

Oct. 4, 1932.

B. H. AYERS

1,881,163

AUTOMATIC PRODUCING VALVE

Filed Jan. 26, 1932

3 Sheets-Sheet 1

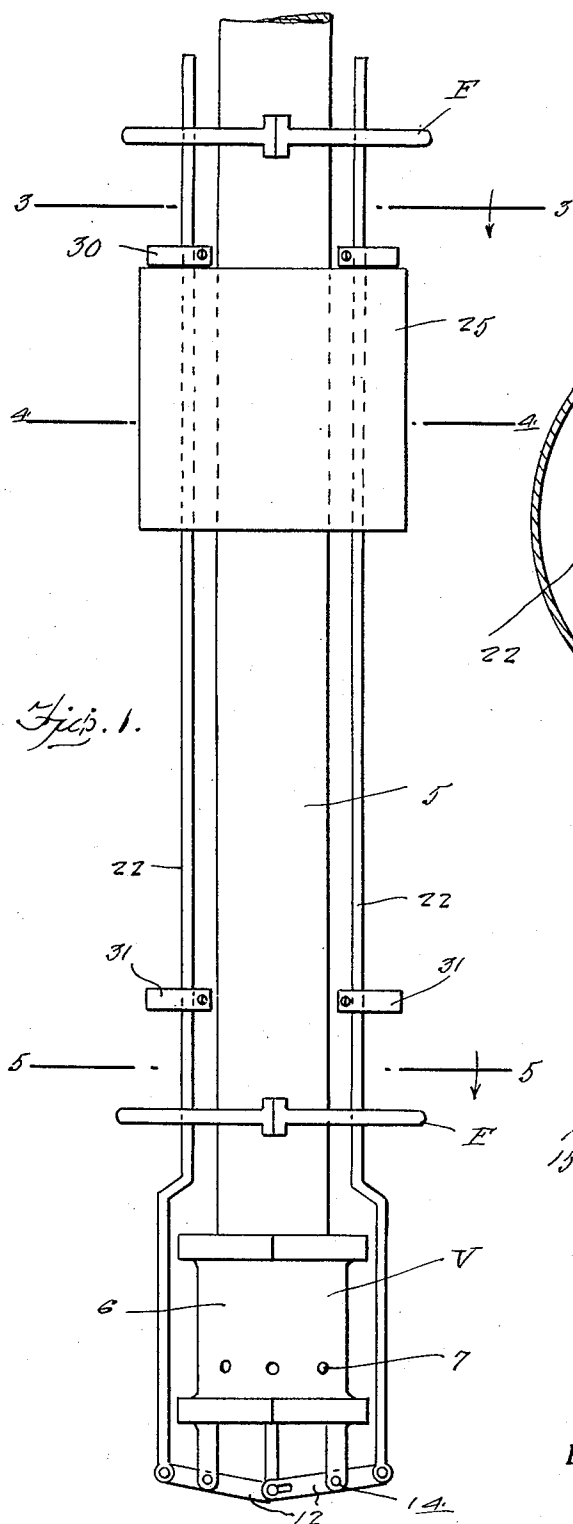


Fig. 4.

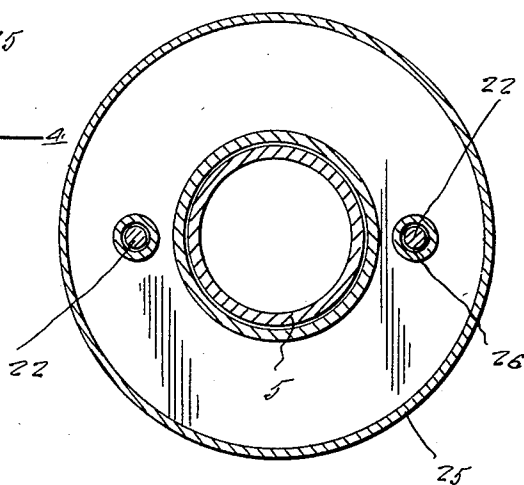
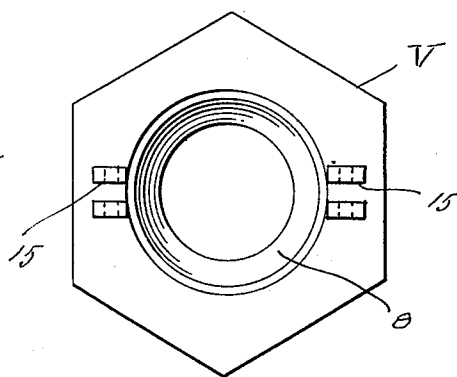


Fig. 8.



