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D. P. BOWES

2,105,281

POWDER DISPENSER

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Fig. 1.

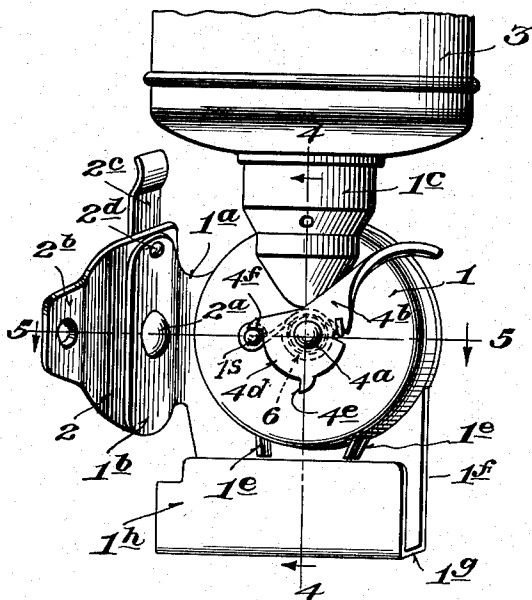


Fig. 2.

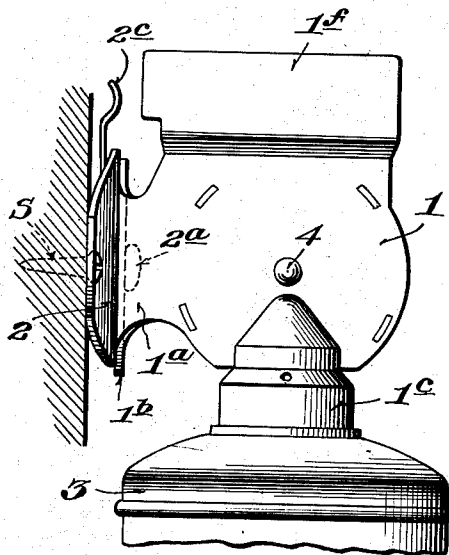


Fig. 3.

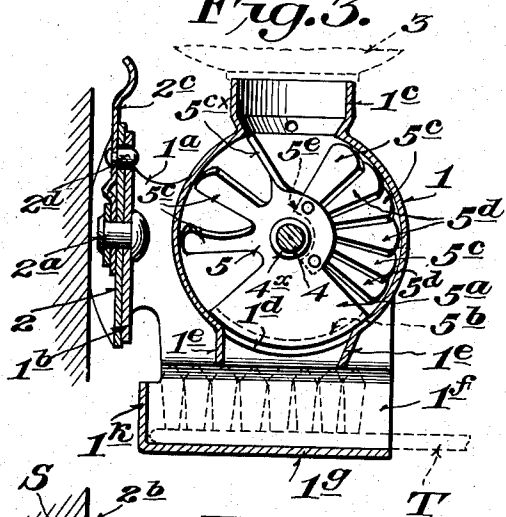


Fig. 4.

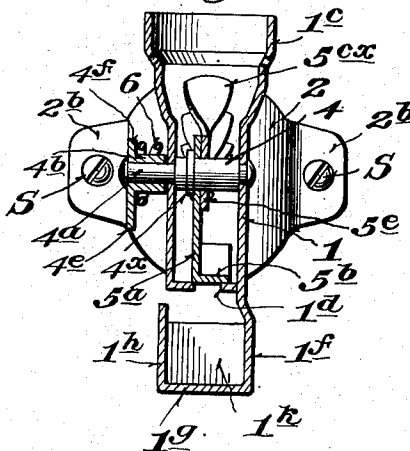
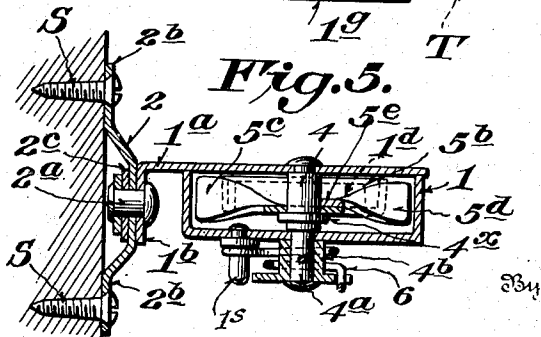


Fig. 5.



