Nov. 19, 1929. D. COSS ET AL 1,736,392

PIPETTE

Filed July 12, 1928

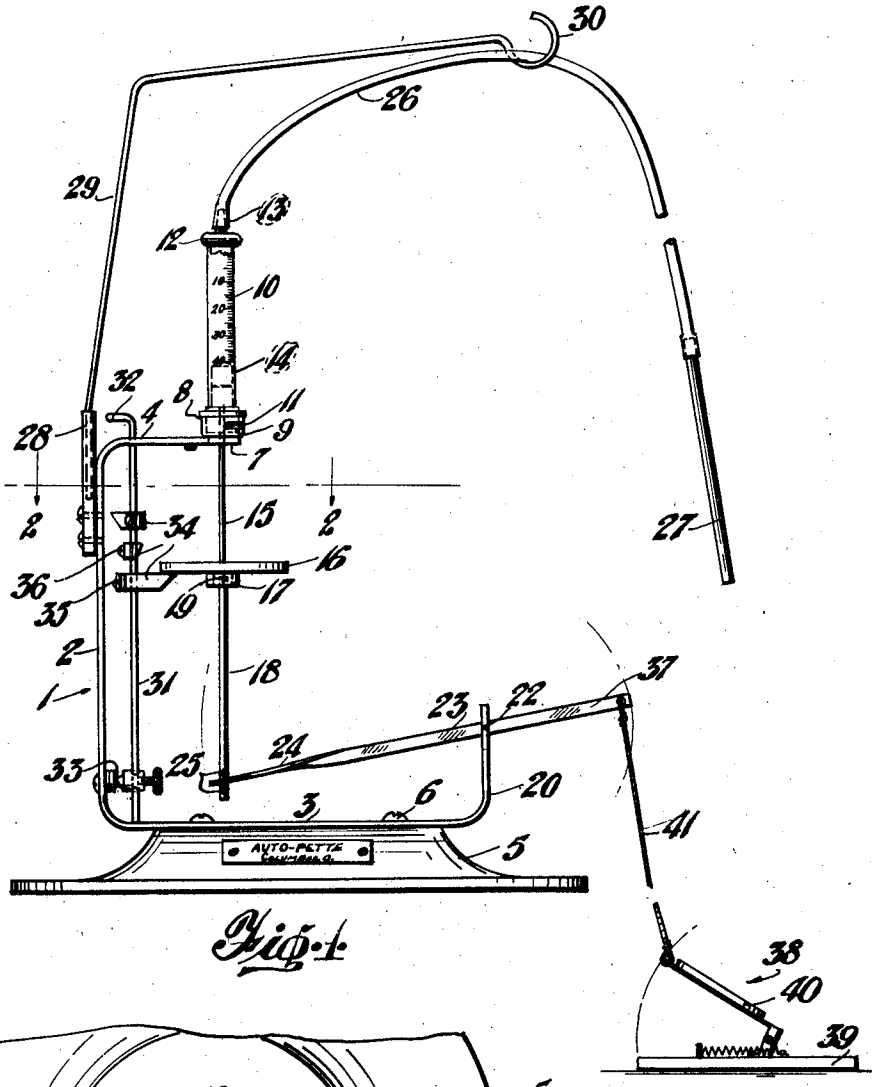


Fig. 1.

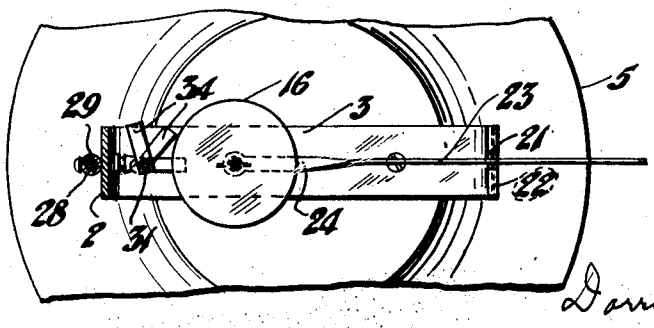


Fig. 2.

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UNITED STATES PATENT OFFICE

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PIPETTE

Application filed July 12, 1928. Serial No. 292,314.

This invention relates to pipettes for taking up, by suction, fluids in definite amounts and more particularly to pipettes for use in making blood tests to determine the amount of corpuscles in a definite amount of blood and also for use in the dilution of blood.

The main object of the invention is to provide a pipette in which the suction is created by means of a piston and cylinder which may be operated by either the hand or foot.

Another object is to provide means whereby any desired or predetermined amount of fluid may be drawn up without necessitating the constant attention of the operator.

A further object is to provide an instrument of the foregoing characteristics which shall be simple, cheap and efficient in operation.

