

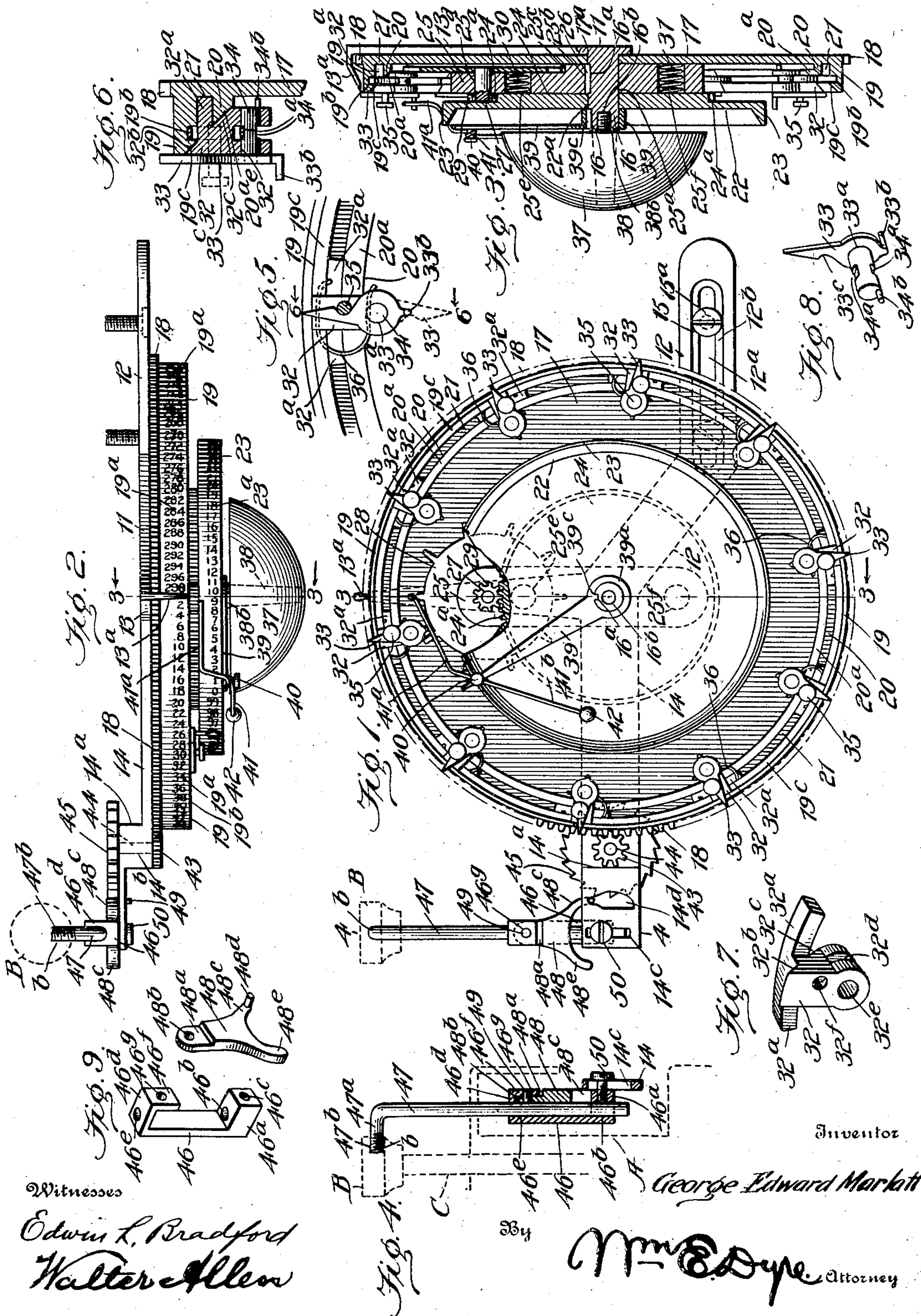
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G. E. MARLATT.

LINE COUNTING ATTACHMENT FOR KEY CONTROLLED MACHINES.

