Oct. 19, 1937. P. F. SWART 2,096,144

DISPENSING DEVICE

Original Filed Sept. 29, 1934

Fig. 1.

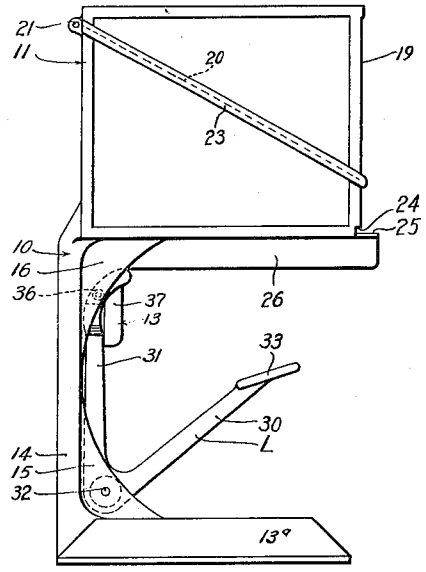


Fig. 2.

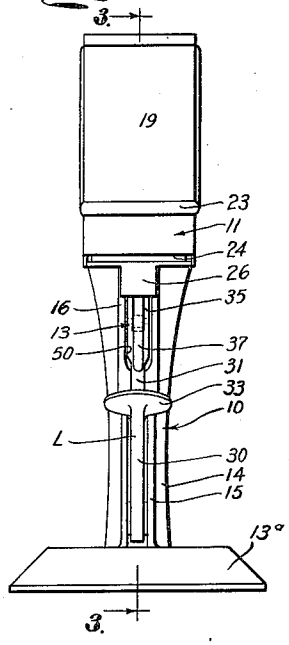


Fig. 3.

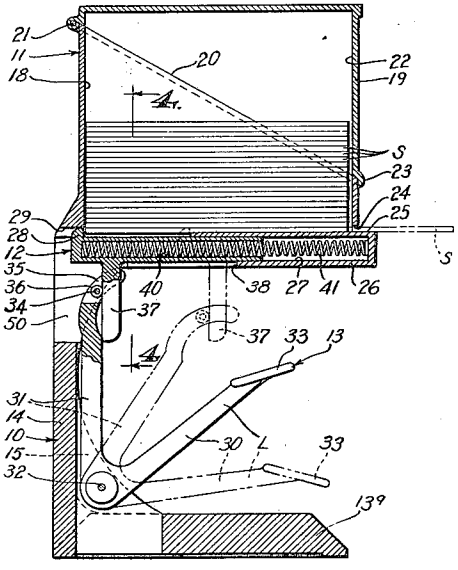
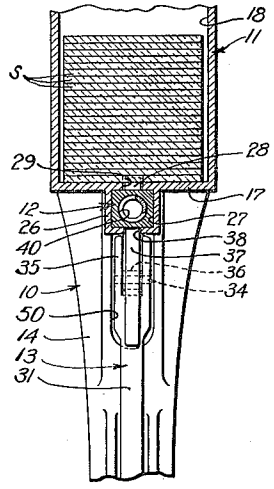


Fig. 4.



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Patented Oct. 19, 1937 2,096,144

UNITED STATES PATENT OFFICE

2,096,144

DISPENSING DEVICE

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Refiled for abandoned application Serial No. 746,106, September 29, 1934. This application July 22, 1935, Serial No. 32,497

2 Claims. (Cl. 312—55)

This invention relates to a dispensing device and relates more particularly to a device for dispensing microscopic slides, dental film packages, etc. A general object of the present invention is to provide a simple, practical and effective device for protectively holding and dispensing microscopic slides, dental film packages and like articles.

It is highly important to maintain the glass slides employed in microscopes clean and free of dust and finger prints. It is also desirable to have the microscopic slides conveniently accessible for immediate use. Other articles, such as dental film packages, must be protected in a like manner and must be easy of immediate access.

Another object of this invention is to provide a device that is adapted to hold and fully protect microscopic slides and the like against dust and other foreign matter, and that is readily and conveniently operable to dispense the individual slides or articles one at a time.

Another object of the invention is to provide a dispensing device of the character mentioned that dispenses the slides or articles in a manner so that the individual slides or articles may be grasped or removed without touching their faces or surfaces with the fingers.

Another object of the invention is to provide a dispensing device of the character mentioned that is small and compact so that it may be arranged in a convenient accessible position and moved from place to place as desired.

Another object of the invention is to provide a dispensing device of the character mentioned in which a multiplicity of microscopic slides or like articles may be arranged in a substantially dust proof and moisture proof holder and may be individually partially ejected from the holder for easy and convenient removal therefrom by merely depressing a lever arm.

A further object of the invention is to provide a dispensing device of the character mentioned that embodies a minimum number of simple, inexpensive parts and that is pleasing and attractive in appearance.

