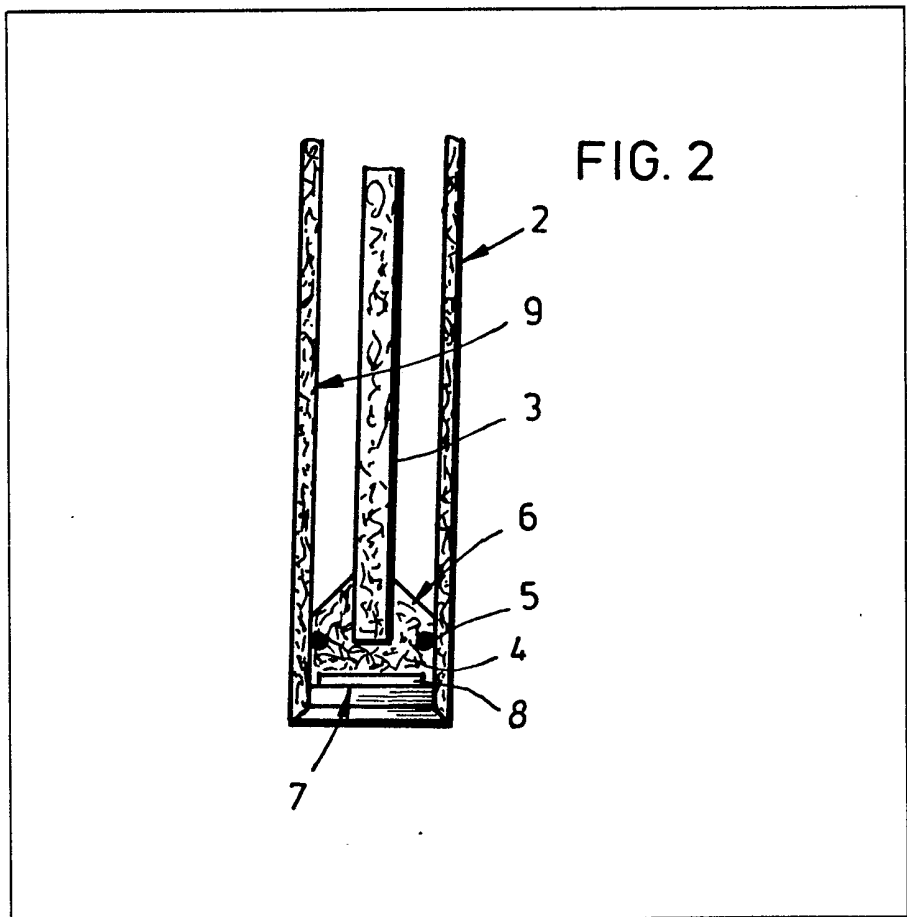


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(71) Applicant  
Rationator-  
Maschinenbau GmbH  
(FR Germany)  
Alzheimerstrasse 1  
6521 Hillesheim/Rhh  
Federal Republic of  
Germany  
(72) Inventor  
Hugo Schindel  
(74) Agent and/or Address for  
Service  
E N Lewis & Taylor  
144 New Walk  
Leicester LE1 7JA

(54) Filling pipe assembly for filling machines

(57) A filling pipe assembly for filling machines, comprises a heightwise adjustable pipe having therein a draw rod (3) having a closure plug (4) disposed at the exit end of the pipe and adapted to be drawn completely into the pipe and to seal the outlet. The closure plug (4) has a conical surface tapering into the rod (3) and a small recess (8) at its plane bottom face (7) for accommodating surplus drops of filling material when the filling pipe is closed by the plug.



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FIG. 2

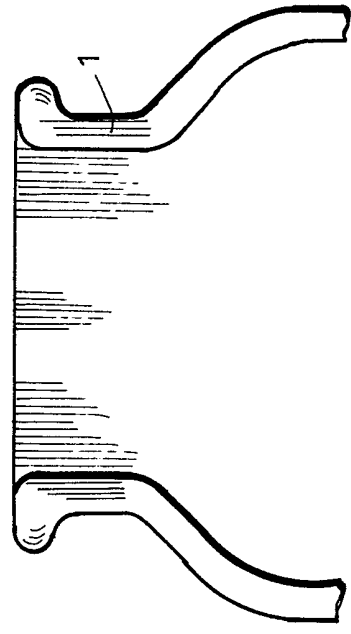
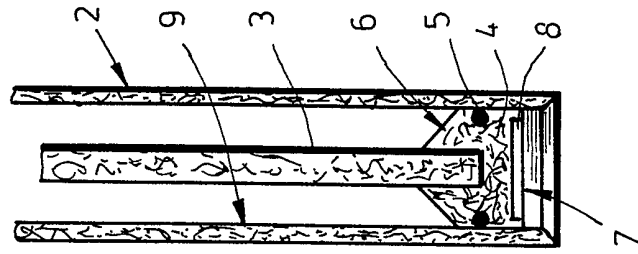
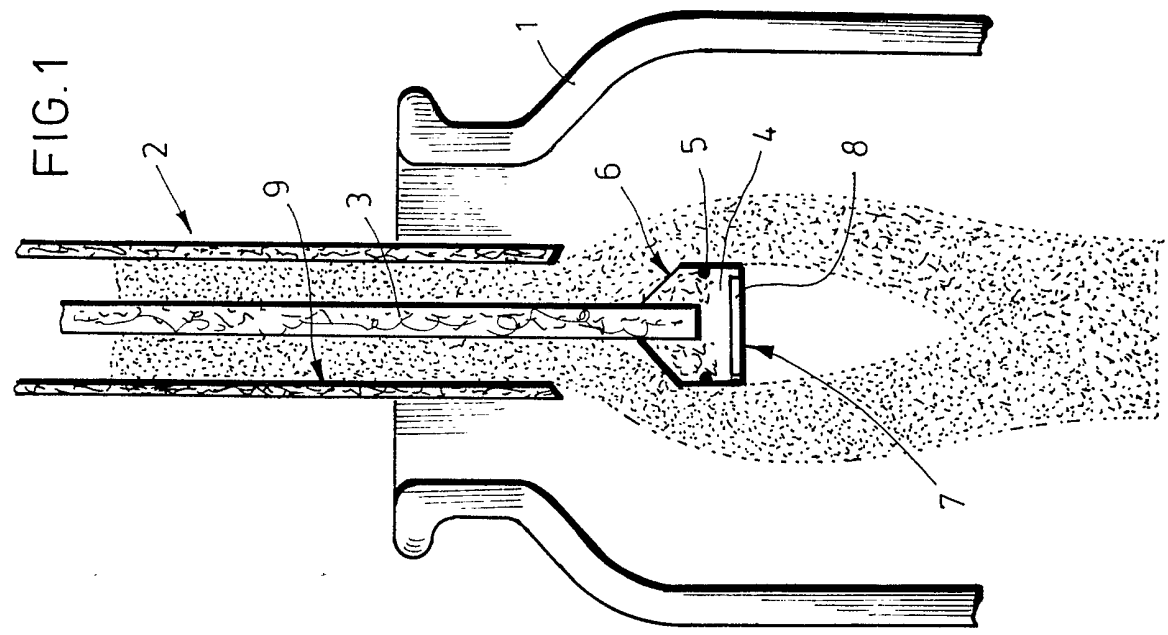