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Witnesses

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LINE-COUNTING ATTACHMENT FOR KEY-CONTROLLED MACHINES.

No. 822,144.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE EDWARD MARLATT, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Line-Counting Attachments for Key-Controlled Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to line-counting attachments for key-controlled machines, such as monotype or other type-casting or type-setting machines, and has for its main object to facilitate the work of the operators of these machines, particularly in connection with the monotype-machine keyboard which perforates a paper ribbon as a step in the production of type matter and does not leave any record whereby the operator can be informed as to when a galley, page, column, &c., of a given number of lines has been completed.

Another object of my invention is to provide a supporting-bracket of inexpensive construction whereby the attachment can be readily and detachably secured to the keyboard of a machine with which it is to be used.

Another object of my invention is to provide an inner figure-wheel of plain and substantial construction.

Another object of my invention is to provide an outer figure-wheel of plain and substantial construction.

Another object of my invention is to provide an improved construction of bearing-block for supporting the parts intermediate of the inner figure-wheel and the outer figure-wheel.

Another object of my invention is to provide a pointer-slide which is adapted to be interlocked with and adjusted upon the inner figure-wheel and to carry a traveling reversible pointer.

Another object of my invention is to provide a novel construction of traveling reversible pointer which can readily be reversed from operative to inoperative position, or vice versa.

Another object of my invention is to provide the inner stationary pointer with a striker which can be operated by the traveling pointers so as to ring the gong or bell.

Another object of my invention is to provide an improved connection between the restoring-key of the machine and the attachment.

With these and other objects in view my invention consists in the novel features of construction hereinafter specifically described, and pointed out in the claims.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved line-counting attachment for key-controlled machines, the bell or gong being omitted and the upper part of the outer figure-wheel being broken away to exhibit the parts in rear thereof. Fig. 2 is a top view thereof. Fig. 3 is a central vertical transverse section of the same, taken on the line 3 3 of Figs. 1 and 2. Fig. 4 is a vertical transverse section taken on the line 4 4 of Fig. 1. Fig. 5 is a detail front view showing one of the pointer-slides and a traveling reversible pointer. Fig. 6 is a transverse section thereof, taken on the line 6 6 of Fig. 5. Fig. 7 is a perspective view of a pointer-slide looking at the outer side thereof. Fig. 8 is a perspective view of a traveling reversible pointer looking at the inner side thereof. Fig. 9 is a perspective view of the operating-pawl and its hanger separated.

Like reference characters refer to similar parts in the several figures of the drawings.

11 is a supporting-bracket whereby the attachment is secured in proper relation to the keyboard-restoring key at the side of a key-controlled machine, such as a monotype-machine. This supporting-bracket 11 also provides means for the support of the several parts of the device and is constructed with a right-hand angular arm 12, a transverse arm 13, and a left-hand arm 14. The right-hand angular arm 12 is formed with a longitudinal opening or slot 12^a at its outer end, having beveled edges 12^b and receives the attaching-screws or fastenings 15, which have correspondingly inwardly beveled heads 15^a seating against the beveled edges 12^b of the opening or slot 12^a, so that the bracket can be firmly held in correct position with relation to a portion of the keyboard A (indicated by dotted lines) of a machine, as shown in dotted lines in Fig. 4. The transverse arm 13 is tapered and projects upwardly and is bent forwardly at its upper end to provide an over-

hanging fixed or stationary laterally-extending pointer 13^a. The left-hand arm 14 is formed at its outer end with an offset 14^a, at the rear side thereof, having a shaft-opening 14^b, with a transverse oblong slot 14^c and with a transverse cam-shaped slot or opening 14^d located between the shaft-bearing 14^b and the oblong slot 14^c. The supporting-bracket 11 is also constructed with a forwardly-projecting centrally-located stud or hub 16, providing a bearing upon which the figure-wheels turn and having a longitudinal exterior keyway or groove 16^a and a longitudinal screw-threaded socket 16^b in the front end thereof.

