

(No Model.)

R. THURY.
REGULATING DEVICE.

No. 529,570.

Patented Nov. 20, 1894.

Fig. 2.

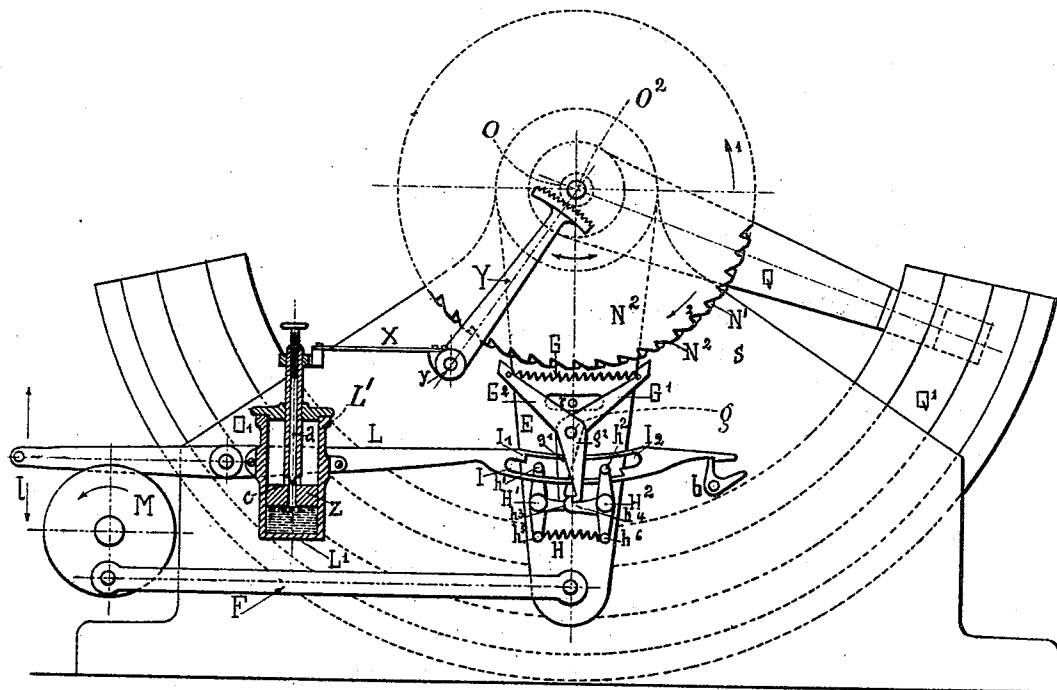
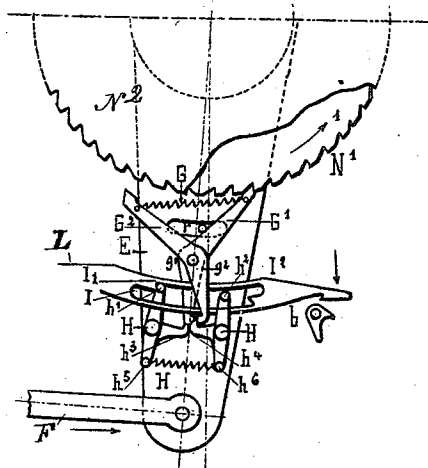


Fig. 1.

Witnesses:
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att.

UNITED STATES PATENT OFFICE.

RENÉ THURY, OF GENEVA, SWITZERLAND, ASSIGNOR TO THE COMPAGNIE
DE L'INDUSTRIE ÉLECTRIQUE, OF SAME PLACE.

REGULATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 529,570, dated November 20, 1894.

Application filed August 18, 1894. Serial No. 520,679. (No model.)

To all whom it may concern:

Be it known that I, RENÉ THURY, electrician, of Geneva, Switzerland, have invented certain new and useful Improvements in Regulating Devices, of which the following is a specification.

In the machines acted upon by any inco-
scent motive power whatever (water, steam,
electricity, &c.) the reaction of the speed or
intensity-regulator is advantageously trans-
mitted to the valve or other distributing de-
vice by means of a self-acting intermediate
device acting upon the said distributing de-
vice as soon as the smallest oscillation of the
regulator proper occurs and without having
the latter supporting directly the effort of re-
sistance of the distributing device itself.

The object of the invention claimed is of
the said kind and will be described below
with reference to the accompanying drawings,
in which—

Figure 1, is an elevation and partial section
of the apparatus, and Fig. 2, is an elevation
with the parts in a different position.

My regulating device is a very simple and
quite automatic one and it is combined so as
not to exceed the normal point of regulation
as this occurs in most of the similar devices
known till now.

My device is first composed of a lever L
pivoted at O' to a fixed bearing S of any kind
whatever and of a lever E, pivoted at O² to
the same bearing S. The lever L is acted
upon at l by the regulator proper (centrifugal
regulator, solenoid acting by attraction upon
a piece of soft iron or the like) and the lever
E receives a reciprocating motion by any suit-
able means whatever, for instance by a disk
or crank M and a rod F.

