May 3, 1932. J. A. F. OSSE 1,856,582

GRAVITY AND FORCE STOCK PUMP

Filed July 31, 1931 4 Sheets-Sheet 1

Fig. 1.

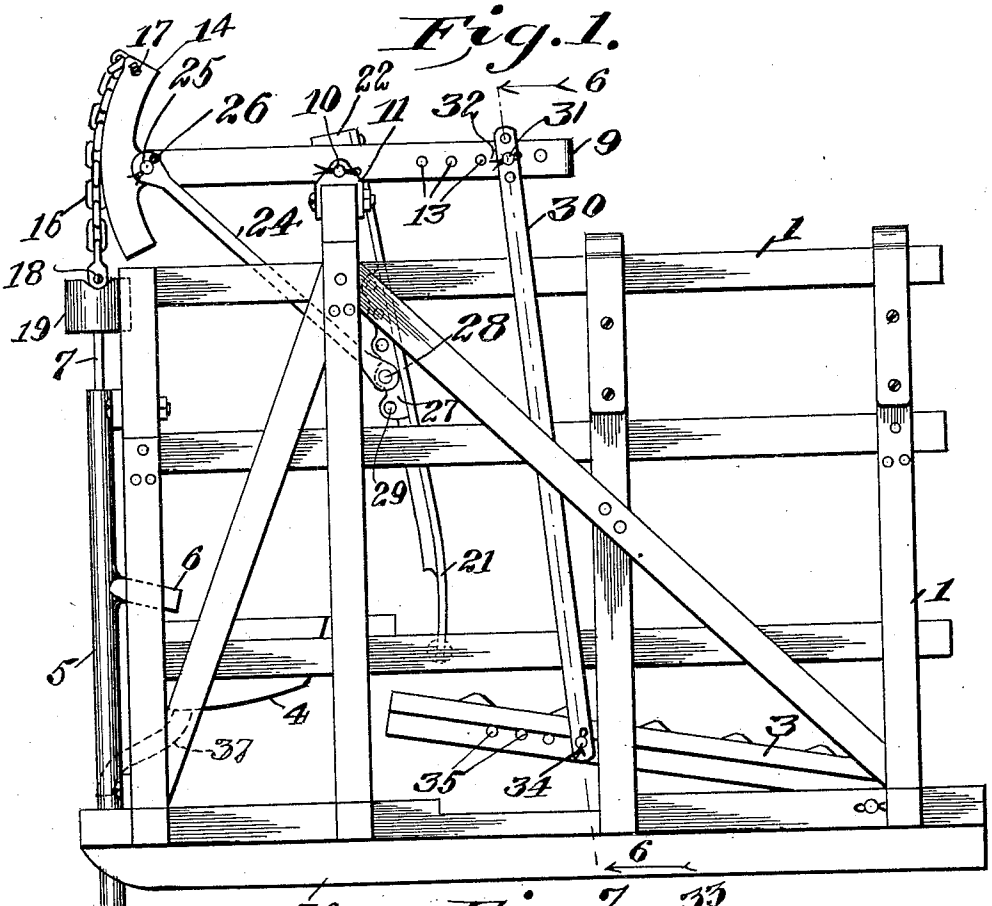
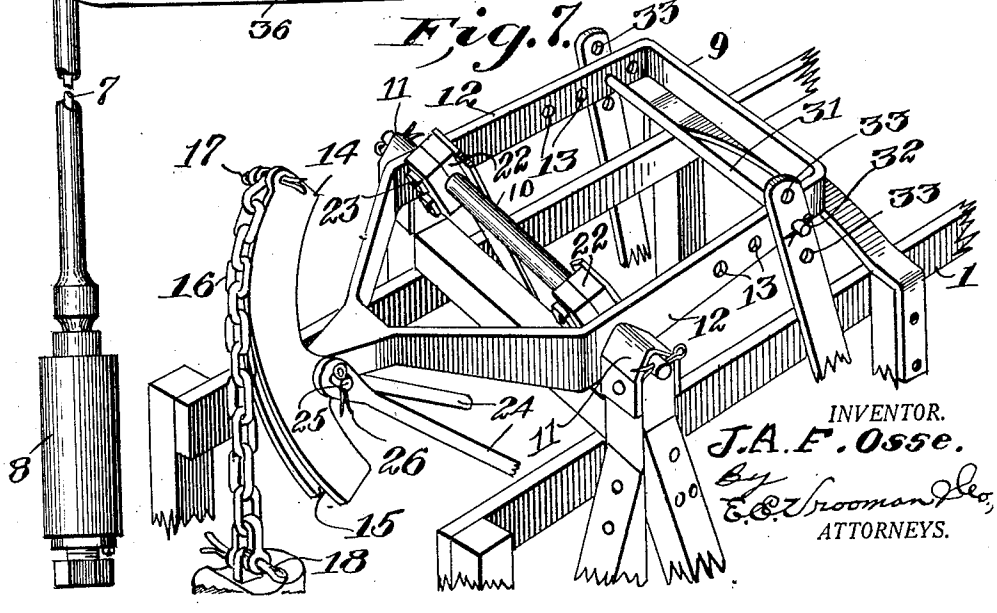


