

C. A. PLETZ.
 REGISTERING AND COUNTING MACHINE.
 APPLICATION FILED APR. 25, 1910.

994,602.

Patented June 6, 1911.

5 SHEETS—SHEET 1.

Fig. 1.

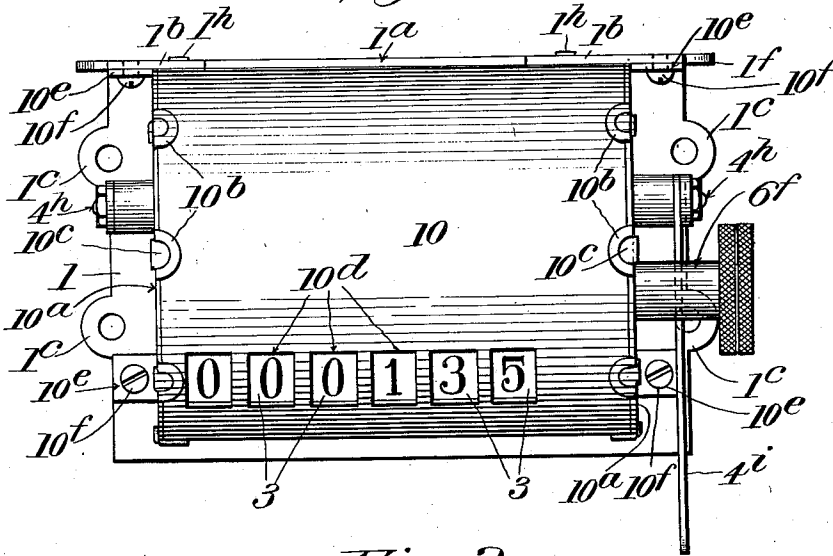
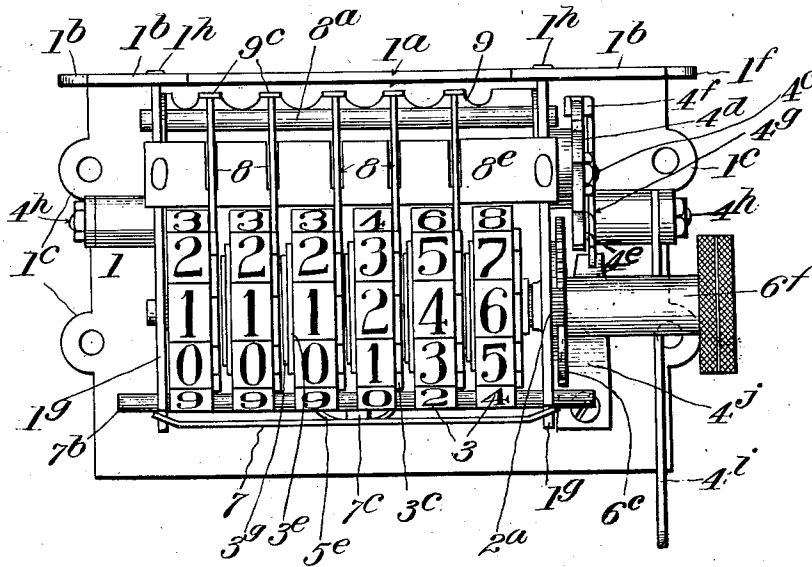


Fig. 2.



