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R. H. VOLGENAU
BLOOD EXTRACTING DEVICE

2,639,709

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Fig. 1

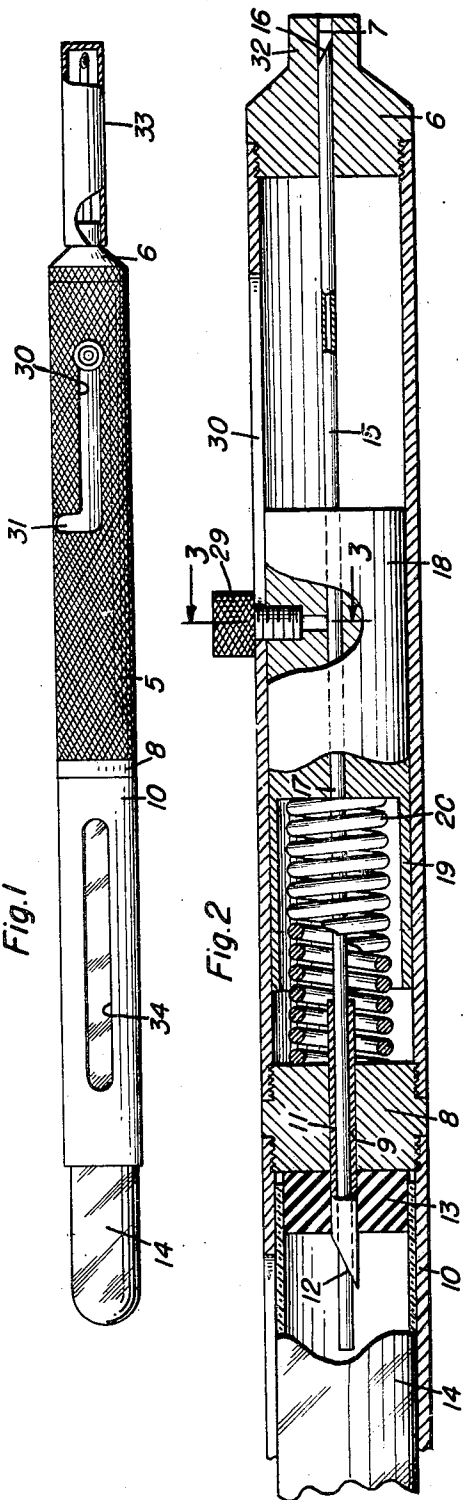


Fig. 2

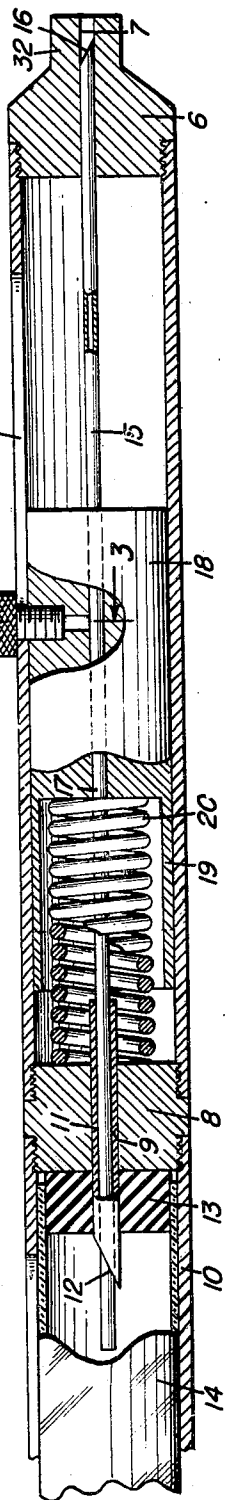


Fig. 4

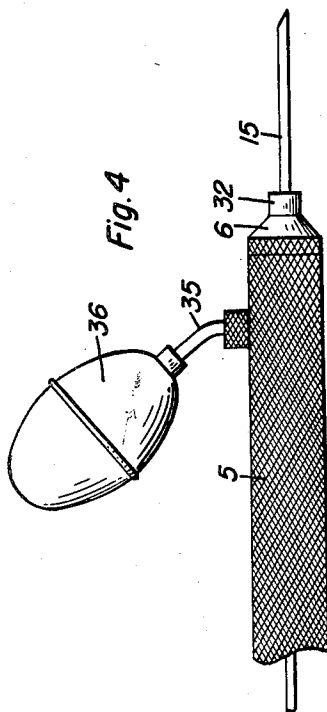
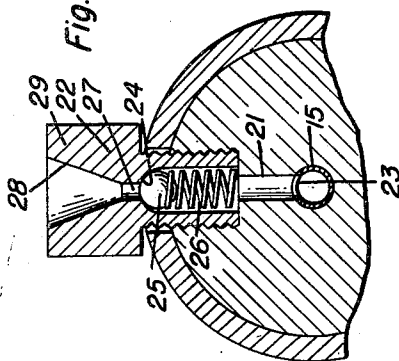


Fig. 3



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BLOOD EXTRACTING DEVICE.

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7 Claims. (Cl. 128—276)

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The present invention relates to new and useful improvements in blood extracting needles for use in the collection of blood samples from cattle or other animals.

An important object of this invention is to provide a spring projected needle working in a barrel and with the rear end of the needle leading to a test bottle held in the rear end of the barrel and in which the blood passing through the needle is collected.

A further object is to provide novel trigger releasing means for this spring projected needle and including a hollow handle slidably carried by the barrel and connected to the needle and by means of which a cleaning solution may be applied to the needle for cleaning both ends thereof.

A still further object of the invention is to simplify by mechanical means insertion of the needle; to improve the efficiency of collection by greater accuracy in including the needle in the vein; to protect the operator from cuts and lacerations due to breakage of the test tube and to otherwise improve the construction of this device.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view;

Figure 2, is an enlarged fragmentary longitudinal sectional view;

Figure 3 is an enlarged fragmentary transverse sectional view of the hollow handle for the trigger and taken on the line 3—3 of Figure 2; and

Figure 4 is a fragmentary side elevational view showing a rubber bulb employed for cleaning the needle.

