

(No Model.)

R. M. LAFFERTY, Dec'd.

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PUPPET VALVE FOR PUMPS.

No. 548,835.

Patented Oct. 29, 1895.

Fig. 1.

Fig. 3.

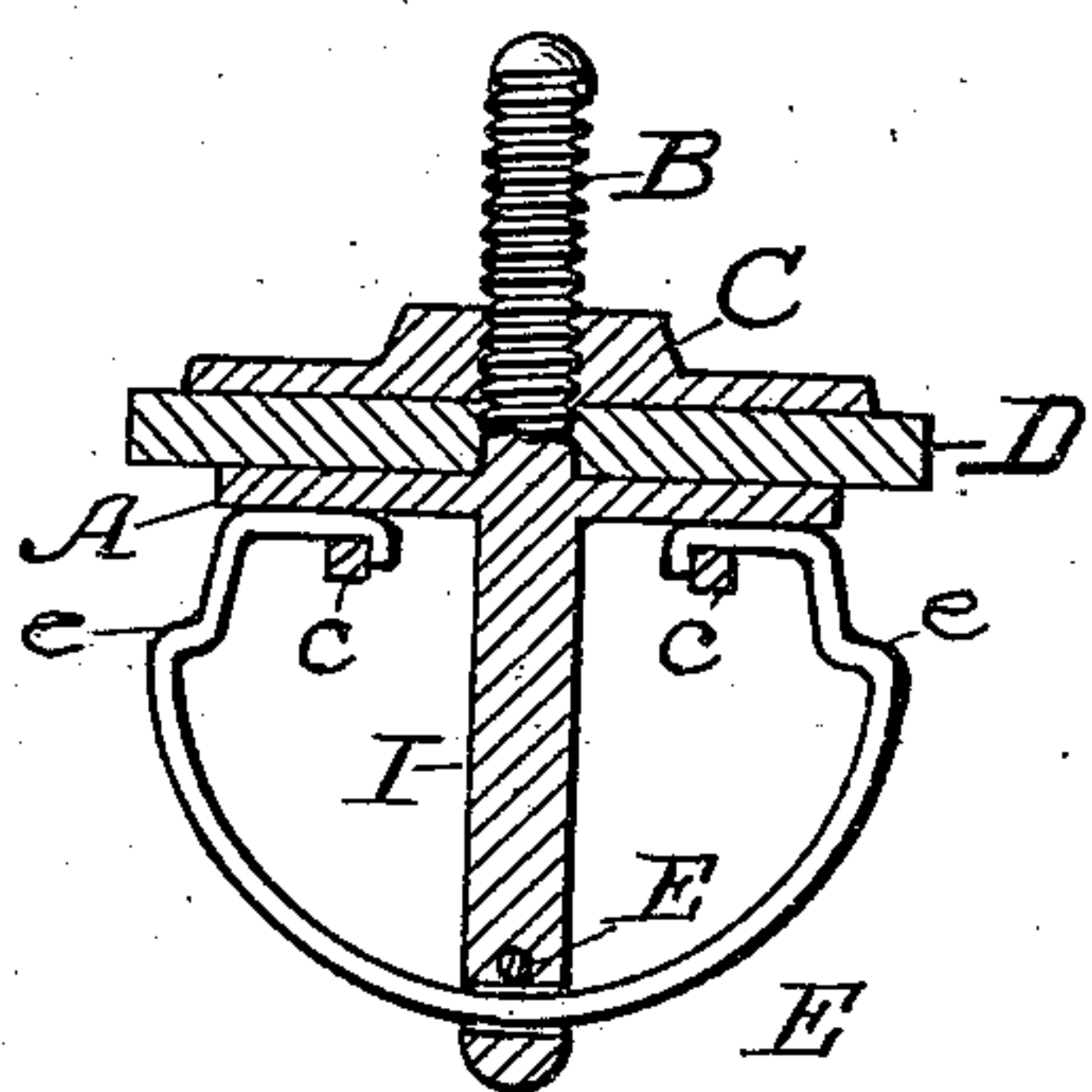


Fig. 2.

