United States Patent [19]

Curtiss

[11] **3,899,011**

[45] **Aug. 12, 1975**

[54] **DISC DISPENSER**

[75] Inventor: **Alan C. Curtiss,** Old Lyme, Conn.

[73] Assignee: **Pfizer Inc.,** New York, N.Y.

[22] Filed: **Aug. 9, 1974**

[21] Appl. No.: **496,287**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 281,946, Aug. 18, 1972, Pat. No. 3,832,532.

[52] **U.S. Cl.** **141/325;** 195/127; 221/93; 222/362

[51] **Int. Cl.** **B65b 1/04;** B65b 3/04

[58] **Field of Search** ..... 221/93, 198, 279; 133/4 R, 133/5 R, 5 A; 137/265; 23/259; 141/1, 100, 83, 241, 237, 273, 319–322, 325, 326, 363–366, 274; 195/103.5, 120, 127; 222/132, 134, 137, 139, 362, 442

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Primary Examiner—Houston S. Bell, Jr.
Attorney, Agent, or Firm—Connolly and Hutz

[57] **ABSTRACT**

A number of antimicrobial impregnated discs are simultaneously dispensed into separate chambers of a partitioned cuvette, each containing a suspension of a bacterial broth, to determine which antimicrobial, antibacterial or antibiotic is the most suitable for treating the affected patient. The disc dispenser has a line of dispensing chutes disposed above the open tops of the cuvette chambers and a mechanism for receiving a disc from each of a line of supply tubes and dropping it into the dispensing chute. The upper ends of the dispensing chutes are open to permit visual confirmation that a disc has been discharged through each of the chutes. The dispensing mechanism may comprise an apertured sliding plate which may be unitary or divided in an array of individual dispensers. It is incorporated in a dispensing table on a hollow fixture which receives the cuvette. The fixture may include a pair of end sections and an operating plunger may be mounted in one of them.

21 Claims, 21 Drawing Figures

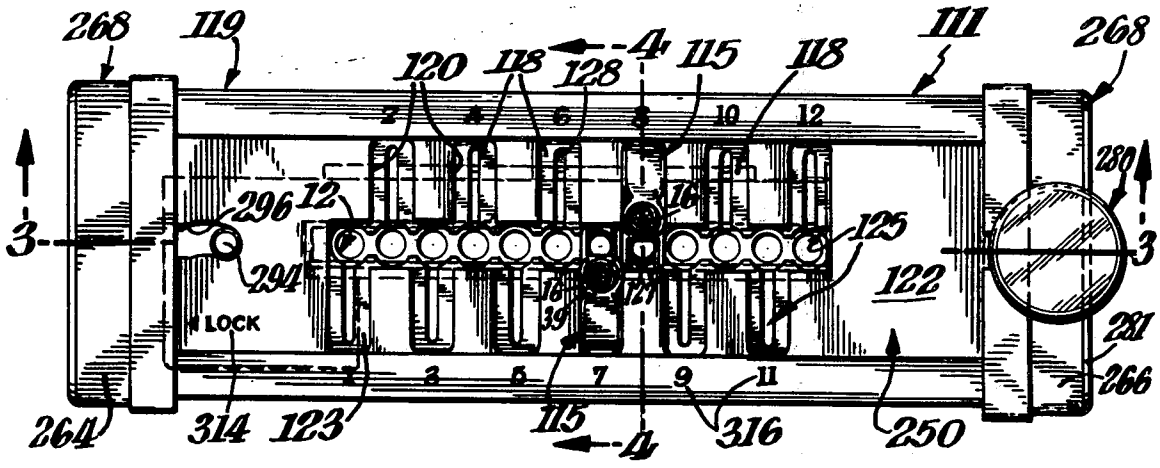


Fig. 1.

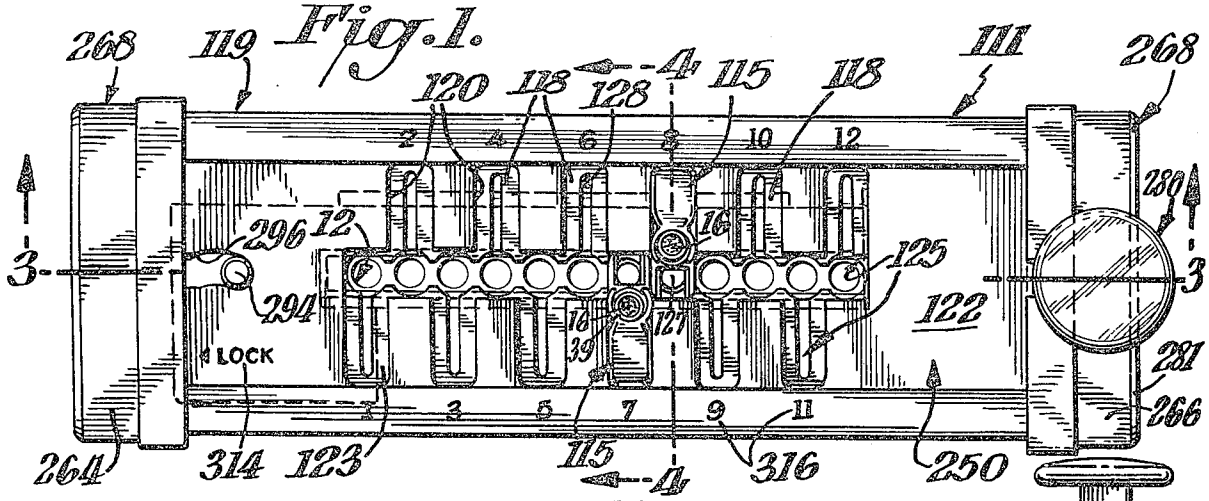


Fig. 2.

