May 15, 1923.

1,455,153

H. H. SMITH

PUMPING APPARATUS

Filed Aug. 23, 1922

Fig. 1.

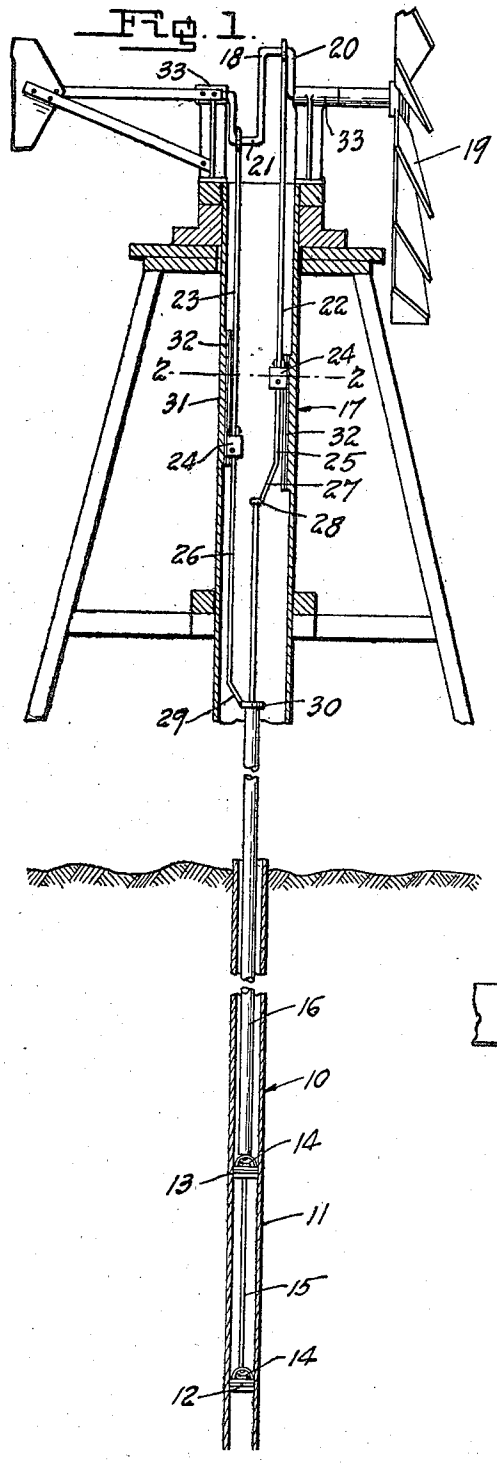


Fig. 2

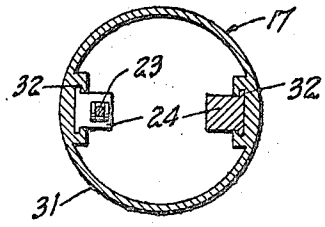
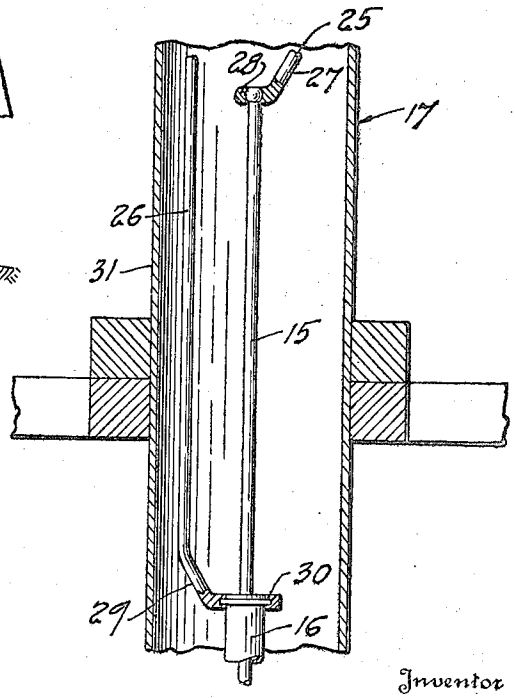


Fig. 3.



Inventor

H. H. Smith

By Watson E. Coleman

Attorney

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UNITED STATES PATENT OFFICE.

HENRY H. SMITH, OF CHERRYVALE, NEW MEXICO.

PUMPING APPARATUS.

Application filed August 23, 1922. Serial No. 583,836.

