United States Patent

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[73] Assignee **Eschmann Bros. & Walsh Limited**
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[33] **Great Britain**
[31] **39,891**

[54] **INTRAVENOUS VALVE ASSEMBLY**
2 Claims, 2 Drawing Figs.

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[51] **Int. Cl.** **A61m 5/00**
[50] **Field of Search** ..... 128/214, 214.2, 215, 216, 218 (NV), 221, 274; 251/149.6, 339, 347; 141/291, 296, 302

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ABSTRACT: The invention relates to devices for administering intravenous injections of liquids such as drugs, anesthetics or transfusion liquids. The device includes a valve body having a holder for an injection needle. The holder has an outlet passage which communicates with the needle. A nonreturn valve is arranged in the valve body. A valve operating plunger has a portion projecting from the body to enable the valve to be opened by operation of the plunger. The plunger has an inlet passage through which liquid to be injected can pass from a syringe into the valve body and thence pass the nonreturn valve to the outlet passage.

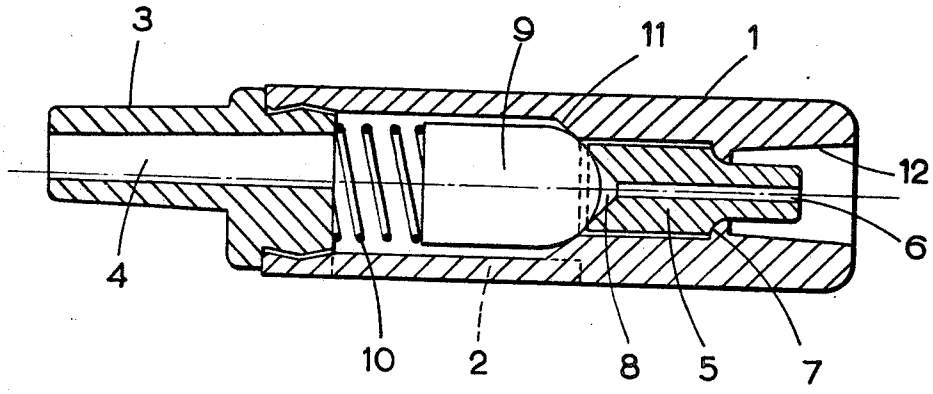


FIG. 1.

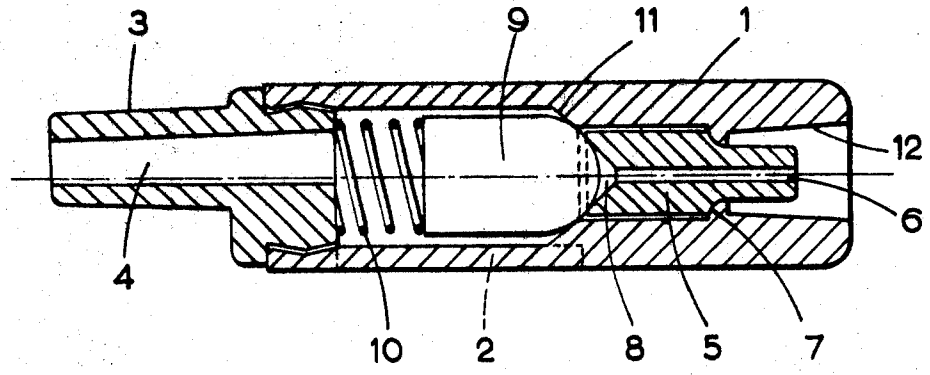
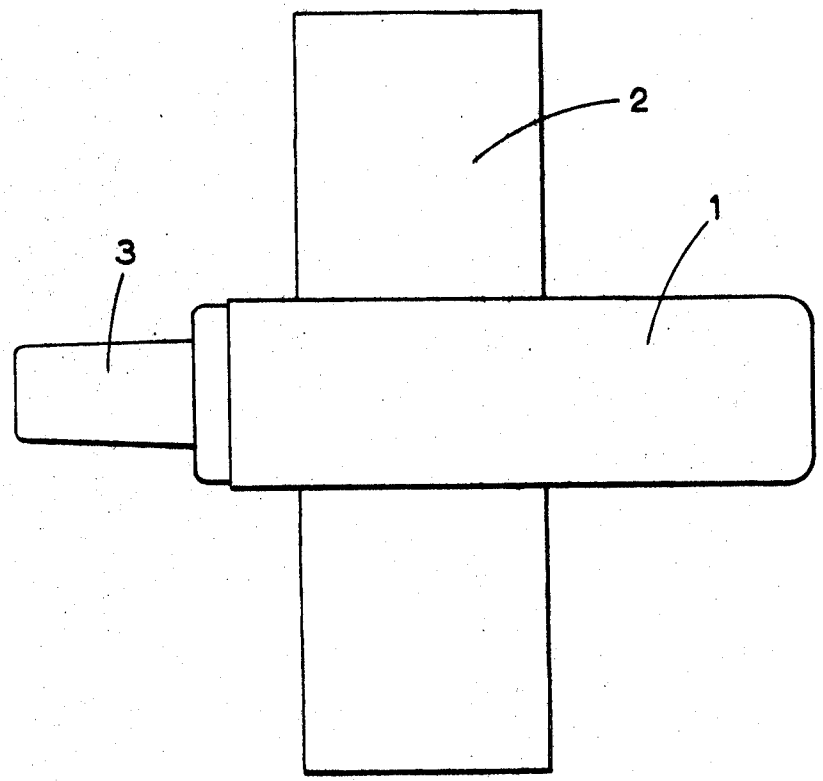


FIG. 2.



