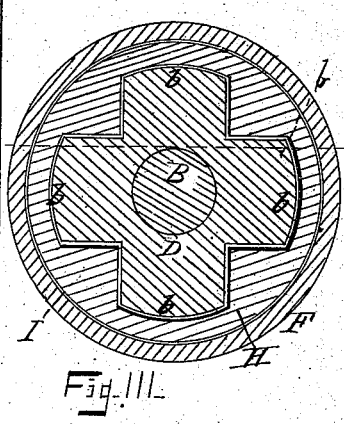


(No Model.)
W. H. BURNHAM & J. H. MILLER.

COMPENSATING PUMP ROD.

Patented Apr. 17, 1888.



H. A. Smith.
Simeon P. Marvin.

BY *William H. Burnham.*
John H. Miller.
G. L. Chapin.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. BURNHAM AND JOHN H. MILLER, OF BATAVIA, ILLINOIS,
ASSIGNORS TO THE UNITED STATES WIND ENGINE AND PUMP COM-
PANY, OF SAME PLACE.

COMPENSATING PUMP-ROD.

SPECIFICATION forming part of Letters Patent No. 381,211, dated April 17, 1888.

Application filed November 14, 1887. Serial No. 255,037. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. BURNHAM and JOHN H. MILLER, citizens of the United States, and residents of Batavia, in the county of Kane and State of Illinois, have invented new and useful Improvements in Compensating Attachments for Pump-Rods, of which the following is a specification, reference being had to the accompanying drawings illustrating the invention, in which—

Figure 1 is a vertical sectional elevation of the upper portion of our improved compensating device; Fig. 2, a vertical sectional elevation of the lower portion of the same, the full length of the attachment being shown by abutting the top end of Fig. 2 against the bottom end of Fig. 1. Fig. 3 is a horizontal section of Fig. 2 on line *x*; and Fig. 4 is a horizontal section of Fig. 1 on line *z*, both sections having substantially the same contour.

The purpose of this invention is to prevent pumps, when obstructed, from being injured by the action of the pump-rod driven by a windmill or other non-yielding power. The best means we have found to attain this end is a pump-rod made in two parts, with a section of coil-spring placed between the separated ends thereof, and the two-part rod, provided with means to keep it in line at the place of the spring-connection, and at the same time permit the rod to shorten or lengthen by means of the spring should the pump meet with an obstruction which would afford a greater resistance than that necessary to be overcome in raising water. One method of carrying our invention into practice is as follows:

J represents a broken section of the lower metal portion, to which the lower part of the pump-rod is to be attached. Cast solid to the part J is a socket guide portion, H, which, as shown in horizontal section at Fig. 3, is annular in exterior contour, and has an interior contour corresponding to but a trifle larger than the exterior contour of the armed guide-washer D *b*. The upper rod casting, K, has cast solid to its lower end a core, C, as shown in horizontal section, Fig. 4, of the same general form or exterior contour as the guide-washer D *b* at Fig. 3, and the nut I has an

internal contour to fit the external contour of the core C, so that the core may be properly guided in the vertical reciprocating movement it is to have in the nut I. On the exterior portion of the nut I, having the smaller diameter, is formed a screw-thread, N, and on the top part of the guide portion H is formed a screw-thread, L, whereby a cylindrical pipe-section, F, provided with an internal screw-thread at each end, is made to connect the nut I and guide portion H and hold the rod-attaching portions J K in line. A coil-spring, A, of suitable strength to work the pump, is placed between the end of the nut I and guide part H, the arms *d* of the core C lying on the top end of the spring and the arms *b* of washer D projecting under it. A rod, B, is rigidly secured in the core C, and extends through the guide-washer D, and on its lower end is turned a nut, G, which holds the spring A compressed so as to exert the power required to operate a pump.

Attached by a screw-thread to the flange M on the core C is a cylindrical housing, E, which passes loosely over the larger part of the nut I, so as to slide down thereon when the spring A is compressed. The function of the part E is simply to protect the other parts from snow, rain, and ice. This construction is what we term a "cushioned rod." It will operate a pump as well as a continuous rod; but should the pump become obstructed during the downward movement of the rod, so that the use of a non-yielding rod would do damage, the spring A will be compressed, the guide-washer D *b* and nut G passing down into the guide portion H. Should the pump become obstructed during the upward movement of the rod, the spring will also be compressed by the upward movement of the guide-washer D and nut G.

It is obvious that our invention may be embodied in equivalent mechanism, and that all that is required is the rod-attaching portions J K, the spring A, and means for holding the rod in line, so that the lower part may have a proper free movement to and from the upper part. To keep the rod in line and provide suitable guides, we employ the cylinder-connection F, nut I, guide-washer D *b*, nut G, and

guide portion H; but we do not confine ourselves to the form shown.

We claim as new and desire to secure by Letters Patent—

1. In cushioned pump-rods, the upper rod-attaching portion, K, having the core C as a part thereof, and the lower rod-attaching portion, J, having the guide-connection H as a part thereof, in combination with the washer D b, nut G, rod B, nut I, spring A, and case F, as and for the purpose specified.

2. The nuts G I, washer D b, in combination with the spring A, rod B, and rod-attaching portion J K, for keeping the two-part pump-rod in line, as specified.

WILLIAM H. BURNHAM.
JOHN H. MILLER.

Witnesses:

C. D. WALWORTH,
W. S. DERBY.