

March 21, 1944.

E. D. BURTS

2,344,675

RECORDING MECHANISM

Filed Oct. 5, 1940

2 Sheets-Sheet 1

Fig. 1.

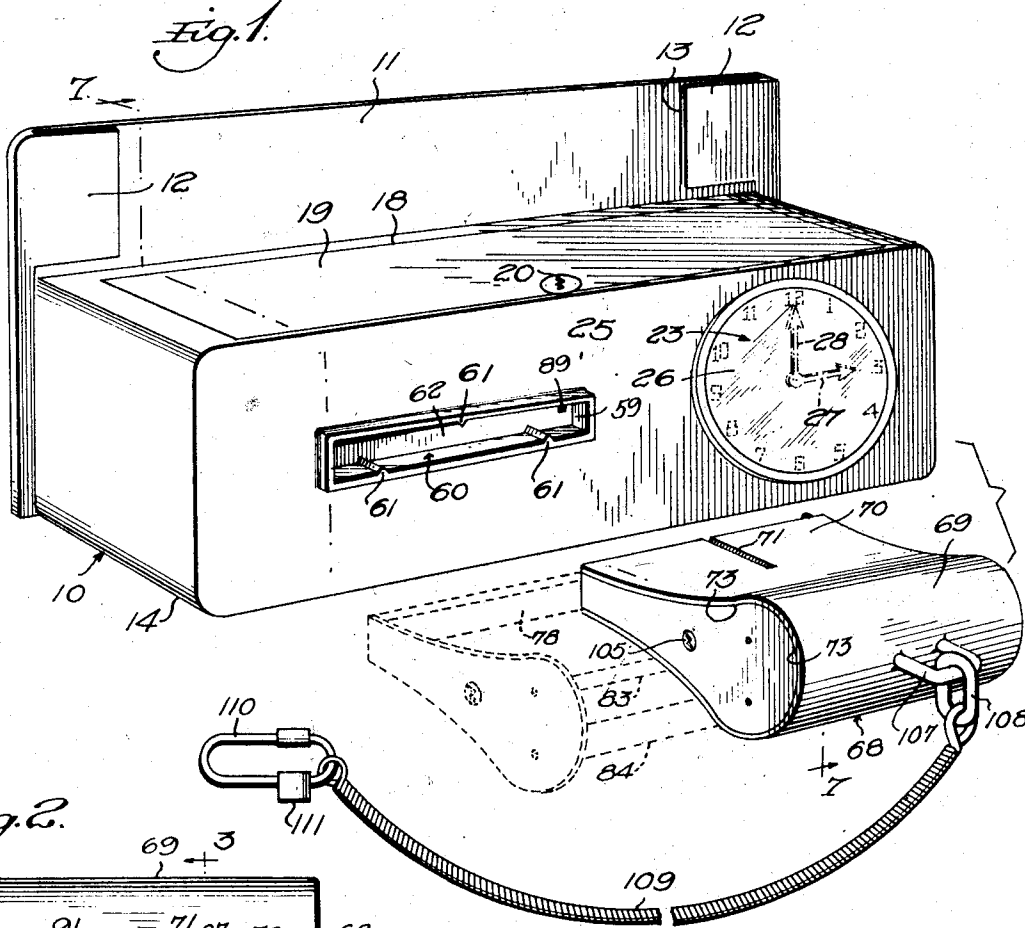


Fig. 2.

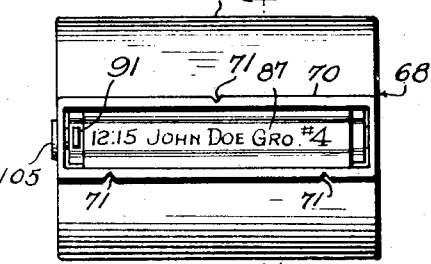


Fig. 5.

