PLASMA SEPARATOR
FOR USE WITH THE FENWAL BLOOD PACK

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With the introduction of the Fenwal plastic blood pack at the Army Blood Supply Depot, the need arose for a device for removing separated plasma from packed-cells; a simple device such as two hands slowly closing and squeezing a blood pack from the base was envisaged, and a plasma separator was developed from that idea.

The plasma separator for the Fenwal blood pack consists of a box made of wood, perspex or metal, with a slot in the top 5 in. by 2 in., and two pieces of similar material 6 in. by 5 in. joined by a hinge. A convenient size for the box is 6 in. by 5½ in. by 5 in. high. The slot 5 in. by 2 in. is made in the centre of the box top, leaving 2 in. either side. The hinged "V"-shaped pack-holder should just slide down in the box slot (Fig. 1).

The Fenwal blood pack "JA-2e" consists of a plastic bag containing 75 ml. acid-citrate-dextrose Formula "A," United States Pharmacopoeia, for collection of 500 ml. whole blood. It has an integral donor tube with needle in cover and two outlet ports covered by pull-apart tabs. The Fenwal transfer pack consists of a plastic bag with a connecting tube having a flanged coupler in cover. The smaller transfer pack (capacity 150 ml.) has one outlet port, while the larger (capacity 300 ml.) has two.

Separation of cells from plasma is obtained by sedimentation or centrifugation. The Fenwal pack with the packed cells and clear supernatant plasma is placed in the hinged "V"-shaped holder, which is then placed in the slot of the box; the holder is forced in sufficiently to just hold the pack securely. Two loose overhand knots are made in the connecting tube of the transfer pack; a control clamp (Spencer Wells artery forceps) is applied and closed between the knots. The cover on the coupler is then loosened but not removed. The tabs are pulled apart from an outlet port in the Fenwal blood pack to expose the sterile outlet tube; the blood pack is held between thumb and forefinger over the folded-back tabs. The cover is removed from the coupler of the transfer pack and the coupler inserted into the outlet tube, twisting in up to the coupler flange. The clamp on the connecting tube is released and the plasma allowed to flow into the transfer pack; as pressure in the blood pack falls, the hinged holder closes gently and slips down in the box slot, thus increasing the pressure. When the packed-cell level approaches the outlet tube, replace the clamp and pull both knots "white tight"; sufficient tension must be applied to squeeze cells or plasma from the knot, leaving it colourless or "white tight" and leakproof. The tubing is then severed between the knots. The packed-cells or plasma can then be administered with appropriate blood recipient set, using the remaining outlet port.

Fig. 2 shows a Fenwal blood pack, containing packed-cells and supernatant plasma, standing in a plasma separator; on the right is a transfer pack half-filled with plasma. The plasma separator illustrated is easily constructed of perspex and is cheap.