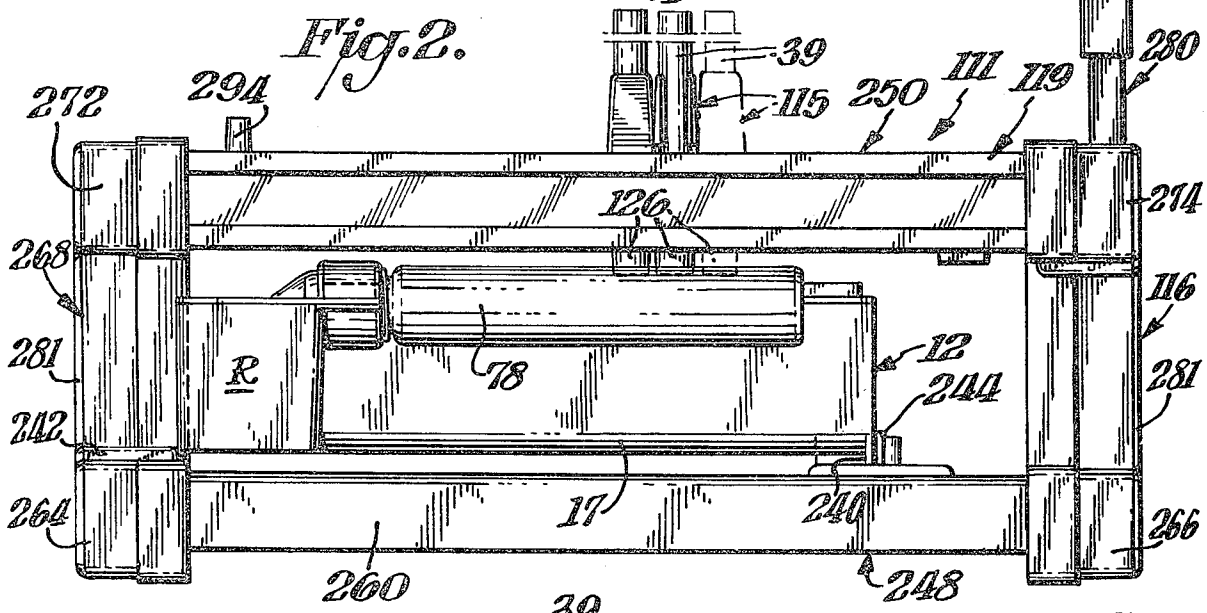


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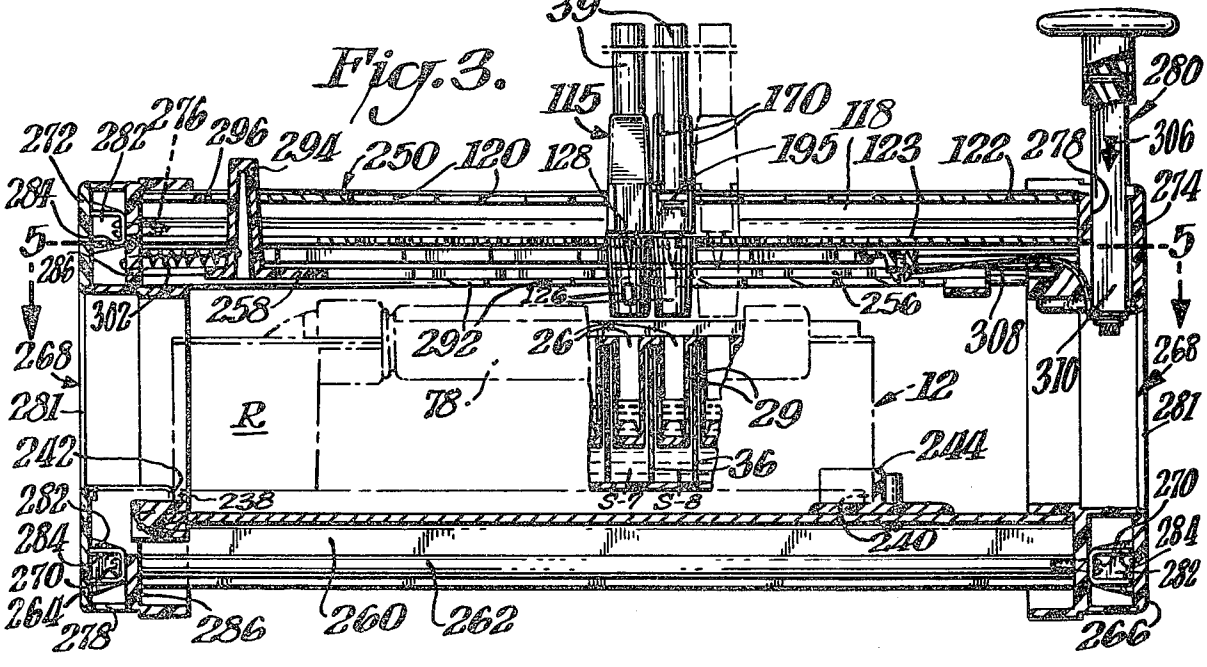


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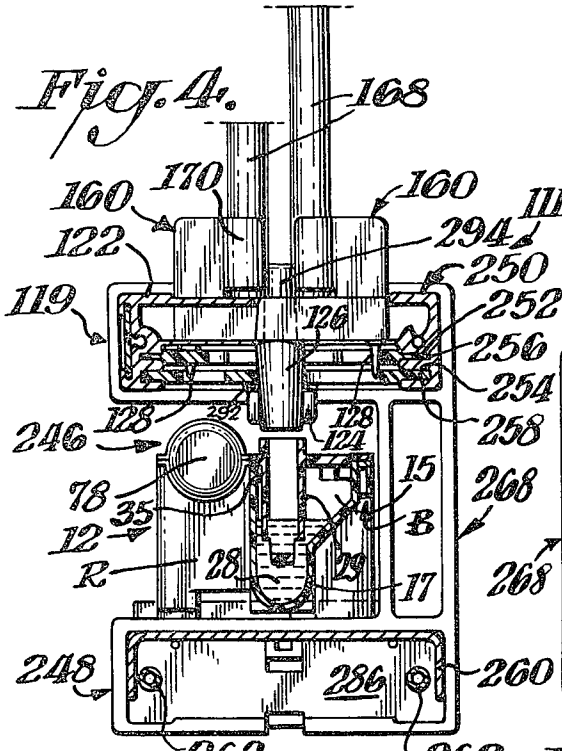


Fig. 6.

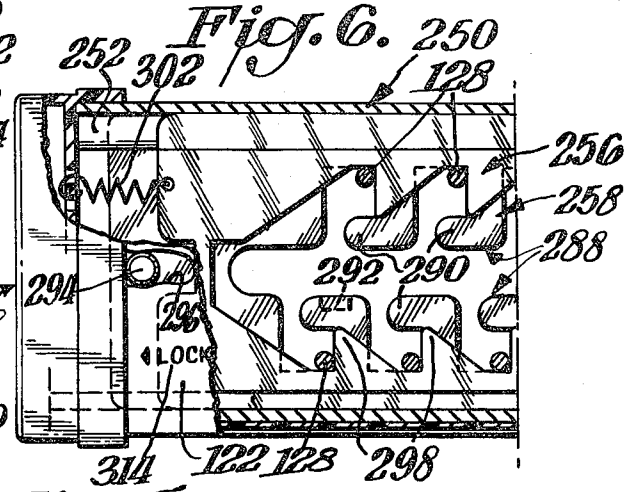


Fig. 5.

