

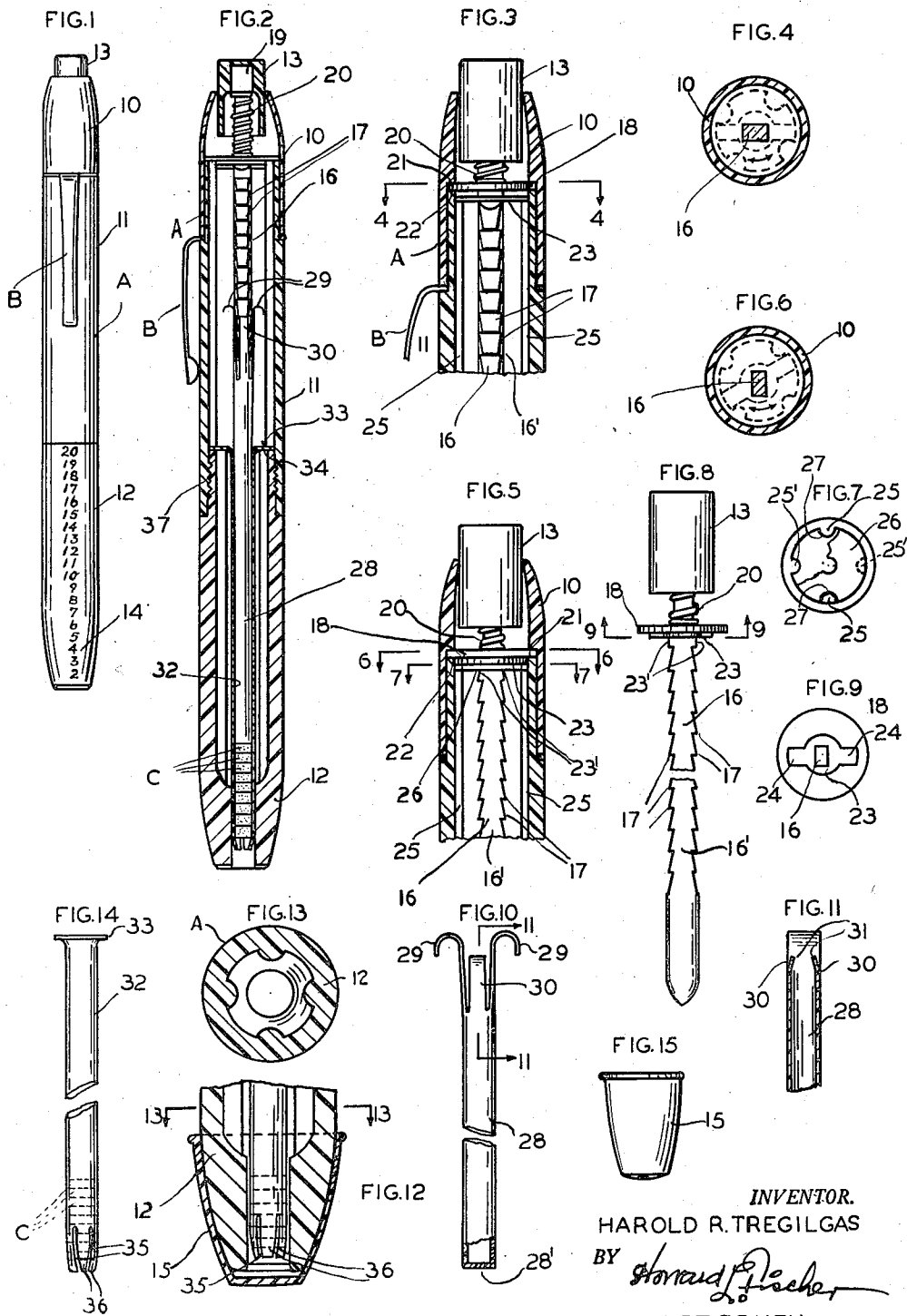
May 5, 1959

H. R. TREGILGAS

2,885,110

POCKET TYPE AUTOMATIC TABLET DISPENSER

Filed June 6, 1955



INVENTOR.
HAROLD R. TREGILGAS

BY *Harold R. Fischer*

ATTORNEY

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2,885,110

POCKET TYPE AUTOMATIC TABLET DISPENSER

Harold R. Tregilgas, St. Paul, Minn.