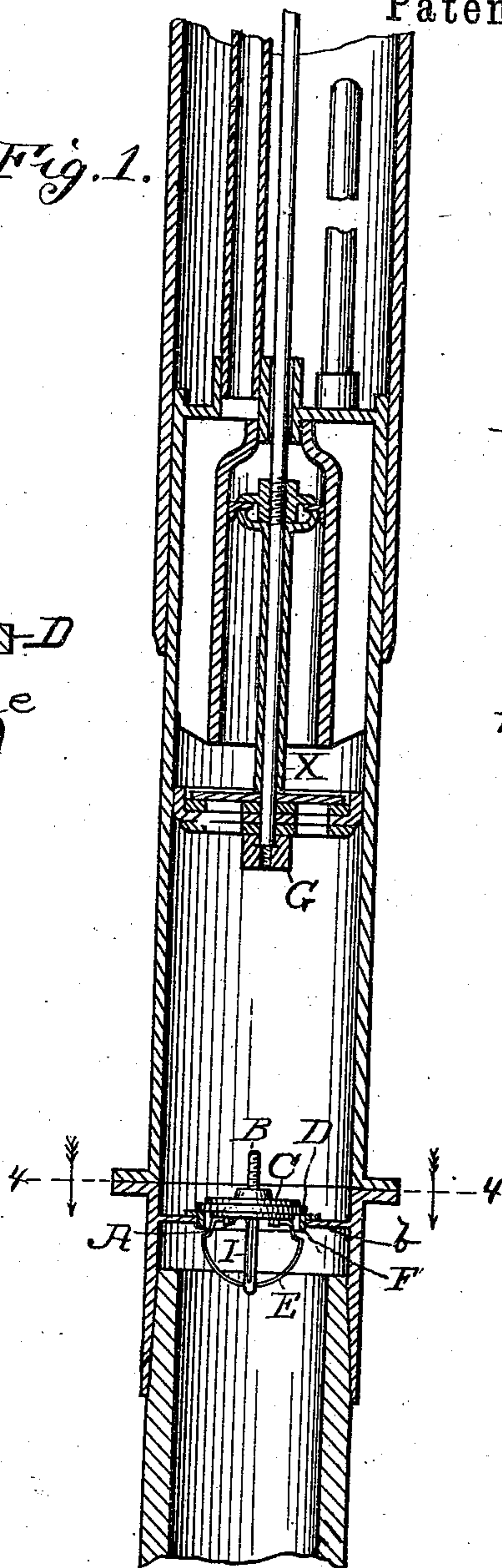
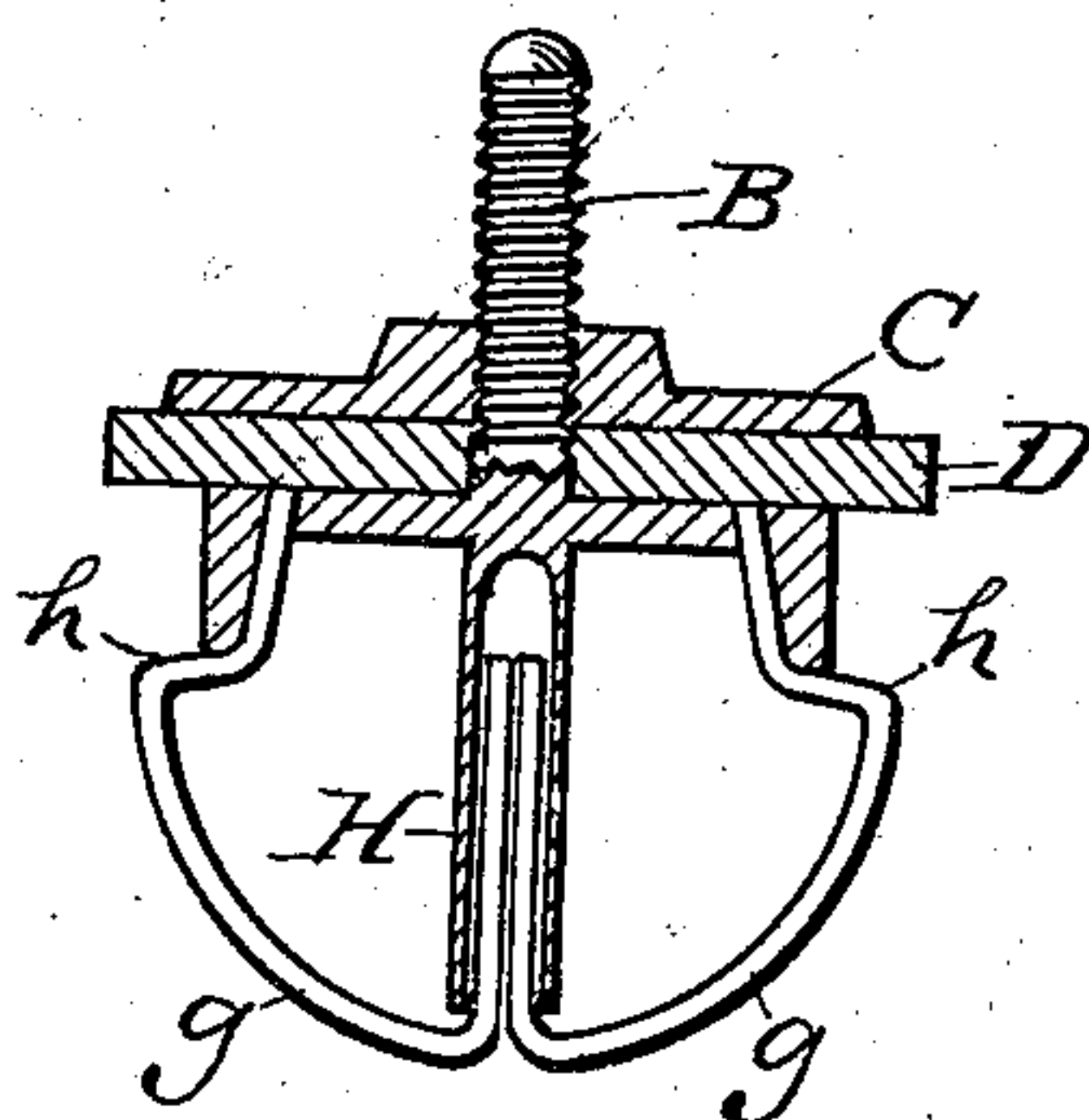
