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(54) A nozzle for filler machines.

(57) The invention relates to a nozzle for filler machines comprising a vertical cylindrical chamber (2) inferiorly equipped with an outflow mouth (3) which outflow mouth (3) opening and closing are activated by means of an obturator (4) commanded to slide vertically and coaxially to the outflow mouth (3) ; the outflow mouth (3) is located in a decentralised position with respect to the transversal section of the chamber (2).

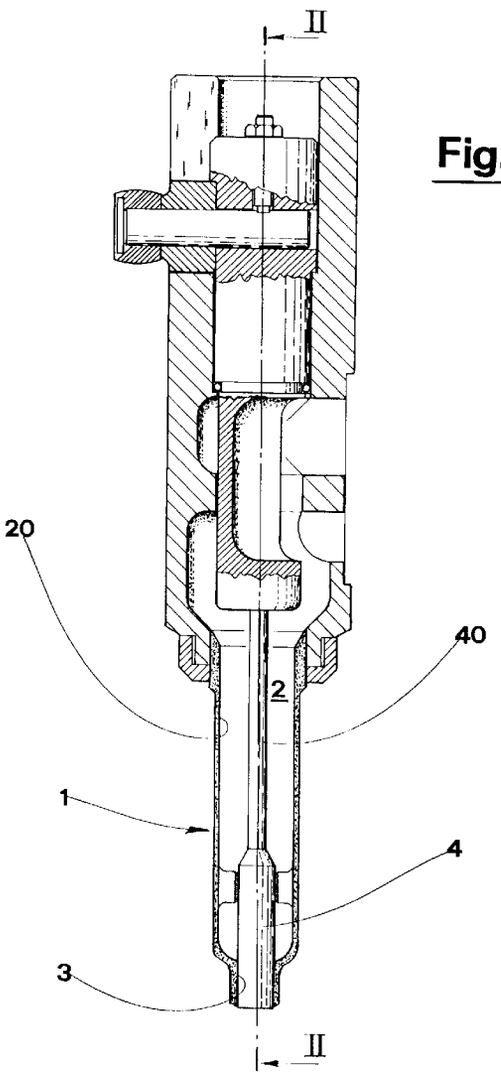

Fig.1

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The invention relates to a nozzle for filler machines.

In particular such a nozzle is used in filler units destined to effect the filling of containers, such as jars and similar, with products that present a certain physical dishomogeneity. This is so in the case of food products whose mass is constituted by a part having liquid and/or pasty consistency, mixed together with parts of greater consistency, for example pieces of product like fruit pulp, vegetable chunks such as tomatoes, carrots, potatoes etc.

For the filling procedures it is advantageous to introduce at least part of the nozzle into the container and to bring it right to the container's bottom; in this way the filling takes place from the bottom up and gaseous bubbles are not trapped in the can with the product. The nozzle is therefore conformed and dimensioned to be inserted into the container through the container's opening. For this reason the nozzle normally exhibits a cylindrical shape with straight circular transversal section.

In prior art devices the outflow mouth, or aperture, is located inferiorly and coaxially arranged with respect to the cylindrical nozzle; the obturator is arranged internally to the nozzle and has the task of effecting the opening and closing of the outflow mouth.

With the above-described arrangement, the passage section of the product internally to the nozzle is constituted by a circular crown having as its external diameter the internal diameter of the nozzle and as its internal diameter the external diameter of the obturator.

Since, for various reasons, the rapport betweeen the nozzle diameter and the obturator diameter can vary only very slightly, and since the diameter of the nozzle is conditioned by the diameter of the opening of the container into which the nozzle must be inserted in order to perform the filling, all the above-described prior art devices suffer from the considerable limitation of permitting regular functioning only with products whose mass comprises pieces of relatively small dimensions with respect to the outflow mouth size.

The present invention, as characterised in the claims, proposes to overcome such limitations and resulting drawbacks by providing a nozzle, in particular for the filling of containers, which is structured simply and functionally and which permits the passage of product pieces about equal in size with the outflow mouth.