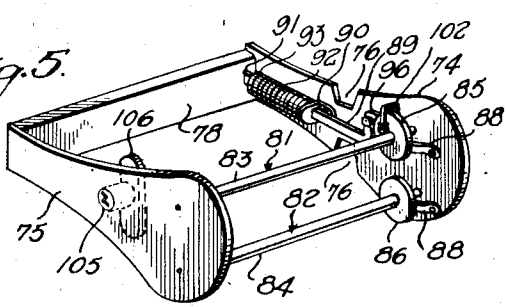


Fig. 4.

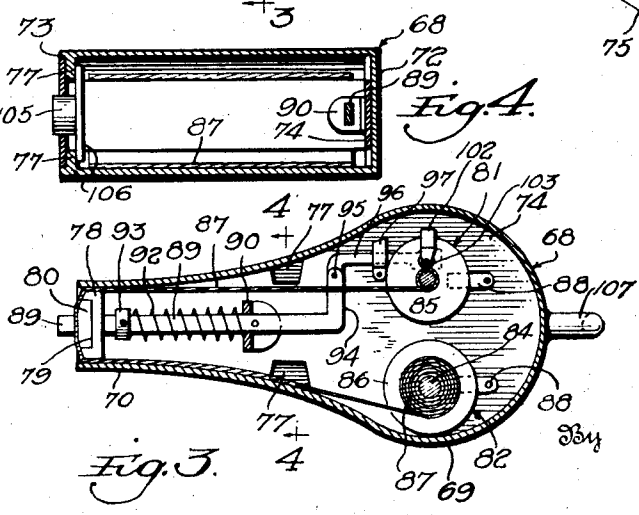
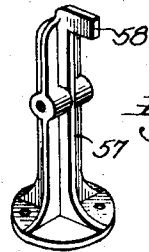


Fig. 3.

Fig. 6.



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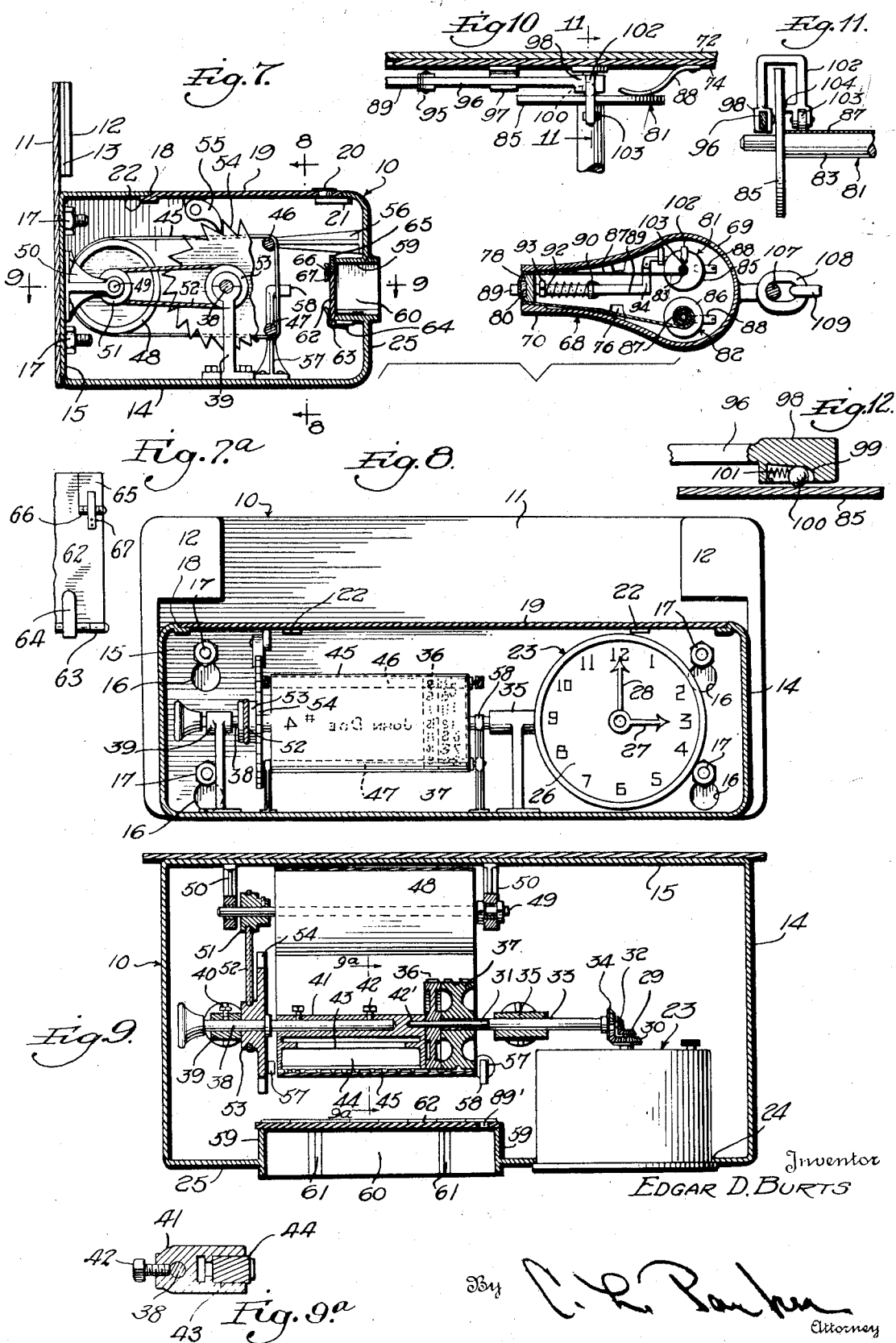
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,344,675

