

(No Model.)

O. E. SCOTT.
AUTOMATIC WIND REGULATOR.

No. 356,967.

Patented Feb. 1, 1887.

Fig. 1.

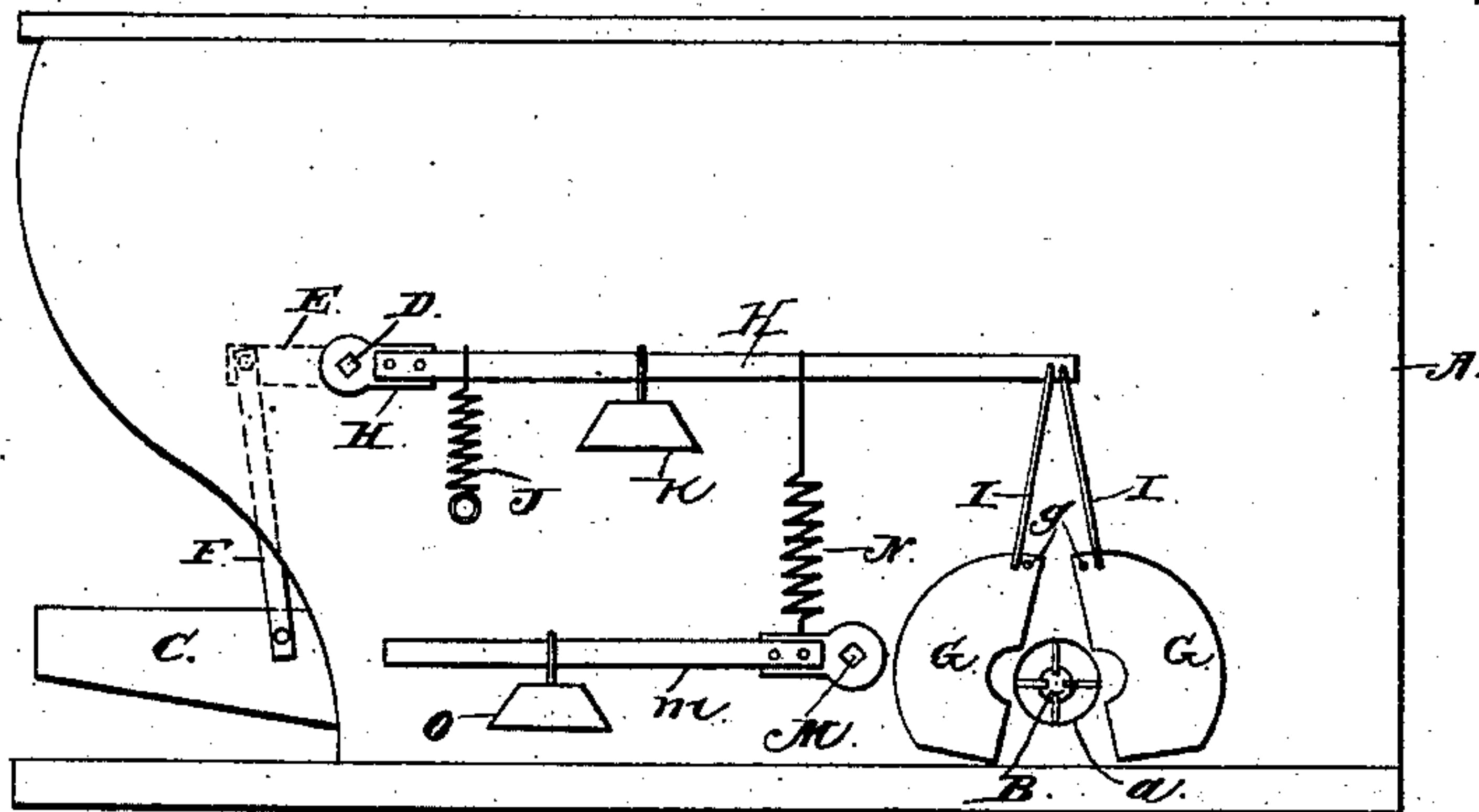
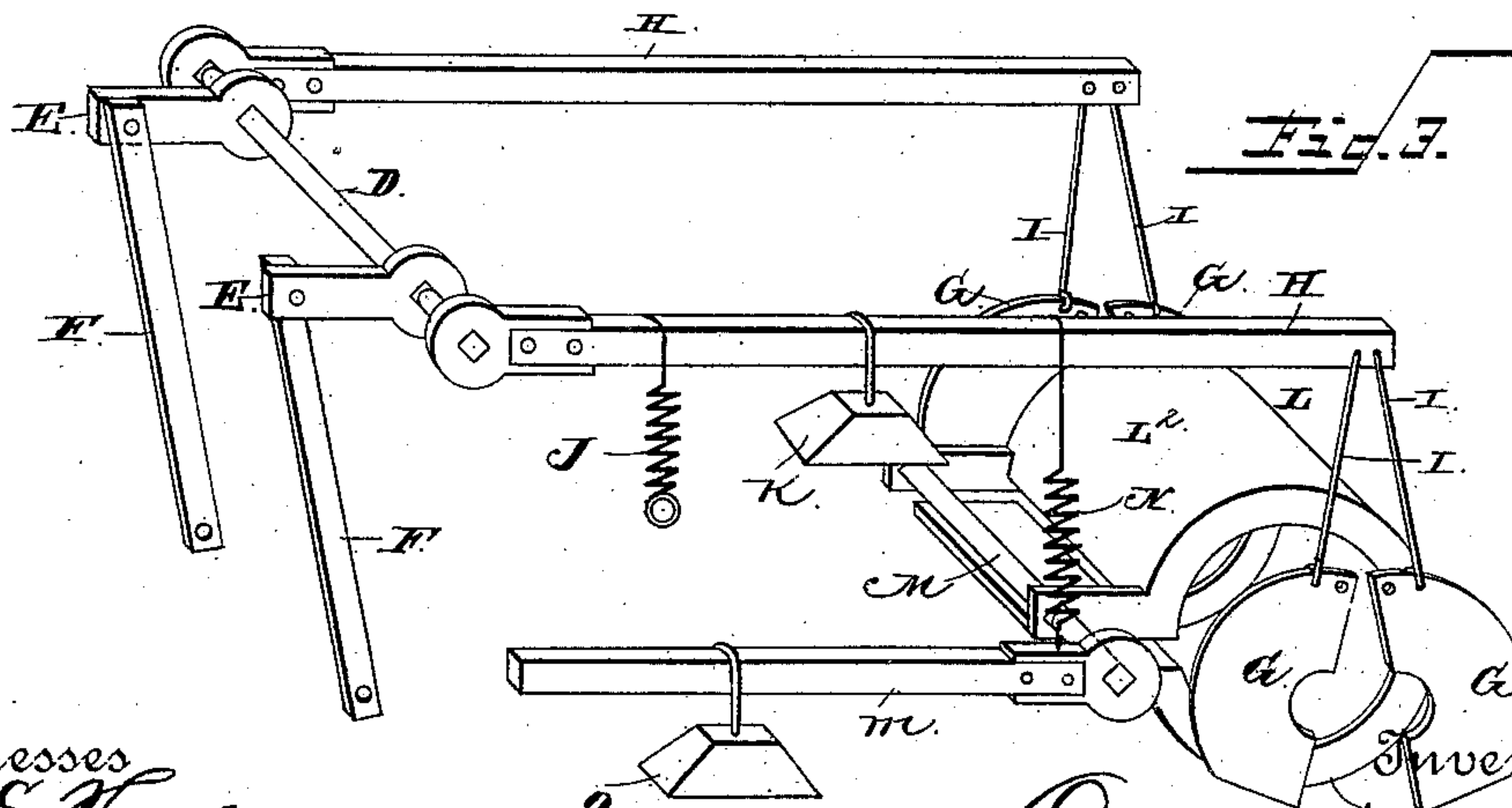
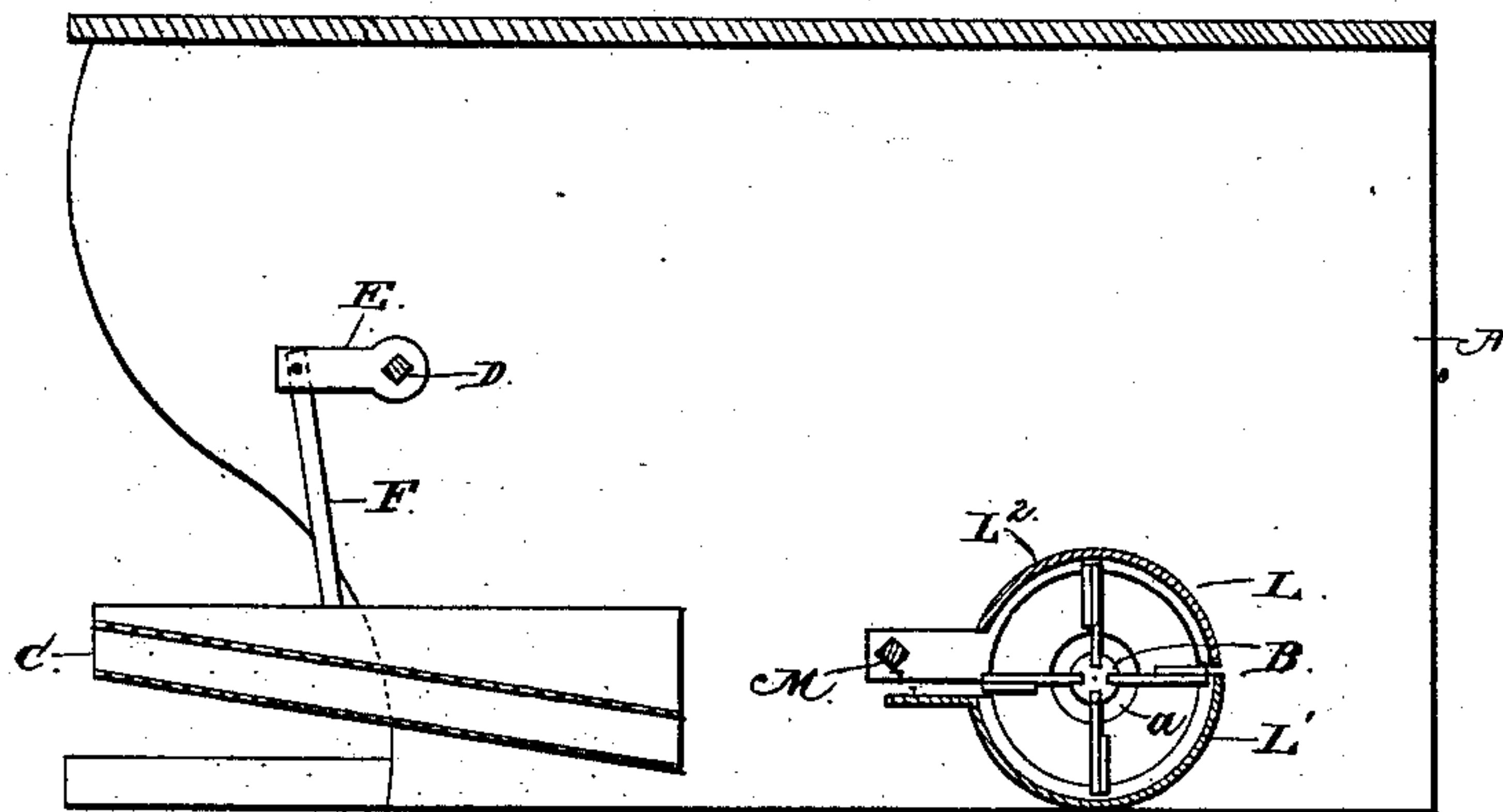


