

(No Model.)

2 Sheets—Sheet 1.

J. BUTCHER.  
WORD COUNTER FOR TYPE WRITERS.

No. 451,167.

Patented Apr. 28, 1891.

Fig. 1

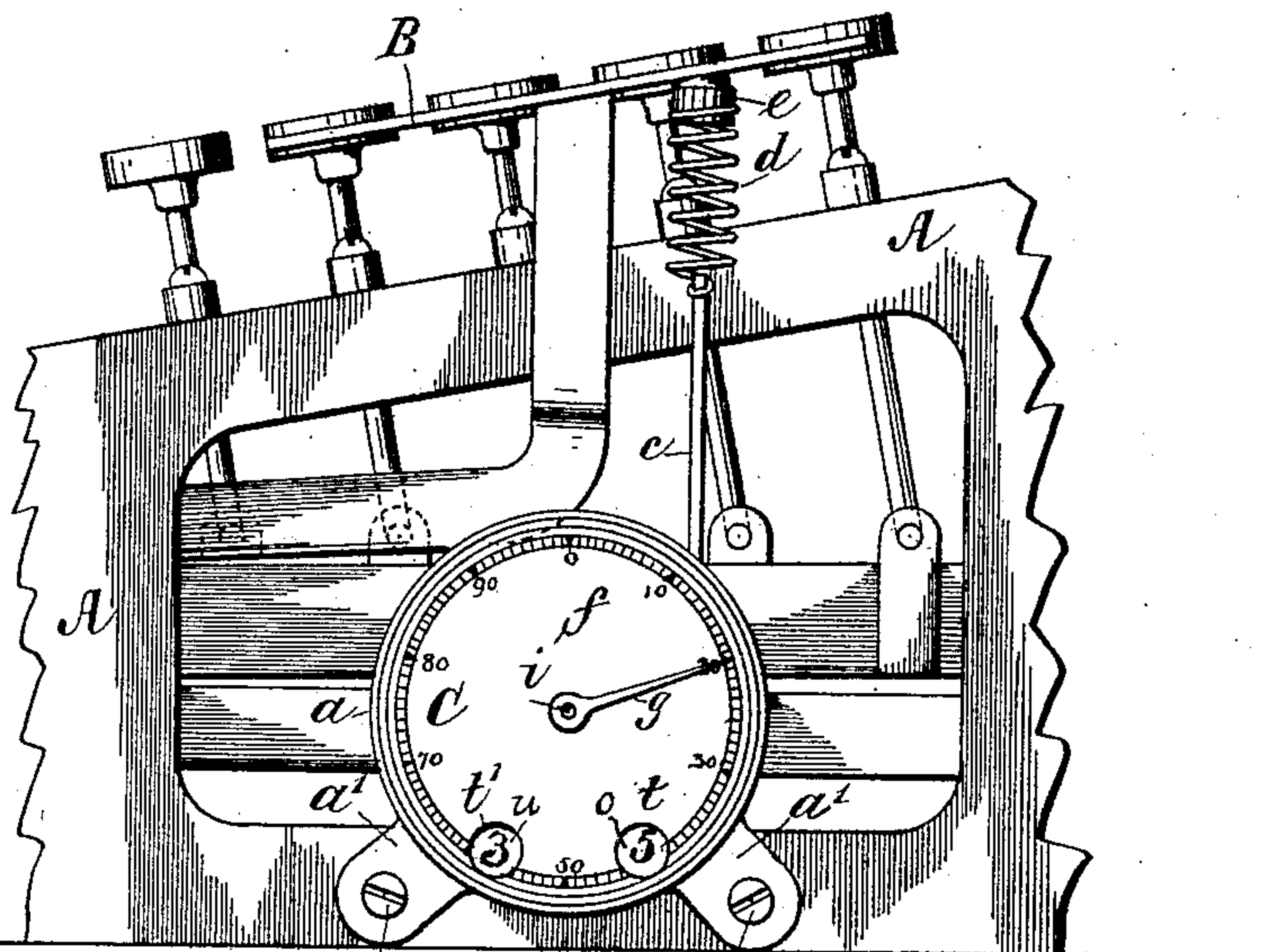


Fig. 2

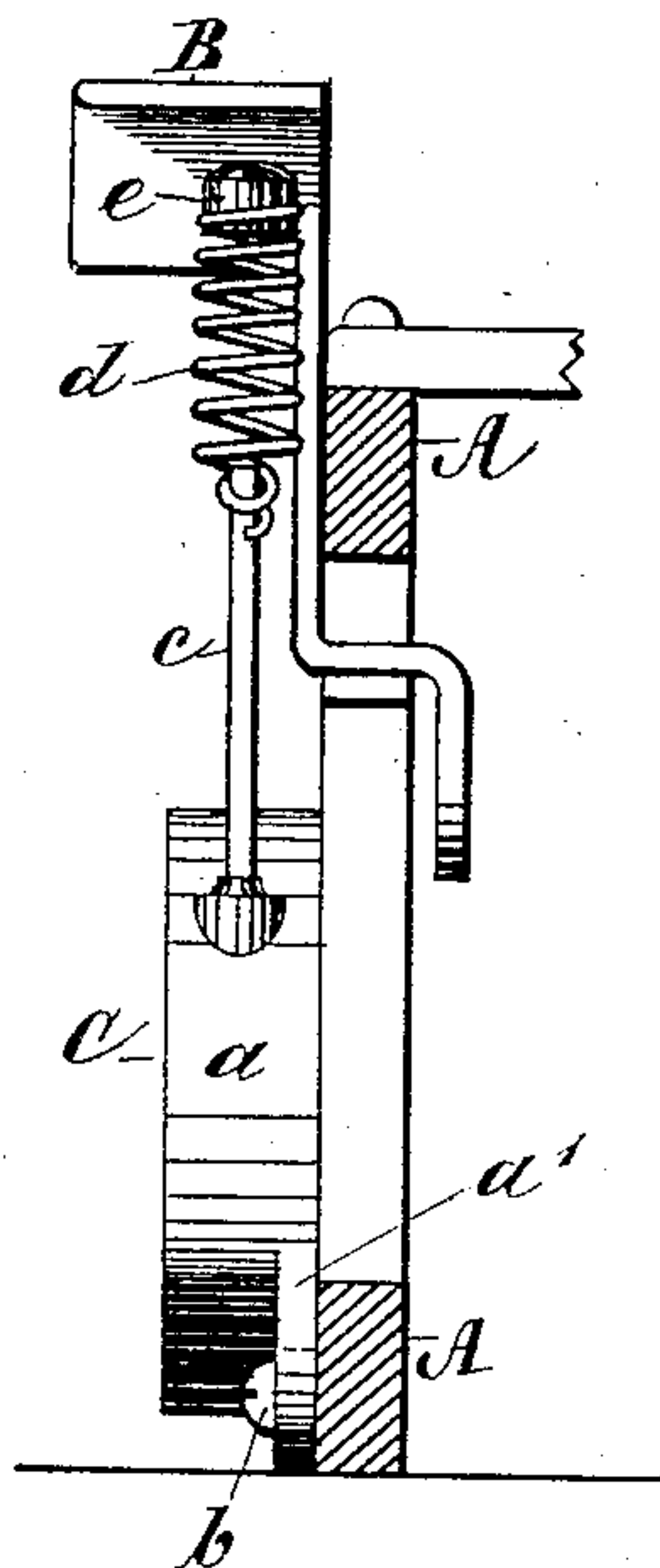


Fig. 4.

