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(54) Glue melting gun.

(57) A glue melting gun construction which permits coordination with automated machine and/or is capable of performing long distance or continuous coating of glue avoiding manual feed control of existing guns, the gun comprising a glue melting tube (24) surrounded by a heater (25) for melting glue into liquid form, and a bolt (23) disposed in the glue melting tube and driven by a motor on actuation of a switch (221) whereby the bolt urges liquid glue from an outlet (243). The gun has a head (26) fitted to the end which provides a one way valve (261,262) acting on the outlet to stop flow of liquid glue when the motor stops driving the bolt

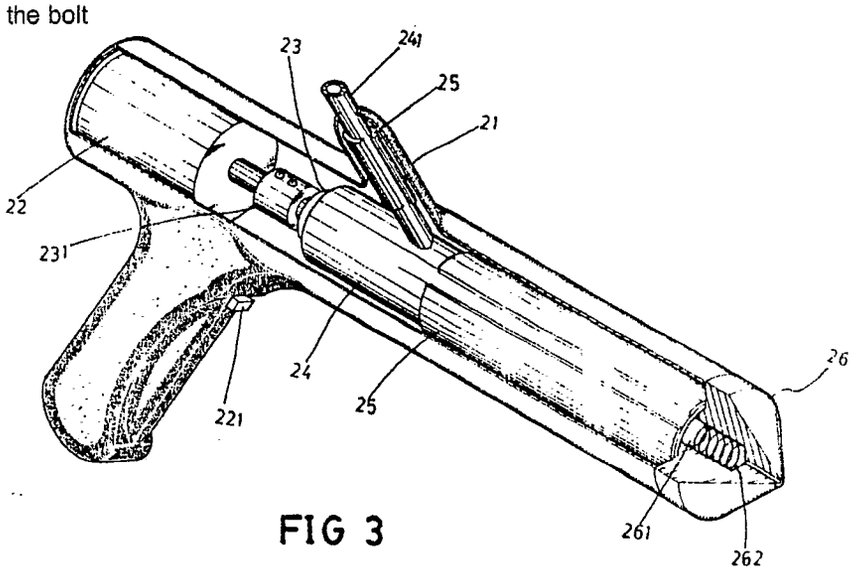

FIG 3

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Glue Melting Gun

The present invention relates to a glue melting gun construction.

A conventional glue melting gun includes the construction of a heater about a glue melting tube, a clamping means engagable round a glue stick or bar and cooperating with a sliding block inserted in a slide channel. A trigger connects to the clamping means by way of a connecting arm. When the trigger is touched, the connecting arm will move the clamping means and force the glue bar towards the glue melting tube, while the sliding block moves simultaneously; Because the sliding block is restricted by the slide channel, it will guide the clamping block steadily also the pillar shaped glue bar and extrude it into the glue melting tube where it melts to liquid glue; When continously extruded, it will extrude the liquid glue from inside the glue melting tube and coat it onto the surface of an article for adhesion purposes. This construction, though not unreasonable, requires that during the glue melting process the pillar shaped glue bar must be extruded into the melting tube then melted into liquid glue by continuous manual extrusion and depressing the trigger, which results in inconvenience. Excessive force applied on the trigger will break the connecting arm and result in a damaged glue melting gun.

Therefore, as we can see, a conventional glue melting gun must be triggered for operation, so it cannot coordinate with automated operation. It costs labour and time and will be irrational. Therefore, in view of this, the inventor has made intensive research and developed this revolutionary invention.

This invention relates to a type of innovative construction of glue melting gun, particularly to one composed of casing, motor (preferably electric), bolt, glue melting tube, heater and gun head, etc. The heater will melt the pillar shaped glue bar inside the glue melting tube into liquid form, and the motor will drive the bolt and flow the liquid glue out of the gun head for us to apply it to the surface of articles for adhesion purposes; On the gun head is a one-way valve, when the motor stops driving the bolt movement, it will stop the flow of liquid glue. With this innovative construction, the glue melting gun of the subject invention will coordinate with automated machines and perform long-distance or continuous coating of glue, replacing the conventional melting gun which requires manual depressing of the trigger and could not coordinate with automated operation.

