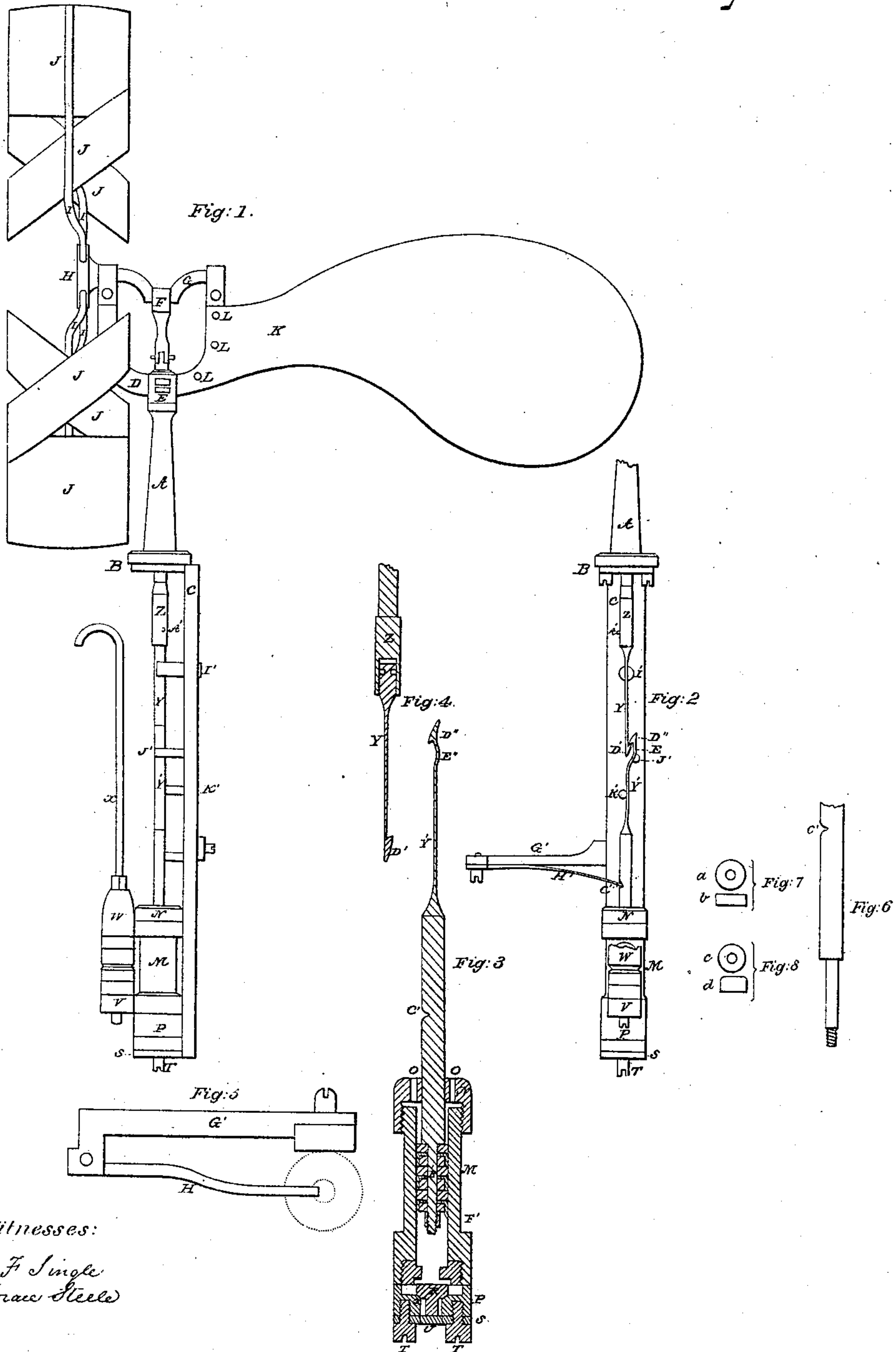


A. A. Genung,

Wind Wheel,

No 20,787,

Patented July 6, 1858.



