

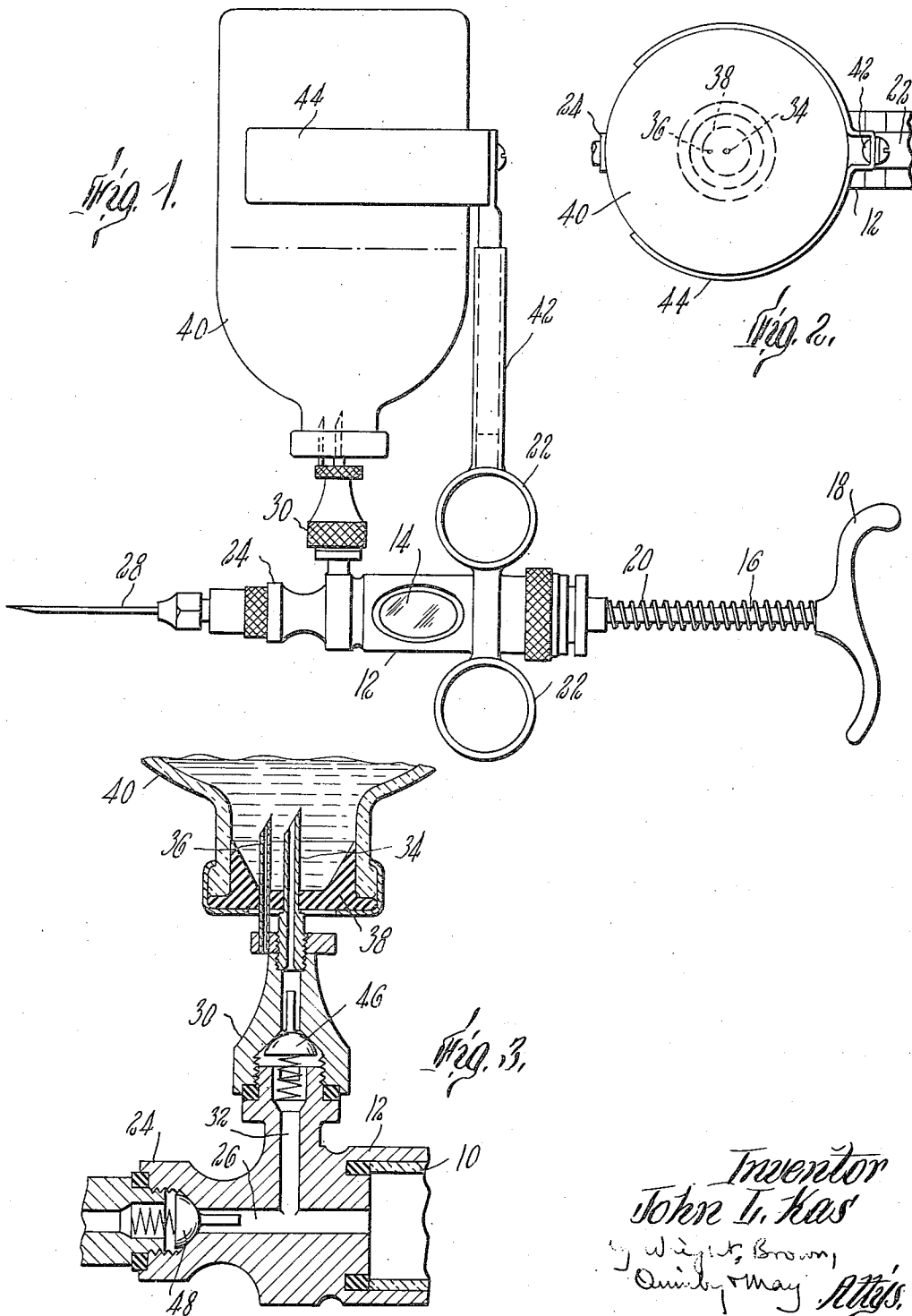
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HYPODERMIC SYRINGE FOR LIVESTOCK

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HYPODERMIC SYRINGE FOR LIVESTOCK

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1 Claim. (Cl. 128—218)

This invention relates to a syringe such as is commonly used in injecting inoculating serums into farm animals and the like. The serum is customarily supplied in a bottle the mouth of which is closed by a rubber diaphragm for the purpose of keeping the contents of the bottle sterile. The operator pushes the sharp point of the needle of the syringe through the diaphragm and sucks up serum into the barrel of the syringe. The needle is then withdrawn from the bottle, and the syringe is ready for the injection of the dose of serum into an animal. After each such inoculation, the process described must be repeated, with the danger that repeated insertions of the needle through the diaphragm which closes the bottle may result in contamination of the serum therein.