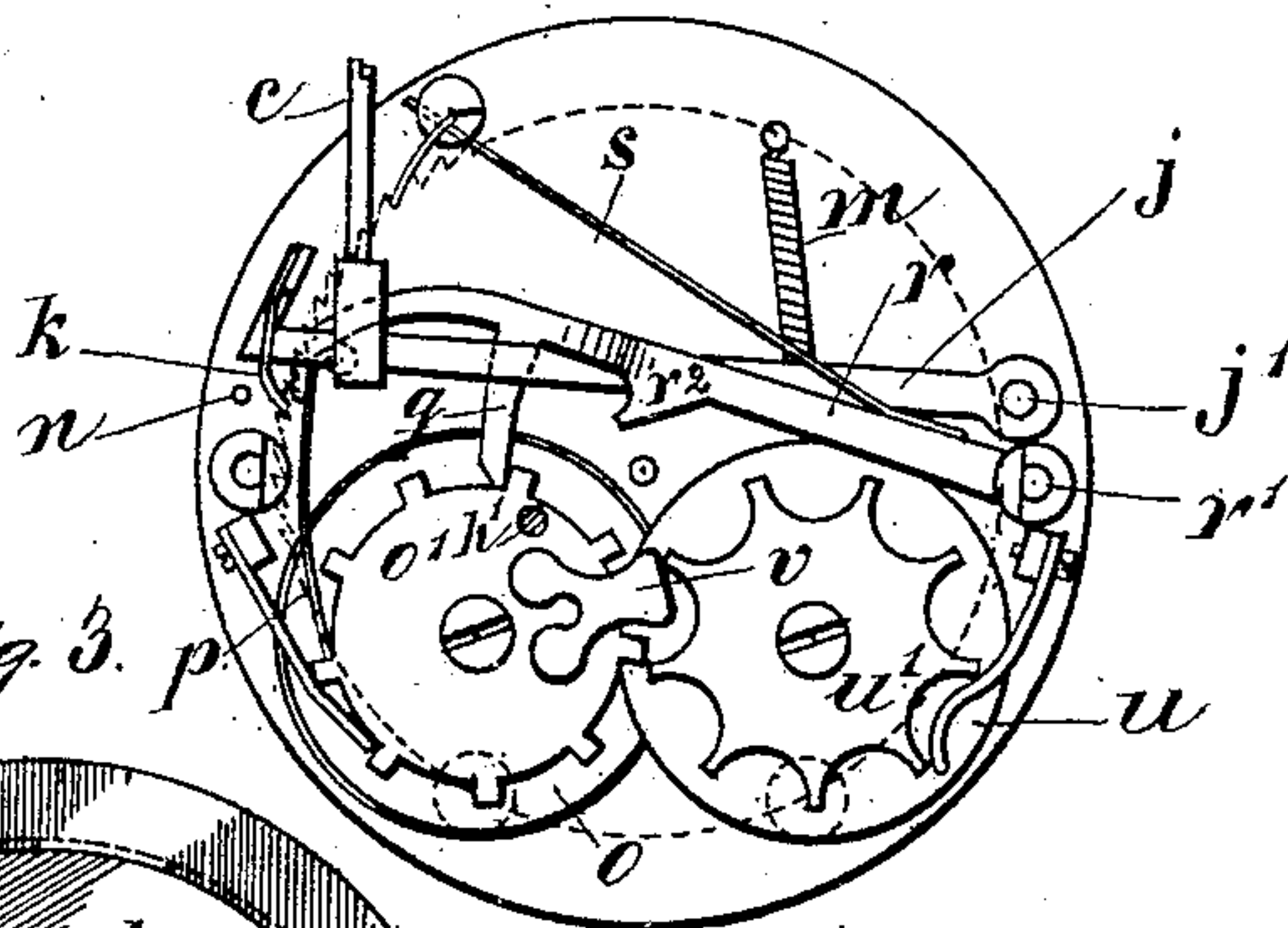
