



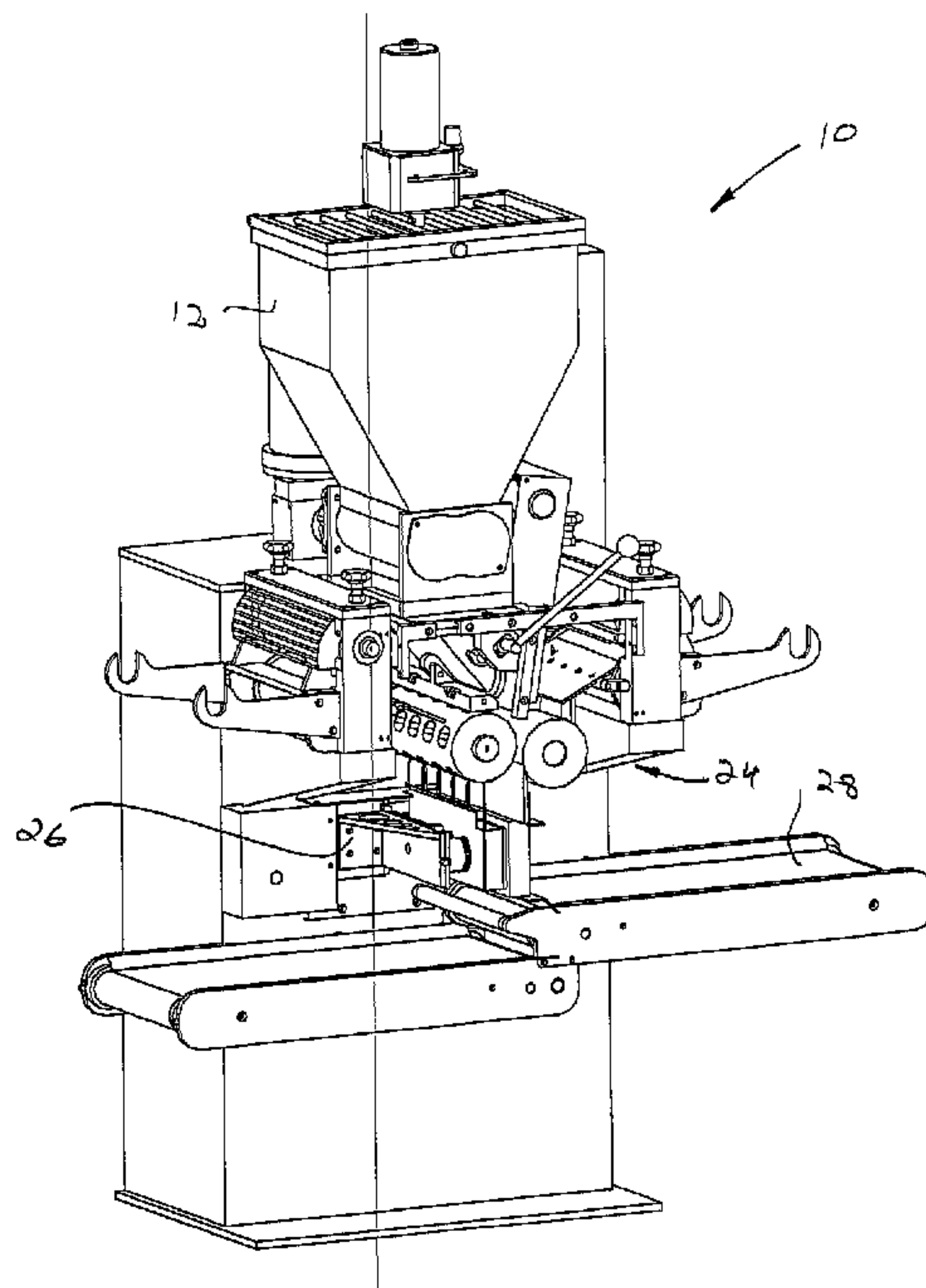
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(54) **MACHINE POUR FABRICATION DE PATES FARCIES**

(54) **MACHINE FOR MAKING STUFFED PASTAS**



MACHINE FOR MAKING STUFFED PASTAS

This invention relates to a method and apparatus for making stuffed pastas, such as ravioli, where the pasta comprises a filling, such as meat or cheese, between two pieces of dough.

