(Model.)

3 Sheets—Sheet 1.

C. T. BROWN.

COUNTER FOR PRINTING PRESSES, &c.

No. 324,002. Patented Aug. 11, 1885.

Fig. 1.

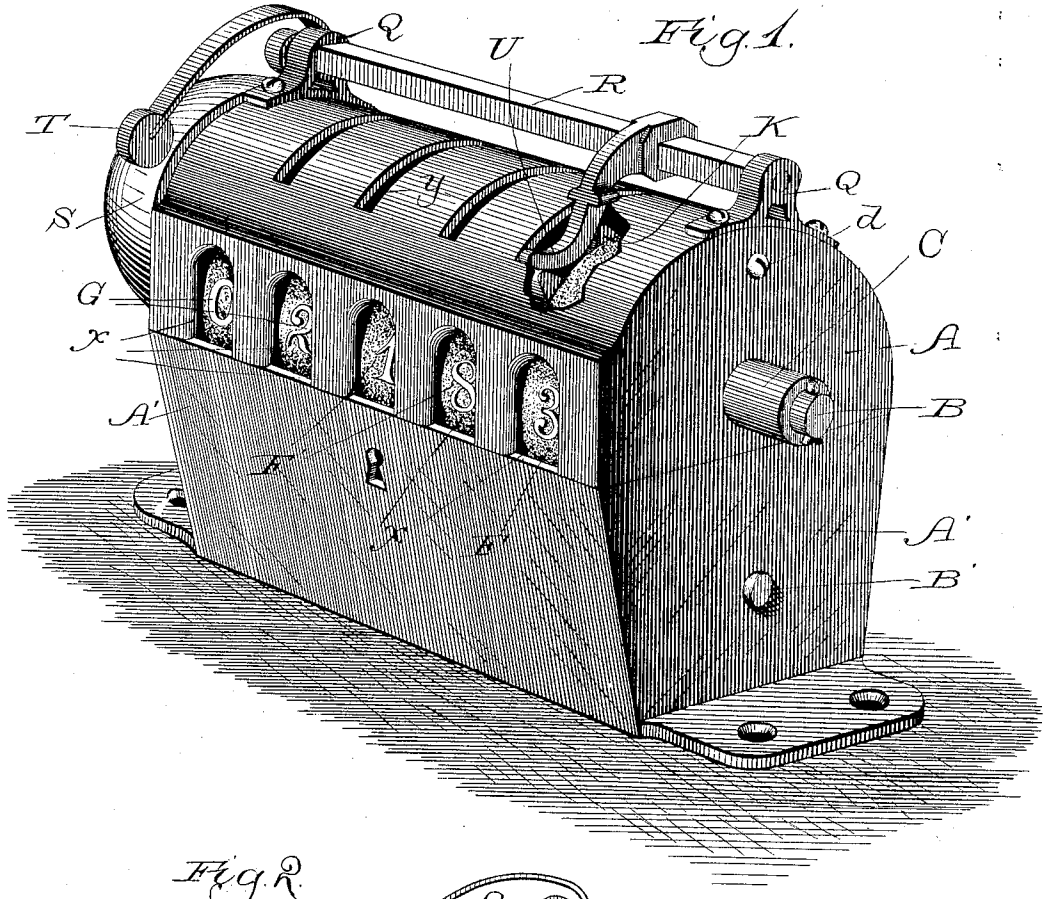
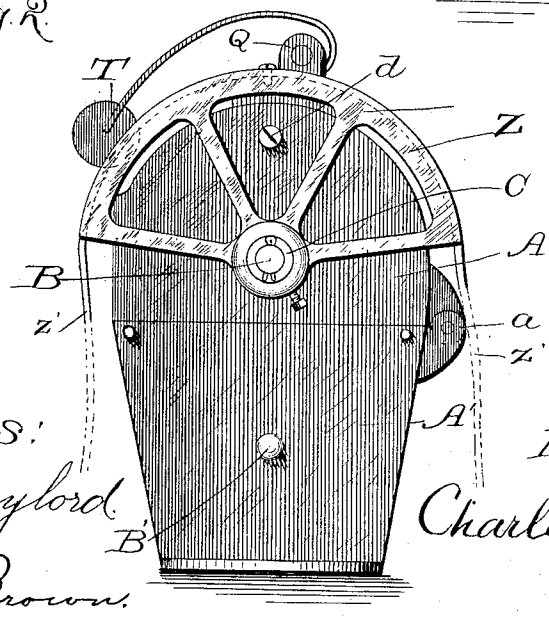


Fig. 2.