17 is a large inner figure-wheel having a central stud or hub opening 17^a adapted to receive the stud or hub 16 of the supporting-bracket 11, upon which it is loosely mounted, so as to enable it to freely turn thereon under the stationary or fixed pointer 13^a. This inner figure-wheel 17 is also constructed with peripheral gear-teeth 18, an annular wide outer rib or rim 19, having peripheral figures 19^a of even numbers only from "2" to "300," a circumferential inner spring-groove 19^b, and an inwardly-beveled edge 19^c, with an annular narrow inner rib 20, having an inwardly-beveled edge 20^a and with an annular slide-groove 21, located between the outer rib 19 and the inner rib 20. 22 is a smaller outer figure-wheel having a stud or hub opening 22^a adapted to receive the stud or hub 16 of the supporting bracket 11, upon which it is also loosely mounted, so as to enable it to freely turn thereon. This outer figure-wheel 22 is also constructed with an annular rim 23, having peripheral figures 23^a from "0" to "99" and with an inner projection 24 of less diameter than the figure-wheel 22, having peripheral gear-teeth 24^a. 25 is an intermediate bearing-block also having a stud or hub opening 25^a provided with a keyway or groove 25^b and also mounted upon the stud or hub 16 of the supporting-bracket 11 between the inner figure-wheel 17 and the outer figure-wheel 22 and is fixed to the stud or hub 16 by a key-piece 26, interlocking with the keyways or grooves 16^a and 25^b of the stud or hub 16 and the stud or hub opening 25^a, respectively. This intermediate bearing-block 25 is also constructed with an inner recess 25^c, a shaft-bearing 25^d, and an outer spring-aperture 25^e at one end and with an inner spring-aperture 25^f at its other end. Mounted loosely in the shaft-bearing 25^d of the intermediate bearing-block 25 is a short shaft 27, having fixed to its inner end an intermittent gear-wheel 28, located in the inner recess 25^c of the intermediate bearing-block between the latter and the inner figure-wheel 17, and fixed to the outer end of the short shaft 27 is a pinion 29, located in a position to mesh with the gear-teeth 24^a of the outer figure-wheel 22.

30 is an expansion coil-spring located in the upper spring-aperture 25^e of the intermediate spring-block 25 between the outer figure-wheel 22 and the intermittent gear-wheel 28, and 31 is another expansion coil-spring located in the lower spring-aperture 25^f of the intermediate bearing-block 25 between the inner figure-wheel 17 and the outer figure-wheel 22. These expansion coil-springs 30 and 31 press against and act as brakes between these parts to prevent them from turning too freely.

32 represents radial pointer-slides arranged in an annular series across the circumferential inner spring-groove 19^b of the outer rib 19. Each of these pointer-slides 32 is constructed with segmental wings providing a runner 32^a, fitting in the annular slide-groove 21, with a beveled outer edge 32^b seating against the inwardly-beveled edge 19^c of the outer rib 19, with beveled inner groove 32^c receiving the inwardly-beveled edge 20^a of the inner rib 20, with an outer spring-groove 32^d, with a pivot-bearing 32^e extending across the outer spring-groove 32^d, and with a screw-threaded hole 32^f in the front side of the pointer-slide 32. Pivotaly mounted upon the series of pointer-slides 32 is a series of traveling reversible pointers 33, each formed with a pivot-pin hole 33^a, with a trip-pin 33^b, and with a deep recess 33^c at one side of the traveling reversible pointer 33, each of said pointers being fixed to a pivot-pin 34, mounted loosely in a pivot-bearing 32^e of a pointer-slide 32. These pivot-pins 34 are each formed with oppositely-arranged transverse spring recesses or grooves 34^a and with an inner eccentrically-arranged pin 34^b, adapted to engage the teeth of the intermittent gear-wheel 28.

35 represents pins in the form of set-screws fitting in their respective deep recesses 33^c of the traveling reversible pointers 33 and secured in the screw-threaded holes 32^f of the pointer-slides 32 and impinging against the edge 20^a of the inner rib 20 of the inner figure-wheel 17. These pins 35 provide stops to limit the movement of the traveling reversible pointers 33 in one direction, while the latter are permitted to move in the opposite direction and assume the position shown in dotted lines in Fig. 5.

