

F. H. TREVELLIAN.
CASH REGISTER.
APPLICATION FILED JAN. 27, 1908.

957,918.

Patented May 17, 1910.

3 SHEETS—SHEET 1.

FIG. 1.

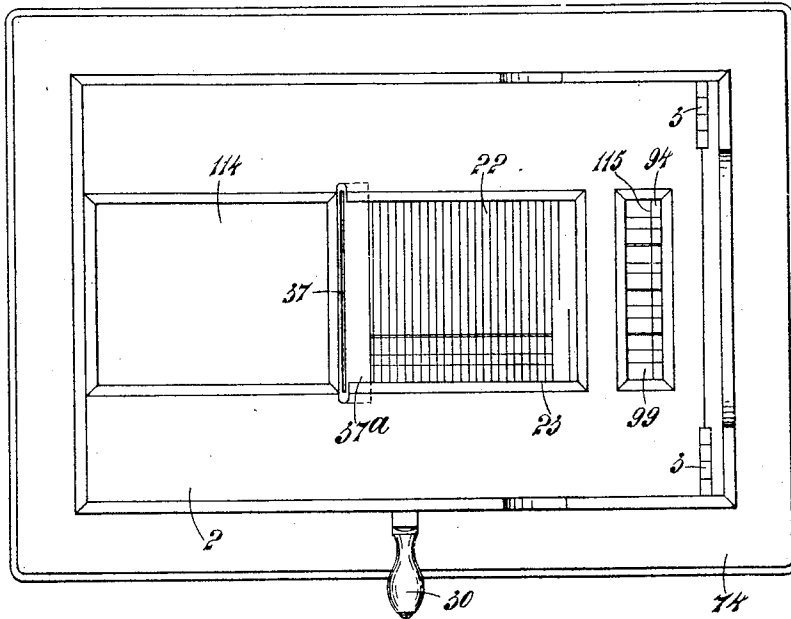
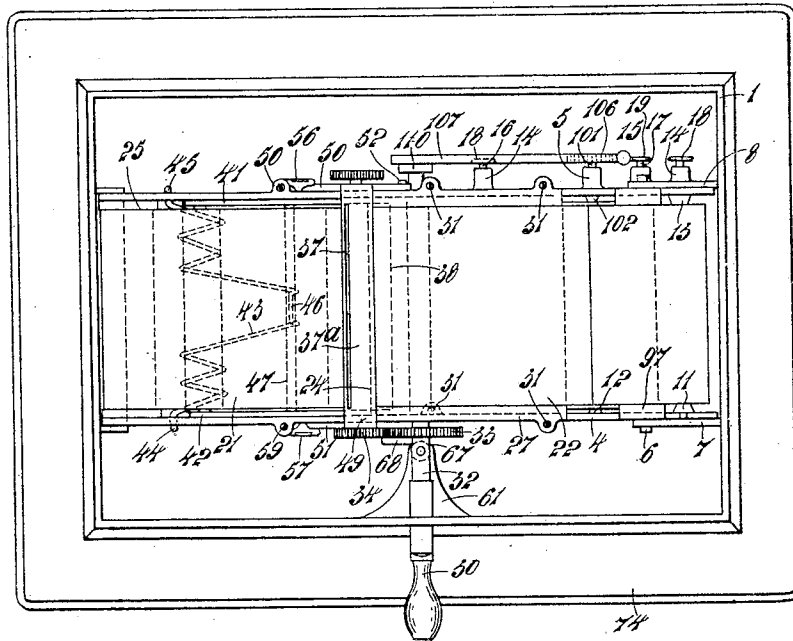


FIG. 2.



Inventor.

Frederick Henry Trevellian.

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Attorneys.