Fig. 7.



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GRAVITY AND FORCE STOCK PUMP

Filed July 31, 1931 4 Sheets-Sheet 2

Fig. 2.

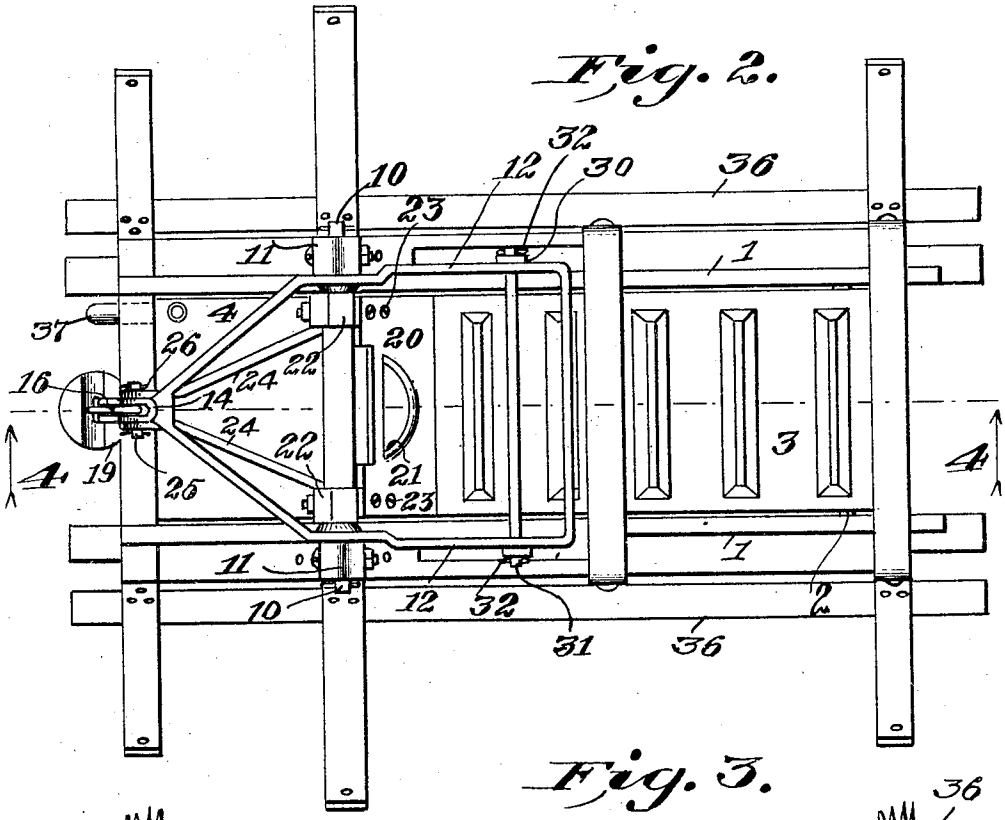
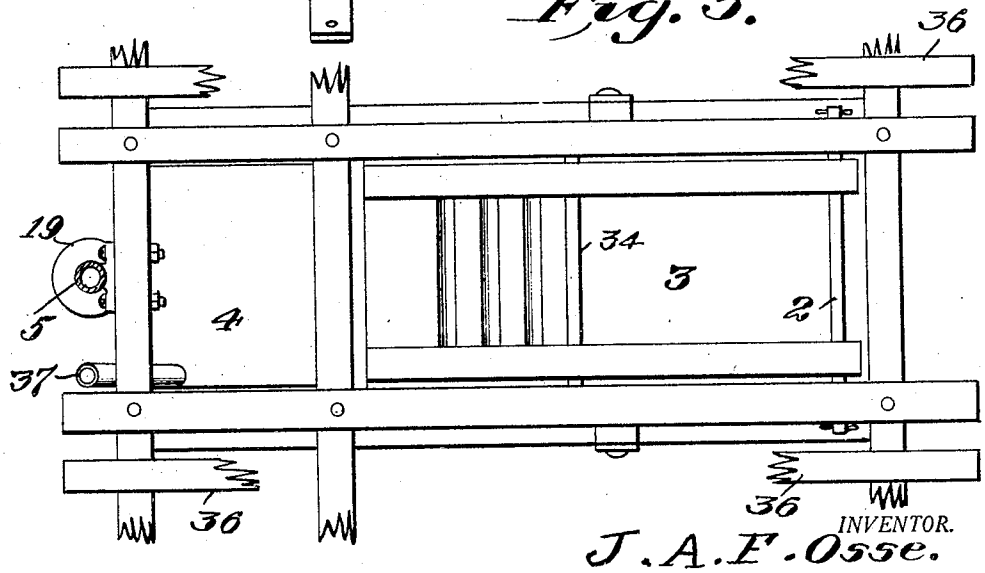


