

(No Model.)

2 Sheets—Sheet 1.

R. H. NICHOLSON.
SPEED INDICATOR AND ALARM.

No. 547,280.

Patented Oct. 1, 1895.

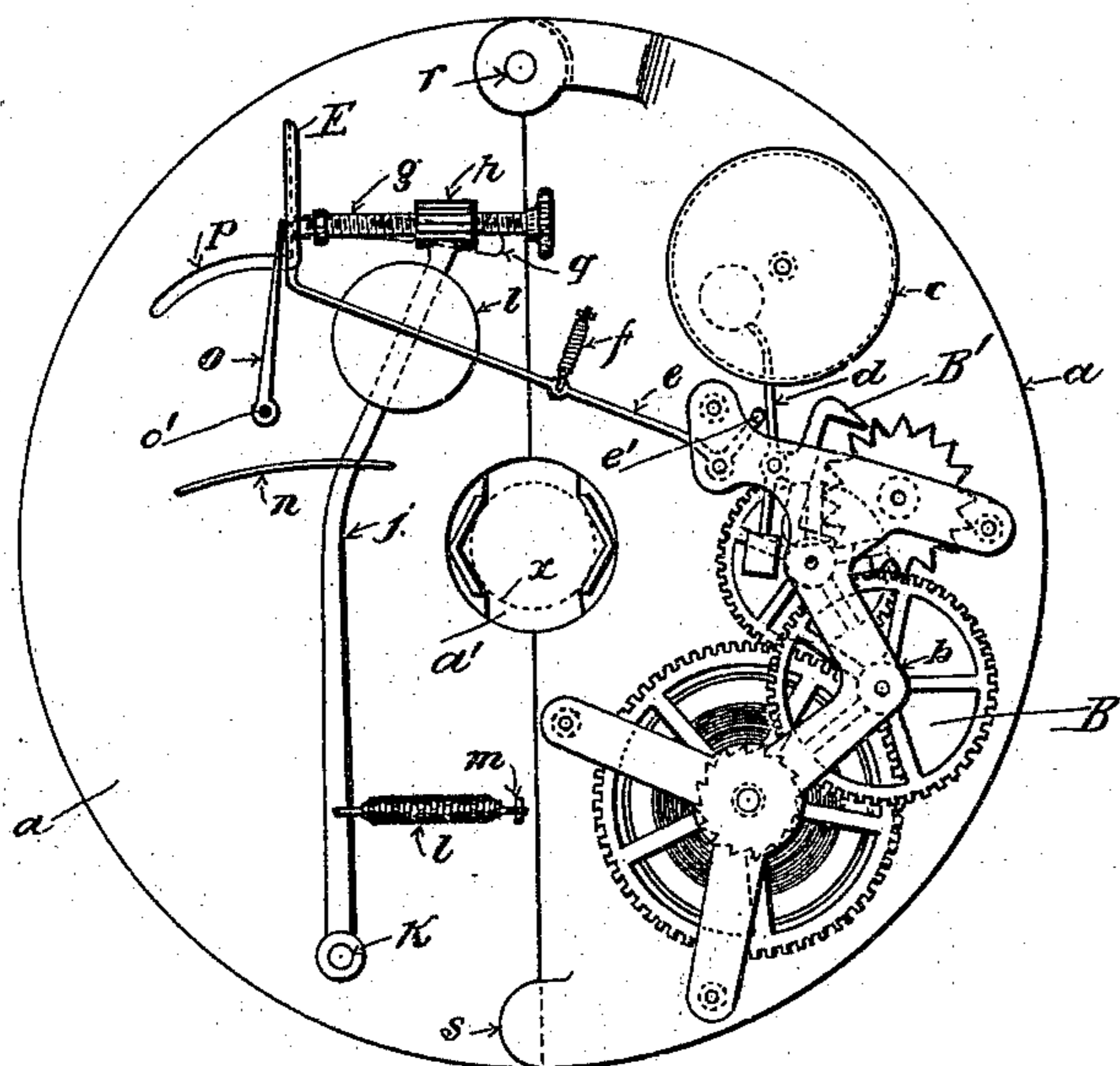