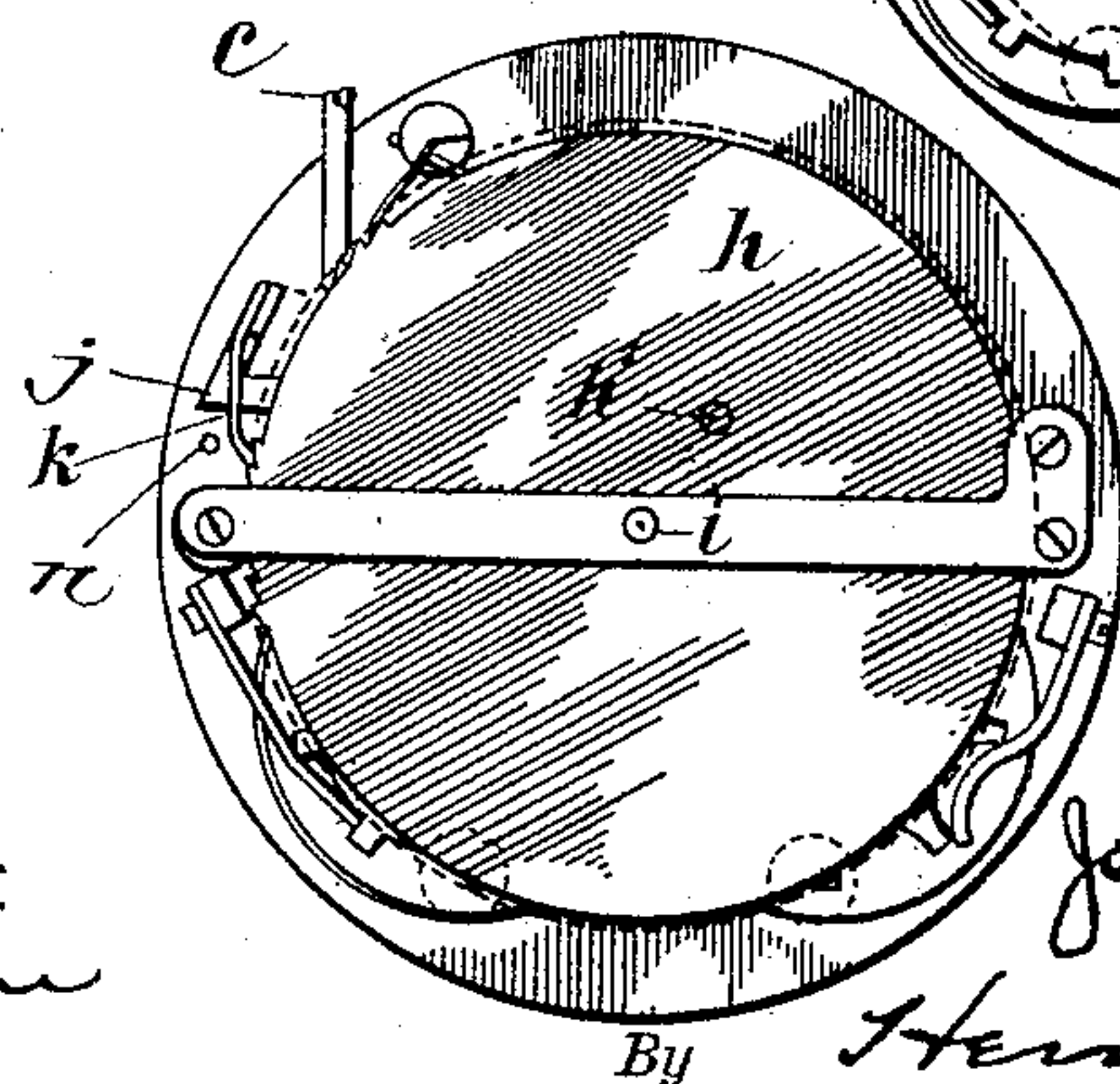