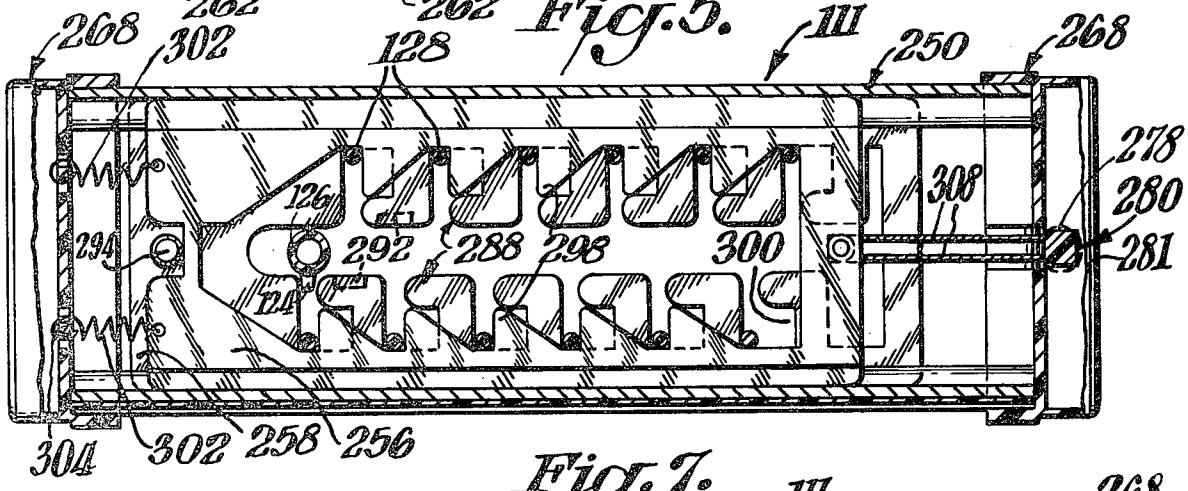


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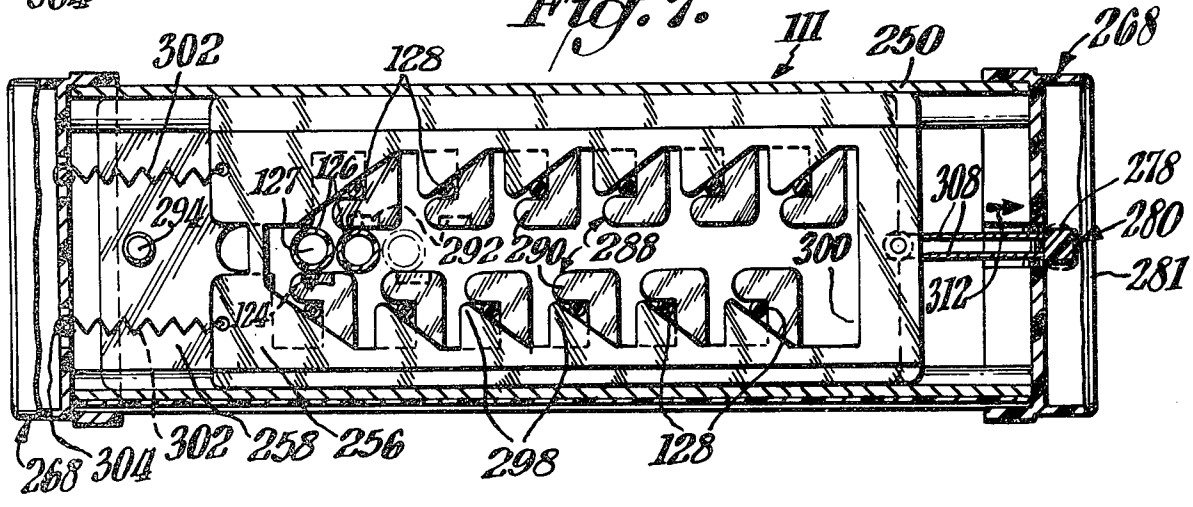


Fig. 9.

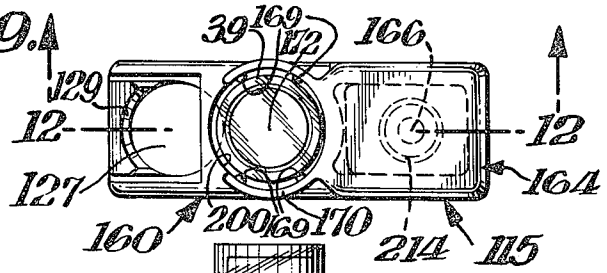


Fig. 10.

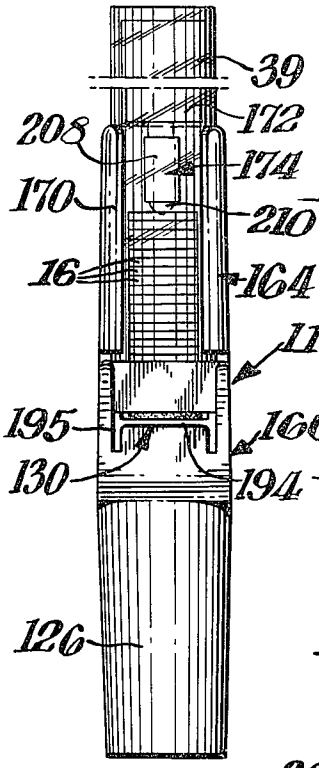


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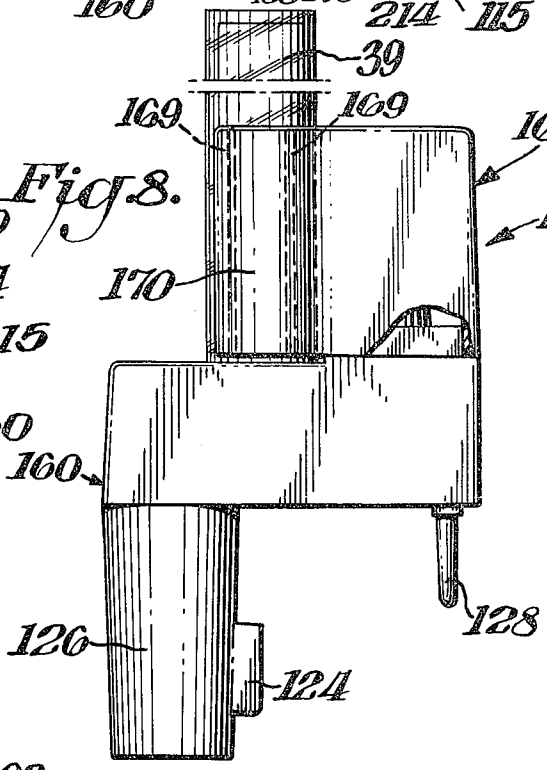


Fig. 11.

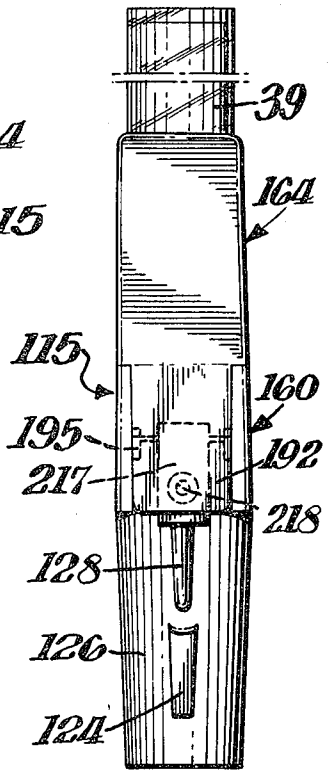


Fig. 12.