RECORDING MECHANISM

Edgar D. Burts, Columbus, Ga.

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2 Claims. (Cl. 234—57)

This invention relates to recording mechanisms.

Many manufacturers, wholesalers and distributors contact the retail trade for their particular line by sending out salesmen who make personal calls. It is, of course, necessary that each salesman be depended upon to make the calls listed for his territory but it is very easy for a salesman, in making daily reports to his employer, to list retail establishments as having been called upon without actually having made such calls. Mere oral or written records by salesmen, therefore, do not definitely establish the calls which have been made.

An important object of the present invention is to provide a recording mechanism through which salesmen or other persons may record calls which they make, whereby a definite record will be made of trade or other calls.

A further object is to provide, in effect, a two-part recording mechanism one of which is carried by the salesman and the other of which remains in each establishment to which calls are made, and to so construct the two parts with respect to each other that they may be brought together to record on the part carried by the salesman any desired data as to each call, such as the name of the establishment and the time of the call.

A further object is to provide a recording mechanism wherein each establishment upon which a salesman is to call is provided with a clock having associated therewith a printing mechanism whereby the name, number or the like of the establishment is adapted to be printed together with the time of day at which a call is made, and to provide the salesman or other person with a mechanism adapted to be inserted into or pressed against the mechanism in the store to be provided with a permanent record in accordance with the data adapted to be printed by the mechanism in the store.

A further object is to provide such an apparatus wherein the mechanism carried by the salesman is provided with a paper strip or the like upon which the data is printed, each impression on the paper strip being adapted to move the latter one step whereby, at the end of a day, the salesman's mechanism may be unlocked and opened to provide access to the paper strip upon which is printed the record of the calls made by the salesman.

A further object is to provide such a two-part mechanism with portions adapted to inter-fit when the printing operation takes place, the par-

ticular formation of the inter-fitting parts being such that only the correct salesman-carried mechanism may be employed for insertion into the mechanism in the store or the like.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing:

Figure 1 is a perspective view of the apparatus showing the portable unit separated from the stationary unit,

Figure 2 is an end elevation of the portable unit,

Figure 3 is a section on line 3—3 of Figure 2, Figure 4 is a transverse sectional view on line 4—4 of Figure 3,

Figure 5 is a detail perspective view of the internal frame structure of the portable unit, parts being shown in dotted lines,

Figure 6 is a detail perspective view of a bearing structure and associated parts,

Figure 7 is a sectional view taken substantially on line 7—7 of Figure 1 showing the portable and stationary units separated.