The invention will now be described further, by way of example only with reference to the accompanying drawings; in which:-

Figure 1 is a broken away perspective illustration of a conventional glue melting gun;

Figure 2 is a partially sectioned view of a glue melting gun according to the invention, and

Figure 3 is a partially broken away perspective exterior view of the subject invention.

The subject invention relates to a type of glue melting gun of innovative construction which involves the utilization of motor transmission to enable continuous output of liquid glue by means of the bolt movement in order to coordinate with automated machine operation and achieve the purpose of rapid glue coating operation on the production line.

The heat melting gun is designed for the purpose of melting the solid glue into liquid form to facilitate coating on the surface of articles for adhesion. Therefore, the adhesion of solid glue can have better performance and more rapid adhesion effect. Therefore, it is widely used by general machining industry. But the solid glue must be subjected to a heating process to become liquid glue before rapid coating on the surface of articles for adhesion after it is cooled. Therefore, a conventional glue melting gun (as in Fig. 1) has been introduced, which construction includes a glue melting tube (1) with a heater (11), a clamping piece (12) with a round hole in which is a movable clamper, a sliding block (13) inserted in a slide channel (14), while the sliding block (13) is connected to an appropriate location of the clamping piece (12), a trigger (16) connected by a connecting arm (15) to the end of the clamping piece (12). When one triggers the trigger (16), the sliding piece (13) moves simultaneously. Due to the restriction to the sliding block (13) by the slide channel (14), it will guide the clamping piece (12) to steadily clamp the pillar shaped glue bar (17) and extrude into the glue melting tube (1) and melt it to liquid glue. With continuous depression or extrusion, the liquid glue inside the glue melting tube (1)will be extruded and coated on the surface of articles for the purpose of adhesion. Therefore, conventional glue melting gun has the following defects:

1. For the activation of trigger(16) to activate the clamping piece (12) to clamp the pillar shaped glue (17) and extrusion in the glue melting tube (1) to melt the solid glue into liquid glue, it requires manual operation of the trigger to extrude the liquid glue for coating onto the surface of articles. Therefore it requires repeated depression and release of the trigger. The manual operation cannot coordinate with automated machine operation. Also, the manual operation costs much time and labour. This

is one of the defects of a conventional glue melting gun.

2. The extrusion of the pillar shaped glue bar (17) into the glue melting tube (1) must be made by the operation of the trigger (16). When the operater is too anxious and applies excessive force on the trigger (16) beyond the speed of the glue melting, the crackage of the clamping piece (12) or the connecting arm (15) or the trigger (16) can occur, so damaging the glue melting gun. This is a second defect of conventional melting gun.

3. When the glue melting gun melts the solid glue into liquid form, it cannot flow out by itself. So, it requires continuous extrusion. So, the solid glue must be in a bar shape. But a glue bar is flexible, too long the length will influence manual operation. Therefore, it requires frequent refills of the glue bar. This inconvenience is the third defect.

In view of these defects, the inventor has aimed the design at such defects and made repeated tests and improvements. The subject invention utilizes motor drive to activate a bolt to enable the flow of melted glue from the gun head. therefore, it can coordinate with automated machine operation for rapid coating purposes. This is one of the advantages of the subject invention; and, with the bolt movement to enable the flow of the liquid glue without the need of extrusion and depression, the solid glue may be in bar or granule form. Particularly, granules may be fed in large quantities to facilitate rapid and extended-period coating by automated machine operation. This is the second advantage of the subject invention: Furthermore, there is a one-way valve at the gun head of the subject invention, when the bolt stops moving and the gun head points downwards, the one-way valve will stop the outflow from the glue melting tube. This is the third advantage of the subject invention.

