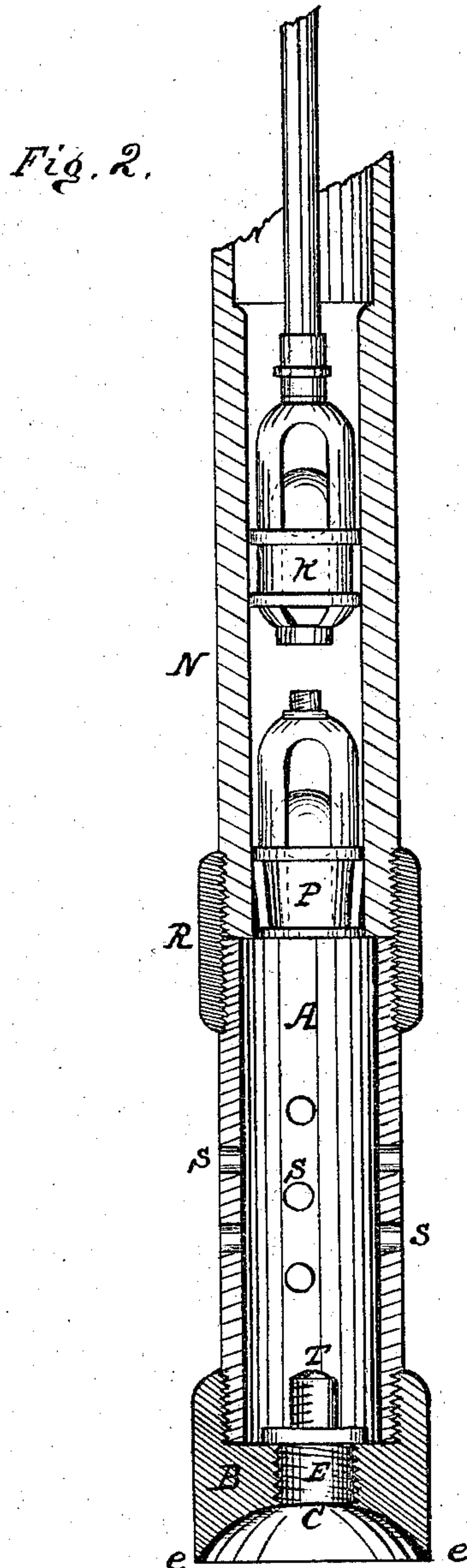
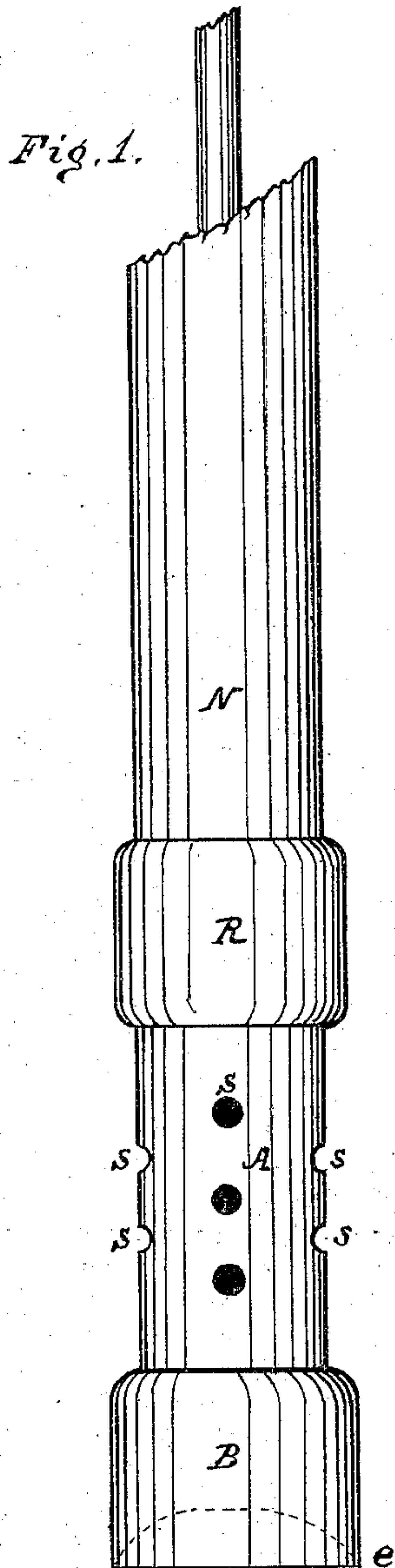


J. LARGE.
Driven-Wells.

No. 135,718.