Fig. 3.



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GRAVITY AND FORCE STOCK PUMP

Filed July 31, 1931 4 Sheets-Sheet 3

Fig. 4.

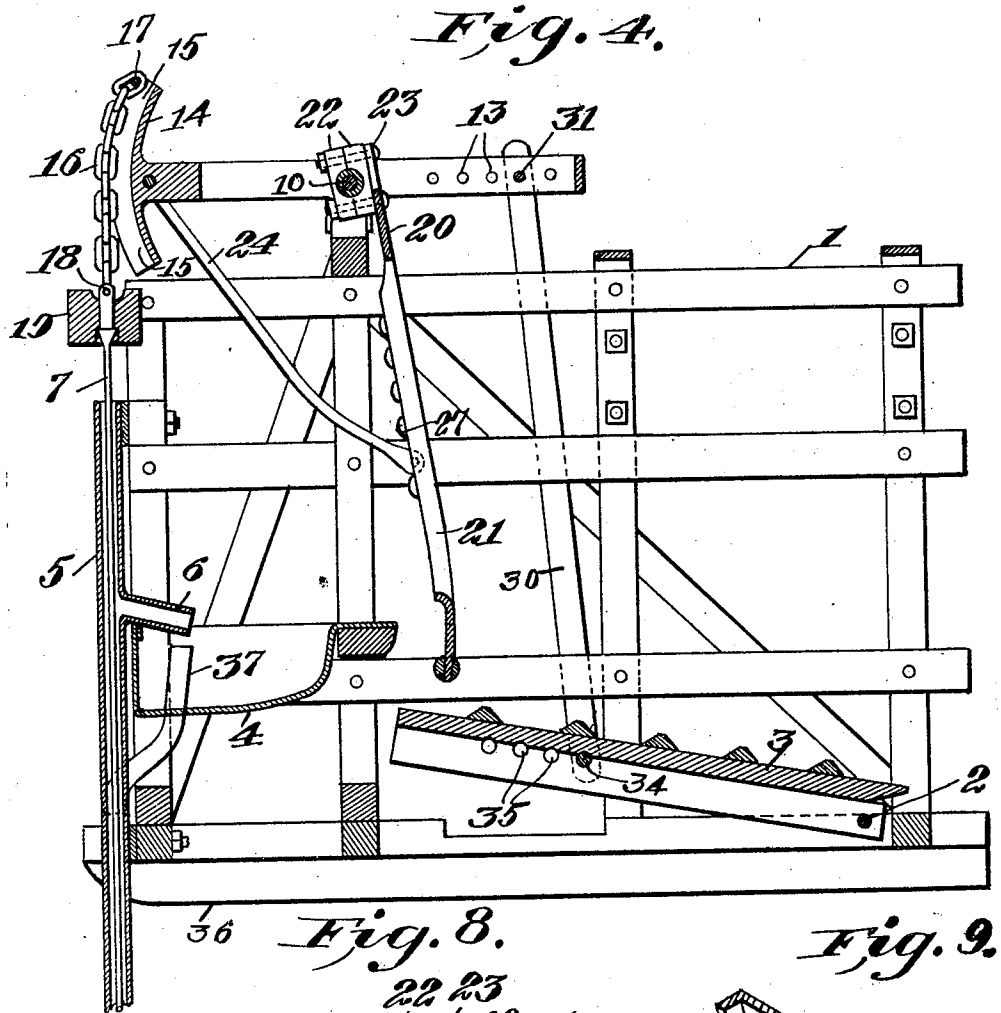


Fig. 8.

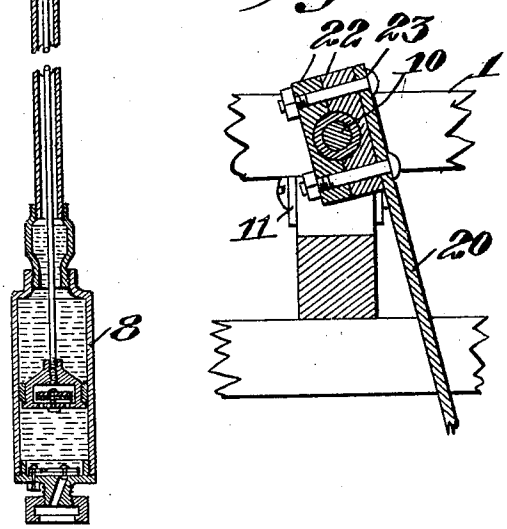
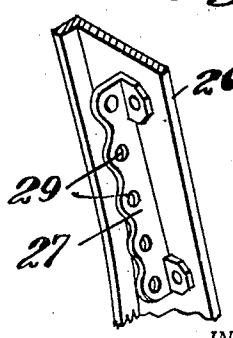


Fig. 9.



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GRAVITY AND FORCE STOCK PUMP

