April 17, 1962 R. S. WAGENHALS 3,029,983

DISPENSER FOR SIMULTANEOUSLY DISCHARGING MATERIAL FROM A PLURALITY OF COLLAPSIBLE TUBES

Filed April 8, 1960 2 Sheets-Sheet 1

Fig. 1

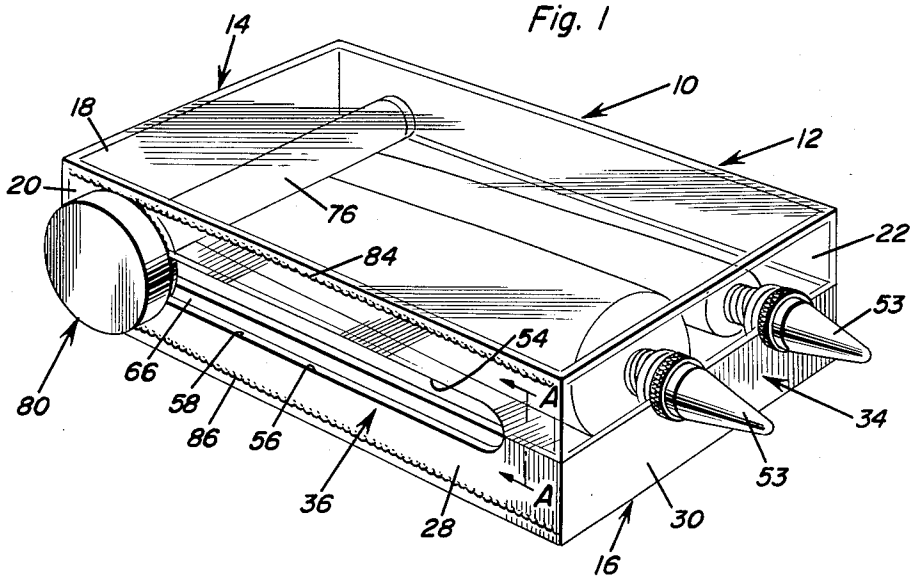
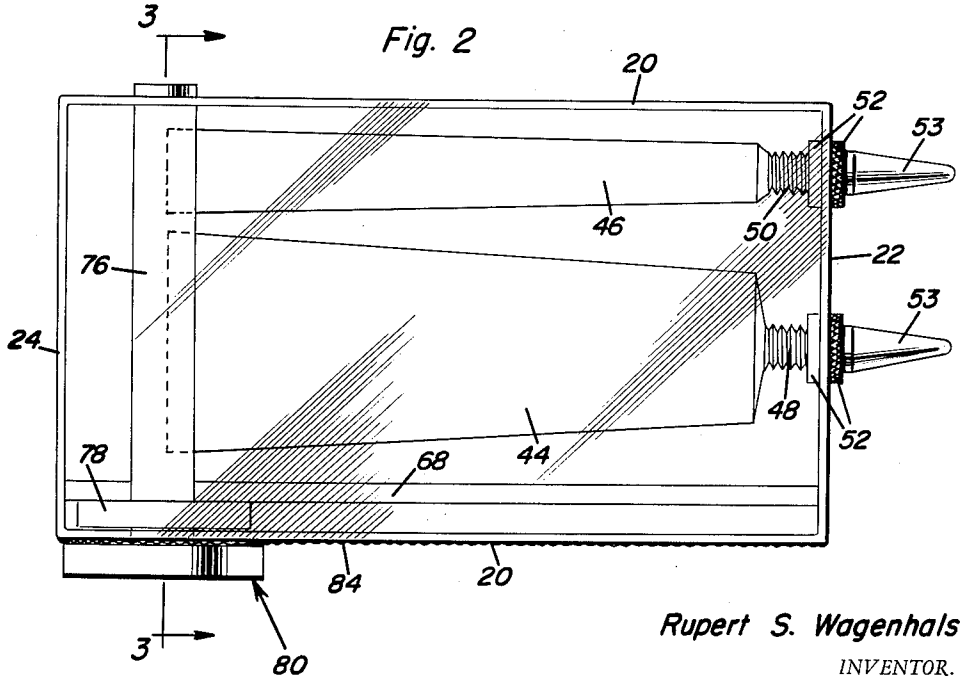