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INTRAVENOUS VALVE ASSEMBLY

BACKGROUND OF THE INVENTION

It is convenient to leave an indwelling needle in the vein of the patient so as to avoid repeated vein punctures. In order to introduce a needle into a vein, it is necessary to aspirate blood before giving the injection to make sure that the needle has been correctly located in a vein and not incorrectly located in the surrounding tissues. The anesthetist requires to see blood passing up above the hub of the syringe to indicate that the vein has been punctured. Where such repeated injections are required, the syringe is removed after the first injection, but is is convenient to leave the needle assembly in position on the patient. It is an object of the invention to provide a convenient needle assembly for this purpose.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a sectional elevation of a device for administering intravenous injection to a patient; and

FIG. 2 is a plan view of the same device.

DESCRIPTION OF A PREFERRED EMBODIMENT

The invention provides a device for administering intravenous injections which comprises a valve body having a holder which is arranged to receive an injection needle and has an outlet passage which communicates with the needle, a nonreturn valve within the body, and a valve operating plunger having a portion projecting from the body so that operation of the plunger will open the valve. The plunger has an inlet passage through which liquid to be injected can pass from a syringe into the valve body and thence pass the nonreturn valve to the outlet passage.

The administration device illustrated in the drawings comprises a valve body 1 with the administration device illustrated in the drawings comprises a valve body 1 which is of generally cylindrical shape and is made of plastics material. The body 1 has integral wings which enable the valve body to be attached to a patient. The wings can be secured to the patient by strapping, or preferably, have on the surface intended to contact the patient a coating of a self-adhesive material. If desired, the wings can be replaced by an integral attachment disc.

One end of the valve body 1 receives a needle holder or hub 3 which is attached to an injection needle (not shown) which can be inserted in the vein of a patient. The needle holder or hub has an outlet passage 4 through which liquid can pass to the needle and thence to the patient. The other end of the valve body contains a plunger 5 which is also of plastics material and has an inlet passage 6 through which an injection liquid can pass from a syringe. The outer end of the plunger 5 is of smaller diameter than the main portion of the plunger inside the valve body. The shoulder formed between the two portions of the plunger engages an abutment 7 inside the valve body so that the plunger cannot fall out of the body. The inner end of the inlet passage 6 of the plunger opens into a V-shaped recess 8 extending transversely of the plunger.

The inner recessed end of the plunger 5 is adjacent a rubber valve body 9. A coil spring 10 bears between the valve body 9 and the needle holder 3 to hold the valve member in a closed position against a valve seating 11 and, at the same time, to hold the plunger 5 against the abutment 7.

When it is desired to administer an injection liquid to a patient the outlet end of a syringe is engaged with a locating portion 12 of the valve body. The pressure of the outlet end of the syringe against the outer end of the plunger 5 will cause aspiration of the blood of the patient if the needle is correctly located in the vein. The pressure of the syringe on the plunger will also displace the valve member 9 from its seating 11 and the liquid can therefore be forced from the syringe through the inlet passage 6, past the outside of the valve member 9 and out through the outlet passage 4.

As the device is conveniently made of plastics material it is a disposable unit.

Repeated injections can be made without it being necessary to remove the needle assembly.

We claim:

1. A device for administering injection of fluid into and withdrawal thereof from a patient, said device comprising an elongated hollow body apertured at both ends thereof, a hollow needle holder at one end of the body and a fluid receptacle engagement at the other end of said body, a valve seat within the body, a movable valve member within the body, a longitudinally apertured plunger located within the body and limitedly movable longitudinally therewithin, spring means within the body between the one end thereof and the valve member urging the valve member normally against the valve seat and the inner end of the plunger thereby to close off communication through the device, the outer end of the plunger being engageable by a fluid receptacle from the other end of the body wherein inward movement of the plunger under the influence of the fluid expressed from the engaged receptacle against the normal biasing of the spring within the body unseats the valve thereby to open communication through the valve body in both directions selectively from and to the fluid receptacle.

2. A device as in claim 1 wherein the valve body, between the valve member seat and the said other end, is provided with an inwardly directed shoulder to limit longitudinal movement of the plunger within the body against the shoulder in a rearward direction under the normal biasing of the spring and against the valve member to the limit of compression of the spring means under positive forward movement of the plunger, the fluid receptacle engaging end of the plunger normally extending rearwardly of the body past the shoulder and being readily accessible for engagement by a movement controlling receptacle.