Inventor

Charles A. Pletz

Witnesses

C. H. Wacker.
 James H. Mansfield

By

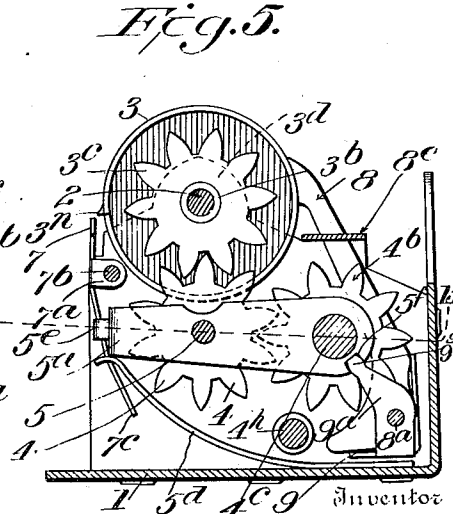
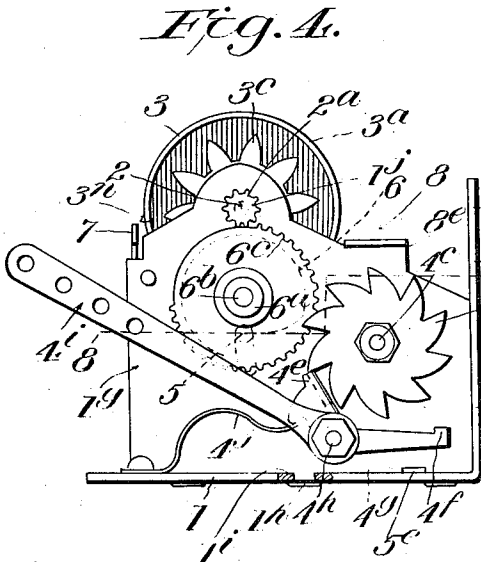
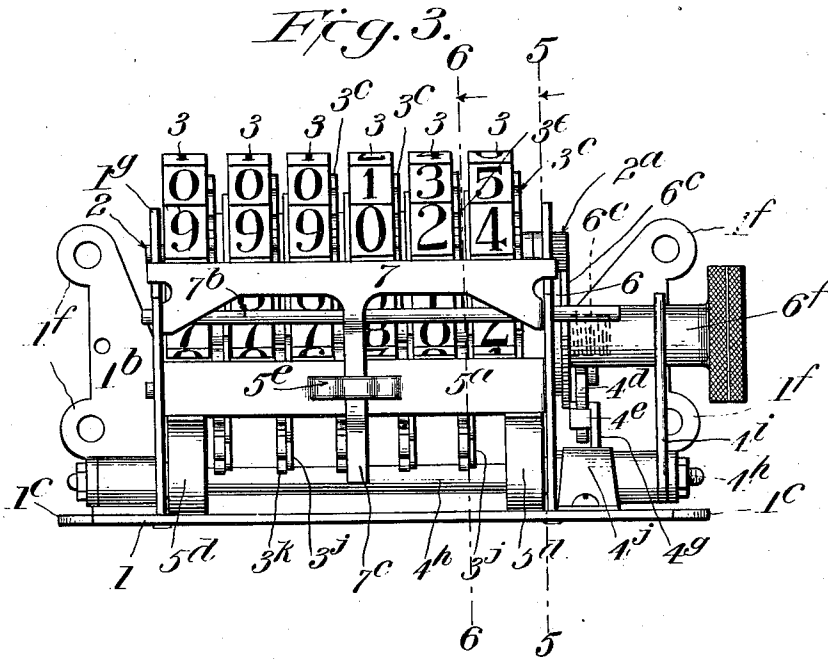
Alexander F. Swell
 Attorneys

C. A. PLETZ.
 REGISTERING AND COUNTING MACHINE.
 APPLICATION FILED APR. 25, 1910.

994,602.

Patented June 6, 1911.

5 SHEETS—SHEET 2.



Witnesses

C. H. Walker

James Mansfield

Charles A. Pletz

By

Alexander F. Towell

C. A. PLETZ.
 REGISTERING AND COUNTING MACHINE.
 APPLICATION FILED APR. 25, 1910.

994,602.

Patented June 6, 1911.

5 SHEETS—SHEET 3.

Fig. 6.

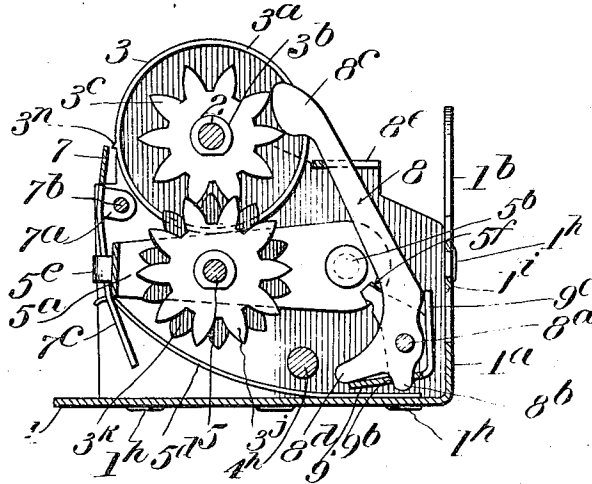
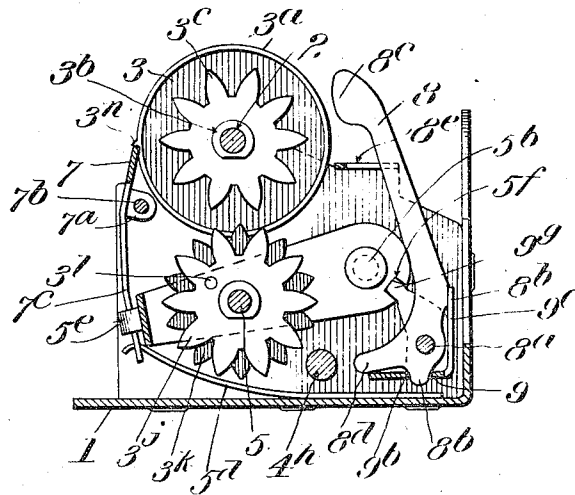


Fig. 7.



Inventor.