Filed July 31, 1931 4 Sheets-Sheet 4

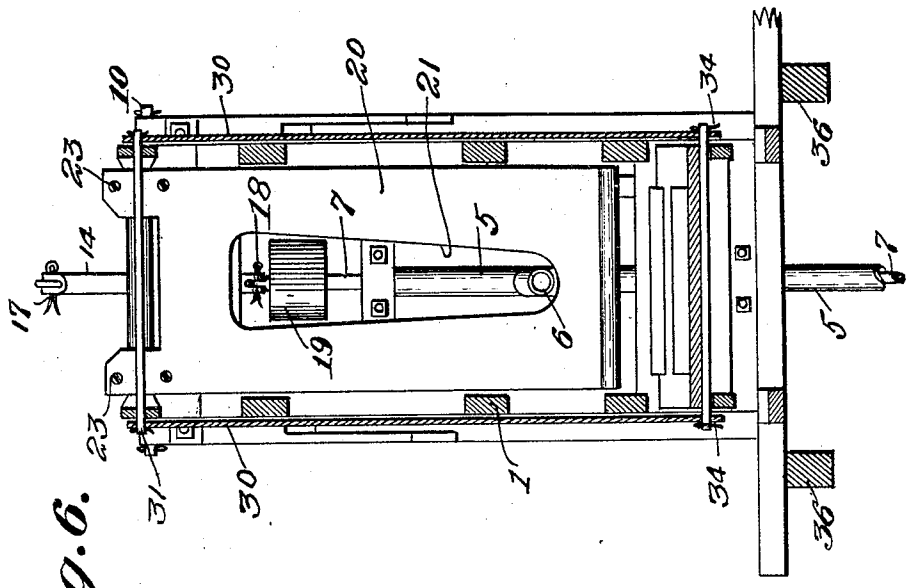

Fig. 6.

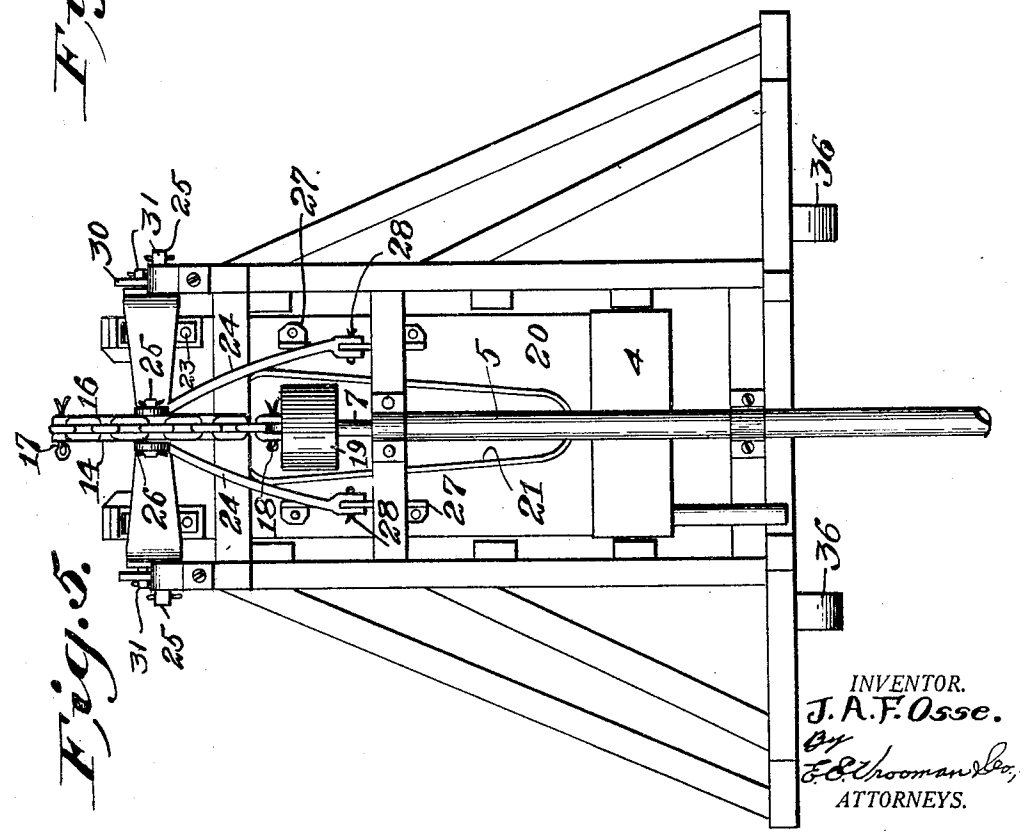

Fig. 5.

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UNITED STATES PATENT OFFICE

JOHANES A. F. OSSE, OF SHELDON, IOWA

GRAVITY AND FORCE STOCK PUMP

Application filed July 31, 1931. Serial No. 554,314.

