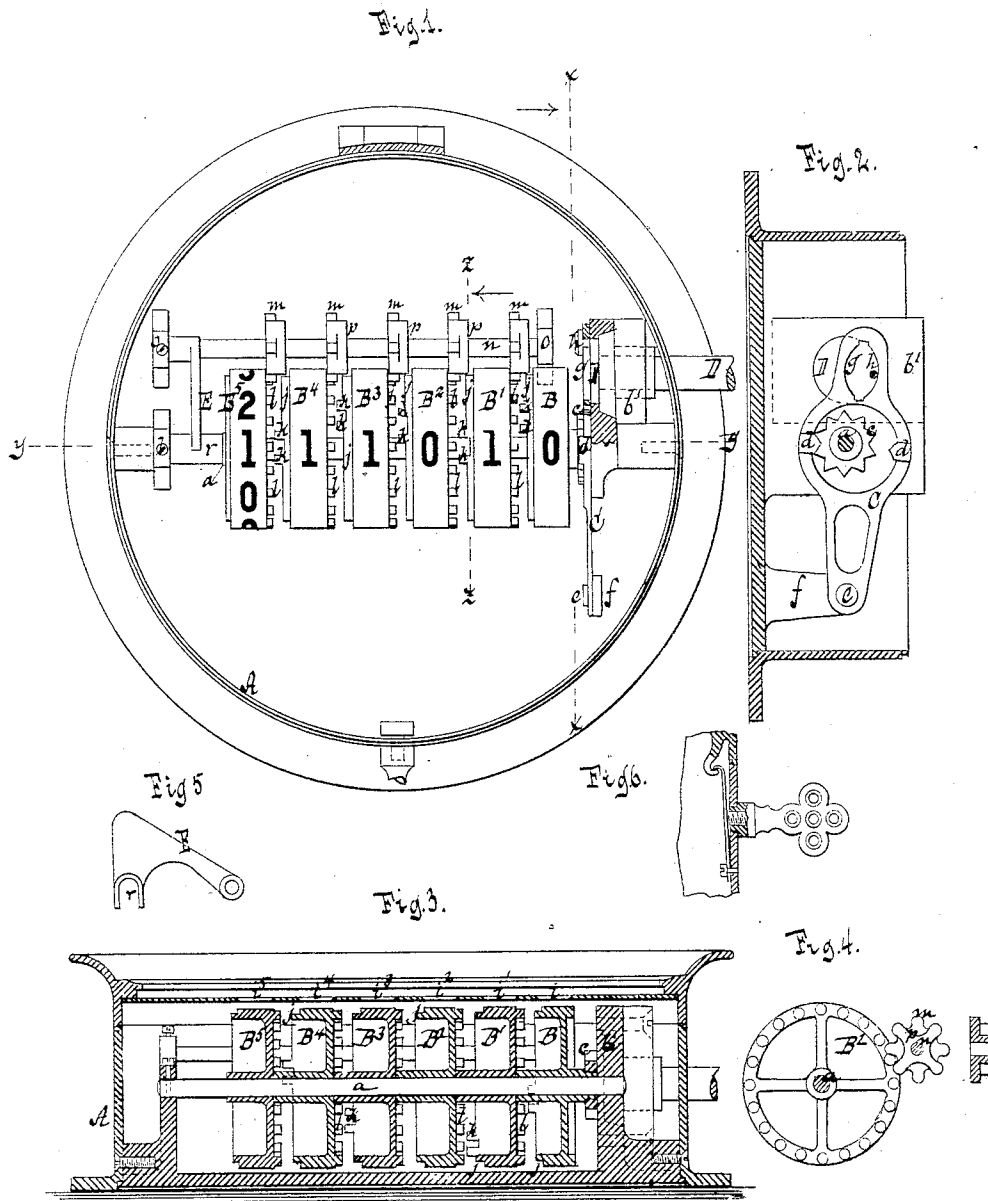


E. STALMANN.
Counting-Register.

No. 217.827.

Patented July 22, 1879.



Witnesses
Otto Aufeland
William Miller

Inventor
Edward Stalman
by Van Santvoord & Hauff
his attys.

UNITED STATES PATENT OFFICE.

EDUARD STALMANN, OF BUCKAU, NEAR MAGDEBURG, GERMANY.

IMPROVEMENT IN COUNTING-REGISTERS.

Specification forming part of Letters Patent No. **217,827**, dated July 22, 1879; application filed April 23, 1879.

To all whom it may concern:

Be it known that I, EDUARD STALMANN, of Buckau, near Magdeburg, in the Empire of Germany, have invented a new and useful Improvement in Engine-Registers, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan or top view, the cover of the case having been removed to expose the working-plate. Fig. 2 is a transverse vertical section in the plane *x x*, Fig. 1. Fig. 3 is a longitudinal vertical section in the plane *y y*, Fig. 1. Fig. 4 is a transverse section in the plane *z z*, Fig. 1. Fig. 5 is a detached elevation of the latch which serves to lock and release the registering mechanism. Fig. 6 is a sectional view of the locking mechanism for the case.

Similar letters indicate corresponding parts.

