No. 828,209. PATENTED AUG. 7, 1906.

G. HOEPNER.

STOP COUNTING MACHINE.

APPLICATION FILED NOV. 22, 1905.

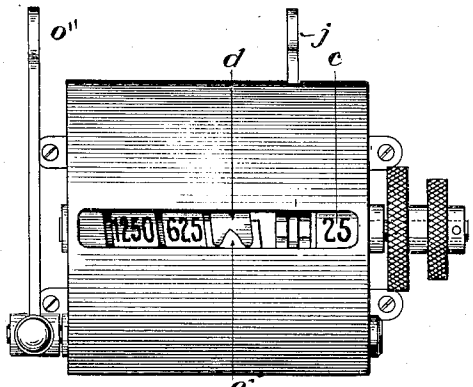

Fig. 1.

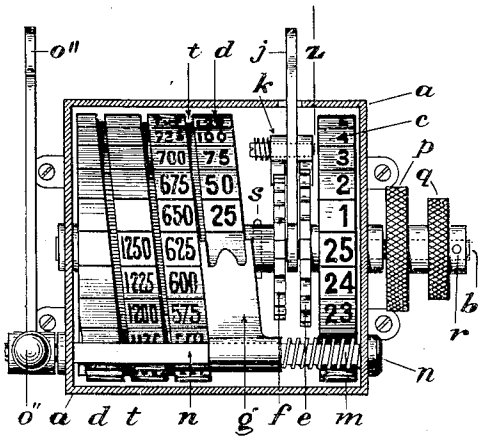

Fig. 2.

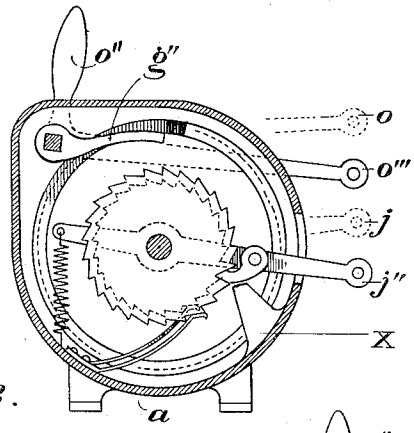

Fig. 3.

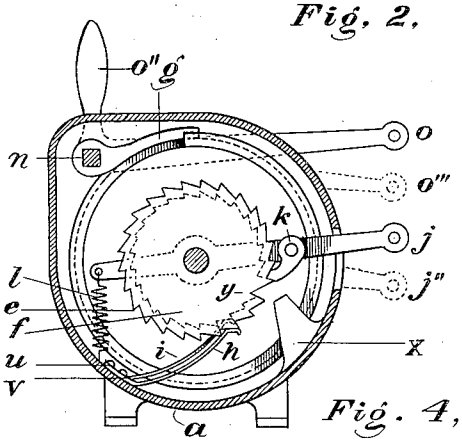

Fig. 4.

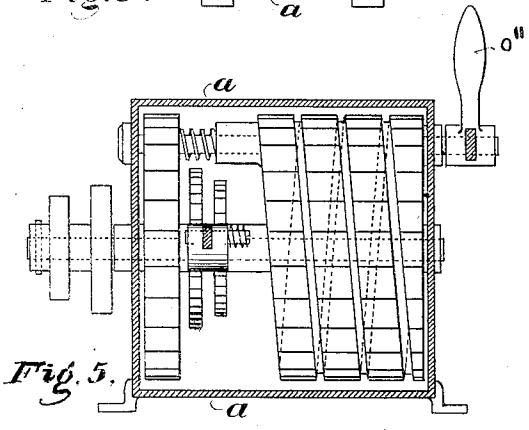

Fig. 5.

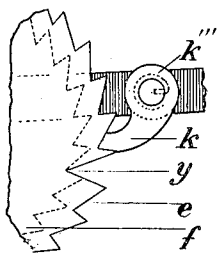

Fig. 6.

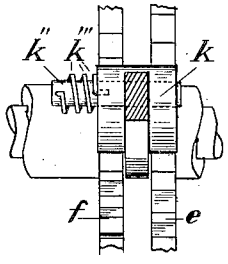

Fig. 7.

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UNITED STATES PATENT OFFICE.

GEORGE HOEPNER, OF SANDWICH, ILLINOIS, ASSIGNOR TO E. AND T. FAIRBANKS AND COMPANY, OF ST. JOHNSBURY, VERMONT, A CORPORATION OF VERMONT.

STOP COUNTING-MACHINE.

No. 828,209. Specification of Letters Patent. Patented Aug. 7, 1906.

Application filed November 22, 1905. Serial No. 288,581.

To all whom it may concern:

Be it known that I, GEORGE HOEPNER, a citizen of the United States, residing at Sandwich, in the county of Dekalb, State of Illinois, have invented certain new and useful Improvements in Stop Counting-Machines, of which the following is a description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The principal object of the present invention is to provide a device for positively controlling a number of operations of any mechanism or machine of the number of revolutions of a shaft or measuring or weighing devices, so that when said mechanism is operated a predetermined number of times it will be positively stopped and no further movement can take place until the stop counting device is readjusted.

Another object of the invention is to provide a device of this character which shall be of simple and efficient construction and which will permit of adjustment within a wide range of a number of operations of the mechanism which it controls.

The invention therefore consists in the matters hereinafter described, and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a stop counting-machine constructed in accordance with the invention. Fig. 2 is a plan view showing the casing in section. Fig. 3 is a transverse sectional view of the same along the line *z* of Fig. 2. Fig. 4 is a similar view showing the position of the parts at the completion of a counting operation. Fig. 5 is a rear elevation of the device with the casing in section. Fig. 6 is a detail view, on a large scale, of the transfer ratchets and pawl; and Fig. 7 is an elevation of the same, the operating-lever being shown in section.