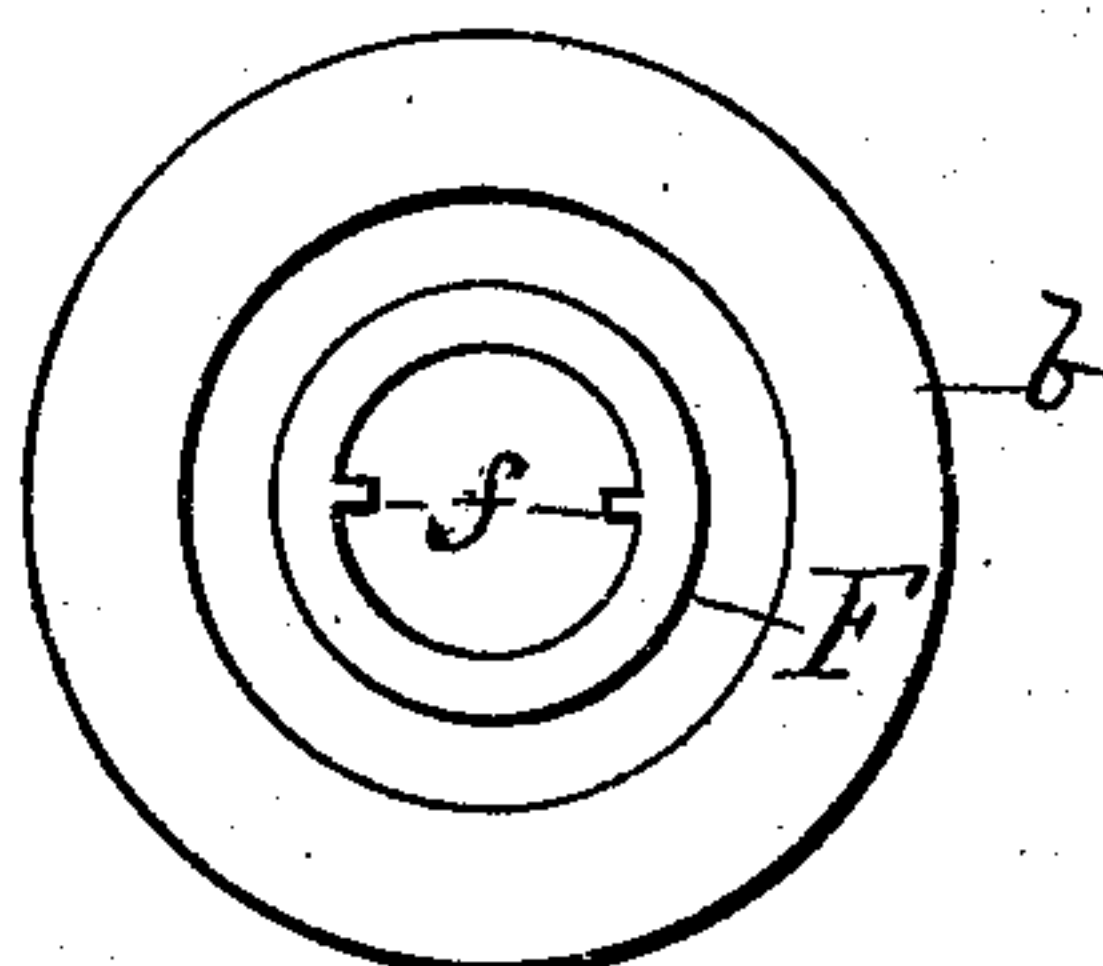