This invention relates to a gravity and force stock pump.

An object of the invention is the construction of an apparatus to eliminate the necessity of filling water tanks or troughs by hand windmills or otherwise, and providing efficient means for filling a small tank or trough with fresh water by the automatic operation of a pump when the stock approaches the tank.

Another object of the invention is the provision of means operated by the weight of an animal together with the force or pressure of the animal to pump or elevate water for the animal to drink.

A still further object of the invention is the construction of a fence-enclosed movable platform, a movable breast plate contiguous to said platform, a pump unit contiguous to said platform and breast plate, and means connecting said pump unit, platform and breast plate, whereby when weight is placed upon the platform and pressure is exerted upon said breast plate, said pump unit will be actuated.

With the foregoing and other objects in view, my invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a view in side elevation of an apparatus constructed in accordance with the present invention.

Figure 2 is a top plan view.

Figure 3 is a bottom plan view.

Figure 4 is a vertical, longitudinal sectional view taken on line 4—4, Figure 2, and looking in the direction of the arrows.

Figure 5 is a view in front elevation.

Figure 6 is a transverse sectional view taken on line 6—6, Figure 1, and looking in the direction of the arrows.

Figure 7 is a fragmentary, perspective view of the apparatus showing particularly the rocking frame.

Figure 8 is an enlarged, fragmentary, sectional view showing how the breast plate is mounted.

Figure 9 is a fragmentary, perspective view of the breast plate showing one of the auxiliary brackets attached thereto.

Referring to the drawings by numerals, 1 designates the fence; by the term "fence", I mean a suitable support or enclosure for the co-operating parts of my apparatus, and, therefore, the word is used in a broad sense, not limiting me to the arbitrary showing in the official drawings. Mounted upon rod 2 is a movable platform 3, upon which the horse or cattle stands when drinking. A suitable container or tank 4 is placed on the front portion of the fence 1. A vertical well casing 5 is fastened to the front of the fence and this casing is provided with a discharge outlet 6, opening into the tank 4, Fig. 4. In casing 5 is a vertically movable pump rod 7, which connects to suitable pumping means mounted in the container 8, whereby when the pump rod 7 is operated, water will be discharged through outlet 6 into the tank 4.

A rocking frame 9 is mounted upon rod 10; rod 10 is journalled in suitable bearing plates 11 fixed to the upper portion of fence 1. This rocking frame comprises sides 12 in which are formed horizontal apertures 13. To the forward end of frame 9 is attached a vertical curved head 14. This head 14 is provided with a deep groove 15 (Fig. 4) for receiving links of chain 16. Chain 16 is held at its upper end by cotter pin 17 in connection with head 14. The lower end of chain 16 is connected by cotter pin 18 to the upper end of pump rod 7. On pump rod 7 is mounted a suitable counterbalance weight 19 for the purpose hereinafter described.

A breast plate 20 is provided; this plate is provided with a large elongated aperture 21 through which the animal extends its head and neck to enable it to drink out of the tank 4, with its breast or shoulders pressing upon plate 20. The shaft 10 has sets of blocks 22 carried thereby and the upper end of breast plate 20 is fastened by bolts 23 to said blocks 22, whereby the breast plate moves synchronously with the rocking frame 9. Brace rods 24 are fastened at their upper outer ends by

