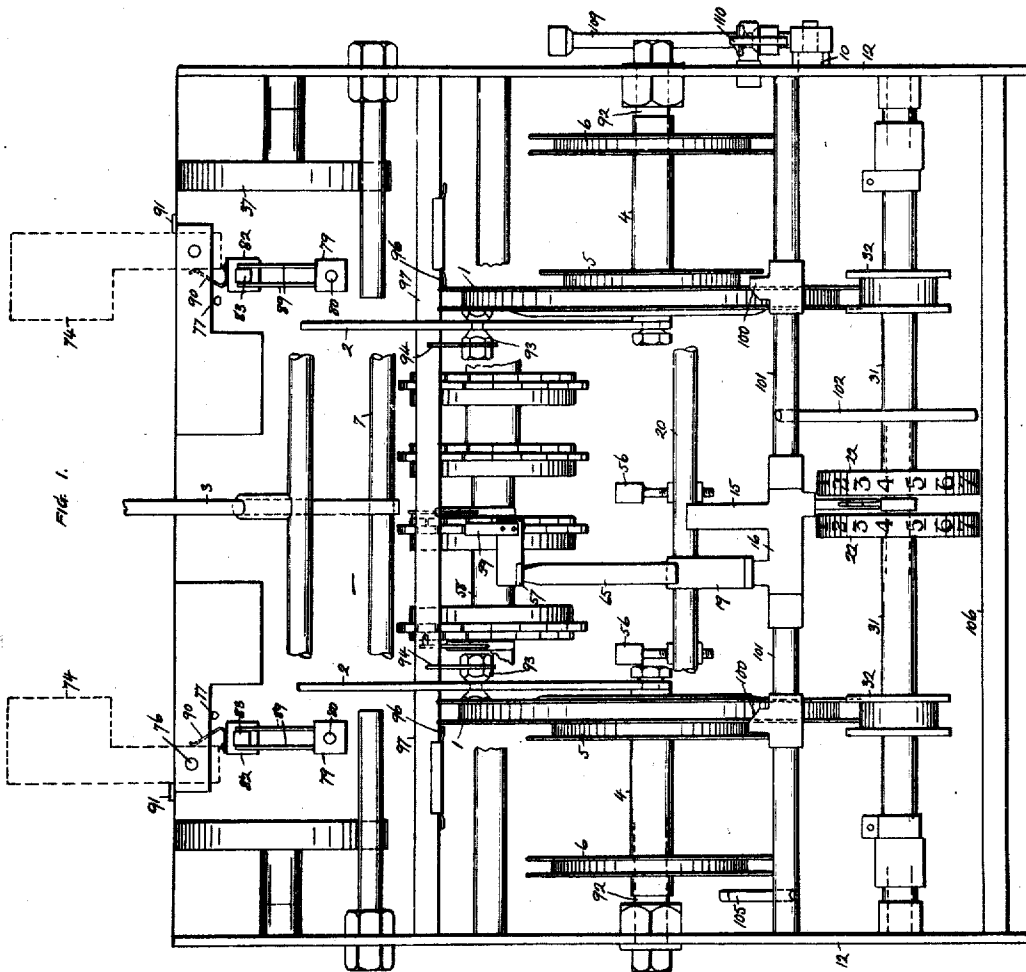


996,161.

W. SUMNER.
CASH REGISTER.
APPLICATION FILED SEPT. 4, 1909.

Patented June 27, 1911.

6 SHEETS—SHEET 1.



Witnesses:
am Leach
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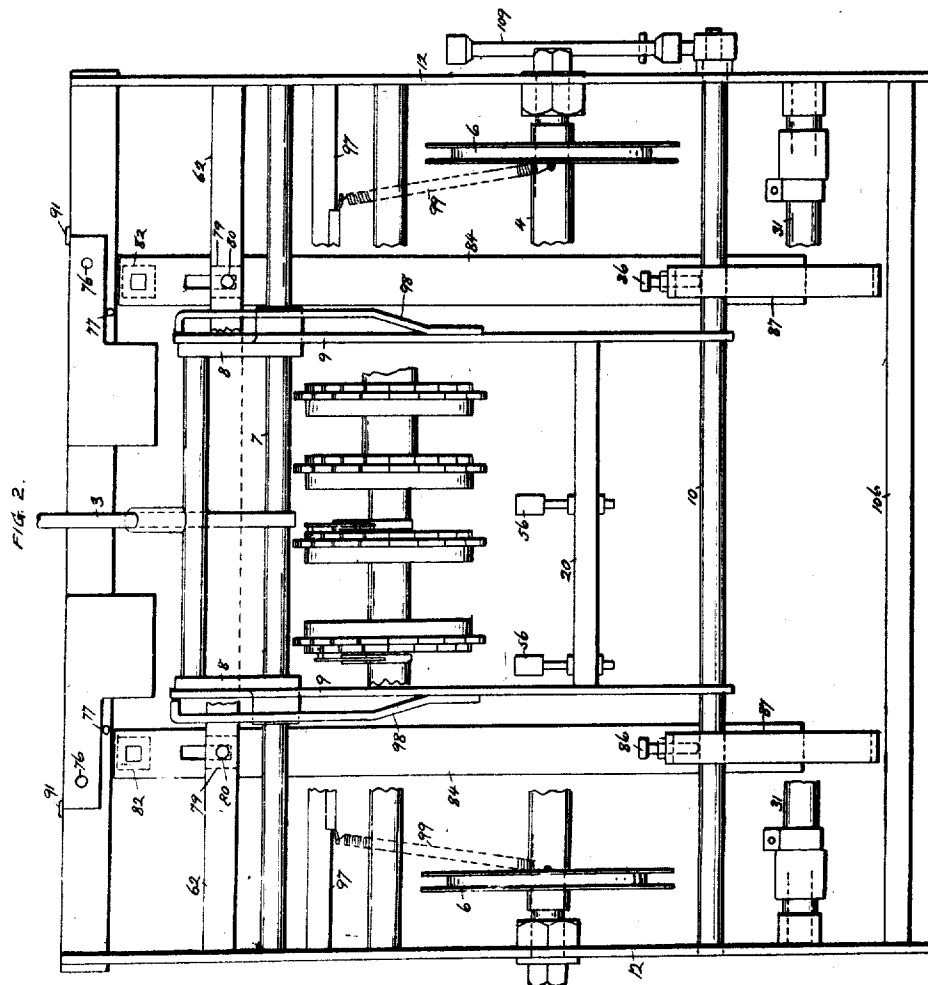
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Patented June 27, 1911.

