Oct. 18, 1955 H. E. DAVIS 2,720,965

MATERIAL HANDLING DEVICE

Filed Aug. 2, 1951

Fig. 1.

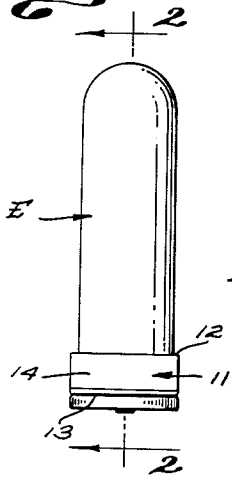



Fig. 2.

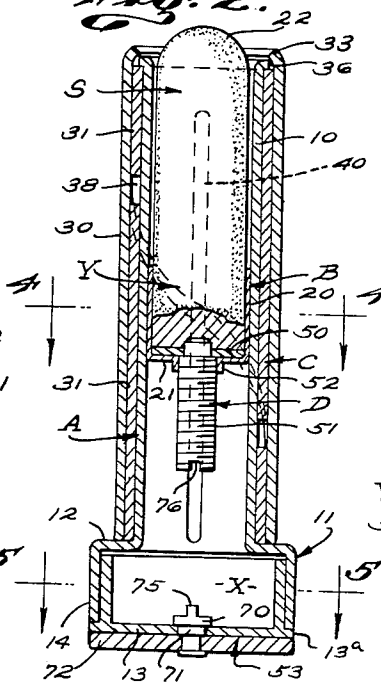



Fig. 3.

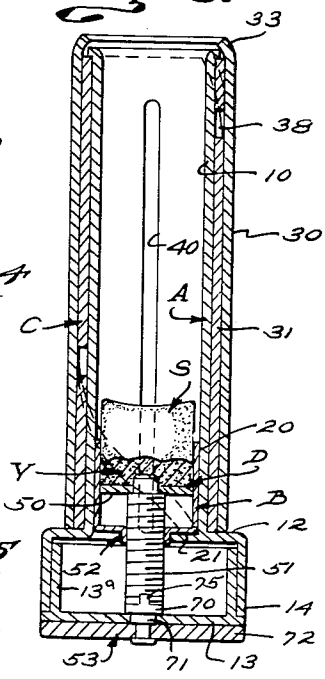



Fig. 6.

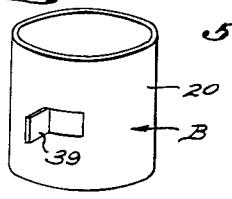



Fig. 4.

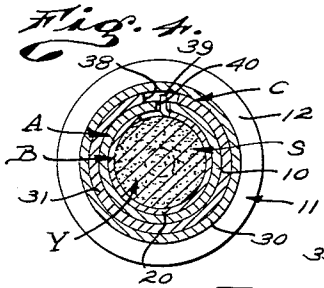



Fig. 5.

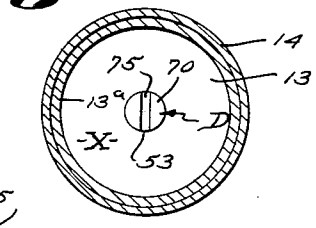



Fig. 8.

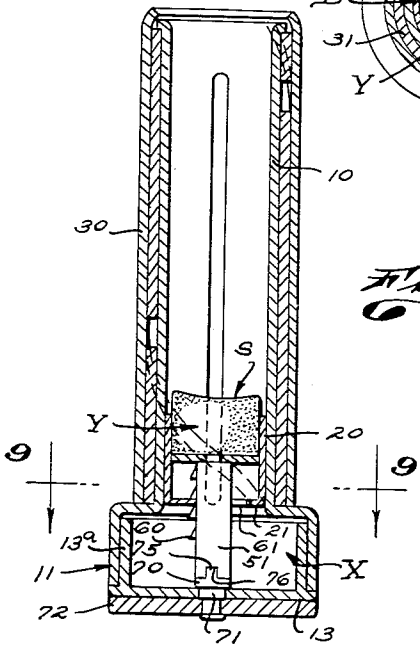



Fig. 9.

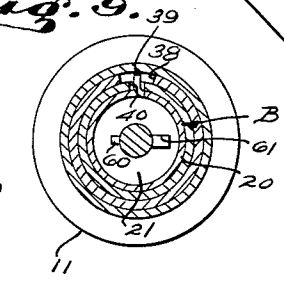



Fig. 7.




