W. F. LAMB.

COUNTER.

APPLICATION FILED NOV. 23, 1915.

1,189,139.

Patented June 27, 1916.

2 SHEETS—SHEET 1.

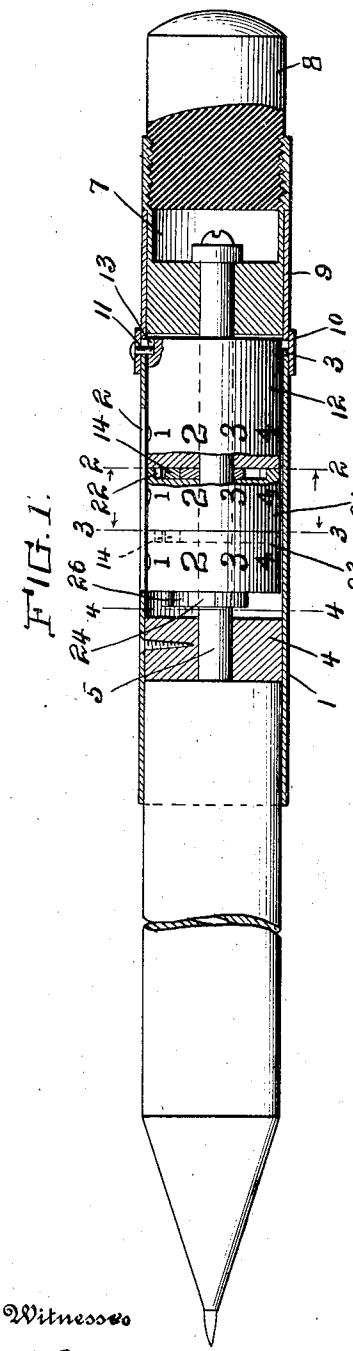


FIG. 1.

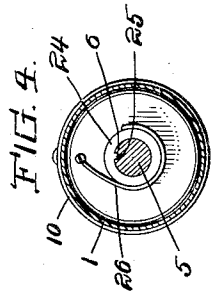


FIG. 4.

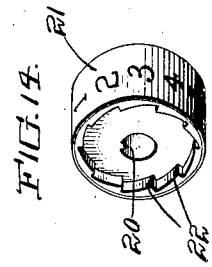


FIG. 14.

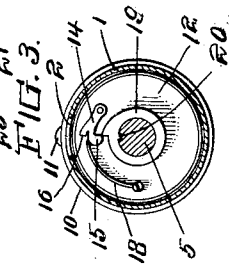


FIG. 3.

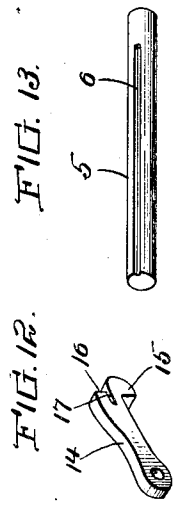


FIG. 13.

FIG. 12.

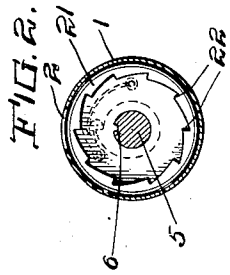


FIG. 2.

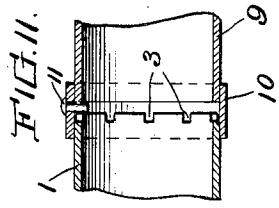


FIG. 11.

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2 SHEETS—SHEET 2.

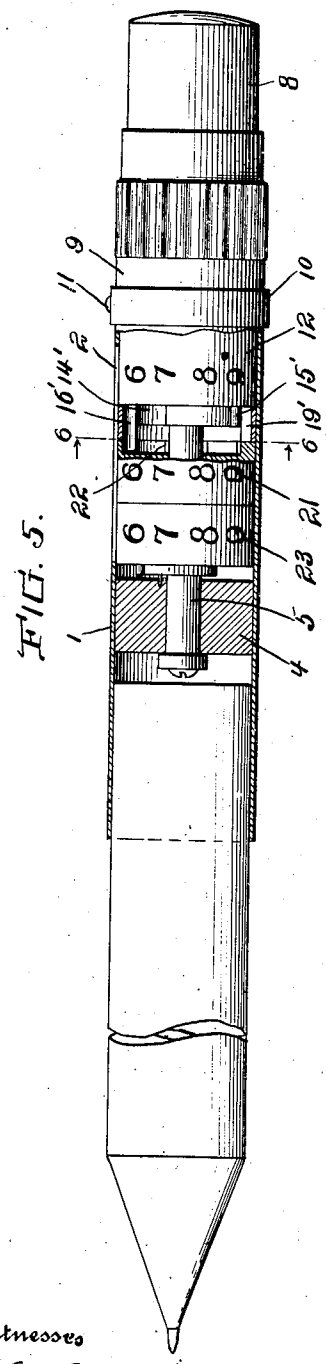


FIG. 5.