6 SHEETS—SHEET 2.



Witnesses:
C. M. Lerch
E. M. Moore

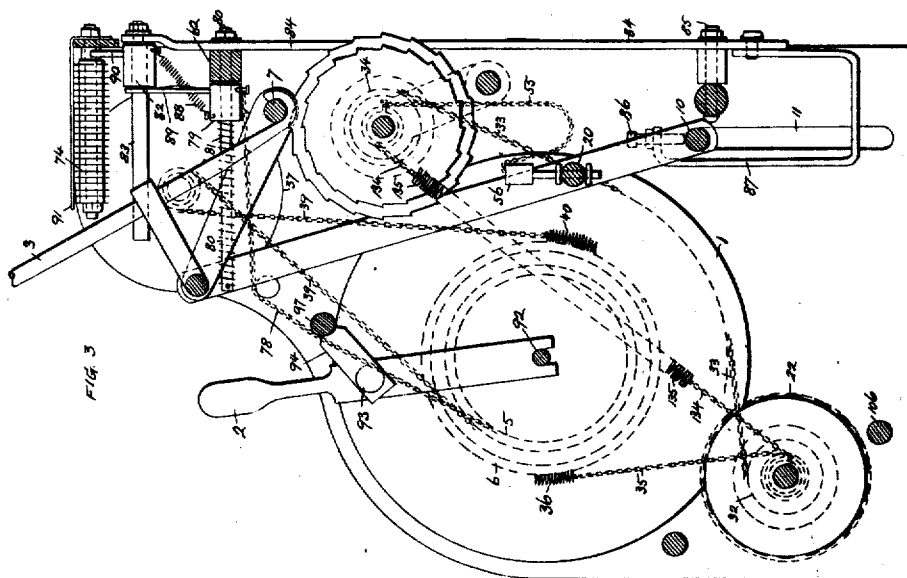
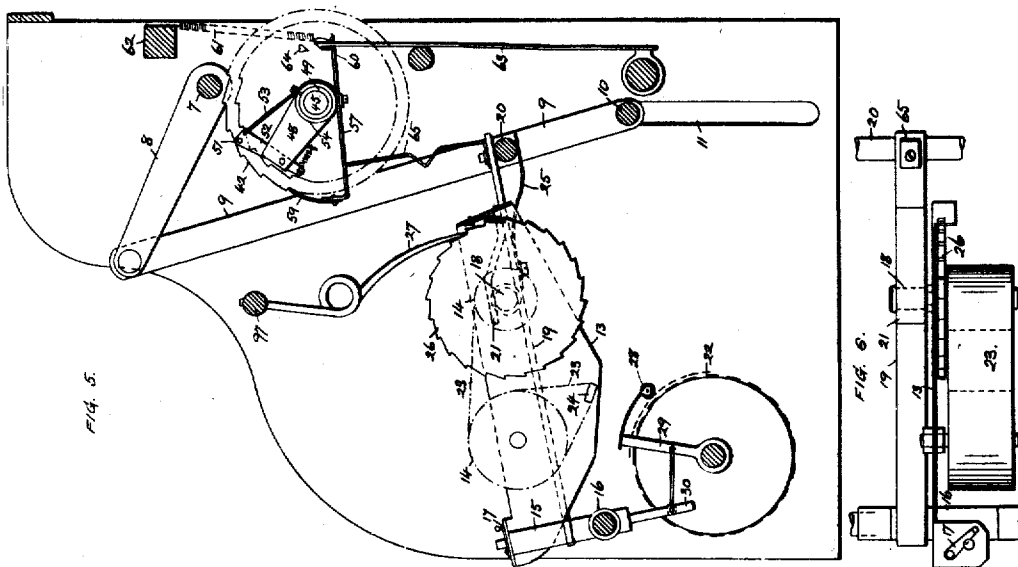
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Patented June 27, 1911.

