Oct. 3, 1933. R. SUNDOCK 1,929,154

POWDER SPRAY AND INJECTOR

Filed July 29, 1931

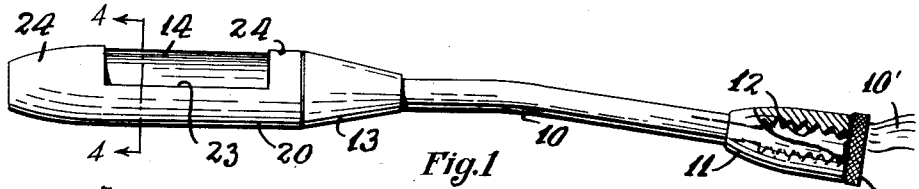


Fig.1

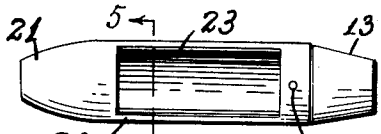


Fig.2

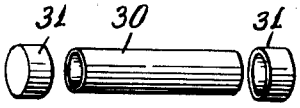


Fig.8

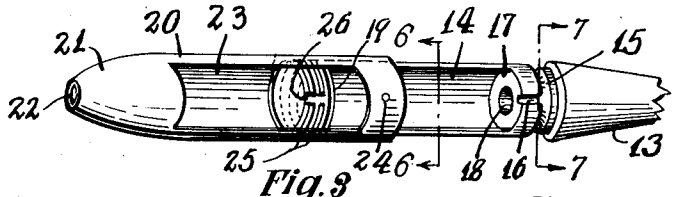


Fig.3

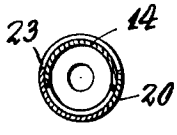


Fig.4

Fig.5

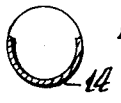


Fig.6

Fig. 7

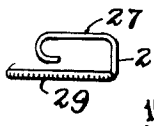


Fig.10

Fig 9

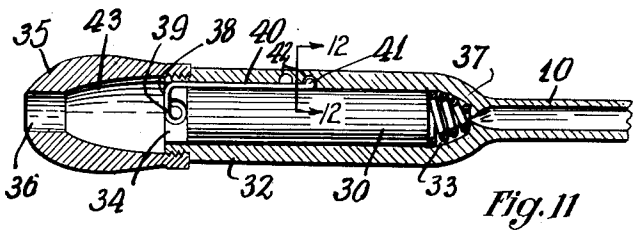
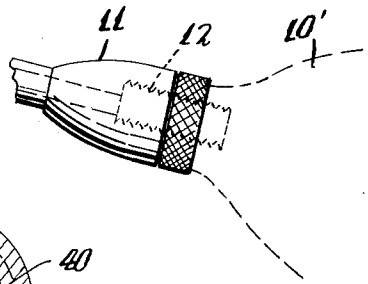


Fig.11



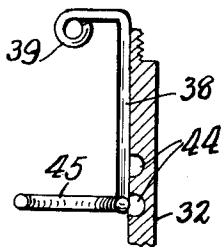


Fig.13

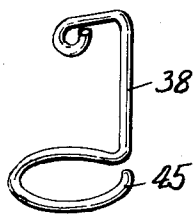


Fig. 14

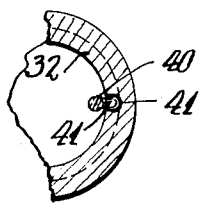


Fig.12

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POWDER SPRAY AND INJECTOR

Rose Sundock, Arrochar, Staten Island, N. Y.

Application July 29, 1931. Serial No. 553,763

8 Claims. (Cl. 128—266)

This invention relates to new and useful improvements in a powder spray and injector.

The invention has for an object the construction of a powder spray and injector intended particularly for spraying an antiseptic, deodorizing powder into the vagina. The spray and injector is to be particularly characterized by the ability of controlling the spraying stream.

It is a still further object of this invention to construct a spray and injector which has a hollow head adapted to receive a cartridge of powder coaxially within a passage for air in a manner so that when the air is passed along it will pass through the cartridge and cause spraying of the powder.