Application June 6, 1955, Serial No. 513,425

5 Claims. (Cl. 221—2)

My invention relates to a pocket type automatic tablet dispenser which is formed with a plastic body shaped more or less like a fountain pen so that the dispenser may be carried in one's pocket ready to dispense a tablet any moment.

The body of the dispenser is cylindrical and is made in sections which include a top sectional portion adapted to carry the ejecting rod and push button, the intermediate section in which the operating rod reciprocates to move the ejector plunger to dispense a tablet, and the lower section which is threaded to the intermediate section and which is adapted to carry a removable tablet holding tube. A removable closure cap is provided for the lower end of the lower section and is adapted to close the opening out of which the tablets are adapted to be dispensed.

It is a feature to provide a hollow dispensing plunger, the lower end of which is closed while the upper end is formed with spring ears which engage in longitudinal grooves formed in the intermediate section. The plunger member is also formed with springs, the free ends of which project toward each other and which are positioned to operate between the spring ears and to engage the ratchet teeth of the operating rod extending from the operating button and into the hollow plunger.

A further feature resides in providing a ratchet ejecting mechanism operated by the push button projecting from the top of the dispenser and which carries the ratchet rod with teeth for engaging the springs of the hollow plunger when in one position and when the operating button is rotated by a quarter turn the ratchet teeth are disengaged from the springs of the ejector plunger.

A feature resides in holding the hollow ejector plunger, by means of the spring ears formed at the top thereof, in frictional engagement in the longitudinal grooves of the intermediate section. The spring ears on the ejector plunger which engage in the longitudinal grooves in the intermediate section hold the ejector plunger against too free movement and thus the rod with the ratchet teeth is permitted to move backward when it has been depressed after dispensing a tablet. A coil spring in the operating button returns the same to operative position each time the button is depressed and released.

A further feature resides in providing the lower section with longitudinally extending grooves which are adapted to hold the removable tablet supporting tube centrally within said lower section. It is also a feature to provide indicia on the lower section such as the numerals 1, 2, 3, 4, etc. to the desired number, each number being positioned above the other so as to arrange the same in longitudinal position appearing on the lower section. This provides means for indicating the number of tablets contained within the removable tablet holding tube and said indicia also indicate the number of tablets that have been dispensed out of said holder.

The tablet holding tube is formed of transparent plastic and has an integral washer-like end at the top thereof, while the lower end of said tube is slit longitudinally to

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provide spring tablet holding arms with the extreme lower end of the tablet holding tube being formed to curve inwardly thereby providing tablet restricting means in the lower end of the tube for holding the tablets to be dispensed.

The removable tablet holding tube provides means for holding a supply of tablets to be dispensed, and when the same is empty a new tube filled with tablets may be readily inserted in the lower section of the dispenser.

These features together with other details and objects of the dispenser will be more fully and clearly defined as hereinafter set forth.

Figure 1 is a front view of my pocket type automatic table dispenser.

Figure 2 is an enlarged longitudinal cross section of the dispenser.

Figure 3 is a sectional detail of the top portion of the dispenser.

Figure 4 is a section on the line 4—4 of Figure 3 with the ratchet operating rod shown in position to operate the ejector plunger.

Figure 5 is a sectional detail similar to Figure 3 with the ratchet rod turned into inoperative position with respect to the ejector plunger.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a section on the line 7—7 of Figure 5, the washer being shown partially broken away.

Figure 8 is an enlarged detail of the operating button and ratchet ejector rod removed from the casing of the dispenser, a portion of the rod being broken away.

Figure 9 is a section on the line 9—9 of Figure 8 in the direction of the arrows.

Figure 10 is an enlarged detail of the tubular ejector plunger, a portion of which is broken away and illustrates the lower end thereof in sections.

Figure 11 is a section on the line 11—11 of Figure 10.

Figure 12 is an enlarged cross section of the lower end of the dispenser.