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N. PETERS. Photo-Lithographer, Washington, D. C.

(Model.)

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C. T. BROWN.

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Fig. 3.

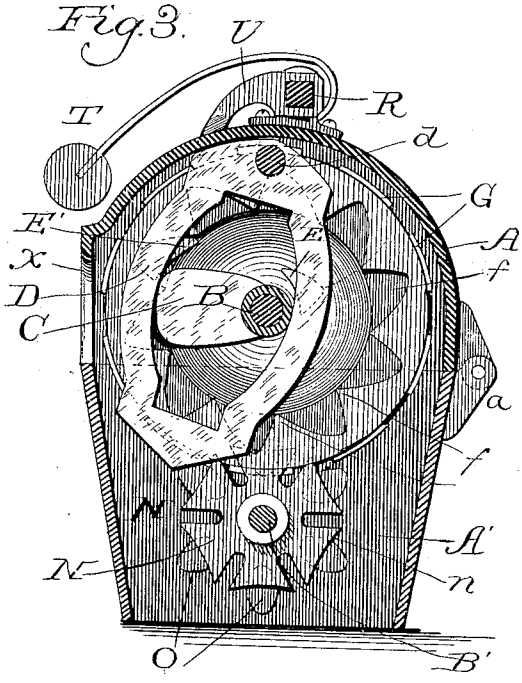


Fig. 4.

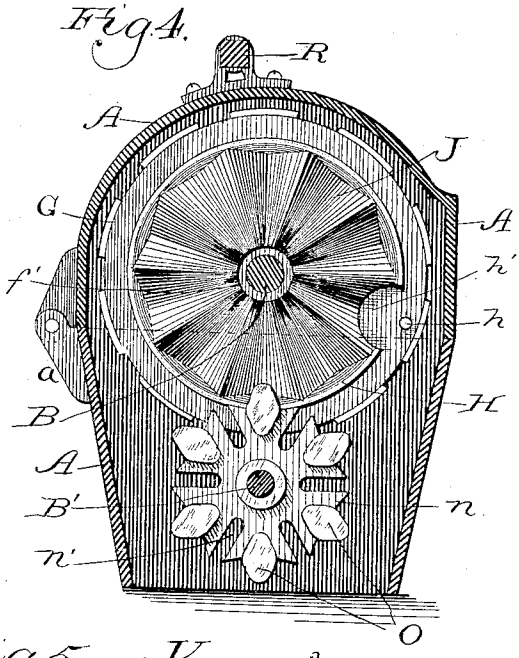
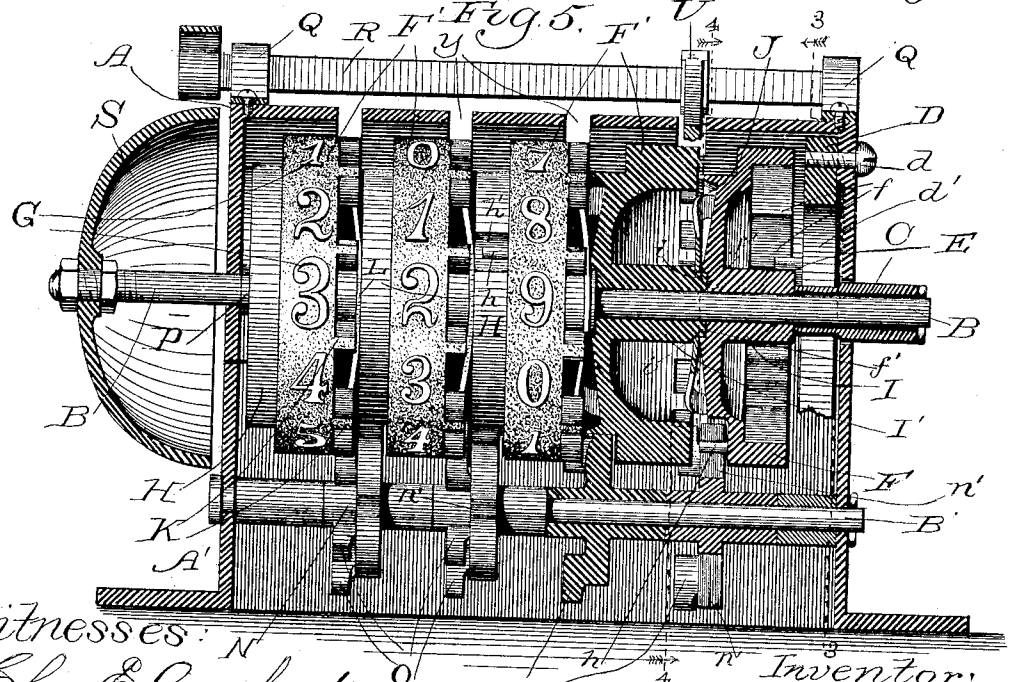


