

May 23, 1933.

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1,911,094

MUCILAGE CONTAINER AND SPREADER

Filed Dec. 15, 1930

2 Sheets-Sheet 1

Fig. 1.

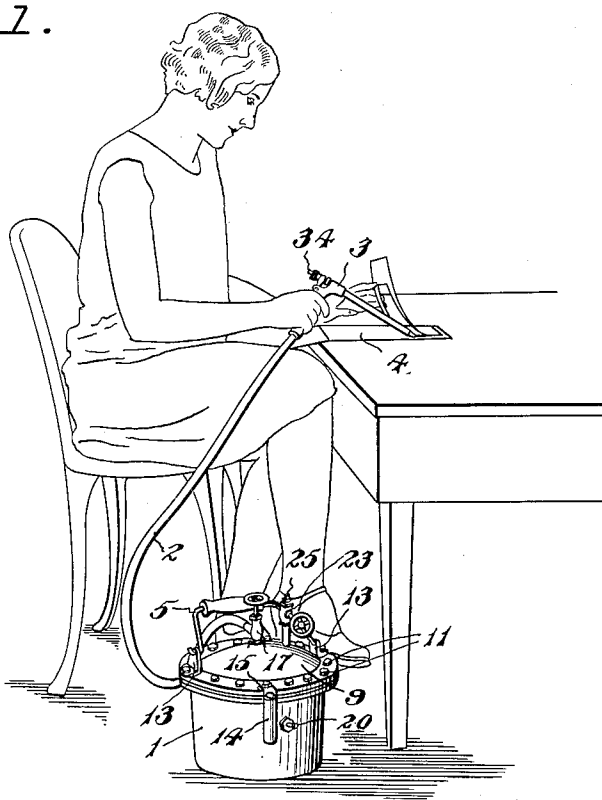


Fig. 2.

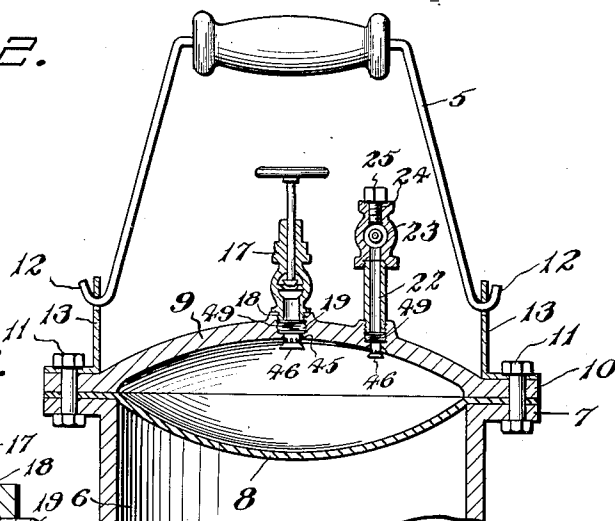
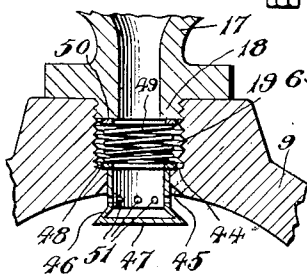


Fig. 6.



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Fig. 3.