The various objects and features of my invention will be fully understood from the following detailed description of a typical preferred form and application of the invention, throughout which description reference is made to the accompanying drawing, in which:

Fig. 1 is a side elevation of the dispensing device of the present invention illustrating the lever in its normal position. Fig. 2 is a front elevation of the device. Fig. 3 is a vertical detailed sectional view taken substantially as indicated by line 3—3 on Fig. 2, illustrating the actuated positions of the lever and ejector in broken lines, and Fig. 4 is an enlarged fragmentary vertical detailed sectional view taken substantially as indicated by line 4—4 on Fig. 3.

This application is filed as a substitute for my application for Letters Patent, Serial No. 746,106, entitled "Holder or container and dispenser of microscopic glass slides".

The dispensing device provided by this invention includes, generally, a body 10 having a holder 11 for a plurality of glass slides S, or like objects, an ejector 12 operable to partially eject or project the slides from the holder 11, and means 13 for operating the ejector.

The body 10 of the dispenser may be formed of stamped or pressed metal or may be in the nature of a die casting, it being a feature of the invention that the body 10 is a simple, integral member. The body 10 in being formed of metal or its equivalent, as just described, is capable of being cleansed or sterilized without being injured. The body 10 includes a base 13a adapted to rest on a horizontal support. The base 13a may be rectangular in plan elevation and is preferably comparatively large to prevent tipping or movement of the device when in use. A post or standard 14 projects upwardly from the base 13a adjacent its rear side or edge. Spaced corner reinforcements 15 may be provided to strengthen the integral connection between the base 13a and standard 14.

The holder 11 is supported on the standard 14 and projects upwardly and forwardly from the upper end of the standard. The configuration and size of the holder 11, of course, depends upon the configuration and size of the objects to be handled by the device. The particular holder 11 illustrated in the drawing is designed to hold a stack of typical glass microscopic slides, it being understood that the invention is not to be construed as limited to this construction or this particular use. The holder 11 is integrally joined with the upper end of the standard 14 and the connection may be reinforced by spaced integral corner braces 16. The holder 11 is vertically disposed and is substantially rectangular in transverse cross section, having vertical sides and a substantially horizontal bottom wall 17. The opening 18 in the holder 11 is rectangular and is proportioned to hold a multiplicity of superimposed slides S with suitable slight clearance.

The invention provides a novel protective cover 19 for the holder 11 that facilitates the easy

arrangement of the slides S in the holder. The upper end or edge 20 of the holder 11 is inclined downwardly and forwardly. The lower end of the cover 19 is inclined downwardly and forwardly and is adapted to rest on or cooperate with the upper end 20 of the holder. The cover 19 may have flat vertical sides and a top wall that is horizontal when the cover is closed. A hinge 21 connects the upper rear corner portion of the cover 19 with the upper end of the holder 11 so that the cover may be readily swung between the closed position illustrated in the drawing and an open position where the interior of the holder is readily accessible. The cover 19 has an opening 22 which registers with the holder opening 18 when the cover is in its closed position to form a continuation of the holder opening 18. The cover 19 provided with the opening 22 constitutes a part or continuation of the holder 11 as it may confine and enclose the uppermost slides S. A rim 23 extends along the lower edge of the cover 19 to overlap and closely embrace the upper edge portion of the holder 11 to prevent the entrance of dust, etc. to the interior of the holder. A slot or opening 24 is provided in the front wall of the holder 11 at its lower end. The articles or slides housed in the holder 11 are adapted to be ejected through the opening 24 and a shelf or ledge 25 may project forwardly immediately below the opening 24 to aid in supporting the partially projected slides, as will become evident from the following description of the device. The holder 11 just described is spaced a substantial distance above the base 13a leaving an opening or space to make the means 13 easily accessible for operation and to facilitate the easy engaging or grasping of the ejected slides S.

The ejector 12 is operable to move or shift the lowermost slide S forwardly to project it through the opening 24 to have a portion accessible for engagement by the user. A ridge or flange 26 extends along the under side of the bottom wall 17 of the holder 11 and has a longitudinal channel or opening 27 for carrying the ejector 12. The flange 26 and its opening 27 may be rectangular or square in transverse cross section, as clearly illustrated in Fig. 4 of the drawing. The ejector 12 is shaped and proportioned to move or slide in the opening 27 and may be square or rectangular to properly operate therein. An opening 50 is provided in the standard 14 to receive the ejector 12, to facilitate the assembling of the device. A finger or lug 28 projects upwardly from the rear end portion of the ejector 12 and extends through an opening or slot 29 in the wall 17. The lug 28 preferably has a flat vertical forward side and a curved top and rear side. The slot 29 extends rearwardly beyond the rear wall of the holder opening 18 and the lug 28 is normally located in this extension of the slot so that it does not interfere with the horizontal stacking of the slides S in the holder. When the ejector 12 is moved forwardly from the position shown in Fig. 3 of the drawing its lug 28 engages the rear edge of the lowermost slide S and causes the slide to be moved forwardly together with the ejector. The forward movement of the ejector 12 and the lowermost slide S may be limited by the cooperation of the lug 28 with the forward end wall of the slot 29.

