# W. CHURCHILL.

## SPEED-INDICATORS FOR SHAFTING.

No. 194,548. Patented Aug. 28, 1877.

Fig. 1.

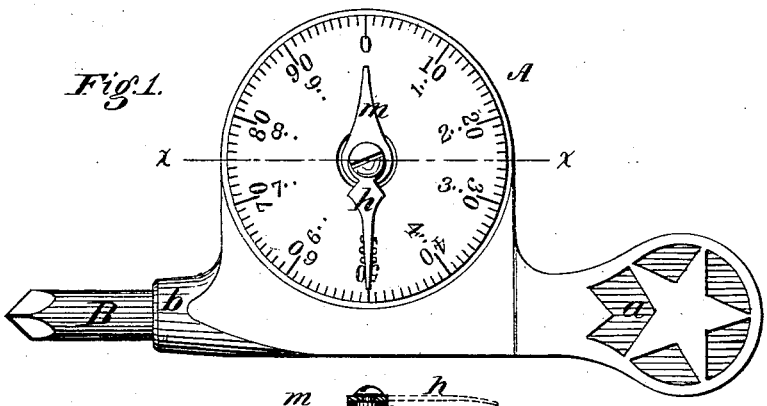



Fig. 2.

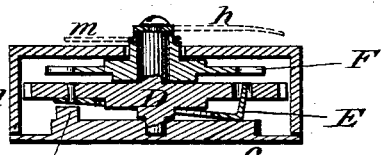



Fig. 3.

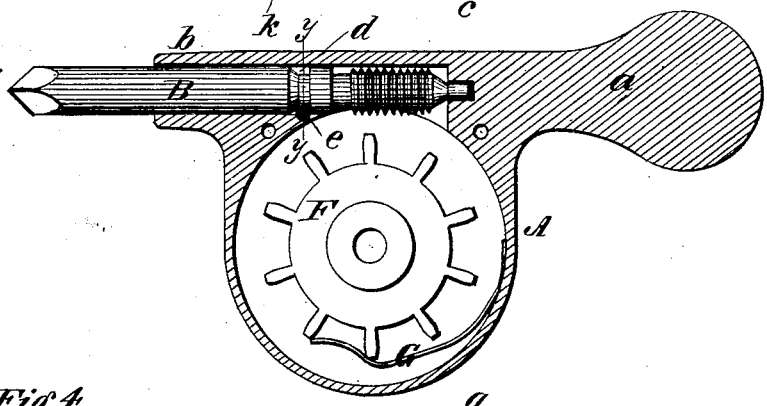



Fig. 4.

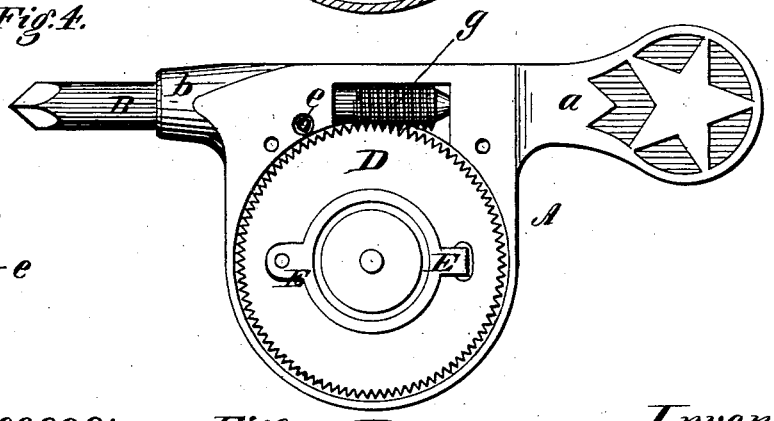
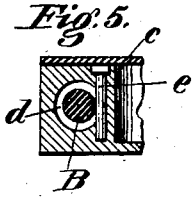



Fig. 5.

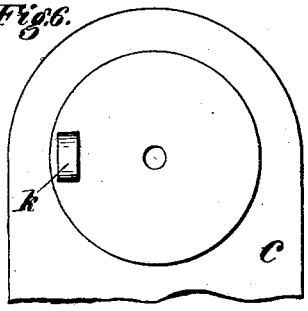



Witnesses:

Donn A. Twitchell

D. P. Lowl

Fig. 6.




Inventor:

Willis Churchill

By his attys.

Dodger Son

# UNITED STATES PATENT OFFICE.

WILLIS CHURCHILL, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN SPEED-INDICATORS FOR SHAFTING.