According to the invention there is provided apparatus for producing stuffed pasta, comprising:

first dough support means for supporting a first sheet of dough, said first dough support means comprising a surface and at least one dough receptacle formed in said surface;

an expandable or inflatable bladder for acting on said first sheet of dough for pressing the sheet of dough into said recess for creating a pre-formed pocket of dough in said recess;

filler material injection means for injecting an amount of filler material into said pre-formed pocket of dough; and

second dough support means for supporting a second sheet of dough and for contacting said second sheet with said first sheet for covering the pre-formed pocket and filler

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material with said second sheet to form a stuffed pasta; and

means for separating the stuffed pasta from said first and second sheets of dough.

A plurality of said dough receptacles may be provided in the surface of said first dough supporting means, an expandable bladder being provided for each of said receptacles.

In one particular embodiment of the invention said second dough support means also comprises a surface having at least one dough receptacle provided in said surface and an associated expandable or inflatable bladder for pressing said second sheet of dough into said recess for creating a pre-formed pocket of dough in said recess, the pre-formed pocket on said second sheet registering with a pre-formed pocket on said first sheet when the first and second sheets are brought into contact with each other.

Also according to the invention there is provided a method of producing stuffed pasta comprising the steps of forming a pocket for receiving filler material in a first sheet of dough by

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compressing the dough into a recess of a surface supporting the dough by means of an expandable or inflatable bladder; injecting filler material into the pocket; closing the pocket by contacting the first sheet of dough with a second sheet of dough to form a stuffed pasta; and separating the stuffed pasta from the first and second sheets of dough.

The invention will now be described, by way of an example, with reference to the accompany drawings, in which:

Figure 1 is a three-dimensional view of a pasta machine according to the invention;

Figure 2 is a part sectional side view of the machine in Figure 1;

Figure 3 is a fragmentary view showing a dough stuffing unit of the machine of Figure 1; and

Figure 4 is an exploded view of a feeder mechanism for controlling the injection of filler material between the dough layers.

Referring to Figures 1 and 2, reference numeral 10 generally indicates a stuffed pasta making machine comprising a hopper 12 containing a filler

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material 14, a first roller 16 supporting a first sheet of dough 18 rolled up in a roll and a second roller 20 supporting a second sheet of dough 22, also rolled up in a roll. Alternatively, the first and second sheets of dough may be fed to the machine 10 from another machine producing the sheets of dough.

The machine 10 further comprises a dough stuffing unit 24, a cutting unit 26 and conveyors 28, 29 for receiving the manufactured product and waste material for recycling.

The stuffing unit 24 is shown in greater detail in Figure 3. It comprises a pair of opposed rollers 30 and 32, a feeder mechanism 34 for controlling the injection of the filler material 14 between the dough sheets 18, 22 and an air chamber 36 provided with a cover 39 housing a number of bladders 38, four in the present example, arranged in a row.

The roller 30 is provided with five circumferentially spaced rows of recesses 40. In the present example, there are four of the recesses 40 in each row, which recesses 40 are spaced along the length of the roller 30. An associated bladder 38 is provided for each recess 40.

A number of the rollers 30 may be provided

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which are interchangeable on the machine. The rollers 30 may be provided with different shaped recesses in order to form different shapes of stuffed pasta. The recesses 40 on different rollers may be of different sizes in which case a greater or lesser number of recesses 40 are provided in a row, depending on their size. Accordingly a number covers 39 having different numbers of the bladders 38 may be provided to match the recesses 40 on the roller 30.

The feeder mechanism 34, as shown in Figure 4, comprises a body member 42 provided with four bores 44 therein. Each bore 44 is provided with an inlet 46 and an outlet nozzle 47 at its lower end. A plunger 48 is received in each bore 44. The plungers 48 are moved in unison under computer control for injecting the filler material 14, as will be described below.

As shown in Figure 2, the hopper 12 is provided with a rotary mixer 50 and a pair of opposed rotors with lobes 52 for feeding the filler material 14 along a passage 54, connecting the outlet of the hopper 12 to the inlets 46 on the feeder mechanism 34.

The sheets of dough 18, 22 are fed by means of two pairs of opposed calendaring or calibrating

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rollers 56 to the rollers 30, 32, respectively. The rollers 56 reduce the thickness of the sheets 18, 22 to about 6mm ($\frac{1}{4}$ ")

The dough sheet 18 passes over the roller 30, as shown in Figure 3. As the roller 30 rotates and the rows of recesses 40 each in turn reaches the top centre position which is located beneath the row of bladders 38. When this position is reached, the recesses 40 on the roller 30 and the bladders 38 are in register.