Figure 13 is a section on the line 13—13 of Figure 12 with the tablet supporting member removed therefrom.

Figure 14 is an enlarged side view of a tablet supporting tube removed from the dispenser.

Figure 15 illustrates a polyethylene closure cap for the lower end of the dispenser.

My pocket type automatic tablet dispenser has a plastic barrel or casing made of sections 10, 11 and 12. The upper section 10 is adapted to support the operating button 13 which operates the mechanism within the dispenser to dispense tablets out of the lower section 12.

Each of the sections 10, 11 and 12 are made of plastic and are preferably transparent, particularly as to the sections 11 and 12. This provides a casing for the dispenser A which permits the operator to observe the operation of the mechanism within the casing. Further, the transparent nature of the section 12 is of primary importance because it indicates to the user of the dispenser the number of tablets held therein.

The lower section 12 has a vertical row of numeral indicia 14. These numeral indicia may be such numerals as 1—20 or whatever numeral indicia are desired to appear on the lower section 12 to provide an indicating means to the operator or user of the dispenser A in regard to the quantity of tablets ready to be dispensed.

The lower end of the section 12 may be closed by a flexible plastic cap 15. This cap may be made of polyethylene or similar material which is flexible enough to be frictionally attached to the lower end of the dispenser and thereby protects any of the tablets within the lower end of the dispenser from any contamination when the dispenser is not in use.

The upper section 10 of the dispenser A is sealed to the intermediate section 11 to virtually integrally con-

nect the sections 10 and 11. A pocket clip B is adapted to be held to the casing of the dispenser by securing the same between the sections 10 and 11 as illustrated in Figure 3.

The operating button 13 projects out of the upper end of the section 10 and is adapted to be reciprocated to operate the automatic ratchet mechanism of the dispenser A. A ratchet rod 16 formed with a series of teeth 17 along two opposite sides extends through the washer member 18. The upper end 19 of the ratchet rod 16 is anchored or fixed within the operating button 13 as indicated in Figure 2. Interposed between the upper end 19 of the rod 16 and the washer member 18 I provide a coil spring 20 which extends around the rod 16. This coil spring is adapted to hold the operating button 13 normally projecting out of the top of the section 10.

The washer 18 is held fixed between the shoulders 21 formed in the member 10 and the upper end 22 of the section 11 (as illustrated in Figures 3 and 5). Directly below the washer 18 I provide a cam member 23 which is adapted to be rotated by the rod 16 upon which it is positioned. The cam member 23 rests against the shoulder member 23' formed on the sides of the raised rod 16. These shoulders 23' limit the outward movement of the operating button 13 when the spring 20 returns the operating button to normal operative position. The cam member 23 is formed with projecting stop members 24 which engage the upper ends of the longitudinal ribs 25 to limit the rotating movement of the rod 16 when the operating button 13 is turned to the left or right. A washer member 26 rests on the top of the longitudinal ribs 25'. These ribs are shorter than the ribs 25 and form a resting shoulder for the washer 26. The ribs 25 extend through notches 27 formed in the washer 26 so as to hold the washer against turning. The washer 26 forms a bearing surface against which the cam member and its projecting members 24 bear. The upper ends of the longitudinal ribs 25 which extend through the notches 27 form the shoulders against which the ends 24 of the cam member 23 engage as heretofore set forth by reason of the fact that the ribs 25 project through the notches 27.

The hollow tubular plunger 28 is illustrated in Figure 2 and in Figures 10 and 11. The plunger 28 is formed with spring ears 29 which are formed integrally from the tubing forming the plunger 28 and have down turned ends which are adapted to bear against the inner wall of the section 11 of the casing and positioned between the longitudinal ribs 25. These ears 29 frictionally engage the walls of the inner surface of the section 11 to govern the free movement of the plunger 28 in its downward and upward movement in the section 11. The end 28' of the plunger 28 is flat to provide a smooth surface for contact with the tablets when the dispenser is operated. The ribs 25 prevent the rotation of the plunger 28 and cause it to move in a virtually straight line in the section 11 when the plunger is operated.