The means 13 for operating the ejector 12 comprises a lever L in the nature of a bell crank having two angularly related arms 30 and 31. The arms 30 and 31 are disposed at an angle of less than 90° to one another. The intermediate portion of the lever L where the arms 30 and 31 join is pivoted on a pin 32 extending transversely between the corner reinforcements 15 of the body 10. When the lever L is in its normal or unactuated position its arm 30 projects upwardly and forwardly and its arm 31 projects upwardly at the forward side of the standard 14. The arm 30 is provided at its outer or forward end with an enlargement or button 33 readily engageable by the finger or thumb of the user to depress the arm. The upper end of the arm 31 is forked or yoked and is curved forwardly and upwardly. A pin 34 extends between the branches 35 of the forked portion of the lever arm 31. An antifriction roller or rotatable bearing 36 is provided on the pin 34.

A finger 37 projects downwardly from the under side of the ejector 12 and is adapted to operate or move through a slot 38 in the lower wall of the flange 26. The finger 37 extends downwardly between the branches 35 of the lever arm 31. The bearing 36 engages or cooperates with the rear side of the finger 37 and when the lever arm 30 is depressed the arm 31 moves forwardly so that the bearing 36 cooperating with the rear side of the finger 37 moves the ejector 12 forwardly. The rear side of the finger 37 is preferably finished or smooth and may be substantially vertical to provide for the free rolling movement of the bearing 36 on the finger.

The invention provides means for automatically returning the ejector 12 and the lever L to their normal positions after use or actuation. A longitudinal opening 40 enters the ejector 12 from its forward end. A spiralled spring 41 is arranged in the openings 27 and 40 and is under compression between the forward end of the opening 27 and the rear end of the opening 40. The spring 41 normally exerts a yielding rearward pressure on the ejector 12 to hold it in its rear position where its lug 28 is out of or clear of the holder opening 18. The spring 41 also normally holds the lever L in its normal unactuated position.

It is believed that the utility and practicability of the device provided by this invention will be readily understood from the foregoing detailed description. It will be understood how a multiplicity of slides S or similar articles may be easily positioned or stacked in the holder 11 when the cover 19 is in its open position. When the cover 19 is closed the articles or slides S in the holder are effectively protected against dust, etc. When it is desired to remove a slide S from the device the user merely depresses the lever arm 30 by pressing on the botton 33. Depression of the lever 30 against the action of the spring 41 causes forward movement of the lever arm 31 and the engagement of the bearing 36 with the finger 37 results in forward movement of the ejector 12. When the ejector 12 is moved forwardly its lug 28 engages the rear edge of the lowermost slide S and causes the slide to be moved forwardly so that its forward portion is ejected through the opening 24. The lug 28 may engage the forward end of the slot 29 to limit the extent of ejection of the slide. Thus the lowermost slide S has its forward portion projected through the opening 24 to be readily engaged or grasped by the user. The remainder of the lowermost slide S remains within the holder so that the slide does not fall. Accordingly, the user may depress the lever arm 30 to eject the forward portion of the lowermost slide S for use at his convenience.

It will be noted that the operation of the device and removal of the slide requires the use of only one hand. The spring 41 immediately returns the ejector 12 and the lever L to their original positions upon the removal of the pressure from the button 33. The forward portion of the slide S ejected through the opening 24 is entirely exposed so that its opposite edge portions may be easily grasped between a thumb and finger without contacting either the upper or the lower surfaces of the slide. Thus the slides S may be individually withdrawn from the device as required without marking them with finger prints, the fingers touching only the edges of the slide. The dispensing device of the present invention is easy and convenient to use and effectively protects the slides or other articles.

Having described only a typical preferred form and application of my invention I do not wish to be limited or restricted to the specific details set forth, but wish to reserve to myself any variations or modifications that may appear to those skilled in the art or may fall within the scope of the following claims:

Having described my invention, I claim:

1. A dispensing device of the character described including a support, a holder on the support for containing a plurality of superimposed articles, there being an outlet in the front of the holder, an opening in the lower wall of the holder and a slot connecting the interior of the holder and the opening, a shiftable ejector in the said opening, a part on the ejector extending through the slot and adapted to engage the lowermost article to move the same forwardly through the outlet, a manually operable lever on the support below the holder, an operative connection between the lever and ejector whereby actuation of the lever causes forward movement of the ejector and the lowermost article, there being a longitudinal socket in the ejector, and means for returning the lever and ejector to their normal positions including a spring received in the said longitudinal socket and arranged under compression between the inner wall of the socket and a relatively stationary part of the holder.

2. A dispensing device of the character described including, an integral body comprising a base, a standard projecting upwardly from the rear portion of the base, and a holder on the upper end of the standard spaced above the base to leave an open accessible space between the holder and base, the holder being adapted to hold a plurality of stacked slides or like articles, the holder having a discharge opening in its front and an opening in its lower wall, a shiftable ejector in the second mentioned opening, a lug on the ejector adapted to engage the lowermost slide in the holder, a pivoted lever within the said space between the base and holder pivoted to the standard, the lever comprising an arm operatively connected with the ejector and a forwardly projecting arm manually depressible to move the ejector forwardly to eject the lowermost slide through the discharge opening, and means for automatically returning the lever and ejector after actuation.

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