Fig. 3.



INVENTOR:

Joseph Butcher,

Henry Bonnet

Attorney.

WITNESSES:

J. Caplinger

E. W. Stuart

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Fig. 5.

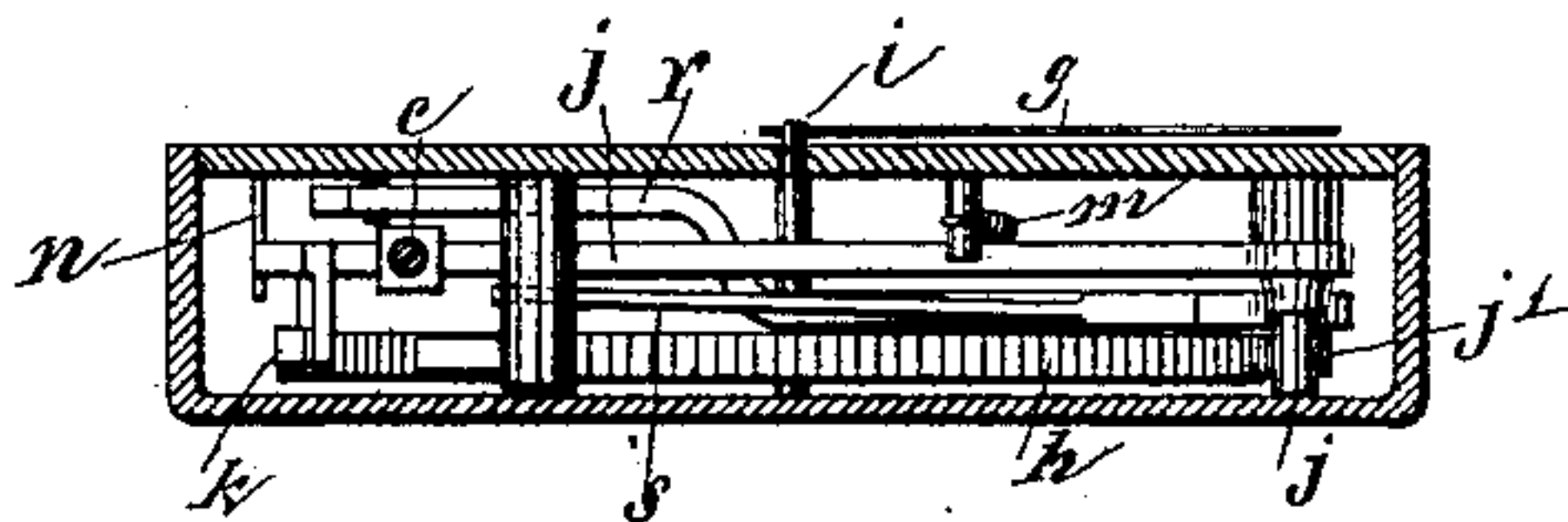


Fig. 6.

