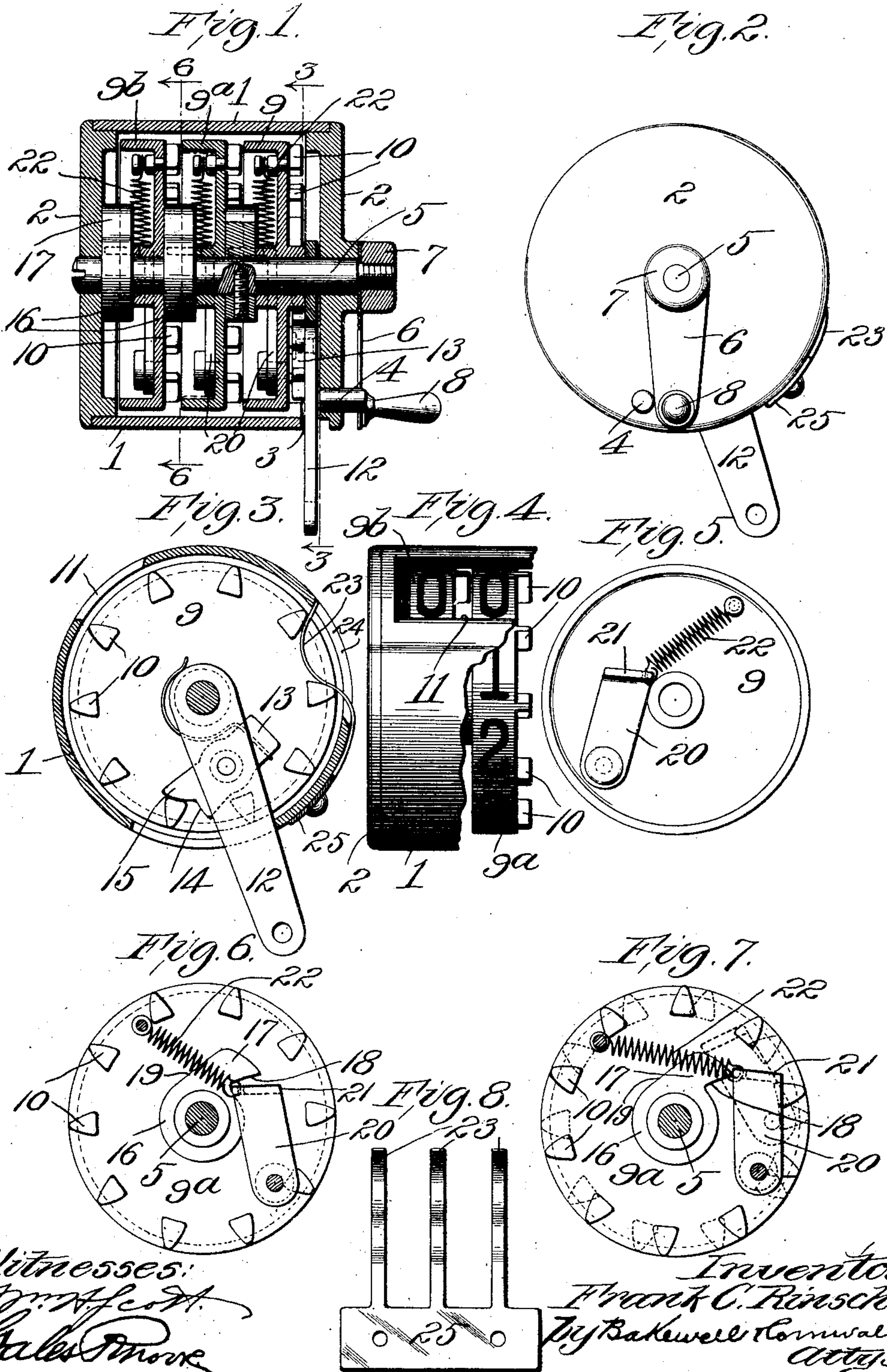


No. 744,407.

PATENTED NOV. 17, 1903.

F. C. RINSCHÉ.
COUNTING MECHANISM.
APPLICATION FILED FEB. 24, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

FRANK C. RINSCHÉ, OF ST. LOUIS, MISSOURI, ASSIGNOR TO UNIVERSAL ACCOUNTANT MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

COUNTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 744,407, dated November 17, 1903.