A burst of compressed gas or air is introduced into the air chamber 36 from a source of compressed air, not shown. The bladder 38 above each of the recesses 40 in the row is momentarily inflated and expands to press the dough layer 18 into the recesses 40, thereby creating pre-formed pockets of dough for receiving the filler material 14. For decorative purposes the recesses 40 may be embossed with desired patterns which are then impressed onto the dough when the dough is pressed into the recess 40 by the bladder 38.

As the roller 30 rotates further, the pre-formed dough pockets reach a position adjacent the outlet nozzles 47, at which time the plungers 48 are activated to move downwards in the bores 44 in order

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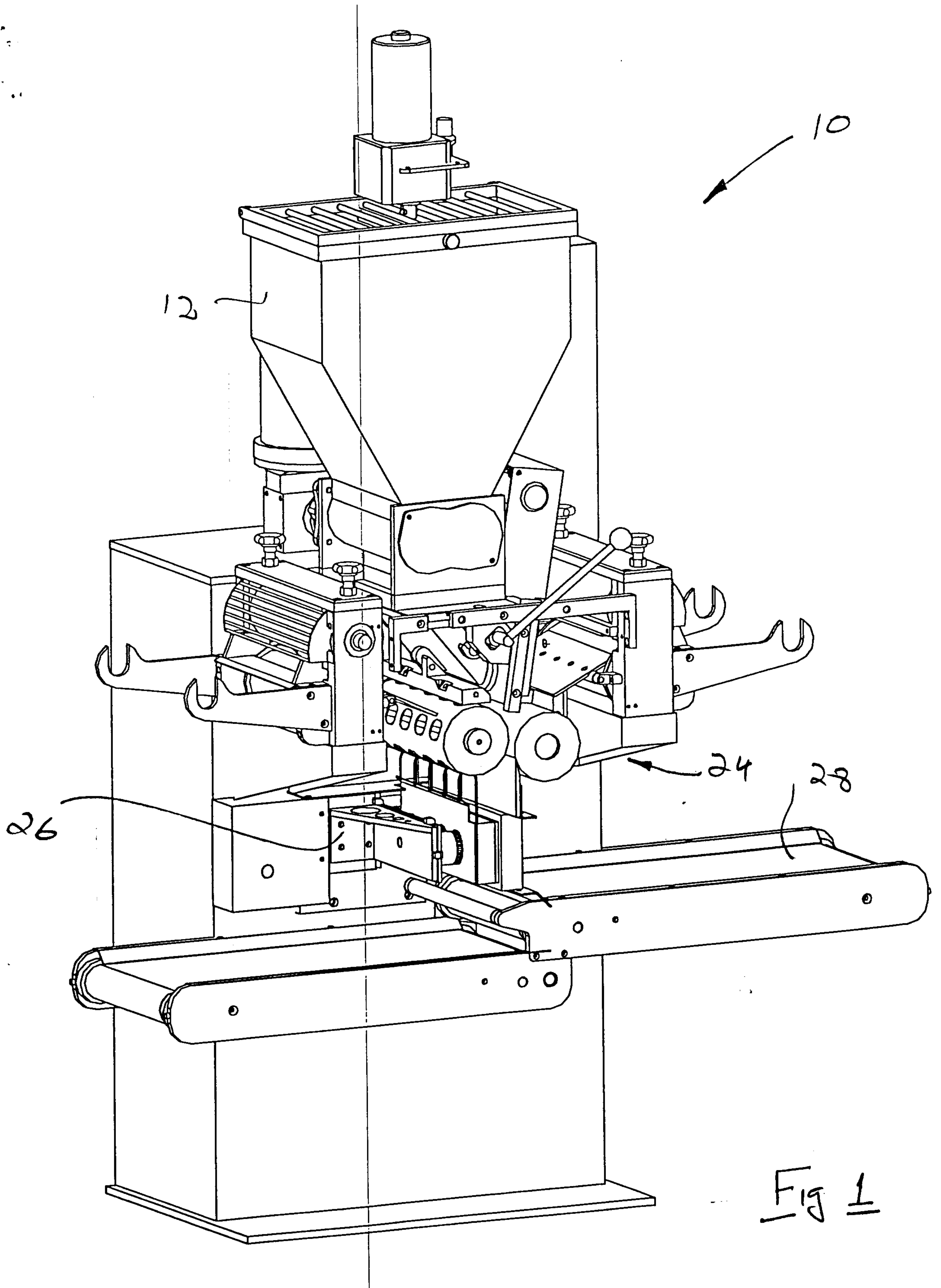
to inject a charge of filler material 14, flowing through the passage 54, into the pre-formed pockets. The filler material 14 is of a paste-like consistency so that it does not run from the nozzles 47 without being forced by the plungers 48.