To the point g of the lever E there are piv-
oted two clicks G' and G² which are caused
by means of a spring G to engage the one
with the teeth of wheel N' and the other with
the teeth of a wheel N² which are both upon
the axis O² acting upon the distributing de-
vice which is represented in the drawings by
a switch Q moving upon suitable contact-
pieces Q'. When the click G' is engaged in
the teeth of wheel N' the switch Q moves in
the direction of the arrow 1 to the extent of
one or more teeth of said wheel N' and when

the click G² is engaged in the teeth of wheel
N², the said arm Q moves in the direction of
the arrow 2, the pivot g of the said clicks G'
and G² oscillating together with the lever E.
The latter is further provided with two pivots
H' and H² bearing two three-armed levers,
the arms h³ and h⁴ of which are connected to-
gether by means of a spring H which tends
to bring the same back to their normal po-
sition shown in Fig. 1 of the drawings. The
arms h³ and h⁴ of the said three-armed le-
vers are intended to respectively catch the
arms g' and g² of the clicks G' and G² in view
of maintaining the same both out of reach
of the wheels N' and N² and extending the
spring G. The arms h' and h² of the said
three-armed levers are provided with pro-
jections passing into an opening I of the
above described lever L and said opening is
provided with projections I' and I² against
which abut according to the position in which
the lever L is placed, either the arm h' or the
arm h² when the latter are oscillating together
with the lever E. Now when in an oscillation
from right to left the lever L having been
lowered, the arm h' meets the projection I'
the tooth h³ disengages the arm g' which al-
lows the lever G' to engage the teeth of wheel
N' as shown in Fig. 2. In its motion from
left to right the arm E rotates the wheels N'
and N² which act directly upon the motor to
cause the same to be automatically regulated.
At the end of its following stroke from the
right to the left the lever G' meets a station-
ary stop r which disengages the pawl from
the teeth of N' and engages the arm g' with
the arm h³ as soon as the lever L has returned
to its normal position and separated I' from
H' after the regulating action is performed.
When the lever L is lifted the opposite mo-
tion occurs by means of the levers h² h⁴ and
G² acting upon the wheel N²; and when the
lever L is in its normal position the arms h'
and h² do not meet the projections I' and I²
and the clicks G' and G² remain consequently
out of action. A small hand lever b is pro-
vided for securing the lever L in its normal
position. To avoid an excess in the regulat-
ing action, that is to say a motion exceeding
the normal position of the regulator and to
gradually stop the play of the switch Q (or

of the valve or other distributing device) when the same has been put into motion by one of the clicks G' or G^2 , I insert between the axis O^2 and the lever L the following mechanism which is intended to transmit to the said lever L a reactionary movement from the axis O^2 . The latter carries a pinion O into which engages a rack Y pivoted in y and bearing a spring X rigidly fixed by one of its ends to the said rack Y .

The lever L carries a cylinder L' which moves with it and in which there is a piston Z . The cylinder L' is filled with oil or another suitable liquid or fluid and the piston is provided with a central hole and with some small radial holes c through which the said liquid or fluid may escape from one side of the piston to the other when the piston is moved in the cylinder. A rod a is located in the tubular piston rod Z and has a tapering end to regulate the opening of the apertures c . In screwing or unscrewing the rod a one causes the opening through c to be enlarged or reduced and regulates thereby at will the speed of the piston Z in its cylinder L' .

The end of the rod of the piston Z is connected to the other end of the above mentioned spring X so as to have the rack Y lifting or lowering the piston Z in the cylinder L' as the shaft O^2 and its pinion oscillate in one direction or the other. The said rack Y tends thereby to lift or lower the piston Z and the action of the rack Y is transmitted to the lever L by means of the elastic intermediary spring X and the piston Z playing in the liquid or fluid substance in the cylinder L' . The greater the movement of the pinion O the greater the tension of the spring X and the more the power exerted to move the piston Z and the liquid or fluid in the cylinder L' seeks to pass through the apertures c . The action of the rack Y upon the lever L is always in opposite direction to that of the regulator acting upon the said regulator in the point l . It therefore reacts upon the said regulator like

a constant brake tending to bring the lever L back to its normal position and acting with an intensity which is proportioned to the extent of rotation of the axis O^2 .

The percentage of the regulating device is obtained by suitably regulating the openings c by the rod a .

Instead of affixing the spring X to the rack Y and the cylinder L' to the lever L one may reverse this arrangement or one may affix the piston to the lever L and the spring X to the cylinder L' without altering the effect of the device.

Having thus fully described my invention, I claim—

1. The combination in a regulating device of pawls, a lever for moving the pawls, ratchet wheels on which the pawls act in one direction or the other, mechanism for holding the pawls out of action, a lever for bringing the pawls into action in one direction or the other, a cylinder and piston with a passage for the liquid and a regulating valve, and mechanism acting to move the piston or cylinder and the lever and control the action of the pawls substantially as specified.

2. The combination in a regulating device of spring pawls, a lever for moving the pawls, ratchet wheels on which the pawls act in one direction or the other, latch levers for holding the pawls out of action, a lever for bringing the pawls into action in one direction or the other a cylinder and piston with a passage for the liquid to pass from one side of the piston to the other and a pinion, rack and lever connected with the piston or cylinder and acting upon the lever to control the action of the pawls, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RENÉ THURY.

Witnesses:

BENJ. H. RIDGELY,
OTTO MAYE.