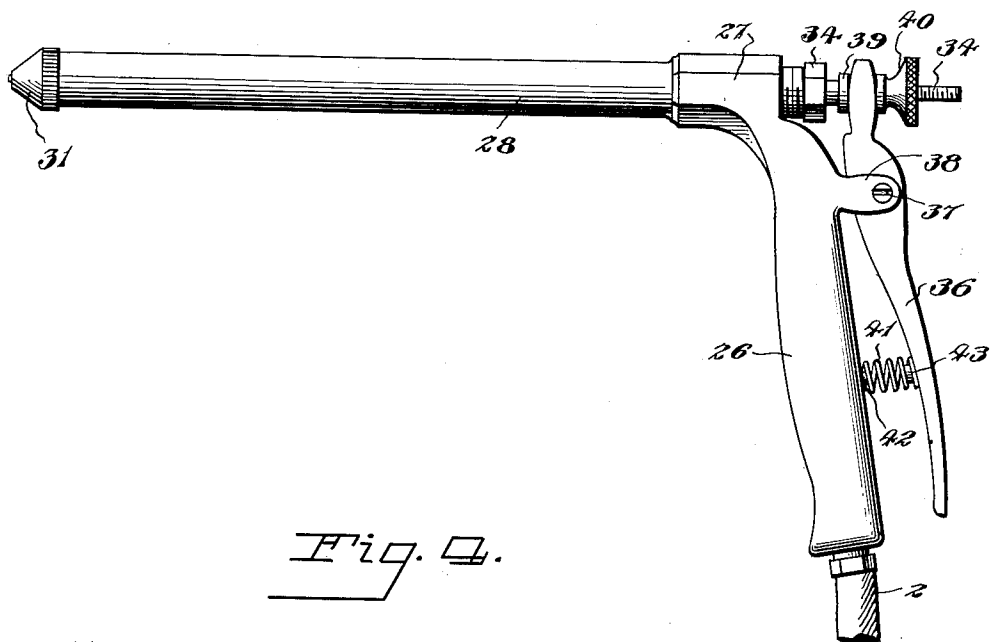


Fig. 4.

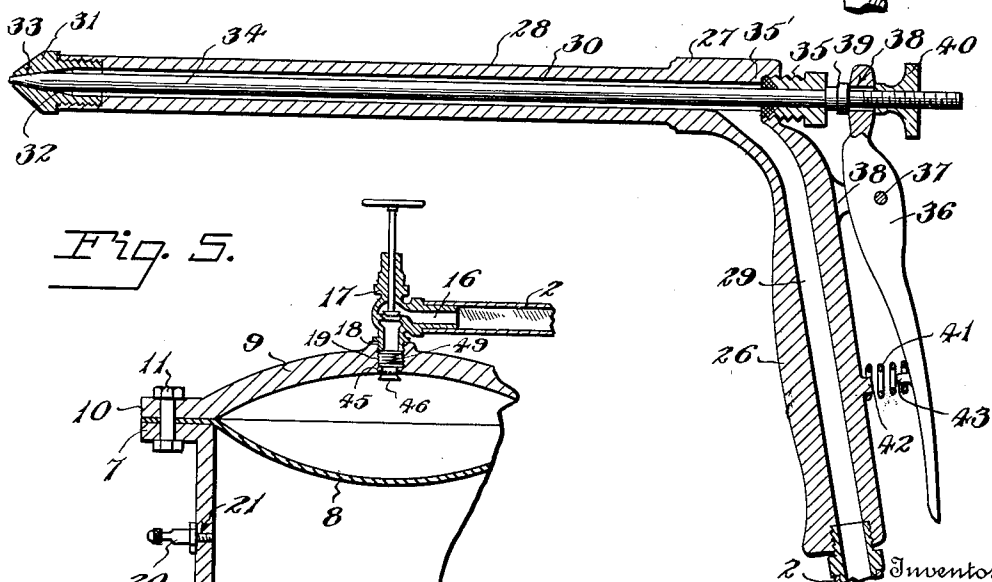
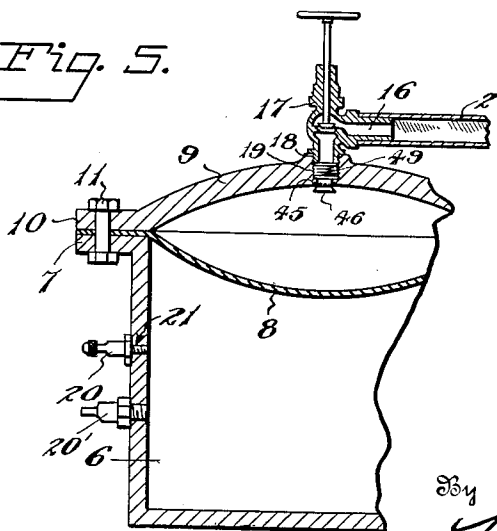


Fig. 5.



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MUCILAGE CONTAINER AND SPREADER

Application filed December 15, 1930. Serial No. 502,430.

This invention relates to an improved mucilage container and spreader and one object of the invention is to provide a device of this character of such construction that a relatively large quantity of mucilage or paste may be stored in the container and fed from the outlet of a nozzle directly upon the surface to which it is to be applied.

Another object of the invention is to so form the container that the mucilage or paste may be stored therein above a flexible diaphragm, and this diaphragm urged upwardly by compressed air stored in the body portion of the container in order to force the mucilage or paste through a flexible hose and through a nozzle by means of which it is to be applied.

Another object of the invention is to permit a supply of paste or mucilage to be easily forced into the container without taking the container apart, thereby allowing the container to be easily charged when a fresh supply of paste is necessary.

Another object of the invention is to permit flow of paste or mucilage through the flexible hose to be shut off when the device is not in use, thereby relieving the hose from unnecessary strain and to also permit passage of the paste or mucilage to be easily controlled when the device is in use.