Figure 7a is a fragmentary elevation of a portion of the door of the stationary unit,

Figure 8 is a vertical section on line 8—8 of Figure 7, parts being shown in elevation,

Figure 9 is a horizontal sectional view on line 9—9 of Figure 7,

Figure 9a is a detail sectional view on line 9a—9a of Figure 9,

Figure 10 is a fragmentary plan view of a portion of the internal mechanism of the portable unit, a portion of the casing and associated elements being shown in section,

Figure 11 is a detail sectional view on line 11—11 of Figure 10, parts being shown in elevation, and,

Figure 12 is a detail sectional view of the paper spool operating clutch.

Referring to Figures 1, 7, 8 and 9, the numeral 10 designates the stationary unit of the apparatus comprising an attaching plate 11 secured to a wall in an establishment such as a retail store. Opposite sides of the upper portion of the plate 11 may be provided with inwardly extending flanges 12 to form slots 13 to receive advertising cards or the like. A casing 14 is secured against the face of the plate 11 below the flanges 12. For the purpose of securing the casing 14 in position against unauthorized removal the rear wall 15 of the casing is provided with keyhole slots 16 to receive bolts 17 carried by the plate 11. These

bolts are accessible only through an opening 18 in the top of the casing 14, and this opening is normally closed by a cover plate 19 provided with a lock 20 having a locking finger 21 adapted to engage beneath the top wall of the casing 14. Adjacent the rear edge of the opening 18, the cover plate 19 is provided with rearwardly extending lips 22 engaging beneath the adjacent portion of the top of the casing.

A clock 23 is carried by the casing 14 adjacent one end thereof as shown in Figures 1, 8 and 9. This clock may be either mechanical or electrical as will be obvious. The casing of the clock projects into the casing 14 through an opening 24 in the forward wall 25 of the casing 14. The clock is provided with the usual dial 26 and hour and minute hands 27 and 28 respectively. The shafts of the hour and minute hands are respectively provided with bevel gears 29 and 30 as shown in Figure 9, for a purpose to be described.

A shaft 31 extends horizontally parallel to the front wall 25 of the casing 14 and is provided with a bevel gear 32 meshing with the gear 29. A tubular shaft 33 surrounds the shaft 31 and is provided with a bevel gear 34 meshing with the gear 30. The shaft 31 obviously is supported for rotation by the tubular shaft 33 and the latter is supported in a bearing 35 as shown in Figures 8 and 9.

A number wheel 36 is carried by the shaft 31 and bears numerals from 1 to 12 corresponding to the hours on the clock face, the wheel 36 being driven through the bevel gears 32 and 29, the latter of which is connected to the hour hand shaft, as previously stated. A second wheel 37 is mounted adjacent the wheel 36 and is secured to the tubular shaft 33. The wheel 37 is numbered in intervals of five from 0 to 55 corresponding to the number of minutes in an hour. The wheel 37 is driven through the bevel gears 34 and 30, the latter of which is driven from the minute hand shaft of the clock, as previously stated. This mechanism is only generally shown in the drawings and it will be understood that any conventional step by step drive may be employed to advance the number wheel one step every five minutes for a purpose which will become apparent. It also will become obvious that the numbering on the wheel 37 is purely arbitrary since the exact number of minutes to be recorded is not of particular importance. If desired, the wheel 37 may be numbered in individual minutes from 0 to 59.