A pair of spring fingers 30 having inwardly extending ends 31 are formed integrally with the tubular plunger 28 and are adapted in one position to engage with the teeth 17 of the ratchet rod 16. The ratchet rod 16 is adapted to be rotated by the rotation of the operating button 13 to move the teeth 17 into engagement with the spring fingers 30 or to move the ratchet rod 16 in a position where the spring fingers 30 engage the smooth side surface 16' formed on the ratchet rod 16. Thus when the button 13 is moved in a position to disengage the teeth 17 from the ends 31 of the spring fingers 30, the plunger member 28 can be moved in a backward direction whereas when the ratchet rod 16 is turned by the button 13 so that the teeth 17 engage the spring fingers 30 the operating button 13 can be reciprocated in a downward direction causing the ratchet rod 16 to move the plunger 28 progressively downward against the tablets C

to cause the tablets to be dispensed out of the dispenser A.

The tablets C are adapted to be contained within the plastic container tube 32 illustrated in Figure 14. This plastic container tube 32 is transparent and the section 12 of the dispenser is also transparent so that the supplier can observe the number of tablets remaining in the dispenser. Furthermore, the plastic container tube 32 is long enough to hold a supply of the tablets C. When the supply of tablets C in the container is exhausted a new container 32 may be inserted into the lower section 12. The plastic container tube is formed with an annular flange 33 about the top of the same which normally rests on the shoulder 34 in the dispenser when the container 32 is in place in the section 12. The lower end of the container 32 is formed with a series of slits 35 to provide spring fingers 36 at the lower end of the container 32. The fingers 36 hold the tablets C from dropping out of the container 32 and provide the necessary frictional means to hold the tablets in the lower end of the container 32 in place until the end 28' of the plunger 28 pushes a tablet out of the dispensing end of the section 12 of the dispenser. The ratchet rod 16 is formed with the proper number of teeth so that only one tablet at a time is dispensed out of the dispenser A when the operating button 13 is depressed.

The spring 20 returns the operating button 13 to outermost position in readiness to be depressed by the operator.

The sections 11 and 12 are threaded together at 37. This permits the section 12 to be removed from the section 11 at which time the plunger 28 can be reset into a backward position by releasing the spring fingers 30 from the teeth 17 and pushing the plunger back into the section 11. A new container 32 with a full supply of tablets C can be placed in the section 12 after discarding the whole empty container 32.

A primary feature of my dispenser resides in the dispensing of tablets such as nitroglycerin for heart patients where it is desirable to quickly dispense a tablet. Other tablets such as narcotics, saccharin or other similar tablets which may be readily contained in the tube 32 are adapted to be carried in the dispenser A which gives the owner of the dispenser a most desirable means of carrying the same in a pocket and provide a quick means of dispensing the respective tablets.

I have found that my dispenser is very desirable for use by doctors, hospitals and individuals.

The dispenser A is of a simple construction, may be easily manufactured and assembled to provide those desiring to carry a dispenser of this character an inconspicuous means of dispensing the various tablets as above set forth.

I claim:

1. A sectional tablet dispenser formed in the shape of a writing instrument, comprising a hollow tubular top member having a cylindrical opening formed therein, annular shoulder means formed within said cap intermediate its ends, an intermediate tubular section, a plurality of axially disposed guide ribs formed therein, a lower transparent tubular member threadedly engageable with said intermediate section, a pocket clip secured between said top member and said intermediate section, an elongated ratchet rod having a rounded free lower end thereon, two sets of ratchet teeth diametrically opposed on said ratchet rod with smooth surfaces therebetween, outwardly extending shoulders near the upper end of said ratchet rod, a closed cap adapted to extend out of said top member and reciprocable therein secured to said ratchet rod and rotatable therewith, coil spring means about said ratchet rod between said shoulder means and said closed cap, a hollow tubular plunger having a closed bottom end and an open upper end, diametrically opposed arcuate outwardly disposed spring means formed on the open upper end of said tubular plunger and frictionally

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engageable with the inner surface of said intermediate member between said ribs to provide balanced axial movement, inwardly disposed spring gripper members positioned on the open upper end of the tubular plunger between said arcuate spring means frictionally engageable about said ratchet rod with one gripper member engageable with each set of teeth on said ratchet rod, a tablet holding tube having an annular shoulder formed thereon at the upper end thereof adapted to be positioned in the lower tubular section and having an intumed bottom split end construction to frictionally retain tablets therein, and a closure thimble frictionally engageable about the open bottom end of said lower section.