Another object of the invention is to so locate an actuating lever for the control valve of the nozzle that the lever may be adjusted by pressure of the hand grasping the nozzle, thereby making it unnecessary to use both hands in order to operate the nozzle.

The invention illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view showing the improved device in use.

Fig. 2 is an enlarged sectional view taken vertically through the container.

Fig. 3 is an enlarged view showing the nozzle in side elevation.

Fig. 4 is a longitudinal sectional view through the nozzle.

Fig. 5 is a vertical sectional view taken

through a portion of the container at right angles to the view shown in Fig. 2, and

Fig. 6 is an enlarged fragmentary sectional view through the cover and lower end of the outlet valve.

The improved container and spreader consists briefly of a container 1 having a flexible tube 2 leading therefrom, and a nozzle 3 at the outer end of the tube which is to be held by the operator as shown in Fig. 1 and by means of which the mucilage or paste may be applied to the backing 4 of a photograph or any other surface to which it is desired to have adhesive applied. By referring to Fig. 1, it will be seen that the container is of sufficient size to hold a relatively large quantity of paste or mucilage, but at the same time may be easily lifted by its handle 5 and moved from one place to another. Therefore, an operator mounting photographs in a photograph shop or gallery will have an ample supply of paste. While the device has been shown in use for applying paste to photographs, it will be understood that it may be used for applying mucilage, glue, or any other adhesive which may be forced through a tube and nozzle and the adhesive applied to any objects desired.

The body portion or receptacle 6 of the container is preferably formed of strong metal and about its open upper end is provided with an outstanding annular flange 7 upon which rests marginal portions of a diaphragm 8 formed of rubber, leather, thin metal or any other flexible or pliable material suitable for the purpose. The cover 9 has the shape of a dome so that it projects upwardly from the receptacle, and has a flat marginal portion or flange 10 which rests upon the marginal portion of the diaphragm. Aligned openings are formed through the flanges 7 and 10 and also through marginal portion of the diaphragm, and through these aligned openings are engaged bolts 11 having nuts at their lower ends which when tightened will draw the cover into tight binding engagement with marginal portion of the diaphragm, and not only hold the diaphragm in place but also

provide an air-tight joint between the cover and the receptacle. The handle 5 has its arms formed with hooks 12 at their ends engaged through openings in brackets 13 secured in opposed relation to each other by certain of bolts 11 and this handle is of such size that it may be swung from a lowered position to a raised position so that the container may be easily lifted by this handle and carried from one place to another. There has also been provided a tubular socket or nozzle holder 14 mounted in a vertical position at one side of the receptacle by having one of the bolts 11 passed through a lip 15 at the upper end of the socket or holder, and this socket is intended to receive the barrel of the nozzle in order to support the nozzle in a substantially vertical position close to one side of the receptacle when not in use.

The inner end of the flexible tube 2 is engaged with the outlet neck 16 of a valve 17 which has its inlet neck 18 screwed into a threaded opening 19 formed centrally of the dome and by an inspection of Figs. 2 and 5 it will be readily seen that by adjusting the valve, flow of mucilage or paste through the tube may be controlled. Therefore, the tube may be relieved from unnecessary strain when the device is not in use and also variation in pressure exerted by compressed air upon the diaphragm may also be compensated for by opening and closing of the valve when found necessary. The air is formed into the body or receptacle through a valve 20 engaged in a threaded opening 21 formed in the side wall of the body and since this valve is of the type used in connection with automobile tires, the pressure of the air in the body may be controlled. A safety valve 20' permits excess pressure to escape. This valve may be opened when filling the space between the cover and diaphragm with paste. A tube 22 rises from the cover and at its upper end carries a valve 23 having a threaded opening 24 in its upper end to be closed by a plug 25. By this arrangement the plug may be removed and the nozzle of a force gun which has been filled with paste or mucilage engaged in the opening 24 after which the valve may be opened and the paste or mucilage forced from the gun through the valve and tube 22 into the container. After the entire contents of the gun has been forced into the container, the valve 23 may be then closed and the gun removed and the plug replaced or the gun again filled and additional paste or mucilage forced into the container if necessary.

The sockets of the cover into which the valve 17 and tube 22 are screwed each has its inner end portion reduced in diameter to form an annular shoulder 44 and the extreme inner end is flared to form a tapered

seat 45 for engagement by a hollow shield 46. This shield is closed at its inner end by a head 47 and has a tubular shank the upper portion of which is bent to form a flange 48 adapted to rest upon the shoulder 44 and suspend the shield in the depending unseated position shown in Fig. 6. A spring 49 confined between the flange 48 and a washer 50 against which the inner end of the valve 17 or tube 22 bears yieldably, resists upward movement of the shield and normally holds the shield in the position shown in Fig. 6 with the openings 51 in its shank uncovered so that paste may pass through these openings. The shields remain open until their closed inner ends are engaged by the diaphragm. The shields are then closed and their heads 47 prevent portions of the diaphragm being forced into the inner ends of the openings in the cover and damaged. Pressure exerted by paste forced inwardly through the tube 22 is sufficient to depress the shield from its socket.