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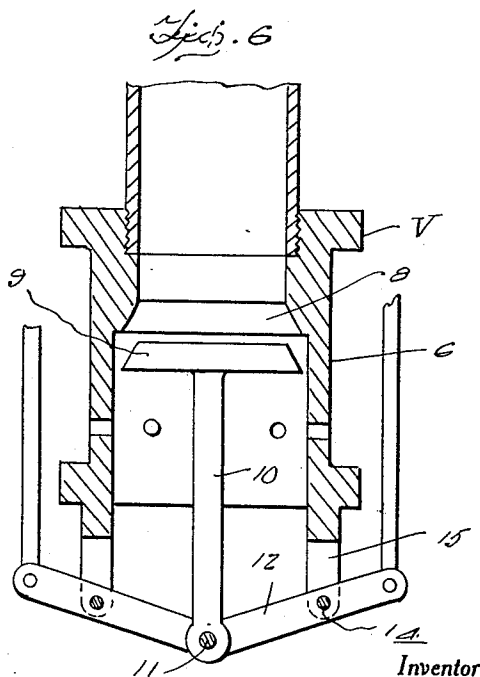
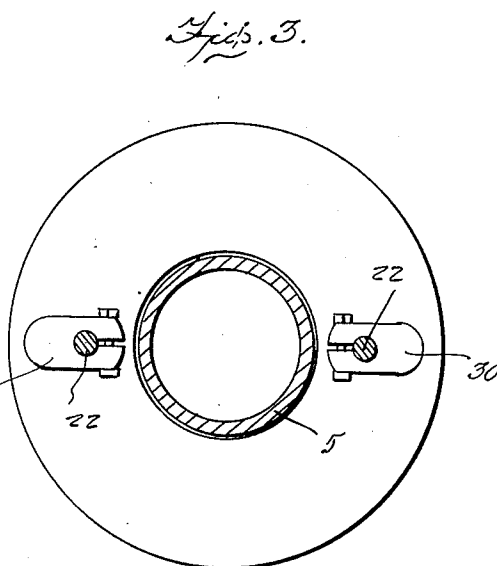
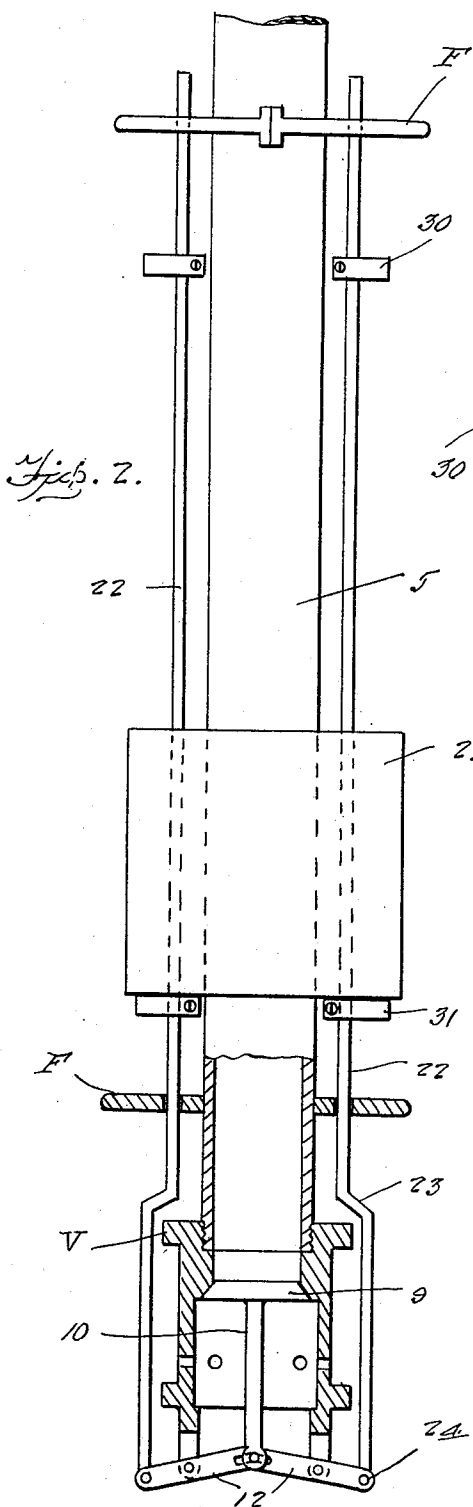
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3 Sheets-Sheet 2



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AUTOMATIC PRODUCING VALVE

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3 Sheets-Sheet 3

Fig. 7.