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# MATERIAL HANDLING DEVICE

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11 Claims. (Cl. 206—56)

The invention relates to a material handling device and it is a general object of the invention to provide a simple, practical improved device for handling material such as lip rouge, medicated compositions, etc., such as are commonly handled in devices or applicators carried in purses, kits, etc.

The material handled by the device of the present invention may in practice vary widely in purpose. However, for purpose of example, I will refer to the material as being lip rouge or lipstick, which material is ordinarily established initially in stick form and is handled with an end of the stick exposed to facilitate application of the material. It is common in the case of such material to apply a cup or cup-like carrier to the end of the stick opposite that exposed for application, and the cup is applied to or incorporated in a dispensing device involving means by which the cup is shiftable in the device to move the stick into and out of position where the exposed end is accessible for use. The material incorporated in sticks of the kind referred to is often expensive and with the cup carrier construction referred to, a substantial portion of the material is so incorporated in the cup that it is inaccessible for normal use and can only be obtained by digging it out of the cup, all of which is in most cases highly inconvenient and unsatisfactory.

It is a general object of this invention to provide a device carrying or handling materials such as I have referred to, for example, lipstick, and which is such that it can be operated in the manner common to the ordinary lipstick handling device until the exposed portion of the stick of material has been consumed, whereupon the device can be operated to eject the materials from the cup carrying it, with the result that the entire body of material is made accessible for use in the ordinary convenient and accepted manner.

It is another object of this invention to provide a device of the general character referred to which may employ or incorporate means such as are commonly employed for the housing and operation of a lipstick, making the normal or at least the initial operation of the lipstick the same as that incidental to the normal or conventional type of construction, and in which the operation required to gain ejection of the stick from the cup can be easily and conveniently performed.

It is another object of this invention to provide a device of the general character referred to in which features such as those hereinabove pointed out are gained by mechanism which is exceedingly simple both in construction and operation, which involves few inexpensive easily formed parts, and which is of such character as to be convenient to use and commercially practical.

The device of the present invention involves an elongate tubular body open at its outer end and provided at its inner end with a hollow head. A material carrier in the form of a cup is carried in the body and the stick of material has one end held in the cup while the other end is free and projects to be accessible for use. The cup is slidable in the body between a retracted position where



it is at or near the head end of the body and an extended position where its rim or open end is substantially flush with the open end of the body. An operating means is provided for shifting the cup longitudinally in the body and preferably a cam means. In a preferred construction, this means involves an outer cylindrical shell and an inner cam liner that is tight in the shell and which surrounds the body. A cam-way or opening defined by the liner accommodates a cam follower that projects from the cup through a longitudinal guide slot in the body. The combined sleeve and cam liner are held on the exterior of the body for rotation relative to the body and against movement lengthwise of the body. When the unit formed by the sleeve and liner is rotated relative to the body, the cam follower operating in the cam-way in the liner moves lengthwise of the body with consequent movement of the cup lengthwise of the body. A material ejecting means is provided and is adapted to be operated to push material from the cup. This ejecting means preferably involves an ejector or false bottom in the cup, a pusher or stem engaging the ejector and passing through an opening in the bottom of the cup, means releasably connecting the cup and pusher, and operating means for the pusher. In one form, the means connecting the cup and pusher involves threads on the exterior of the pusher engaging threads in the opening of the cup bottom. In this case, the threads cooperate to normally hold the pusher against movement lengthwise of the cup and when the pusher is rotated relative to the cup, the pusher is operated lengthwise relative to the cup. In another form of the invention, teeth on the exterior of the pusher in series lengthwise of the pusher, cooperate with the bottom of the cup, normally locking the pusher against movement lengthwise of the cup, and a notch in the wall of the opening in the bottom of the cup will pass the teeth so that if the pusher is rotated from a position where the teeth engage the bottom to a position where they register with the notch, the pusher can be moved relative to the cup. The operating means for the pusher preferably involves a key in the hollow head of the body, a spindle rotatably carried by the head of the body and supporting the key, and an operating knob on the spindle at the exterior of the head provided on the body.