Witnesses:

J. F. Single
Horace Steele

UNITED STATES PATENT OFFICE.

A. A. GENUNG, OF PAINESVILLE, OHIO.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 20,787, dated July 6, 1878.

To all whom it may concern:

Be it known that I, A. A. GENUNG, of Painesville, in the county of Lake and State of Ohio, have invented certain new and useful Improvements in Wind-Wheel Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the drawings annexed, in which—

Figure 1 is a side elevation of my improved pump; Fig. 2, a partial front elevation of the same; Figs. 3 and 4, vertical sections of the pump-barrel and plunger-rods; Fig. 5, a plan view of a spring arrangement connected with the plunger; Fig. 6, an elevation of a portion of the plunger-rod with the spindle or decreased part; Figs. 7 and 8, elevations and plans of piston head and follower, Figs. 3 to 8 being enlarged views.

The letters of reference indicate similar parts in all the figures.

The nature of my invention consists in forming the plunger-rod in two separate and distinct parts, and by a contrivance which will be hereinafter explained is made to connect and disconnect the motion of the wind-wheel automatically, thereby preventing accidents by breakage should the delivery-pipe become frozen up, or from any other derangement or obstruction of the pump; also, by means of the said arrangement to prevent the undue motion of the wheel, when driven by high and squally winds, being communicated to the plunger and interrupting its uniform working.

To enable others skilled in the art to make and use my invention, I will proceed to describe the construction and operation of my said improvements.

A, Fig. 1, is a hollow column or pillar mounted and fastened on the bracket or shelf B, which shelf is secured to an upright timber C.

D is a forked or U-shaped support placed on the summit of said pillar, and is fastened thereto so as to turn as a swivel, being secured by the pin E.

F is a pitman attached to the crank-shaft G. Said shaft is placed in bearings on the top of said swivel-support.

H is a hub placed on said shaft, in which are inserted six or any desirable number of radiating arms I. On the end of each arm is

secured a wing J, being permanently fixed at an angle of forty-five degrees or thereabout.

K is the controlling vane or rudder, which is secured to the opposite fork of the swivel-support by means of screws L.

M is the pump-barrel, the construction of which is shown in Fig. 3. The top is closed by a screw-cap N, in which are holes O for the discharge of the back-water.

P is the bottom of the said barrel, and is also screwed on. In the said bottom is a valve-seat Q, which receives the valve R. The pump-barrel is supported on a base S, Fig. 1, by means of the screws T, said base being framed into the upright timber C.

U, Fig. 3, is the inlet for the water.

V, Fig. 1, is the lead or channel. From the pump-barrel to the air-chamber W in said lead is a valve (not shown) which reciprocates with the action of the barrel-valve R, Fig. 3.

On the top of the air-chamber, which is of common construction, is screwed the delivery-pipe X, the lower part of which extends to near the bottom of said chamber.

The plunger-rod, Figs. 3 and 4, is in two parts. The upper portion is marked Y and the lower Y'. The top of the upper one is swivel-cut and is inserted into a socket of the connecting-rod Z, Fig. 4, and secured by a pin A', Fig. 1. The said rod is jointed to the pitman F, Fig. 1. The lower plunger-rod Y' has a spindle B', Fig. 6, cut on its lower end, terminating in a screw. It has, also, an indented notch C', Fig. 1, at a short distance above the top of the barrel M, which receives the end of a flat spring hereinafter mentioned. The upper portion of the lower part of the plunger-rod and the lower part of the upper one are flattened, as seen in Figs. 3 and 4, each extremity terminating in a barb D' and D'', and are placed relatively to each other, so as to interlock, as will be explained in the operation. The said lower part Y', Fig. 3, has, in addition to the barb, a raised or elevated surface E' immediately below it.