Referring to Figures 2 and 3, the subject invention is composed of a two-half casing (21), motor (22), bolt (23), glue melting tube (24), heater (25) and gun head (26).

The casing is in two halves (21) which when closed will encompass and fix the motor (22), bolt (23), glue melting tube (24), heater (25) into position; The glue melting tube (24) has a manifold (241), and the glue melting tube (24) and the manifold (241) have vane-type heaters (25) on the surface. On the front of the glue melting tube (24) is a gun head channel (242) for the gun head (26) fixing such as by screw threaded engagement. On the gun head channel (242) is an outlet (243). A bolt (23) inside the glue melting tube (24), has one end connected by a coupler (231) with the motor (22) shaft, so that it can be driven by the motor (22). The motor (22) is controlled by operation of a switch (221). The bolt carries a helical flange formation. The gun head fixes threadingly into the gun head channel (242) of the glue melting tube (24) and accommodates in a bore a steel ball (261) and a spring (262) which can push the steel ball (261) to jam the outlet (243) of the glue melting tube (24).

An operational example of the subject invention is described as follows:

The manifold (241) of the subject glue gun can receive glue bars, because it has a heater (25) which can melt the glue bars and flow it into the glue melting tube (24). When the bolt (23) inside the melting tube (24) is activated by the motor (22) glue flows to the outlet (243) and pushes open the steel ball (261), i.e. by operation of the helical flange formation of the bolt. The glue flow from the gun head can be applied to the surface of articles for adhesion purposes. When the motor stops, the steel ball (261) is urged by the biasing force of the spring (262) toward the outlet (243) and stops the flow of liquid glue. Therefore, when the glue melting gun stops operation, regardless of whether its gun head faces downwards, the liquid glue will not drop and stain the working table. Furthermore, the outflow of liquid glue from the melting gun is by means of bolt movement, it requires only the control of motor and therefore it can coordinate with automated machine operation. Also, the manifold is located at the top of the melting tube, which is also fitted with a heater, so that the melted liquid glue can flow from the melting tube, Therefore, with an additional container tank (not illustrated herein), it will provide the convenience of mass feeding of granulated glue materials.

To conclude the above, the subject invention has satisfied the requirements of "innovativeness", "practibility" and "advancement" for new-style invention.

Claims

1. A glue melting gun, comprising a casing, a glue melting tube, heating means and a gun head, characterised by a bolt fitting into the glue melting tube and driven by a motor whereby bolt movement by means of the motor drive produces a flow of melted glue from the gun head.

2. A glue melting gun as claimed in claim 1, in which the gun head accommodates a one-way valve whereby the gun head will seal the outlet of the melting tube when the bolt stops.

3. A glue melting gun as claimed in claim 2, in which the one way valve comprises a ball subject to spring biasing in the closing direction opposite to the flow direction.

4. A glue melting gun as claimed in any one of claims 1,2, or 3, in which the casing is in two halves and accommodates the motor, bolt, glue

melting tube and heater,

5. A glue melting gun as claimed in any one of claims 1 to 4, in which the glue melting tube has entry part for introduction of glue in bar or granule form which is branched all from the axis of the bolt.