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

Fig. 1 is a side elevation of a device embodying the invention. Fig. 2 is an enlarged longitudinal sectional view of the device, being a view taken as indicated by line 2—2 on Fig. 1, and is a view showing the cap or closure of the device removed and the cup positioned in the body with the exposed end of the lipstick accessible at the open end of the body. Fig. 3 is a view similar to Fig. 2, showing the lipstick used until there is but a limited portion projecting from the cup and showing the false bottom of the cup operated to a position where a portion of the material has been ejected from the cup and showing the cup in a fully retracted position. Fig. 4 is a plan section taken as indicated by line 4—4 on Fig. 2. Fig. 5 is a plan section taken as indicated by line 5—5 on Fig. 2. Fig. 6 is a perspective view of the cup element alone or apart from other elements of the structure. Fig. 7 is an opened out or plan view of the cam liner employed in the device. Fig. 8 is a view similar to Fig. 3, showing another form of construction, and Fig. 9 is a transverse section taken as indicated by line 9—9 on Fig. 8.

Referring first to the form of the invention shown in Figs. 1 to 7, inclusive, the device provided for carrying

the stick S of material includes, generally, a body A, a material carrier B in the body, operating means C for shifting the carrier longitudinally in the body, material ejecting means D provided for pushing or ejecting material from the carrier B, and if desired the structure may include a cap or closure E, and other features of construction such as will be hereinafter mentioned.

The material handled by the device may vary widely in form, character and intended use. For instance, it may be a body of material containing a suitable medicament, for example, a body such as is employed for applying material to a person's lips, hands, or other parts of the body, or it may, as indicated in the drawings, be a material suitable for application to the lips for the purpose of coloring the lips, such material, in the form illustrated, being commonly known as lipstick.

The body A of the device has a main portion **10**, tubular in form, and in the case illustrated it has a head **11** at what may be termed the inner end of the body portion **10**. In the case illustrated the tubular portion **10** of the body is open at its outer end, and the head **11** occurring at the inner end of portion **10** is in the nature of an enlargement involving an annular end **12**, a round or disc end **13**, and a cylindrical handle portion **14**. The annular end **12** is joined to and projects radially from the inner end of body portion **10**, and the outside diameter of end **12** is the same as that of end **13**. The handle portion **14** is preferably cylindrical in form and projects axially from the end **12** away from the body portion **10** and at its outer or extreme end it carries the end **13**. The several parts of the head can be rigidly connected or integrally joined together, or, as I have shown in the drawings, the end **13** may be separable from the other parts to provide free access to the pusher hereinafter described. I show a mounting collar **13a** projecting from the end **13** and frictionally engaged in the handle portion **14** so the end can be detached from the handle if desired. The portions of the head **11** combine or cooperate to form a closed hollow head or enlargement on the body portion **10**, and they establish a chamber or cavity X such as is clearly shown in Figs. 2 and 3 of the drawings. In the drawings, the several portions of body A are shown as continuous or integral with each other, while it is to be understood that, if desired, the body may be fabricated or made up of several parts suitably connected or joined together, as may be convenient.

The material carrier B is located in the cylindrical body portion **10** and is preferably in the form of a cup having a cylindrical side wall **20** and a bottom **21**. The cup is of such size or outside diameter as to slidably fit inside the tubular portion **10** of body A, and it is disposed in the body so that it opens outwardly or toward the open end of the body portion **10**. In accordance with conventional practice followed in devices provided for handling lipsticks, or the like, inner or base end Y of the lipstick S is carried in and completely occupies the cup forming carrier B. The lipstick S projects outwardly from the cup and has, initially, a suitably shaped outer end **22** that can be applied to or rubbed on the lips when the cup is positioned in the body A, so that this end of the stick projects in the body in a manner such as is indicated in Fig. 2 of the drawings. The stick may be of such length initially that the cup is at the inner end portion of the body and has its end **22** close to or preferably within the open end of body portion **10** when the cup is fully retracted. As the lipstick is used or worn away, the cup can be operated by the means C, causing it to move toward the open end of body portion **10**, with consequent advance of the stick in or through the body.

The operating means C is provided for operating or shifting the stick-carrying cup lengthwise in body portion **10**, and in the structure illustrated this is a cam means of simple form and construction. The particular means C shown in the drawings involves an outer element or sleeve **30**, tubular in form and surrounding the body portion **10**, and an inner portion or cam liner **31** within the sleeve **30** and surrounding the body portion **10**. In the case illustrated the sleeve **30** is substantially coextensive with body portion **10**, so that it has one end abutting the head **11**, while the other end is at and projects slightly from the open end of body **10** where it is turned inwardly at **33**.