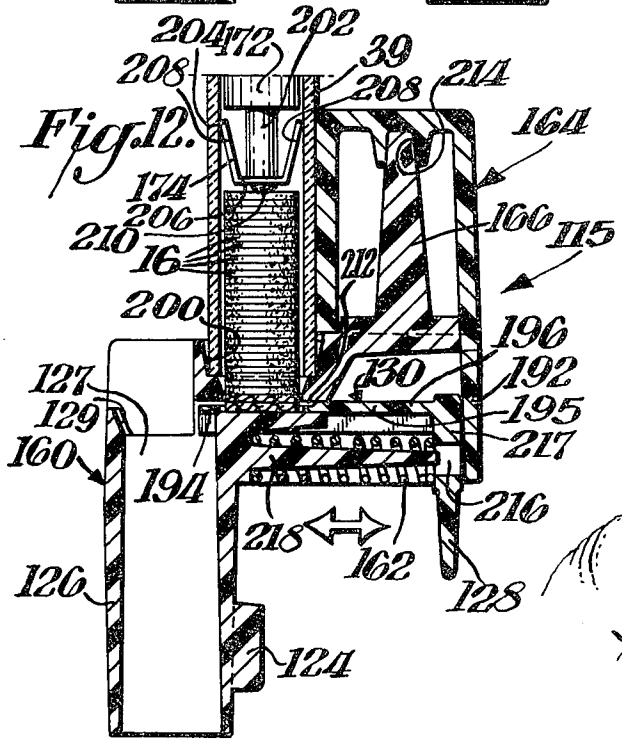


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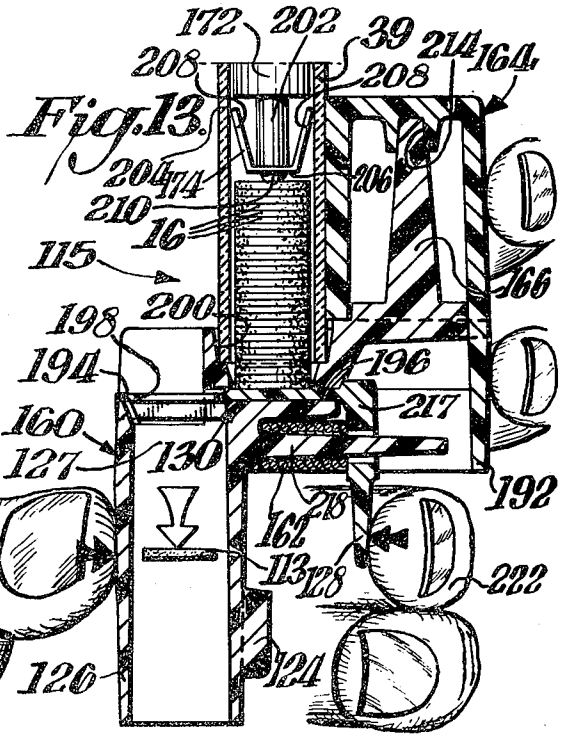


Fig. 14.

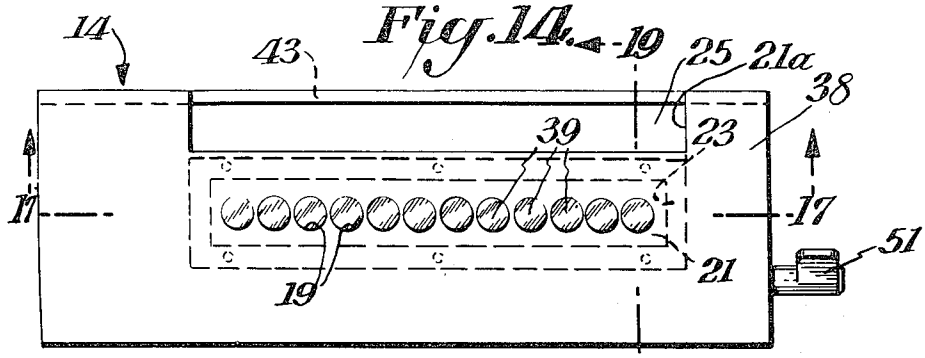


Fig. 15.

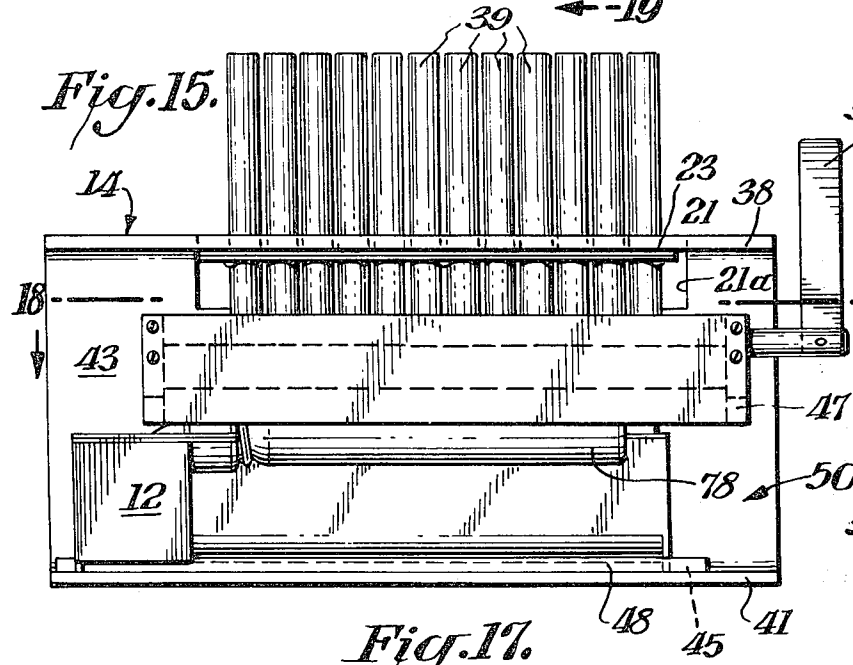


Fig. 16.

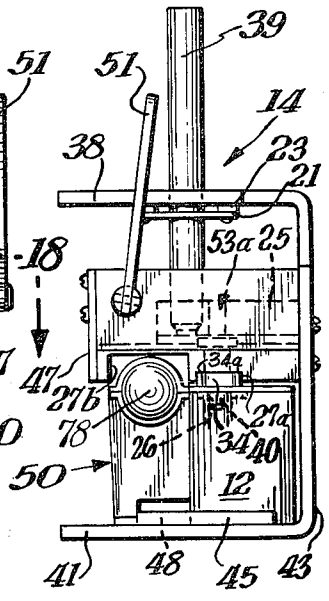


Fig. 17.

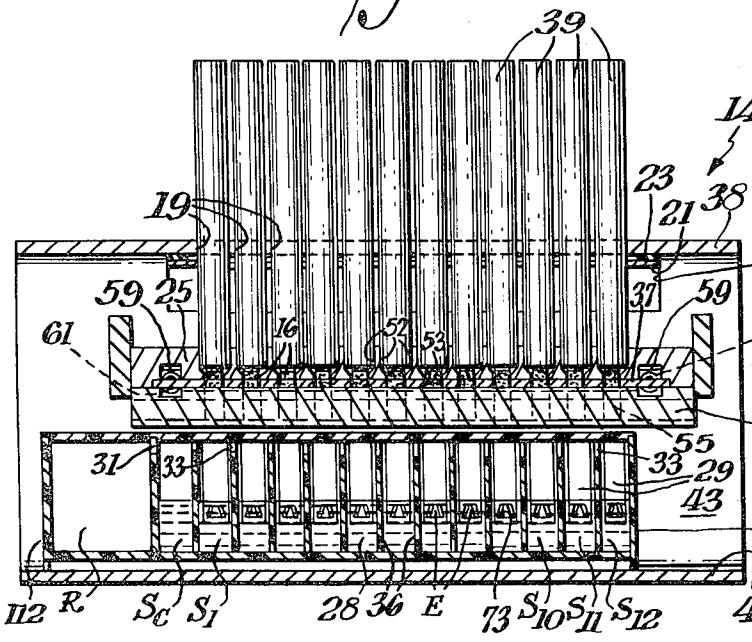


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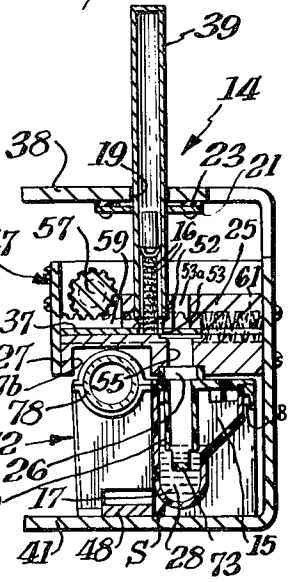


