W. B. Wadsworth,

Wind Wheel.

No. 38,851. Patented June 9, 1863.

Fig. 3

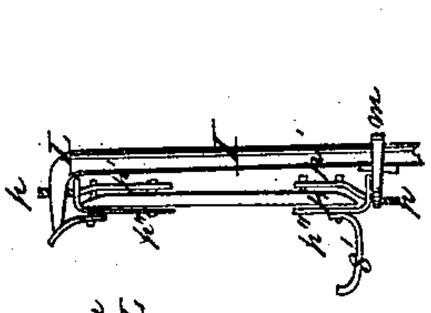

Fig. 4

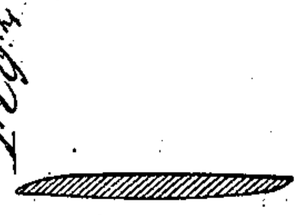

Fig. 2

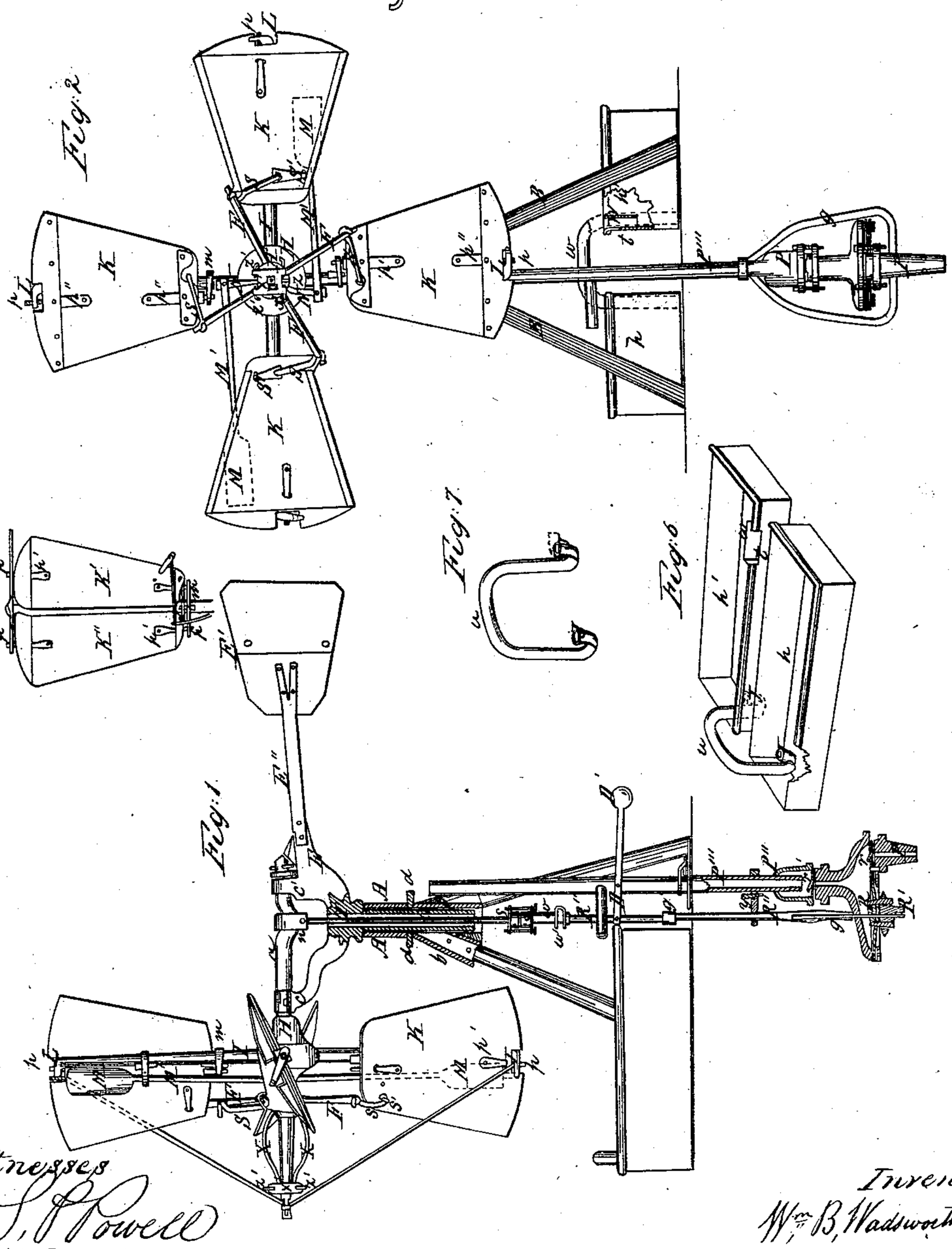

Fig. 5

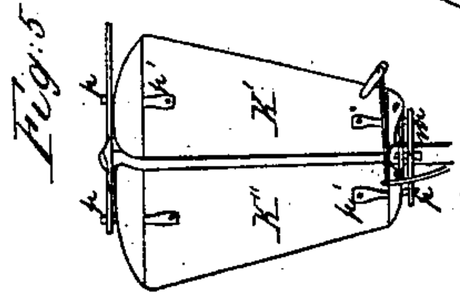

Fig. 7

Fig. 6

Fig. 1.

Witnesses
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WILLIAM B. WADSWORTH, OF CLEVELAND, OHIO.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. 38,851, dated June 9, 1863.