6 SHEETS—SHEET 3.



Witnesses:
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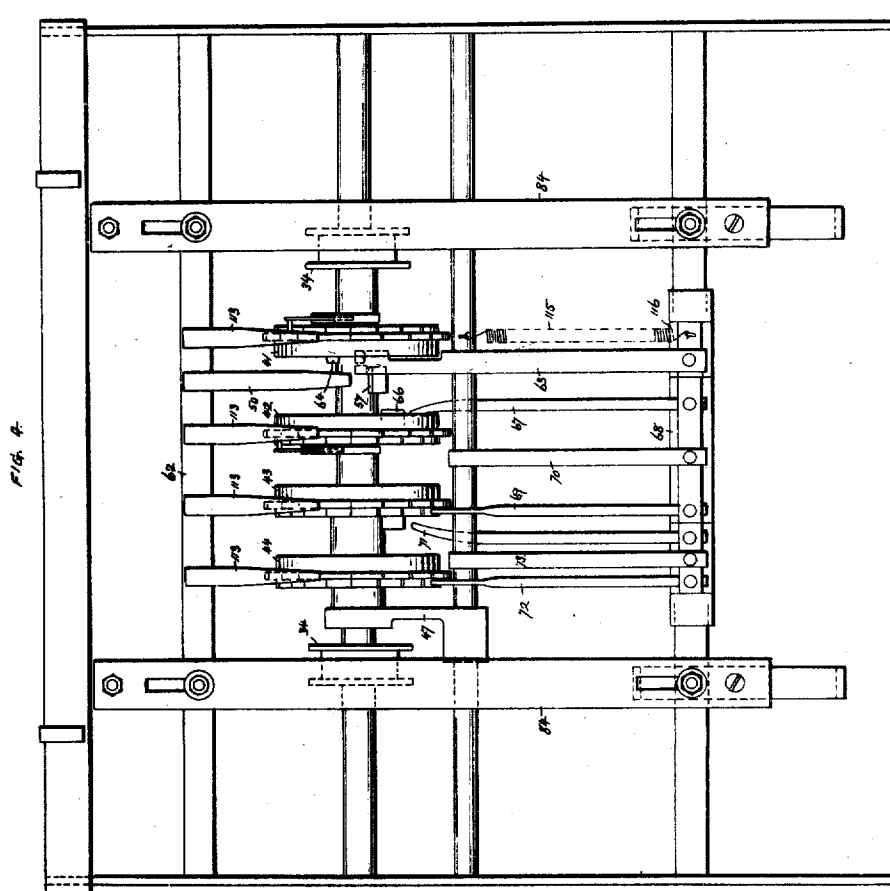
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APPLICATION FILED SEPT. 4, 1909.

Patented June 27, 1911.

6 SHEETS—SHEET 4.



Witnesses:
a m. Lesch
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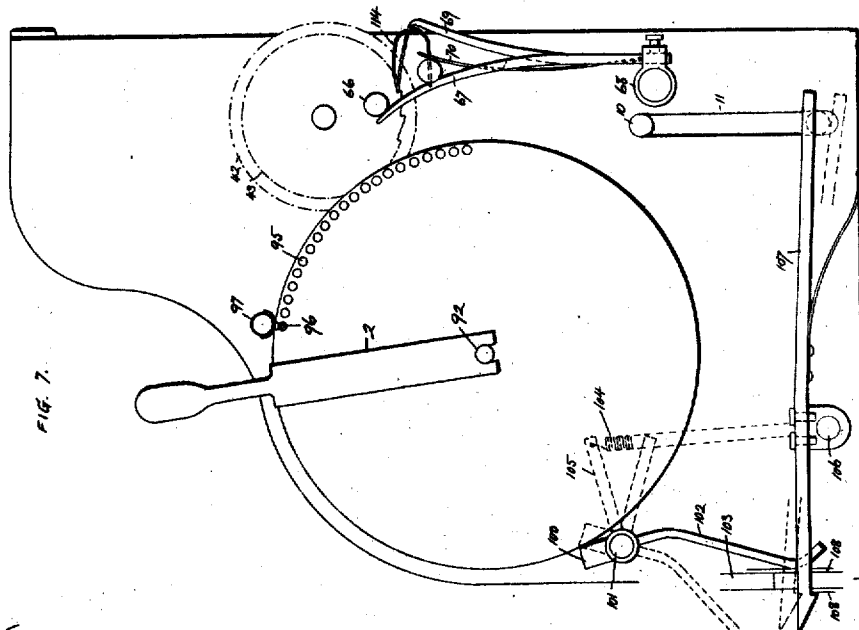
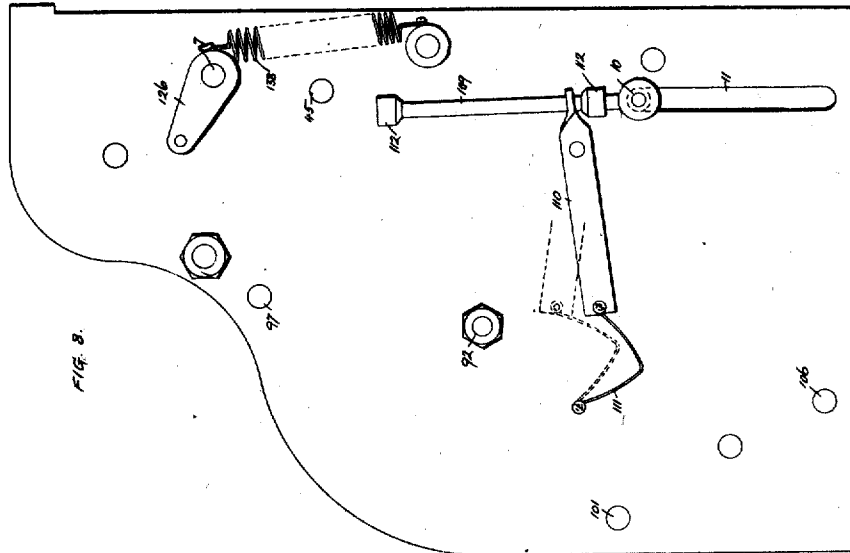
CASH REGISTER.