A stationary shaft 38 is mounted in a support 39 and is secured against rotation with respect thereto by a set screw 40. An indicia holder 41 is carried by the shaft 38 as shown in Figure 9 and is secured thereto by set screws 42. The shaft 31 projects inwardly beyond the wheel 36 and the adjacent end of the indicia holder 41 is provided with an opening 42' to receive the projecting end of the shaft 31 to form a bearing therefor and to act as a support therefor. The holder 41 is provided with a slot or recess 43 to receive an indicia bar 44 (Figures 9 and 9a) which may be provided with an identifying number or the name of the proprietor of the store in which the apparatus is arranged, or it may be provided with both a number and name. The indicia bar 44 is removably mounted in the recess 43 to be replaced, if necessary, for example upon a change in management or ownership of an establishment. The numbers and letters on the wheels 36 and 37 and bar 44 are raised so as to print through an inked ribbon 45 upon a paper

strip to be described. The ribbon 45 is endless and passes around rollers 46 and 47 arranged as shown in Figure 7 to provide the ribbon with a vertical run extending downwardly across the indicia on the wheels 36 and 37 and bar 44. From the rollers 46 and 47 the ribbon passes rearwardly around a roller 48 supported by a shaft 49 mounted in bearings 50 carried by the rear wall 15, as shown in Figure 9.

A pulley 51 is mounted on the shaft 49, and an endless member 52 extends around this pulley and around a pulley 53 rotatable on the shaft 38. A ratchet wheel 54 is formed integral with the pulley 53 and is held against reverse rotation by a pawl 55 which may be carried by the cover plate 19 as shown in Figure 7. It will become apparent that rotation of the ratchet wheel 54 rotates the wheel 48 through the belt 52 to advance the ribbon 45 in a step by step movement to present new surfaces of the ribbon over the printing indicia.

The rollers 46 and 47 merely constitute one suitable means for guiding the ribbon for passage over the printing indicia and any suitable guiding means may be employed. If the rollers referred to are used, the upper roller 46 may be supported by bearings 56 which may be carried by the front wall 25 of the casing. The roller 47 may be supported by bearings 57 carried by the bottom wall of the casing. If this arrangement is used, one of the bearings 57 may be provided with a forwardly projecting finger 58 (Figures 6, 7 and 9) for a purpose to be described.

The front wall 25 of the casing 14 is provided with inwardly extending flanges 59 to form an opening 60 to receive a portion of the portable unit of the mechanism to be described. The upper and lower flanges forming the opening 60 may be provided with ribs 61 for a purpose to be described.

The inner extremity of the opening 60 is normally closed by a gate or door 62 pivotally supported at its bottom as at 63 and urged by a spring 64 toward closed position. The upper edge of the door 62 is provided adjacent one end thereof with a flap 65 (Figures 7 and 7a) pivoted to the main portion of the door as at 66 and urged by a spring 67 to its normal position shown in Figure 7. Upon the entrance into the opening 60 of the portable unit to be described, the entering portion of the portable unit swings the door 62 in a counter-clockwise direction as viewed in Figure 7 and the flap 65 will engage one of the teeth of the ratchet wheel 54 to turn this wheel one step in a clockwise direction. The flap 65 may swing downwardly upon return movement of the door 62 to closed position to escape over the next succeeding tooth of the ratchet wheel.

The portable or salesman-carried unit of the mechanism is shown in Figures 1' to 7, inclusive, 10, 11 and 12. This unit comprises a casing indicated as a whole by the numeral 68 and is substantially pear shaped in cross-section as shown in Figure 3. One end of the casing is bulged into substantially cylindrical form as at 69 to receive mechanism to be described. The other end 70 of the casing is relatively thin and of a size whereby it may be inserted into the opening 60 in the unit 10. The top and bottom walls of the narrow portion 70 of the casing 68 are provided with grooves 71 corresponding in position to and adapted to receive the ribs 61. Thus it will be apparent that only the proper portable unit may be used in conjunction with the stationary unit 10. Moreover, a different arrangement of top

and bottom ribs 61 and grooves 71 is employed to require that the portable unit be inserted right side up.

