

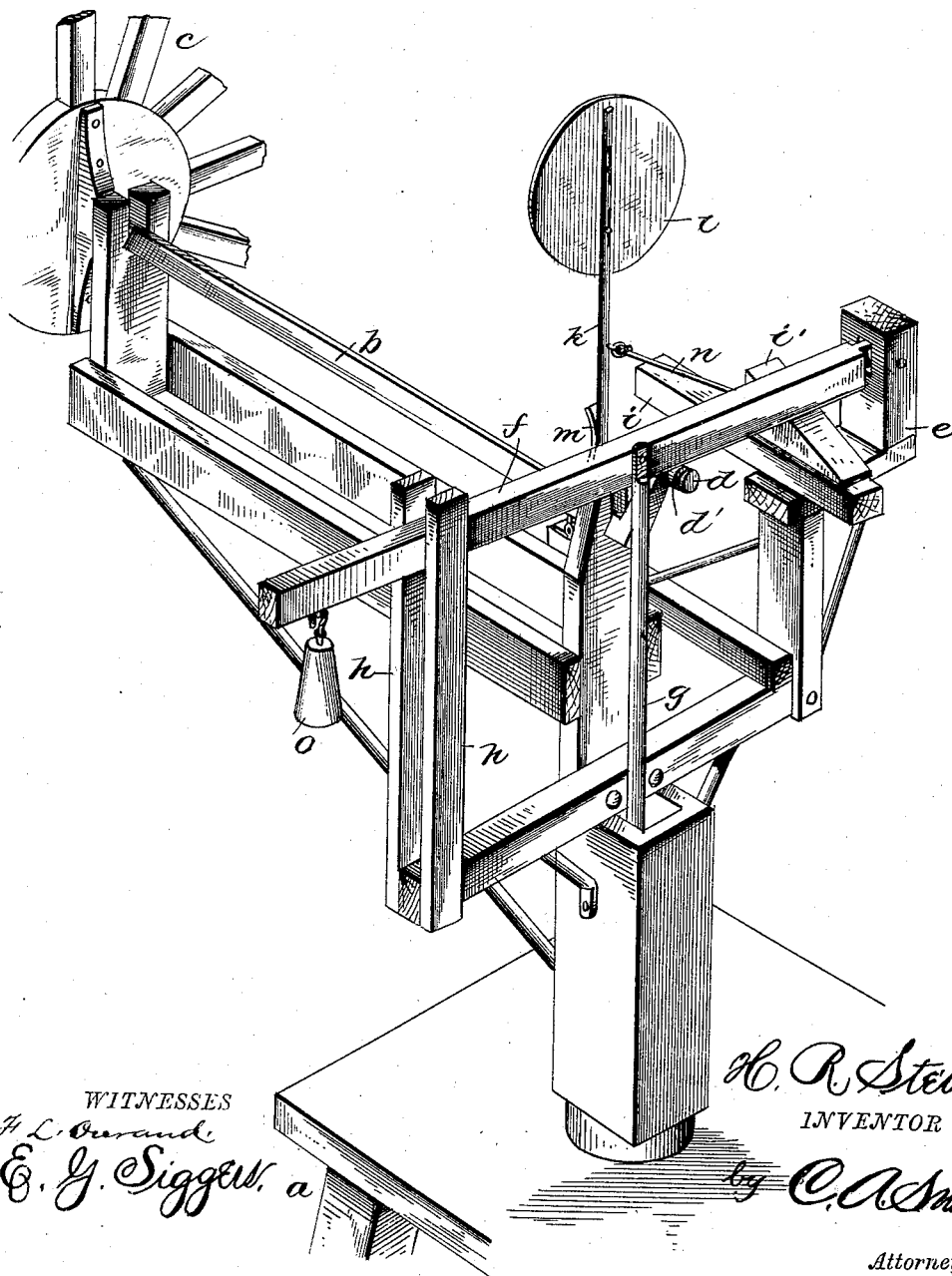
(No Model.)

H. R. STEVENS.

WIND ENGINE.

No. 305,114.

Patented Sept. 16, 1884.



WITNESSES

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UNITED STATES PATENT OFFICE.

HARRY R. STEVENS, OF LOS ANGELES, CALIFORNIA.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 305,114, dated September 16, 1884.

Application filed March 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, HARRY R. STEVENS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Wind-Engine, of which the following is a specification, reference being had to the accompanying drawing.

This invention has relation to wind-engines, and is designed to provide means for automatically regulating the length of the stroke of the pump-rod by the force of the wind; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

The figure of the drawing is a perspective view of a wind-engine to which my improved stroke-regulating mechanism is shown applied.