As the roller 30 rotates further, the dough sheet 18 meets the dough sheet 22 moving around the roller 22, which results in sealing of the pockets of filler material 14 between the dough sheets 18, 22.

As the roller 32 is rotated in an anti-clockwise direction the dough sheet 22 is pressed against the sheet 18 in an upward direction, which can result in a wave effect in the dough producing an undesirable seal, overflow of filler material or otherwise undesirable product. In order to counteract the effect of this wave effect, a shallow cut-out is formed in the surface of the roller 30 around the upper peripheries of the recesses 40 which cut-out connects adjacent recesses 40 to each other. It has been formed that this tends to compensate for the wave effect by releasing pressure in a sideways direction. For example, the cut-out may be of the order or 5 to 6mm ($\frac{1}{4}$ ") deep and 5 to 6mm ($\frac{1}{4}$ ") wide around the outer sides of the recesses 40.

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The combined dough sheets 18, 22 are finally passed through a conventional cutting unit 26 for cutting the dough filled pockets out of the dough sheets 18, 22 to produce discrete stuffed pastas, e.g. ravioli 60, which are received on the conveyor 28. The left over dough is received on the conveyor 29 for recycling.



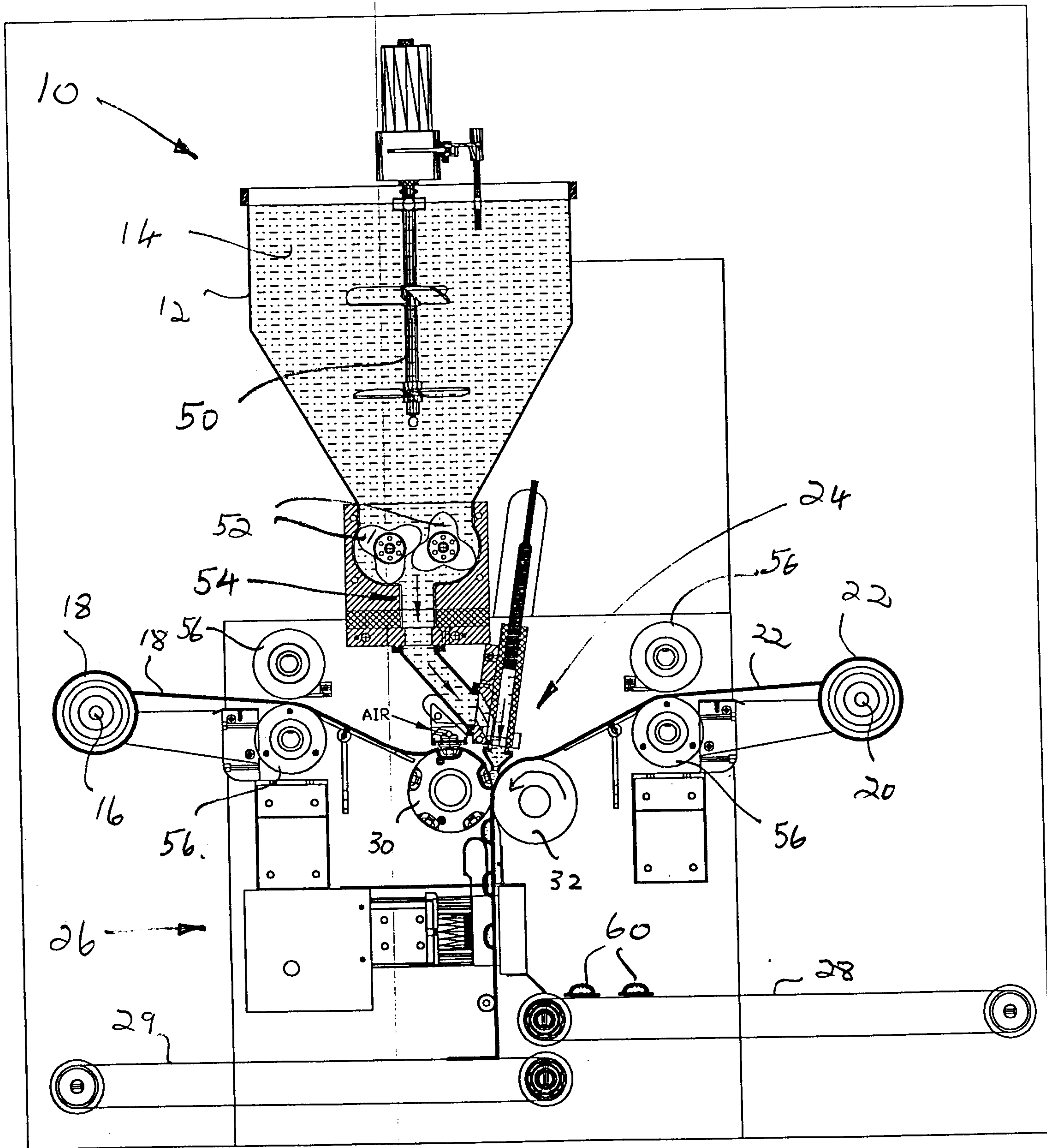
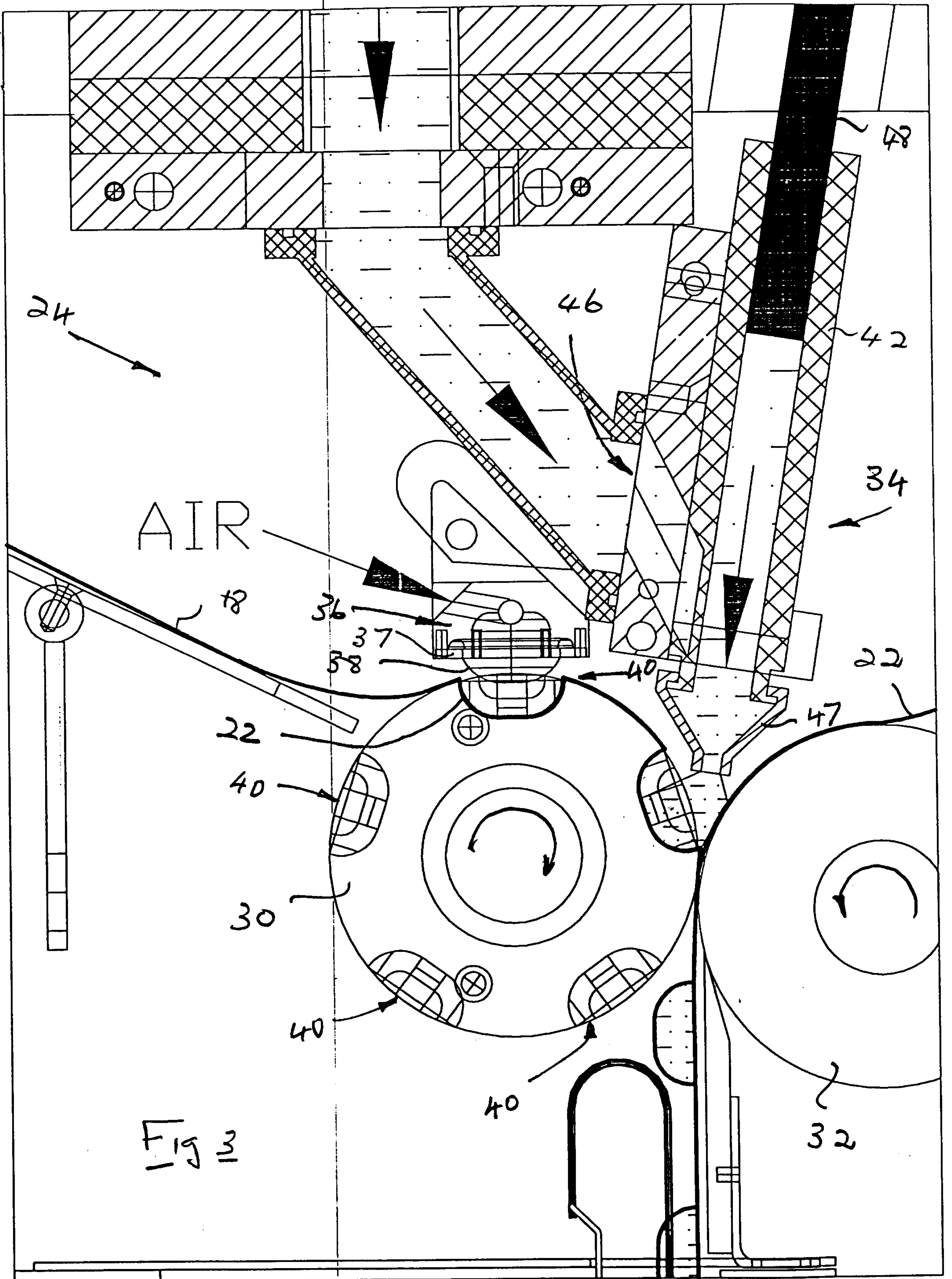