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## UNITED STATES PATENT OFFICE

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## POWDER DISPENSER

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14 Claims. (Cl. 221-66)

This invention is a novel improvement in powder dispensers or the like, and the principal object thereof is to provide a dispenser particularly adapted for dispensing tooth powder onto tooth brushes, the same having a hopper adapted to receive an inverted powder can which forms the powder reservoir; said dispenser having a fan-like member rotatably mounted therein for directing in the form of a spray a quantity of powder through a discharge slot in the dispenser, said member carrying a closure for the slot; and said dispenser also having a brush support disposed directly below the discharge slot for receiving the tooth brush. A further object is to provide a device which is simple in construction and operation and which obviates the customary waste of powder occasioned when applying powdered dentifrices to tooth brushes.

I will explain the invention with reference to the accompanying drawing which illustrates one practical embodiment thereof, to enable others familiar with the art to adopt and use the same; and will summarize in the claims the novel features of construction, and novel combinations of parts, for which protection is desired.

In said drawing:—

Fig. 1 is a perspective view of the powder dispenser in normal position showing an inverted powder can having its neck inserted in the dispenser hopper to form the powder reservoir.

Fig. 2 is a side elevation of the dispenser showing same attached to a support, and showing the dispenser casing rotated into inverted position so that the neck of the powder can may be engaged with the hopper before the powder can is up-ended.

Fig. 3 is a vertical section through the dispenser.

Fig. 4 is a transverse vertical section through the dispenser on the line 4—4, Fig. 1.

Fig. 5 is a horizontal section on the line 5—5, Fig. 1.

As shown, the device preferably comprises a cylindrical casing 1 disposed on a horizontal axis, and provided with a bracket 1a having a flange 1b pivoted on a rivet 2a or the like carried by a pad 2 having perforated ears 2b by which the pad may be secured by screws S or the like to a wall or other support. In the upper end of the casing 1 is an open circular or other shape hopper 1c of diameter to suit the neck of a commercial powder can 3 which, when up-ended with its neck inserted in the hopper 1c, forms a reservoir for the powder to be dispensed. The lower side walls of the hopper extension 1c

preferably merge into the end walls of the casing.

A spring lever 2c is provided on the pad, same having its lower end conveniently secured thereto by the same rivet 2a which connects flange 1b to the pad, the lever 2c being maintained in vertical position by a stud 2d engaging registering perforations in pad 2 and flange 1b, the stud 2d normally maintaining casing 1 in position shown in Fig. 1. When however lever 2c is pressed towards the wall or support, stud 2d will be retracted from the perforation in flange 1b and casing 1 may be rotated on the pad into inverted position shown in Fig. 2 for the purpose of entering the neck of powder can 3 into the hopper 1c without loss of powder from the can, after which the casing may be again rotated around into normal position shown in Fig. 1. By making the casing rotatable on the pad, spilling of powder from the can when inserting the neck in the hopper, is obviated.

An axially disposed shaft 4 is journaled in the casing, same extending as at 4a through one end thereof, and carrying on its outer end a lever 4b having an inner arcuate portion 4d concentric with shaft 4 and provided with limiting abutments 4e, 4f, adapted to engage a stud 1s mounted on the end of the casing for the purpose of limiting the oscillatory motion of shaft 4. Shaft 4 is maintained in normal position with stud 1s engaging abutment 4f by a coil spring 6 wrapped around the extended portion 4a of the shaft and having one end fixed to stud 1s and the other end fixed to lever 4b (as shown in Figs. 1 and 5).

In the bottom of casing 1 is a slot 1d of substantial length having guards 1e at its ends and one end wall of the casing is extended as at 1f and has its outer portion flanged as at 1g to underlie slot 1d, and has its outer extremity flanged upwardly at 1h to form a trough-like holder for receiving the end of the tooth brush T with its bristles disposed directly under the slot 1d as shown in Fig. 3. A strap 1k is preferably secured between the inner ends of the brush holder to properly position the brush in the holder and also to protect the wall or support.

Within the casing is a fan-like member 5 for the purpose of distributing, in the form of a spray, an amount of powder onto the tooth brush T when lever 4b is depressed. Preferably the member 5 has a perforated hub receiving the shaft 4 and secured in any desired manner against a shoulder 4x on shaft 4 so as to rotate therewith. A segmental portion 5a is carried by

member 5 in such position that when the lever 4b is in normal position the segment will embrace the length of slot 1d. The periphery of segmental portion 5a is flanged as at 5b forming an arcuate cover for slot 1d to normally prevent powder from dropping through the slot until shaft 4 is oscillated.