To all whom it may concern:

Be it known that I, HENRY H. SMITH, a citizen of the United States, residing at Cherryvale, in the county of San Miguel and State of New Mexico, have invented certain new and useful Improvements in Pumping Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in pumping apparatus and more particularly to means for connecting two way pumps to a windmill.

A further object of the invention is to provide means whereby a plurality of rods may be operated from a swivel head windmill and at the same time permit rotation of the head of the windmill to face into the wind without twisting the operating rods.

A still further object of the invention is to provide a device of this character which is simple in its construction and arrangement and which may be readily applied to the pump rods of a two way pump.

These and other objects I accomplish by the construction and arrangement shown in the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein like reference characters designate like parts throughout,

In the drawings:—

Figure 1 is a sectional view showing a pumping apparatus constructed in accordance with my invention;

Figure 2 is a section on the line 2—2 of Figure 1; and Figure 3 is a transverse sectional view showing the connection of the pump rods to the operating rods thereof.

Referring now more particularly to the drawings, the numeral 10 designates a pump of the type generally known in the trade as a two way pump, 11 the pump barrel and 12 and 13 the lower and upper pump valves respectively, both of which comprise a piston having an upwardly opening check valve 14 therein. Each of the pistons 12 and 13 has a close fit within the cylinder 11 and in the operation of the pump these pistons are oppositely reciprocated so that they move mutually toward one another or away from one another. The operating rods for the pistons 12 and 13 comprise a solid rod 15 secured to the lower piston and a tubular rod 16 secured to the upper piston and through which the rod 15 of the lower piston extends.

The numeral 17 designates the swivel head of a windmill of any desired construction and 18 a shaft driven from the wind wheel 19. The shaft 18 embodies a pair of cranks 20 and 21. These cranks operate connecting rods 22 and 23 respectively, having at their lower ends cross heads 24 by means of which they are connected to pumping rods 25 and 26. The pumping rod 25 has an offset 27 extending over the upper end of the stem 15 and provided with a swivel 28 by means of which it is connected to the stem 15. The rod 26 is provided with an offset 29 having at its end a swivel collar 30 adapted to be secured to the upper end of the tubular stem 16.

In connecting the pump and swivel head of the wind-mill, the same are preferably arranged so that the connecting rods 22 and 23 are arranged upon opposite sides of the axial center of the stems 15 and 16 and equidistantly spaced therefrom. Upon rotation of the head, as the wheel is forced into the wind, the swivels connecting the pump rods 25 and 26 to the stems 15 and 16 will permit relative rotation of the head and stems 15 and 16 and accordingly will prevent strain being placed upon the connecting rods and twisting of the pump rods. The swivel head of the windmill is preferably mounted upon the upper end of a casting 31 having guides 32 in which the cross heads 24 operate, this casting rotating as a unit with the head 17 and having formed at its upper end bearings 33 in which the shaft 18 operates.

From the foregoing it is believed to be obvious that a pump connection constructed in accordance with my invention is particularly well adapted for the purpose for which it is intended for the reason that it permits the use of a windmill for operating a two way pump without danger of strain being placed upon the bearings and pump rods which tend to twist the same. It will furthermore be obvious that the construction as hereinbefore set forth is capable of some change and modification without materially departing from the spirit of my invention and I accordingly do not limit myself to the specific structure hereinbefore set forth except as hereinafter claimed.

I claim:—

1. The combination with a pump embodying a barrel, upper and lower pistons oper-

ating within the barrel, the upper piston having a tubular stem and the lower piston having a stem extending upwardly through the tubular stem of the upper piston, and a swivel head windmill embodying a drive shaft provided with cranks, of pump rods having swivel connection with the stems of said pistons, connecting rods connecting the pump rods with said cranks, and a connection between the windmill head and pump rods maintaining a fixed axial relation therebetween.

2. The combination with a pump embodying a barrel, upper and lower pistons operating within the barrel, the upper piston having a tubular stem and the lower piston having a stem extending upwardly through the tubular stem of the upper piston, and a swivel head windmill embodying a drive shaft provided with cranks, of pump rods having swivel connection with the stems of said pistons, connecting rods connecting the pump rods with said cranks, each of said connecting rods being provided with a cross head, and a hollow casting secured to and rotating with the swivel head of the windmill and provided interiorly with guides for said cross heads.

In testimony whereof I hereunto affix my signature.

HENRY H. SMITH.