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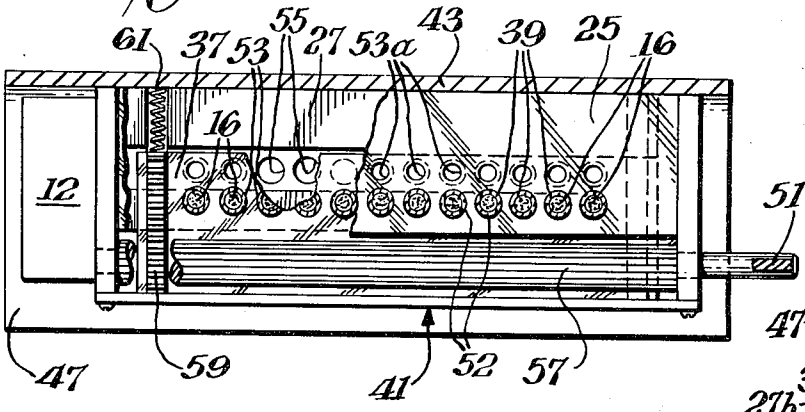


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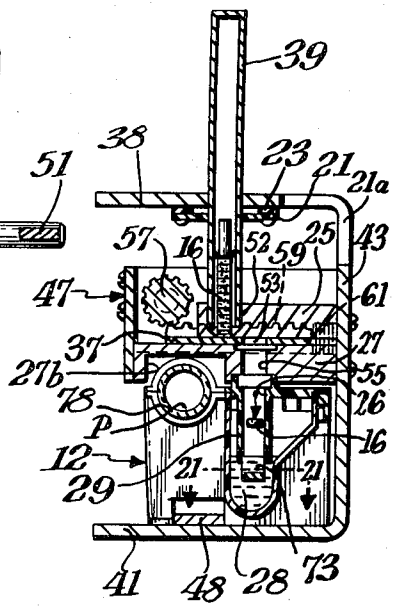
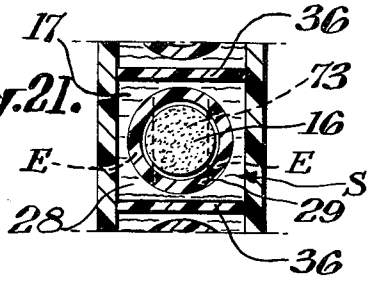


Fig. 21.



DISC DISPENSER

CROSS-REFERENCE TO RELATED APPLICATION, IF ANY

This application is a continuation-in-part of copending commonly assigned patent applications for U.S. Letters Patent: Ser. No. 281,946 filed Aug. 18, 1972, now U.S. Pat. No. 3,832,532, by this same inventor in conjunction with three other inventors who were coinventors of other portions of the invention disclosed and claimed therein but not the disc dispenser portion being disclosed and claimed herein and Ser. No. 437,700 filed Jan. 29, 1974, by this same inventor.

BACKGROUND OF THE INVENTION

Mechanisms for dispensing antibiotic saturated discs from tubular cartridges are described in U.S. Pat. Nos. 3,031,819, 3,032,179, 3,036,703 and 3,115,992 and Canadian Pat. No. 687,149. Some of these dispensers simultaneously drop a number of discs into a culture dish or into separate compartments of solutions for comparing the effectiveness of the different antibiotics. Such multiple disc dispensers are subject to malfunctions which are significant because the failure to discharge even only one of the array of discs ruins the test. An object of this invention is, therefore, to provide a multiple disc dispenser for dispensing into an array of sample solutions, which is dependable in operation and in which malfunctions may be readily detected and corrected.

SUMMARY

A number of antimicrobial impregnated discs are simultaneously dispensed into separate chambers of a partitioned cuvette, each containing a suspension of a bacterial broth, to determine which antimicrobial, antibacterial or antibiotic is the most suitable for treating the affected patient. The disc dispenser has a line of dispensing chutes disposed above the open tops of the cuvette chambers and a mechanism for receiving a disc from each of a line of supply tubes and dropping it into the dispensing chute. The upper ends of the dispensing chutes are open to permit visual confirmation that a disc has been discharged through each of the chutes. The dispensing mechanism may comprise an apertured sliding plate which may be unitary or divided in an array of individual dispensers. It is incorporated in a dispensing table on a hollow fixture which receives the cuvette. The fixture may include a pair of end sections and an operating plunger may be mounted in one of them. The bodies of the individual dispensers may be alternately directed to provide space between them for the actuating mechanism. A pair of sliding plates may be provided in the dispensing table for locking the individual dispensers in their recesses and actuating them by an inclined cam surface. The locking plate lugs may provide a limit of travel for protecting the dispenser pins.

BRIEF DESCRIPTION OF THE DRAWINGS

Novel features and advantages of the present invention will become apparent to one skilled in the art from a reading of the following description in conjunction with the accompanying drawings wherein similar reference characters refer to similar parts and in which:

FIG. 1 is a top plan view of a disc dispenser which is one embodiment of this invention, showing several of its complement of individual disc dispensers installed in it;

FIG. 2 is a front elevational view of the disc dispenser shown in FIG. 1 holding a compartmented cuvette for receiving dispensed discs;

FIG. 3 is a cross-sectional view taken through FIG. 1 along the line 3—3;

FIG. 4 is a cross-sectional view taken through FIG. 1 along the line 4—4;

FIG. 5 is a cross-sectional view taken through FIG. 3 along the line 5—5 in the unlocked nondispensing condition;

FIG. 6 is a fragmental cross-sectional view of a portion of FIG. 5 in the locked position;

FIG. 7 is a cross-sectional view similar to FIG. 5 in the dispensing position;

FIG. 8 is a side view in elevation of one of the individual dispensers incorporated in the embodiment shown in FIG. 1;

FIG. 9 is a top plan view of the individual dispenser shown in FIG. 2;

FIG. 10 is a left-end elevational view of the individual dispenser shown in FIG. 2;

FIG. 11 is a right-end elevational view of the individual dispenser shown in FIG. 2;

FIG. 12 is a cross-sectional view taken through FIG. 9 along the line 12—12 in the unactuated condition;

FIG. 13 is a cross-sectional view similar to FIG. 12 in the actuated condition;