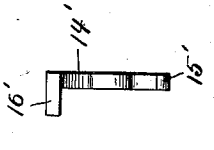


FIG. 8.

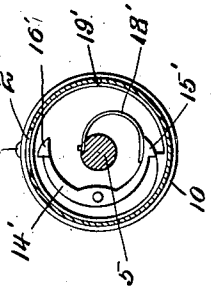


FIG. 6.

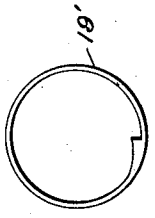


FIG. 7.

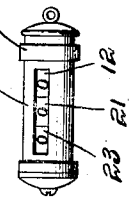


FIG. 10.

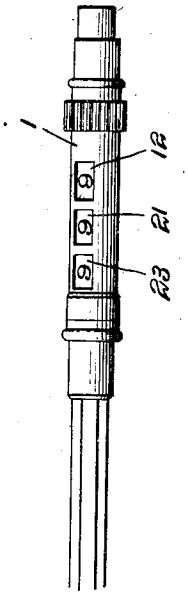


FIG. 9.

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UNITED STATES PATENT OFFICE.

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COUNTER.

1,189,139. Specification of Letters Patent. Patented June 27, 1916.

Application filed November 23, 1915. Serial No. 63,017.

To all whom it may concern:

Be it known that I, WATSON F. LAMB, a citizen of the United States, residing at East Greenwich, in the county of Kent and State of Rhode Island, have invented new and useful Improvements in Counters, of which the following is a specification.

This invention relates to counters and consists in the novel features hereinafter described and claimed.

An object of the invention is to provide a counter in the form of a miniature structure adapted to be carried in the pocket or which may be used as a watch charm or other personal ornament, or which may be applied either to the end of a pencil or other article of personal use.

With this object in view, the counter essentially comprises a barrel provided at its side with an opening and having a pintle fixed concentrically therein. Disks are turnably mounted upon the pintle and are provided at their peripheries with numbers which may be brought to view through the openings in the barrel when the said disks are turned. Manually operable means is provided for turning the initial disk and spring pressed coils are carried by the initial and intermediate disks. Ratchet teeth are provided upon the intermediate and turnable disks and fixed cams are located between the disks and are adapted to be engaged by the coils when the initial disk is turned, whereby the coils at proper intervals are brought into engagement with the teeth of the adjacent disks and the disks are turned step by step to cause the numbers to appear at the opening in the barrel as the counter is used.

The device includes other features, such as, means for locking the initial disk against turning movement and friction means are provided for restraining the disks against excessive turning movement.

In the accompanying drawings:—Figure 1 is a longitudinal sectional view of the proposed form of counter. Fig. 2 is a transverse sectional view of the same, on the line 2—2 of Fig. 1. Fig. 3 is a similar view cut on the line 3—3 of Fig. 1. Fig. 4 is a similar view cut on the line 4—4 of Fig. 1. Fig. 5 is a longitudinal sectional view of a modified form of the counter. Fig. 6 is a transverse sectional view of the form shown in Fig. 5, cut on the line 6—6 thereof. Fig. 7 is a side view of a cam member used in the counter. Fig. 8 is an edge view of a pawl member. Fig. 9 is a view showing the counter in one form applied. Fig. 10 is a side view of a modified form of the counter. Fig. 11 is a detail sectional view of parts of the counter. Fig. 12 is a perspective view of a pawl used in the counter. Fig. 13 is a perspective view of a spindle used in the counter. Fig. 14 is a perspective view of a disk used in the counter.