Furthermore, another one of the objects of this invention is the inclusion of a spring disposed over the discharge end of the powder cartridge for the purpose of breaking down the powder into spray form.

Another one of the objects of this invention is the construction and arrangement of mounting of the spring in its position for breaking down the powder, capable of adjustments into various positions.

Furthermore, as a still further object of this invention, it is proposed to construct a powder spray and injector which is of simple, durable construction, dependable in use and efficient in action, and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the object and advantages thereof, reference will be had to the following description and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:—

Fig. 1 is a side elevational view of a powder spray and injector constructed according to this invention.

Fig. 2 is a fragmentary view of a portion of Fig. 1 showing the head of the device in an open position wherein the cartridge may be inserted.

Fig. 3 is a perspective view of the portion of the device illustrated in Fig. 2 but showing the head open allowing for complete access to its interior.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 3.

Fig. 8 is a perspective view of a powder cartridge for use in the device.

Fig. 9 is a perspective view of the powder breaking spring for use in conjunction with the device.

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 9.

Fig. 11 is a longitudinal sectional view of a device constructed according to a modification of this invention.

Fig. 12 is a sectional view taken on the line 12—12 of Fig. 11.

Fig. 13 is a fragmentary view similar to a portion of Fig. 12 but showing a modified form for holding the powder breaking spring in place.

Fig. 14 is a perspective view of the spring used in Fig. 13.

The powder spray and injector, according to this invention, comprises a stem 10 having a socket end 11 for connection with an air bulb 10'. The details of the air bulb are not given since the bulbs are generally known. The socket 11 is formed with threads 12 into which the connection from the air bulb may be engaged. At the other end, the stem 10' terminates in a conical portion 13 which then connects with a semi-cylindrical portion 14. A peripheral groove 15 is formed on the tip of the conical portion 13 and connects with a longitudinal groove 16 upon a small cylindrical portion 17 interposed between the conical portion 13 and the semi-cylindrical portion 14. The air passage through the stem terminates in an opening 18 in the cylindrical portion 17.

At the free end, the semi-cylindrical portion 14 is completely cylindrical, indicated by reference numeral 19. This complete cylindrical portion is only of very small width. Slidably mounted upon the cylindrical portion 19, the semi-cylindrical portion 14 of the cylindrical portion 17 is a casing 20. This casing is of hollow construction and tapered off at the front 21 into a point. An opening 22 is formed in the front end. One side of the casing is formed with an opening 23 which is capable of aligning with the open side of the semi-cylindrical portion 14. At the base, the casing 20 is formed with an inward depression 24 and terminates extension of the case. In the event that the case 20 is completely extended the depression 24 will act against the bottom of the cylindrical portion 19 and prevent complete engagement. When the casing 20 is moved completely back upon its seat, the depression 24 is

capable of passing through the elongated slot 16 and then into the peripheral groove 15. Upon turning of the parts relative to each other, the casing will be latched in this condition.

The cylindrical portion 19 is formed with spaced peripheral grooves 25 connected with a longitudinal groove 26. A powder breaking spring 27 may be supported upon any of the peripheral grooves 25. This spring has a portion 28 engageable through the slot 26 in a ring portion 29 engageable in any of the grooves 25.

In Fig. 1 the casing member 20 is shown in its closed position. It may be moved to an open position by rotating it to a position in which the open side 23 aligns with the open side of the semi-cylindrical member 14. This condition is shown in Fig. 2. In this latter condition a cartridge of powder may be inserted therein. A detail of this cartridge is shown in Fig. 8 and comprises a cylindrical portion 30 and end caps 31. The end caps are removed when the cartridge is inserted in place within the device. After its insertion through the opening in the condition of the parts shown in Fig. 2, the casing member 20 may be turned so that the opening is closed and the cartridge is within. Squeezing of the bulb will then cause the air to pass through the cartridge and operate the powder from the aperture 22. The spring 27 causes breaking of the powder so that it comes out in a fine spray.

In Figs. 11 and 12 a modification of the invention has been disclosed in which the stem 10 connects with a barrel portion 32 having a conical end 33 and an open end 34. A head member 35 is threadedly engaged upon the free end of the hollow member 32. This head member has an opening 36 through which discharge takes place. A conical spring 37 is housed within the conical portion 33 and acts against the bottom edge of the cartridge 30 tending to eject the cartridge. The cartridge is held in place by a spring 38.

