

(No Model.)

W. H. DOUGLAS.  
STOP WATCH.

No. 488,710.

Patented Dec. 27, 1892.

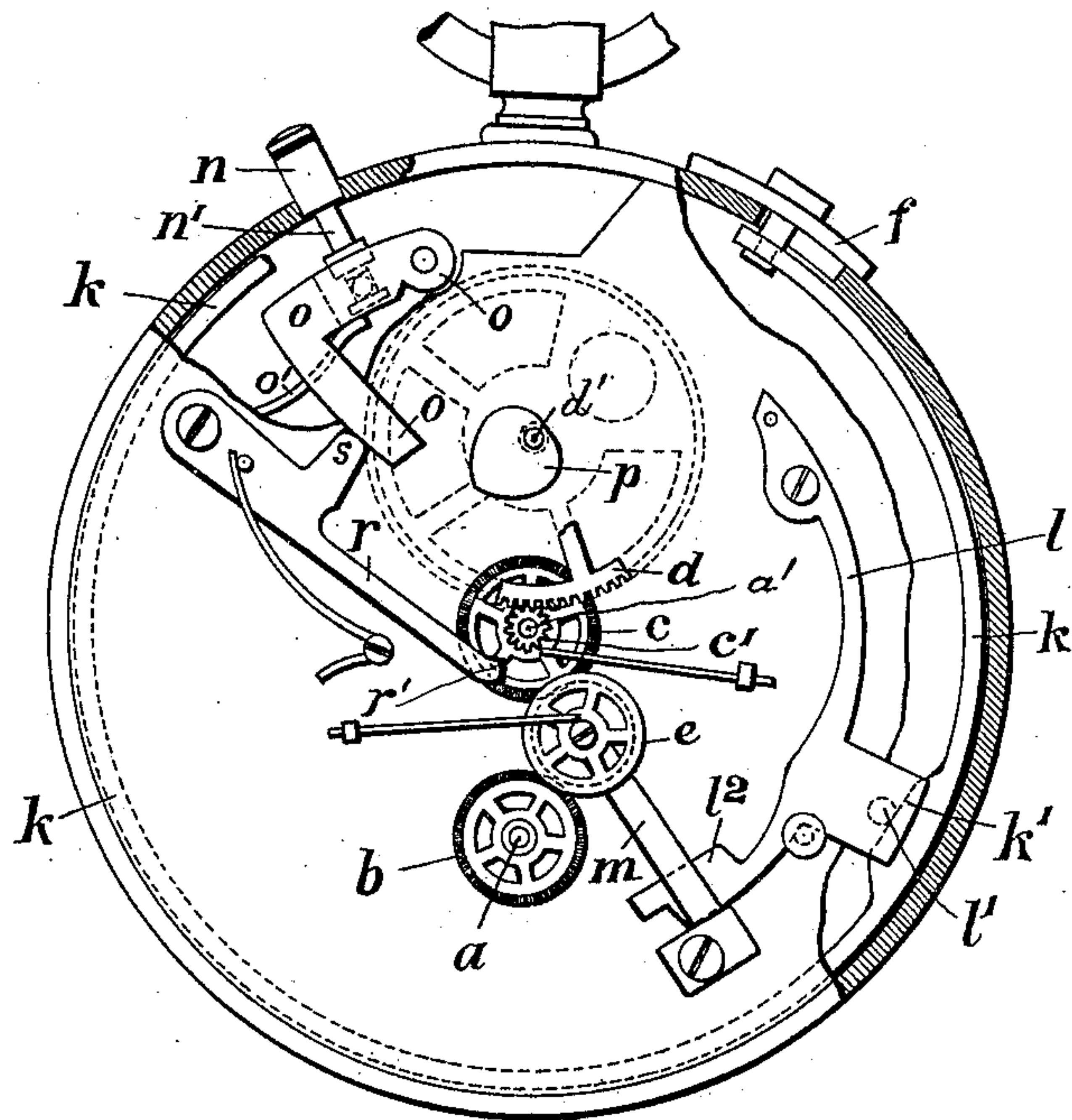


FIG. 1.