Referring by letter to the accompanying drawing, *a* designates the derrick, which supports the operative mechanism of the wind-engine. *b* designates the wheel-shaft, and *c* the wind-wheel. The wheel-shaft *b* is mounted in suitable bearings in the uprights rising from the derrick-platform, and is provided on the wrist-pin or crank-pin *d* with a friction-roller, *d'*, as shown.

Pivoted at one end in an upright or extension, *e*, is a lever, *f*, to which the upper end of the pump-rod *g* is pivoted, the forward or free end of said lever *f* working vertically between two vertical guides, *h h*, which prevent lateral movement of said lever *f*. The lever *f* is pivoted above the friction-roller *d'*, and operates in the same vertical plane therewith. A bed-piece, *i*, is arranged below the lever *f*, and on this bed-piece *i* the horizontal face of a block or wedge, *j*, having its upper face inclined, as shown, rests, and is connected with mechanism by which it is automatically moved back and forward under the lever *f*, as will be further explained. At the side of the lever *f* toward the wind-wheel is hinged to an upright or any convenient portion of the framing above the derrick-platform the lower end of a lever, *k*, the normal position of which is vertical, and to the upper end of which is secured a vane, *l*. This lever *k* is provided with a spring, *m*, which returns said lever *k* to its normal position and holds it there under cer-

tain conditions of the wind after it has been moved from said normal position under certain other conditions of the wind. The lever *k* is connected at a proper distance above its hinged lower end by a short hinged rod, *n*, to the head of the block or wedge *j*, and when the lever *k* is in its normal position the thickest portion of the wedge *j* is directly under the lever *f*.

The pump-rod, when constructed of iron tubing, is sufficiently heavy to fall of its own weight after the lever *f* has been raised by the friction-roller on the crank-pin; but where the pump-rod is too light to fall of its own weight after having been raised, a weight, *o*, is attached to the lever *f*, to insure the downward stroke of the pump-rod.

It will be seen from the foregoing description that the crank provided with the friction-roller on the wheel-shaft operates the lever *f* in an upward direction only to its fullest height and then leaves it to fall by the weight of the rod to make the downward stroke, or the weight on the lever *f*, in case one is used on said lever. It will be further noticed that the length of the downward stroke is regulated by the position of the wedge *j* under the lever *f*, as the lever will fall only as far as the wedge, which will stop its descent, and consequently the descent of the pump-rod which is pivoted to it. The position of the wedge is controlled by the strength or force of the wind exerted on the vane *l* at the upper end of the lever *k*. When the wind is light, and but little power can be exerted by the wind-wheel, the lever *k* and vane *l* are held by the spring in their normal vertical position, the spring having its full force on the wedge to move it in when the friction-roller raises the lever *f* up from the wedge in making the upstroke. As the lever *f* falls, it will fall upon the highest part of the wedge, thereby making the shortest possible stroke, and pumping the minimum quantity of water at the shortest stroke, which requires the least power. As the wind increases, so as to overcome the force of the spring, the wedge will be drawn outward below the lever *f* as the vane *l* carries the lever *k* down toward the wheel. The farther the vane *l* is carried down by the wind the farther the wedge will be drawn out, and the more the

length of the downward stroke is increased. The lever *f* is raised from the wedge at each upward stroke of the pump-rod, so that as the wind lightens the spring is perfectly free to
5 move the wedge in as far as the wind will permit it, so that the length of the stroke is varied as the force of the wind varies, and the automatic adjustment is adapted to regulate the stroke to the power applied to the wind-
10 wheel by the force of the wind.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a wind-engine, the combination, with
15 the frame of the machine, provided with a wheel-shaft having a friction-roller on its crank-pin, of a hinged lever, *f*, fulcrumed above the crank-pin, and connected to the upper end of the pump-rod, the wedge on a bearing
20 under said lever *f*, and the rod *n*, connect-

ing the wedge *i* with the spring-pressed hinged lever *k*, provided with the vane *i* at its upper end, substantially as specified.

2. The combination, with the lever *f*, fulcrumed to the frame at one side and working
25 between vertical ways at the other side of the frame, of the wheel-shaft having the crank-pin provided with a friction-roller, *d'*, the pump-rod connected to the lever *f*, the wedge *i*, connected by rod *n* to the spring-pressed
30 hinged lever *k*, provided with the vane *i*, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of three witnesses.

HARRY R. STEVENS.

Witnesses:

THEO. MUNGEN,
G. B. HARRIS,
E. G. SIGGERS.