Fig. 5.



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(Model.)

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Fig. 6.

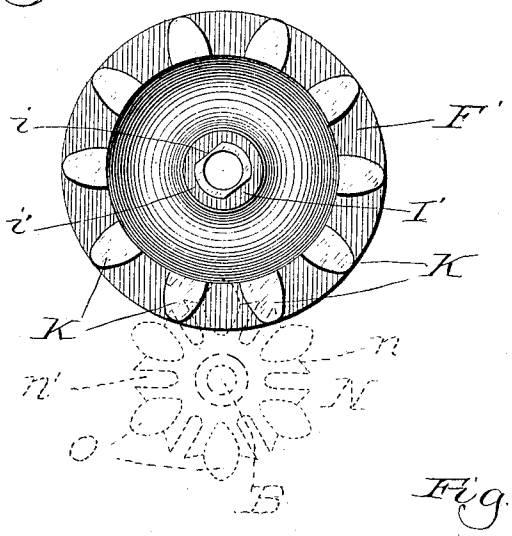


Fig. 8.

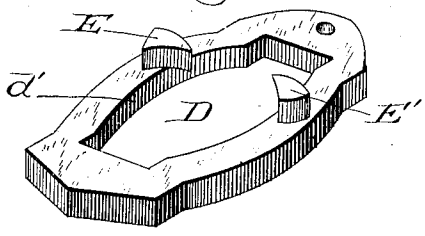


Fig. 7.

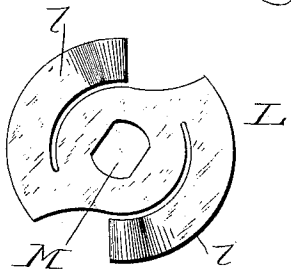
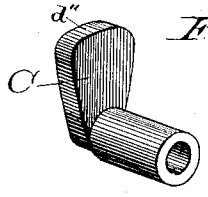


Fig. 9.



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UNITED STATES PATENT OFFICE.

CHARLES T. BROWN, OF CHICAGO, ILLINOIS, ASSIGNOR TO FLORA L. BROWN, OF SAME PLACE.

COUNTER FOR PRINTING-PRESSES, &c.

SPECIFICATION forming part of Letters Patent No. 324,002, dated August 11, 1885.

Application filed December 8, 1884. (Model.)

To all whom it may concern:

Be it known that I, CHARLES T. BROWN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Counters for Printing-Presses and other Purposes, of which the following is a specification.

My invention relates particularly to improvements on the counter invented and described by me in the specification and drawings contained in application No. 58,955, filed April 20, 1882, and are illustrated by the drawings accompanying this specification, and forming a part hereof.

