Fig. 1

Fig. 2

Fig. 3

INVENTOR.

WILLIAM F. BUTLER

by

McKin 
Henscom 
ATTORNEYS
This invention relates in general to equipment for making blood transfusions and more specifically to a device for supporting a flask used for receiving the blood from a donor and for connecting such flask with a section of flexible tubing.

In taking blood from a donor it is essential that the blood immediately be agitated with a blood non-coagulant such as sodium citrate. In the past, and as described in the Butler et al. patent No. 2,309,302 of January 26, 1943, this has been accomplished by imparting a gyratory movement to the receiving flask during the donating period. Although the equipment described in said Butler et al. patent enables an operator to gyrate the flask and supporting member, the pinch valve associated with the flask holder is always maintained to maintain the flow of blood under control, and to do this by the use of only one hand, the necessity of gyrating the flask is not only inconvenient but it is very apt to result in pulling on the connecting tubing, dislodging the needle from the donor and causing him considerable discomfort.

In general, the object of this invention is the provision of a grip for conveniently supporting a flask in an inverted position while blood is being drawn thereinto through a hypodermic needle at a position immediately above the inner end of the flask stopper, so that this blood of necessity will pass through and be agitated with a body of sodium citrate disposed over said stopper. By resorting to an expedient of this sort the necessity of gyrating the flask can be dispensed with.

The invention possesses other advantageous features, some of which with the foregoing will be set forth at length in the following description where that form of the invention which has been selected for illustration in the drawings accompanying and forming a part of the present specification is outlined in full. In said drawing one form of the invention is shown but it is to be understood that it is not limited to such form, since the invention, as set forth in the claims, may be embodied in a plurality of forms within the scope of said claims.

Referring to the drawing:

Fig. 1 is a side elevation of a flask grip and supporting member embodying the objects of my invention with portions thereof shown in section better to illustrate its construction.

Fig. 2 is a fragmentary rear elevation of the grip and supporting member shown in Fig. 1.

Fig. 3 is a fragmentary front elevation of the device illustrated in Fig. 1.

The hand grip and flask supporting member illustrated in these figures is conveniently made of a strip of metal having an intermediate upsplayed section 1, an overturned hand grip 2, a slightly inclined shoulder 3 and a depending section 4 terminating in an outwardly extending shoulder 5.

Welded or otherwise secured to the depending section 4 is an outwardly extending flask neck receiving ring 6. Threaded into the shoulder 5 and extending through the ring 6 is a hypodermic needle 7 arranged to be pierced through the stopper 8 of an inverted flask 9. As shown in dotted lines in Fig. 1, the flask 9 is supported on the shoulder 3 and held in a substantially vertical position by the ring 6 and by the needle 7, with its center of gravity well below the upper end of the hand grip 2, the stopper 8 having a light force fit with the neck of the flask. Overlying the top of the grip 2 are a pair of parallel and laterally spaced guide rails 11 and 12, these rails being interconnected at their ends and mounted on the grip by flanged legs 13 and 14 depending from the ends of the rail 12 and welded or otherwise secured to the grip. Extending transversely beneath the rails 11 and 12 is a shaft 15 and mounted on this shaft is a tube constricting, thumb operated roller 16 preferably having a knurled surface and arranged to travel between the rails 11 and 12. Also mounted on each end of the shaft 15 between the ends of the roller 16 and the inner edges of the rails 11 and 12 are washers 17 provided with down-turned ears 18 arranged to overlie the upper surfaces of the rails 11 and 12 and to therefore prevent any vertical movement of the roller 16 with respect to the guide rails 11 and 12. It is to be noted, however, that the leg 14 is longer than the longitudinally opposed leg 13 and that therefore the clearance between the roller 16 and the underlying portion of the grip gradually diminishes as the roller 16 traverses the rails 11 and 12 from right to left as viewed in Fig. 1.