Witnesses:

W. M. Milton

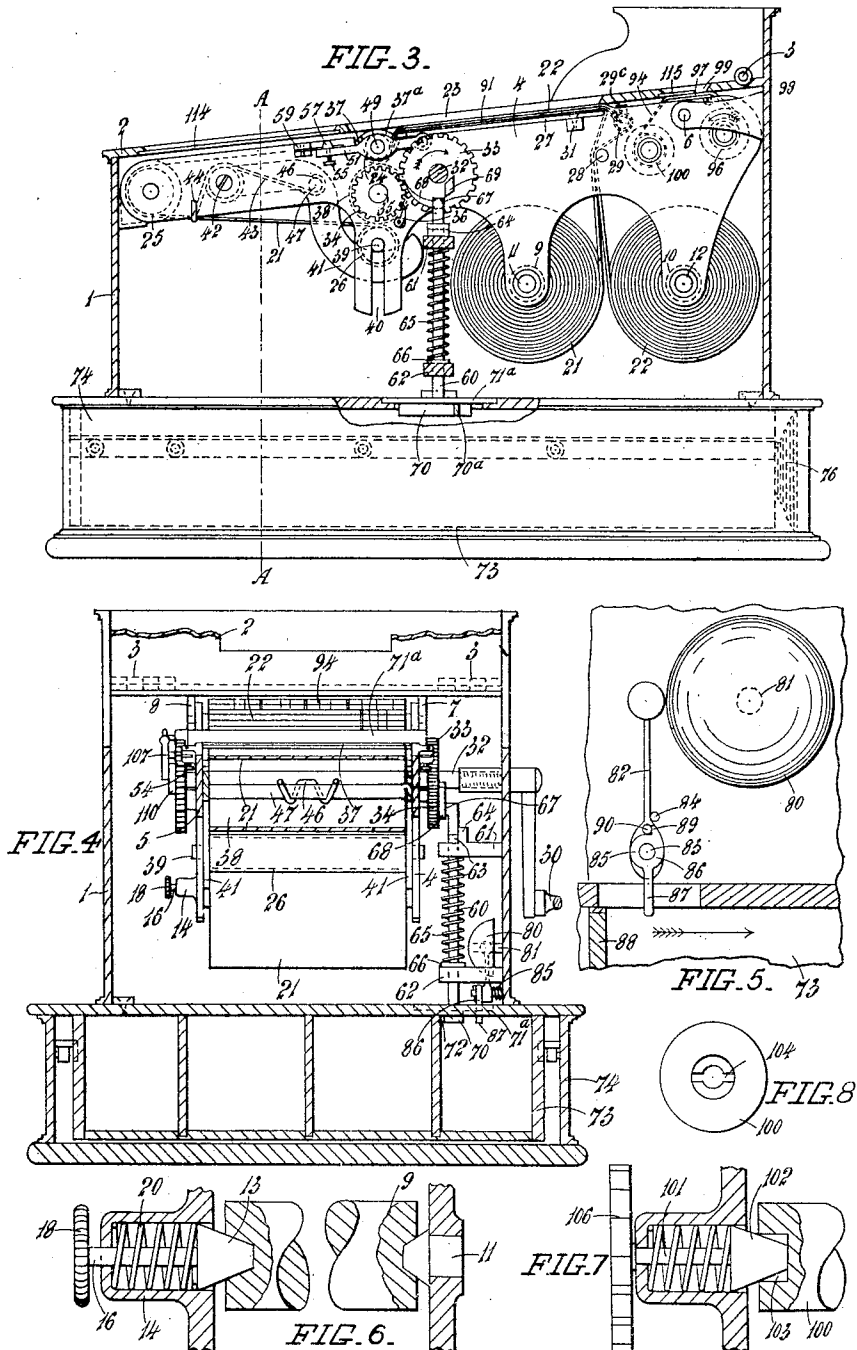
Sydney H. H. H.

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3 SHEETS—SHEET 2.