Between the ends of the segmental portion are fan-like blades (nine being shown) which are generally inclined with respect to the axis of the shaft. Six blades 5c are formed integrally with the member, and three blades 5d are formed separately on a hub 5e and secured to the member by rivets or the like at the leading side of the member, the three blades 5d alternating with adjacent blades 5c. The fans 5c-5d extend substantially the full length of the casing between the end walls thereof, and the provision of the three additional blades 5d at the leading side of the member bunches the blades at that side together, and results in a less amount of powder being dispensed through the slot but in a finer spray than would be the case if the three blades 5d were omitted. Where however a greater amount of powder is to be dispensed the blades 5d may be omitted.

One fan blade 5c<sub>x</sub>, at the upper end of the member, is normally disposed substantially in alignment with the side of hopper 1c nearest the pad 2, and this blade 5c<sub>x</sub> is preferably disposed parallel with the shaft 4 so that when the lever 4b is depressed, said blade will shift the powder below the hopper bodily towards the outer or delivery side of the casing and into position to be carried along by gravity and by the blades 5c-5d towards the discharge slot 1d, thus assuring that a generally measured quantity of powder will be delivered through the slot 1d upon each depression of the lever 4b, the segmental portion 5a uncovering the slot while the lever is depressed, and again covering the slot when the lever is released.

I claim:—

1. A powder dispenser comprising a casing having in its upper end a powder hopper and having a discharge slot in its lower end; a rotatable dispensing element closely fitting within the walls of the casing between the hopper and slot, said element having powder propelling blades thereon, the plane of the blades being disposed at an acute angle to the axis of rotation of the element, and said element having a portion adapted in one position to form a closure for said slot; means for normally yieldably retaining the element in position to close the slot; and means for oscillating the element to uncover the slot.

2. In a dispenser as set forth in claim 1, said element comprising a disk having a flanged segmental portion forming the closure, and said blades being peripherally disposed.

3. In a dispenser as set forth in claim 1, said element comprising a disk having a flanged segmental portion forming the closure, and said blades being peripherally disposed, the blades between the hopper and slot at the leading side of the disk being disposed in spaced overlapping relation whereby a minimum amount of powder is dispensed.

4. In a dispenser as set forth in claim 1, said element comprising a disk having a flanged segmental portion forming the closure, and said blades being peripherally disposed, the blades between the hopper and slot at the leading side of

the disk being disposed in spaced overlapping relation whereby a minimum amount of powder is dispensed, the alternate blades being formed separately from the disk, and secured thereto.

5. In a dispenser as set forth in claim 1, said element comprising a disk having a flanged segmental portion forming the closure, and said blades being peripherally disposed, the blades between the hopper and slot at the leading side of the disk being disposed in spaced overlapping relation whereby a minimum amount of powder is dispensed, the alternate blades being formed as a unit separate from the disk, and secured thereto.

6. In a dispenser as set forth in claim 1, said element comprising a disk having a flanged segmental portion forming the closure, and said blades being peripherally disposed, the blades between the hopper and slot at the leading side of the disk being disposed in spaced overlapping relation, and the blades at the trailing side of the disk forming powder agitators.

7. In a dispenser as set forth in claim 1 said casing being cylindrical, with its axis horizontally disposed; and the hopper being of smaller diameter than the casing and adapted to receive the neck of an inverted powder can.

8. A powder dispenser comprising a casing having in its upper end a powder hopper, and having a discharge slot in its lower end; a dispensing element in said casing between the hopper and slot comprising a disk having a segmental portion forming a normal closure for the slot, and having peripheral blades disposed at an acute angle to the plane of the disk and forming powder propelling means; and means for oscillating the member to uncover the slot.

9. In a powder dispenser as set forth in claim 8, the blades between the hopper and disk at the leading side of the disk being disposed in spaced overlapping relation to maintain the discharge of powder to a minimum.

10. In a powder dispenser as set forth in claim 8, the blades between the hopper and disk at the leading side of the disk being disposed in spaced overlapping relation to maintain the discharge of powder to a minimum; the alternate blades being formed separately from the disk and secured thereto.

11. In a powder dispenser as set forth in claim 8, the blades between the hopper and disk at the leading side of the disk being disposed in spaced overlapping relation to maintain the discharge of powder to a minimum, the alternate blades being formed as a unit separate from the disk, and secured thereto.

12. In a powder dispenser as set forth in claim 8, the blades between the hopper and disk at the leading side of the disk being disposed in spaced overlapping relation to maintain the discharge of powder to a minimum, and the blades at the trailing side of the disk forming powder agitating blades.

13. In a dispenser as set forth in claim 8, said casing being cylindrical, with its axis horizontally disposed; and the hopper being of smaller diameter than the casing and adapted to receive the neck of an inverted powder can.

14. In a powder dispenser as set forth in claim 8, said casing being cylindrical, and said dispensing element closely fitting the walls of the casing.

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