Further advantages and characteristics of the present invention will better emerge from the detailed description that follows, made with reference to the accompanying drawings, which represent a preferred embodiment here illustrated in the form of a non-limiting example, and in which:

- Figure 1 shows a schematic longitudinal section made according to line I-I of figure 2;
- Figure 2 shows a partial longitudinal section, in enlarged scale and made according to line II-II of figure 1, in closed position;
- Figure 3 shows a partial longitudinal section, in enlarged scale according to line II-II of figure 1, in open position;
- Figure 4 shows a schematic section, in further enlarged scale, according to line III-III of figure 2;
- Figure 5 shows a schematic section, corresponding to the section of figure 4, of a nozzle of known type.

With reference to the drawings, 1 denotes a nozzle of a filler machine predisposed to perform the filling of containers, for example jars, through an operation which requires at least its partial introduction into the container through the said container opening; in this way the container is filled from the bottom, avoiding the trapping of gaseous bubbles in the product.

To this end the nozzle 1 exhibits a cylindrical form with straight constant transversal section of dimensions which are suitable for the passing of the said nozzle through the opening of the container to be filled.

The nozzle 1 is internally equipped with a vertically-developing chamber 2 laterally defined by a cylindrical surface 20 and terminating, inferiorly, at an outflow mouth 3 connected with the said chamber 2.

The opening and closing of the outflow 3 are performed by means of an obturator 4 which is housed internally to the nozzle 1 and is commanded to slide in a vertical direction, coaxially to the outflow mouth 3 axis, by the operation of a stem 40 to which the said obturator 4 is solidly connected. The outflow mouth 3, which exhibits a circular shape, is located in a decentralised position with respect to the chamber 2 axis of the nozzle 1, laterally bordered by the cylindrical surface 20. In particular, the outflow mouth 3 is positioned in such a way that its edge is tangential to the cylindrical surface 20. The indicated arrangement is clearly visible in figures 2, 3 and 4.

Since the diameter of the outflow mouth 3 is equal to half that of the tranversal straight section of the chamber 2, the minimum diametral size of the internal passage section of the said chamber 2 is equal to the outflow mouth 3 diameter. This means, in other words, that with the obturator 4 in the open position, internally to the nozzle 1 at least a sort of ideal conduit is created through which a roundish body of dimensions slightly smaller that the diameter of the said outflow mouth 3 can flow. This situation is clearly illustrated in figure in figure 3.

The advantage afforded by the nozzle of the present invention with respect to prior art nozzles is evident; given the same outflow mouth dimensions and nozzle 1 cylindrical chamber 2 internal diameter dimensions, the prior art nozzles permit in theory at least the free passage of bodies having diametral di-

mensions which are equal to about half the diameter of the outflow mouth. This situation is clearly evidenced also by a comparison between figure 4, which shows a section of the present nozzle, and figure 5, which shows a section of a prior art nozzle.

Claims

1. A nozzle for filler machines of the type comprising a vertically-developing chamber (2) inferiorly equipped with an outflow mouth or aperture (3) which outflow mouth (3) opening and closing are effected by an obturator (4) which is commanded to slide vertically, coaxially to the said outflow mouth (3) axis, characterized by the fact that the said outflow mouth (3) is located in a decentralised position with respect to the transversal section, and is horizontal to the said chamber (2).

2. A nozzle as in claim 1, characterized by the fact that the said chamber (2) is laterally defined by a cylindrical surface (20) with vertical generatrix parallel to the said outflow mouth (3) axis and to the said obturator (4); the said outflow mouth (3) being positioned in such a way that its edge is tangential, at one point at least, to the said cylindrical surface (20).

3. A nozzle as in claim 2, characterised by the fact that an average size of the said outflow mouth (3) and a corresponding average size of the straight transversal section of the relative obturator (4) are equal to half of an average size of the straight transversal section of the said chamber (2).

4. A nozzle as in claim 3, characterised by the fact that the straight transversal section of the said chamber (2) is of circular shape, as are also the outflow mouth (3) and the corresponding constant straight transversal section of the relative obturator (4).