APPLICATION FILED SEPT. 4, 1909.

Patented June 27, 1911.

6 SHEETS-SHEET 5.

996,161.



Witnesses:
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E. M. Moore

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By Francis A. Ahlman
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FIG. 9.

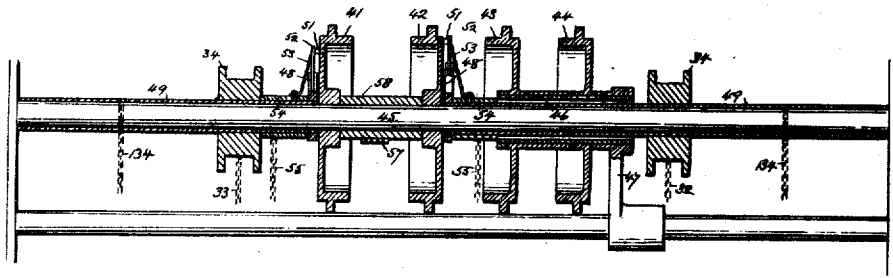


FIG. 10.

FIG. 11.

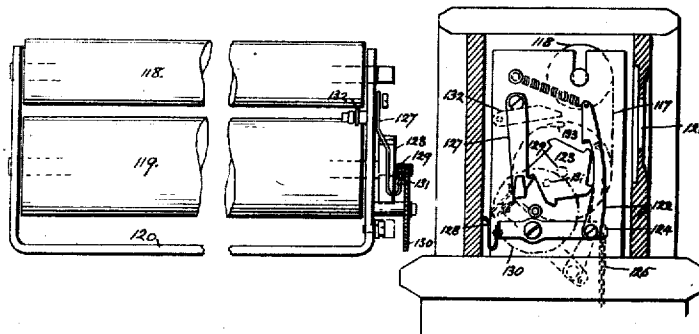
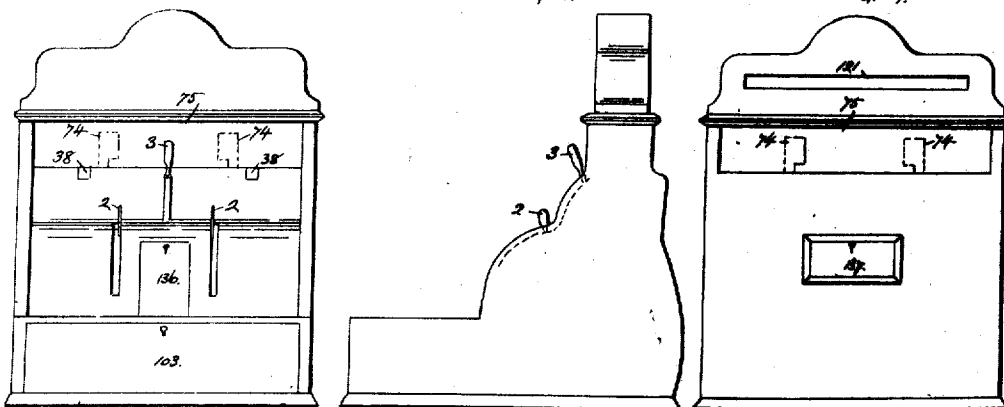


FIG. 12.

FIG. 13.

FIG. 14.



Witnesses:
Amos L. Sch
E. M. Moore

Inventor
William Sumner
By Howard A. Appleman
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM SUMNER, OF LIVERPOOL, ENGLAND.

CASH-REGISTER.

996,161.

Specification of Letters Patent. Patented June 27, 1911.

Application filed September 4, 1909. Serial No. 516,301.

To all whom it may concern:

Be it known that I, WILLIAM SUMNER, a subject of the King of Great Britain, and resident of Liverpool, England, have invented certain Improvements in Cash-Registers, of which the following is a specification.