The cam liner **31** is initially formed as a flat blank such as is shown in Fig. 7, and this blank is wrapped or bent into cylindrical form so that it has an inner end **34** abutting the head **11**, and an outer end **35** at the open end of body **10** where it is engaged by an outwardly projecting lip **36** on the outer end of the body. In the cylindrical or wrapped form the cam liner is tight in the sleeve **30** and it has opposed cam edges or faces **37** that define a spiral cam-way **38**.

A cam follower **39** projects from the exterior of the cup of means B through a longitudinal guide slot **40** in the body portion **10** and into the cam-way **38**.

With the construction just described the lip **36** on the open end of body portion **10** confines the assembled sleeve and cam liner on the body portion **10** for rotation relative thereto, without movement lengthwise thereof. Through engagement of the cam follower **39** in the cam-way **38** rotation of the sleeve **30** with the cam liner tight in it causes longitudinal movement of the cup in the body portion **10**.

The material ejecting means provided by the present invention serves to eject material of the stick S from the cup of the carrying means as such material is required for use. In accordance with the invention the means B involves, generally, an ejector or false bottom **50** in the cup or carrier B, a pusher or stem **51** engaging the false bottom, means **52** releasably connecting the cup and pusher, and operating means **53** for the pusher.

The false bottom may be a simple, flat, disc-shaped element carried in the cup or carrier B to slide lengthwise thereof, and it is initially located at the extreme inner end of the stick S to be tight between the bottom or inner end of the stick and the bottom **21** of the cup.

The pusher **51** is preferably an elongate stem located centrally of the structure and extending longitudinally of the structure and it so engages the false bottom as to be operable to push the false bottom outwardly in the cup, preferably far enough out in the cup to eject practically all of the material of the stick from the cup. To gain the desired operation of the false bottom, the stem **51** is of substantial length and when the false bottom is against the bottom **21** of the cup, the stem projects below or inward of the cup through an opening in the bottom **21** of the cup, see Fig. 2 of the drawings.

The means provided for releasably connecting the cup and pusher shown in the form of the invention illustrated in Figs. 1 to 7, inclusive, involves threads on the exterior of the pusher engaged with threads in the opening provided through the bottom **21** to pass the pusher. Through the threaded engagement provided between the pusher and cup, the pusher is normally held against movement axially of the device or lengthwise of the cup. With this construction, as the pusher is rotated, it is caused to move lengthwise of the cup, and if rotated in the proper direction, it will advance into the cup, pushing the false bottom toward the open end or mouth of the cup.

In the form of the invention illustrated in Fig. 8 and Fig. 9 of the drawings, the means releasably connecting the cup and pusher involves teeth **60** on the exterior of the pusher, preferably in series lengthwise of the pusher and these teeth normally cooperate with or engage the bottom **21** of the cup where the pusher passes through the bottom so that the pusher is normally held against movement lengthwise of the cup. A notch **61** is provided in the wall of the opening provided in the bottom of the cup to pass the pusher and is such that the pusher

can be rotated to a position where the teeth register with the notch, thus freeing the pusher so that it can be moved relative to the cup lengthwise thereof.

The operating means for the pusher employed in both forms of invention may involve a key **70** located in the chamber X of head **11** and carried on a spindle **71** rotatably carried by the disc-like end **13** of head **11**. A manually engageable part or knob **72** is provided on the outer end of spindle **71** or adjacent the exterior of end **13** so that it is conveniently engageable and can be operated to cause rotation of the spindle and consequently rotation of the key **70**. The spindle **71** is freely rotatable in a suitable opening provided in end **13**, and knob **72** is tight on spindle **71**.

Suitable engagement is provided between the key **70** and the pusher **51**. In the case illustrated, a projecting rib **75** is provided on the key and a diametrically disposed key slot or groove **76** is provided in the end of the pusher that opposes the key. The construction and relationship is such that when the means C is operated so that the cup of means B is fully retracted, or at the inner end of body portion **10**, the key **70** cooperatively engages the pusher **51** or has keyed engagement therewith. In such case, rotation of the knob **72** causes operation or rotation of the pusher **51**. In the form of the invention shown in Figs. 1 to 7, rotation of the pusher shifts or advances longitudinally of the cup carrying the material S and may cause the false bottom to push material from the cup. In the case of the construction shown in Figs. 8 and 9, rotation of the pusher can move the teeth into register with notch **61**, whereupon further operation of the means C will cause further depression of the cup and consequent movement of the false bottom in the cup ejecting material therefrom. When the desired ejection has been gained, the pusher can be rotated moving the teeth into engagement with the cup bottom where they hold the parts in set position.