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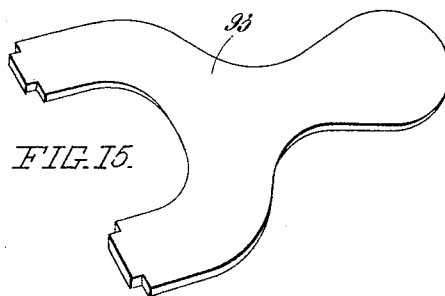
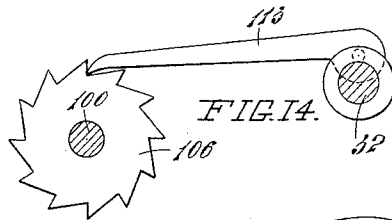
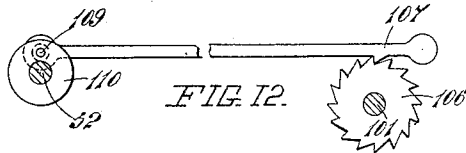
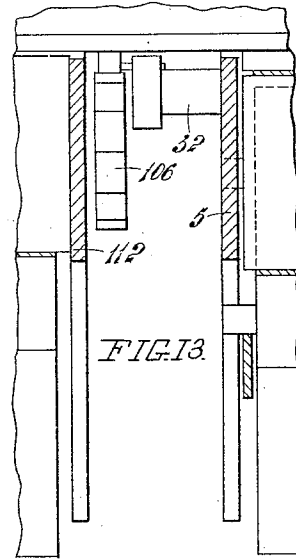
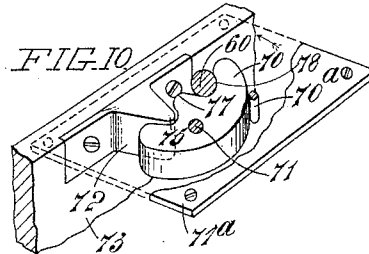
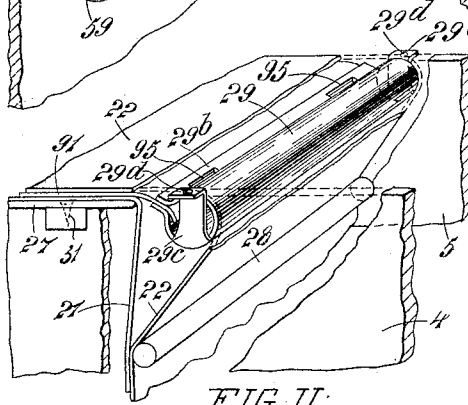
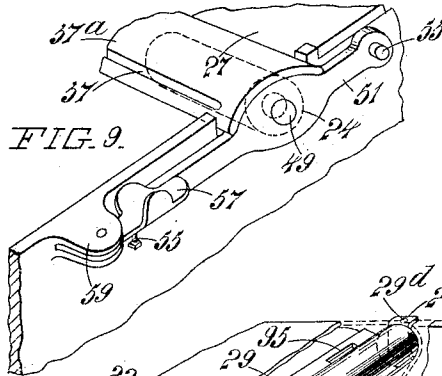
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3 SHEETS—SHEET 3.



Witnesses:
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Sydney B. Biggs

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UNITED STATES PATENT OFFICE.

FREDERICK HENRY TREVELLIAN, OF WELLINGTON, NEW ZEALAND.

CASH-REGISTER.

957,918.

Specification of Letters Patent. Patented May 17, 1910.

Application filed January 27, 1908. Serial No. 412,808.

To all whom it may concern:

Be it known that I, FREDERICK HENRY TREVELLIAN, a subject of His Majesty the King of Great Britain and Ireland, residing at 71 Lambton Quay, Wellington, in the Provincial District of Wellington, in the Colony of New Zealand, have invented certain new and useful Improvements in Cash-Registers, of which the following is a specification.

This invention relates to cash registers having bands of paper whereon invoices and the like are to be written in duplicate, and the object of the invention is to provide improved mechanism whereby the said paper bands are traversed a short portion at a time below an opening in the casing of the register, prior to each opening of a cash drawer.

A further object of the invention is to provide improved mechanism for operating another band of paper whereon the total of each invoice is to be recorded.

The drawings herewith illustrate the invention:—

Figure 1 is a plan of the register. Fig. 2 a plan with a lid of the casing removed. Fig. 3 a side elevation with the side of the casing removed. Fig. 4 a cross sectional elevation on line A—A Fig. 3, of the register. Fig. 5 is a side elevation of a bell and its mechanism. Fig. 6 a sectional elevation of a roller and bearings, Fig. 7 a sectional elevation of a spring operated bearing, Fig. 8 an end elevation of a roller, Fig. 9 a perspective view of a pivoted plate and connections, Fig. 10 a perspective view of a detent, Fig. 11 a perspective elevation of a clip, Fig. 12 a side elevation of a pawl and connections, Fig. 13 a sectional elevation, and Fig. 14 a side elevation of a pawl and connections, Fig. 15 is a lever for operating the clip.