2. An elongated tubular sectional tablet dispenser, comprising a hollow top member having a cylindrical end opening, shoulder means formed within said cap, an intermediate tubular section, a plurality of longitudinally disposed guide ribs formed in said intermediate section, a tubular lower section threadably engageable with said intermediate section, a pocket clip secured to said intermediate section, ratchet rod means having two sets of ratchet teeth diametrically opposed with smooth surfaces therebetween, outwardly extending shoulders formed on said ratchet rod near the upper end thereof, a closed operating member secured to said ratchet rod, coil spring means disposed about said ratchet rod to bias said ratchet rod outwardly, a hollow tubular plunger having a closed bottom end adapted to receive said ratchet rod therein, diametrically opposed arcuate spring means formed on the upper end of said plunger and engageable with the inner surface of said intermediate member to provide balanced self-aligned axial movement, inwardly disposed spring gripper members positioned between said arcuate spring means on the upper end of said tubular plunger engageable in one position with the teeth on said ratchet rod and engageable with the smooth surfaces of said ratchet rod when said ratchet rod is rotated, a tablet holding tube and an intumed bottom split end construction to frictionally retain tablets therein, an annular shoulder formed on the upper end of said tablet holding tube seatable against the upper end of said lower tubular section, and a closure cover frictionally engageable about the bottom and of said lower section.

3. A tablet dispenser made of sections connected together, the uppermost section being adapted to carry a dispensing button, spring means for holding said button in normal position, a ratchet rod having two series of diametrically opposed teeth positioned longitudinally thereof, two smooth longitudinal surfaces formed on said rod between said series of teeth, a hollow tubular plunger adapted to receive said ratchet rod therein and operated by said ratchet rod to dispense tablets from said dispenser, an intermediate section secured to said top section, longitudinally disposed grooves in said intermediate section, outwardly disposed arcuate spring arm means formed on the upper end of said plunger adapted to engage in said grooves, inwardly disposed spring finger means adapted to engage the teeth in said ratchet rod when said rod is in one position and to engage said smooth longitudinal

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surfaces of said rod when in another position, and stop means formed in said intermediate section to limit rotation of said dispensing button, whereby said dispenser is inoperative when said dispensing button is in one position and operative to dispense a tablet out of the same when said dispensing button is in another position.

4. A tablet dispenser formed of tubular sections including top, intermediate and lower dispensing end sections, said lower end section being transparent, a removable transparent tablet supporting tube adapted to be positioned in said lower section, an annular flange formed on said supporting tube engageable with the uppermost surface of said lower end section, indicia on said lower section to indicate the number of tablets remaining in said tablet supporting tube, said upper and intermediate sections being secured together, reciprocable ratchet plunger dispensing means, and a button for operating said ratchet dispensing means to dispense tablets from said tube when desired.

5. A unitary dispenser for nitroglycerin, saccharin and similar tablets including a casing and a pocket clip to support said dispenser in one's pocket, an operating button at the top of said dispenser, ratchet plunger dispensing means within said casing, a removable tubular tablet supporting means, said ratchet plunger means including a rod with two sets of longitudinally disposed teeth thereon, smooth longitudinal surfaces on said rod between said sets of teeth, a tubular plunger member for engaging the tablets in said dispenser adapted to be operated by said toothed rod to dispense a tablet from said dispenser when said button is operated, outwardly disposed arcuate spring means integral with said tubular plunger engageable with the inner walls of said casing to retard the free movement of said plunger tube, spring finger means formed on said tube engageable with said teeth of said rod when said rod is in one position and with the smooth surface on said rod when said rod is in a different position, said operating button being adapted to rotate said rod to engage said spring fingers of said plunger and to be disengaged therefrom and to reciprocate in the longitudinal direction to move said plunger to dispense a tablet from the discharging end of said dispenser.

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