When the container is initially filled the entire space between the sagging diaphragm and the cover is filled with the paste and air is enforced into the receptacle through the valve 20 until the pressure of the air is sufficient to urge the diaphragm upwardly in order to expel the paste from the container through the tube 2 when the valve 17 is open. Additional air may be forced into the receptacle through the valve 20 if found necessary and air may be allowed to escape from this valve in order to permit a fresh supply of paste to be easily forced through the filling tube into the container.

The nozzle at the outer end of the flexible tube 2 has a handle 26 formed at its outer end with a head 27 from which extends a barrel 28. A passage 29 is formed longitudinally through the handle as shown in Fig. 4 and communicates with a passage 30 formed longitudinally through the barrel. Therefore, the paste may pass through the handle and barrel. At the forward end of the barrel is provided a tip 31 which is threaded into the barrel and this tip has its bore 32 tapered towards its outer end, thereby forming a valve seat 33 against which is adapted to seat the tapered forward end of a rod or needle valve 34. This rod extends longitudinally through the barrel and the head 27 at the outer end of the handle and passes through a gland 35 which is tightened to compress packing 35' and forms a tight joint at the rear end of the head. A lever 36 which is pivoted upon a pin 37 carried by arms 38 projecting from the handle 26, has its forward end formed with an opening 38 through which the rear end portion of the rod 34 passes and disposed between an abutment collar 39 and nut 40 carried by the rod. The collar 39 may be formed rigid with the valve rod, or stem,

but the nut 40 is threaded upon the stem in order that it may be removed when necessary and also to permit it to be adjusted and permit the lever to have the necessary swinging movement about its pivot in order to shift the valve stem longitudinally and move its tapered forward end into and out of engagement with the valve seat of the tip 31. A spring 41 disposed between the handle 42 and the lever end engaged about lugs 43 carried thereby yieldably holds the lever in its normal position shown in Fig. 4 in which the valve stem or rod is in the seat or closed position and returns the valve to the closed position when pressure upon the lever is relieved.

When this apparatus is in use the space between the diaphragm and the cover is filled with paste or mucilage and air is then forced into the receptacle or body through the valve 20. The valve 17 is opened and paste will be forced through the tube until the tube and the handle and barrel of the nozzle 3 are filled. The operator grasps the nozzle by its handle and by applying pressure to the lever, the valve stem or rod 34 will be shifted rearwardly out of engagement with valve seat 33 and the paste or mucilage will be forced through the bore of the tip 31 onto the backing of a photograph or other surface to which the adhesive is to be applied. If it is found that the pressure of the air in the receptacle or body 6 causes the paste to feed from the nozzle too freely, the valve 17 may be adjusted towards a closed position until the paste flows from the nozzle at the desired rate of speed. When the supply of paste in the container becomes exhausted, it is merely necessary to remove the plug 25 and apply a filled gun of the grease gun type. The valve 23 may then be opened and a fresh supply of paste or mucilage forced through valve and tube 22 into the container. If so desired this filling operation may be performed at determined intervals, thereby preventing work of an operator being interrupted by the supply of paste in the container becoming exhausted.

What is claimed is:

1. A mucilage containing and applying device comprising a receptacle, a fixed single wall diaphragm of flexible material disposed within the receptacle and dividing said receptacles into an air compartment and a mucilage compartment, a valve communicating with the mucilage compartment, a flexible tube leading from said valve, a nozzle carried by said tube, means for controlling flow of mucilage out of said nozzle, a nipple communicating with said mucilage compartment, a valve at the outer end of said nipple formed with an opening adapted to have a filling gun connected therewith, whereby a supply of mucilage may be forced through

the valve and nipple into the mucilage compartment when said valve is opened, and a removable closure for the opening of said valve.

2. A mucilage containing and applying device comprising a receptacle, a fixed single wall diaphragm of flexible material disposed within the receptacle and dividing said receptacle into a compressed air compartment and a mucilage compartment, a valve controlled inlet communicating with the mucilage compartment, whereby a charge of mucilage may be forced into the same, an outlet valve, a flexible tube leading from said outlet valve, and a nozzle at the outer end of said tube having a control valve normally held closed.