Figure 1 is a perspective view of my counter or register. Fig. 2 is an end view of the same, showing a method of transmitting motion to the register by an alternate reciprocatory motion. Fig. 3 is a vertical sectional view on line 3 3 of Fig. 5. Fig. 4 is the same on line 4 4 of Fig. 5. Fig. 5 is a longitudinal vertical sectional view of counter, showing three wheels in elevation. Fig. 6 is a side view of any one of the wheels F′. Fig. 7 illustrates a spring, a duplicate of which is placed on the hub of the wheel illustrated in Fig. 6 and on all wheels of a higher denomination, or all additional wheels, and secured thereto. Fig. 8 is a perspective view of the yoke. Fig. 9 is a perspective view of the eccentric.

Like letters refer to like parts throughout the several views.

The shell or case, composed of two parts, A A′, having hinges *a a* and slots X X, &c., forms the frame-work of the machine.

B B′ are the centers or shafts, upon which all movable parts of the counter, with the exception of the yoke or collar D, are loosely placed.

C is an eccentric, (see Fig. 9,) placed loosely upon and turning around or rocked upon shaft B. Eccentric C may be turned upon B with a continuous rotary motion, or rocked or vibrated thereon a sufficient distance or arc of a circle, as hereinafter more fully described, to impart the proper motion to the eccentric C and yoke D. The hub of yoke C forms a sleeve, which extends through the case, as illustrated in Fig. 5.

D is a yoke or collar, turning upon pin or screw *d*.

d′ is a portion of the inside surface of the yoke D, and is a sector or arc of a circle, having the same diameter, or nearly so, as the circle described by the outer surface of eccentric C. (Lettered *d″* in Fig. 9.)

E E′ are pallets placed on yoke or collar D, and securely attached thereto.

F is the first or unit wheel.

f f f are internal teeth, constructed substantially as illustrated on wheel F, Fig. 3.

F′ is the second or tens wheel. All additional wheels or wheels of a higher denomination are duplicates thereof.

G G, &c., are raised figures, cast upon the outside surface or periphery of wheels F F′.

H is a portion of the wheels F and F′, having a radius smaller than the radius of the face of said wheels.

h is a pin or tooth in wheels F F′.

h′ is a recess in part H, immediately back of pin *h*.

I is the hub of wheel F. *f′* is a recess in one end thereof.

I′ is the hub of wheel F′. *f′* is a recess in one end thereof.

i is a squared or partially squared end, having shoulder *i′* of hub I′.

J are radial grooves on one side of wheel F and F′.

K K are pins or teeth projecting from one side of wheel F′, being cast thereon and forming an integral part thereof.

L is a spring, constructed of any suitable material, having arms *l l*, cut, formed, and shaped substantially as shown.

M is a hole in spring L, fitting upon or over squared end *i* of hub I′ and resting against shoulder *i′*.

N is one of the series of transmitters used by me in my invention, all placed loosely on shaft B′.

n is that portion of N which comes in contact, or nearly so, with the surface of portion H of wheels F F′.

n′ n′ are interstices between *n n*, into which

pin *h* enters or passes during a portion of the revolution of wheels F F′, thereby causing said transmitter N to partially rotate or turn on shaft B′.

O are pins or teeth cast upon and forming an integral part of transmitters N. Teeth or pins O engage or mesh with teeth or pins K K on wheel F′.

P is ferrule or ring on shaft B, fitting into recess *f′* on hub I′ of wheel F′ nearest to the side or end of case or shell A. A shoulder may be placed on said last-named wheel F′, if preferred, or a boss may be placed on the inside of the shell or case, the sole object of ferrule, ring, shoulder, or boss being to prevent the side of the wheel F′ from coming in contact with the shell or case and prevent the wheels F and F′ from sliding laterally on shaft B. The squared or partially squared end *i* of hub I′ fits or projects into the recess *f′* on the back of the wheel next adjacent thereto, (see Fig. 5,) and the ring or ferrule P (or an equivalent therefor) is therefore placed between the wheel of the highest denomination and the inside of the case on shaft B, and projecting into recess *f′* to prevent the lateral sliding of the wheels upon the shaft.

Q Q are standards attached to A.

R is a square or partially-squared shaft journaled in standards Q Q.

S is a bell attached to shaft B.