FIG. 14 is a top plan view of a ganged disc dispenser for use in the performance of the method of this invention and which comprises one apparatus aspect of this invention;

FIG. 15 is a front view in elevation of the dispenser shown in FIG. 14;

FIG. 16 is a right-end view of the dispenser shown in FIG. 15;

FIG. 17 is a cross-sectional view taken through FIG. 14 along the line 17—17;

FIG. 18 is a cross-sectional view taken through FIG. 15 along the line 18—18;

FIG. 19 is a cross-sectional view taken through FIG. 14 along the line 19—19 with the dispenser in the ready position;

FIG. 20 is a cross-sectional view similar to FIG. 19, but in the dispensing position; and

FIG. 21 is a cross-sectional view taken through FIG. 20 along the line 21—21.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1–7 is shown an antibiotic disc dispenser 111 in which a number of individual self-contained dispensers 115 are mounted on base fixture 116. Dispensers 115 are accordingly mounted in sockets 118 disposed in table mechanism 119. Sockets 118 are comprised of substantially rectangular slots 120 in top plate 122 and tailed circular holes 125 in bottom plate 123 of dispensing table mechanism 119.

Individual dispenser 115 shown in FIGS. 9–13 includes chuted body 160 within which slide carriage 130 moves against the force of compression spring 162 and upon which cover 164 is mounted on horn 166. Cartridge tube 39 is inserted between internal contact ridges 169 in clamp 170 on the front of cover 164 and contains weight 172 pushing down on feed clip 174

which rests on the stack of antibiotic discs **16** to be discharged by dispenser **115** as later described.

Details of self-contained dispensers **115** are shown in FIGS. **9–13.** Dispenser **115** is shown in an unactuated condition in FIGS. **9–12** with the return movement of slide carriage **130** arrested by tail plate **192** of cover **164.** The apertured end **194** of slide plate **195** remote from pin **128** is thinner than the rear end **196** to dispose disc feeding aperture **198** in a thinner shouldered portion **194** of slide plate **195.** This facilitates smooth operation of slide carriage **130** and dependable feeding of discs **16.** The thicker rear portion **196** of slide plate **195** smoothly confines discs **16** within tubular cartridge **39** which is inserted within shouldered socketed funnel **200** in body **160.**

Weight **172** in tube **39** has a bottom stem **202** disposed against the bottom of angular U-shaped clip **174** to urge it downwardly. Weight **172** weighs, for example, 4 grams and clip **174** which is for example made of spring material such as beryllium copper, causes about 2 grams of frictional resistance in rubbing against the inner walls of tubes **39,** to leave a resultant 2 grams of force pushing down on the stack of discs **16.** Points **204** of clip **174** ratchet the downward movement of clip **174** and maintain the stack of discs **16** firmly packet together. The disposition of stem **202** of weight **172** on the bottom arm **206** of clip **174** clear of side arms **208,** prevents weight **172** from bending clip **174** and interfering with the efficient operation of clip **174.** Dimple **210** at the center of bottom end **206** of clip **174** is higher than slot **212** in body **160** through which slide **130** passes to prevent clip **174** from dropping into aperture **198** and binding operation of slide **130.**

FIGS. **12** and **13** show the engagement of socket **214** within cover **164** over horn **166** on body **160.** Clearing hole **216** in the rear actuating end **217** of slide carriage **130** passes over tapered guide shaft **218** on body **160** about which compression spring **162** is mounted. The rearward movement of slide carriage **130** is arrested by tail plate **192** extending downwardly from cover **164.** Forward movement of slide **130** from the position shown in FIG. **12** to that shown in FIG. **13** carries a disc **16** from the stack in cartridge **39** over the open upper end **127** of chute **126** through which it is dropped. Dispenser **115** is shown being manually actuated by fingers **222** in FIG. **13,** which is the manner in which dispensers **115** are individually used. Dispensers **115** are also capable of simultaneous multiple operation when mounted on a supporting and actuating fixture as otherwise described herein. Semicircular portion **129** of the upper rim of open end **127** of chute **126** is chamfered to help direct discharged discs **16** into chute **126.**

The installation of individual disc dispensers **115** is illustrated in FIGS. **1–4,** showing chutes **126** disposed above cuvette **12** and its corresponding upper ports **26** through which discs **16** are discharged into tubular disc holder **29** of cuvette compartments S_1–S_{12}.

Cuvette **12** is a compartmented container for inoculated broth used for measuring the effect of antimicrobial agents on the growth of microorganisms in the broth. The detection of growth in broth by forward light scattering requires such a chamber to be both optically transparent to the irradiating light used and geometrically consistent with the light scattering photometer. Convenient and rapid examination of the effect of many antimicrobial agents on the growth of a given microorganism is accomplished by a linear array of such optical chambers as a single unit, described in aforementioned copending application Ser. No. 281,946, filed Aug. 18, 1971. Cuvette **12** permits the convenient introduction of an equal volume of broth inoculum into each chamber S. Cuvette **12** also has the capability of conveniently accepting an antimicrobial impregnated paper disc into all test chambers and is not capable of accepting such an antimicrobial disc in its single control chamber. Furthermore, cuvette **12** is water-tight, optically polished, optically reproducible, inexpensive, relatively small, stackable, and may be disposable. Cuvette **12** is a linear array of one control chamber, S_c, and 12 antimicrobial test chambers, S_1–**12.**

A row of lobes **15** extends the entire length of the long axis of the cuvette (excluding the reservoir). They are connected to the reservoir by a major distribution port **31,** and accept broth inoculum from the reservoir by manually rotating the cuvette to lower them and cause equal amounts of solution to fill them through distributing ports **33** assisted by return flow of air through vents **35.** The area of ports **33** increases away from reservoir R.

Thirteen disconnected light scattering lobes **17** of chambers S_c, (S_1, S_2 . . . S_{1212}) accept an equal volume of broth inoculum from interconnected distributing lobes **15** by manually rotating the cuvette 90° about its long axis to lower them. Once filled with broth inoculum the thirteen chambers S are isolated from each other by the partitioning walls **36.** Distributing ports **33** and air distribution vents **35,** located at the top of each partition **36** and well above the broth level are the only interconnections between the chambers. These vents are necessary for proper fluid distribution into lowered distributing lobes **15** as described above.

Twelve apertured tubular fingers **29** extend down into the 12 test scattering chambers (S_1, S_2 . . . . . S_{12}). Each hollow finger, known as a disc holder, accepts an antimicrobial paper disc **16** (**6.5** mm diameter) via 12 disc ports **26** on the top surface of cuvette **12.** The disc drops into the disc holder **29** and comes to rest on the floor **73** of this holder. Two elution ports, E, in the walls of the disc holder adjacent to the disc permit elution of antimicrobial agent into the surrounding broth innoculum of the scattering chamber. As shown in FIG. **16** (for reference only) a strip **34** of flexible sealing material with twelve nipples **40** (called the closure inserts) are inserted into the disc ports **26** to provide a watertight seal for each disc holder. Strip **34** is received between parallel rails **34a** straddling ports **26** on the upper surface of cuvette **12** and it is usually removed while cuvette **12** is inserted in cavity **50** of dispenser **14.** An L-shaped bracket B located on the back of cuvette **12** and extending the length of the cuvette long axis enables the attachment of the cuvette to holding brackets in processing analyzing equipment (not shown).