The present invention relates to certain improvements in cash registers, and comprises certain devices for setting the mechanism in position to make the desired record, by means of levers or handles, means for communicating the motions of such setting devices to the printing wheels and totalizers, means for exhibiting tablets for indicating to the cashier and customer the amount of the sale recorded, means for controlling the till, and means for causing the several devices above referred to, to cooperate with one another.

Referring to the drawings, Figure 1 is a front elevation of the machine, showing the setting handles and drums, portions of the casing being removed. Fig. 2 is a front elevation, showing the operating lever-frame, portions of the casing and of the mechanism being removed. Fig. 3 is a sectional end view, showing the scheme of chains by which the motions of the setting drums and the operating lever-frame are transmitted to the several devices of the machine. Fig. 4 is a rear elevation of the machine. Fig. 5 is a sectional end view, showing the paper record printing device, and Fig. 6 is a plan of this device. Fig. 7 is a sectional end view, showing the setting drum locking device, the till locking device, and device for feeding forward the totalizer. Fig. 8 is an end view of the machine, showing a check action for controlling the movements of the operating lever. Fig. 9 is a sectional detail of the totalizer train. Fig. 10 is a front view of the advertising mechanism employed on the machine, Fig. 11 an end view, Fig. 12 a front view, of the outer casing of the machine. Fig. 13 is an end view and Fig. 14 a rear view of the casing.

The setting devices comprise two drums, 1, each representing different denominations of coin, such as pence and shillings. To these drums are coupled the levers 2, projecting through slots in the machine casing, the setting being effected by moving these levers in their slots. Such movement of the setting drums is communicated or is permitted to be communicated to the several devices of the

machine by means of chains, as hereinafter described. After the several devices of the machine have been set to afford a record, the operation is completed by what may be termed the operating lever, 3, as will be described. The drums 1 are fixed on sleeves 4. Also fixed on the sleeves 4 are pulleys 5, 6. From these drums and pulleys chains are led to the several devices of the machine. The operating lever 3 is attached to the rocking shaft 7. Fast on shaft 7 are cranks 8. From the ends of cranks 8 the frame-bars 9 lead to bar 10, the ends of the latter traveling in slots 11 in the end plates 12.

The paper record mechanism is a separable unit, comprising the plate 13 carrying the paper spools 14. The plate 13 is attached to the pillar 15 on sleeve 16 by the catch 17, and is supported by the trunnion 18 on the bearer bar 19, one end of this bar being attached to sleeve 16 while its other end rests upon the cross-piece 20 of the frame-bars 9. The trunnion 18 is located under the socket-piece 21 on the bar 19. By undoing the catch 17 the paper record device may be removed as a whole, through the door 136, for examination and removal of the printed record. The impression of the printing-wheels 22 is taken by the paper strip 23 at each depression of the operating lever 3, the platen 24 being fixed to the plate 13. The bearer-bar 19 follows the downward movement of the cross-piece 20 until the paper and platen rest upon the printing wheels, the impression being made by the terminal downward motion of the cross-piece 20 being communicated to the bar 19 by the spring 25. As the paper record device rises again, its ratchet wheel 26 engages the pawl 27, so that the paper strip 23 is fed forward for the next record. The wheels 22 are inked by rollers 28 carried on the rocker 29, which latter is linked to an arm 30 on sleeve 16. The printing wheels are respectively carried on two sleeves 31, which also carry pulleys 32. From the pulleys 32 chains 33 lead to the drums 1, to which they are attached, and thence to the pulleys 34 of the totalizer. The printing wheels are returned to zero by chains 35 and springs 36 attached to pulleys 6.

The numeral disks 37 for indicating through apertures 38, the position in which the drums 1 are set, are rotated by chains 39 attached to pulleys 6, springs 40 serving to return the disks 37 to zero.

The totalizer comprises four numeral disks, 41, 42, 43, 44, representing pence, shillings, pounds, and increments of twenty pounds, respectively. The disks 41, 42 rotate on spindle 45, the disks 43, 44 rotating on the hollow shaft 46 carried in bracket 47 which is fixed to the stay rods 47'. The pawl arms 48 which turn the pence and shillings disks are carried on sleeves 49; on which the pulleys 34 are fixed. The pins 51 of the pawls 52 are normally out of gear with the lesser ring of teeth on the disks 41, 42, so that after the pulleys 34 are turned by the sleeves 49 and chains 134, the pawls and pins 51 move freely backward over said teeth. Said pins are brought into gear with the teeth of the disks by the links 53 connecting such pawls with sleeves 54. From sleeves 54 the slack chains 55 lead to nipples 56 on cross-piece 20.

In operation, when the drums 1 are set as required, the chains 134 and springs 135 rotate the sleeves 49, and the pawl-arms 48 travel backward over the teeth of the disks 41, 42 each to the required tooth. In this action the arms 48 have—by the links 53—also turned the sleeves 54, so that the latter have each wound up a portion of the slack chains 55. The operating lever 3 is then depressed, the cross-piece 20 descends, the chains 55 tighten and then turn the sleeves 54, until the amount of slack chain wound thereon is unwound, and in so turning the sleeves 54 the links 53 draw the pins of the pawls 52 into gear with the teeth of the disks 41, 42. The pawl-arms 48 are thus, during the downward movement of the lever 3, turned forward the same distance which they were turned backward by the drums 1, and in this forward movement of the pawl-arms they carry with them the disks 41, 42, and so add the amount to the total sum.