To all whom it may concern:

Be it known that I, W. B. WADSWORTH, of the city of Cleveland, in Cuyahoga county, and State of Ohio, have invented a new and useful improvement in wind-wheels and pumps combined, to pump water for cattle and other stock, &c.; and I do declare that the following is a full and clear description thereof, reference being had to the accompanying drawings and letters of reference marked thereon, in which—

Figure 1 is a side view of the machine in operation. Fig. 2 is a front view of the same. Fig. 3 is a view of a wheel-arm and sail turned edgewise. Fig. 4 is a view of the sail cut crosswise in the center. Fig. 5 is a view of a sail made in two parts or in pairs. Fig. 6 shows two troughs connected by a siphon. Fig. 7 shows a siphon adapted to the purpose.

In constructing a tube, A, Fig. 1, is made with wings or branches *b b*, and mounted on posts B, substantially as shown, which makes a cheap, light, and substantial structure. The tube A may be made largest at the lower end, and the guide-screws *d* are put in with their ends against the shanks of the mill-head T to guide it in line, and if it gets out of line it can be straightened up by altering the said guide-screws. The mill-head T is made, substantially as shown in Fig. 1, with hollow shank *o*, to run down and turn freely in tube A, and two bearings, *c c'*, (with reservoirs in them for oil,) for the crank-shaft to run in, and a stub, E, to fasten the guide-board E' to.

The guide-board or rudder E is made of wood or iron, and may be projected on a stem, E'', made by rolling sheet-iron up like a tube and notching the end at E and spreading it on both sides of the board and bolting them through, substantially as shown. The other end of the stem is bolted onto stub E, which makes a light and substantial rudder.

The shaft *a* is arranged with the crank *n* over the hollow shank *o* and the end running out to receive the wheel, which wheel may be made by casting a hub, H, on arms I, having their ends flattened and turned as shown at L, Fig. 3, and holes to receive pivots *p*, and brackets *m* are put on arms I to hold the pivots *p* on inner ends of sails *k*, and are slipped up and down to put the sails on or off, and may be secured by a key or set-screw by thus bending the arms L and putting brackets *m* on the same arms, substantially as shown, for bearings for the sail-pivots. The sails can be hung with the axis running through their centers, as shown in Fig. 3, and thus prevent their flapping.

The sails K are made winding, and lie flattest to the wind at their outer ends. They may be made of iron and their edges angled to stiffen them, or of wood and battened. The pivots *p p'* are flattened at *p'* and *p*, bent to the center line of sail, as shown, to fit the sail at *r'*, a strap, *p''*, looped over the pivots, and bent on the other side of the sail and bolted through the whole, as shown at Fig. 3, which clamps the sail very firm, and makes a firm and durable arrangement.

Fig. 5 shows a sail made of two pieces and linked together at V. They may be set on one arm, I, substantially as shown, or an arm to each part, at pleasure, and when the wheel runs too fast and the sails turn the wind from K' goes behind K'' and checks the motion.

To govern the motion, radial arms F are put in hub H, having their outer ends flattened and holes to receive the hooks S, which connect with standards S' on the sails K or K', and two other arms, N N, one on each side of same hub H, connect with weights M by means of rods M', which slide in rests M'', fixed on arms I, and springs *x x* have one end fastened in the hub H', and the other ends run into chuck X' and turns outward between set-screws Z', as shown at Z, Fig. 2. By turning the set-screws Z' the springs are tightened or slackened at pleasure. The hub H' turns freely on shaft *a*, and the chuck X' is fastened on the point of same shaft *a*, and when the wheel turns too fast the weights M are extended and draw the hub H' and arms F and N around, and the hooks S turn the sails K edging to the wind, and the motion slackens, and the springs X X are set to draw the weights M back and keep the sails K or K' K'' to the wind, as needed. The hooks S are shaped substantially as shown, being left open at the end that hooks into the arm F, but cannot unhook until the bracket *m* is moved and the sail swung forward, and then it unhooks easy. Thus the sails can be put on or removed very quick, at pleasure.

To avoid trouble in getting the rod R'' the exact length, a tube, *w*, is attached to one end of pipe, and the other end is run into it, and a notch in the tube *w*, at O, under the clasp

w, and a key driven in O, and the clasp *w* holds the key against the rod and prevents it slipping.

The swivel *s s* is made by small flange or collar fast on each end of rod where they come together, and larger loose flanges *s s* bolted together over them, as shown. One of the large flanges can be solid on the rod, and save a collar, at pleasure, and a steady-pin, as shown by dotted lines, and the rod extends up through the tube A and hollow shank *o* to the crank *n*, and attached to it in any of the usual ways of attaching to cranks.

The lever D can be attached to the pipe P‴ or to the post B and to the pump-rod R″, to equalize the work, by weighting the lever at D′ to make the rod R″ and water in pump rise as easy as the rod R″ goes down. It will start with a lighter breeze. A spring can be attached instead of lever D and counterbalance D′.

What I claim, and desire to secure by Letters Patent, is—

1. The governor composed of the hub H′, arms N N, and rods M′ M′, weights M M, springs X X, chuck X′, and set-screws Z″, and arms F, and hooks S, connecting with standards on the sails, or their equivalents, substantially as described.

2. The lever D and counterbalance D′, in combination with the rod R″, when applied to relieve the mill-head T, substantially as and for the purpose described.

3. The hooks S and arms F, connecting the sails with the governing arrangement, when made substantially as and for the purpose described.

4. The hub H, arms I, hooks L, and pivots *p*, in combination with the wind-sails and movable brackets *m*, substantially as and for the purpose described.

5. The posts B, wings *b*, tube A, and guide-screws *d*, in combination with shank *o*, mill-head T, and wheel-shaft *a*, substantially as and for the purpose described.

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Witnesses:
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