According to the present invention, the syringe is provided with means by which a bottle of serum can be mounted thereon to supply repeated doses of serum for successive injections until the bottle is empty. For this purpose the syringe is provided with an arm projecting radially from the casing between the barrel and the needle chuck. The arm has a bore communicating with the interior of the barrel and containing a check-valve. At the extremity of the arm is a short hollow needle adapted to be thrust through the diaphragm of a bottle of serum so that successive doses of serum can be withdrawn from the bottle by reciprocation of the syringe plunger. A bracket is carried by the syringe to embrace the bottle and support it in proper relation to the syringe.

For a more complete understanding of the invention, reference may be had to the following description thereof, and to the drawing, of which—

Figure 1 is an elevational view of a syringe embodying the invention, together with a bottle mounted thereon;

Figure 2 is a fragmentary plan view of the same; and

Figure 3 is a fragmentary sectional view, on a larger scale.

A hypodermic syringe is shown on the drawing, the body of the syringe comprising the customary cylindrical barrel 10 of glass mounted in a metal housing 12 which preferably has lateral openings 14 through which the interior of the barrel can be seen. Reciprocable in the barrel is the customary piston (not shown) attached to a rod 16 carrying a transverse thumb piece 18 at its outer end. The rod extends through an end wall of the housing and is surrounded by a spring 20 which tends to maintain the piston in its retracted position. Secured to the housing 12 are a pair of finger loops 22 through which two fingers of the operator are passed to steady the syringe when the thumb piece 18 is pressed by the thumb to advance the piston. A nozzle 24 is integral with the housing 12 and is an extension thereof with a bore 26 which communicates with the interior of the barrel 10. A hollow needle 28 is detachably mounted at the end of the nozzle 24 and in line therewith.

According to the present invention an arm 30 projects radially outward from the housing 12 at a point between

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the barrel 10 and the nozzle 24. This arm has a bore 32 which communicates with the bore 26 of the nozzle and hence with the interior of the barrel. At the end of the arm 30 is detachably mounted a hollow suction needle 34 which is relatively short and the bore of which communicates with the bore of the arm 30. The arm also carries at its end a fine hollow needle 36 of capillary size which is parallel to the suction needle 34 and is arranged to serve as a vent. The two needles 34 and 36 are designed and arranged to penetrate through the rubber diaphragm 38 which closes the mouth of a bottle 40 of serum and is self-sealing when the needles 34 and 36 are withdrawn. To support the bottle 40 with its mouth adjacent to the end of the arm 30, a bracket 42 is mounted on the housing 12 to project radially therefrom or, as shown, may be mounted on one of the finger loops 22 which are fixed on the housing. The bracket may be made with two telescopic parts which are frictionally fitted and may be provided with arcuate spring arms 44 adapted to embrace and grip a bottle 40. The bracket and arms are arranged to hold a bottle in the position shown, with its mouth near the end of the arm 30 so that the suction needle 34 and vent 36 can extend through the diaphragm 38. The vent 36 is arranged so that when one end is inside the bottle 40, the other end of the vent is open to the atmosphere. The vent passage is fine enough to prevent leakage of serum therethrough but allows air to enter to replace serum which is drawn out.

A spring-pressed check valve 46 is provided in the bore 32 of the arm so as to prevent outward flow through the bore toward the bottle. Another spring-pressed valve 48 is mounted in the nozzle bore to prevent inward flow through the nozzle. Thus, when the piston is being retracted, the nozzle bore is sealed and serum is sucked into the barrel from the bottle 40. When the piston is thereafter advanced, the bore 32 is sealed by the valve 46 so that the serum is forced out through the needle 28. This operation can be repeated effectively until the supply of serum in the bottom gets below the level of the tip of the needle 34. This results in a marked increase in convenience and saving of time when a considerable number of animals are to be inoculated.

I claim:

In combination, a hypodermic syringe having a body including a barrel and a nozzle in line with said barrel, a bracket projecting from a side of said body, an arm projecting from said body parallel to said bracket, a bottle having a mouth and a rubber diaphragm closing said mouth, means on said bracket engaging and supporting said bottle with said diaphragm adjacent to the end of said arm, said arm having a bore communicating with the interior of said nozzle, a check-valve in the bore of said arm arranged to prevent outward flow through said bore, a check-valve in said nozzle arranged to prevent inward flow therethrough, a hollow suction needle mounted on said arm in communication with the bore thereof, said needle extending through said diaphragm, and a capillary needle vent extending through said diaphragm.

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