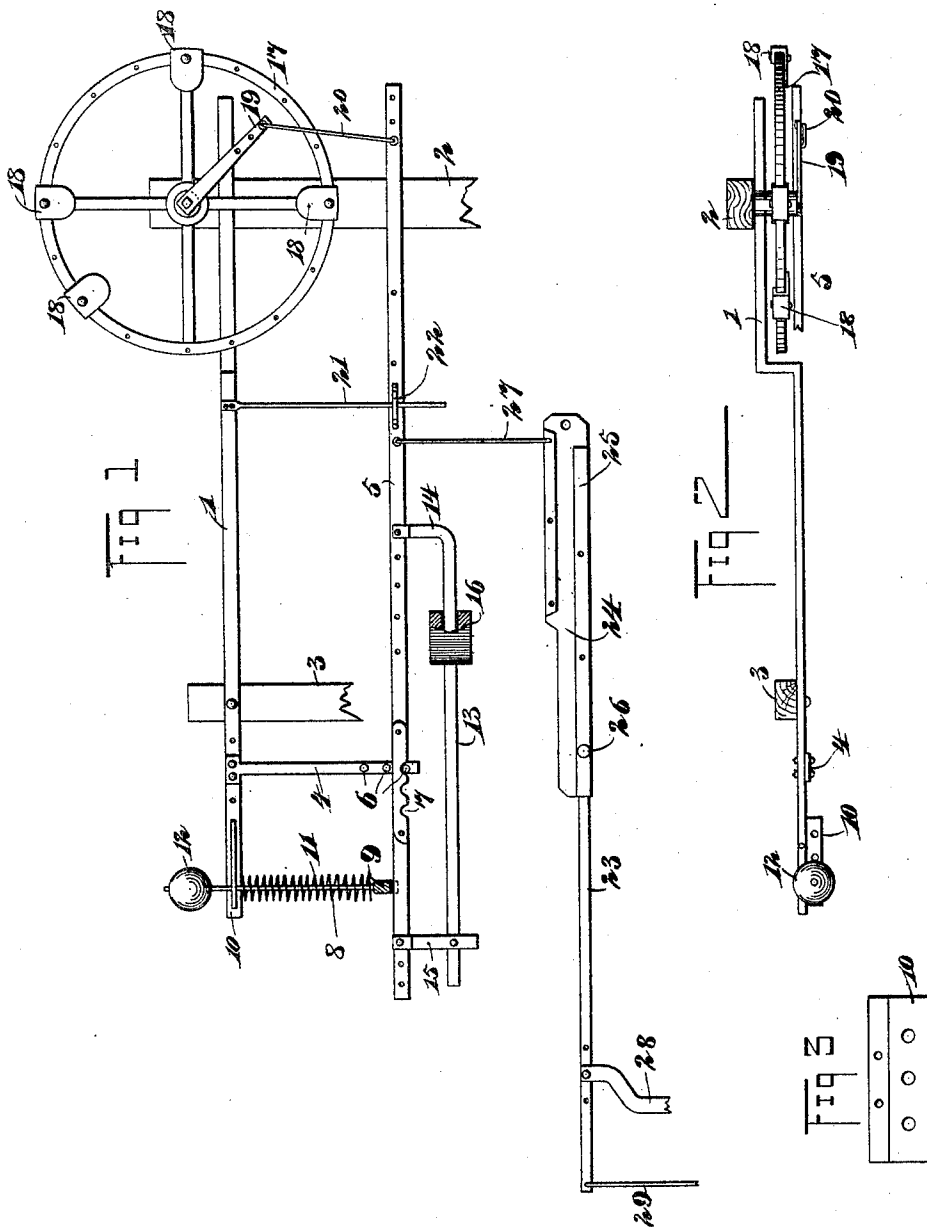


(No Model.)

J. G. BALL.
REGULATING DEVICE.

No. 581,648.

Patented Apr. 27, 1897.



WITNESSES:

Geo. C. Leary
C. R. Ferguson

INVENTOR

J. G. Ball
BY *Mumford*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN GREGG BALL, OF CHESTERVILLE, OHIO.

REGULATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 581,648, dated April 27, 1897.