Fig. 2



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Fig. 3

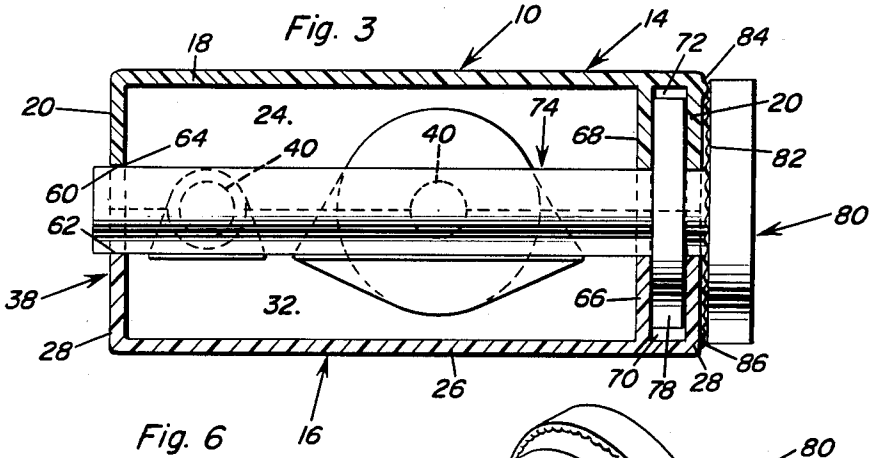


Fig. 6

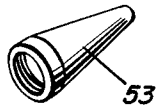


Fig. 5



Fig. 4

Fig. 7

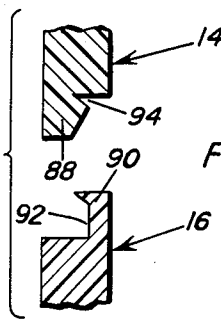


Fig. 8

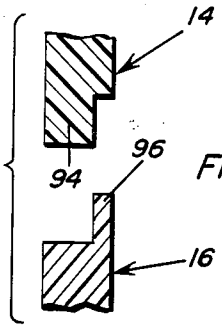
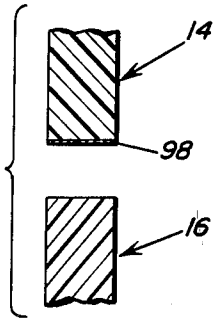


Fig. 9



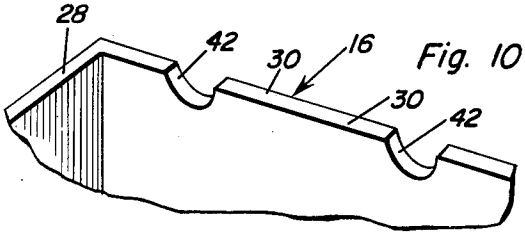


Fig. 10

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DISPENSER FOR SIMULTANEOUSLY DISCHARGING MATERIAL FROM A PLURALITY OF COLLAPSIBLE TUBES

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8 Claims. (Cl. 222—94)

This invention relates to a dispenser, and more particularly to a dispenser which is adapted for dispensing material from two or more collapsible tubes simultaneously. Further, the dispenser is adapted to simultaneously dispense materials from collapsible tubes in proportional amounts.

Some of the more recently developed glues or bonding materials are composed of a catalyst and a vehicle which when mixed together in proper proportions set up into a hard, elastic and very strong glue. Inasmuch as the proportions of the catalyst and vehicle of these newer types of glues are critical relative to the manner in which the glue sets, it is extremely important to achieve the proper proportion of catalyst to the vehicle.

A dispenser comprising the instant invention is specifically adapted to contain a plurality of collapsible tubes which have cross sectional areas corresponding to the desired proportion of the ultimate mixture and the dispenser is adapted to squeeze an equal amount of each of the tubes contained therein whereby the correct proportional amounts of the materials will be dispensed from each tube so that they can be then mixed in the correct proportion.

In the past, it has been extremely difficult for a person using the above mentioned newer types of glues to maintain the proper proportions of the different catalysts and vehicles without the use of an accurate device for otherwise measuring the volume of the two or more materials which are to be mixed.

Most of these newer types of glues must be mixed through the correct proportion within 10 percent in order to obtain a mixture which will set and bond properly.

The main object of this invention is to provide a dispenser which will dispense proportional amounts of material from a plurality of collapsible tubes.

Yet another object of this invention, in accordance with the immediately preceding object, is to provide a means whereby a wind-up means may be utilized to simultaneously dispense proportional amounts of a plurality of materials.