As shown in FIG. **3,** cuvette **12** is aligned in its required position under chutes **126** by insertion of legs **238** and **240** respectively within left-hand locating shoe **242** and right-hand locating shoe **244** into which cuvette **12** is inserted by pushing it from front to back into chamber **246** disposed between dispensing table assembly **119** and lower base platform **248.**

As shown in FIGS. **3** and **4,** dispensing table mechanism or assembly **119** is comprised of an elongated aluminum extrusion **250** incorporating top plate **122** and bottom plate **123.** Extrusion **250** also includes pairs of opposed longitudinal grooves **252** and **254** disposed

below bottom plate **123** which receive sliding cam actuating plate **256** and locking plate **258,** which are further described in FIGS. **5–7.** Base platform **248** is primarily comprised of an elongated channel **260** made of stainless steel, internally reinforced by aluminum tubes **262** which secure the lower ends **264** and **266** of C-shaped end supports **268** together by threaded engagement by cap screws **270.** The upper ends **272** and **274** of end supports **268** are secured to extrusion **250** by cap screws **276.** End supports **268** are identical to each other, but the left-hand and right-hand installations are inverted 180° with respect to each other. This disposes channel **278** receiving operating plunger **280** at the top of right-hand end support **268,** and channel **278** is inoperatively disposed at the bottom **264** of left-hand end support **268.** The outer open ends of end supports **268** are covered by end sheets **281** which are removably held in place by lugs **282** which are wedged against U-shaped clips **284** secured by the cap screws **270** and **276** to the central securing wall **286** of end supports **268.** Lugs **282** are also wedged between a slight space not shown between the sides of U-shaped clips **284** and the adjacent wall of end support **268.**

FIG. **5** shows a locking plate **258** in the unlocked position for receiving chutes **126** of individual disc dispensers **115.** Locking plate **258,** is for example, a thin framed rectangular plate formed of a relatively strong sheet material, such as polycarbonate resin. The use of a polycarbonate resin in the grooves of an aluminum extrusion provides a degree of self-lubrication. L-shaped locking lugs **288** project within locking plate **258** and have tips **290,** which engage over locking lugs **124** on chutes **126.** Wedges **292** shown in FIG. **3** are incorporated under locking tips **290** for securely engaging over lugs **124** on chutes **126** to hold individual disc dispensers **115** securely in place.

Locking plate **258** is moved back and forth from the unlocked to locked positions by upwardly extending peg **294,** which is for example cast as an integral part of locking plate **258.** Peg **294** extends upwardly through arcuate slot **296** in top plate **122** which it maintains peg **294** and locking plate **258** in its extremities in conjunction with the resiliency of peg **294.**

Cam actuating plate **256** is a thin framed rectangular sheet made of polycarbonate plastic, similarly to sheet **258,** and it includes sloped or inclined cam surface **298** of rounded saw tooth or triangular form extending inwardly within its central opening **300.** Cam-actuating plate is urged to the left extremity of travel in the non-dispensing position shown in FIG. **5** by coil springs **302** secured to end supports **268** over lugs **304.** Dispensing actuation of cam plate **256** to the right is accomplished by pushing plunger **280** downwardly, as shown by arrow **306** in FIG. **3,** which pulls cam plate **256** to the right through flexible strap **308** connecting the right-hand side of cam plate **256** to the bottom **310** of plunger **280.** Flexible cable **308** is of a strip of a strong flexible material, such as nylon-coated stainless steel cable or other suitable flexible material.

The operation of dispenser **111** is easily accomplished after individual dispensers **115** are installed, as shown in FIGS. **5–7.** Main dispenser **111** is unlocked for receiving individual dispensers **115.** FIG. **6** shows the position of locking plate **258** in the left-hand or locking position in which peg **294** is in the left hand side of arcuate slot **296** and locking lugs **288** are moved in line with chutes **126** of dispenser **115** and in engagement over locking lugs **124** on chutes **126.**

The dispensing position of dispenser **111** is shown in FIG. **7** in which cam plate **256** is moved to the right by downward pressure of plunger **280** to pull connecting cable **308** to the right in the direction of arrow **312.** Movement of cam plate **256** to the right forces saw toothed cam elements **298** against dispenser-operating pins **128** to force them inwardly within framed opening **300** to operate individual dispensers **115** in the manner previously described. Visual observation and verification that discs **16** have been discharged from each of dispensers **115** and into ports **26** of cuvette **12** is afforded by the open tops **127** of chutes **126** which are exposed at the top of dispenser table assembly **119** on the upper portion of dispenser **111.** Any jams which might occur, can also be easily cleared through exposed tops **127** of dispensing chutes **126.** FIG. **1** also has a "LOCK" direction indicia **314** and individual dispenser numbers **316** to facilitate locking and unlocking and coordination of the type of discs in each individual dispenser.

Dispensers **115** may be easily reloaded by removing cartridge tubes **39** and replacing them in the manner previously described. Only two individual dispensers are shown in solid outline installed in main dispenser **111** in FIGS. **1–4.** One additional individual dispenser **115** is shown in FIGS. **1–3** to indicate the manner in which the full complement of individual dispensers **115** is installed.

Disc dispenser **14** shown in FIGS. **14–21** conveniently and rapidly introduces a single antimicrobial impregnated paper disc **16** into each of the 12 (or less if desired) disc holders **29** of cuvette **12** with the entire panel of discs added simultaneously by a simple manual manipulation. The upper plate section **38** of the free-standing dispenser **14** accepts a maximum of 12 cartridges **39** containing antimicrobial discs **16.** Glass cartridges **39** are identical to those currently being used for Kirby-Bauer discs. The lower plate section **41** of dispenser **14** contains a track guide **48** which accepts a cuvette **12** in upright position. Upper plate **38** and lower plate **41** are joined in a channel form by rear vertical wall **43.** Cuvette **12** is inserted on track **48** into cavity **50** until stop **45** is reached. The top of cuvette **12** is guided by insertion of the parallel rails **34a** in slot **27a** in the bottom of plate **27** later described. Another slot **27b** is provided in the bottom of plate **27** for passage of inoculum tube **78.** The middle section **47** of the dispenser **14** has mechanism **49** somewhat similar to that shown in U.S. Pat. Nos. 3,031,819, 3,036,703 and 3,115,992, which upon actuation of a lever **51,** slides a single disc **16** out of each cartridge **39** and drops the disc **16** into the tubular disc holder **29** of the cuvette. In this manner, 12 discs can be simultaneously added to a cuvette.

Cartridge tubes **39** are inserted through holes **19** in upper plate **38** and adjacent support plate **21** and spacer plate **23.** Midsection **47** includes spaced horizontal guide plates **25** and **27** between which slide plate **37** reciprocates. Upper plate **25** includes counterbored holes **52** which receive the bottom ends of cartridge **39.** Slide plate **37** includes holes **53** which receive discs **16** from tubes **39** and drop them through holes **55** in plate **27** into ports **26** in cuvette **12.** Viewing slot **21*a*** allows the user to monitor operation and to easily clear jamming through holes **53*a*** in plate **25** caused by any mal-

functions, such as jamming of a disc **16** in a hole **55** in plate **27**. Plate **37** is reciprocated by lever **51** through splined shaft **57**. Racks **59** energizing splined shaft **57** are connected to the ends of slide plate **37** to move it back and forth by lever **51**. Compression springs **61** react between vertical wall **43** and the rear edge of slide plate **37** to return it to the receiving position.