3. A mucilage containing and applying device comprising a receptacle, a cover for said receptacle extending upwardly therefrom, a diaphragm of pliable material having its marginal portions secured between the receptacle and cover and defining a compressed air chamber below the diaphragm and a mucilage compartment above the diaphragm, an outlet valve leading from said cover centrally thereof, a flexible tube connected with said outlet valve, a valve controlling nozzle at the free end of said tube, a pipe rising from said cover and communicating with the mucilage compartment, a valve at the upper end of said pipe having an inlet port, whereby a charging gun may be connected therewith and a supply of mucilage forced into the mucilage compartment when the valve is open, and a closure plug for said port.

4. A mucilage containing and applying device comprising a receptacle, a fixed single wall diaphragm of flexible material disposed within the receptacle and dividing the receptacle into a compressed air chamber and mucilage chamber, a valve controlled tube communicating with the mucilage chamber, a nozzle at the outer end of said tube having a control valve yieldably held closed, and a valve controlled inlet for the mucilage chamber adapted to have a charge gun removably engaged therewith, whereby a supply of mucilage may be forced into the mucilage chamber.

5. A mucilage containing and applying device, a receptacle open at its top, an outstanding flange surrounding the open top of said receptacle, a cover having flat marginal portions to rest over said flange and a dome shaped intermediate portion disposed over the receptacle, a pliable diaphragm having marginal portions disposed between the flange of said receptacle and marginal portions of said cover and defining a compressed air chamber and mucilage chamber, removable fasteners passed through the flange and marginal portions of the diaphragm and cover, an outlet valve communicating with

the mucilage chamber, a flexible tube leading from said valve and having a valve control nozzle at its outer end, and a valve controlled inlet communicating with the mucilage chamber through said cover whereby a supply of mucilage may be forced into the mucilage chamber.

6. A mucilage containing and applying device comprising a receptacle, a fixed single wall flexible diaphragm disposed within the receptacle and dividing the receptacle into a compressed air chamber and mucilage chamber, a filling pipe communicating with said mucilage chamber, a valve at the outer end of said pipe having an inlet port, a removable plug threaded into the inlet port, an outlet valve communicating with the mucilage chamber, a flexible tube leading from said outlet valve, and an applying nozzle at the free end of said tube provided with a closure yieldably held in a closed position.

7. A mucilage containing and applying device comprising a receptacle, a cover for said receptacle, a diaphragm of pliable material secured between the receptacle and cover and defining an air chamber below the diaphragm and a mucilage chamber above the same, said cover being formed with sockets opening into the mucilage chamber and each having its inner end portion formed with a circumferentially extending seat and an annular shoulder above the seat, a hollow shield loosely engaged in the inner end portion of each socket and suspended by engagement with its shoulder, said shield having a head at its inner end and having passages formed through its walls near its head, a spring yieldably resisting outward movement of said shield to a closed position, a valve controlled inlet element engaged in one socket, an outlet valve engaged in the other socket, a flexible tube connected with said outlet valve, and an applying nozzle carried by said tube.

8. A mucilage containing and applying device comprising a receptacle, a cover for said receptacle, a diaphragm of pliable material secured between the receptacle and cover and defining an air chamber below the diaphragm and a mucilage chamber above the same, said cover being formed with sockets opening into the mucilage chamber, an outlet valve engaged in one socket, a valve controlled filling tube engaged in the other socket, a shield for the inner end of each socket movable into and out of closing relation thereto and serving to prevent portions of the diaphragm being forced into the sockets, and a spring yieldably holding each shield open.

9. An adhesive containing and applying device comprising a receptacle, a fixed single wall diaphragm of flexible material disposed within the receptacle and dividing said receptacle into a compressed air cham-

ber and an adhesive chamber, means for permitting the introduction of air into the air chamber, means for permitting the introduction of adhesive material into the adhesive chamber, a valve communicating with the adhesive chamber, a flexible conductor connected with the valve, and a spreading nozzle carried by the conductor.

10. A mucilage containing and applying device comprising a receptacle open at its top, a cover for the open upper end of said receptacle and having a dome shaped intermediate portion, a single wall diaphragm of flexible material interposed between said cover and receptacle and defining a compressed air chamber beneath the diaphragm and a mucilage container above said diaphragm, fastening devices extending through the marginal portions of the diaphragm and engaging the receptacle and cover respectively, a tube communicating with the mucilage container, and a nozzle at the outer end of the tube.

In testimony whereof I affix my signature.

LEONARD B. SKOGLUND. [L. S.]