With these and other objects in view the invention resides in the novel construction and arrangement of the parts as hereinafter set forth and claimed.

In the drawing:

Figure 1 is a side elevation of the invention.

Figure 2 is a section along the line 2—2 in Figure 1.

Referring now more particularly to the drawing the numeral 1 denotes a frame of a suitable strip of material bent to form the vertical back 2, the base 3 and the top 4. The frame 1 may be secured to a pedestal 5 by screws 6 or may be similarly secured to a table (not shown) as desired. Secured to the outer end 7 of the top 4 is a circular socket element 8 having bayonet slots 9 at diametrically opposite points. A suction cylinder 10 which is similar to the cylinder of a hypodermic syringe and is provided with the graduations as shown, is removably positioned in the socket 8 by pins 11 adapted to engage the said bayonet slots 9. The cylinder 10 is provided with the usual end piece 12 having the nipple 13, and a piston or plunger 14 is mounted in the cylinder 10. A piston rod 15 secured to the piston 14 is loosely passed through the socket 8 and end 7 of the top 4 and projects downwardly therefrom as shown. A circular stop disk 16 is secured to the lower end of the piston rod 15 for a purpose to be set forth and the same is provided on its underside with a socket 17. A short connecting rod 18 is loosely pinned at 19 in the socket 17 and depends therefrom terminating short of the base 3 as shown. The outer or forward end of the base 3 is turned upwardly at 20 and the upper end thereof is bifurcated at 21 and provided with a pin 22. A lever 23 is fulcrumed on the pin 22 and has its inner end twisted as shown to form the horizontal portion 24. The lower end of the connecting rod 18 is loosely passed through the horizontal end 24 of the lever 23 and is provided with retaining pins or cotter keys 25. It will be understood that by depressing the outer end 37 of the lever 23 the piston 14 will be raised within the cylinder 10 and upon releasing the said lever the weight of the disk 16 will pull the said piston downward in the cylinder. This downward movement of the piston 14 creates a suction in the cylinder and it is this suction which draws up the fluid as will be understood. A flexible tube 26 is connected to the nipple 13 and has the glass tube 27 at its free end. A sleeve 28 is secured to the back 2 near its top and a rod 29 may be inserted therein, the said rod being formed as shown with the hook or loop 30 which will support the tube 26 preventing its kinking and thus shutting off the flow of air therethrough.

An adjusting rod 31 is vertically journaled through the top 4 near the back 2 and its lower end rests upon the base 3, a handle 32 being provided to turn the said rod, and a binding post or clamp 33 serving to retain the same in any adjusted position. A plurality of stop fingers 34 are arranged in vertically spaced relation upon the rod 31 near its upper end, the ends of the said fingers 34 being split at 35 and provided with set screws 36 by means of which the fingers are clamped upon the rod. The said fingers 34 are arranged in different radial planes passing through the axis of the rod 31 as clearly shown in Figure 2. These fingers 34 when turned into the correct position are adapted to engage the disk 16 limiting the fall thereof and it will be understood that by the spoke-

like arrangement of the fingers any one of the same may be brought into engagement with the disk 16 thus limiting its fall to any desired point and regulating the amount of fluid drawn up.

In the use of the device the rod 31 is turned so that any desired finger will be in position to engage the disk 16. The outer end 37 of the lever 23 is then depressed and the glass tube 27 inserted into the fluid which is to be drawn up. Upon releasing the lever 23 the disk 16 will drop until it strikes the finger 34 and the suction thus created will raise the fluid in the tube. The graduations upon the cylinder 10 allow the position of the fingers upon the rod 31 to be adjusted so that the piston will fall to any desired point and raise any desired amount of fluid.

To facilitate the operation of the lever 23 a foot pedal 38 may be used, the same comprising the base 39 and the spring set pedal 40 connected to the lever 23 by a cord or chain 41.

It is obvious that by varying the diameter and length of the suction cylinder large or small amounts of fluid may be raised in this manner according to the nature of the work to be done.

While we have herein set forth a preferred embodiment of our invention, it is understood that we may vary from the same in minor details within the scope of the appended claim.

We claim:

In a device of the class described, a frame, a socket element thereon, a suction cylinder releasably secured in the socket, a fluid receiving tube communicating with the cylinder, a piston in the cylinder having an extended piston rod, a stop element secured to the end of the piston rod, a lever pivoted in the frame, a rod connecting the said lever with the said stop element, an adjusting rod rotatably mounted in the frame adjacent the piston rod, a plurality of adjustable spaced fingers thereon, the said fingers being arranged in different radial planes passing through the axis of the adjusting rod and the said fingers being selectively rotatable into the path of the stop element to limit the movement thereof.

In testimony whereof we affix our signatures.

DORRIS COSS.
GAYMAN CHAMBERS.