The casing 68 has one end provided with a wall 72 forming a closure therefor and the opposite end of the casing is open as at 73. The inner mechanism of the unit 68 is insertable into the opening 73. Such mechanism comprises a pair of end plates 74 and 75 corresponding in shape to the cross-sectional shape of the casing 68 and insertable into the opening 73. The plate 74 is notched in opposite edges as a 76 to adapt it to pass inwardly extending lips 77 (Figure 4) carried by the top and bottom walls of the casing 68 for a purpose to be described. The smaller ends of the plates 74 and 75 are rigidly connected by a bar 78 grooved in its outer face as at 79 (Figure 3) to receive a rubber or similar cushion member 80 for a purpose to be described.

Two small spools indicated as a whole by the numerals 81 and 82 respectively are mounted between the plates 74 and 75 and the shafts 83 and 84 of the spools are rotatably supported in these plates. The two spools are respectively provided with end flanges 85 and 86 and the two spools are adapted to hold a paper strip 87 as shown in Figure 3. The spool 82 has the paper strip wound thereon when inserted into the mechanism and the free end of the paper strip is passed around the bar 78 and back into the portable unit to be wound upon the spool 81. Small spring clips 88 carried by the plate 74 lightly engage the flanges 85 and 86 to prevent free turning of the spools.

Upon insertion of the small end of the portable unit into the opening 60 the desired data will be printed on the portion of the paper strip passing over the rubber cushion 80 and means is provided for advancing the paper strip 87 one step upon the completion of each printing operation. Referring to Figure 3, the numeral 89 designates a rod mounted adjacent and parallel to the plate 74 and slidable in a guide 90 carried by such plate. The rod 89 has one end projecting through an opening 91 (Figures 2 and 5) formed in the bar 78 and the projecting end of the rod 89 is adapted to engage the projection 58 (Figures 6 and 9) upon the impressing of the paper strip against the ribbon, as will become apparent. The door 62 is provided in its upper edge adjacent one end with a small opening 89' (Figures 1 and 9) through which the projecting end of the bar 89 is adapted to pass when the smaller end of the portable unit is inserted into the opening 60. A spring 92 surrounds the bar 89 and engages the guide 90 at one end. The other end of the spring engages a collar 93 carried by the rod 89, thus urging the rod 89 to the left as viewed in Figure 3.

The inner end of the rod 89 turns upwardly as at 94 and is pivotally connected as at 95 to one end of an operating arm 96 mounted in a guide 97 carried by the plate 74. The arm 96 (Figures 10, 11 and 12) is provided with a head 98 having a tapered recess 99 in which is mounted a ball 100 engageable with the flange 85. A small spring 101 urges the ball 100 toward the shallower end of the slot 99 to engage the flange 85, thus forming an overrunning clutch movable freely in one direction with respect to the flange 85 and movable in the opposite direction to actuate the flange 85 and turn the spool 81.

The actuating rod 96 is provided with a preferably integral inverted U-shaped member 102 (Figures 10 and 11) one end of the member 102

being carried by the head 98 and the other arm carrying a roller 103 engageable with the paper 87 as it is wound upon the shaft 83. A projection 104 is carried by the inner arm of the member 102 to engage the flange 85 and thus prevent outward movement of the spring 88 away from the flange 85. This arrangement for imparting a step by step movement to the spool 81 effects a uniform linear step by step movement of the paper strip as will be apparent.

In order to prevent unauthorized removal of the internal structure of the portable unit, a rotary locking cylinder 105 is carried by the plate 75 and is provided inwardly thereof with rotatable arms 106 adapted to engage behind the lips 77 (Figure 4). Thus the salesman or other person carrying the portable unit can not interfere with the operation of the internal elements of the unit. To prevent the user of the device from passing over the portable unit to someone else for use, or to render more difficult such unauthorized use, the device is preferably provided with means for locking it to the clothing of the user. The casing of the portable unit is provided with a U-shaped handle 107 and a link 108 connects this handle to a flexible element 109 as shown in Figure 1. A separable loop 110 is carried by the other end of the flexible member and is locked in closed position by a suitable lock 111.