For detachably holding the pointer-slides 32 in position in the annular slide-groove 21 of the inner figure-wheel 17 by their runners 32^a and the traveling pointers 33 in either their operative or inoperative positions I provide an annular series of V-shaped springs 36, which are passed over the runners 32^a and are adapted to embrace their respective pointer-slides 32 in front of the inner rib 20 of the inner figure-wheel 17, having their outer arms seating in the circumferential inner spring-groove 19^b of the outer rib 19 and their inner arms seating in the inner spring-

grooves 32^d and the inner spring recesses or grooves 34^a of the pivot-pins 34 for the time being.

37 is a front gong or bell secured to a stem 38, having a screw-threaded inner end 38^a, connected with the screw-threaded end socket 16^b of the stud or hub 16 and provided with a flange 38^b of greater diameter than the end of the stud or hub 16 and seating against the end of the latter, whereby the parts are secured to the stud or hub 16.

39 is a stationary pointer having a collar 39^a on the rear side of its lower end, mounted on the stud or hub 16 between the outer figure-wheel 22 and the flange 38^b of the stem 38 and formed with a key-rib 39^c, fitting in the keyway or groove 16^a of the stud or hub 16, whereby it is locked to the latter while being held tightly by the flange 38^b of the stem 38. On the front side of the outer end of the stationary pointer 39 is secured a headed stud 40, around which is coiled a spring-wire striker 41, having an inwardly-extending arm 41^a arranged in the path of the trip-pins 33^b of the traveling reversible pointers 33, so as to be depressed by the trip-pins 33^b as they pass over its extremity, and with an outwardly-extending arm 41^b, carrying a hammer 42 at its extremity for striking the gong or bell 37 when the striker is automatically operated.

Meshing with the peripheral teeth 18 of the inner figure-wheel 17 is a pinion 43, fixed to the outer end of a shaft 44, mounted in the shaft-bearing 14^b of the left-hand arm 14 of the bracket 11. Upon the inner end of this shaft 44 is fixed a ratchet-wheel 45.

46 is a hanger having a lower arm 46^a, formed with a transverse stem-opening 46^b and a longitudinal screw-threaded opening 46^c, and an upper arm 46^d, formed with a transverse stem-opening 46^e and a depending lug 46^f, having a pivot-hole 46^g.

47 is a stem adjustable in the stem-openings 46^b and 46^e and formed with an out-turned upper end 47^a, having a screw-threaded extremity 47^b, whereby the stem 47 is connected detachably with the screw-threaded hole *b* in the button B of an operating-key C of the machine-keyboard A, (shown in dotted lines in Fig. 4,) with which the attachment is connected.

48 is a pawl located within the hanger 46 in front of the stem 47, formed with a recessed upper end 48^a receiving the depending lug 46^f and having a pivot-hole 48^b coinciding or registering with the pivot-hole 46^g in the lug 46^f of the upper arm 46^d of the hanger 46, whereby it is suspended by a pivot-pin 49 from within the hanger. The lower part of the pawl 48 is bifurcated and straddles the lower arm 48^a of the hanger 46 and is formed with an inner arm 48^c, carrying a pintle 48^d, and with a weighted outer arm 48^e, providing a counterbalance for the inner arm 48^c.

The hanger 46, with the stem 47 and pawl 48, bears upon or slides against the rear side of the outer end of the left-hand arm 14 of the supporting-bracket 11, being guided by a pin 50 in the form of a headed screw extending through the oblong slot 14^c into the screw-threaded opening 46^c of the lower arm 46^a of the hanger 46, so that the inner end of the pin 50 impinges upon the stem 47 to respectively hold the hanger 46 in position and the stem 47 to its adjustment. The pintle 48^d of the pawl 48 projects through the cam-shaped slot or opening 14^d in the left-hand arm 14 of the bracket 11 and normally seats against the upper end of the cam-shaped slot 14^d, so as to be located in a position to follow the inner side of the cam-shaped slot 14^d and so guide the inner arm 48^c of the pawl 48 into engagement with a tooth of the ratchet-wheel 45 when the pawl 48 is swung inwardly by the depression of the key C, the releasing of the latter permitting the pawl 48 to swing outwardly, so that the pintle 48^d will pass to the outer side of the cam-shaped slot 14^d and the inner arm 48^c will leave the tooth of the ratchet-wheel 45, the pintle 48^d will be guided to its seat, and the pawl 48 will resume its normal or elevated position and be held out of engagement with the ratchet-wheel 45 by the pintle 48^d, thus allowing the inner figure-wheel 17 to be turned freely in either direction for the purpose of setting the figures 19^a on its periphery in relation to the fixed pointer 13^a, under which the figure-wheel 17 turns.