Specification forming part of Letters Patent No. **194,548**, dated August 28, 1877; application filed April 3, 1877.

*To all whom it may concern:*

Be it known that I, WILLIS CHURCHILL, of Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Speed-Indicators for Shafting, &c., of which the following is a specification:

My invention relates to that class of small pocket-registers which have a driving-spindle adapted for application to the ends of revolving shafts, in order to register the number of revolutions made thereby; and the invention consists in certain details of construction hereinafter explained.

Figure 1 represents a face view of my register or indicator; Fig. 2, a transverse section of the same on the line *x x*, Fig. 1; Fig. 3, a longitudinal central section of the instrument; Fig. 4, a back view of the same with the back plate or cover removed; Fig. 5, a cross-section of the instrument on the line *y y*, Fig. 3, showing the manner in which the spindle is secured in place; Fig. 6, an inside face view of the back plate.

A represents the body of the instrument, consisting of a flat circular case or shell, having a rigid handle, *a*, and a sleeve, *b*, to receive the actuating-spindle. On the face of the body I form a dial-face, provided with one hundred equal spaces or graduations and with two series of characters or figures, one representing units and the other hundreds.

The back of the body is made with an opening of its full size to admit the internal parts, and is covered by a back-plate, *c*, secured in place by two screws in its edges. The operating-spindle of the instrument, B, is constructed and seated in the body as usual, and is secured in place by providing it with an encircling groove, *d*, and seating a pin, *e*, in the body in such manner as to rest in said groove, as shown in Figs. 3, 4, and 5. The pin is inserted into a hole drilled into the back of the body, and is secured by the back-plate *c*, resting over its end, as shown in Fig. 5.

The inner end of the spindle B, within the body, is provided with a screw-thread, *g*, which engages in the toothed periphery of a large wheel, D, mounted within the body, as shown.

The wheel D is secured firmly to an arbor or spindle, which has one end seated in the back-plate and the other extended out through the front of the body, and provided with an arm or pointer, *h*, which makes, with the wheel, one complete revolution during each one hundred revolutions of the spindle.

On the back of the wheel D there is secured a spring-plate, E, one end of which is left free to spring forward and backward, and bent forward into a hole passing through the wheel, as shown. On the inside of the back-plate of the body there is a raised incline, *k*, which acts against the end of the spring E as it is carried thereunder by the rotation of the wheel, so that during each rotation of the wheel the end of the spring is momentarily pushed through and in front of the face of the wheel. On the spindle or arbor of the wheel D there is mounted loosely a wheel, F, having ten arms or teeth and a tubular journal, which extends through the front of the case, and carries a hand or pointer, *m*, which indicates the hundreds on the dial. Each time the end of the spring is pushed forward of the wheel D it engages with the wheel F, and carries the same forward one-tenth of a revolution, carrying the hand from one hundred mark on the dial to the next.

In order to retain the wheel F in position, a spring, G, is secured to the inside of the case, and arranged to bear upon the teeth of the wheel, as shown.

When the back-plate is applied it holds both wheels and the pin to their places, and maintains all the loose parts in their operative positions.

The device constructed as above is at once cheap, simple, and reliable, and serves to register a thousand turns of the shaft to which it may be applied.

I am aware that registers of various constructions have been heretofore devised, that the combination of the threaded spindle and the toothed wheel is old, and that it is old to have one wheel of a register turn another by means of intermediate devices of various kinds; but I am not aware that any one has hitherto made a register as a whole similar to mine, or one containing the same arrangement of parts adapted for the same use.

What I claim as my invention is—

1. In a speed-indicator, the combination

and arrangement, as shown and described, of the following elements, viz: the case or body made in one piece with the handle *a*, the graduated face, and the open back, the threaded spindle B, the spring G, the worm-wheel D, provided with the spring E and pointer H, the toothed wheel F, provided with the tubular journal and the pointer *m*, the pin *e*, to retain the spindle in place, and the back-plate *c*, provided with the incline *k*, and applied to secure the wheels and the pin *e* in place.

2. In a speed-indicator, the combination of the body, cast in one piece with the open back, and the graduated face, registering-wheels mounted therein, a spindle, B, secured by a pin inserted from the back, and a back-plate, *c*, applied as shown, and serving to close the back of the body, to secure and give a bearing to the wheels, and to fasten the spindle-holding pin.

WILLIS CHURCHILL.

Witnesses:

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