The casing 1 inclosing the mechanism has a lid 2 hinged at 3 and contains a frame comprising side plates 4 and 5 hinged by a pin 6 to brackets 7 and 8 fixed to the back of the casing.

Rollers 9 and 10 are journaled upon bearings consisting at one end of conical studs 11 and 12 fixed to the frame 4, and at the other end of conical studs 13 slidably in sockets 14 and 15, and having stems 16 and 17 projecting through the ends of the sockets and furnished with milled heads 18 and 19. Springs 20 in compression within the sockets tend to

project the studs 13 from the sockets. The rollers can be readily removed by withdrawing the spring studs 13. The springs 20 maintain the said studs in frictional contact with the rollers with sufficient pressure to prevent the rollers over-running. Bands of paper 21 and 22 are rolled upon the rollers 9 and 10, the band 21 passing toward and around the edge of a plate 27, fixed on the plates 4 and 5 by a screw 31, below an opening 23 in the lid 2. The portion of the paper exposed in the opening is available for writing an invoice thereon. This band 21 then passes below a tension roller 24 around an end roller 25, and is finally coiled upon a receiving roller 26 to which its end is attached by any suitable adhesive matter. The band 22 passes upward and around a guide bar 28 thence over a spring clip 29 (see Fig. 11) to be hereafter described, below the roller 24 and its end passes out through a slot 37 in a plate 37^a covering the roller 24, and through the bottom of the opening 23.

The rollers are rotated to advance the paper band by operating the handle 30, which is screwed upon or otherwise attached to a shaft 32, journaled in the plates 4 and 5. A spur wheel 33 is secured to the shaft 32 in mesh with a second spur wheel 34 secured to a shaft 35, which latter is journaled in the plates 4 and 5. The wheel 33 is prevented from turning in a reverse direction by a pawl 36 engaging the teeth of the wheel 34. A roller 38 secured upon the shaft 35 is located between the rollers 24 and 26.

The roller 26 is secured upon a shaft 39 guided in slots 40 in the plates 4 and 5 and supported upon arms 41 pivoted by a shaft 42 to the plates 4 and 5. A spiral spring 43 coiled around the shaft 42 has its ends 44 and 45 engaging the plates 4 and 5; a hook 46 formed in said spring engaging a cross bar 47 which unites the arms 41. The spring thus forces the roller 26 toward the roller 38.

The roller 24 is secured upon a shaft 49 mounted in arms 50 and 51 pivoted by pins 52 and 53 to the plates 4 and 5. The other ends of the arms are provided with screws 54 and 55 adapted to bear against plates 56 and 57 pivoted in brackets 58 and 59 secured to the plates 4 and 5. By adjusting the screws 54 and 55 the roller 24 is made to bear more or less heavily upon the roller 38. After the lid of the casing has been raised the roller 24 may be readily raised by turn-

ing aside the plates 56 and 57 upon their pivots, the arms 50 and 51 are then free to be raised with their roller so that the paper bands may be readily placed in position.

5 The paper, being thus gripped between the rollers 24, 38 and 26, 38, rotation of said roller 38 causes the paper to be wound from the roller 9 onto the roller 26. As the thick-
10 nesses of the paper roll on the roller 26 increases, the arms 41 will be pushed downward by the shaft 39 in the slot 40.

A single revolution of the handle revolves the roller 38 sufficiently to traverse or feed a portion of paper required for a single invoice only, which has been previously filled
15 up by the operator through the opening 23. The pawl 36 prevents the handle being turned backward after a portion of a revolution has been made, and disarrangement
20 of the paper bands is thus obviated.