The carrying forward of a shilling from the pence disk 41 to the shillings disk 42 is effected by the trip lever 57 on the loose sleeve 58. A pawl 59 on this lever gears with the larger ring of teeth on disk 42, the other end, 60, of the lever, being connected by a spring 61 with the bar 62. The lever end 60 is also engaged by the detent 63, which is influenced by spring 115 attached to sleeve 116. At each revolution of disk 41 a projection 64 thereon presses the detent 63 out of contact with the lever 57, allowing the latter to be canted to the stop piece 50 by its spring 61, so that its pawl 59 is drawn backward over one tooth on the disk 42. As the lever 3 rises, a strut 65 on bearer-bar 19 raises the lever 57, so that the latter rotates the disk 42 one tooth, and also reengages itself with the detent 63. At each revolution of the disk 42, the disk 43 is fed forward one tooth by a projection 66 on the disk 42 engaging a tappet rod 67 on the sleeve 68. Also on the sleeve 68 which is seated on the

shaft 68' is the pawl-arm 69 gearing with the teeth of the disk 43, a spring 70 effecting the forward movement of such pawl-arm. Complete revolutions of the disk 43 are transmitted to the disk 44 by the tappet 71, 70 pawl-arm 72 and spring 73.

113 are non-return pawls, and the disks are caused to recoil thereto by the bent springs 114.

The totalizer may be read off through the 75 doorway 137.

The tablets 74 by which the amount of the sale is exhibited through apertures 75, are as follows. The pence tablets are twenty-three in number, bearing numerals indicating from $\frac{1}{4}$ d. to $11\frac{1}{4}$ d. while the shillings tablets are twenty in number. These tablets are pivoted on pins 76 and rest upon pins 77. The tablets are canted upward into their visible position as follows. From the pulleys 5, chains 78 pass to blocks 79 which slide upon pins 80 carried in the bar 62, that is the blocks are drawn forward by the chains 78 against the springs 81. Above the blocks 79 are similar blocks 82 sliding on square rods 83 in the upper ends of the frame-bars 84. The bars 84 are slotted and possess vertical movement upon the pins 80, 85, this vertical movement being due to the rise and fall of the bar 10, the set-pins 86 in the adjustable ends 87 of the bars 84 resting on the bar 10. The blocks 79 are connected to the blocks 82 by springs 88. Fork-pins 89 rise from the blocks 79 to limit the travel of the blocks 82. The blocks 82 carry lifter arms 90 by which the tablets are raised to their visible position, as follows. When the blocks 79 are drawn outward by the chains 78 a distance proportional to the movement of the drums 1, the blocks 82 cannot immediately follow, because their lifter arms 90 are behind the rearmost tablet or are between two tablets, accordingly as they were last left. Consequently the pins 83 carrying the blocks 82 must be lowered to allow the lifter arms 90 to escape from and pass beneath the tablets, and this is effected by the depression of the lever 3, allowing the bars 84 to fall and carry with them the rods 83 and blocks 82. The blocks 82 then follow the blocks 79 until arrested by the forks 89 of the blocks 79, when the lifter arms 90 will be immediately under the specific tablets which indicate the sum to be recorded. When the lever 3 rises, the bars 84 are raised by the bar 10, carrying with them the rods 83 and blocks 82, so that the lifter arms 90 raise the tablets and hold them against the abutment bar 91 until the next depression of lever 3. The lifter arms 90 are elastic and keep the tablets against the bar 91, this elasticity serving—when the blocks 82 are lowered—to tip the tablets so that they fall by gravity into their horizontal position.

To lock the drums 1 in their set positions, 130

their sleeves 4 move lengthwise on the spindles 92. To afford this movement the levers 2 are fulcrumed on the spindles 92 and coupled to the drums 1 by studs 93. A stop piece 94 abuts against the bar 97. Each drum 1 possesses perforations 95 corresponding in number with the setting motions of the drums. When the drums are moved sidewise the detents 96 on the bar 97 enter these perforations, and the drums are held in this locked position by the inclined bars 98—namely as the lever descends the bars 98 push the drums sidewise so that one of their respective perforations 95 engages in the detents 96. These bars 98 are secured to bars 9 and are carried downward by the cranks 8 by means of the lever 3; and the sleeves 4 being slidable on shafts 92, are pressed into normal position relative to said shafts by means of said bars 98, by which means said drums are secured in engagement with the detents 96 when the lever 3 is depressed; the normal position of the arms being retained by springs 99. The drums 1 may be unlocked from the detents by moving lever 3 laterally when the lever 3 is raised, whereupon the drums return to zero and to their normal position of the shaft 92, by means of the springs 99, attached to pulleys 6. The drums are adapted to be unlocked, by the cams 100 on the shaft 101, when the cash drawer is withdrawn, by contact of said cams with the outer flange of the drum.