Referring to the drawings, the casing *a* is formed of any suitable material and is arranged for the support of the shaft *b*, to which is secured a counting-drum *d*, the periphery of which is a raised helically-disposed rib the convolutions of which are separated by the helical groove *t*. This rib is provided with equidistant graduations carrying numerals arranged, in the present instance, in multiples of twenty-five, and twenty-five of such graduations are sufficient to completely encircle the drum. To the hub of this drum, which is locked to the shaft by a pin *s*, is secured a ratchet-wheel *f*, having twenty-five teeth, which may be engaged by a pawl *k'*, secured to a pin *k''*, carried by an operating-lever *j*, receiving motion from any suitable mechanism. The lever extends outside the casing, and its inner end is connected to one end of a returning-spring *l*. Mounted loosely on the shaft *b* is the hub of a units-disk *c*, having on its periphery numerals from one to twenty-five, inclusive, and to this hub is secured a ratchet-wheel *e* of a diameter somewhat greater than that of the ratchet-wheel *f*. This ratchet-wheel *e* has twenty-five teeth arranged to be engaged by a pawl *k*, also mounted on the pin *k''*, moving with the pawl *k'*. During the operation of lever *j* the pawl *k* will engage a tooth of the ratchet-wheel *e* at each movement; but the pawl *k'* is held from engagement with its ratchet-wheel *f* until the ratchet-wheel *e* has made one complete revolution, whereupon the pawl *k* descends into a deep notch *y* between two of the teeth of the ratchet-wheel *e*, and the pawl *k'* is allowed to move into contact with and rotate the ratchet-wheel *f* to the extent of a single tooth, this constituting the transfer mechanism between the primary and secondary indicators *c* and *d*. The two ratchet-wheels are frictionally held by springs *h i*, secured to the casing by means of screws *u v*, as shown in Figs. 3 and 4.

In order to prevent either ratchet-wheel from advancing more than a single tooth at each operation, as from a sudden pull on the lever *j*, the pawls are arranged to engage with a brake or stop-block *x* at the completion of each movement. The casing is provided with bearings for the reception of a shaft *n*, which is non-circular in cross-section within the casing and carries a slidable catch *q* in the form of an arm the free end of which is bifurcated to embrace the helical rib of the drum *d* and is held in engagement therewith by a spring *m*, which tends to move the arm against the drum. The outer end of the shaft *n* carries a lever *o*, which when moved by the dropping of arm *q* from the rib moves from the dotted-line position of Fig. 4 to the full-line position in the same figure and stops

or disconnects the mechanism under its control. This lever carries an operating-handle o'' to facilitate readjustment of the arm g after each operation. On the outer end of the shaft b is an adjusting-arm q, held to the shaft by a pin r, and on the extended hub of the primary disk c is secured a knob p, this knob permitting preliminary adjustment of the members c and d in accordance with the number of operations required of lever j to move the end of the rib of drum d from under the arm g.

In the operation of the device the members c, d, and g are adjusted in such manner as to determine the number of operations necessary to accomplish the movement of the rib from the arm g, the numbers of said members being visible through a suitable slot through the casing, as shown in Fig. 1. When the lever j has been moved the predetermined number of times, the rib moves from the arm g, and the latter in moving inward toward the center of the drum will move lever o to the position o''', (shown in Fig. 4,) and thus stop, disconnect, or otherwise operate on the mechanism which the device controls.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the class described, a revoluble drum having a helical rib, a controlling device arranged to engage said rib and adapted to receive movement when the rib passes from engagement therewith, and means for imparting a step-by-step movement to said revoluble drum.

2. In a device of the class described, a revoluble member having a helical rib provided with graduations bearing designating-marks, a controlling member engaging said rib, and receiving movement after a predetermined number of operations of said member, and means for imparting a step-by-step movement to said member.

3. In a device of the class described, primary and secondary indicating members, the secondary member having a helical rib, a pair of ratchet-wheels connected to the members, a pawl-operating bar, pawls carried thereby, and arranged to transmit movement to the ratchet-wheel, the ratchet-wheel of the secondary member receiving a single step movement after each complete rotation of the ratchet-wheel of the primary member, and a controlling member engaging the rib and receiving motion after a predetermined number of operations of said secondary member.

4. In a device of the class described, primary and secondary indicating members, each of which is adjustable independently of the other, a helical rib carried by the secondary member, a controlling device bearing against the rib and movable when the end of the rib is reached, mechanism for operating the primary member, and a transfer mechanism for imparting movement to the secondary member at the end of each complete rotation of the primary member.

5. In a device of the class described, a casing, a shaft supported thereby, a drum secured to the shaft and having a helical rib provided with graduations, means for adjusting said drum, a rock-shaft, an arm carried thereby and having a bifurcated end embracing the rib, a spring tending to force the arm against the rib, a controlling-lever carried by the rock-shaft, a primary disk also having graduations, said disk being mounted on the main shaft and being adjustable independently of the drum, ratchet-wheels secured to the drum and disk, the ratchet-wheel of the primary disk being of larger diameter than that of the drum, an operating-lever, and pawls carried by said lever and arranged to engage the ratchet-wheels, the larger wheel having a deep notch to permit contact of the pawl with the ratchet-wheel of the drum after each complete rotation of the primary disk.

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

GEORGE HOEPNER

Witnesses:
C. F. SEDGWICK,
JOHN E. WHITE.