Fig. 2.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC WIND-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 356,967, dated February 1, 1887.

Application filed June 2, 1886. Serial No. 203,942. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO ELBERTEN SCOTT, a citizen of the United States, residing at Elkwood, in the county of Cavalier and Territory of Dakota, have invented new and useful Improvements in Automatic Wind-Regulators, of which the following is a specification.

My invention relates to an automatic wind-regulator for thrashing and clover-hulling machines; and it consists of the peculiar combinations and novel construction and arrangement of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of so much of a thrashing or clover-hulling machine having my improved regulator applied thereto as is necessary for a proper understanding of my invention. Fig. 2 is a vertical longitudinal sectional view through the same. Fig. 3 is a detached perspective view of my improved regulator.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates a portion of a thrashing-machine, having the air-inlet ports *a*, to supply air to the blast-fan B, that is arranged on the plane of the said openings or ports *a*.

C is the shoe that receives the grain, chaff, &c., from the cylinders of the machine, and this shoe is arranged to vibrate back and forth by suitable mechanism, as is customary in this class of machines. For the purpose of carrying my invention into effect the shoe is so arranged or hung at one end that it will be affected or depressed by the contents or grain therein; and to this end it is pivoted in any suitable manner, or suspended so that it will descend under the weight of the contents, and is elevated when the load thereon is diminished.