From the foregoing description, it will be apparent that the structure provided by the present invention provides a device holding or carrying a lipstick for operation in a manner similar, generally, to that found in the ordinary structure of this kind. It is notable, however, that when the lipstick has been used down to the point where its exposed end is substantially flush with the open end of the cup, the mechanism that I have provided can be operated to eject material from the cup, making it accessible for convenient use, and this ejecting action can be carried on until practically all of the material has been ejected from the cup.

By providing the head **11** with a removable end **13** I provide a structure wherein said end of the head can be removed, if desired, making it possible to manually engage and operate the pusher, without use of an operating means or structure such as I have hereinabove described.

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

Having described my invention, I claim:

1. A device for handling a substantially solid stick of material including, an elongate tubular body with an open outer end and having a head on the inner end thereof, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, means adapted to operate the cup longitudinally in the body including a sleeve around the body, a cam liner in the sleeve and around the body and having a cam-way therein and a cam follower projecting from the cup and operating in the cam-way, the body having a longitudinal guide slot passing the follower from the cup to the cam-way, and means adapted to eject material from the cup including, a substantially flat bottom in the cup slidably engaged therewith and shiftable longitudinally thereof, the bottom being flat against and confined to the end of the stick of material, an elongate threaded pusher engaged with and shiftable relative to the cup and permanently engaged with the bottom, the pusher projecting away from the bottom and stick of material and from the cup, and means operating the pusher including a key rotatably carried by the head and adapted to releasably engage and operate the pusher.



2. A device for handling a stick of material including, an elongate tubular body with an open outer end, a closure at the other end of the body and rotatable relative thereto, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, means adapted to operate the cup longitudinally in the body, the cup having a cylindrical portion closed at one end by a bottom, an ejector in the cup movable therein to force material therefrom, a pusher entering the cup through the bottom thereof and engaging the ejector, the pusher having a thread thereon engaged with a thread in the bottom of the cup, and an element carried by the closure and adapted to releasably engage and operate the pusher.

3. A device for handling a stick of material including, an elongate tubular body with an open outer end, a closure at the other end of the body and rotatable relative thereto, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, cam means adapted to operate the cup longitudinally in the body, the cup having a cylindrical portion closed at one end by a bottom with an elongate slot therein, a disc shaped ejector in the cup movable therein to force material therefrom, an elongate pusher with a grooved inner end extending longitudinally of the body and entering the cup through the slot in the bottom thereof and engaging the ejector, the pusher having teeth thereon cooperating with the bottom of the cup to normally hold the pusher against movement relative to the cup, and an element carried by the closure and adapted to releasably engage and operate the pusher.

4. A device for handling a stick of material including, an elongate tubular body with an open outer end, a closure at the other end of the body and rotatable relative thereto, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, means adapted to operate the cup longitudinally in the body, the cup having a cylindrical portion closed at one end by a bottom, an ejector in the cup movable therein to force material therefrom, a pusher entering the cup through the bottom thereof and engaging the ejector, the bottom of the cup having an opening slidably passing the pusher and having a notch in its wall, the pusher having teeth thereon operable through the notch and engageable with the bottom to hold the pusher against movement relative to the cup, and an element carried by the closure and adapted to releasably engage and operate the pusher.

5. A device for handling a stick of material substantially solid in cross-section including, an elongate tubular body with an open outer end and a head at the inner end, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, means adapted to operate the cup longitudinally in the body, a bottom in the cup shiftable relative thereto to eject material therefrom, a pusher engaged with the cup and having a terminal end in the cup and permanently engaged with the bottom whereby the pusher extends in one direction only from the bottom, and an operator carried by the head of the body and cooperating with the pusher, the operator including a key in the body opposing the pusher and a manually operated member at the exterior of the body and connected with the key, the pusher having threaded engagement with the cup.