Charles A. Pletz

Witnesses

C. H. Walker

James B. Mansfield

By

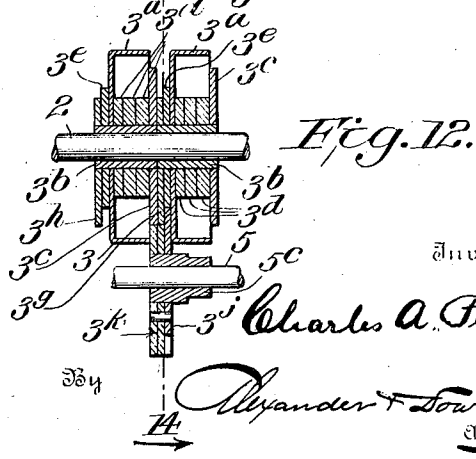
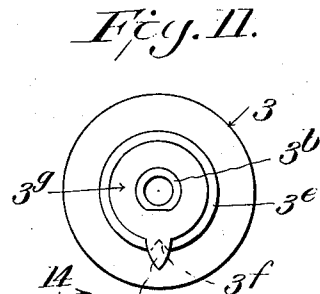
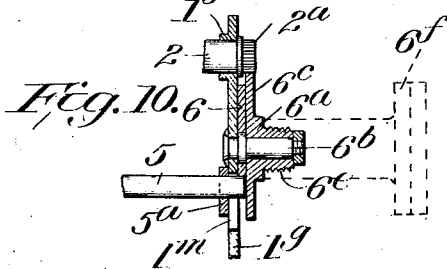
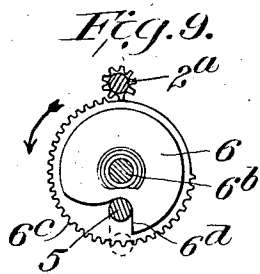
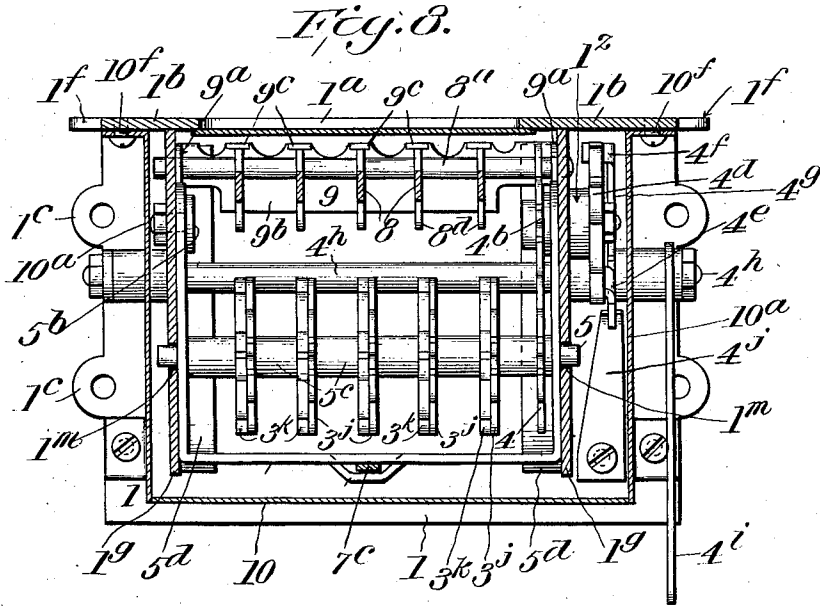
Alexander & Lowell
 Attorneys

C. A. PLETZ.
 REGISTERING AND COUNTING MACHINE.
 APPLICATION FILED APR. 25, 1910.

994,602.

Patented June 6, 1911.

5 SHEETS—SHEET 4.



Witnesses
Chas. Walker,
James B. Mansfield

Inventor

Charles A. Pletz.

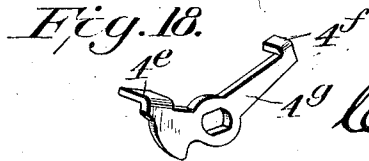
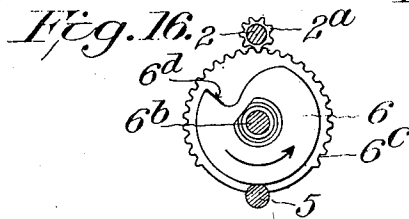
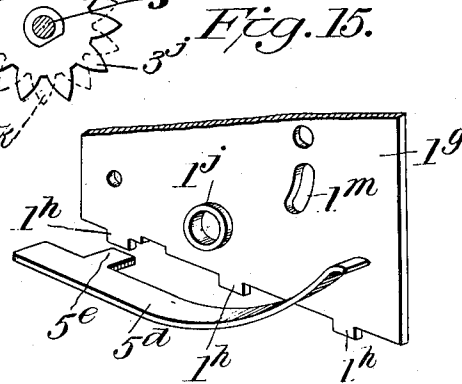
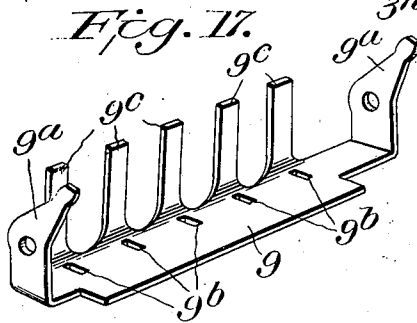
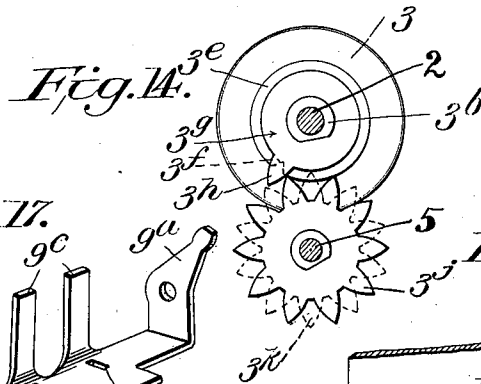
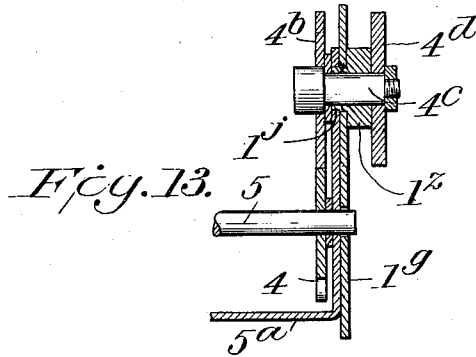
Alexander F. Towell
 Attorney