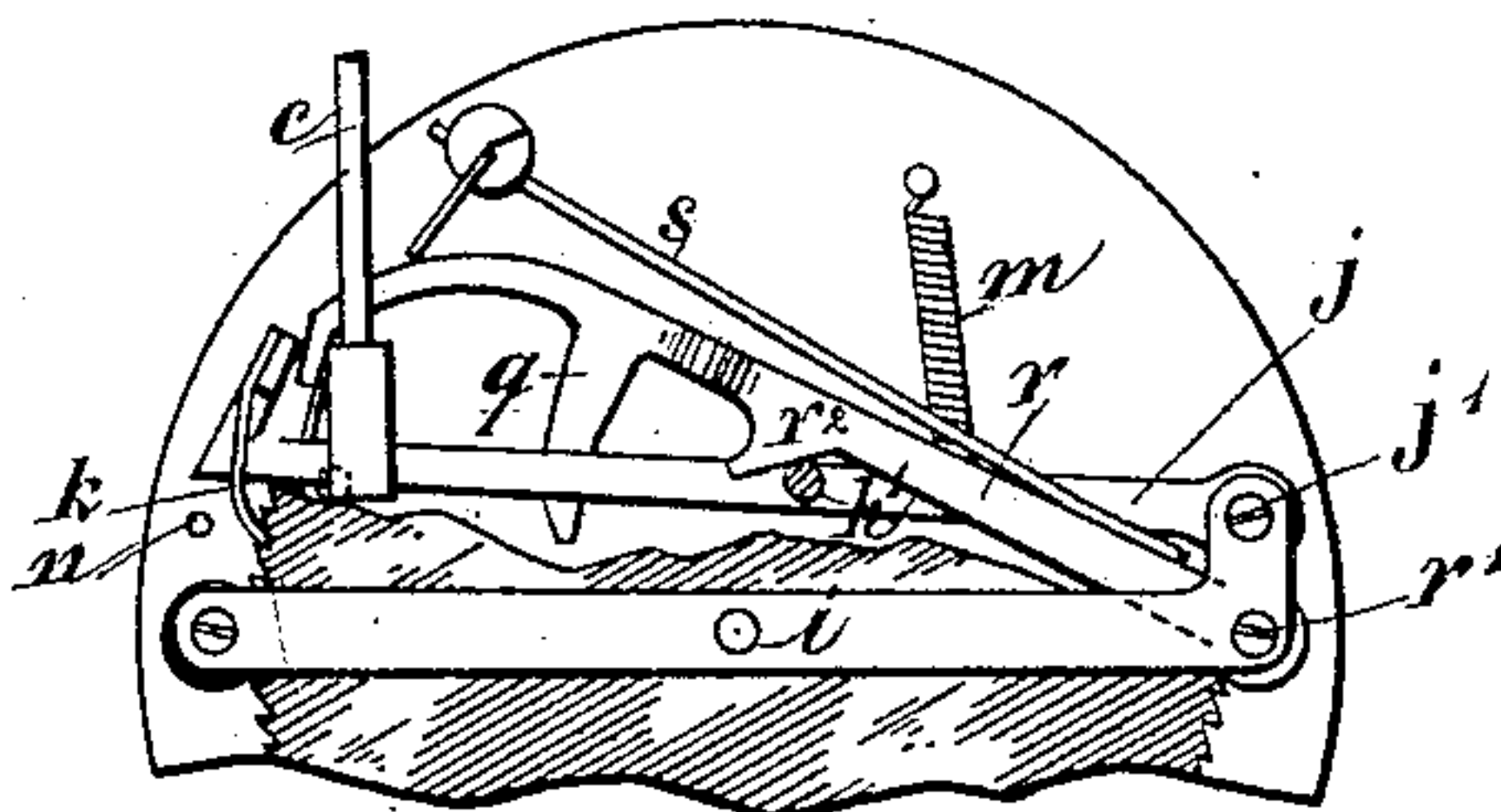