A final object to be specifically enumerated herein is to provide a dispenser which will conform to conventional forms of manufacture, be of simple construction and easy to operate so as to provide a device that will be economically feasible, long lasting and relatively foolproof in its operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the dispenser shown with two collapsible tubes of different sizes disposed therein;

FIGURE 2 is a top plan view on somewhat of an enlarged scale of the dispenser shown in FIGURE 1;

FIGURE 3 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged perspective view of the wind-up means of the dispenser;

FIGURE 5 is a perspective view of one of the retaining washers which are used in pairs to retain each of the collapsible tubes in adjusted positions longitudinally of the dispenser;

FIGURE 6 is a perspective view of one of the caps which is adapted for securement to the threaded neck of a collapsible tube to comprise a closure therefor;

FIGURES 7 through 9 are fragmentary enlarged vertical sectional views taken substantially upon the plane indicated by the section line A—A of FIGURE 1 and showing three different manners in which the upper and lower halves of the dispenser may be secured together; and

FIGURE 10 is an enlarged fragmentary perspective view of one end of the bottom half of the dispenser.

Referring now more specifically to the drawings, the numeral 10 generally designates the dispenser which includes a housing generally referred to by the reference numeral 12. The housing 12 includes a top half generally referred to by the reference numeral 14 and a bottom half generally referred to by the reference numeral 16. The top half 14 is provided with a top wall 18, two side walls 20, and a pair of end walls 22 and 24. The bottom half 16 includes a bottom wall 26, side walls 28 and a pair of end walls 30 and 32. The end walls 22 and 30 form one end wall generally designated by the reference numeral 34 of the housing 12 and one corresponding pair of side walls 20 and 28 form one side wall of the housing 12 generally designated by the reference numeral 36 and the other pair of side walls 20 and 28 form the opposite side wall of the housing 12 which is generally designated by the reference numeral 38.

The end wall 34 of the housing 12 is provided with a plurality of openings 40 each of which are formed by complementary and opposing semi-circular notches 42 formed in the walls 22 and 30, see FIGURES 3 and 10.

The tubes 44 and 46 are disposed in the housing 12 extending longitudinally thereof and have their threaded neck portions 48 and 50 received through the openings 40. A pair of threaded lock washers 52 are threadedly engaged with each neck portion 48 and 50 and are disposed on opposite sides of the wall 34 whereby the tubes 44 and 46 will be fixedly secured in adjusted positions longitudinally of the housing 12. A cap 53 is provided for each of the threaded neck portions 48 and 50 of the tubes 44 and 46. The caps 53 are of course to be removed when it is desired to dispense material from the tubes 44 and 46 and then replaced until the dispenser 10 is again used.

A pair of confronting notches 54 and 56 are formed in the confronting edges of one pair of side walls 20 and 28 to form a longitudinally extending opening 58 whose purpose is to be hereinafter more fully set forth. A similar pair of notches 60 and 62 are formed in the opposite side walls 20 and 28 to form a longitudinally extending slot 64. The slot 64 is formed in the side wall 38 and the opening 58 is formed in the side wall 36. A pair of vertically disposed and aligned partition walls 66 and 68 are formed in the bottom 16 and top 14 of the housing 12 respectively. The partition walls 66 and 68 are spaced slightly from the side walls 20 and 28 comprising a side wall 36 and a pair of longitudinally extending, vertically disposed and spaced and opposing channels 70 and 72 are formed between the confronting surfaces of the partition walls 66 and 68 and the side walls 20 and 28 of the side wall 36.

A wind-up mechanism generally referred to by the reference numeral 74 includes a shaft 76 whose opposite ends are slidably disposed in the slot 64 and the opening 58. A radially extending disk 78 is formed on the shaft 76 and the disk 78 is disposed within the confronting channels 70 and 72. It will be noted that the confronting walls of the channels 70 and 72 snugly embrace the opposite sides of the disks 78 to maintain the shaft 76

disposed transversely of the housing 12. The opposite end of the shaft 76 project beyond the side walls 36 and 38 and a turning knob generally referred to by the reference numeral 80 is carried by the end of the shaft 76 projecting through the side wall 36. The turning knob 80 is provided with a plurality of circumferentially spaced projections 82 on its inner face which engage the projections 84 and 86 formed on the side walls 20 and 28 of the side wall 36. It is to be noted that the dispenser 10 is to be constructed of a material which is at least slightly resilent so that the projections 82 will frictionally engage the projections 84 and 86 to retain the adjusting knob 80 in adjusted rotated positions and also retain the shaft 76 positioned longitudinally of the housing 12.