C. A. PLETZ.
 REGISTERING AND COUNTING MACHINE.
 APPLICATION FILED APR. 25, 1910.

994,602.

Patented June 6, 1911.

5 SHEETS—SHEET 5.



Witnesses

W. Backer.

James B. Mansfield.

Inventor

Charles A. Pletz.

By

Alexander Lowell
 Attorneys

UNITED STATES PATENT OFFICE.

CHARLES A. PLETZ, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

REGISTERING AND COUNTING MACHINE.

994,602.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed April 25, 1910. Serial No. 557,362.

To all whom it may concern:

Be it known that I, CHARLES A. PLETZ, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Registering and Counting Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in automatic registering or counting devices of the general type shown in the patent to Johnson No. 894,506 dated July 28, 1908; and the objects of the present invention are to produce a machine which will be much simpler in construction than the Johnson machine; will be absolutely accurate in operation; will be very durable; will have less parts than the Johnson machine, and can be more economically manufactured, and more quickly assembled; and in which nearly all of the parts can be produced by stamping them from sheet metal by suitable dies, thus enabling the machine to be produced in quantities at little expense and very rapidly; and doing away with nearly all hand labor except that required in assembling the parts.

I will describe the invention with reference to the accompanying drawings, which illustrate a complete machine embodying the invention, and in the claims following the description of such machine I set forth the parts and combination of parts for which protection is desired.

In said drawings;—Figure 1 is a top plan view of the complete device, with the resetting key applied thereto. Fig. 2 is a similar view with the outer casing removed. Fig. 3 is a front elevation of Fig. 2. Fig. 4 is an end view of Fig. 3 with the resetting key removed and the parts in normal operative positions. Fig. 5 is a transverse section on line 5—5 Fig. 3, showing the parts in normal operative positions. Fig. 6 is a transverse section on line 6—6 Fig. 3. Fig. 7 is a view similar to Fig. 6 showing the parts in "setting back" position. Fig. 8 is a horizontal sectional view on line 8—8, Fig. 4. Fig. 9 is a detail view of the resetting cam and gear. Fig. 10 is a detail sectional view of the resetting devices. Fig. 11 is a detail view of one of the numeral-wheels and its "carry-over" disks. Fig. 12 is a detail

section through two of the numeral wheels and "carry-over" devices. Fig. 13 is a detail section on line 13—13, Fig. 5. Fig. 14 is a detail section on line 14—14 Fig. 12. Fig. 15 is a detail view of spring 5^a and the adjacent end plate. Fig. 16 is a detail section similar to Fig. 9 but showing the shaft 5 depressed and gear 6^c in mesh with pinion 2^a. Fig. 17 is a perspective view of the spring finger plate 9, detached. Fig. 18 is a view of the escapement lever 4^s detached.

The main casing in which the working parts of the machine are housed, comprises a base-plate 1 from the rear edge of which rises an upstanding flange 1^a which is provided with extensions 1^b at its ends. The base-plate 1 is provided on its ends with perforated ears 1^c; and the extensions 1^b are provided with perforated ears 1^f on their outer edges. Through the ears 1^f or 1^c can be passed screws (not shown) by which the counter is secured in desired position on a machine frame or other support. The base-plate 1 and flange 1^a, as described, can be easily stamped out of sheet metal of proper thickness by suitable dies.

Connected with the base-plate 1, are the opposite end plates 1^s, which are provided with suitable bearings for the operative parts as hereinafter described, and which may be conveniently attached to the base-plate 1 and the upstanding projections 1^b by means of lugs 1^h adapted to engage slots 1ⁱ in the base-plate and extensions 1^b (Figs. 1 to 7). The end plates 1^s can also be stamped out of sheet metal; and when attached to base-plate 1 as shown in the drawings forms a very strong supporting frame for the working parts. The lugs 1^h can be firmly secured in the slots 1ⁱ by riveting the outer end of the lugs, as indicated in the drawings.