Application filed July 1, 1896. Serial No. 597,739. (No model.)

To all whom it may concern:

Be it known that I, JOHN GREGG BALL, of Chesterville, in the county of Morrow and State of Ohio, have invented new and useful
5 Improvements in Regulating Devices, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in regulating devices for motors; and it has for its object to provide a device of a
10 simple and inexpensive nature which shall be adjustable in order to accommodate it to various purposes, such, for example, as pumps for wells of different depths, churns of different
15 sizes, and for other similar machinery where it is designed to operate a rod vertically and at varying rates of speed.

The invention consists of a frame wherein is rotatably mounted a wheel having a series
20 of weights adjustably secured to its periphery and arranged in such a way that such wheel is overbalanced on one side, an adjustable sweep-rod connected to a crank arm or axle of said wheel and adapted to be engaged with
25 mechanism having an attachment to a pump-rod or similar device, and a spring adjustably connected to said sweep-rod.

The invention further consists in the construction and novel arrangement of parts, as
30 will be hereinafter set forth, and pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate
35 corresponding parts in all the views.

Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a plan view of a portion thereof, and Fig. 3 is a plan view of a guide-plate employed.

Referring to the drawings, 1 designates a horizontally-disposed bar rigidly attached to uprights 2 3. Depending from the bar 1 is an arm 4, serving as a fulcrum-arm for a sweep-rod 5. The said arm 4 is adjustably connected to the bar 1 by means of bolts adapted to pass through openings in the upper end of said arm and through openings in the bar 1, as plainly indicated in Fig. 1. The lower end of the arm 4 is provided with a series of
45 outwardly-extended pins 6, either one of which may form a fulcrum for the sweep-rod 5, this sweep-rod 5 having on its under side

a series of notches 7, adapted to engage with either one of the pins 6. It will be seen by this construction that the sweep-rod 5 may
55 be adjusted vertically with relation to the bar 1 and also longitudinally thereof.

A guide-rod 8 extends from a yoke 9, slidably mounted on the sweep-rod 5, upward through one of a series of perforations in a
60 plate 10, extended laterally from the bar 1. Between the under side of this plate 10 and the yoke 9 is arranged a coil-spring 11, which surrounds the guide-rod 8 and serves to press downward the said sweep-rod 5.

As an auxiliary means for imparting pressure to this end of the sweep-rod 5 I provide the upper end of the guide-rod 8 with a weight 12. A weight-bar 13 has its upwardly-extended end 14 provided with a perforation
70 through which a bolt may be passed, the said bolt passing through either one of a series of perforations formed in the sweep-rod 5, whereby said weight-bar may be adjusted and secured in any desired position longitudinally of the sweep-rod. The opposite end
75 of this bar 13 is attached to a hanger 15, secured at its upper end to the sweep-rod 5 and adjustable longitudinally thereof.

On the bar 13 is mounted to slide a weight
80 16. This weight is designed to more or less counterbalance the tension of the spring 8, as it is obvious that by moving the weight 16 toward the end 14 of the bar 13 a less resistance will be established in the spring 11. A
85 greater resistance may be established therein by moving the weight 16 toward the opposite end of the bar 13.

Longitudinally mounted on the upright 2 is a wheel 17, upon the periphery of which is
90 mounted a series of weights 18. These weights 18 are adjustable circumferentially of the wheel and may be held as adjusted by means of bolts passing through perforations in the weights and through any of a series of
95 perforations formed through the rim of the wheel. On the shaft of the wheel 17 is secured a crank-arm 19, provided with a series of perforations, in either one of which the upper end of a link 20 may be engaged, the
100 lower end of said link 20 being adapted to be engaged in either one of a series of perforations arranged in the end of the sweep-rod 5. By this arrangement of the link 20 the throw

of the sweep-rod may be regulated. The portion of the sweep-rod 5 near the wheel 17 may be guided in its vertical movement and also prevented from lateral movement by means of a rod 21, extended downward from the bar 1 through a perforation in a plate 22, secured to said sweep-rod.