Fig. 1

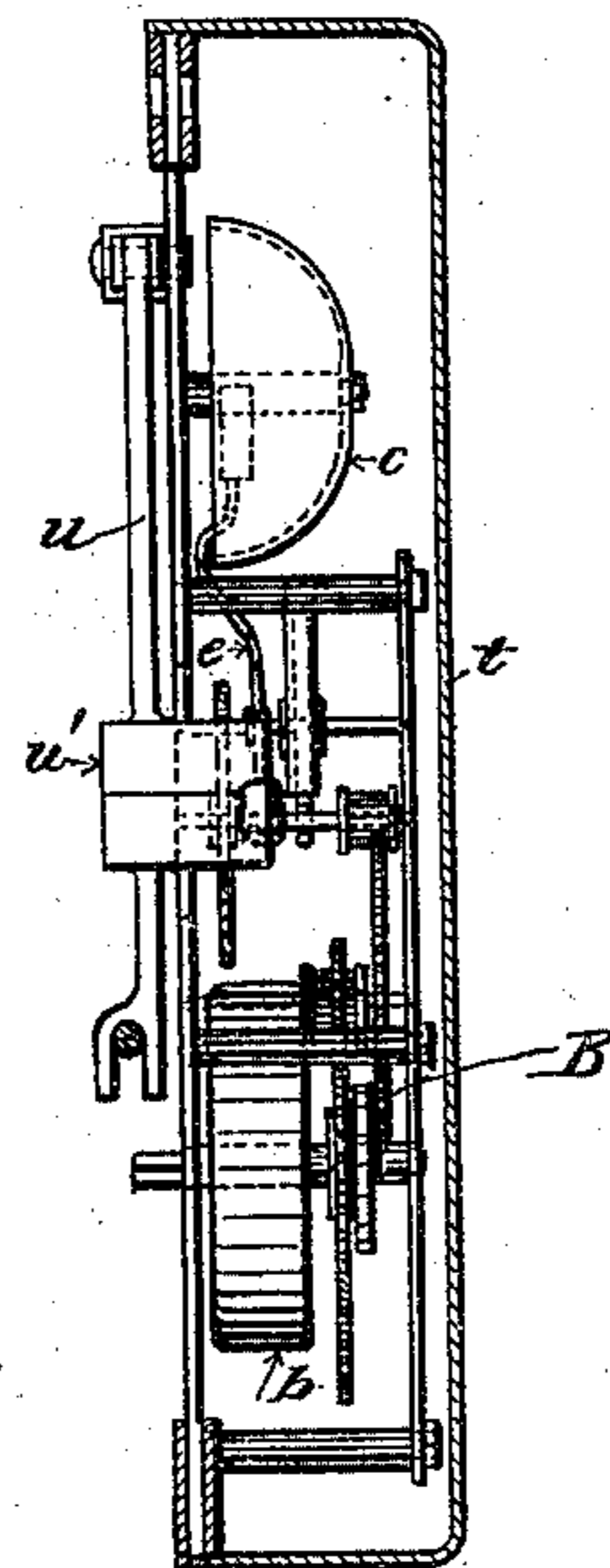


Fig. 2

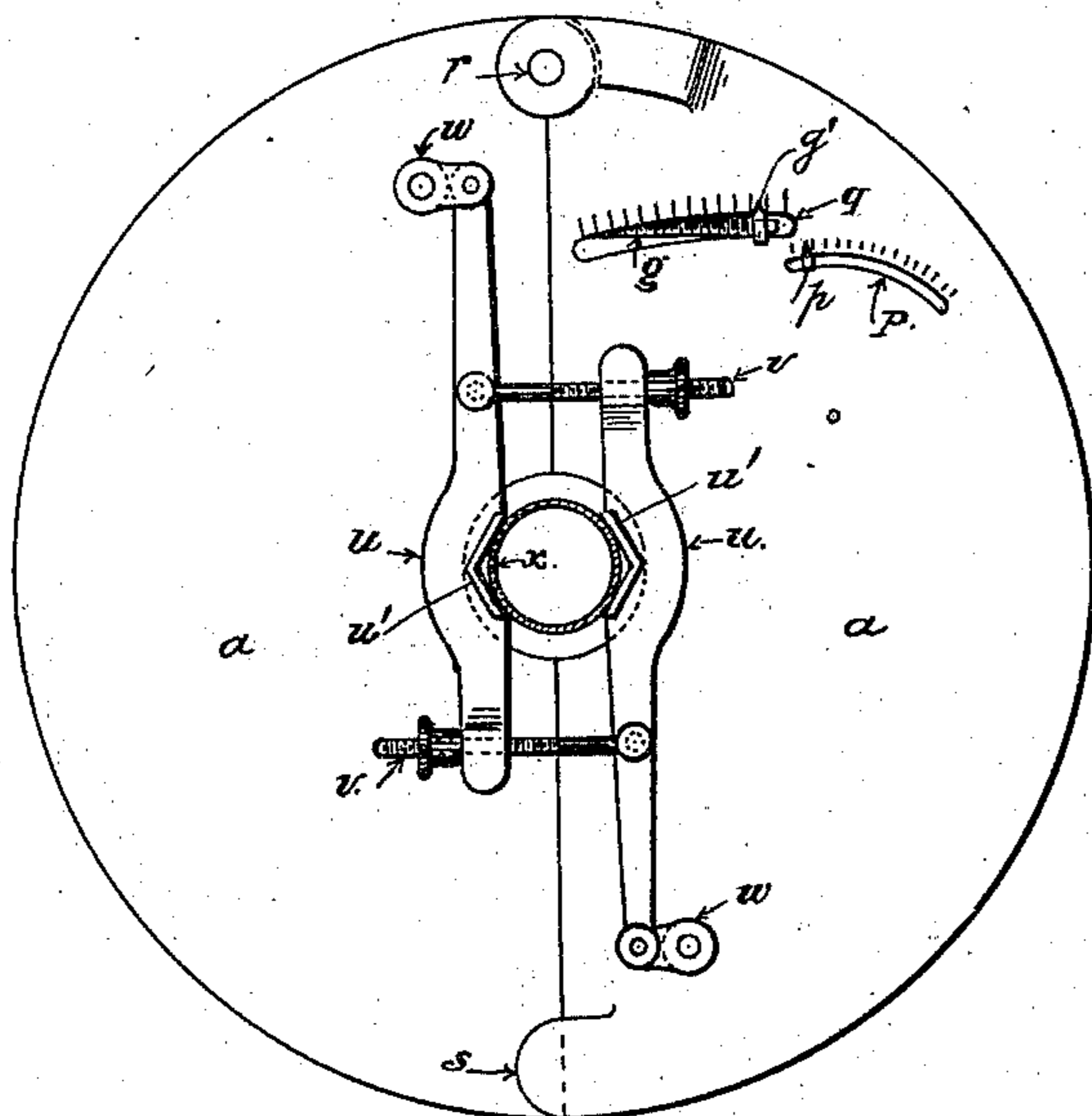


Fig. 3