The end plates 1^s are provided with bearings 1^j for a shaft 2, upon which a series of counting or numeral wheels 3 are supported. Each wheel 3 can be stamped out of sheet metal, in the form of a disk having a wide peripheral circumferential flange 3^a in which the numerals, "0" to "9" inclusive, are preferably impressed successively, and at equal distances apart as shown in the drawings. Each wheel preferably has a pressed hub or sleeve 3^b (Figs. 5 and 12) which is slightly longer than the width of the flange,—and attached to one end of this hub 3^b is a ten-toothed pinion 3^c (Figs. 6, 7 and

12) which lies just outside the plane of the flange 3^a. Pinion 3^c may be securely spaced apart from the disk 3 by means of washers 3^d strung on the sleeve, see Fig. 12. The other end of the sleeve 3^b projects through the disk of the wheel and on it is fixedly secured a disk 3^e which has a single notch 3^f in its periphery and outside of this disk 3^e is another disk or arm 3^g which has a tooth 3^h registering with but outside of the notch 3^f (see Fig. 11); the parts 3^f, 3^e, 3^h, form part of the carry-over mechanism as hereinafter described. In the example shown there are six of these numeral-wheels strung on shaft 2 intermediate the end plates 1^g, the sleeves 3^b abutting endwise on said shaft and keeping the numeral-wheels relatively properly spaced thereon; and the sleeves are fitted closely to said shaft so that while they can be rotated thereon they will not be liable to displacement by momentum, and if the shaft is turned as hereinafter described they are adapted to rotate with the shaft to reset the numeral-wheels as hereinafter explained. Any desired number of such wheels may be arranged upon the shaft, the carry-over being effected from a wheel at the right to the next adjacent wheel on the left throughout the series; and the machine can be adapted to count any desired number by providing it with a suitable number of wheels. Motion is imparted to the first wheel 3, step by step, or one notch at a time, by the following means:

The pinion 3^c on the units disk (Fig. 5) meshes with a pinion 4 rotatably mounted upon a shaft 5 supported in a movable frame 5^a hereinafter referred to. Pinion 4 which is preferably ten-toothed, meshes with a similarly toothed pinion 4^b fast on the stub-shaft 4^c journaled in a bearing 1^z in the right hand end plate 1^g of the frame. And on the outer end of this stub-shaft 4^c is fixed an escapement wheel 4^d the teeth of which are adapted to be engaged by the teeth or lugs 4^e, 4^f on an escapement lever 4^g which is attached to one end of a rock-shaft 4^h suitably journaled in the end-plates 1^g,—the escapement lever 4^g being so shaped that when the shaft 4^h is rocked to properly oscillate the escapement lever 4^g the wheel 4^d will be moved one-tenth of a revolution and will in part through the pinions 4^b and 4 a one-tenth rotation to the units wheel 3 (Figs. 4, 5, 8); the lever 4^g is adapted as usual to turn the escapement wheel 4^d one notch on one stroke of the escapement lever and to lock the escapement wheel against further rotative movement on the return stroke of the lever.

The shaft 4^h may be rocked by means of a lever 4ⁱ connected to the end thereof and provided with a series of apertures in its outer end (see Fig. 4) by which it can be connected to a pulley or push-rod operated from

a suitable part of the machine to which the register is applied and which is adapted to oscillate the rock-shaft once for each operation of the machine which it is desired to register in a well known manner.

The escapement lever 4^g and shaft 4^h may be returned to normal position (with the tooth 4^e locking the escapement wheel 4^d see Fig. 4) by means of a bent leaf spring 4^j attached to the base-plate 1 and engaging the heel of the lever 4^g below the tooth 4^e. It will be observed that the escapement lever can be easily stamped from sheet metal, and so may the washers, disks, and counting wheels, as well as the frame of the machine. After the units wheel has moved nine steps, upon the next impulse or step of the units wheel the tens-wheel should be moved one step with the units wheel, and such "carry-over" is effected by the following means:

On the shaft 5, between the "units" wheel and "tens" wheel is loosely mounted a ten-toothed wheel 3^j (Figs. 6, 8 and 12) which is in the same plane as the disk 3^e of the "units" wheel, and its teeth are rounded and are adapted to project into the path of the disk 3^e (Fig. 14) so that the wheel 3^j cannot turn until one of its teeth registers with the notch 3^f in disk 3^e. And although the disk 3^e may turn, the disk 3^f will not register with any of the teeth of the pinion 3^j until the units wheel has moved nine-tenths of a revolution, and upon the next, tenth, step of the units wheel, slot 3^f will register with one of the teeth 3^a of the pinion 3^j and allow the latter to make one-tenth of a revolution. Loosely mounted on shaft 5 beside the pinion 3^j is a wider pinion 3^k (Figs. 8, 12, 14) which is also ten-toothed, but its teeth are set to alternate with the teeth on the pinion 3^j (Figs. 6 and 7) and the teeth of pinion 3^k are adapted to be engaged at and during the carry-over period by the tooth 3^h on the disk 3^e attached to the units wheel, so that when the units wheel 3 is given its tenth step or impulse the tooth 3^h will at that time engage pinion 3^k and move it one-tenth of a revolution; and this pinion 3^k is wide enough to engage the pinion 3^c on the next adjacent or tens wheel and consequently the tens wheel will be moved one notch or one-tenth of a revolution each time the pinion 3^k is moved one tooth and the pinion 3^k is moved one tooth each time the pinion 3^j with which it is connected, is actuated as described. The pinions 3^j and 3^k may be fastened together by a rivet 3ⁱ or other suitable means so as to rotate as one.