D designates a rock-shaft that is arranged within the casing of the machine proper, A, and the ends of this shaft are journaled in the machine, or in proper bearings provided therefor. Within the machine the rock-shaft is provided with rigid crank-arms E, that project rearwardly of the shoe, and to the free ends of these crank-arms are pivotally con-

nected the upper ends of hangers or links F, the lower free ends of which are pivoted to the free end of the shaking or vibrating shoe C, to suspend one end of the latter. When the free end of the vibrating shoe, to which the hanger rods or links F are connected, is depressed, the downward movement thereof is communicated through the hangers F and crank-arms E to the rock-shaft D, to oscillate the latter in its bearings, and this oscillatory movement of the rock-shaft is communicated to the pivoted wind boards or shutters G, to open or separate the latter to increase the supply of air to the fan B. The extremities of the rock-shaft are extended through the machine-casing A, and are provided with rods or levers H, that are rigidly secured thereon, and these levers are arranged exteriorly to the machine-casing and alongside of the same. The levers H are of sufficient length to extend to the wind-shutters G, and the free ends of the levers are provided with links or rods I, that are connected to the shutters G, to actuate the latter. The shutters are preferably of the usual form in common use, and they are arranged in pairs on opposite sides of the machine A. Each of the inlet-ports *a* of the machine is provided with one pair of these shutters, and the shutters of each pair are arranged on opposite sides of the openings or ports *a*, the upper end of each shutter being independently pivoted to the machine-casing, as at *g*.

The free end of each of the links I is connected to one of the shutters G near its pivoted end. When the rock-shaft is oscillated by the movements of the shoe, the levers H are likewise operated to actuate the movable shutters, and, as each lever H is operated simultaneously by the rock-shaft, the shutters will be likewise moved, thus simultaneously and instantaneously adjusting all of the shutters to the required extent.

One of the levers H is connected with one end of a spiral spring, J, that is secured at one end to the machine-casing, and this spring serves to counterbalance the shoe. The spring holds the levers H in their proper positions, which in turn actuate the rock-shaft D and the suspending-links, to thereby support and balance the free end of the shoe, and the levers also control the position of the wind-shut-

ters, as they are connected therewith by the intermediate links. It will be seen that when the free end of the gravitating vibrating shoe is depressed by weight of the contents therein the rock-shaft will be oscillated to elevate the levers and thus distend the spring, and when the contents of the shoe are discharged the spring again draws the levers downward, and thereby elevates the gravitating shoe to its normal position. As the free ends of the levers are elevated against the tension of the spring, they draw upon the links I, and thus separate the wind-shutters, and when the levers are lowered the shutters close by gravity.

K designates a regulating-weight that is adjustable longitudinally on one of the levers H, nearer to or farther from the rock-shaft by which it is carried. By moving the weight farther from the rock shaft the free ends of the levers H will be depressed to close the wind-shutters to a greater extent, and the free end of the shoe C will be elevated; and by adjusting the weight away from the free ends of the levers they will be raised to open the shutters partially and lower the free end of the vibrating shoe.

The blast-fan B is inclosed within a casing, L, that is made in two semi-cylindrical sections, L' and L², the former of which is rigidly secured in place on the machine-casing by suitable bolts or other preferred means, and the section L² is rigidly secured at its rear edge on a rock-shaft, M, that is journaled at its ends in the machine-casing, said case-section L² being free at its opposite edge, and adapted to be elevated away from the adjacent section to permit the surplus air to escape through the opening thus provided, and the section L² of the case is supported wholly and carried by the said rock-shaft M. The rock-shaft is provided with a rearwardly-extending arm, m, that is arranged outside of the machine-casing A. A spring, N, of coiled form is connected at its ends to the lever H, near its free end, and to the arm m, at or near the point where it is secured on the rock-shaft; and the said arm m is further provided with a weight, O, that is adjustable longitudinally thereon toward and from the rock-shaft M.