I claim:

1. A disc dispenser for dispensing discs from cartridges to a compartmented container having an array of compartments having top openings for insertion of said discs, said dispenser comprising a base fixture, a dispensing table mechanism mounted upon said base fixture, said dispensing table mechanism having an array of upper and lower holes offset a predetermined distance from each other, cartridge-supporting means disposed on said dispensing table mechanism for holding said cartridges above said upper holes for successively dispensing discs into them, an apertured dispensing plate means mounted in said dispensing table mechanism for sliding movement from alignment with said upper holes to alignment with said lower holes, drive means connected to said dispensing table mechanism for moving said dispensing plate means from one said alignment to the other whereby discs received from said upper holes are carried and dropped into said lower holes, a compartmented container-receiving chamber disposed under said dispensing table mechanism and within said base fixture for holding said compartmented container with its apertures aligned with said lower holes to cause said discs dispensed through said lower holes to drop into said compartments in said container, and auxiliary apertures in said dispensing table mechanism subatantially aligned with said lower holes to permit visual verification of dispensed discs and to facilitate clearing discs which may jam in said lower holes.

2. A disc dispenser as set forth in claim **1** wherein said dispensing table mechanism comprises a pair of upper and lower spaced parallel apertured plates, said array of upper holes being disposed in said upper apertured plate and said lower holes being disposed in said lower apertured plate, said dispensing table mechanism also comprising an apertured dispensing plate mounted inbetween said spaced parallel apertured plates for sliding movement from alignment with said upper holes to alignment with said lower holes.

3. A disc dispenser as set forth in claim **2** wherein said cartridge-supporting means comprises a top apertured plate disposed a short distance above said spaced parallel plates.

4. A disc dispenser as set forth in claim **3** wherein said auxiliary apertures are provided in said top apertured plate.

5. A disc dispenser as set forth in claim **1** wherein said dispensing table mechanism has a plurality of sockets for receiving individual disc dispensers, an individual disc dispenser being disposable in each of said sockets, each of said individual disc dispensers incorporating said upper and lower holes, a locking means on the dispensing table mechanism for engaging said individual disc dispensers in said sockets and securing them to said dispensing table mechanism said drive means being connected with said individual disc dispensers whereby said disc dispensers are simultaneously operated to dispense discs from each of the individual disc dispensers and discharge them into said compartmented container.

6. A disc dispenser as set forth in claim **5** wherein each of said disc dispensers incorporates a body extending laterally therefrom, and said sockets being constructed and arranged for disposing the bodies of disc dispensers installed in said sockets in alternate directions whereby space is provided therebetween for actuating said dispensers.

7. A disc dispenser as set forth in claim **5** wherein said dispensing table mechanism incorporates a top apertured receiving plate and a lower base plate for holding the bodies of said dispensers and supporting them.

8. A disc dispenser as set forth in claim **7** wherein a sliding locking plate having a plurality of locking surfaces is incorporated in said dispensing table mechanism for engaging said individual dispensers and holding them securely in position for dispensing discs.

9. A disc dispenser as set forth in claim **8** wherein each of said individual dispensers has a locking projection extending laterally from it, and said sliding locking plate comprises a locking frame plate member having a plurality of locking lugs disposed within it for engaging said locking projections on said individual dispensers.

10. A disc dispenser as set forth in claim **9** wherein said locking frame plate member has a plurality of L-shaped lugs extending inwardly within it.

11. A disc dispenser as set forth in claim **5** wherein each of said individual disc dispensers has an actuating pin, and said drive means comprises a sliding cam plate having a plurality of cam elements with one of said cam elements operatively engaging each of said actuating pins.

12. A disc dispenser as set forth in claim **10** wherein said sliding cam plate comprises a substantially rectangular cam frame plate, said cam elements comprise sloped surfaces extending inwardly within said cam frame plate.

13. A disc dispenser as set forth in claim **12** wherein a framed locking plate having a plurality of locking lugs extending inwardly thereform is disposed adjacent said cam frame plate, said framed locking plate having a plurality of L-shaped lugs extending inwardly within it.

14. A disc dispenser as set forth in claim **5** wherein said drive means comprises a plunger, end supports on said base fixture, a channel in one of said supports for receiving said plunger, and a connecting drive linkage connected between said dispensing table mechanism and said plunger for actuating said dispensing table mechanism.

15. A disc dispenser as set forth in claim **14** wherein said connecting drive linkage comprises a flexible cable.

16. A disc dispenser as set forth in claim **5** wherein said compartmented container-receiving chamber comprises a lower base plate spaced below said dispensing table mechanism a sufficient distance to receive said compartmented container therebetween, and aligning lugs on said base plate for holding said compartmented container in alignment with the holes in the dispensing table mechanism.

17. A ganged antibiotic disc dispenser for supplying antibiotic discs from cartridges to a compartmented container having an array of compartments each having an aperture for insertion of said antibiotic discs, said dispenser comprising a base, a pair of upper and

lower parallel spaced apertured plates mounted upon said base, said pair or parallel spaced apertured plates each having an array of holes offset a predetermined distance from each other, an apertured dispensing plate mounted inbetween said spaced plates for sliding movement from alignment with one of said array of holes to alignment with the other, drive means on said base for moving said dispensing plate from one said alignment to the other whereby discs received from said upper spaced plate are carried and dropped into said lower spaced plate, a compartmented container receiving chamber disposed between said base and said lower spaced plate for holding said compartmented container with its apertures aligned with the apertures in said lower spaced plate to cause said disc dispensed through said lower spaced plate to drop into said compartment in said container, cartridge supporting means disposed on said base above said spaced plates for holding said cartridges above the apertures in said upper spaced plate to successively dispense discs into it, and auxiliary apertures in the said upper spaced plate substantially aligned with said apertures in said lower spaced plate to facilitate clearing discs which may jam in said apertures of said lower spaced plate.

18. A ganged antibiotic disc dispenser as set forth in claim **17** wherein said cartridge supporting means comprises an upper apertured plate disposed a short distance above said spaced plates.

19. A ganged antibiotic disc dispenser as set forth in claim **18** wherein said base and said upper apertured plate are comprised of a pair of horizontal plates joined by a substantially vertical wall to comprise a channel, said pair of spaced plates and said drive means being connected to said substantially vertical wall, and an access opening being provided in said channel to provide access to said auxiliary apertures for inspection and clearing.

20. A ganged antibiotic disc dispenser as set forth in claim **19** wherein upper and lower slotted bars are provided in said receiving space for aligning said apertures in said compartmented container under said spaced parallel spaced plates.

21. A ganged antibiotic disc dispenser as set forth in claim **17** wherein said drive means comprises a splined shaft engaged with a pair of racks connected to the sides of said apertured dispensing plate.

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