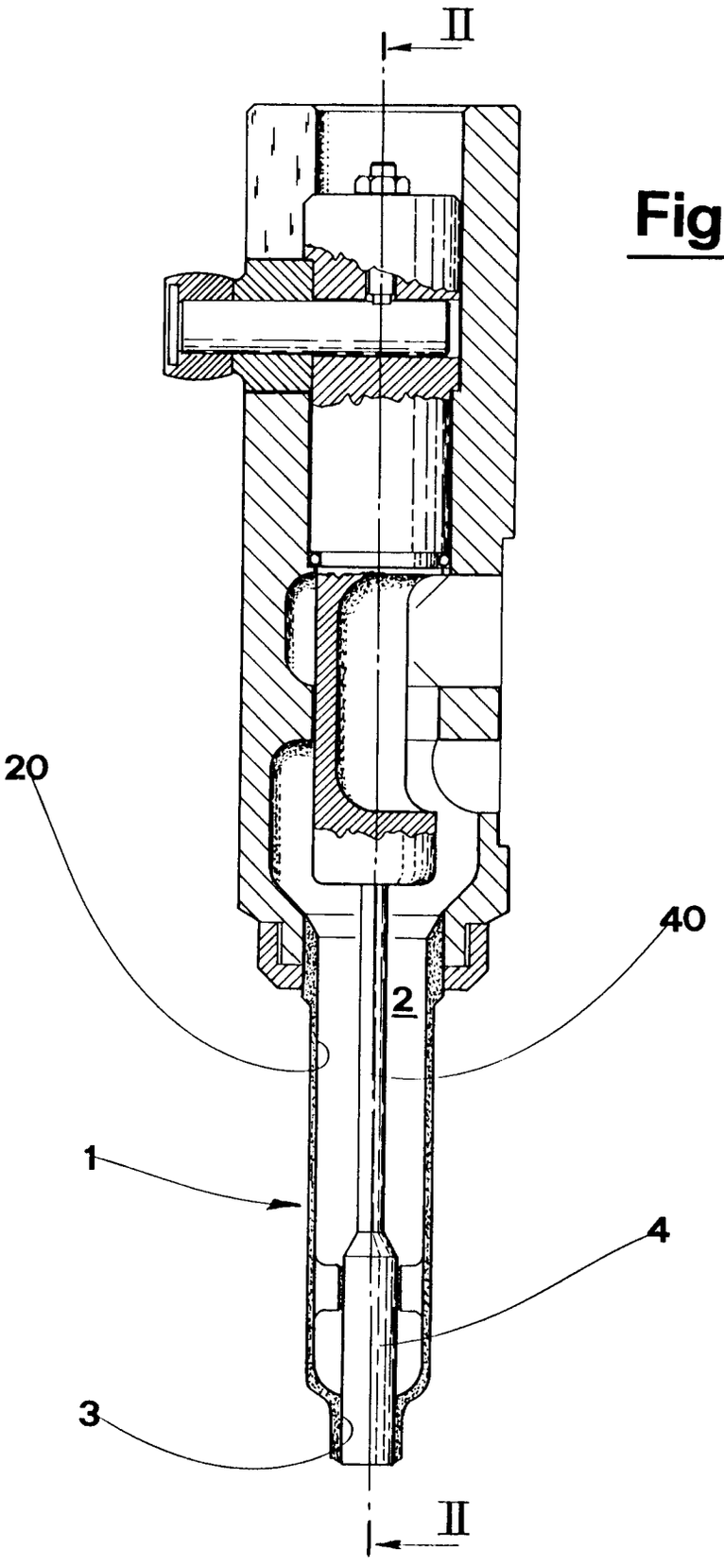


Fig.1

Fig.2

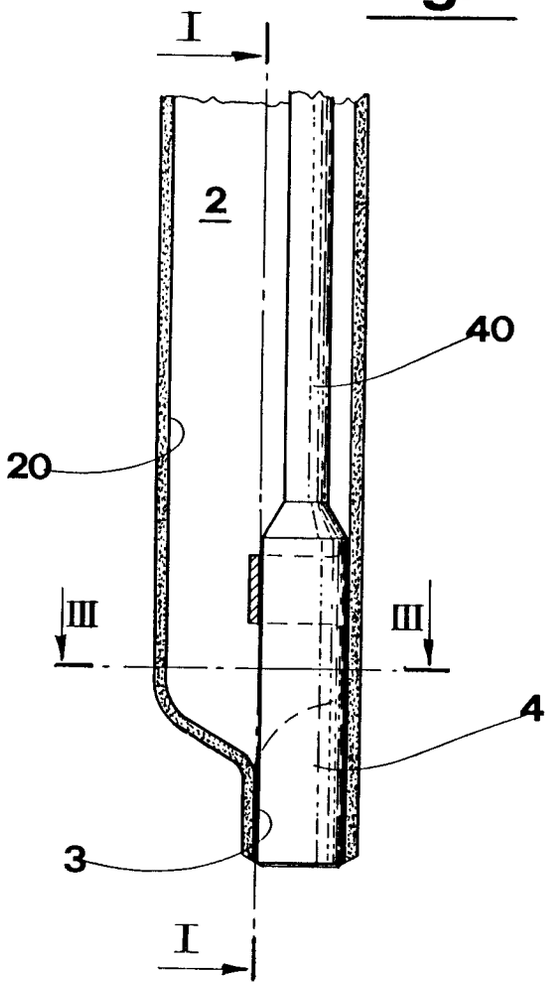


Fig.3

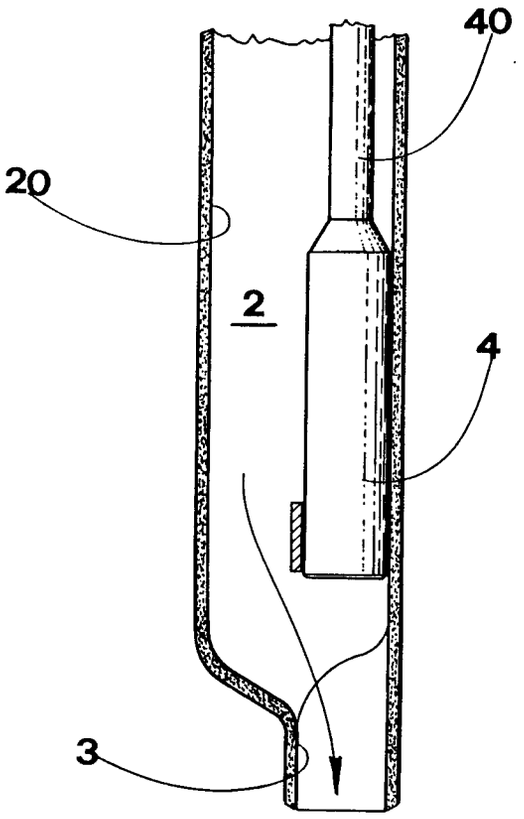


Fig.4

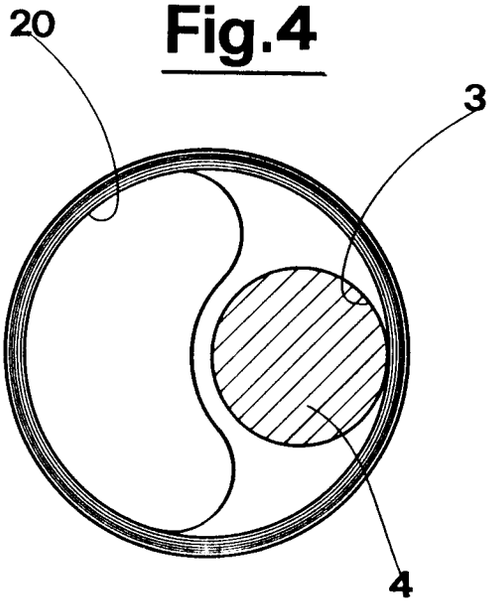
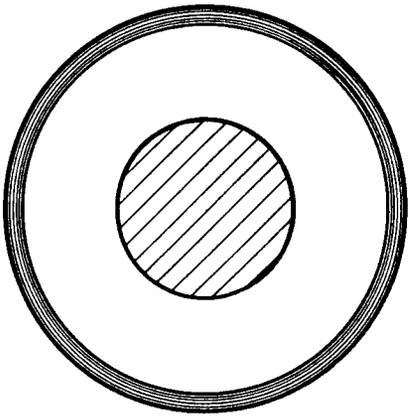


Fig.5



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EUROPEAN SEARCH REPORT

Application Number
EP 92 83 0492

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	DE-A-3 303 127 (SCHOLLE) * page 8, paragraph 7 - page 9, paragraph 1; figure 1 * -----	1	B65B39/00

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B65B
B67C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	06 JANUARY 1993	CLAEYS H.C.M.

CATEGORY OF CITED DOCUMENTS

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