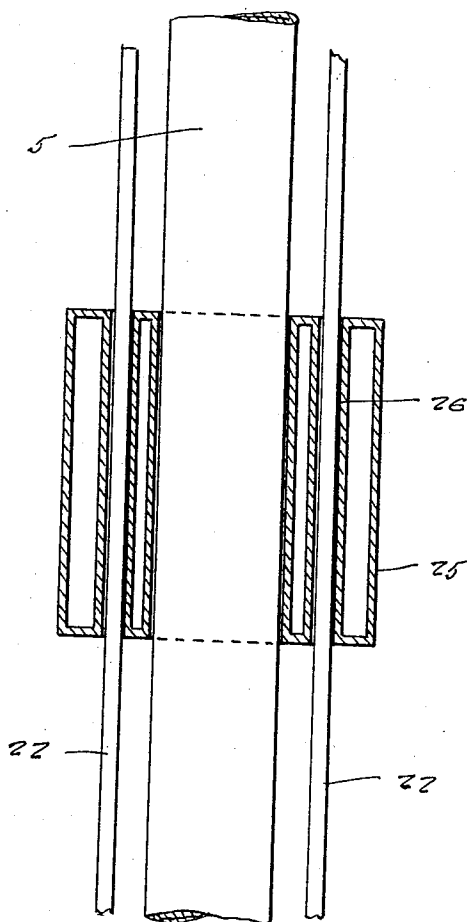


Fig. 5.

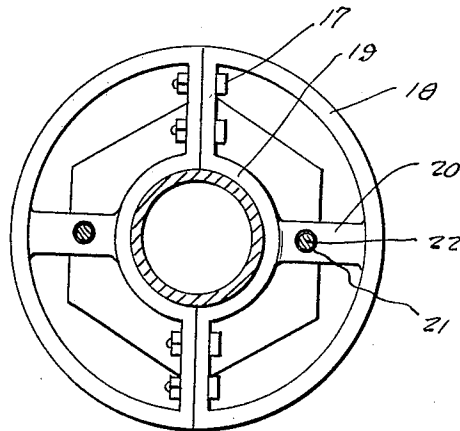
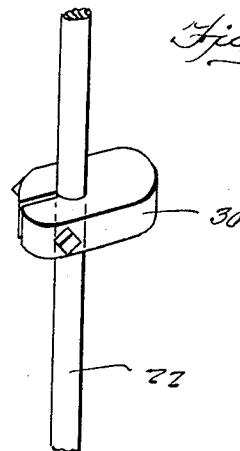


Fig. 9.



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UNITED STATES PATENT OFFICE

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AUTOMATIC PRODUCING VALVE

Application filed January 26, 1932. Serial No. 588,985.

The present invention relates to an automatic producing valve and is intended to automatically remove fluids from oil and gas wells without wasting any gas and has the advantage of saving the cost of a pumping outfit and also a large amount of labor.

The object of the invention is to provide a valve construction of this nature which is simple, inexpensive to manufacture, thoroughly efficient and reliable in use and operation, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a side elevation of a valve structure embodying the features of my invention, showing the float in raised position.

Figure 2 is a similar view showing the float in lowered position and showing the valve proper closed and in section.

Figure 3 is a horizontal section taken substantially on the line 3—3 of Figure 1.

Figure 4 is a horizontal section taken substantially on the line 4—4 of Figure 1.

Figure 5 is a horizontal section taken substantially on the line 5—5 of Figure 1.

Figure 6 is an enlarged detail vertical section through the valve proper.

Figure 7 is a vertical section through the float showing the pipe and rods associated therewith.

Figure 8 is a bottom plan view of the valve casing, and

Figure 9 is a fragmentary perspective view of one of the rods showing one of the stops.