As illustrated in Figs. 1 to 4 inclusive, the contour comprises a barrel 1 provided at its side with an opening 2 and having at one end notches 3. A plug 4 is secured in that end portion of the barrel 1 opposite the end at which the notches 3 are provided and if desired a pencil or other article may be inserted in the same end of the barrel. A spindle 5 is secured at one end in the plug 4 and is disposed centrally in the barrel 1. The spindle 5 is provided at its side with a longitudinally disposed groove 6. A ferrule 7 is mounted upon the end of the spindle 5 opposite that end which is secured in the plug 4 and the said ferrule may receive a rubber eraser 8 or may be provided with means whereby the counter may be connected with a watch chain or other suitable means for attaching the device to the clothing of the user. A sleeve 9 is turnably and slidably mounted upon the ferrule 7 and the said sleeve is provided with a fixed collar 10 having a pin 11 passing transversely through the same. One edge portion of the collar 10 lies over and surrounds the end portion of the barrel 1 which is provided with the slots 3. The pin 11 is located between the adjacent ends of the barrel 1 and the sleeve 9, but when the sleeve 9 is moved toward the barrel 1, the pin may enter one of the notches 3 provided at the end of the barrel whereby the sleeve is fixed with relation to the barrel.

A series of disks are turnably mounted upon the pintle 5 and are located opposite of the opening 2 in the barrel 1. The initial disk 12 of the series is provided at its periphery with a slot 13 which receives the inner end of the pin 11. The pin 11 may move along the slot 13 as the sleeve 9 is moved longitudinally. A pawl 14 is pivotally mounted at the side of the disk 12 and the said pawl is provided at its free end with a laterally disposed head 15 located at one side of the pawl and a blunt shoulder 16 located at the opposite side of the said

pawl. A slot 17 is provided in the free end of the pawl 14 between the head 15 and the shoulder 16. The pawl 14 is formed from flat metal, hence it may be cheaply stamped out or made. A flat spring 18 is secured at one end to the side of the disk 12 and its other end bears against the side of the head 15 and may at times enter the slot 17 when the pawl under the influence of the said spring is forced toward the center of the spindle 5. A cam member 19 is mounted upon the spindle 5 adjacent the side of the disk 12 and the said cam member is provided with a key 20 which is slidably received in the slot 6 of the spindle and which serves to restrain the said cam member 19 against turning movement with relation to the spindle. The periphery of the cam member 19 lies in the path of movement of the head 15 of the pawl 14 and the spring 18 serves to hold the head 15 of the pawl in contact with the periphery of the cam member, 19, as the pawl moves around the cam member.

An intermediate disk 12 is turnably mounted upon the spindle 5 adjacent the initial disk 12 and the said intermediate disk 21 is provided at that side adjacent the disk 12 with a collar which is bounded by internally disposed sets of ratchet teeth 22. The teeth 22 surround the pawl 14 which is carried by the initial disk 12 and when the head 15 of the pawl 14 rides over the nose of the cam member 9 the shoulder 16 comes into contact with one of the teeth 22. As soon as the head 15 passes beyond the nose of the cam member 19, the spring 18 moves the free end portion of the pawl 14 toward the center of the spindle 5 whereby the shoulder 16 is carried out of engagement with the teeth of the set of teeth 22.

The intermediate disk 21 is provided at that side opposite the side which is provided with the teeth 22 with a pawl similar to the pawl 14, a spring similar to the spring 18, and a cam member similar to the cam member 19 is positioned upon the spindle 5 adjacent the head, intermediate the disk 21.

A terminal disk 23 is turnably mounted upon the spindle 5 adjacent the intermediate disk 21 provided at that side of the disk 21 with a set of ratchet teeth similar to the ratchet teeth 22 described in connection with the said intermediate disk 21. A ring 24 is positioned upon the spindle 5 adjacent the side of the disk 23 opposite the side thereof which is provided with the ratchet teeth 22. The said ring is held against turning movement upon the spindle 5, by means of a key 25 which enters the groove 6 of the spindle 5. The flat spring 26 is secured at one end to the side of the terminal disk 23 and the opposite end portion of the said spring is curled or wrapped about the periphery of the ring 24 and frictionally engages the same. The said spring 26 together with the ring 24 serves as means for checking the turning movement of the disks 12, 21, and 23, and prevents the said disks from having excessive turning movement upon the spindle 5, when the initial disk is turned, or when through the engaging pawls and ratchet teeth the intermediate and terminal disks are turned. Each of the disks 12, 21 and 23 is provided upon its periphery with a set of numbers arranged in consecutive order around the disk from zero to nine.