Fastened to the lower end of the hypodermic needle 7 is a section of rubber tubing 19, the intermediate portions thereof being forced into a slot 21 formed at the junction of the vertical section 1 and the shoulder 3 and into similar slots associated with the legs 13 and 14. Since a portion of the tubing 19 overlies the grip 2, the traverse of the roller 16 will serve to open and close the tubing at this point under the control of the operator using the device.

Secured to the free end of the tubing 19 is a second hypodermic needle 21 designed to be inserted into a blood vein of a donor.

As supplied for use, the flask 9 contains a small quantity of sodium citrate and is hermetically sealed by its stopper 8 under a partial vacuum,
this vacuum being such that it will serve to withdraw the desired quantity of blood from the donor. Preparatory to receiving a blood donation, the roller 16 is moved toward the leg 13 so as to seal off the tubing at this point. The needle 7 is then pierced through the stopper 8 and the neck of the flask simultaneously inserted into the ring 6 to a point where the shoulder of the flask engages the shoulder 3 of the grip and flask supporting member. The second needle is then inserted in the vein of a donor. This having been done the entire assembly is then inverted and held by the operator in this position by the grip 2, the operator's thumb then being directly over the roller 16. The roller 16 is then moved outwardly to permit blood to flow therethrough. As the blood enters the inverted stopper end of the flask under the influence of the partial vacuum therein, it of necessity passes through the body of sodium citrate contained in the flask and is agitated therewith owing to the turbulent flow of blood into the flask without the necessity of manually imparting a gyratory movement to the flask as heretofore has been necessary. Being relieved of this operation the attendant is free to concentrate on other details of the procedure. If for any reason the needle is accidentally or purposely withdrawn from the donor the roller 16 can be moved inwardly to pinch off the tube and thus prevent the loss of vacuum within the flask. When the needle has been reinserted the roller is again moved outwardly to again permit blood to flow from the donor to the flask.

I claim:

1. A flask supporting and connecting member comprising: a normally vertical hand grip provided at its lower end with a laterally extending flask supporting bracket and arranged to support an inverted flask adjacent and parallel to said grip with the center of gravity of said flask below the upper end of said grip; means for securing a hypodermic needle directly to said bracket in a substantially erect position; and a tube constricting member mounted on said hand grip.

2. A flask support and connecting member comprising: a normally vertical hand grip provided at its lower end with a laterally extending flask supporting bracket for supporting an inverted flask adjacent and parallel to said grip with the center of gravity of said flask well below the upper end of said grip; a hypodermic needle mounted on said bracket in a substantially vertical position; a tube constricting member mounted on said hand grip; and a section of flexible tubing connected at one end to the lower end of said hypodermic needle and operatively associated intermediate its ends with said tube constricting member.

3. A flask supporting and connecting member comprising: a normally vertical hand grip provided at its lower end with a laterally extending flask supporting bracket; a flask neck receiving ring mounted on said bracket on a substantially vertical axis for supporting an inverted flask adjacent and parallel to said grip with the center of gravity of said flask well below the upper end of said grip; a hypodermic needle vertically mounted directly on said bracket within said ring; and a tube constricting member mounted on said hand grip.

4. A flask supporting and connecting member comprising: a normally vertical hand grip provided at its lower end with a laterally extending flask supporting bracket and provided at its lower end with a laterally extending offset bracket; a flask neck receiving ring fastened to said bracket on a substantially vertical axis; a hypodermic needle mounted on the lower end of said bracket and extending upwardly through said ring; and a section of flexible tubing secured at one end to said needle and operatively associated intermediate its ends with said tube constricting member.

5. A flask supporting device comprising a rigid normally vertical member having a laterally extending flask-supporting bracket and an upright portion providing a handle said bracket being arranged to support an inverted flask adjacent and parallel to said rigid member; means for securing a tube directly to said upright portion; and a manually operable tube constricting member secured directly to said upright portion.

WILLIAM F. BUTLER.

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