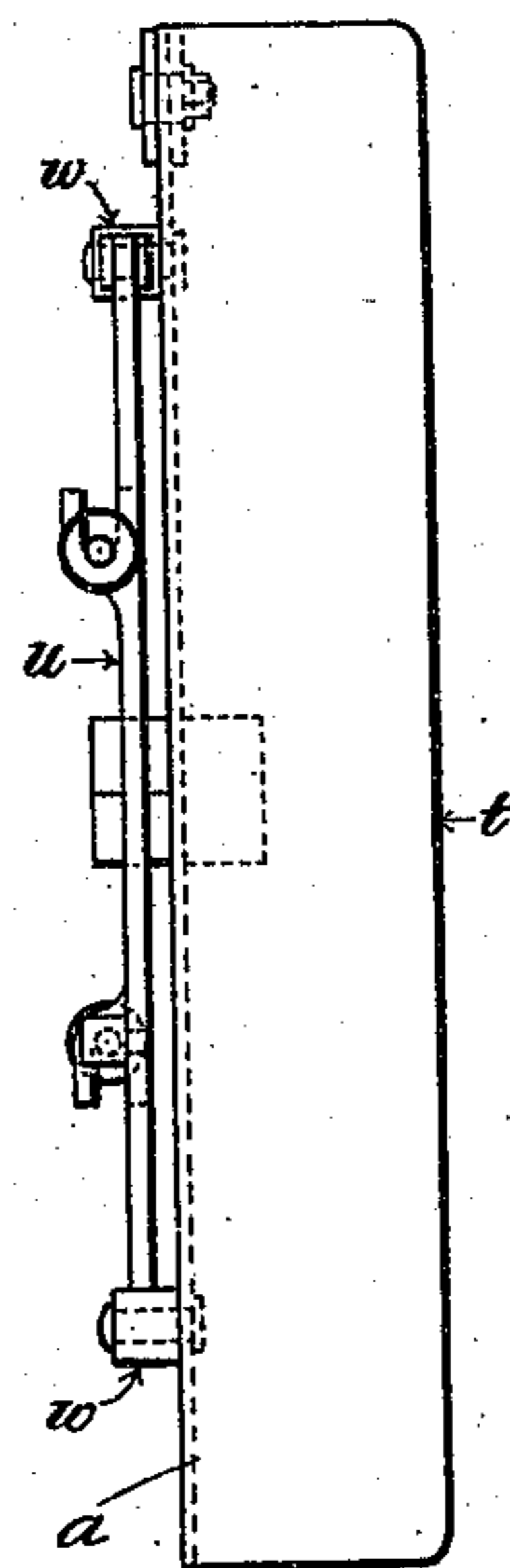


Fig. 4

Witnesses
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George H. Bliss

Inventor.