Fig. 4.



Witnesses:

R. J. Jaeger,

J. E. Thompson

Stanley B Lafferty
Admin. Robert M. Lafferty Dec.
Inventor:

By Frank D. Thompson,
Atty.

UNITED STATES PATENT OFFICE.

STANLEY B. LAFFERTY, OF DAVENPORT, IOWA, ADMINISTRATOR OF ROBERT M. LAFFERTY, DECEASED, ASSIGNOR TO THE RED JACKET MANUFACTURING COMPANY, OF SAME PLACE.

PUPPET-VALVE FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 548,835, dated October 29, 1895.

Original application filed December 30, 1887, Serial No. 259,366. Divided and this application filed December 31, 1894. Serial No. 533,648. (No model.)

To all whom it may concern:

Be it known that I, STANLEY B. LAFFERTY, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, administrator of the estate of ROBERT M. LAFFERTY, deceased, late of said city, do hereby declare that said ROBERT M. LAFFERTY did invent certain new and useful Improvements in Puppet-Valves for Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This application constitutes a division of the original application of said ROBERT M. LAFFERTY, deceased, for the same subject-matter, which was filed December 30, 1887, and serially numbered 259,366; and the invention herein described relates to check or puppet valves for tubular well-pumps, and is so constructed that its voluntary displacement from its seat is effectually prevented, and yet it can be easily lifted out of the well-tube when so desired without the aid of outside appliances, substantially as hereinafter fully described, and as illustrated in the drawings, in which—

Figure 1 shows a vertical central section of a portion of a tubular deep-well pump having the improved valve seated therein. Fig. 2 is a vertical central section through said valve. Fig. 3 is a similar section through a modified form of the same, and Fig. 4 is a plan view of the valve-seat.