Application filed February 24, 1903. Serial No. 144,813. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. RINSCHÉ, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Counting Mechanisms, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal substantially central vertical elevation. Fig. 2 is an end elevation. Fig. 3 is an elevation on about the line 3 3 of Fig. 1, the casing being shown in section. Fig. 4 is a fragmentary side elevation, a portion of the casing being broken away. Fig. 5 is a side view of one of the counting-disks, showing the parts carried thereby. Fig. 6 is an elevation on about the line 6 6 of Fig. 1. Fig. 7 is an elevation of the general character of Fig. 6, the dotted lines showing the parts in the positions which they occupy just prior to the commencement of actuation of one counting-disk by the other and the full lines showing the positions of the parts as the actuation of one counting-disk by the other is about to be completed; and Fig. 8 is a face view of the retaining-fingers.

My invention relates to improvements in counting mechanisms, my objects being to provide a simple construction by means of which one counting-disk of a series can be actuated by another thereof and the several counting-disks can also be readily restored to normal or zero position.

To these ends and also to improve generally upon mechanisms of the character indicated my invention consists in the various matters hereinafter described and claimed.

Referring now more particularly to the drawings, 1 indicates the cylindrical portion of a casing, and 2 represents heads suitably secured to the opposite ends of the same, the wall of the casing being provided at a suitable point with a slot 3, through which the hereinafter-mentioned actuating-lever extends. A suitable pin 4 is provided upon one head of the casing. Extending longitudi-

nally of the casing and suitably journaled in the heads thereof is a shaft 5, to which is connected a setting-arm 6, said arm being here shown as clamped upon the projecting end of the shaft by means of a nut 7 and as provided with a handle 8, adapted to be grasped by the operator. The arm 6 is flexible, so that although this arm will be stopped by the stop-pin 4 it can be sprung outwardly to carry the same over the pin, and thus permit a second revolution of the arm, the shaft 5 moving with said arm, as will be readily understood.

The counting-disks 9, 9^a, and 9^b are rotatably mounted upon the said shaft 5, the said disks being, respectively, units, tens, and hundreds disks, and upon one side of each disk are ten teeth or projections 10. The peripheries of the disks are provided with the usual numerals, which are exposed through a sight-opening 11 in the casing in a manner which will be readily apparent. Hung upon the shaft 5 and rockable thereon is the actuating-lever 12, which projects through the before-mentioned slot 3, this lever lying between the units-disk and the adjacent head of the casing, and pivoted upon said lever is a spring-actuated pawl 13, adapted to coöperate with the teeth or projections upon the units-disk, the operative end of the pawl having a shoulder 14, which is adapted to engage a tooth, and thus move the disk during the forward movement of the lever, and also having a nose or projection 15, which is adapted to rest upon the inner surface of a tooth—i. e., the surface toward the center of rotation of the disk—and to thus limit the movement of the pawl. The slot 3 is of such length that full movement of the actuating-lever in said slot serves to advance the units-disk only one step.

Fixed to the shaft 5 are collars 16, which have cam-projections 17, there being a shoulder or engaging surface 18 produced between what may be termed the "forward" end of each cam projection and the body of the collar, while the opposite or rear end of the projection is connected to the body portion of the collar by an inclined surface 19. One of these collars lies upon the side of each disk opposite the side of said disk carrying the before-

mentioned teeth 10, the collar intermediate two disks serving to space such disks from each other. Pivoted upon each disk and upon the side of the same opposite that provided
 5 with the before-mentioned teeth 10 is a plate 20, which has an outwardly-turned end 21, adapted to rest upon and coöperate with the adjacent collar 16, said plate end being normally held under tension against the periph-
 10 ery of said collar by means of a suitable spring, such as the spring 22. The said plate end 21 is of such length that when the same rests upon the cam projection 17 it also engages a tooth upon the disk adjacent that by
 15 which the plate is carried, so that said plate with its outwardly-turned end is, in effect, a spring-pressed pawl. I provide suitable means for retaining the various disks in positions to which they have been moved, and
 20 in the present embodiment of my invention I have shown spring-fingers 23 for this purpose, said fingers spanning the space between two adjacent teeth of each disk and being curved inwardly between said teeth in order
 25 to present detaining-surfaces, as will be readily apparent. There is one of these fingers for each disk, and each finger extends through a suitable slot 24 in the peripheral wall of the casing, the various fingers being preferably
 30 formed integral with a body-plate 25, which is conveniently secured to the exterior of the casing.