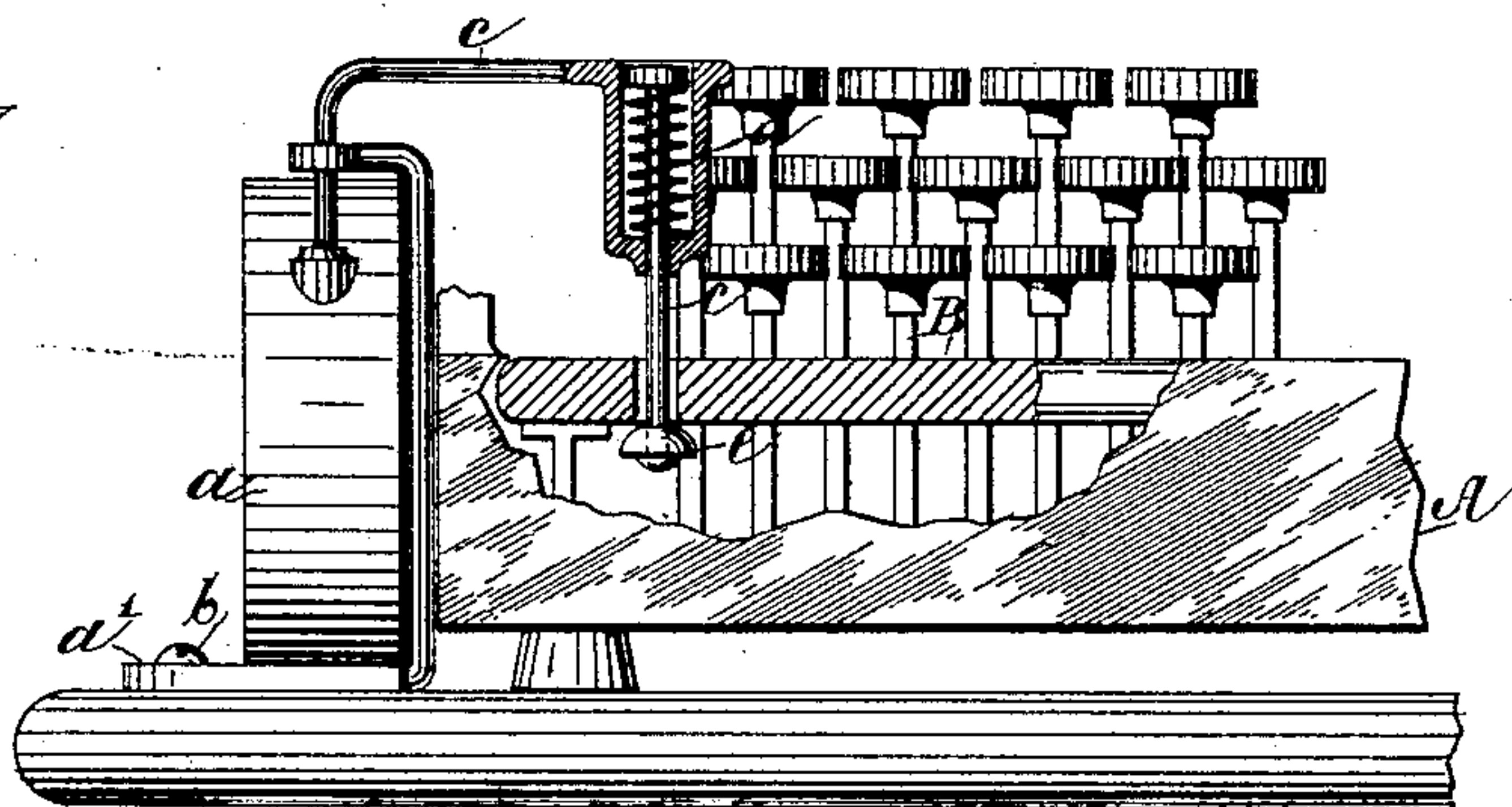


Fig. 7.