Briefly stated, the principle of this invention resides in periodically turning the inner or larger figure-wheel 17 one number by agency of an operating-key C and suitable intermediate connections each time said key is depressed or at the end of each line. It resides, furthermore, in automatically announcing the completion of a galley, page, or column and thereupon at such predetermined intervals turning the outer figure-wheel 22 by means of suitable connections interposed between said figure-wheels, thus permitting the operator to read, by means of suitable fixed pointers, the predetermined number of lines to the galley, page, or column as indicated upon the periphery of the larger or inner wheel 17 and in like manner upon the periphery of the smaller or outer wheel 22 the number of the page upon which he is working.

In practice the manner of using the attachment and the action of the several parts is as follows: The inner figure-wheel 17 is turned until the cipher or "0" of the peripheral figures 19^a is brought under the fixed pointer 13. The small figure-wheel 24 is turned until figure "1" of the peripheral figures 23^a is brought to coincide with the stationary pointer 39. The keyboard operator having next ascertained the number of lines

of type to be set to complete a galley, page, column, &c., sets the pointer-slides 32 with their pointers accordingly. If the galleys, pages, or columns are to be composed of thirty-two lines each, a pointer-slide 32 is placed in such a position as to set its pointer 33 at "32" of the peripheral figures 19^a of the large figure-wheel 17, another pointer-slide 32 with its pointer at "64," another pointer-slide 32 with its pointer at "96," &c. At the completion of a line the operating-key C is depressed and carries with it the stem 47, provided with the hanger 46 and pawl 48, whose inner arm 48^c engages the ratchet-wheel 45 and turns the latter one tooth, and consequently turns the shaft 44 and the pinion 43, which, meshing with the peripheral gear-teeth 18 of the inner figure-wheel 17, turns the latter one figure 19^a under the fixed pointer 13^a each time the operating-key C is depressed. At the completion of the first thirty-two lines the first traveling reversible pointer 33 will have been carried, with the inner figure-wheel 17, until it coincides with the stationary pointer 13^a, when the trip-pin 33^b of this traveling reversible pointer 33, having engaged and released the inwardly-extending arm 41^a of the striker 41, the hammer 42 on the outwardly-extending arm 41^b of the striker 41 will strike and ring the gong 37. The operator would then read the figure 23^a pointed to upon the outer figure-wheel 22 by the stationary pointer 39, which would be "1." The inner eccentrically-arranged pin 34^b of the pivot-pin 34 of the said traveling reversible pointer 33 will then engage a tooth of the intermittent gear-wheel 28 and turn the short shaft 27, and with it the pinion 29, meshing with the peripheral gear-teeth 24^a upon the projection 24 of the inner figure-wheel 22, and hence the latter will give the operator the number of the next page, (the one on which he is working,) and so on until the completion of the work in hand. When a traveling reversible pointer 33 is turned, with its shaft 34, to the reverse position, (shown by the dotted lines in Fig. 5,) the eccentric-pin 34^b is also turned to its outer position out of the range of the teeth of the intermittent gear-wheel 28, so that the said eccentric-pin 34^b will be carried, with the pointer-slide 32 of the inner figure-wheel 17, past the intermittent gear-wheel 28 without turning the latter. When a traveling reversible pointer 33 is in normal position and set to a figure 19^a upon the periphery of the outer rib 19 of the inner figure-wheel 17, the eccentric-pin 34^b engages a tooth of the intermittent gear-wheel 28 and turns it one tooth, and the intermittent gear-wheel 28 being connected with the pinion 29 by the shaft 27 the pinion 29 engaging the gear-teeth 24^a upon the inner projection 24 of the inner figure-wheel 22 turns one figure 23^a