Although any means may be provided for securing the ends of the tubes 44 and 46 remote from their neck portions 48 and 50 to the shaft 76, for simplicity of design the tubes 44 and 46 are constructed of a plastic material or the like as is the shaft 76 whereby the ends of the tubes 44 and 46 may be bonded or secured to the shaft 76 by heat. Other methods such as slots for receiving those ends of the tubes 44 and 46 may be provided in the shaft 76 if it is desired.

With particular attention now directed to FIGURES 7 through 9, it will be noted that the confronting surfaces of the vertically disposed walls of the upper half 14 and the lower half 16 may be provided with complementary and interlocking projections 88 and 90 and recesses 92 and 94 respectively. In this manner, the upper half 14 and the lower half 16 may be secured together without the use of fasteners.

On the other hand, if it is desired to glue or otherwise bond the upper half 14 to the lower half 16, the confronting edges thereof may be provided with overlapping portions 94 and 96. A suitable bonding material may then be applied between the confronting surfaces of the overlapping sections 94 and 96 of the upper half 14 and the lower half 16 of the housing 12.

On the other hand, if it is desired, the upper half 14 may be welded to the lower half 16, if the housing 12 is constructed of a material for which there is a solvent, by applying a solvent 98 between the confronting surfaces of the upper half 14 and the lower half 16.

In operation, the tube 46 containing the vehicle and the tube 44 containing the catalyst are secured within the housing 14 and properly positioned by means of washers 52 after the ends of the tubes 44 and 46 remote from the necks 48 and 50 have been properly secured to the shaft 76 in any convenient manner such as that hereinbefore set forth. If it is then desired to dispense correct proportional amounts of the catalyst and vehicle from the tubes 44 and 46, the turning knob 80 is rotated to turn the shaft 76 which will wind-up on the tubes 44 and 46 thus moving the shaft 76 longitudinally of the housing 12 toward the end wall 34 thereof. As the shaft 76 winds the tubes 44 and 46, proportionate amounts of the vehicle and catalysts will be dispensed from the tubes 46 and 44 relative to their cross-sectional areas. It is of course to be understood that the vehicle and catalysts will be placed in tubes on the correct proportional cross-sectional area so that an equal amount of winding up of each of the tubes 44 and 46 will dispense the proper proportions of the catalyst and vehicle from the tubes 44 and 46.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be reached to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A dispenser for simultaneously dispensing proportional amounts of material from a plurality of different size collapsible tubes comprising a hollow housing adapted to receive therein a plurality of collapsible tubes extending longitudinally thereof and in side-by-side relation, a plurality of openings formed in one end wall of said housing each adapted to receive the threaded neck of a collapsible tube therethrough, windup means journaled for rotation about an axis extending transversely of said housing, and guide means carried by said housing and extending longitudinally thereof slidably mounting said windup means for movement longitudinally of said housing, retaining means adapted to engage collapsible tubes in said housing and retain the tubes in adjusted positions longitudinally of said housing, said windup means being adapted for securement to the ends of collapsible tubes remote from the neck ends whereby rotation of said windup means will simultaneously squeeze material from said plurality of tubes proportionate to their cross-sectional area, said wind-up means including a shaft, said shaft having a radially extending disk thereon, a pair of longitudinally extending, vertically disposed and spaced and opposing channels formed in said housing, said shaft extending between said channels and said disk having opposite side marginal edge portions snugly and slidably received in said channels.

2. A dispenser for simultaneously dispensing proportional amounts of material from a plurality of different size collapsible tubes comprising a hollow housing adapted to receive therein a plurality of collapsible tubes extending longitudinally thereof and in side-by-side relation, a plurality of openings formed in one end wall of said housing each adapted to receive the threaded neck of a collapsible tube therethrough, a windup means journaled for rotation about an axis extending transversely of said housing, and guide means carried by said housing and extending longitudinally thereof slidably mounting said windup means for movement longitudinally of said housing, retaining means adapted to engage collapsible tubes in said housing and retain the tubes in adjusted positions longitudinally of said housing, said windup means being adapted for securement to the ends of collapsible tubes remote from the neck ends whereby rotation of said windup means will simultaneously squeeze material from said plurality of tubes proportionate to their cross-sectional area, said housing being constructed of an upper and a lower half, one pair of corresponding walls of said channels comprising portions of upper and lower walls of one side of said box, the adjacent end of said shaft projecting outwardly beyond said one side of said box, a turning knob secured to said adjacent end, circumferentially spaced and inwardly directed projections formed on said knob, and a plurality of longitudinally extending spaced and outwardly directed projections formed on the outer surface of said one side of said box above and below said shaft, the uppermost and lowermost knob projections engaging with said side projections whereby said shaft may be retained in adjusted rotated positions and adjusted positions longitudinally of said one side.