Referring to the drawings in detail it will be seen that the numeral 5 denotes a pipe. A valve V is mounted on the bottom end of the pipe and includes a cylindrical casing 6, the upper end of which is threaded on the lower end of the pipe and the bottom end of which is open and the lower side wall of which is provided with lateral apertures 7. In the valve casing is a valve seat 8 and a valve 9

cooperates therewith opening downwardly therefrom and has a depending stem. This stem 10 has a pin and slot connection 11 with a pair of rockers 12. These rockers are pivoted intermediate their ends 14 between the lower end of two pairs of depending ears 15 formed on the lower edge of the casing 6. Circular frames are denoted generally by the letter F. There are two of these frames F each comprising a pair of sections bolted together as at 17 and including outer ring 18 and inner ring 19. The inner ring 19 is clamped securely about the pipe while the outer ring 18 is spaced sufficiently from the pipe to prevent the pipe from coming into contact with the side walls of the hole in which the structure is mounted.

Spokes 20 connect the rings 18 and 19 and have openings 21 through which are slidable rods 22. The lower portions of the rods are offset outwardly as at 23 and the lower ends are pivotally engaged as at 24 with the outer ends of the rockers 12.

A cylindrical hollow float 25 is disposed for sliding movement about the pipe 5 and has openings 26 through which the rods 22 are slidable.

Two pairs of stops 30 and 31 are mounted on the rods 22 with which the float 25 is abutable. When the float rises to the position shown in Figure 1 it abuts the upper pair of stops 30 raising the rods 22, rocking the rockers 12 to pull down on the valve stem 10 and remove the valve 9 from the seat 8. When the fluid in the hole recedes and the float lowers to abut the stops 31, the rods 22 are pushed downwardly and rock the rockers 12 pushing up on the valve stem 10 and closing the valve 9 on its seat 8.

It is thought that the construction, operation, utility and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof.

The present embodiment of the invention has been described in considerable detail merely for the purposes of exemplification since in actual practice it attains the features of advantage enumerated as desirable in the

statement of the invention and the above description.

It will be apparent that changes in the details of construction, in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what

10 I claim as new is:

In a structure of the class described, a pipe, a valve casing attached to the lower end of the pipe, the bore of the casing being formed with a reduced upper part to provide a valve seat, and said casing having holes in its side walls in communication with the interior thereof, a valve for engaging the seat with the stem of the valve extending downwardly through the lower end of the casing, depending lugs on the bottom of the casing, levers pivoted intermediate their ends to said lugs and having their inner ends pivoted to the lower end of the stem, a rod having its lower end connected with the outer end of each lever, a float slidably arranged on the rods and having an opening therein for receiving the pipe, upper and lower stops for the float adjustably connected to each rod, frames attached to the pipes for guiding the rods, each frame being formed of two sections detachably connected together and each frame consisting of inner and outer rings, the inner ring encircling the pipe, spokes connecting the inner and outer rings together, said spokes having openings therein through which the rods pass.

In testimony whereof I affix my signature.

BERNARD H. AYERS,

40 A cylindrical hollow float 22 is disposed for sliding movement about the pipe 2 and has openings 23 through which the rods 23 are adjustable.

45 Two pairs of stops 20 and 21 are mounted on the rods 22 with which the float 22 is adjustably connected. When the float rises to the position shown in Figure 1 it raises the upper pair of stops 20 raising the rods 23, rocking the rockers 12 to pull down on the valve stem 10 and remove the valve 9 from the seat 8. When the float falls in the hole recesses and the float lowers to about the stops 21, the rods 23 are pushed downwardly and rock the rockers 12 pushing up on the valve stem 10 and closing the valve 9 on its seat 8.

50 It is thought that the construction, operation, utility and advantages of this invention will now be quite apparent to those skilled in the art without a more detailed description thereof.

55 The present embodiment of the invention has been described in considerable detail merely for the purpose of exemplification since in actual practice it attains the features of advantage enumerated as desirable in the

float in lowered position and showing the valve proper closed and in section.

Figure 3 is a horizontal section taken substantially on the line 3-3 of Figure 1.

Figure 4 is a horizontal section taken substantially on the line 4-4 of Figure 1.

Figure 5 is a horizontal section taken substantially on the line 5-5 of Figure 1.

Figure 6 is an enlarged detail vertical section through the valve proper.

Figure 7 is a vertical section through the float showing the pipe and rods associated therewith.

Figure 8 is a bottom plan view of the valve casing, and

Figure 9 is a fragmentary perspective view of one of the rods showing one of the stops.

Referring to the drawings in detail it will be seen that the numeral 2 denotes a pipe, valve 7 is mounted on the bottom end of the pipe and includes a cylindrical casing 6 the end of the pipe and the bottom end of which is open and the lower side wall of which is provided with internal apertures 5. In the valve casing is a valve seat 8 and a valve 9