The spring 38 has a head portion 39 extended over the end of the cartridge 30 and the shank portion 40 engaged in a longitudinal slot within the cylindrical member 32. A projection 41 upon the stem portion 40 of the spring is capable of engaging one of a series of semi-cylindrical recesses 42 within the hollow member 32 so as to effect the location of the spring relative to the end of the hollow member 32 or the head 35. When the spring 38 assumes different positions, the spring 37 will urge the cartridge 30 to a point where it is arrested by the spring 38. Thus the distance between the end of the cartridges 30 and the inner conical sides 43 of the head 35 can be controlled.

In Figs. 13 and 14, another modification of the device has been disclosed in which the hollow member 32 is formed with internal peripheral grooves 44 and a spring 38' with a ring base portion 45 capable of engaging in one or another of the grooves 44. In other respects the construction is identical to the one just described.

While I have shown and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. In a powder spray and injector, a stem for connection with a bulb, a semi-cylindrical barrel upon said stem and having a base portion formed with a longitudinal groove and a peripheral groove, a complete cylindrical portion on the free end of said semi-cylindrical barrel, and a hollow case slidable upon said semi-hollow barrel and having a depression engageable in said longitudinal and peripheral grooves and formed with an open side.

2. A powder spray and injector, comprising a stem for attachment to a bulb, a barrel attached on said stem and having an open end, a head member threadedly engaged on the open end of said barrel and having a discharge opening, a powder breaking spring adjustably mounted upon said barrel and having an end extending inwards for engaging over the end of a cartridge disposed within the barrel, and a spring within the barrel urging the cartridge against said powder breaking spring arms.

3. A powder spray and injector, comprising a stem for attachment to a bulb, a barrel attached on said stem and having an open end, a head member threadedly engaged on the open end of said barrel and having a discharge opening, a powder breaking spring adjustably mounted upon said barrel and having an end extending inwards for engaging over the end of a cartridge disposed within the barrel, and a spring within the barrel urging the cartridge against said powder breaking spring arms, said powder breaking spring includes a longitudinal portion engageable in a longitudinal groove formed in the inner side of the said barrel.

4. A powder spray and injector, comprising a stem for attachment to a bulb, a barrel attached on said stem and having an open end, a head member threadedly engaged on the open end of said barrel and having a discharge opening, a powder breaking spring adjustably mounted upon said barrel and having an end extending inwards for engaging over the end of a cartridge disposed within the barrel, and a spring within the barrel urging the cartridge against said powder breaking spring arms, said powder breaking spring includes a longitudinal portion engageable in a longitudinal groove formed in the inner side of the said barrel, and a projection upon said longitudinal portion being engageable in one of a plurality of recesses within said barrel to control the position of said spring.

5. A powder spray and injector, comprising a stem for attachment to a bulb, a barrel attached on said stem and having an open end, a head member threadedly engaged on the open end of said barrel and having a discharge opening, a powder breaking spring adjustably mounted upon said barrel and having an end extending inwards for engaging over the end of a cartridge disposed within the barrel, and a spring within the barrel urging the cartridge against said powder breaking spring arms, said powder breaking spring including a circular portion engageable in one of a plurality of peripheral grooves formed in the inside of said barrel.

6. In a powder spray and injector, a stem for attachment to a bulb, a hollow barrel attached on said stem and having an open end and adapted for receiving a tubular cartridge of powder, and a powder breaking arm adjustably supported upon said hollow barrel and extended across the end opening.

7. In a powder spray and injector, a stem for attachment to a bulb, a hollow barrel attached on said stem and having an open end and adapted for receiving a tubular cartridge of powder, a

powder breaking arm, and means for adjustably supporting said powder breaking arm within the hollow barrel and extended across the end opening.

8. A powder spray and injector, comprising a stem for attachment to a bulb, a barrel for containing a cartridge and attached on said stem and having an open end, a head member threadedly engaged on the open end of the said barrel and having a discharge opening, and means for holding the cartridge within the barrel in various adjusted positions.

ROSE SUNDOCK.