The operation of the counter is as follows: When turning movement is imparted to the disk 12 and the pin 11 is carried out of one of the notches 3 in the barrel 6 the inner end of the pin moves along the slot 13 provided in the periphery of the initial disk 12. The sleeve 9 may then be turned thus the numbers from zero to 9 consecutively will be brought to view through the opening 2 of the barrel. After the number 9 has appeared to the opening 2 and the number zero is again approaching the same the head 15 of the pawl 14 rides over the nose of the cam member 19 consequently the pawl 14 is swung so that its shoulder 16 engages one of the teeth 22 of the intermediate disk 21. Thus as the continued turning movement of the disk 12 turns the intermediate disk 21 one-tenth of a revolution and then the head 15 of the pawl 14 of the intermediate disk passes beyond the nose of the cam 21 and the spring forces the head end of the pawl toward the center of the spindle upon which the disks are mounted. As a consequence of the repetition of the before described operation until the disk 21 has been caused to complete a rotation upon the spindle whereby the pawl carried by the disk 21 engages one of the teeth 22 of the disk 23 the said disk 23 is caused to describe one-tenth of a revolution. As the initial disk and the terminal disk are turned the numbers or figures may be read to indicate the number of units in the collection of articles being counted.

In the form of the invention as shown in Fig. 1 of the drawing but three disks are used consequently the articles can be counted up to 999. When this takes place one-tenth of a rotation of the initial disk 12 brings all of the zeros of the disks to view through the opening 2 of the barrel 1. Further turning movement of the disk repeats the operation hereinbefore described. If at any time it is desired to cease the counting operation and retain certain numbers to view through the opening 2 in the barrel 1 the sleeve 9 is moved toward the end of the barrel 1 whereby the pin 11 is caused to engage in one of the notches 3 and the said disks are then locked in the position on the spindle to

which they have been turned and the numbers upon their peripheries will remain visible through the opening 2 in the barrel so long as the pin 11 is in engagement with one of the notches 3 and the sleeve 9 is held against turning movement. This is due to the fact that the pin always remains in the slot 13 of the disk 12 irrespective of the position of the sleeve 9.

In the form of the invention as shown in Figs. 5 and 6 of the drawing the same general arrangement of the parts is observed as that described and shown in connection with the form illustrated in Fig. 1. However, in this form of the invention the pawls 14′ are made crescent shaped instead of the shape as shown at 14 in the preferred form and the heads 15′ are attached to the spindle at their inner end instead of at the sides of the disks. The cam members 16′ are in the form of rings and are secured to the inner sides of the barrel 1 and held in fixed position. The pawls 14′ are provided at one end with heads 15′ adapted to move over the cam portion of the members 19′ and the opposite ends of the said pawl members 14′ are provided with laterally disposed shoulders adapted to engage the teeth 22 of the adjacent disks. The operation of the structure as shown in Fig. 5 is the same as that shown in Fig. 1. It is to be understood that one or more intermediate disks may be employed as the number of intermediate disks is immaterial as they are all of the same structural arrangement.

From the foregoing description taken in connection with the accompanying drawings it will be seen that a counter or pintle, of cheap and durable structure is provided and that the same may be kept ready at hand for recording or keeping track of a number of articles counted.

The device may be used to advantage for registering cash receipts and disbursements for counting pieces of lumber as they are moved, for counting and adding the number of feet in boards and the like, in counting grain as it comes from the thresher or is loaded upon a vehicle, for counting parcels of merchandise of any description which is moved from a vehicle to a platform or like structure, for counting the strokes of an engine piston or the rotation of the same and in fact may be used to advantage in all places where it is desirable to know the number, amount, weight, measurement and the like.

Having thus described the invention what is claimed is:—

A counter comprising a barrel provided at its side with an opening, at its end with notches, a spindle fixed centrally of the barrel, a disk turnably mounted on the spindle and having numbers upon its periphery which may be brought to view through said opening, and a sleeve turnably mounted at the end of the barrel and carrying a pin which slidably engages the said disk, said sleeve adapted to move longitudinally with relation to the barrel whereby the pin may be inserted in one of the notches thereof.

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

WATSON F. LAMB.

Witnesses:
E. R. Butts,
H. V. Allen.