Below the sweep-rod 5 is a lever consisting of two sections 23 and 24, adjustable longitudinally one with relation to the other. As here shown, the section 23 of this lever is movable in a guideway 25, formed on the lower edge of the section 24, and it may be secured in its adjusted position by means of a set-screw 26, passing through either one of the perforations in the outer wall of said guideway 25 and impinging against the section 23. The end of the section 24 of this lever has a link connection 27 with the sweep-rod 5, and the section 23 of this lever is fulcrumed on an arm 28, extended from any fixed support, such, for instance, as from a pump-casing or a churn-body. This section 23 of the lever is provided with a series of perforations, through either one of which the fulcrum-bolt may be passed to adjust the leverage. To the end of this section 23 of the lever a pump or other rod 29 is designed to be attached.

In the operation of this device the wheel 17 may be rotated in any desired manner, and, in fact, an ordinary fly-wheel may be substituted for this weighted wheel. The device constructed as described is exceedingly simple and comparatively inexpensive and is readily adjustable for use in connection with pumps for wells of different depths and churns, &c., of different sizes.

A series of weights 18, of different sizes, may be provided for adjustment, as desired, to render the device operative with different powers or machines to be operated.

It is obvious that the link 27 may be adjusted to any part of the rod 5 or pump-lever, the necessary bolt-holes being provided, and I find it advisable at times to place said link directly under the spring 11.

It will be seen that by moving the weight 16 toward the end 14 of the bar 13 the resistance of the spring 11 will be more or less counterbalanced, and thus the bar 5 may be operated at a greater speed by a minimum of power, and by moving the weight closer to the fulcrum the speed will be diminished.

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

1. A regulating device, comprising a frame, a wheel rotatably mounted on said frame, a sweep-rod fulcrumed on an arm depending from a horizontal bar of said frame, a crank on the shaft of the wheel having a link connection with one end of the sweep-rod, a guide-rod extended upward from the opposite end of said sweep-rod through a plate on the hori-

zontal bar of the frame, a spring surrounding said guide-rod between said horizontal bar and the sweep-rod, means for counterbalancing the tension of said spring, and a fulcrumed lever having a link connection with the sweep-rod, substantially as specified.

2. A regulating device, comprising a frame having a horizontal-bar portion, a wheel mounted on said frame, a series of weights adjustably mounted on the periphery of said wheel, a sweep-rod having adjustable fulcrum-points on an arm depending from the horizontal bar, a crank on the shaft of the wheel, a link having connection with said crank and also adjustable connection with the sweep-rod, a yoke slidable on the opposite end of the sweep-rod, a guide-rod extended upward from said yoke through one of a series of perforations in a plate extended laterally from the horizontal bar, a spring arranged between said plate and yoke, a weight on the upper end of the bar, a weight-bar adjustably mounted on the sweep-rod, a weight movable on said weight-bar, and a fulcrumed lever for a pump or similar rod, operated from said sweep-rod, substantially as specified.

3. A regulating device, comprising a sweep-rod, a wheel for operating said rod, weights adjustably mounted on the periphery of said wheel, a spring connection between one end of said sweep-rod and a portion of the frame of the device, a weight adjustable relatively to the fulcrum of the sweep-rod and a fulcrumed pump-rod lever consisting of two sections adjustable longitudinally one with relation to the other, substantially as specified.

4. A regulating device, comprising a frame having a horizontal-bar portion, a depending arm having adjustable connection with said horizontal bar, the lower end of said depending arm having a series of fulcrum-points, a sweep-rod having a series of fulcrum-notches in its lower side, a guide-rod adjustable with relation to said sweep-rod and horizontal bar, a spring between the horizontal bar and sweep-rod, the said spring surrounding the said rod, a weight on the upper end of said rod, a weight-bar having an upwardly-turned end adjustably connected to the sweep-rod, and having its opposite end connected to a hanger having adjustable connection with said sweep-rod, a weight on the weight-bar, a wheel rotatively mounted on the frame, operative connections between said wheel and the sweep-rod, weights adjustably mounted on the periphery of said wheel, and an adjustable fulcrumed lever having a link connection with said sweep-rod; substantially as specified.

JOHN GREEG BALL.

Witnesses:

BERT DALRYMPLE,
JENNIE HARRIS.