T is a spring-hammer attached to one end of R.

U is a lever or finger, fitted on shaft R so as to slide freely thereon longitudinally.

Y Y are slots or holes in the top A of the case. Slots or holes Y Y are immediately over teeth or pins K K of wheel F′. Lever or finger U may be placed on shaft R, so as to hang or drop into any one of slots Y Y.

Any number of duplicate wheels, F³, may be used. I have illustrated a counter having four wheels F′ and one wheel F. Raised figures G G, &c., form an integral part of wheels F F′, and the face or raised portion of said figures may be made of any desired color by the use of paint, enamel, or any desired method. Yoke D is made to vibrate on pin *d* a certain distance to the right or left and back to its original position by one revolution of eccentric C. The same amount of vibration of yoke D is produced by a rocking movement of eccentric C through an arc of a circle sufficiently large; and it is evident that if eccentric C is in such rocking movement made to pass through a much larger arc the vibration of yoke D will be the same. Pallets E E′ on yoke D engage with teeth *f f f*, &c., when said yoke is vibrated, thereby causing an intermittent rotary motion in wheel F. When ten teeth, *f f*, are used, as I prefer and have shown, this intermittent rotary movement of wheel F will equal one-tenth of a complete revolution of said wheel.

An inspection of the drawings accompanying this specification of wheels F and F′, and a comparison of the descriptions of the same, will show that the said wheels are constructed nearly alike, the substantial difference being that in wheel F the internal "scape-teeth," as I term them, *f f* are used, and in wheel F′ the pins or teeth K K are used.

I expressly disclaim in this invention the use of a series of counting-wheels mounted loosely on a shaft in one portion of a case, and rotated and controlled by a series of transmitters, serving as transmitters and locks mounted loosely on a shaft in another part of the case, as the same are illustrated and described in application No. 58,955, above referred to, and made by me.

Spring L, secured, as above described, upon the hubs of wheels F′ and case A, has two or more arms, *l l*, bent or formed into or approaching a **V** shape, fitting or pressing into radial grooves J J on the next adjacent wheel. The object and purpose of these springs L is simply to hold the wheels F F′ in proper position when shell or case A A′ is open, as well as to indicate to the touch of the operator setting the same when said wheels are in such position, so that the case A A′ may be easily closed after said wheels have been set at any desired number. By placing these springs in the manner here described, and attaching them as described, but one spring is depressed or affected in any manner by the movement of any one or more, or all, of the wheels F F′.

In order to transmit the motion of the printing-press or other mechanism to which my counter may be attached to the wheel F or units-wheel of the counter, and cause said wheel F to have an intermittent rotary motion of the same positive and direct character as are the movements of wheels F′, I make use of the internal teeth, *f f*, and pallets E E′ on yoke D. I thus do away with a ratchet-wheel and dog, and the necessary spring or other means for pressing said dog against or into said ratchet-wheel or the teeth thereof.

When it is desired to attach my counter to an ordinary printing-press, or to any machine where a reciprocating motion is required, a wheel or rocker, Z, may be placed on the shaft of the eccentric C, projecting outside of case A A′, and strap Z′ secured thereto, both ends of said strap hanging loosely therefrom, and each end of the strap attached to the fly or other reciprocating part of the press or other machine, and the desired rocking movement of eccentric C obtained. When thus attached to any part of any machine having a sufficient reciprocatory motion, the movement of all the numbering or registering wheels is secured in a direct and positive manner without the intervention of a drag or other spring; and I thus eliminate a very uncertain element—namely, the action of a spring, and its well-known lack of uniformity, especially when forced to act quickly, as when the counter is run at a high rate of speed.

I am aware that "scape-teeth," so called, have been heretofore placed on the outer surface of a wheel, and pallets made to engage therewith in such a manner as to produce an intermittent rotary movement in said wheel by the vibratory movement of said pallets; but so far as I am aware no wheel has ever been constructed having suitably-shaped teeth placed on the inside surface thereof, in the manner herein shown, and having suitably-shaped pallets adapted to engage therewith to cause such rotary motion.