3. The combination of claim 2 including a longitudinally extending slot formed in the opposite side of said housing remote from said one side, the adjacent end of said shaft projecting through said slot.

4. The combination of claim 1 wherein said housing is constructed of an upper and a lower half, one pair of corresponding walls of said channels comprising portions of upper and lower walls of one side of said box, the adjacent end of said shaft projecting outwardly beyond said one side of said box, a turning knob secured to said adjacent end, circumferentially spaced and inwardly directed projections formed on said knob, and a plurality of longitudinally extending spaced and outwardly directed projections formed on the outer surface of said one side of said box above and below said shaft, the uppermost and lowermost knob projections engaging with said side projections whereby said shaft may be retained in adjusted rotated positions and adjusted positions longitudi-

nally of said one side, said housing being constructed of resilient material, the confronting surfaces of said upper and lower halves being provided with complementary interlocking projections and recesses.

5. The combination of claim 3 wherein said housing is constructed of an upper and a lower half, one pair of corresponding walls of said channels comprising portions of upper and lower walls of one side of said housing, the adjacent end of said shaft projecting outwardly beyond said one side of said housing, a turning knob secured to said adjacent end, circumferentially spaced and inwardly directed projections formed on said knob, and a plurality of longitudinally extending spaced and outwardly directed projections formed on the outer surface of said one side of said housing above and below said shaft, the uppermost and lowermost knob projections engaging with said side projections whereby said shaft may be retained in adjusted rotated positions and adjusted positions longitudinally of said one side, wherein portions of the confronting surfaces of said upper and lower halves overlap each other.

6. The combination of claim 1 wherein said housing is constructed on an upper and a lower half, one pair of corresponding walls of said channels comprising portions of upper and lower walls of one side of said housing, the adjacent end of said shaft projecting outwardly beyond said one side of said housing, a turning knob secured to said adjacent end, circumferentially spaced and inwardly directed projections formed on said knob, and a plurality of longitudinally extending spaced and outwardly directed projections formed on the outer surface of said one side of said housing above and below said shaft, the uppermost and lowermost knob projections engaging with said side projections whereby said shaft may be retained in adjusted rotated positions and adjusted positions longitudinally of said one side, wherein said housing is constructed of a material for which there is a solvent, the confronting surfaces of said upper and lower halves being welded together by means of the placement of solvent between said confronting surfaces.

7. The combination of claim 1 wherein said retaining means comprises a pair of lock washers adapted to be placed on opposite sides of said end wall and threadedly

engaged with the neck of a tube extending through one of said openings.

8. A dispenser for dispensing material from a collapsible tube comprising a hollow housing adapted to receive a collapsible tube therein extending longitudinally thereof, an opening formed in one end wall of said housing adapted to receive the threaded neck of said tube therethrough, windup means journaled for rotation about an axis extending transversely of said housing, and guide means carried by said housing and extending longitudinally thereof slidably mounting said windup means for movement longitudinally of said housing, retaining means adapted to engage said tube and retain the latter in adjusted positions longitudinally of said housing, said windup means being adapted for securement to the end of said tube remote from the neck thereof whereby rotation of said windup means will simultaneously squeeze material from said tube, and means on said windup means engaging said housing simultaneously and resiliently retaining said windup means in adjusted rotated positions and adjusted positions longitudinally of said housing, said housing being constructed of an upper and a lower half, one pair of corresponding walls of said channels comprising portions of upper and lower walls of one side of said box, the adjacent end of said shaft projecting outwardly beyond said one side of said box, a turning knob secured to said adjacent end, circumferentially spaced and inwardly directed projections formed on said knob, and a plurality of longitudinally extending spaced and outwardly directed projections formed on the outer surface of said one side of said box above and below said shaft, the uppermost and lowermost knob projections engaging with said side projections whereby said shaft may be retained in adjusted rotated positions and adjusted positions longitudinally of said one side.

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