The operation of my invention is as follows: The adjustable weights K and O are moved on the levers H and m, to adjust the shoe to the required elevation and the case-section L² to the desired position, so that the air is drawn between the case-sections and forced toward the rear of the machine by the fan, the adjustment of the lever H also opening or closing the wind-shutters to the required distance. After the machine has been set in motion and grain is fed thereto by the attendant, the cylinder and various other parts of the machine act upon the grain and deliver it to the shaking or vibrating shoe which is depressed at its free end by the weight thereof, which pulls the hangers intermediate of the shoe and rock-shaft downward and oscillates the rock-shaft. This motion is communicated to the levers H,

so as to open the wind-shutters and increase the supply of air to the fan, which forces it onto the shoe, and when the quantity of the contents of the shoe is diminished the shoe is elevated by the action of the retracting-spring upon the lever H, which in turn oscillates the rock-shaft and elevates the hangers or links F and the shoe to their normal positions. The downward movement of the free end of one of the levers H relaxes the tension of the spring N, which allows the weight O on the arm m to descend and carry the free end of the said arm with it, which thereby actuates the rock-shaft M and elevates the free end of the case-section L² to permit the surplus air to escape. The case-section L² is also actuated independently of the movements of the levers by the increased force or pressure of the wind thereon, caused by the shutters being extended beyond their normal estimated position, so that the free end of the said case-section is elevated to provide an enlarged space between the meeting edges of the sections L' and L², to permit the surplus air to escape through the said enlarged space, the elevation of the free end of the section L² oscillating the rock-shaft M and depressing the free end of the arm m, which draws upon the spring N and serves to depress the free end of the levers H to partially close the wind-shutters. It will thus be seen that when the shoe contains a larger quantity of grain than the estimated weight to which the mechanism has been adjusted the free end thereof will gravitate or move downwardly to actuate the levers H to open the wind-shutters, and when the quantity on the shoe decreases through irregular feeding or other causes the free end of the shoe is elevated and the wind-shutters are correspondingly closed to shut off the air-supply partially, the whole operation being carried on automatically and without requiring the services of an attendant to adjust or regulate the wind-shutters after they have been once set.

My improvements are simple, strong, and durable in construction, and effective and reliable in operation. The regulating-weights can be readily adjusted to adapt the mechanism for use under varying conditions, and access to the weights is readily had, as they are arranged exteriorly of the machine-casing A. The mechanism is cheap and inexpensive, and can be applied to any class of thrashing-machines, either before or after they have left the factory.

I do not desire to confine myself to the exact details of construction and form and proportion of parts herein shown and described as an embodiment of my invention, as I am aware that many changes therein can be made without departing from the principle or sacrificing the advantages of my invention.

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

1. In an automatic wind-regulator, the combination, with a gravitating shoe and the shut-

ters, of a rock-shaft suitably supported above the shoe, devices connecting the said rock-shaft with the shoe, the levers affixed to the rock-shaft, devices connecting the said levers and the shutters, and a spring connected to one of the levers to counterbalance the shoe, and thereby maintain the wind-shutters in either a partially or wholly closed condition, substantially as described.

10 2. In an automatic wind-regulator, the combination, with a gravitating shoe and the shutters, of a rock-shaft connected by intermediate devices with the shoe, the levers affixed to the rock-shaft and connected to the shutters
15 by connecting-rods, a spring connected to one of the levers to counterbalance the shoe, and a weight carried by one of the levers and adapted to be moved back and forth to regulate the opening between the shutters, substantially as described, for the purpose set forth.

3. In an automatic wind-regulator, the combination, with a shoe and the shutters, of the levers and connections intermediate of the shoe and shutters, the fan-casing consisting of a fixed and a movable section, and intermediate devices connecting said movable section with the levers, so as to be actuated thereby when the levers are moved, substantially as described, for the purpose set forth.

4. An automatic wind-regulator comprising

a shoe, the wind-shutters, a rock-shaft, intermediate devices connecting said rock-shaft with the shoe, the levers H, having the rods, a fan, the fixed and movable case-sections surrounding the fan, a rock-shaft to which the movable case-section is connected, a lever, *m*, affixed to the rock-shaft, a regulating-weight adjustably fitted on the said lever, and a spring intermediate of the levers H *m*, substantially as described, for the purpose set forth.

5. In an automatic blast-regulator for thrashing-machines, the combination of the gravitating shoe, the pivoted wind-shutters, the rock-shaft, the crank-arms, the levers, the hangers intermediate of the crank-arms and shoe, the links connected to the free ends of the levers and the shutters, the retracting-spring connected with one of the levers, the rock-shaft, the movable case-section, the arm *m*, carried by the rock-shaft, the spring intermediate of the said arm *m* and one of the levers, and the regulating-weights on the arm *m* and the lever, substantially as herein shown and described, for the purpose set forth.

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

ORLANDO ELBERTEN SCOTT.

Witnesses:

JAMES FIELD,

H. J. HOPE.