Fig 2



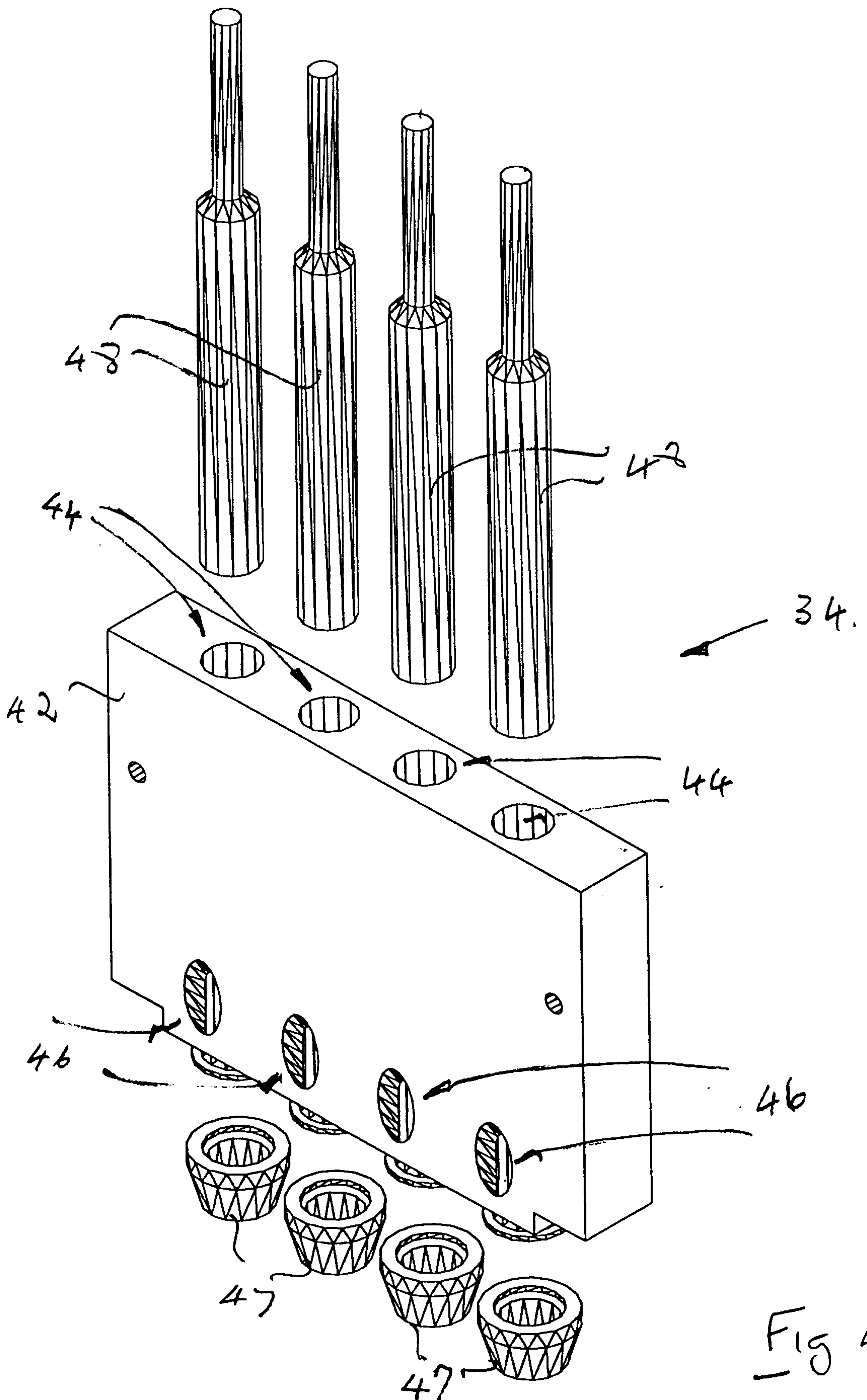


Fig 4