Referring now to the drawing in detail wherein for the purpose of illustration, I have disclosed a preferred embodiment of the invention, the numeral 5 designates a barrel which may be constructed of metal or other suitable material with a threaded plug 6 closing the front end of the barrel and formed with a bore 7.

The rear end of the barrel is also closed by a threaded plug 8 likewise formed with a bore 9, and a test tube holder 10 is threaded on the rear end of rear plug 8.

A rear needle 11 is fixed in bore 9 of rear plug 8, and is formed at its rear end with a beveled prong 12 projecting into test tube holder 10 to

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penetrate a rubber plug 13 of a test tube 14 when inserted in the holder 10.

A blood extracting needle 15 is slidably mounted at its front end in bore 7 of front plug 6 and is slidably mounted at its rear end in needle 11. The front end of needle 15 is also formed with a beveled prong 16.

The needle 15 extends longitudinally through a bore 17 in a plunger or slide 18, the needle being suitably secured to the plunger for movement therewith. The plunger 18 is slidably mounted in barrel 5 and is provided at its rear end with a skirt 19 in which the front end of a coil spring 20 is positioned and with the rear end of the spring bearing against the rear plug 8 to project plunger 18 and needle 15 forwardly.

Plunger 18 is formed with a lateral passage 21 connected to needle 15 by means of an opening 23 in the needle and a hollow handle 22 is threaded to one side of plunger 18 for connection with the passage 21 thereof.

A valve seat 24 is formed in handle 22 against which a ball check valve 25 is held by a coil spring 26 to close the passage 21 and passage 27 leading through the hollow handle 22. The outer end of passage 27 in the handle 22 is flared as shown at 28, and the outer end of the handle is formed with a knurled finger gripping head 29.

Handle 22 is slidable in a longitudinal slot 30 in barrel 5 and is adapted to enter a circumferential locking slot 31 at the rear end of slot 30 to lock the needle 15 in its retracted position and with spring 20 compressed behind plunger 18.