Robert H. Nicholson
by Herbert W. Jenner.
Attorney

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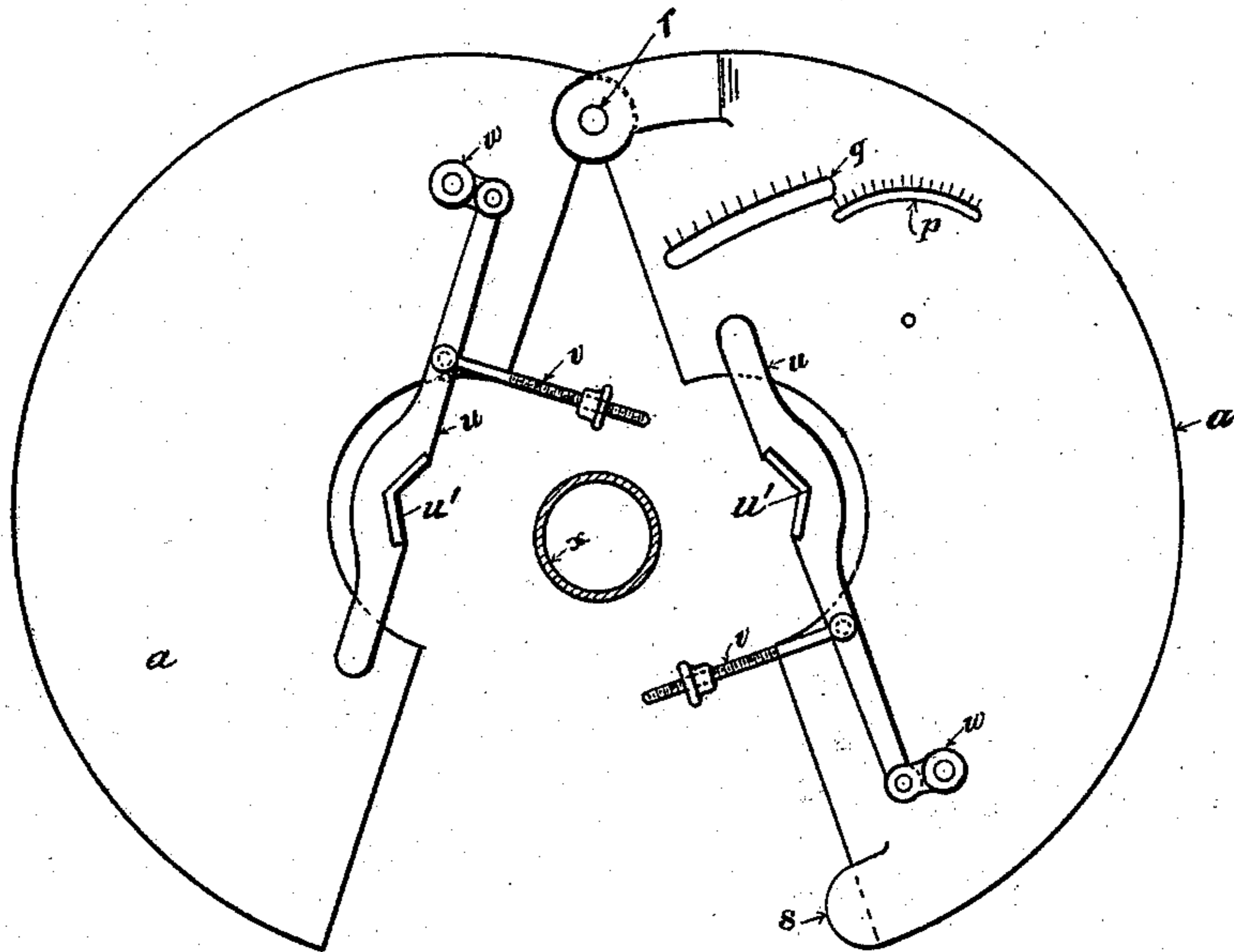


