soft friction-disk surrounding the center pin, substantially as and for the purpose set forth.

EUGENE C. SMITH.

In presence of—

SAML. KNIGHT,  
EDWD. S. KNIGHT.