The spindle B', Fig. 6, of the lower plunger-rod receives a series of piston-heads and followers.

a b, Fig. 7, is a plan and elevation of a piston-head, and c d, Fig. 8, the same of a follower. The piston-head is made to fit the

bore of the pump-barrel in the usual manner, and the follower is covered with a packing of crimped leather. The heads and followers to the number of three sets, or more if desirable, are alternately placed on the spindle aforesaid and secured by the nut F', as shown in Fig. 3.

G', Fig. 2, is an arm projecting from the upright timber C. This is for the purpose of supporting a flat spring H', before referred to, and shown more particularly in Fig. 5. The end of said spring is inserted into the indented notch C', Fig. 2. I', J', and K' in the same figure are three guides, and are located on the upright timber, as there shown. The first guide is slit, so as to allow the flat part of the plunger-rod to play between. The second one serves the purpose of throwing the barbs of the plunger-rod forward in its descent, and the third is located so that it shall also tend to throw the barb in the same direction, thus insuring its catching on the opposite barb.

The operation is as follows: The pump and its accompanying fixtures are secured to the well or other water-source in any convenient and substantial manner, the barrel of course being submerged. Motion is given to the upper part of the plunger-rod by means of the crank-shaft and pitman, and as it descends it connects with the lower part by means of the barbs, the lower one being thrown forward by its raised surface to enable it to catch. Drawing it up so as to raise the water into the pump-barrel, (this, be it understood, is the whole office of the upper part of the plunger-rod,) the plunger will now descend by its own gravity, materially aided by the direct pressure of the spring. These forces united will afford sufficient power to drive the water up the delivery-pipe.

Should the delivery-pipe become obstructed by frost or the working parts of any part of the machinery be out of order, it will be seen that the two parts of the plunger-rod will instantly disconnect. In the case of frost the plunger will be lifted up, so that the raised surface E' will be carried above the guide J', causing the upper barb to spring back from the point of contact with the lower barb, breaking the connection, and thereby preventing the possibility of damage. In this position the plunger remains—that is, out of the point of contact—until it will gradually sink as the obstruction thaws out, when its raised surface again strikes the guide, throwing it forward, so as to connect, as before explained.

As the only use of the upper portion of the plunger-rod is to elevate the plunger, it will be seen that when the wheel is driven by violent winds or sudden gusts its descent can

never be forced. It is thus left to its own uniform motion.

The object of employing a series or succession of packings is peculiarly adapted to pumps operated by wind-power, as the incessant motion to which the plunger is subjected occasions excessive wear of this important part of the pump. It is therefore plain that if a number of such packings are employed there will be less necessity of taking up the pump for renewal of the packing, as when the lower one is worn, so as to allow water to pass, (and I have practically demonstrated the lower one wears first,) the next in succession will be ready to take its place, and so on until the last of the series is worn out. Thus the necessity of repair cannot occur so often. Once in eighteen or twenty-four months is found to be sufficient for pumps under ordinary usage.

My invention of using a series of packings can be used with advantage in most kinds of pumps; but foreseeing the difficulty of embracing such extended use in one application I desire to have it understood that I confine myself to its use in pumps operated by a wind-motor, reserving to myself the right to hereafter apply for such extended application of my invention should I find it of sufficient importance to be protected by Letters Patent.

I am aware that the descent of the plunger can be accomplished by other means than that of a spring, such as I propose to employ—viz., a weight could be attached to the plunger-rod or to a vibrating arm in contact therewith; but this I conceive would be equivalent to increasing the substance of the plunger-rod itself, which is intended to act by gravitation.

I am not aware that plunger-rods of pumps have ever been made in two separate parts for the purpose of employing the connecting and disconnecting principle.

Having explained the nature, construction, and operation of my improved wind-wheel pump, what I claim as new, and desire to secure by Letters Patent, is—

Forming the plunger-rod in two separate and distinct parts and constructing said parts with the barbs D' and D'' and raised surface E', also the form and location of the guides I', J', and K', as specified, or their equivalents, by which said arrangement of parts, in combination with the motion of the wind-wheel, I am enabled to apply the connecting and disconnecting principle to the plunger, for the purposes herein set forth.

A. A. GENUNG.

Witnesses:

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