The "tens" wheel (and each of the other higher denominational wheels on the shaft 2, except the last),—is provided with carry-over disks 3^e, 3^f; and a pair of carry-over pinions 3^j, 3^k are located upon the shaft 5 between each adjacent pair of numeral-wheels, so that the "tens" disk will carry

over to the "hundreds" wheel; the latter to the "thousands" wheel and so on; the adjacent sets of pinions 3^k , 3^j may be easily spaced apart upon the shaft 5 by the sleeve 5^c on which they are mounted.

To prevent improper movements of the numeral-disks by momentum and also to prevent backward movement thereof, I employ a stop lever 8 (Figs. 6 and 7) for each of the wheels except the units wheel. These stop levers are preferably pivoted upon a rod 8^a , supported in the end-plates 1^s as shown, and each lever 8 has a lobe 8^c on its upper end adapted to engage between the teeth of the related pinion 3^c (see Fig. 6), and prevent casual rotation of said pinion and its attached numeral wheel, but will not prevent the registering and carry-over movements of said pinion and wheel. The levers 8 are suitably positioned opposite their respective pinions 3^c by means of a slotted plate 8^e attached to and between the end plates 1^s , as shown in Figs. 2, 6 and 7, so as to guide the upper ends of the levers and prevent lateral displacement thereof; and the lower ends of the levers 8 are kept in position by means of teats 8^b on the heels of the levers, below the pivot rod 8^a , which teats engage slots 9^b in a rocking plate 9 which is provided with upturned end portions 9^a by which it is hung upon rod 8^a . Each lever 8 is also provided with a toe portion 8^d which rests upon the top of the rocking plate 9 in front of the teat 8^b . The plate 9 is also provided on its rear end with upturned fingers 9^c (Figs. 2-8) which serve as springs and press against the rear edges of the adjacent levers 8, above the pivot rod 8^a (Figs. 4-7), and hold the levers 8 yielding in contact with the pinions 3^c when the parts are in normal position (Figs. 5 and 6). There is a spring-finger 9^c for each lever 8 so that each lever may yield independently when its related wheel or disk is turned.

It is very desirable in registers of this sort to provide means for quickly and readily returning the numeral-wheels to zero position, and in order to accomplish this quickly and readily I preferably mount the shaft 5, which carries the carry-over pinions 3^j , 3^k and pinion 4, in a frame 5^a (Fig. 8) which is preferably composed of a U-shaped metal bar, the legs of which are pivoted to the side plates 1^s in line with the shaft 4^c ; and preferably one leg of the frame 5 is pivoted upon the shaft 4^c (Fig. 5) while the other leg is pivoted upon a stud 5^b attached to the other end of plate 1^s in line with stub shaft 4^c , (see Fig. 8). This frame 5^a is normally held upward in position to keep the pinions 4 on shaft 5 in engagement with the pinions on the counting wheels as described by means of leaf-springs 5^d which may be fastened to the base-plate 1 in any suitable way. In the simple way shown in

the drawings these leaf-springs 5^d have lateral projections 5^e which engage in notches in the lower edges of the end plates 1^s (see Figs. 4 and 15) and maintain the springs in place. These springs are sufficiently powerful to normally hold frame 5^a upward in the position shown in Figs. 5 and 6 and insure the normal engagement of the pinions 3^j , 3^k and 4 on the shaft 5 with the pinions on shaft 2 as above described. The frame 5^a however may be rocked so as to lower the shaft 5 and pinions thereon, and move the pinions 3^j , 3^k and 4 out of engagement with the pinions and parts on shaft 2. This lowering of the frame 5^a is effected by means shown in Figs. 3, 4, 9, 10 and 16. The ends of the shaft 5 project through slots 1^m in the end plates 1^s ; and one end of the shaft 5 (Figs. 9 and 10) is normally pressed against the edge of the cam disk 6 mounted on a sleeve 6^a rotatably journaled upon a stud 6^b fast to the adjacent end plate 1^s . And on this sleeve 6^a is also fastened a small mutilated gear 6^c which has teeth surrounding about three-fourths of its periphery. The toothed portion of the mutilated gear 6^c is adapted to engage or mesh with a small pinion 2^a on the adjacent end of the shaft 2 which pinion 2^a can be most conveniently and cheaply formed by stamping the end of shaft 2, as indicated in the drawings, see Fig. 10. The disk 6 has a cam notch 6^d into which the end of shaft 5 normally projects when the frame 5^a is in raised position and the parts are in operative registering positions. But if the cam disk 6 be rotated the shaft 5 will be forced out of the notch 6^d and down (Fig. 16) until the pinions on shaft 5 are out of engagement with those on shaft 2, and shaft 5 will be held down until the cam 6 has made a complete revolution and the end of shaft 5 can again move into the notch 6^d . The untoothed portion of the mutilated gear 6^c is preferably located opposite the notch in the cam disk 6 so that the teeth on gear 6^c cannot come into operative engagement with the pinion 2^a on the shaft 2 until the frame 5^a has been lowered sufficiently to move the pinions thereon out of mesh with those on shaft 2; but when the toothed portion of the mutilated gear 6^c meshes with the pinion 2^a on shaft 2 upon further rotation of the gear 6^c a rapid motion is imparted to the shaft 2 and the now freed numeral-wheels thereon by reason of the frictional fit of the hubs 3^b of said wheels on the shaft 2, and said wheels will be turned forward until they are respectively arrested at the zero point by a suitable stopping device (Fig. 7) as hereinafter explained.