FIG. 1



## SPECIFICATION

### Filling pipe assembly for filling machines

- 5 This invention relates to a filling pipe assembly for filling machines which comprises a filling pipe which is displaceable heightwise in use and has a closure plug at its working end.

In filling machines of this nature various products are usually charged into containers, e.g. bottles, continuously circulated on a carrier, e.g. a rotary table of the machine. Before the filling operation is started the bottles are lifted to centre them and the filling pipe dipped in. Depending on the material being handled a bottom or under-surface filling can take place.

A known type of filling pipe used in this connection is of multiple construction, an outer sleeve being provided with a filling plunger disposed therein this having at its lower end a closure plug. A filling conduit is disposed in this plunger and leads to the exterior laterally of the plug. To cut off the flow of the product to the filling pipe the closure plug is pulled back partially into the outer sleeve. A part of the closure plug however projects out of the filling pipe at the bottom involving the disadvantage that the filling product, even after the closure of the filling pipe, draws a sprue to the filled container, or drips out, which can blemish the filled bottle.

The object on which the present invention is based is to devise a filling tube assembly of this nature in which, independently of the viscosity of the filling material, any afterflow, subsequent dripping or drawing off of sprue is eliminated.

The invention provides a filling machine arrangement having a retractable filling pipe with a closure plug at the leading end thereof, wherein the closure plug is adapted to be drawn completely into the filling pipe, has a portion in use forming a seal between it and the pipe, and has a recess at its outer face to accommodate any surplus filling material.

An advantageous feature lies in arranging the closure plug on a pneumatically-operable draw rod.

Further it is of advantage for the filling material to run between the draw rod and the inner wall of the filling pipe.

It is further of advantage that if the closure plug has a conical face tapering towards the draw rod the invention confers the substantial advantage of preventing any idle running of the filling pipe or any dripping or drawing off of sprue by the filling pipe, should the flow of product be interrupted. This can be achieved independently of the viscosity of the filling product, that is to say both in the case of a thin or thick or viscous product. All this can be achieved with only a simple and inexpensive means.

The invention will now be described below with reference to an embodiment illustrated in the accompanying drawings. In these drawings:

- 70 *Figure 1* is a sectional view of an embodiment of a filling pipe constructed according to the present invention shown performing a filling function; and

75 *Figure 2* the same items with the filling pipe closed and withdrawn.

The filling pipe 2 seen in the drawings is provided internally with a draw rod 3 carrying at its lower end a closure plug 4. This closure plug has an enlarged cylindrical part 5 which can seal the pipe 2 when drawn thereto, this part being connected to the draw rod 3 through a conical portion 6 tapered towards the rod. At its bottom plane face the plug 4 has a small countersunk recess 8 which will accommodate any possible drops of surplus filling material when there is a cut off in the filling performance.

To implement the latter the filling pipe is introduced into the container (shown at 1 in the drawings) and the draw rod depressed as seen in Fig. 1. The filling material runs out between the wall 9 of the filling pipe and the draw rod 3 and forms a hose-like stream of filling liquid so that when, after the filling, the closure plug 4 is pulled up into the end position shown in Fig. 2 the effect sought by the present invention is promoted.

The closure plug 4, as shown in Fig. 2, is drawn into the filling pipe 2 so that its plane lower surface 7 is disposed within the pipe 2. The depth of retraction can be slightly varied depending on the filling product.

### CLAIMS

- 105 1. A filling machine arrangement having a retractable filling pipe with a closure plug at the leading end thereof, wherein the closure plug is adapted to be drawn completely into the filling pipe, has a portion in use forming a seal between it and the pipe, and has a recess at its outer face to accommodate any surplus filling material.
- 110 2. A filling pipe assembly according to Claim 1, in which the draw rod is pneumatically operable.
- 115 3. A filling pipe assembly according to Claim 1 or 2, in which the filling material is arranged to run between the draw rod and the inner wall of the filling pipe.
- 120 4. A filling pipe assembly according to any of Claims 1 to 3, in which the closure plug is provided with a conical portion which tapers into the draw rod.
- 125 5. A filling pipe assembly, substantially as herein described and as shown in the accompanying drawings.