Fig. 5

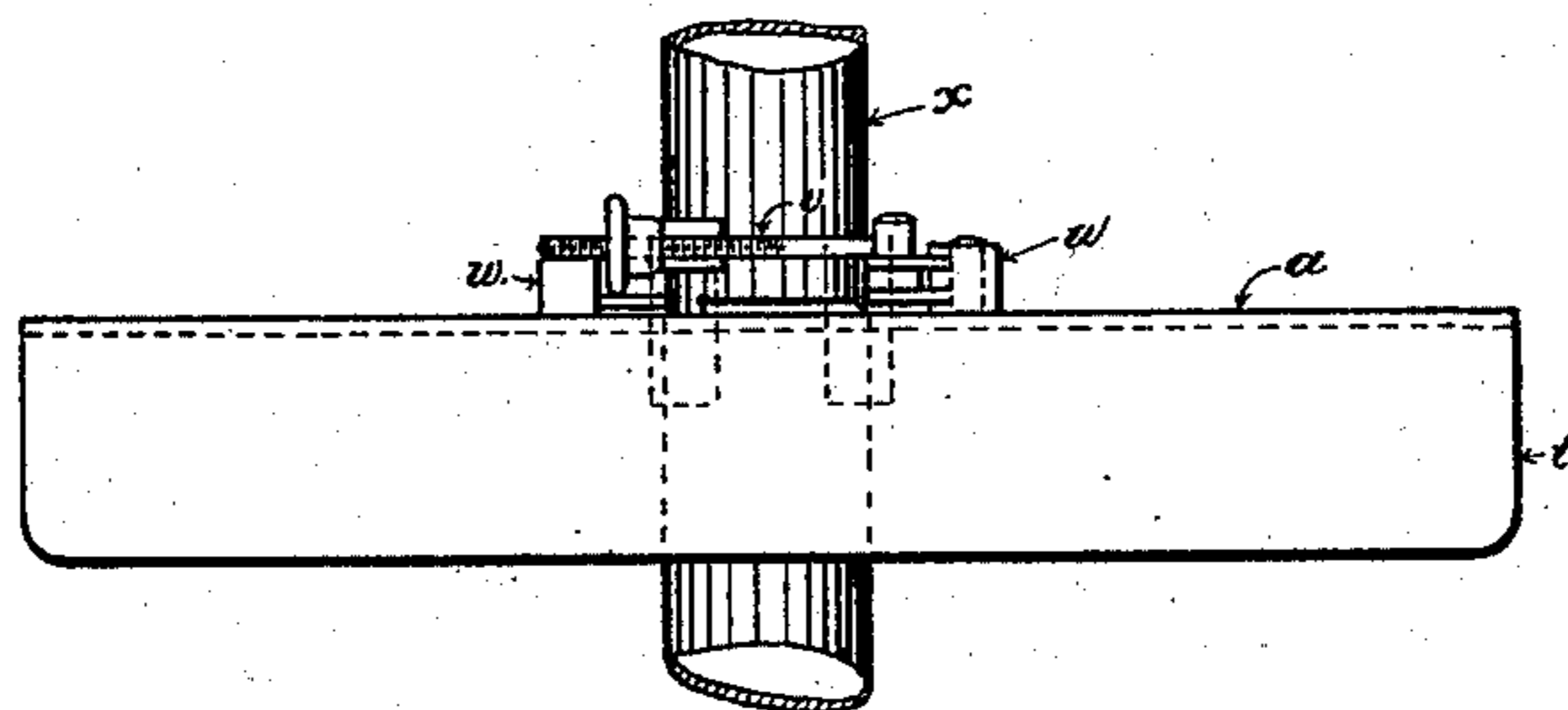


Fig. 6

Witnesses
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George H. Ellis

Inventor
Robert H. Nicholson
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Attorney

UNITED STATES PATENT OFFICE.

ROBERT H. NICHOLSON, OF WILKES-BARRÉ, PENNSYLVANIA.

SPEED-INDICATOR AND ALARM.

SPECIFICATION forming part of Letters Patent No. 547,280, dated October 1, 1895.

Application filed April 6, 1895. Serial No. 544,821. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. NICHOLSON, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Speed-Indicators; and I 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 appertains to make and use the same.

This invention relates to means for indicating the speeds of revolving shafts; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a front view of the indicator with the front parts of the case removed. Fig. 2 is a vertical section through the indicator. Fig. 3 is a rear view of the indicator-case, showing the clamping devices. Fig. 4 is a side view of the same. Fig. 5 is a rear view of the indicator, showing the case opened and in a position to be attached to a shaft. Fig. 6 is a plan view of the indicator-case.

The indicator is contained in a case formed of two semicircular parts, each having a back plate *a* and a front hollow portion *t*, secured to the said back plate. The two semicircular parts are pivoted together at the top by the pin *r*, and one part has guide-lips *s*, which engage with the plate *a* of the other part. The case is provided with a central hole *a'* of a size sufficient to encircle the largest shaft to which the device is likely to be attached, and the said case has clamping devices for securing it to the shaft. These clamping devices preferably consist of two levers *u*, provided with clamping-jaws *u'* for engaging with the shaft *x*. The opposite ends of these levers are pivotally connected to the back plates *a* by the links *w*, which operate to preserve the parallelism of the said jaws. The free ends of the levers are forked, and *v* represents clamping-bolts provided with thumb-nuts. These bolts are each pivoted to one lever and engage with the forked end of the other lever. The device is clamped upon any revolving shaft—such as, for instance, the hub of a bicycle—by tightening the said thumb-nuts.

B is a spring-actuated motor similar to an

ordinary clock. B' is the verge of the escapement, and *b* is the barrel, in which the driving-spring *b'* is concealed. This motor is wound up with a key as often as necessary in the same manner as a clock. A clapper *d* is attached to the verge B' and rings a bell *c* continuously whenever the motor is permitted to operate. A pivoted rod *e* is provided with a projection *e'*, which bears against the clapper *d*. A spring *f* normally holds the rod *e* raised and presses the clapper back by means of the projection *e'*, so that the motor is held stationary.

E is a plate at the free end of the rod *e*. A lever *j* is pivoted on the pin K, which projects from the plate *a*, and *l* is a weight secured on the said lever. A spring *l'* is attached to the lever and to the stop *m* on the plate *a* and normally holds the lever pressed toward the shaft *x*. A guard *n* is provided for limiting the oscillations of the lever *j* about its pivot, and *h* is a screw-threaded boss on the end of the lever. A screw *g* engages with the boss *h* and bears against the plate E on the rod *e*. The screw *g* carries a pointer *g'*, which projects through a slot *q* in the plate and indicates the position of the end of the screw with reference to a graduated scale on the outside of the case.