6. A device for handling a stick of material including, an elongate tubular body with an open outer end and a head at the inner end, an outwardly opening cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, cam means adapted to oper-

ate the cup longitudinally in the body, a bottom in the cup shiftable relative thereto to eject material therefrom, an elongate pusher extending longitudinally of the body with a groove in its inner end and engaged with the cup and engaging the bottom, and an operator rotatably carried by the head of the body and cooperating with the pusher, the operator including a key in the body opposing the grooved end of the pusher and a manually operated member at the exterior of the body and connected with the key, the pusher having longitudinally spaced teeth projecting laterally therefrom to be releasably engaged with the cup.

7. A device for handling a substantially solid elongate stick of material including, an elongate tubular body with an open outer end, a manually engageable head at the inner end of the body, an outwardly opening cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, manually operable cam means surrounding the body and adapted to operate the cup longitudinally in the body, a flat disc shaped bottom in the cup shiftable relative thereto to eject material therefrom, an elongate pusher having its outer terminal end in the cup and carrying the bottom, the pusher having threaded engagement with the inner end of the cup and adapted to move relative thereto to shift the bottom longitudinally in the cup, and a manually engageable operator rotatably carried by the head at the inner end of the body and having a key extending outwardly to be releasably engaged with the inner terminal end of the pusher when the cup is in the inner end of the body to move relative to the cup.

8. A device for handling a substantially solid elongate stick of material including, an elongate tubular body with an open upper end, an enlarged manually engageable head at the inner end of the body, an outwardly opening cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, manually operable cam means surrounding the body and adapted to operate the cup longitudinally in the body, a flat disc shaped bottom in the cup shiftable longitudinally relative thereto to eject material therefrom, an elongate pusher having a shouldered outer terminal end permanently engaging and rotatably carrying the bottom and having threaded engagement with the inner end of the cup and adapted to move relative thereto to shift the bottom in the cup, and an operator carried by the head of the body and adapted to engage and operate the pusher, the operator including a key in the inner terminal end of the body opposing the pusher and releasably engageable therewith and a manually operated disc shaped member at the exterior of the body connected and adapted to operate the key.

9. A device for handling a stick of material including, an elongate tubular body with an open outer end and a hollow head at the inner end, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, means adapted to operate the cup longitudinally in the body, a bottom in the cup shiftable relative thereto to eject material therefrom, a pusher having a terminal end in the cup and having threaded engagement with the cup, the bottom being carried in a fixed position on the terminal end of the pusher, and an operator rotatably carried by the head of the body and cooperating with the pusher, the operator including a key in the body opposing the pusher and a manually operated member at the exterior of the body and connected with the key, the pusher having a slotted end opposing the key and the key having a projection engageable in the slot of the pusher.



10. A device for handling a substantially solid elongate stick of material including, an elongate tubular body with an open outer end, a head at the inner end of the body, an outwardly opening cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, manually operable cam means surrounding the body and adapted to operate the cup longitudinally in the body, a flat bottom in the cup shiftable longitudinally relative thereto to eject material therefrom, an elongate pusher carrying the bottom and having threaded engagement with the cup to move longitudinally relative thereto when rotated, the pusher having its outer terminal end in the cup and the bottom being permanently located at said terminal end of the pusher, and an operator for the pusher carried by the head of the body and adapted to releasably engage the pusher when the cup is at the inner end of the body, the operator including a key in the body opposing and engageable with the inner terminal end of the pusher and a manually operated member at the exterior of the body rigidly connected to the key and rotatable relative to the body, the head of the body including a cylindrical handle portion and a flat end closing the handle portion and the said member being flat against the flat end of the head and being of substantially the size as the handle portion.

11. A device for handling a stick of material including, an elongate tubular body having an open outer end, a cup slidable longitudinally in the body and carrying the stick facing the outer end of the body, means carried by the body and adapted to operate the cup longitudinally in the body including a sleeve around the body, a cam liner retained in the sleeve and engaged around the body and having a cam-way therein and a cam follower projecting from the cup and operating in the cam-way, the body having a projection at its outer end retaining the liner, having a manually engageable head at the other end retaining the sleeve and liner and having a longitudinal guide slot passing the follower from the cup to the cam-way, and means adapted to eject material from the cup including, a flat bottom in the cup shiftable longitudinally thereof, an elongate longitudinally disposed pusher carried by and shiftable relative to the cup and engaging the bottom, and means carried by said head and adapted to operate the pusher, the cam liner being a sheet of material cylindrically curved and having spaced opposed ends defining the cam-way and having end edges engaged by the lip and head.


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