The handle is prevented from turning more than a single revolution at one time by means of a bolt 60 slidable in brackets 61 and 62 fixed to the casing 1, and prevented from turning around in its brackets
25 by a cross head 63, which bears against a plate 64 integral with the bracket 61. A spiral spring 65 located upon the bolt is in compression between the bracket 61 and a
30 collar 66 secured upon the bolt. A head 67 projects laterally from the bolt 60 in position for engagement by a curved cam 68 projecting laterally from the wheel 33. When the handle 30 has revolved the wheel
35 33 throughout the greater part of a revolution the cam passes below the head 67 and raises the bolt 60 against the resistance of its spring 65 and before the bolt falls, the stop 69 projecting laterally from the wheel
40 33 strikes the head 67 and arrests the handle 30.

The raising of the bolt 60, as just described, sets free a detent 70 (see Fig. 10) pivoted by a pin 71 to a plate 71^a secured
45 to the top of a base 74 of the register, the said detent being then free to move in the direction shown by the arrow. A lug 72, fixed to a till drawer 73 slidable in the said base 74 is normally retained by a groove 75
50 formed in the detent, but upon the bolt being raised the detent is free to be moved by the lug in the direction of the arrow. The lug is thus set free, and a spiral spring 76 in compression between the end of the
55 base 74 and the drawer pushes the said drawer outward from the base. After the wheel 33 has completed a revolution, the cam 68 passes beyond the head 67 and allows the bolt to rest upon the upper surface of the detent 70, where it remains until the
60 drawer is pushed inward, by which action the lug 72 is made to strike the projection 77 to return the detent to its original position and thereby allow the bolt to fall into
65 the groove 78 of the detent. The lug 72 is

held in this position until the bolt 60 is again raised. The detent is prevented from moving too far, in a reverse direction by a pin 70^a projecting downward from the plate 71^a. 70

Warning that the drawer has been opened is given by a bell 80 (see Fig. 5) fixed to the side of the casing 1 by a stem 81. A hammer 82 pivoted upon a stud 83 fixed to the casing is normally held at rest against a pin 75 84, fixed to the casing, by a coil spring 85 located upon the said stud 83. A trigger 86 pivoted on the stud 83 has a tail 87 adapted to be struck by the end 88 of the drawer 73. A lug 89 of the trigger is adapted to engage a pin 90 projecting laterally from the hammer 82. When the drawer is opened in the direction shown by the arrow the trigger operates the hammer, and being suddenly released by the end of the drawer, 85 the trigger allows the hammer to strike the bell. Upon the drawer being pushed inward the trigger is tripped without operating the hammer, or ringing the bell.

A sheet of carbon paper or silk 91 placed 90 between the bands of paper 21 and 22 immediately above the plate 27 is held in position by the spring clip 29, around which the paper band 22 passes. The clip 29 is cylindrical and has longitudinal lips 29^b between 95 which the carbon paper or silk is gripped. Brackets 29^c integral with the lower part of the clip extend upward and are secured to the plates 4 and 5 by screws 29^d. The carbon paper is readily released and a fresh 100 piece inserted by opening the clip, by means of a lever 93 (see Fig. 15), the bifurcated ends of which are adapted to engage in slots 95 formed in the top of the clip.

A band of paper 94 is employed whereon 105 to write the total of each invoice issued and as it is necessary to traverse this band a short distance only for each invoice, I provide the following mechanism for that purpose. The paper is coiled upon a roller 96 110 and passes over a plate 97 immediately below an opening 99 in the lid 2. The end of the paper is attached to another roller 100. The plate 97 is hinged by a pin 98 to the plates 4 and 5, for the purpose of providing room for the removal or introduction of the rollers 96 and 100. The roller 96 has conical bearings similar to the bearings of rollers 9 and 10 already described, but the roller 100 has the stem 101 of its spring- 120 operated conical bearing 102 provided with lugs 103, (see Figs. 7 and 8) which engage corresponding slots 104 in the end of the roller. A ratchet wheel 106 fixed upon the stem 101 is operated by a pawl 107 pivoted 125 to a pin 109 fixed eccentrically in a disk 110 secured upon the end of the shaft 32. Thus at each revolution of the handle 30, the pawl 107 rotates the ratchet wheel 106 a distance equal to the length of one of its teeth. 130

I have described the rollers 96 and 100 as placed in advance of the rollers 9 and 10 but if desired the said rollers 96 and 100 may be arranged side by side with the rollers 9 and 10, and Figs. 13 and 14 show mechanism whereby this arrangement may be effected. In this instance the casing 1 is widened and the rollers 96 and 100 are mounted in a separate frame 112, and the ratchet wheel 106 is fixed upon an end of the roller 100 projecting toward the plate 5. The shaft 32 is extended so that the pawl 113 may engage the ratchet wheel 106.

