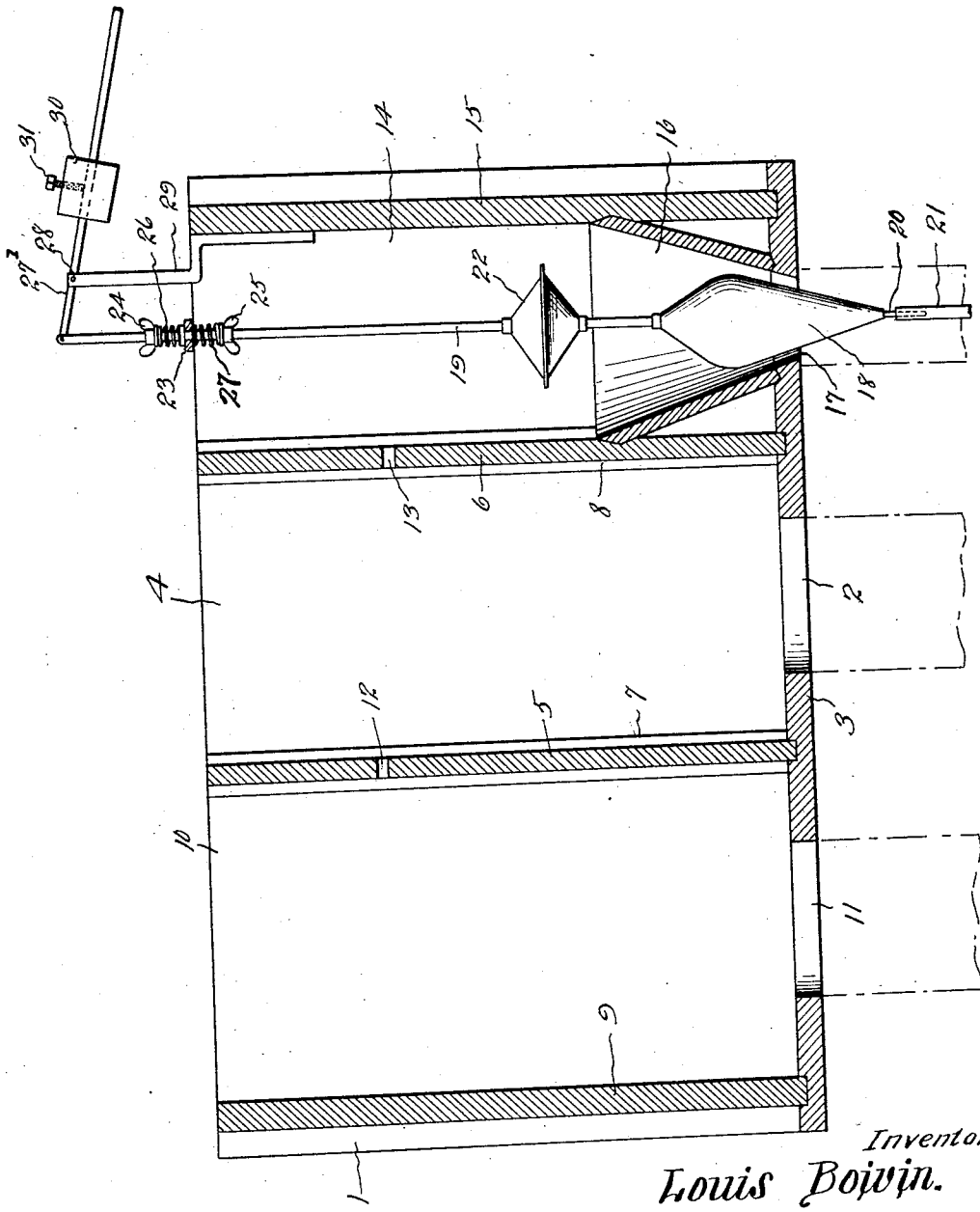
L. BOIVIN.

AUTOMATIC STOCK REGULATOR FOR PAPER MACHINES.

APPLICATION FILED MAY 3, 1920.

1,408,977. Patented Mar. 7, 1922.



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AUTOMATIC STOCK REGULATOR FOR PAPER MACHINES.

1,408,977. Specification of Letters Patent. Patented Mar. 7, 1922.

Application filed May 3, 1920. Serial No. 378,543.

To all whom it may concern:

Be it known that I, LOUIS BOIVIN, a citizen of the United States, residing at Woodland, in the county of Washington and State of Maine, have invented certain new and useful Improvements in Automatic Stock Regulators for Paper Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in automatic stock regulators for paper machines, and has for an object to provide an improved automatic stock regulator for controlling the amount of stock passing to the paper machine.