INVENTOR:

WITNESSES:

*J. H. Capenigum*  
*E. W. Stuart*

*Joseph Butcher,*

By

*Henry Bonnett*

Attorney.



# UNITED STATES PATENT OFFICE.

JOSEPH BUTCHER, OF MELROSE, MASSACHUSETTS.

## WORD-COUNTER FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 451,167, dated April 28, 1891.

Application filed July 16, 1890. Serial No. 358,917. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH BUTCHER, a citizen of the United States, residing at Melrose, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Word-Counters for Type-Writers, of which the following is a specification.

My invention relates to counting and registering devices; and the object of my invention is to combine with the spacing-key of a type-writing machine an improved counter and register adapted to be actuated by each depression of said key, whereby such depressions will be counted and registered. As each depression of the spacing-key corresponds in a practical and general sense to each word printed, the counter is thus made to indicate the number of words printed within practical limits of accuracy.

My invention also comprehends certain improvements in the construction of the counter, whereby the accuracy of the count is assured, all as will be hereinafter fully set forth.

In the accompanying drawings illustrative of my invention, Figure 1 is a face view of the counter as it appears when applied to a type-writing machine of the kind known as the "caligraph," and Fig. 2 is an edge view of the same. In these views only a small part of the type-writing machine is shown. Figs. 3, 4, 5, and 6 are views on a larger scale, illustrating the construction of the counter, Fig. 3 being a rear view of the internal mechanism of the counter; Fig. 4, a similar rear view as it appears when the main ratchet-wheel is removed; Fig. 5, an edge view of the internal mechanism; and Fig. 6, a fragmentary view of said mechanism, showing the parts in different position from that seen in Fig. 4. These will be referred to more particularly hereinafter. Fig. 7 is a view similar to Fig. 1, illustrating the application of the counter to a Remington type-writing machine.

Referring to the principal figures, A represents a part of the frame of the type-writing machine, and B the spacing-key thereof, which is actuated by depressing it with the fingers, a spring (not shown) returning it to its normal position. Secured in any convenient manner under said spacing-key or adjacent to it is the counter C. As herein shown the

counter is secured directly to the frame A by means of lugs *a'* on its casing *a*, through which pass screws *b*. The mechanism of the counter is of such a character, as will be hereinafter described, that it may be actuated through the medium of a stem *c* by an endwise pressure on the same, the said rod projecting outwardly through an aperture in the casing. The endwise movement of the stem *c* is limited positively, as will be fully explained hereinafter, in order that it may move the main wheel of the counter to the same extent at all times, and each intermittent pressure on the said stem serves to count one and to add one to the sum already indicated on the dial of the counter. The stem *c* is retracted by a spring. In order that the spacing-key may be depressed to a greater or less extent without interfering with the action of the counter, as well as to adapt the counter to machines wherein the movement of the spacing-key differs, I provide the stem *c* with a moderately-strong cushion-spring *d* to receive the pressure of the spacing-key, and to permit said key to be depressed to a limited extent after the limit of movement of the stem *c* shall have been reached. I also interpose between the cushion-spring *d* and the key, by preference, a buffer or head *e*, of rubber, secured to said spring. This buffer serves to take the wear and to lessen the noise produced by the contact.

The counter being assumed capable of indicating the number of times the key shall have been depressed, it follows that in the ordinary use of the type-writing machine a register of the number of such depressions will be made by the counter and indicated on the dial thereof. As represented in Fig. 1, the dial of the counter indicates "3520."

The cushion-spring *d* will be sufficiently unyielding to insure the depression of the stem *c* to the full extent of its movement, and also to insure the full operation of the counter; but it will yield before any injury to the counter can ensue from the further depression of the spacing-key.