Considering now the operation of the mechanism, we will assume that the arm 6 is at
 35 rest against the stop 4, as shown in Figs. 1 and 2, and that the numbering-disks exhibit their zeros through the sight-opening. Each plate or pawl carried by a numbering-disk rests upon the low portion of its coöperating collar 16, immediately in advance of the shoulder 18, as shown in Fig. 6, and its tooth-engaging end extends outwardly from said collar a distance less than that at which lie the inner edges of the teeth with which the particular said pawl is adapted to coöperate. If
 45 now the actuating-lever 12 be rocked forwardly, its pawl 14 engages the appropriate tooth upon the units-disk and moves said disk through one step, the plate or pawl carried by the units-disk merely moving idly
 50 over the low portion of the collar 16 during this movement of the disk. The actuating-lever 12 being successively operated, the units-disk is advanced step by step, as will be readily understood, the pawl carried by said units-disk merely moving around the collar 16 and gradually riding outwardly upon the inclined surface 19 until at the end of the ninth step of the units-disk its said pawl rests upon the
 55 surface of the cam projection 17, with its tooth-engaging portion 21 almost in engagement with the proper tooth of the tens-disk 9^a, the positions of the parts at the end of the ninth step of the units-disk being shown by
 60 dotted lines in Fig. 7. During the tenth step of the units-disk the pawl carried by said

disk engages the proper tooth of the tens-disk, and thus causes said tens-disk to be advanced through one step during the tenth step of the units-disk, the said pawl carried by the units-disk slipping off the forward end of the cam projection 17 during the last portion of the tenth step of the units-disk and being then pulled by its spring 22 into inoperative position against the low portion of the collar, as shown in Fig. 6, the full lines of Fig. 7 showing the parts in the positions to which they are brought just prior to the completion of the tenth step of the units-disk. Even should the pawl carried by the
 70 units-disk fail to throw the tens-disk through a complete step the spring-finger 23, coöperating with said tens-disk, will serve to complete the full movement of said disk. Of course the hundreds-disk is operated by the
 75 tens-disk in the same manner in which the latter is operated by the units-disk. Thus each disk is properly advanced by a very simple mechanism. In order to reset the disks to zero, it is only necessary to rotate the
 80 shaft 5 in the same direction as that in which the numbering-disks are rotated, the shoulders 18 of the projections 17, connected to the said shaft, engaging the various disk-carried pawls during the rotation of the shaft
 85 and through such engagement with said pawls causing the disks to move with the shaft, the parts being so proportioned and arranged that when the arm 6 comes to rest against the stop 4 the zeros of the various disks are exhibited through the sight-opening. Although
 90 the said arm 6 comes to rest against the stop 4, said arm being of resilient material, as has been previously described, it can be pulled outwardly in order to permit the same to
 95 clear said stop, and thus commence a revolution.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my device can be made
 100 and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

In a counting mechanism, a casing having end walls, a rotatable shaft journaled in said end walls and extending beyond one of them, a plurality of cams in said casing and fixed
 110 to said shaft, one of said cams abutting against the said end wall opposite that beyond which said shaft extends, a plurality of counting-disks rotatably mounted upon said shaft and alternating with said cams,
 115 laterally-extending teeth upon one side face of each of said counting-disks and near the periphery thereof, a pawl pivoted upon the other side face of each of said counting-disks and having an angular extension coöperating
 120 with one of said cams and also with said teeth upon the adjacent said counting-disk,

each of said cams having a shoulder adapted
to engage its coöperating said pawl extension
upon rotation of said shaft, an operating-le-
ver loosely hung upon said shaft between the
5 said end wall beyond which said shaft ex-
tends and the said counting - disk adjacent
said end wall, a pawl upon said operating-
lever coöperating with said teeth upon said
last-mentioned counting-disk, a spring-arm
10 fastened to the extending portion of said
shaft outside of said end wall, and a stop

upon said end wall and against which said
spring-arm is adapted to engage; substan-
tially as described.

In testimony whereof I hereunto affix my 15
signature, in the presence of two witnesses,
this 19th day of February, 1903.

FRANK C. RINSCHÉ.

Witnesses:

GALES P. MOORE,
GEORGE BAKEWELL.