The outer end of front plug 6 is formed with a neck 32 to which a tubular shield 33 is secured to protect the front end of needle 15, when not in use.

In the operation of the device, the trigger handle 22 is released from locking slot 31 to slide forwardly in slot 30 and to hold the needle 15 in a forwardly projected position. An empty test tube 14 is then placed in holder 10 and rear needle 11 formed through the plug 13 of the test tube, as shown in Figure 2 of the drawing.

Blood extracting needle 15 is then retracted by sliding handle 22 rearwardly and locking the same in slot 31 and the neck 32 of front plug 6 is then placed against the neck or other suitable part of the animal. Trigger handle 22 is then released from locking slot 31 and spring 20 projects needle 15 forwardly to enter a vein in the animal's neck and blood therefrom then flows through the needle 15 into the test tube 14.

Test tube holder 10 is formed with a window opening 34 by means of which the filling of the

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test tube 14 may be observed and when a desired sample of blood has been collected in the test tube the needle 15 is withdrawn from the animal and the test tube removed from holder 10.

The needles 11 and 15 are cleaned by placing the nozzle 35 of a rubber bulb 36 filled with a cleaning solution in flared opening 28 of handle 22 and pressure subjected to the bulb will force valve 25 open and the cleaning fluid forced through both needles.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A blood extracting device comprising a barrel, a spring ejected extracting needle slidably supported in the barrel for movement inwardly and outwardly at the front end thereof, a test tube holder at the rear end of the barrel adapted for receiving a test tube having a stopper at its front end, a needle supporting member at the junction of the barrel and test tube holder, a rear delivery needle having a sliding connection with the extracting needle and fixed in the needle supporting member in the path of inserting movement of the test tube into the holder and adapted to puncture the stopper of the test tube to deliver blood thereto from the receiving needle, and means slidably carried by the barrel for cocking and releasing the extracting needle.

2. A blood extracting device comprising a barrel, front and rear tubular needles in the barrel and connected to each other for delivering blood entering the front needle to the rear needle, means within the barrel projecting the front needle independently of the rear needle into extracting position, and a test tube holder at the rear of the barrel adapted to receive and hold a test tube in position for connection with the rear needle.

3. A blood extracting device comprising a barrel, a slidable front tubular needle in the barrel, a fixed rear tubular needle in the barrel, said needles being connected to each other for delivering blood entering the front needle to the rear needle, means projecting the front needle independently of the rear needle into extracting

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position, and a test tube holder at the rear of the barrel adapted to hold a test tube in a position for the insertion of the rear needle therein.

4. A blood extracting device comprising a barrel, a spring ejected needle slidably supported in the barrel for movement inwardly and outwardly at the front end thereof, a rear needle fixed in the barrel in telescoping relation with the front needle, means supporting a test tube at the rear of the barrel in a position for puncturing the stopper of the test tube by the rear needle, and manual releasable means connected to the front needle and holding the latter in retracted position in the barrel.

5. A blood extracting device comprising a barrel, a spring ejected hollow extracting needle slidably supported in the barrel for movement inwardly and outwardly at the front end thereof, a rear hollow delivery needle fixed in the barrel in telescoping relation with the front needle, and a valved hollow handle connected to the bore of the front needle for manually retracting the latter and adapted to receive a cleaning fluid to clean both needles.

6. A blood extracting device comprising a barrel, a front extracting needle slidably mounted in the barrel for movement inwardly and outwardly at the front end of the latter, a rear delivery needle fixed in the rear end of the barrel in constant communication with the extracting needle, a funnel member projecting from one side of the barrel and connected to one of the needles and adapted to receive a cleaning fluid to clean both needles, and valve means in said funnel member to cut off reverse flow therethrough from the needles.

7. A blood extracting device comprising a barrel, a front extracting needle slidably mounted in the barrel for movement inwardly and outwardly at the front end of the latter, a rear delivery needle fixed in the rear end of the barrel in constant communication with the extracting needle, spring means in the barrel for projecting the extracting needle, and means carried by the barrel for cocking and releasing the extracting needle.

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