Patented Feb. 11, 1873.



Witnesses:

Joshua W. Ellis
Henry G. G. G.

Inventor:

James Large

UNITED STATES PATENT OFFICE.

JAMES LARGE, OF GILL HALL, PENNSYLVANIA.

IMPROVEMENT IN DRIVEN WELLS.

Specification forming part of Letters Patent No. 135,718, dated February 11, 1873.

To all whom it may concern:

Be it known that I, JAMES LARGE, of Gill Hall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in that class of Pump-Tubes used for obtaining water, oils, &c., by being driven into the ground without first digging or boring a hole; and the invention I have made consists in combining with the lower end of such tubes a broad concave cutter having a circumferential edge somewhat larger in diameter than the body of the tube to which it may be attached, and by which the friction incident to "driving" may be materially lessened. Another part of my invention consists in providing said concave cutter with a central axial aperture, closed by a screw-plug that may be readily removed and replaced, regardless of the depth that the pipe extends down, or without interfering with its position in the earth. Another part of my invention consists in so contracting the inside diameter of the upper connected section of tubing as to admit of its being bored out perfectly smooth to answer the purpose of a pump-barrel, and the application thereto of the requisite valves and suckers.

To enable others to fully understand, make, and put my invention into practice, I will proceed to describe its construction by reference to the accompanying drawing, in which—

Figure 1 represents an outside view of the lower portion of my well-tube; Fig. 2, a transverse vertical section of the same, exhibiting all its parts.

To construct a well-tube for the purposes hereinbefore mentioned, and in accordance with my invention, I take a strong metallic tube, A, of suitable diameter and length, and, after perforating its sides in such a manner as to leave numerous small holes, S, around it for the ingress of water, I cut a screw on each of its ends, to one of which a block of steel, constituting a cutter, B, is to be attached, by means of such screw, in the manner indicated in the sectional drawing. The bottom of this block B is hollowed out, or made concave, so as to present a sharp, thin, circumferential cutting-edge, *e*, as much larger in diameter than the tube A and its connecting-joints as will free them, to some extent, and

thereby lessen the friction created during the severe and trying process of driving the tube into the earth. The cutter B is also provided with a central aperture, C, so closed, by means of a plug, E, screwed therein, as to prevent earth, stones, or other matter it may come in contact with, while being driven, from entering the tube at that point. This plug E is furnished with a short stout stem, T, on which a screw is cut, the thread of which turns in an opposite direction from that around its body or greatest diameter; in other words, the screw on the body of the plug being right-handed, that on its stem T should be left-handed, by which arrangement, on letting down through the well-tube a socket-wrench having a female screw therein corresponding to that on the stem T, while being screwed thereon the same action will unscrew the plug from the cutter B, and vice versa. This construction of parts enables me to withdraw the plug or replace it with little trouble. To the opposite end of the perforated tube A, and by means of the screw cut thereon, it is attached, through a ferrule, R, to an additional tube, N, the inside diameter of which, for some distance above this connection, is slightly contracted, to admit of its being bored out smooth to accommodate the check-valve P and the easy working of the sucker K, which sucker and check-valve are constructed and made to operate with respect to each other as in other pumps of a similar construction.

As the operation of driving this tube into the earth may be the same as that practiced in other cases, no description of such operation is herein deemed necessary; but, while forcing it down, should it come in contact with a stone lying partially within its path, the circular edge of the cutter B would cleave such stone, and that without producing any material deflection or divergence of the pipe; but in case a very large rock should be encountered lying completely across the face of the cutter, and so hard as to be impenetrable by it alone, then and in that case the central plug E is to be removed by unscrewing it and raising it through the tube, after which a drill may be inserted and made to operate through the cutter B to penetrate and break such rock in advance of the pipe; when that is accom-

plished, the plug E may be replaced, and the operation of driving continued as long as may be desirable, or until satisfactory results are obtained, when the check-valve P and sucker K are to be placed in position and the pump made ready for action.

Having briefly described my invention, I claim—

1. The concave cutter B with its central and detachable plug E, in combination with the

perforated tube A, in the manner shown, for the purposes hereinbefore set forth.

2. The perforated tube A, concave cutter B, and detachable plug E, in combination with the upper tube N, its check-valve P, and sucker K, when the same are arranged substantially in the manner shown and set forth.

Witnesses: JAMES LARGE.

JOSIAH W. ELLS,
HENRY LARGE, Jr.