I will now describe the internal construction of the counter as illustrated in Figs. 3, 4, 5, and 6, which show said mechanism or the movement detached from the casing. The



dial *f* and pointer or hand *g* are seen in Fig. 1. At the back of the movement is the main ratchet-wheel *h*, (see Fig. 3,) which has one hundred teeth. This wheel is fixed on the same arbor *i* with the pointer *g*. I have only shown a few of the teeth of this wheel in Fig. 3, in order to avoid repetition; but it will have one hundred equally-spaced teeth. A pawl-arm *j*, pivoted at *j'*, carries a spring-pawl *k*, which engages the teeth of the wheel *h*. The pawl and arm are held retracted by a spring *m*. The stem *c* is coupled or secured at its inner end to the arm *j*, and endwise pressure on the stem causes the pawl *k* to rotate the wheel *h* to the extent of one tooth, any further movement of the said pawl being arrested by a suitable stop *n*. The stem *c* being secured to the arm *j*, it will be retracted by the spring *m* when said arm is retracted. When the wheel *h* shall have made one rotation on its axis, it imparts one impulse equal to one-tenth of a rotation to a disk *o*, which I call the "hundreds-disk," through the medium of mechanism I will now describe. Fixed to the disk *o* is a wheel *o'* with ten teeth, and with these teeth engages a spring-pawl *p* and a stop-detent *q*, both on a pawl-arm *r*, pivoted at *r'*. On said arm is an incline or cam *r<sup>2</sup>*, and on the inner face of the wheel *h* is a stud or projection *h'*, which, as said wheel rotates, takes under the incline *r<sup>2</sup>* and lifts the arm *r*, thus withdrawing the pawl *p* and the detent *q*. The pawl *p* draws back far enough to take behind the next tooth on the wheel *o'*, and the detent withdraws sufficiently to clear the teeth of said wheel. When the stud *h'* passes the cam *r<sup>2</sup>*, a spring *s*, acting on the pawl-arm *r*, drives the pawl *p* forward suddenly, thus acting to move the disk *o* to the extent of one-tenth of a complete rotation. To prevent the disk from rotating farther than it should, the detent *q* interposes itself in front of a tooth on wheel *o'*, as represented in Fig. 4.

In Fig. 6 I have shown the parts just described in their proper positions when the stud *h'* is acting to lift the pawl-arm *r*. The crossing of the pawl-arms *j* and *r*, so as to put the pawls borne thereby in their proper planes, is illustrated in the edge view, Fig. 5. On the face of the hundreds-disk *o*, adjacent to the dial-plate, are marked the digits 0 to 1 in a well-known way, and these are adapted to appear in succession at an aperture *t* in the dial-plate, as seen in Fig. 1. The thousands are indicated at an aperture *t'* in the dial-plate by a thousands-disk *u*, marked in a similar manner. On the back of the disk *u* is fixed a wheel *u'*, having ten teeth, and on the wheel *o'* is secured a long tooth *v* to en-

gage a tooth on wheel *u'* at each rotation of wheel *o'*, and thus to impart to the thousands-disk *u* one-tenth part of a complete rotation in a well-known way. The wheels *h*, *o'*, and *u'* are provided with the usual spring-pawls or detents to prevent back rotation in a well-known way.

In Fig. 7 I have shown the application of my counter to the spacing key or bar of a Remington type-writing machine. This will require no description, as the parts are lettered the same as those in Figs. 1 and 2. Such slight variations in construction and arrangement as will be necessary to adapt my counter to any writing-machine are within the knowledge of any skilled mechanic.

It is unimportant how the cushion-spring *d* is arranged, provided it be placed between the spacing-key and the mechanism of the counter in such a manner as to effect the result desired.

Having thus described my invention, I claim—

1. The combination, with the spacing-key of a type-writing machine, of a counter having an operating-stem projecting therefrom and arranged undersaid key, and stops which limit the movement of said stem, and a cushion-spring interposed between said key and the mechanism of the counter, substantially as and for the purposes set forth.

2. The combination, with the spacing-key of a type-writing machine and a counter arranged near said key and provided with an operating-stem which is adapted to actuate said counter by endwise reciprocation, said stem being arranged beneath said key, and with stops to limit the movement of said stem, of the cushion-spring interposed between said stem and said key and the buffer *e* on said spring, substantially as and for the purposes set forth.

3. In a counter, the combination, with the ratchet-wheel *h*, provided with a stud *h'*, and the pawl-arm *r*, provided with a pawl *p*, a detent *q*, and a cam *r<sup>2</sup>*, of the disk *o*, the toothed wheel *o'*, fixed thereto and engaged by said pawl *p* and detent *q*, and the spring *s*, which actuates said pawl-arm *r*, the stud *h'* being adapted to engage the cam *r* at each rotation of the wheel *h*, substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH BUTCHER.

Witnesses:

HENRY CONNETT,  
J. D. CAPLINGER.