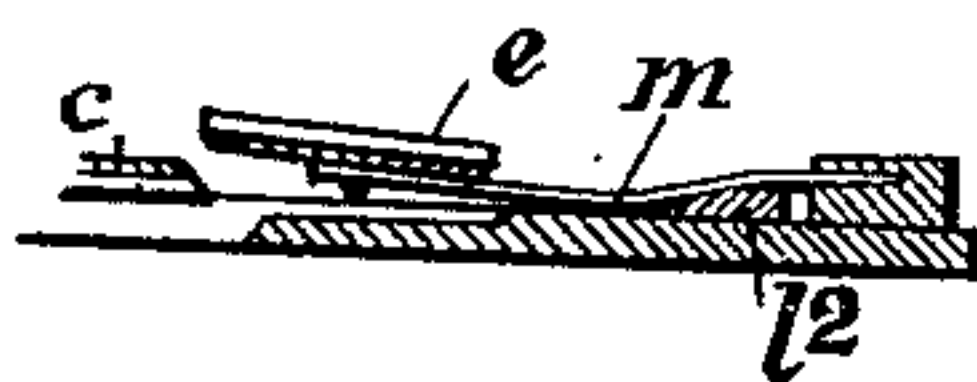


FIG. 3.

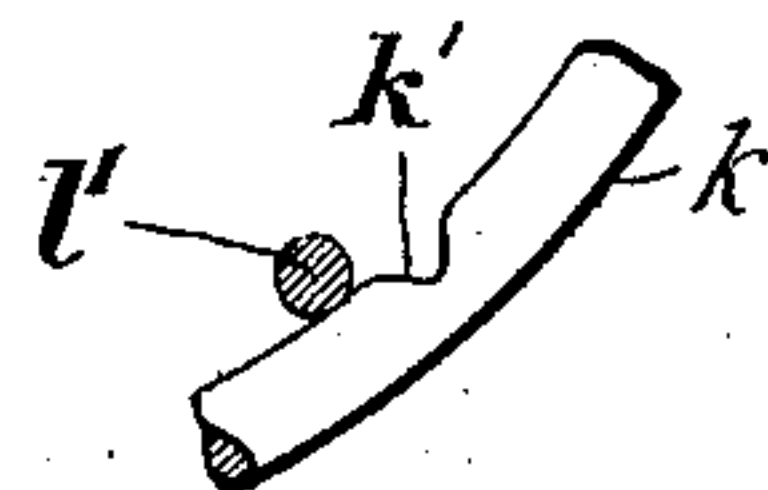


FIG. 3A.