The operation of the apparatus is as follows:

Each store or other establishment called upon by the salesman is provided with one of the stationary units of the apparatus, and the slots provided by the flanges 12 may be used to receive an advertising card of any kind. The bolts 17 (Figures 7 and 8) are carried by the plate 11 and the nuts of the bolts are left sufficiently loose when the plate 11 is attached to the wall or other supporting surface, to permit the casing 10 to be placed in position with respect to the plate 11. The casing 10 is placed with the bolts 17 in alignment with the larger ends of the keyhole slots 16, whereupon the casing 10 is lowered and the nuts of the bolts 17 are tightened through the opening 18. The cover plate 19 is then locked in position.

It will be apparent that any desired clock mechanism may be employed for driving the shafts 31 and 33. The wheels 36 and 37 may bear any desired form of raised indicia to indicate hours and minutes of the day, as previously stated. The indicia-bearing member 44 will carry the name of the proprietor of the establishment in which the apparatus is used or a number to identify the establishment. Both the name and number may be used, if desired. The bars 44 for various stationary units are identical in shape and size except for the indicia thereon, so as to fit in the recess 43 of any unit, and so as to be interchangeable or replaceable. Each stationary unit to be operated by a given salesman will have the opening 60 (Figure 1) provided with the same arrangement of ribs 61, corresponding to the slots 71 of the portable unit carried by the salesman to permit the salesman to insert the smaller end of the portable unit into the opening 60 of the stationary unit of each establishment visited by him.

The portable unit may be locked to the clothing of the salesman as by being attached through the separable loop 110 to one of the belt loops of the salesman's trousers to prevent his passing over the portable unit to someone else and thus providing a false indication of visits to any store or stores.

Assuming that a salesman for a wholesale concern is given a list of retail stores to call on during a given day, the salesman will call on each of these stores and during his visit he will register his call on the paper strip 87 of the portable unit. In order to secure the record, the salesman will insert the narrow end of the portable unit into the opening 60 and push inwardly. This operation will cause the entering end of the portable unit to engage the door 62 (Figure 7) and swing it downwardly about its hinge 63. The flap 65 will engage one of the teeth of the ratchet wheel 54, as the door 62 approaches horizontal position, thus turning the ratchet wheel one step in a clockwise direction as viewed in Figure 7. The ratchet wheel 54 will then transmit movement through its pulley 53 (Figures 7 and 9) and through the flexible element 52 to turn the pulley 51. Thus the cylinder 48 will be turned one step to move the inked ribbon 45. Thus it will be apparent that upon each insertion of the portable unit into the opening 60 to provide a record of the salesman's visit, a fresh portion of the ribbon will be presented to the type on the bar 44 and wheels 36 and 37.

Before the entering end of the portable unit reaches its innermost position in the stationary unit, the projecting end of the rod 89 (Figures 3 and 7) will engage the finger 88 (Figures 3, 7 and 9) and further inward movement of the portable unit will push the end 89 inwardly. This operation causes movement of the rod 89 to the right as viewed in Figure 12 and the ball 100 will slip over the surface of the flange 85 of the spool 81. This operation, of course, will take place against the tension of the spring 92, thus storing energy in this spring to return the rod 89 and associated elements to normal position upon the removal of the portable unit from the opening 60.