Referring to the drawings, A represents a circular or other desirable shaped plate, composing the body of the valve, and it is provided with a central post B, projecting vertically therefrom. Secured concentrically upon said post B, immediately next the plate, by means of a nut C, is a packing-ring or disk D. The diameter of disk D is preferably greater than plate A, and its projecting edges are adapted to rest upon the annular edges of the valve seat or ring F.

Ring F rests upon the inner annular ledge b of the well-pipe, as shown, and constitutes the valve-seat. It is provided with a flange extending vertically downward from its inner edges, which is concentric with said well-pipe

and fits snugly within the contracted opening 50 made by said ledge.

Secured to and depending down from the under surface of plate A are the wire yokes E. The ends of each of these yokes (or "loops") are secured to said plate A by means of staples c at such distance from the center thereof that they come within the radius of the contracted opening of the valve-seat. From the point where said yokes leave the plate A they pursue a straight downward course a suitable distance, whereupon they are bent outward radially to form the shoulders e. It is thus obvious that the vertical movement of the valve is limited to the distance between the plate A and said shoulders e, and it is equally apparent that this distance must be sufficient to permit the water to pass up through the contracted opening of the valve-seat.

The staples c are preferably cast integral with the plate A, and the ends of the loops or yokes E are made to pass through said staples by being bent parallel to the plane of the under surface of said plate and are prevented from withdrawing by having their extremities bent downward at right angles to said plate, substantially as shown. The bends of the yokes are preferably passed through suitable openings in the lower end of a suitable stud I, extending vertically and centrally down from said plate.

The yokes being made of spring-wire can be easily forced down through the valve-seat opening when it is desired to seat the same. When once in place, however, they cannot be forced off their seats, except by the application of more power than is exerted by the up-rush of water. Sufficient manual or external power must be exerted to cause the yokes, or rather the upper ends of them, to move inward toward the center of the plate A. To provide for this application of power, a nut G is made, which is preferably made integral with the plunger X, and which, by screwing it down onto the upper screw-threaded end of post B, gets a good purchase or hold on the valve, and when it is lifted out of the well removes the valve from its seat. To prevent the valve

from turning while the nut G is being screwed onto the post B, ring F is provided with one or more inwardly-projecting lugs *f f*, which, when the valve begins to rotate, engages one
5 of the yokes and prevents further rotation thereof.

In Fig. 3 there is substituted, in lieu of each yoke, two spring-wires *g*, each of which depends down from plate A in substantially the
10 same manner as the ends of yokes E and curve downward from the shoulders *h* thereof in toward each other. Just before these wires touch, however, they bend centrally upward into a pocket in the lower end of the stud H,
15 depending centrally downward from said plate A. The upper ends of these springs *g* are immovably secured to the plate, so that, instead of said upper ends moving when it is desired to insert the valve in place, or when
20 it is desired to remove the same, similar to the upper ends of the yokes E hereinbefore described, the lower ends, guided by the pocket, are made to move downward. However, so far as the spirit of this invention is
25 concerned, it makes no difference whether the upper ends or the lower ends of the yokes or springs *g* are made to move, so long as the

shoulder *e* or *h* is caused to move inward during the insertion in or removal of the valve from the valve-seat.

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What is claimed as new is—

1. In a puppet valve, the combination with the valve seat, of the plate A, springs secured to and depending down therefrom a given distance where they are radially bent outward
35 to form shoulders, and a central stud extending from said plate to which the lower portions of said spring are connected, as set forth.

2. The combination with a tubular well-pipe having a valve seat therein, substantially
40 as specified, of a valve, having a plate A with a central stud depending down therefrom, and yokes or springs connected to and depending from said plate; said yokes or springs being so formed that they have outwardly pro-
45 jecting shoulders at corresponding points below said plate, as described, and are movably connected to the lower end of said stud.

STANLEY B. LAFFERTY,
Administrator of R. M. Lafferty, deceased.

Witnesses:

CHARLES H. RIPLEY,
FRANK D. THOMASON.