bolt 25 and cotter pins 26 to the forward end of rocking frame near the head 14. The lower inner end of each rod 24 is bifurcated and straddles an auxiliary bracket 27, which is fastened to the inner face of the breast plate 20. A cotter pin 28 (Fig. 1) extends through the bifurcated end of each rod 24 and through the registering aperture 29 of the auxiliary bracket 27, thereby adjustably attaching the rod to the breast plate. This is desirable when the leverage of the apparatus is changed, by reason of changing the position of the ends of the vertical links 30. Each link 30 is mounted on rod 31; rod 31 is carried in registering apertures 13 of rocking frame 9. Cotter pins 32 are mounted on the ends of rod 31 to hold the upper ends of the links 30 in position. It is to be noted that each link at its upper end is provided with a plurality of aligned apertures 33, so that the rod 32 can be placed in different apertures for obtaining the desired accurate adjustment. A rod 34 is placed beneath the platform 3 in any one of a set of registering apertures 35. Therefore, it will be seen that if a greater leverage is desired, the rod 34 is placed in the innermost set of apertures 35, as shown in Fig. 4, but if less leverage is desired, it can be moved forward to the desired set. The weight 19 together with the weight of the pump rod 7 is sufficient for pulling down on the head 14 and causing the inner end of the platform to be held in its raised position as shown, with the breast plate 20 extending outwardly as shown, ready for an animal to walk upon the platform and project its head through opening 21, whereby, as it drinks, it will be exerting a pressure on the breast plate, as well as a weight on the platform, causing the pump rod 7 to be lifted, resulting in the discharge of water into trough 4. The bracing rods 24 produce an efficient apparatus in that they allow part of the pressure-strain to be distributed through them to the head 14, for lifting the pump rod 7.

It will, therefore, be seen that by adjusting the ends of links 30 with respect to the rocking frame 9 and the hinged platform 3, the leverage caused by the animal walking upon the platform can be adjusted to a nicety. Further, the breast plate is adjustable, by changing the positions of the bifurcated ends of brace rods 20 upon the auxiliary brackets 27, attached to the inner face of the breast plate 20.

Every other link of chain 16 extends into the groove 15, thereby guiding the chain on the head as the head swings upwardly and downwardly, causing the pump rod 7 to have a true centering or alignment within the casing 5.

The pumping mechanism at 8 can be of sufficient size to cause sufficient water to flow into the tank 4 at one stroke of the pump rod 7, which stroke is caused by the animal taking its position on the platform and against the breast plate.

The apparatus is provided with suitable runners 36 for enabling it to be hauled easily over the ground.

A suitable overflow pipe 37 is provided, whereby water will not run over the edges of the tank.

Therefore, it will be seen that I have shown in the preferred embodiment of my invention, illustrated in the official drawings, an apparatus in which the combined weight of an animal and its pressing upon a unit results in a greater pumping action be obtained than has ever been obtained heretofore.

While I have described the preferred embodiment of my invention and illustrated the same in the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same, and I, therefore, reserve the right to make such alterations or changes as shall fairly fall within the scope of the appended claims.

What I claim is:

1. In an apparatus of the class described, the combination with a fence, of a movable platform therein, a movable breast plate carried by said fence, a pump unit, and means connecting said pump unit, platform and breast plate, whereby when weight is placed upon said platform and pressure is exerted against said breast plate, said pump unit will be actuated.

2. In an apparatus of the class described, the combination with a fence, a pump unit contiguous to said fence, a movable platform within said fence, of a rocking frame on said fence, a breast plate provided with a central opening on said frame, means adjustably connecting said breast plate to said rocking frame, means connecting said rocking frame to said pump unit, and means connecting said rocking frame to said platform.

3. In an apparatus of the class described, the combination with a fence, a pump unit contiguous to said fence, a movable platform within said fence, of a rocking frame on said fence, a breast plate on said fence and extending downwardly over said platform, said breast plate provided with brackets, brace rods connected at their upper ends to said rocking frame and at their lower ends to said brackets, means connecting said rocking frame to said pump unit, and means connecting said rocking frame to said platform.

4. In an apparatus of the class described, the combination with a fence, a pump unit contiguous to said fence, of a rocking frame on said fence, a platform on said fence, a breast plate carried by said frame above said platform, brackets attached to the inner face

of said breast plate, rods connected at their upper ends to said rocking frame and straddling at their lower ends said brackets, means fastening said straddling ends and brackets together, means connecting said rocking frame to said pump unit, and means connecting said rocking frame to said platform.

In testimony whereof I hereunto affix my signature.

JOHANES A. F. OSSE.