Inward movement of the entering end of the portable unit will have brought the portion of the paper strip 87 which extends over the rubber cushion 80 into engagement with the ribbon 45 overlying the type on the bar 44 and wheels 36 and 37. Inward pressure on the portable unit will then print on the paper strip the record of the name and/or number of the establishment together with the time of the call. The salesman will then withdraw the portable unit from the opening 60 and the spring 92 will move the rod 89 to the left together with the elements connected thereto. The ball clutch 100 will engage against the flange 85 of the spool 81 to turn the latter and wind the paper strip thereon. The roller 103 (Figure 11) moves radially outwardly as the paper strip is wound on the spool 81 and accordingly the ball clutch 100 always occupies the same position with respect to the outermost layer of paper on the spool 81 and accordingly winds the paper on the spool in a uniform step by step movement. The paper, of course, is unwound from the spool 82 as it is wound upon the spool 81.

At the end of the day the salesman will turn in the portable unit and an authorized person may apply the proper key to the lock 105 to turn the fingers 106 out of engagement with the fingers 77 (Figure 4), thus permitting the removal of the inner structure of the portable unit. The spool 81 then may be removed and the paper thereon unwound for examination. The record thus formed, when the device is properly used in every establishment, will definitely set forth every establishment called upon

by the salesman as well as the time that each call was made. The free end of the paper strip may be again attached to the shaft 83 and the inner structure of the portable unit returned to the casing 68 ready for use the following day.

It will be apparent that any suitable conventional structure may be provided whereby the spools 81 and 82 may be readily attached and detached. In the present construction, if desired, the flexibility of the two end plates 74 and 75 may be depended upon to permit them to be freed from the reduced ends of the shafts 83 and 84 to permit the removal of either or both spools. The lower spool 82, of course, need be removed only when it is necessary to provide a new paper strip. If the flexibility of the plates 74 and 75 is depended upon in the removal of the spools, the reduced end of the shaft 81 which extends through the plate 74 will be sufficiently short to permit its removal by providing the hinge 95 and guide 97 (Figure 3) with sufficient play to permit the flange 85 to move away from the plate 74 the slight distance necessary to permit the removal and replacement of the spool 81.

The provision of the support 39 and bearing 38 (Figure 9) together with the connection of the shaft 31 with the carrier 41 provides ample support for the type-carrying elements when pressure is exerted thereagainst by the insertion of the portable unit in the manner described. The rubber cushion 80 (Figure 3) cushions the pressure against the type-bearing elements and at the same time insures the clear typing of the record on the paper strip. The tapering of the entering end of the portable unit is designed so as to limit the distance of entrance of the small end of the portable unit into the stationary unit, thus preventing damaging pressure from being exerted against the type-bearing elements.

From the foregoing it will be apparent that the present device provides means whereby any commercial establishment hiring salesmen to call upon the retail trade may secure a definite record of calls made by the salesmen, thus preventing the salesmen from skipping calls and turning in false reports. The device also provides a check on the approximate time required for each call, including the time required for traveling from one store to another, thus providing an adequate guide to indicate whether the salesman is properly attending to his work. The device, of course, is not limited to use by salesmen but is adapted for use by anyone where it is desired to check upon or provide a record of calls made at different places.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a recording mechanism, a casing having an enlarged portion and a reduced end projecting therefrom and provided with an opening extending thereacross, a pair of spools in the enlarged portion of said casing supporting a record strip connected to said spools to be wound on one and unwound from the other, said record strip between said spools extending into the projecting portion of said casing and having a portion extending across said opening to receive a record thereon when the projecting end

of the casing is inserted into a record printing device.

2. In a recording mechanism a relatively wide casing having an enlarged end and an opposite reduced end projecting therefrom and provided with an opening thereacross, a pair of spools in the enlarged end of said casing supporting a relatively wide record strip connected to said spools to be wound on one and unwound from the other, said record strip between said spools extending into the projecting portion of said casing and having a portion extending across

said opening to receive a record thereon when the projecting end of said casing is inserted into a record printing device, said opening being relatively narrow and the portion of the paper strip extending thereacross being substantially flush with the extremity of the reduced end of said casing whereby the exposed area of the paper strip is relatively small to minimize danger of accidental damage thereto, and whereby the adjacent extremity of said casing affords protection for the exposed portion of the paper strip.

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