On the shaft 101 is the arm 102, against which the back of the drawer 103 abuts, the shaft 101 being turned by springs 104 which connect the arm 105 with the bar 106. When the drawer is closed the cams 100 are clear of the drums 1, allowing free movement of the latter lengthwise of the shaft 92, when the drawer is withdrawn the cams 100 engage the drums to move them in the direction of their axes and retain them against rotation until the drawer is closed. The drums 1 cannot therefore return to zero while the drawer is open or while the lever 3 is depressed.

The bars 9 and 98, the cross piece 20, and the bar 10 constitute the operating frame, which is actuated vertically by the lever 3, through the medium of the shaft 7 and cranks 8.

The cash drawer 103 is released by the descent of the bar 10, the latter striking the end of detent lever 107 fulcrumed on the bar 106, the other end of this lever engaging striking plates 108 on the drawer 103.

To insure complete downward and upward movements of the lever 3, when once initiated, a spindle 109 is pivoted on the end of bar 10, and passes through a cylindrical aperture in the end of check-lever 110, the other end of this lever being controlled by the bow-spring 111. The lever 110 is tipped into either of the two positions

shown, by the stop pieces 112 on the spindle 109. The effect is, that the angle of the check-lever relatively to the axis of the spindle 109 determines whether the latter passes freely through the cylindrical aperture in the check-lever or is gripped thereby. The recovery or upward movement of the lever 3 is assisted by the spring 138.

An advertising device is moved at each operation of the lever handle 3, as follows. The advertisements are set forth on a sheet of linen or the like, 117, arranged to wind on and off rollers 118, 119 journaled in the plate 120. The advertisements are exhibited through the window 121 in the back of the register case. The roller 118 is a spring roller of the usual type, and the roller 119 is rotated step by step by the pawl 122 which gears the ratchet 123 and is carried on the pawl arm 124, the latter being coupled by a chain 125 with the crank 126 on one end of the shaft 7. The sheet 117 is wound up on the spring roller 118 and is drawn therefrom by the roller 119, and when the sheet has been wound on the roller 119 the latter is released—as hereinafter described—so that the sheet is again wound on to the spring roller 118, and the step by step unwinding motion again commenced. A detent pawl 127 is frictionally mounted on its pivot, so that it will remain in whichever position it is placed in. This detent 127 is pressed into engagement with the ratchet 123 at each movement of the lever 124 by the spring 128, on the latter, and is pressed out of engagement by the rotation of the ratchet. In order that the detent 127 may be held clear of the ratchet, to allow of the sheet 117 being wound back upon the spring roller 118, a pinion 129 upon the said ratchet gears with a messenger wheel 130, and fixed in this wheel is a pin 131, which, when the sheet is wound upon the roller 118, engages the detent 127 and holds it away from the ratchet. As the pawl arm 124 has now returned to its position of rest, its spring 128 no longer presses upon the detent 127, so that the roller 118, pinion 129 and messenger wheel 130 are free to recoil while the spring roller 118 is winding up the sheet 117. When the sheet 117 is re-wound on the roller 118, a pawl 132 drops into a notch 133 in the roller 119 which has been uncovered by the unwinding sheet, and so serves as a limit to the rewinding of the sheet on the roller 118.

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

1. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered and subsidiary drums connected therewith, handles connected with said setting drums, an operating lever and frame, a totalizing train, paper printing wheels, numeral disks

for indicating the positions of the setting drums, devices for actuating a series of tablets for exhibiting the record made, chains leading from said setting and subsidiary drums to said totalizing train, printing wheels, indicating disks and tablet actuating devices, chains leading from said printing wheels to the totalizing train, and chains leading from said lever frame to the totalizing train, whereby the motions of the setting drums and operating lever frame are transmitted to said totalizing train, printing wheels, indicating disks, and tablet actuating devices, as herein described.

2. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered, each drum possessing sidewise movement upon its axis an actuating lever pivoted on said axis and adapted to transmit sidewise as well as radial motions to said drum, perforations in the drums, and detents arranged to enter such perforations and lock the drums when the latter are moved sidewise, as herein described.

3. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered, means for moving said drum sidewise, perforations in the drums, detents arranged to enter said perforations for locking the drums when the latter are moved sidewise, an operating lever, an operating frame inclined surfaces on said frame, said inclined surfaces being adapted to press the setting drums into engagement with said detents when the operating lever is depressed, as herein described.

4. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered, perforations in the drums, and detents for locking in said perforations, a rocking shaft, cams on said shaft adapted to press said drums out of engagement with said detents, a spring controlled arm on said shaft, a cash drawer, a back panel embodied in said cash drawer, and an arm adapted to be engaged by the back panel of the cash drawer, whereby said cams are withdrawn from the drums when the cash drawer is closed, and press said drums out of their locked positions when said drawer is opened, as herein described.

5. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered, printing wheels for impressing the record paper, pulleys connected with these wheels, a totalizing train, sleeves, pawl arms and pulleys for actuating said train, and chains leading from said setting drums to the pulleys of the printing wheels and totalizing train, respectively, as herein described.