The end portions 9^a of the plate 9 are provided with teeth 9^s (Figs. 6 and 7) which engage notches 5^f in the adjacent ends of the frame 5^a so that when the frame 5^a is de-

pressed to move the pinions thereon out of mesh with the pinions of the numeral-wheels on shaft 2, the plate 9 will also be rocked so as to move and hold the levers 8 out of engagement with the pinions 3^c (see Fig. 7) thus leaving the numeral-wheels entirely free on shaft 2 and permitting them to be readily reset by rotating the shaft 2 in the manner above described.

10 As shown in Figs. 6 and 7 each numeral-wheel 3 is provided with a peripheral lug 3^a which is adapted to arrest the wheel at the zero point, when the wheels are being reset, by abutting against a stop plate 7, which

15 plate is provided with perforated ears 7^a at its ends by which it is hinged or pivoted upon the rod 7^b which is supported in suitable apertures in the end plates 1^s. I prefer to use a rod to transfix the end plates and

20 ears 7^a as shown on account of simplicity of construction and ease in assembling the parts. The stop plate 7 has a depending finger 7^c which extends through a loop 5^e on the rear bar of the frame 5^a (see Figs. 3-6-7)

25 and which can be cheaply struck up out of metal of the said frame, and the lower end of the finger 7^c is curved in such manner that when the frame 5^a is lowered to disengage the pinions as indicated in Fig. 7 preparatory

30 to the resetting operation the lower end of the finger is pushed backward and consequently the stop plate 7 is rocked so that its upper edge is moved inward toward the peripheries of the numeral or registering

35 wheels and into the path of the lugs 3^a on said wheels, so that when the wheels are turned by rotating the shaft 2 as described, they cannot turn after their lugs 3^a are arrested by the plate 7; and in this manner all

40 the wheels can be quickly brought to zero position during one revolution of the mutilated gear 6^c. When the frame 5^a rises so as to return the pinions thereon into mesh with the pinions on the numeral wheels (Fig.

45 6) the finger 7^c is swung inward so as to rock plate 7 out of position to engage the lugs 3^a on the wheels and consequently so long as the parts of the machine are in registering condition the stop bar is inactive.

50 In order to prevent tampering with the register, or unauthorized or undesired resetting of the numeral-wheels to zero, the sleeve 6^a is preferably made rotatable only by means of a special setting key 6^f which

55 is normally detached therefrom. As shown the outer end of sleeve 6^a is threaded as at 6^e, and may be engaged with the internally threaded socket in the tubular stem of the key 6^f (Figs. 1-3, 10) which can be inserted

60 through a suitable opening in the end wall of the outer casing 10 of the machine, and screwed onto the sleeve 6^a and employed to turn the latter. One revolution of the sleeve 6^a is ordinarily sufficient to reset all

65 the numeral wheels to zero, as above de-

scribed, but repeated turnings of sleeve 6^a would not injure the machine. By using a threaded key as described a reverse rotation of the sleeve is prevented; and by having such a detachable key, tampering with the register by unauthorized persons is prevented, as the key can be retained by the foreman or owner of the register.

The outer casing is preferably formed of two end plates 10^a and a cover plate 10; the end plates 10^a have perforated ears 10^b on their top and front edges and the cover 10 has lugs 10^c on its ends adapted to be inserted through the perforations in ears 10^b; then the ears 10^b are bent over onto the cover plate, as in Fig. 1, and the lugs 10^c are bent down against the end plates, as shown in Fig. 1; locking the parts together in a simple but effective manner. The end plates 10^a also have lateral perforated lugs 10^e through which screws 10^f may be passed to fasten the casing to the back plate 1, as shown. Cover plate 10 is provided with a series of slots 10^d through which the proper numerals on the wheels can be seen, (see Fig. 1).

Having described the invention what I claim is:

1. In counting mechanism, a rotatable shaft, a series of registering wheels thereon provided with pinions and carry-over disks, a laterally movable shaft beside the first shaft, a swinging support for said shaft, a series of carry-over pinions on the swinging shaft, means for swinging said support to move the carry-over pinions on said shaft out of engagement with the carry-over disk, a stop-bar for arresting the numeral wheels in zero position, means operated by said support for moving the said stop-bar into operative position when the carry-over pinions are separated, and for holding it out of operative position when the carry-over pinions are in mesh.

2. The combination of a rotatable shaft, a series of numeral-wheels thereon each provided with a pinion and a carry-over disk, a swinging frame beside said shaft, a shaft mounted in said frame, carry-over pinions mounted thereon, a stop-bar pivoted beside the numeral-wheels and adapted to arrest them in zero position, and a finger on said bar engaging said frame, whereby when the frame is depressed to disengage the carry-over devices the stop-bar is thrown into operative position and when the frame is raised to engage the carry-over devices the stop-bar is moved out of operative position.