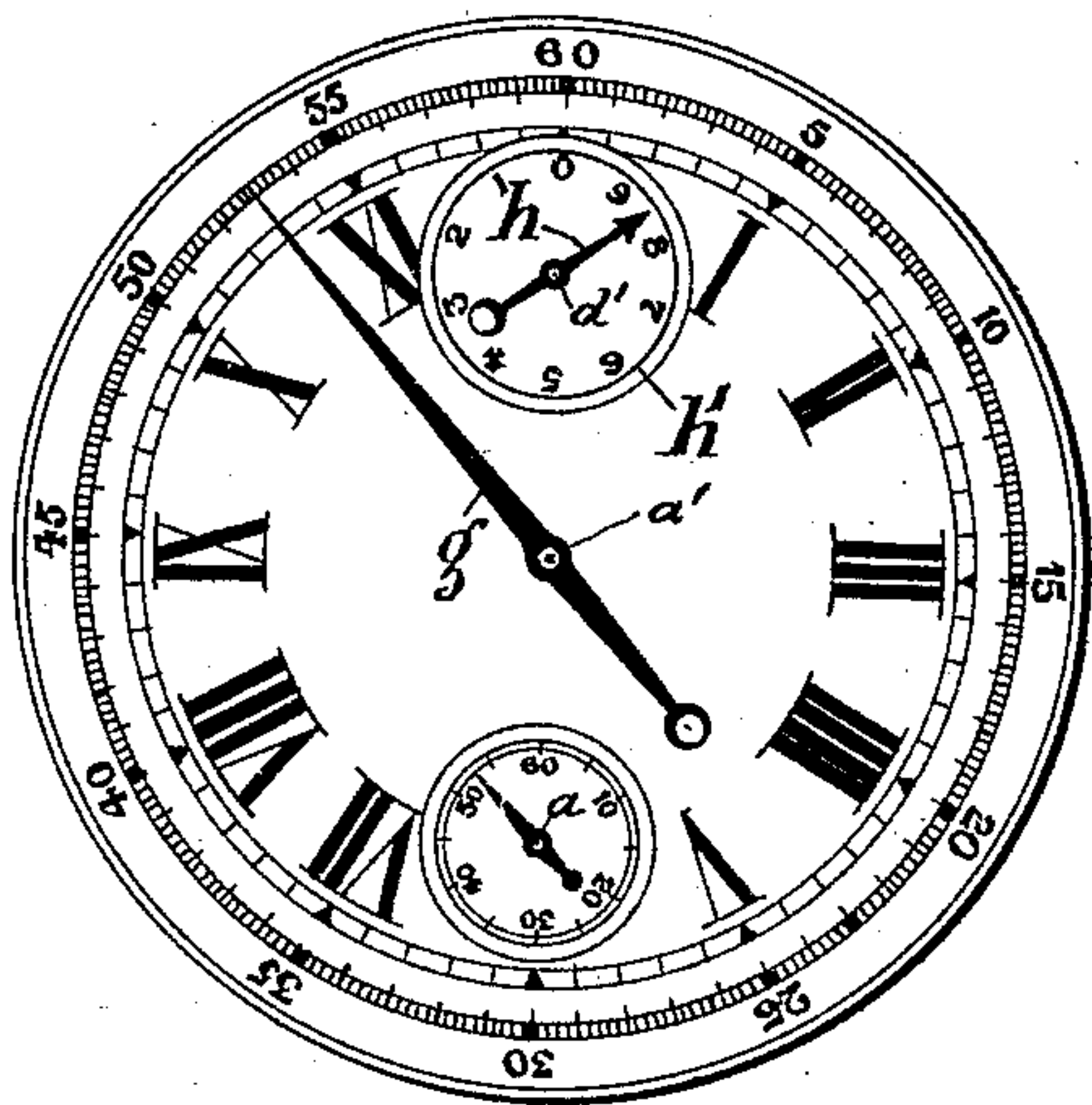


FIG. 2.

Witnesses:

Walter Allen  
J. M. Foster

Inventor.

Wm. H. Douglas.

by Herbert W. Jenner,  
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# UNITED STATES PATENT OFFICE.

WILLIAM HENRY DOUGLAS, OF STOURBRIDGE, ENGLAND.

## STOP-WATCH.

SPECIFICATION forming part of Letters Patent No. 488,710, dated December 27, 1892.

Application filed March 12, 1892. Serial No. 424,641. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY DOUGLAS, a citizen of Great Britain, residing at Stourbridge, in the county of Worcester, and country of England, have invented certain new and useful Improvements in Stop-Watches; 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 stop watches; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings: Figure 1 is a rear view of the stop mechanism. Fig. 2 is a front view of the watch showing the additional dials and pointers. Fig. 3 is a sectional side view of the disengaging mechanism. Fig. 3<sup>A</sup> is a detail showing a modification of a portion of the disengaging mechanism.

To the shaft *a* of the ordinary seconds hand, is attached a beveled toothed wheel *b*; and upon the central shaft *a'* is attached, an additional seconds pointer *g* at the front of the watch, and a toothed pinion *c'* and a beveled toothed wheel *c* at the rear of the watch. A beveled toothed wheel *e* is journaled on a pin projecting from the flat spring *m* which normally holds it in gear with the wheels *b* and *c*. An additional pointer *h* is secured on a shaft *d'* at the front of the watch, and a toothed wheel *d* is secured on the shaft *d'* at the back of the watch, and gears into the pinion *c'*.