The manner of operation of my counter or register is as follows: Shell or case A A′ is opened to adjust wheels F F′ in the desired position. Wheel F, by means of eccentric C, is turned or rotated into such position that the desired number, presumably zero, appears before slot X. Wheels F′ F′ are also turned into any desired position. Case A A′ is then closed and secured, and the wheels F F′ are respectively locked by transmitters N. Eccentric C is now attached to the printing-press or other machine, so that said eccentric will be rotated continuously, or partially rotated—that is, rocked—upon shaft B by the operation of said press or machine. Yoke or collar D vibrates in unison with the movement of eccentric C, and pallets E E′ engage with teeth *f f f* on wheel F, producing an intermittent rotary motion in said wheel F, thus bringing into view before slots X in the case A A′ the different numbers on said wheel. As the zero on wheel F comes into position or view before slot X, pin or tooth H on said wheel passes into and through slot *n* in transmitter N, causing said transmitter to partially revolve, carrying with it wheel F′. The numbers on wheel F′ are thus brought successively into view before slots X. On the completion of the revolution of wheel F′ the next wheel is moved in the same manner just described, and the operation is repeated until the wheel representing the highest denomination of figures has turned completely round, the next highest turned ten times, the next one hundred times, and so on. A bell may be placed on the counter in the manner shown and described, and the lever U on shaft R is placed in or through any one of the slots Y, projecting downward between any two of the teeth K K on wheel F′. The turning of wheel F′ will cause the shaft R to partially turn as lever U is brushed or forced to one side by tooth K and hammer T is raised. As tooth F passes by lever U the hammer T falls back by its weight and strikes bell S, causing it to ring.

I do not claim in this connection the subject-matter claimed in the application before referred to as filed April 20, 1882, the present application being intended, as before stated, to cover certain improvements upon the invention therein disclosed.

Having thus described my invention, its construction and method of operation, what I claim, and desire to secure by Letters Patent, is—

1. In a counter, shaft B, having wheel F, turning loosely thereon, and yoke or collar D, having pallets E E′, vibrating on pin *d*, in combination with internal teeth, *f f*, on wheel F, all constructed, operated, and controlled substantially as described, and for the purpose specified.

2. In a counter, shaft B, having wheel F, and eccentric C, turning loosely thereon, and yoke or collar D, having pallets E E′ thereon, vibrating on pin *d*, in combination with internal teeth, *f f*, on wheel F, all constructed, operated, and controlled substantially as described, and for the purpose set forth.

3. In a counter, shaft B, and wheels F F′, &c., placed loosely on said shaft, in combination with springs L, having arms *l l*, constructed as described, and secured to wheels F′, the said arms of each of said springs formed as described, and pressing against radial grooves on the sides of the next adjacent wheel, all substantially as described, and for the purpose set forth.

4. In a counter, the combination of shaft B, wheel F, and eccentric C, all placed loosely on said shaft B, and yoke or collar D, having pallets E E′, placed thereon and engaging with internal teeth, *f f*, on wheel F, in combination with radial grooves K on wheel F, and wheel F′, having spring L, secured thereto, with arms *l l*, all constructed, operated, and controlled substantially as described, and for the purposes specified.

5. In a counter, the combination of eccentric C, yoke or collar D, pallets E E′, teeth *f f*, wheel F, pin *h*, recess *h′*, rim or periphery H, shafts B and B′, transmitter M, wheel F′, having teeth *f*, and spring L, all constructed, operated, and controlled substantially as described, and for the purpose set forth.

6. In a counter, the combination of a yoke or collar having pallets thereon engaging with internal scape-teeth placed on the first or units wheel, substantially as described, and an eccentric whereby said yoke or collar may be rocked, all substantially as described, and for the purpose specified.

7. In a counter, the combination of the locking and transmitting wheel N, having surfaces *n n*, interstices *n′*, and teeth O thereon, and placed loosely on shaft B′, with wheel F, having surface H and pin *h* thereon, acting as a driving-wheel, and wheel F′, having teeth K thereon, constituting a driven wheel, wheels F and F′ being also placed loosely on shaft B, substantially as described, and for the purpose set forth.

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