This invention consists in the combination, in an engine-register, of a series of drums, which revolve loosely on a common stationary arbor, and each of which bears on its periphery the figures from 0 to 9; suitable mechanism for transmitting motion from the unit-drum to the ten-drum, from the ten-drum to the hundred-drum, and so on; an escapement-wheel mounted on or firmly secured to the hub of the unit-drum; an anchor-lever, which carries two pallets adapted to engage alternately with the escapement-wheel; an opening in the loose end of the anchor-lever; a shaft which connects with the engine or other machine the motions of which are to be counted, and an eccentric wrist-pin secured in the inner end of said shaft, and adapted to engage with the opening in the anchor-lever, so that, whenever this shaft receives a revolving or an oscillating motion, each of its revolutions or oscillations causes the escapement-wheel and the unit-drum to advance one step, and a register is obtained which counts the revolutions as well as the oscillations of an engine or other machine, whatever may be the direction in which such engine or machine turns. With the registering-drums and the mechanism for transmitting the motion from one drum to the next is combined a latch, which serves to lock said drums in their working positions, and

which can be raised so that said drums can be set back to zero.

In the drawings, the letter A designates a case, of metal or any other suitable material, which incloses the registering mechanism. This mechanism consists of a series of drums, B B¹ B² B³, &c., which are mounted loosely on a stationary arbor, *a*, resting in standards *b b'*, which rise from the bottom of the case A. Each of said drums bears on its circumference the figures 0 to 9, and on the hub of the unit-drum B is firmly secured an escapement-wheel, *c*, to which a step-by-step movement is imparted by the action of pallets *d d*, Fig. 2, which are secured to an anchor-lever, C. This lever has its fulcrum on a pivot, *e*, which is secured in a standard, *f*, that rises from the bottom of the case A. In the loose end of this lever is formed an opening, *g*, preferably oval in form, which embraces an eccentric wrist-pin, *h*, secured in the inner end of a shaft, D, that is connected to the engine or other machine the motions of which are to be counted.

Whenever the shaft D receives a revolving or an oscillating motion of sufficient throw in either direction the pallets of the anchor-lever are caused to act alternately on the escapement-wheel, causing the same, together with the unit-drum, to turn one step for each complete revolution or oscillation of the shaft D. By these means the figures 0 to 9 on the unit-drum are successively brought under an opening, *i*, Fig. 3, in the cover of the case A.

After the unit-drum has been propelled nine steps, and during the time it completes its tenth step, the ten-drum B¹ is propelled one step by the following mechanism: On the edge of the unit-drum which faces the ten-drum is formed a slightly-depressed rim, *j*, from which project two teeth, *k*, while from the edge of the ten-drum facing the unit-drum project twenty teeth, *l*. These teeth *l* engage with a small spur-wheel, *m*, which is mounted loosely on a stationary arbor, *n*, that is supported in a standard, *o*, Fig. 1, rising from the bottom of the case A. The spur-wheel *m* has eight teeth, (see Fig. 4,) and on its face is firmly secured another spur-wheel, *p*, with four teeth, one of which bears on the rim *j* of the unit-wheel; but during the time the unit-wheel

completes its tenth step the teeth *k* of said unit-wheel engage with the spur-wheel *p* and impart to the same one-quarter of a revolution, carrying with it the spur-wheel *m*, which imparts to the ten-drum one-tenth of a revolution, so that the figure 10 appears beneath the openings *i i'* in the cover of the case.

The ten-drum is constructed like the unit-drum, and motion is transmitted from it to the hundred-drum by a similar mechanism, and so on from the hundred-drum to the thousand-drum, &c.

The hubs of the adjoining drums are of such a length that they do not permit the edges of said drums, or the teeth formed on said edges, to come in contact with each other, and when the several drums are held close together and in gear with their spur wheels *m p*, only the unit-drum can be turned by hand; but the remaining drums cannot be returned to zero except by manipulating the unit-drum for a very long time.

In order to be able to throw the several drums out of gear with their spur-wheels *m p*, I use a latch, *E*, which swings on the arbor *n*, and is provided with a segmental head, *r*, Fig. 5, adapted to catch over the arbor *a*. This head is of such length that it fits nicely between the standard *b* and the hub of the last drum, *B*⁵, thereby keeping all the drums close together and in gear with their respective spur-wheels *m p*; but if the latch *E* is raised all the drums are free to slide on the arbor *a*, and the spur-wheels *m p* are free to slide on their arbor *n*, so that the drums can be easily thrown out of gear with their spur-wheels and returned to zero in a very short time.

It is obvious that the number of teeth in the spur-wheels *m p* and the number of teeth on the edges of the several drums can be changed without deviating from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an engine-register, of a series of drums which revolve loosely on a common stationary arbor, and each of which bears on its periphery the figures 0 to 9; suitable mechanism for transmitting motion from the unit-drum to the ten-drum, from the ten-drum to the hundred-drum, and so on; an escapement-wheel mounted on or firmly secured to the hub of the unit-drum; an anchor-lever, which carries two pallets adapted to engage alternately with the escapement-wheel; an opening in the loose end of said anchor-lever; a shaft which connects with the engine or other machine the motions of which are to be counted, and an eccentric wrist-pin secured in the inner end of said shaft, and adapted to engage with the opening in the anchor-lever, all constructed and adapted to operate substantially as and for the purpose shown and described.

2. The combination, with a series of registering-drums mounted loosely on an arbor, teeth *k l*, formed on the edges of said drums, spur-wheels *m p*, mounted loosely on a second arbor, mechanism for imparting a step-by-step motion to the registering-drums, and a latch, *E*, for locking the drums in their working position, and for releasing them when they are to be returned to zero, all constructed and adapted to operate substantially as set forth.

In testimony that I claim the foregoing I hereunto set my hand and seal this 3d day of March, 1879.

EDUARD STALMANN. [L. S.]

Witnesses:

WILLIAMS C. FOX,
JOHN KRACKE.