The shaft *a* is driven by any approved form of watch driving-mechanism or train and imparts a constant rotary movement to the additional pointers *g* and *h* as long as the wheel *e* is in gear with the wheels *b* and *c*. The pointer *g* is provided with a dial marked up to sixty seconds, and the pointer *h* is provided with a dial marked up to ten minutes, or whatever other space of time the wheel and pinion may be adapted for. An external push-piece *f* is provided and is connected to a rod *k* which is nearly a complete ring and which is journaled in the watch case. The rod *k* is provided with a wedge-shaped surface *k'*, as shown in Fig. 1, or as shown in Fig. 3<sup>A</sup> according to the thickness of the rod.

A spring lever *l* is secured in the case and is provided with a wedge *l'* which comes under an inclined portion of the spring *m* as shown in Fig. 3. The spring *l* is also provided with a pin *l'* which presses against the rod *k*. When the rod *k* is moved by the push-piece to cause the pin *l'* to be pressed toward the center of the watch by the wedge or incline *k'*, the wedge *l'* raises the wheel *e* out of gear with the wheels *b* and *c*, as shown in Fig. 3, and disengages the pointers *g* and *h* which stop immediately without interfering with the motion of the watch.

The push-pin *n* is provided for setting the pointers *g* and *h* to zero before reconnecting them with the watch mechanism. In order to prevent this pin *n* from being pressed in when the pointers *g* and *h* are connected to the watch mechanism, a groove *n'* is formed on the pin *n* and is adapted to receive the end of the rod *k* which locks the pin. The pin *n* is pivoted to a pivoted bent lever *o* inside the watch, and a heart-shaped cam *p* is secured on the shaft *d'*. When the pin *n* is pushed in, against the pressure of the spring *o'*, the lever *o* strikes the cam *p* and moves the pointer *h* back to zero. The pointer *g* is also moved very nearly to zero because it is connected to the pointer *h* by the toothed wheel and pinion.

In order to set the pointer *g* exactly to zero when the pin *n* is pushed in, a spring-actuated lever *r* is pivoted inside the watch and the wedge-shaped end *r'* of this lever is pressed between two of the teeth of the pinion *c'* when the heel *s* on the lever is released by the forward motion of the lever in setting the cam.

What I claim is:

1. The combination, with the seconds-hand shaft, of the additional seconds pointer and its shaft, the beveled toothed wheels secured on the said shafts, the connecting wheel *e* and its supporting spring, the pivoted spring *l* provided with a wedge for raising the said wheel *e* out of gear with the two beveled wheels, and the oscillatory bar *k* journaled in the periphery of the case and provided with a push-piece and an inclined-portion for operating the said spring *l*, substantially as set forth.

2. The combination, with the pointer *h* and the cam *p* secured on the same shaft, of a

pivoted lever adapted to set the said cam and pointer to their zero position, a push-pin *n* provided with a groove and adapted to operate the said lever, and the bar *k* journaled in  
5 the case and adapted to engage with the said groove and lock the said pin when the pointer *h* is connected with the watch driving-mechanism, substantially as set forth.

3. The combination, with the pointer *h*, the  
10 wheel *d* and the cam *p* all secured on the shaft *d'*, of the pointer *g* and the pinion *c'* secured on the shaft *a'*, the pivoted lever *o* provided with a push-pin and adapted to set the two

said pointers, and the spring-actuated lever *r* provided with a heel *s* bearing on the said 15 lever and having a wedge-shaped end adapted to be thrust between the teeth of the said pinion to insure the exact setting of the pointer *g*, substantially as set forth.

In testimony whereof I affix my signature in 20 presence of two witnesses.

WILLIAM HENRY DOUGLAS.

Witnesses:

GEO. CROGDON MARKS,  
WILLIAM EVANS.