An arm *o* is pivoted to the plate *a* by the pin *o'* and is adjusted so that it will not turn freely on its pivot-pin. The arm *o* carries a pointer *p*, which projects through the slot P in the plate *a* and indicates the position of the arm with reference to a graduated scale on the outside of the case. The free end of the arm *o* normally bears against the plate E, and the screw *g* is adjusted with respect to the plate E so as to permit the bell to ring when any prearranged speed is attained or exceeded.

When the device is clamped on a shaft and the shaft is caused to revolve, the weighted lever *j* operates like the arm of a pendulum speed-governor and moves away from the shaft *x* as the speed is increased. The screw *g* moves with the arm and presses the plate E and the arm *o* to the left. When the prearranged speed is attained the arm E has been moved far enough to withdraw the projection from contact with the bell-clapper. This permits the motor to start, and the bell is rung

as long as the prearranged speed is maintained or exceeded, and the bell stops ringing as soon as the speed decreases below that at which the bell was set to ring.

5 The arm *o* and its pointer indicate the maximum speed attained, as they stay in the position to which they are pushed by the plate *E* and do not move back until pushed back forcibly by hand.

10 This device is applicable to all kinds of machines; but it is principally intended for use in connection with bicycles. It is intended to be used as a trainer and to do away with pacers by parties who are training for races.

15 The bell is arranged to ring when a certain speed is attained, and the rider knows when he attains that speed by hearing the bell ring, which also informs him when he drops below that speed because the bell then ceases
20 to ring. The pointer *p* tells him the maximum speed he attained during any run, and the pointer *g'* enables him to set the device so that the bell will ring when any prearranged speed is attained.

25 What I claim is—

1. In a speed indicator, the combination, with a revoluble supporting case, of a spring-pressed weighted lever pivoted to the case, a spring-actuated motor, a bell, and a clapper
30 for ringing the bell, the said lever being operatively connected with the said clapper and permitting the bell to ring continuously when a prearranged speed is attained, substantially as set forth.

35 2. In a speed indicator, the combination, with a revoluble supporting case, of a spring-pressed weighted lever pivoted to the case, a bell, a spring-actuated motor, a clapper for ringing the bell, the said lever being operatively connected with the said clapper, and
40 adjusting devices operating to cause the said lever to permit the said bell to ring at prearranged speeds, substantially as set forth.

3. In a speed indicator, the combination,

with a revoluble supporting case, of a spring-pressed weighted lever pivoted to the case, a spring-actuated motor, a bell provided with a clapper carried by the said motor, and a pivoted rod operatively connected with the said lever and provided with a projection normally preventing the clapper from ringing
50 the bell, substantially as set forth.

4. In a speed indicator, the combination, with a revoluble supporting case, of a spring-pressed weighted lever pivoted to the case, an
55 adjustable screw engaging with the free end of the said lever and provided with a pointer, a spring-actuated motor, a bell, a clapper carried by the motor, and a spring-supported and pivoted rod provided with a plate at its free
60 end for the said screw to bear against and having a projection engaging with the said clapper, substantially as set forth.

5. In a speed indicator, the combination, with a revoluble supporting case formed of
65 two semicircular parts pivotally connected together, of two levers pivotally supported by the respective parts of the case, clamping screws coupling the said levers together and operating to secure the said case to a shaft,
70 and speed indicating devices carried by the said case, substantially as set forth.

6. In a speed indicator, the combination, with a revoluble supporting case formed of
75 two semicircular parts pivotally connected together; of the two clamping levers pivoted to the halves of the case by links and provided with clamping jaws for engaging with the shaft, the clamping screws engaging with the said levers, and speed indicating devices carried by the said case, substantially as set forth.
80

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

ROBERT H. NICHOLSON.

Witnesses:

A. C. CAMPBELL,
E. B. HAMLIN.