upon the periphery of the rim 23 of the inner figure-wheel 22 past the end of the stationary pointer 39.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A line-counting attachment for key-controlled machines comprising a supporting-bracket having a pointer, a figure-wheel having gear-teeth and loosely mounted upon the bracket, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel, and a key-stem adapted to slide upon the bracket and carrying a pawl having an arm adapted to engage with the teeth of the ratchet-wheel.

2. A line-counting attachment for key-controlled machines comprising a supporting-bracket having an arm provided with a laterally-extending pointer, a figure-wheel having gear-teeth and loosely mounted upon the bracket so as to turn beneath the pointer, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel, and a key-stem adapted to slide upon the bracket and carrying a pawl having an arm adapted to engage with the teeth of the ratchet-wheel.

3. A line-counting attachment for key-controlled machines comprising a supporting-bracket having a stud, a figure-wheel having gear-teeth and loosely mounted upon the stud of the bracket, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel and a key-stem adapted to slide upon the bracket and carrying a pawl having an arm adapted to engage with the teeth of the ratchet-wheel.

4. A line-counting attachment for key-controlled machines comprising a supporting-bracket having an arm formed with a cam-shaped slot, a figure-wheel having gear-teeth and loosely mounted upon the bracket, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel, and a key-stem adapted to slide upon the arm of the bracket and carrying a pawl having an arm adapted to engage with the teeth of the ratchet-wheel and provided with a pintle adapted to travel in the cam-shaped slot.

5. A line-counting attachment for key-controlled machines comprising a supporting-bracket having an arm formed with an oblong slot, a figure-wheel having gear-teeth and loosely mounted upon the bracket, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel, a key-stem, a hanger having a lower arm and an upper arm in which the key-

stem is adjustably mounted, a guide-pin extending through the oblong slot and the lower arm of the hanger and securing the hanger to the key-stem, and a pawl pivoted to the upper arm of the hanger and having an arm adapted to engage with the teeth of the ratchet-wheel.

6. A line-counting attachment for key-controlled machines comprising a supporting-bracket having an arm formed with a slot, a figure-wheel having gear-teeth and loosely mounted upon the bracket, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel, a key-stem, a hanger having a lower arm and an upper arm in which the key-stem is mounted, a guide-pin secured to the lower arm of the hanger and extending through the slot, and a pawl pivoted to the upper arm of the hanger and having a bifurcated lower part straddling the lower arm of the hanger and providing an inner arm adapted to engage with the teeth of the ratchet-wheel, and an outer arm for counterbalancing the inner arm.

7. A line-counting attachment for key-controlled machines comprising a supporting-bracket having an arm formed with a slot, a figure-wheel having gear-teeth and loosely mounted upon the bracket, a ratchet-wheel having a shaft loosely mounted upon the bracket and carrying a pinion meshing with the gear-teeth of the figure-wheel, a hanger having a lower arm, and an upper arm formed with a depending lug, a key-stem mounted in the arm of the hanger, a guide-pin secured to the lower arm of the hanger and extending through the slot, and a pawl located within the hanger, formed with a recessed upper end, fitting between the depending lug and the body of the bracket, and with an arm adapted to engage with the teeth of the ratchet-wheel, and a pivot-pin whereby the pawl is suspended from the depending lug.

8. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket, an outer figure-wheel having gear-teeth and loosely mounted upon the bracket, an intermediate bearing-block fixed to the bracket, a shaft mounted in the intermediate bearing-block and carrying an intermediate gear-wheel at its inner end and a pinion meshing with the gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, means carried by the inner figure-wheel for operating the intermittent gear-wheel, and means for rotating the inner figure-wheel.

9. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket, an outer figure-wheel having gear-teeth and loosely mounted upon

the bracket, an intermediate bearing-block fixed to the bracket, a shaft mounted in the intermediate bearing-block and carrying an intermittent gear-wheel at its inner end, and a pinion meshing with the gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, a pointer-slide carried by the inner figure-wheel, a traveling reversible pointer mounted upon the pointer-slide, having a pivot-pin provided with an eccentrically-arranged pin adapted to engage the intermittent gear-wheel and means for rotating the inner figure-wheel.

10. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket, an outer figure-wheel having gear-teeth, an intermediate bearing-block fixed to the bracket, a shaft mounted in the intermediate bearing-block and carrying an intermittent gear-wheel at its inner end and a pinion meshing with the gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, having a striker mounted thereon, a gong, mounted adjacent to the striker, a pointer-slide carried by the inner figure-wheel, a traveling reversible pointer, mounted upon the pointer-slide, having a pivot-pin provided with an eccentrically-arranged pin adapted to engage the intermittent gear-wheel, and a trip-pin adapted to engage the striker, and means for rotating the inner figure-wheel.

11. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket having a circumferential spring-groove, an outer figure-wheel having gear-teeth, an intermediate bearing-block fixed to the bracket, a shaft mounted in the intermediate bearing-block and carrying an intermittent gear-wheel at its inner end and a pinion meshing with the gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, a pointer-slide carried by the inner figure-wheel, a traveling reversible pointer mounted upon the pointer-slide having a recess at one side and a pivot-pin provided with an eccentrically-arranged pin adapted to engage the intermittent gear-wheel or to be swung clear thereof, a stop-pin secured to the pointer-slide and fitting in the side recess of the traveling reversible pointer, and means for rotating the figure-wheel.

12. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket, an outer figure-wheel having gear-teeth, an intermediate bearing-block fixed to the bracket, a shaft mounted in the intermediate bearing-block and carrying an intermittent gear-wheel at its inner end and a pinion meshing with the

gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, a pointer-slide, carried by the inner figure-wheel, formed with an outer spring-groove, a traveling reversible pointer mounted upon the pointer-slide having a recess at one side, and a pivot-pin provided with spring-recesses and an eccentrically-arranged pin adapted to engage the intermittent gear-wheel or to be swung clear thereof, a stop-pin secured to the pointer-slide and fitting in the side recess of the traveling reversible pointer, a spring located in the circumferential inner spring-groove, outer spring-groove and a spring-recess, and embracing the pointer-slide and means for rotating the inner figure-wheel.

13. A supporting-bracket for line-counting attachments for key-controlled machines, constructed with an arm formed with a longitudinal opening for the attaching means, a transverse arm formed with a pointer, an arm formed with a shaft-bearing, and with a transverse cam-shaped slot, with a transverse oblong slot, and a centrally-located stud.

14. An inner figure-wheel for line-counting attachments for key-controlled machines formed with a central stud-opening, peripheral gear-teeth, an annular wide outer rib having peripheral figures, a circumferential inner spring-groove, and an inwardly-beveled edge, an annular narrow inner rib having an inwardly-beveled edge, and an annular groove located between the ribs.

15. A pointer-slide for line-counting attachments for key-controlled machines constructed with a segmental runner with a beveled outer edge, with a beveled inner groove, with an outer spring-groove, and with a pivot-bearing extending across the outer spring-groove.

16. A pointer-slide for line-counting attachments for key-controlled machines constructed with a segmental runner, with a beveled outer edge, with a beveled inner groove, with an outer spring-groove, with a pivot-bearing extending across the outer spring-groove, and with a hole in the front of the pointer-slide, a pivot-pin having an eccentric-pin and mounted in the pivot-bearing, a traveling reversible pointer having a trip-pin and a recess at one side, and a stop-pin inserted in the front hole of the pointer-slide.

17. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket formed with an annular outer rib having peripheral figures and a circumferential inner spring-groove, an annular inner rib, and an annular groove located between the ribs, an outer figure-wheel loosely mounted upon the bracket formed with an annular rim having peripheral figures, and peripheral gear-teeth, an intermediate bearing-block fixed to the bracket, a shaft mounted in the intermediate bearing-block and carrying

an intermittent gear-wheel at its inner end, and a pinion meshing with the gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, a pointer-slide carried by the inner figure-wheel, formed with a runner fitting in the annular groove of the inner figure-wheel, with a groove adapted to fit the annular inner rib of the inner figure-wheel and with an outer spring-groove, a traveling reversible pointer mounted upon the pointer-slide having a pivot formed with a spring-recess and provided with an eccentrically-arranged pin adapted to engage the intermittent gear-wheel, a spring seated in the circumferential inner groove, outer spring-groove and spring-recess and embracing the pointer-slide, and means for rotating the inner figure-wheel.

18. A line-counting attachment for key-controlled machines comprising a supporting-bracket, an inner figure-wheel loosely mounted upon the bracket, an outer figure-wheel having gear-teeth, an intermediate bearing-block, fixed to the bracket, having outer and inner spring-apertures, a shaft mounted in the intermediate bearing-block and carrying an intermittent gear-wheel at its inner end and a pinion meshing with the gear-teeth of the outer figure-wheel at its outer end, a pointer for the outer figure-wheel, means carried by the inner figure-wheel for operating the intermittent gear-wheel, expansion coil-springs located in the spring-apertures between the intermittent gear-wheel and the outer figure-wheel, and the inner figure-wheel and the outer figure-wheel respectively, and means for rotating the inner figure-wheel.

19. A line-counting attachment for key-controlled machines comprising a supporting-bracket, a hub projecting from said bracket, inner and outer figure-wheels mounted upon said hub and provided with gear-teeth, an actuating key-stem, a pawl and ratchet interposed between said stem and the teeth of said inner figure-wheel, means for holding the pawl out of engagement with its ratchet when at rest, means for guiding the travel of said key-stem, a stationary pointer, a bearing-block intermediate of the figure-wheels, and means for intermittently rotating said outer figure-wheel by agency of the inner figure-wheel.

20. A line-counting attachment for key-controlled machines comprising a supporting-bracket, inner and outer toothed figure-wheels rotatably mounted upon said bracket, a fixed bearing-block intermediate of said figure-wheels, an intermittent gear mounted upon said block, a pinion driven by said intermittent gear for transmitting motion from said inner to said outer figure-wheel, and friction-springs for retarding rotation of the figure-wheels.

21. A line-counting attachment for key-controlled machines comprising a supporting-

bracket, a figure-wheel, a key-stem, and means for rotating said figure-wheel by agency of said stem, of an annular groove and adjacent annular ribs upon the face of said figure-wheel, a pointer-slide located in said annular groove, a pointer carried by said slide, and a secondary annular groove in one of said ribs for retaining said pointer-slide in operative position.

22. A line-counting attachment for key-controlled machines comprising a figure-wheel containing figures on its periphery and moving or sliding parts each secured to said figure-wheel by a spring passing through them and sliding in a secondary annular groove of said wheel, and each carrying a pointer to be set to said figures, and also carrying a point or tooth integral with said pointer for the purpose of transferring intermittent motion from said figure-wheel to a smaller figure-wheel.

23. A line-counting attachment for key-controlled machines comprising a keyboard, a supporting-bracket, inner and outer toothed figure-wheels rotatably mounted upon said bracket, an actuating key-stem connected to

the restoring-key of the keyboard, a pawl-hanger adjustably secured to said stem, a pawl pivoted in said hanger and normally retained out of operative position, a ratchet interposed between said key-stem and inner figure-wheel, and a ratchet-driven pinion for transmitting motion to the inner figure-wheel.

24. A line-counting attachment for key-controlled machines comprising a keyboard, a supporting-bracket, inner and outer toothed figure-wheels rotatably mounted upon said bracket, an actuating key-stem connected to the restoring-key of the keyboard, means for rotating said figure-wheels by agency of said key-stem and intermediate connections, fixed pointers for said figure-wheels, a gong secured to said bracket, and a striker for said gong adapted to be tripped by the rotary action of said inner figure-wheel.

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

GEO. E. MARLATT.

Witnesses:

JAMES F. DORNAN,
JOHN GROETZINGER.