6. A glue melting gun as claimed in claim 5, in which the branched entry has heater means associated therewith.

7. A glue melting gun as claimed in any one of claims 1 to 6 further comprising switch means for actuating the motor.

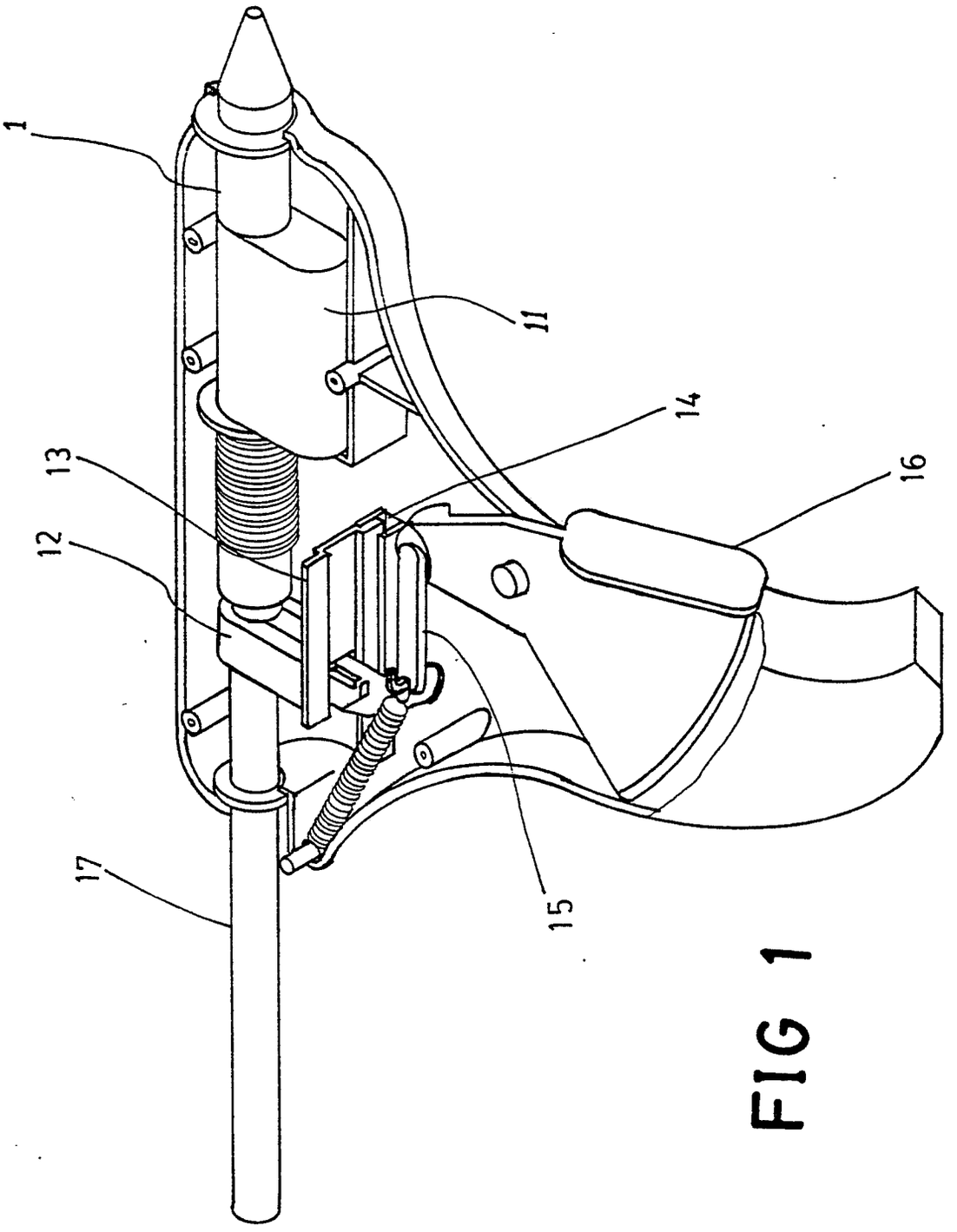

FIG 1

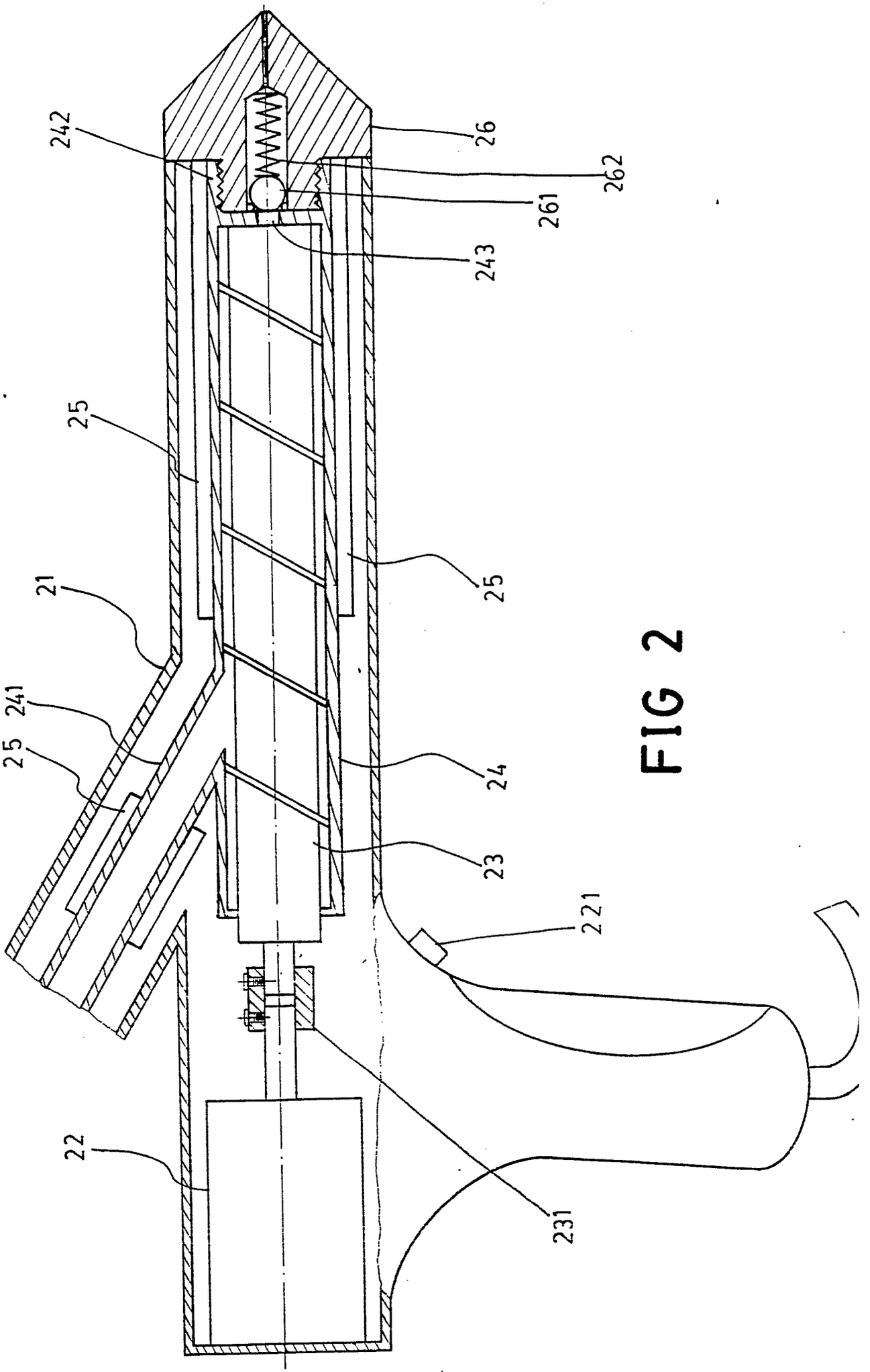