A sheet of glass 114 is fixed in the lid 2, through which the copy of the invoice is visible and may be read for purpose of comparison with the original, and similarly a sheet of glass 115 is provided in the said lid, through which copies of totals may be read. Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a cash register provided with a drawer and with three traveling bands of registering paper, two of which are adapted to receive duplicate copies of invoices, the third being adapted to receive the total thereof, rollers for supporting the said bands and permitting their endwise travel, in combination with mechanism for causing such motion of the two bands first mentioned, mechanism distinct from said drawer for shifting one of said belts, a pawl and ratchet for operating one of the rollers to feed the third band and means operated by said band moving mechanism for automatically actuating said pawl and ratchet substantially as set forth.

2. A pair of rollers having bands 21 and 22 of paper wound thereon, in combination with a receiving roller for band 21, means for guiding band 22 out of the machine, a tension roller arranged to grip said bands against said receiving roller, a roller 38 in contact with the latter two rollers, a spring forcing said receiving roller against roller 38 and means for preventing roller 38 from turning backward substantially as described.

3. In a cash register, the combination of pivoted brackets, a roller mounted in said brackets, pivoted plates, and screws carried by said brackets in engagement with said pivoted plates, substantially as described.

4. In a cash register, the combination of a feed roller, a roller in engagement therewith for receiving bands of paper, pivoted arms carrying said receiving roller, plates provided with slots for guiding said receiving roller, and resilient means for maintaining a uniform pressure between said two rollers irrespective of the thickness of the paper coil wound on said receiving roller, substantially as described.

5. In a cash register, the combination of

a bolt, a spring for maintaining it in normal position, a wheel, and a cam and a stop extending from the face of said wheel for successively engaging said bolt, substantially as described.

6. In a cash register, the combination of a bolt provided with a head, a spring for maintaining it in normal position, a wheel, a cam carried by said wheel for engaging said bolt head to shift said bolt, and a stop carried by said wheel for engaging said bolt head in the shifted position of latter, substantially as described.

7. In a cash register, the combination of a bolt, a spring for normally maintaining it in position, a pair of intermeshed toothed wheels, a cam and a stop extending from one of said wheels for engaging said bolt, and a pawl engaging the other end of said toothed wheel for locking it against reverse motion, substantially as described.

8. In a cash register, the combination of a bolt, a spring for maintaining it in normal position, a cam for engaging said bolt to shift the latter, a detent normally maintained in operative position by said bolt, a drawer and a lug carried by said drawer for engagement by said detent, substantially as described.

9. In a cash register, the combination of a drawer, a lug carried thereby, a pivoted detent for engaging said lug, a bolt normally engaging said detent to maintain the latter in operative position, yielding immovable means for maintaining said bolt in its normal position, and means for shifting said bolt, substantially as described.

10. In a cash register, the combination of an operating shaft, a feed roller, intermeshing toothed wheels secured, respectively, to said shaft and roller, a tension roller, pivoted brackets carrying said tension roller, pivoted plates, screws carried by said brackets in engagement with said pivoted plates, a receiving roller, pivoted arms supporting said receiving roller, plates provided with slots for guiding said receiving roller, and resilient means engaging said pivoted arms, substantially as described.

11. In a cash register, the combination of a drawer, a lug carried thereby, a pivoted detent for engaging such lug, a bolt normally engaging such detent to maintain the latter in operative position, yielding means for maintaining said bolt in its normal position and hand-operated means for shifting said bolt substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

FREDERICK HENRY TREVELLIAN.

Witnesses:

ERNEST SMITH BALDWIN,
JOHN JOSEPH WATSON.