3. In a counting machine, the combination of a series of numeral-wheels, a plate provided with upturned spring fingers and with slots and detaining levers for the wheels, each lever having a heel portion engaged with a slot in the plate and pressed forwardly by the adjacent finger on said plate.

4. In a counting machine, the combination of a series of numeral-wheels, a rocking plate provided with upturned spring fingers and with slots; and detaining levers for the wheels, each detaining lever having a heel portion engaged with a slot in the plate, and a toe portion engaging the forward edge of the plate and pressed forwardly by the adjacent finger on said plate, and means for rocking said plate to throw the levers out of engagement with the wheels.

5. In combination, a series of numeral wheels provided with pinions and carry-over devices, a laterally movable shaft beside the first shaft, a swinging support for said shaft, carry-over devices on said swinging shaft, means for swinging said shaft to move the carry-over devices thereon out of engagement with those on the wheels, a stop-bar for arresting the numeral-wheels in zero position, and means for moving the said stop-bar into operative position when the carry-over devices are separated by the movement of said shaft; with a rocking plate provided with upturned spring fingers on its rear edge, detaining levers for the numeral wheels arranged above said plate and engaged by the fingers thereof, and means whereby said plate is rocked to throw the detaining levers out of operative position when the carry-over devices are separated.

6. In counting mechanism, the combination of a rotatable shaft, a series of registering wheels thereon provided with pinions and carry-over devices, a horizontally movable shaft beside the first shaft, a swinging support for said shaft, carry-over devices on said swinging shaft, means for swinging said shaft to move the carry-over devices thereon away from those on the wheels during a re-setting operation; a stop-bar for arresting the registering-wheels in zero position, and means for moving the said stop-bar into operative position when the carry-over pinions are separated, and for holding it out of operative position when the carry-over devices are engaged; with a rocking plate provided with upturned spring fingers on its rear edge, detaining levers for the registering wheels arranged above said plate and engaged by the fingers thereof, and means whereby said plate is moved to throw the detaining levers out of operative position when the carry-over devices are separated.

7. In counting mechanism, a series of numeral-wheels provided with pinions and carry-over devices, a laterally movable shaft beside the wheels, a series of carry-over devices on said shaft, means for moving said shaft to throw the carry-over devices out of mesh, a stop-bar for arresting the numeral-wheels in zero position, and means for moving the said stop-bar into operative position

when the carry-over devices are separated, and for throwing said bar out of operative position when the carry-over devices are engaged; with a rocking plate provided with upturned spring fingers on its rear edge, detaining levers for the numeral wheels arranged above said plate and engaged by the fingers thereof, and means whereby said plate is rocked to throw the detaining levers out of operative position when the carry-over devices are separated.

8. The combination of a rotatable shaft, a series of numeral wheels thereon each provided with a pinion and carry-over devices, a swinging frame beside said shaft, a shaft mounted in said frame, carry-over devices mounted on the shaft in the frame, a stop-bar pivoted beside the numeral-wheels and adapted to arrest them in zero position, and a finger on said bar engaging said frame, whereby when the frame is depressed to disengage the carry-over devices the stop-bar is thrown into operative position and when the frame is raised to engage the carry-over devices the stop-bar is moved out of operative position; with a rocking plate provided with upturned spring fingers on its rear edge, detaining levers for the numeral-wheels arranged above said plate and engaged by the fingers thereof, and means whereby said frame rocks said plate to throw the detaining levers out of operative position when the carry-over devices are separated.

9. In a counting machine, a rocking spring plate having integral upstanding spring fingers on its rear edge, and slots adjacent the fingers; with detaining levers having teats engaging the slots in the plate and pressed forward by the spring fingers, substantially as described.

10. In a counting machine, a rocking spring plate having upturned ends, and integral upstanding spring fingers on its rear edge, and slots adjacent the fingers; with detaining levers having teats engaging the slots in the plate and pressed forward by the spring fingers, and having toe portions resting upon the plate in advance of the slots, substantially as described.

11. In counting mechanism, a series of numeral-wheels means for reversely rotating the wheels to re-set them, a rocking aligning stop-bar extending beside the series of wheels, and means for rocking said bar toward the wheels into position to directly engage and arrest each wheel in zero position during the re-setting operation and for rocking the bar away from the wheels and holding it out of the way during the registering operations.

12. In counting mechanism, a frame, a series of numeral wheels therein provided with pinions and carry-over devices, a laterally movable shaft mounted in the frame

beside the wheels, a series of carry-over
pinions on said shaft, means for moving
said shaft to carry the carry-over pinions
out of mesh with the carry-over devices, a
5 stop-bar extending beside the series of
wheels and adapted to directly engage and
arrest each numeral wheel in zero position,
and means for moving the said stop-bar into
wheels and adapted to directly engage and
10 over pinions are separated, and for throw-

ing and holding said stop-bar out of wheel
engaging position when the carry-over
pinions are in mesh.

In testimony that I claim the foregoing
as my own, I affix my signature in presence 15
of two witnesses.

CHARLES A. PLETZ.

Witnesses:

PERCY G. SHAW,

R. M. MARKEL.