FIG 2

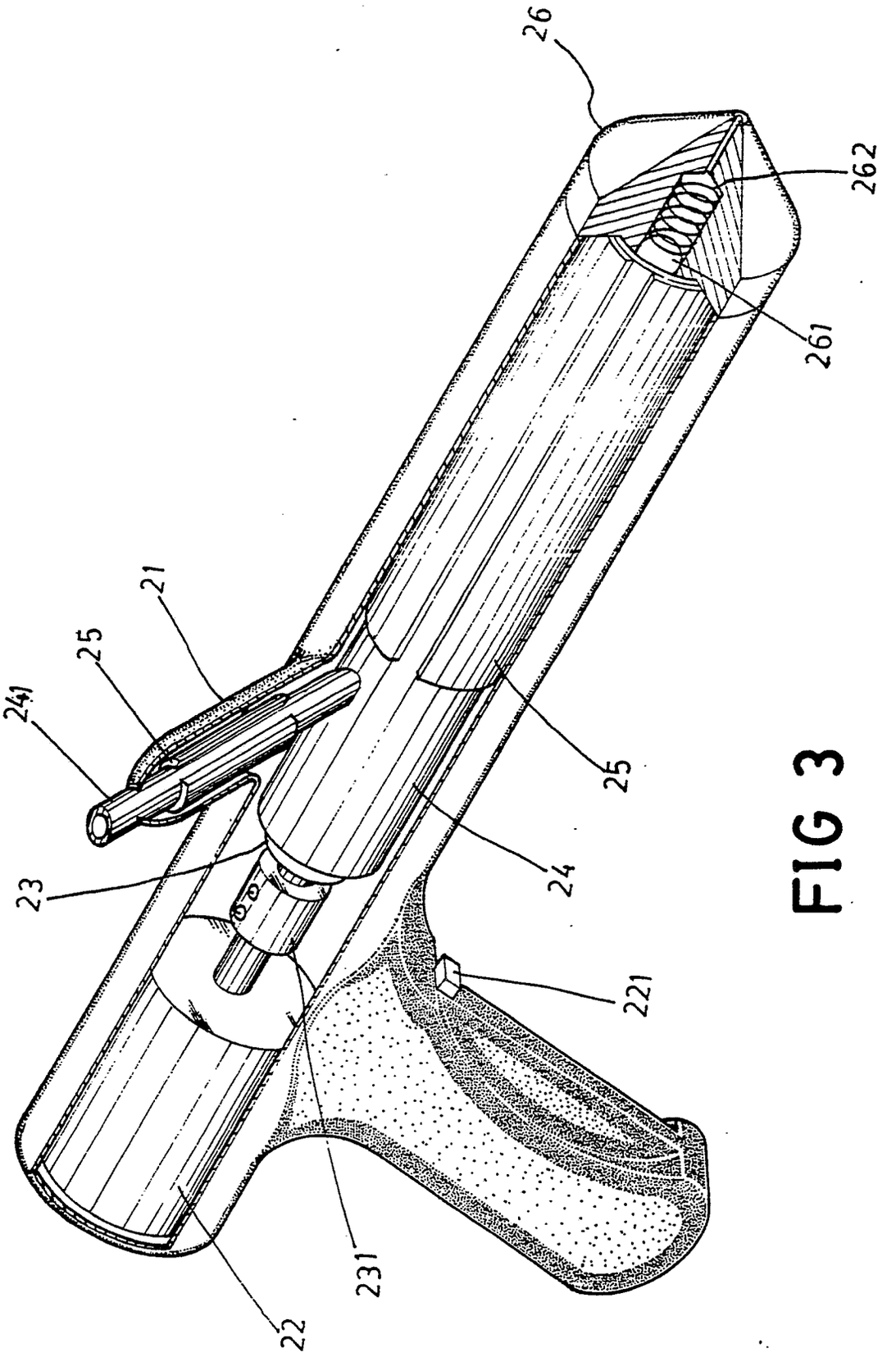

FIG 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 30 8093

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.4)
X	FR-A-2 354 150 (VISCO DYNAMICS) * Page 4, line 31 - page 6, line 37 *	1,2,5,6	B 05 C 17/00
X	FR-A-2 563 752 (S.K.M.) * Page 3, line 24 - page 4, line 37 *	1,2,5	
A	GB-A-2 199 085 (POWER ADHESIVES)		
A	DE-U-8 612 130 (NIEDERBERG-CHEMIE)		

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 05 C 17

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	14-04-1989	SCHMITT L.P.

CATEGORY OF CITED DOCUMENTS

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