6. In a cash registering machine, a plu-

rality of drums comprising a setting drum for each denomination of coin registered, an operating lever and frame for completing the record for which the setting drums are set, frame-bars resting upon and moving vertically with said lever frame, and a tablet actuating device comprising upper blocks sliding on pins carried in said frame-bars, lower blocks sliding upon stationary pins and connected by chains leading to the subsidiary drums, springs connecting such blocks, forks rising from the lower blocks and limiting the motions of the upper blocks, series of tablets pivoted above such upper blocks, and lifter arms on the latter, whereby, when the lower blocks are caused to slide upon their pins a distance proportional to the movement of the setting drums, and the upper blocks have been lowered by a depression of the operating lever, such upper blocks will follow the lower blocks until stopped by said forks, when their lifter arms will be beneath the tablets to be raised, which tablets are then raised by the rise of the operating lever frame and frame-bars carrying such upper blocks, as herein described.

7. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered, an operating lever and frame for completing the record for which the setting drums are set, and a totalizing train of ratchet numeral disks, pawl-arms arranged to travel idly backward around the teeth of such disks by the motions of the setting drums, and tension springs attached to the printing wheels, pawls pivoted in said pawl-arms, loose sleeves linked to said pawls, and slack chains leading from said loose sleeves to said lever frame, whereby the slack chains which are wound upon such loose sleeves by the backward rotation of the pawl arms, are unwound therefrom by such lever-frame, so as to gear the pawls with the disks and turn the latter a distance equal to the backward rotation of the pawl-arms, as herein described.

8. In a cash registering machine, a plurality of drums comprising a setting drum for each denomination of coin registered, an operating lever and frame for completing the record for which the setting drums are set, a totalizing train, and means for carrying forward the total of a lesser disk to the disk which adds multiples of such total, comprising a rocking lever, a pawl thereon gearing the disk of larger value, a detent engaging such rocking lever, a projection on the disk of lesser value adapted to engage such detent at each rotation of such disk and to free the lever, a spring for canting such lever so that its pawl is drawn back over one tooth of such disk of larger value, and a strut on such lever frame for raising the rocking lever and so turning the disk of larger value,

whereby values contained in the sale record-
ed are added to such disk of larger value
during the primary movement of the lever-
frame, while the accumulative increment of
5 the lesser disk is added to the disk of larger
value during the recovering or final move-
ment of such lever-frame, as herein de-
scribed.

9. In a cash registering machine, a plu-
10 rality of drums comprising a setting drum
for each denomination of coin registered,
an operating lever and lever frame for com-
pleting the record for which the setting
drums are set, a beater-arm pivoted upon a
15 rocking sleeve and resting upon said lever
frame, and a paper record mechanism com-
prising a frame-plate having paper spools
and feed ratchet journaled thereon, a platen
on said plate arranged to press the paper
20 upon the printing wheels at each depres-
sion of such lever-frame, a trunnion locked
in a socket in said bearer-bar, and a catch
for securing said frame-plate to the bearer-
bar, whereby the paper record mechanism
25 as a whole may be readily detached and re-
moved from such bearer-bar, as herein de-
scribed.

10. In a cash registering machine, a plu-
rality of drums comprising a setting drum
30 for each denomination of coin registered,
an operating lever and frame for com-
pleting the record for which the setting
drums are set, and a mechanism for insur-
ing complete movements of such lever-
35 frame when once such movements have
been initiated, comprising a check-lever
possessing a cylindrical aperture, a spindle
pivoted on said frame and passing through
the aperture in said check-lever, stop-pieces
10 on said spindle for tipping the check-lever
into either of two positions, and a spring
for maintaining the lever in either of such
positions, whereby the angle of said check-
lever relatively to the axis of the spindle

determines whether the spindle may pass 45
through the aperture in said check-lever or
be gripped thereby, as herein described.

11. In a cash registering machine, a plu-
rality of drums comprising a setting drum
for each denomination of coin registered, 50
a handle on each of said drums, an operat-
ing lever and frame for completing the
record for which the setting drums are set,
and an advertising mechanism arranged to
be actuated at each actuation of such set- 55
ting handles or operating lever, such ad-
vertising mechanism comprising a spring
roller, a ratchet roller, and a flexible sheet
adapted to wind on and off such rollers, and
means for transmitting motion from such 60
operating lever or setting handles to such
ratchet roller, as herein described.

12. In a cash registering machine, a plu-
rality of setting drums, an advertising
mechanism comprising a spring roller, a 65
ratchet roller, a flexible sheet adapted to
wind on and off such rollers, a feed-pawl
and arm operated by the mechanism of the
cash register for rotating the ratchet roller,
a detent pawl for preventing recoil of such 70
ratchet rollers, a spring on said arm for
pressing the detent pawl into engagement
with the ratchet, a pinion on the axis of said
ratchet, a tooth wheel turned by said 75
pinion, and a pin in said wheel adapted to
restrain the detent from the ratchet when
the sheet has been drawn back upon the
spring roller, and a detent adapted to ride
upon the sheet wound on the roller, and a 80
notch in the ratchet roller to receive said
detent when the sheet has been re-wound
upon the spring roller, as herein described.

In witness whereof I have hereunto set
my hand in presence of two witnesses.

WILLIAM SUMNER.

Witnesses:

A. J. DAVIS,
H. WATSON.