At the present time regulators of this class have to be very carefully adjusted each day and have to be continuously watched in order that the amount of stock passing to the paper machine may be uniform.

It is an object of the invention to provide a regulator which will be automatic in action and which will dispense with the necessity of manual adjustment and will do away with the continuous attendance upon the machine.

In the accompanying drawings forming a part of this application, and in which similar reference symbols indicate corresponding parts in the several views:

The figure shows a vertical sectional view through a stock box provided with an improved automatic regulator constructed in accordance with the present invention.

Referring more particularly to the drawings, 1 designates generally stock box into which the stock is fed through an opening 2 located substantially centrally of the box and in the bottom 3 thereof. The opening 2 communicates with a central compartment 4 confined between partitions 5 and 6 placed transversely of the box and mounted in suitable guides 7 and 8. The partition 5 cooperates with the end 9 of the box to provide an overflow compartment 10 with an opening 11 in the bottom thereof through which the stock may be returned to the stock supply reservoir.

I have shown in broken lines pipes as connected with the openings 2 and 11 for respectively delivering the stock to the central compartment 4 and returning same from the compartment 10 to the source of supply. An opening 12 is made in the partition 5 at a suitable elevation through which the stock may flow from the compartment 4 into the compartment 10. The presence of the opening 12 serves to maintain the stock at a uniform level in the compartment 4.

Placed at a lower level in the partition 6 is an opening 13 through which the stock may pass to a third compartment 14 confined between the partition 6 and the opposite end 15 of the box. In the lower end of the compartment 14 is a cone 16, usually of wood, having its lower end forming a continuation of an opening 17 which communicates with a pipe appearing in broken lines. This pipe serves to convey the stock flowing through the cone 16 to the paper machine.

The passage of the stock is regulated by a copper conical bulb 18 carried on the lower end of a vertically reciprocating rod 19 and having a tip 20 slidably fitted in the upper end of a tubular guide 21. The guide serves to support and center the lower end of the conical bulb 18. The bulb 18 is hollow and usually made of copper. The rod 19 above the stock regulating bulb and also preferably slightly above the top of the cone 16 is provided with a second bulb 22 also made hollow and preferably of copper and composed of two frusto conical sections having their wide basel ends fitted together.

Above the compartment 14 is a beam 23 extending crosswise of the box 1 and through which the rod 19 vertically reciprocates. A pair of wing nuts 24 and 25 are threaded on the portions of the rod 19 respectively above and below the beam 23, and they individually act to adjust the compression of a pair of coil springs 26 and 27 wound about the rod between the beam and the two nuts. The upper end of the rod 19 is pivotally connected to one end of a lever 27′ fulcrumed as indicated at 28 on a bracket 29 secured to the end 15 of the stock box 1. The lever carries an adjustable counterweight 30 adjustably secured to the same by a set screw 31.

In operation the stock from a source of supply flows in through the opening 2 to the compartment 4 and rises therein up to a height which is regulated by the presence of the opening 12, which permits overflow into the compartment 10 to the left. The overflow stock from this compartment 10 circulates back through the opening 11 to the source of stock supply.

The opening 13 in the partition 6 is placed just slightly below the opening 12 so that the constant level of the stock in the central compartment 4 is at or about such opening 13 whereby the stock may overflow constantly into the compartment 14 to the right. This stock flows down into the wooden cone 16 and is allowed to pass out when the bulb 18 is open, flowing through the opening 17 and to the paper machine. Should the stock be heavy, that is possessing very little water, the same will weigh upon the upper bulb 22, causing the descent of the lower regulating bulb 18 and restricting the port area through which the stock may escape to the paper machine.

On the other hand, in case the stock is thin or diluted with water, the upper bulb 22 will be relieved of excessive pressure and will tend to rise in the liquid so that the lower bulb 18 will rise, thus opening wider the port area.

It will thus be seen that the actual quantity of the stock passing to the paper machine will be uniform irrespective of its condition. The nuts 24 and 25 will be individually regulated to impose greater or less tension upon the action of the upper bulb 22, and the counterweight 30 may also be adjusted to balance the various bulbs and rod in a manner which will be well understood.

It is obvious that those skilled in the art may vary the details of construction and arrangements of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

I claim:

1. In combination with a stock box having an outlet cone, a bulb controlling the outlet through the cone, and a second bulb connected to the first named bulb and acted upon by the weight of the stock in the box for moving the first named bulb to restrict or enlarge the port area through which the stock escapes to the paper machine, substantially as described.

2. In combination with a stock box having an outlet cone, a bulb controlling the escape of the stock through the cone, a rod connected to said bulb, a second bulb fixed on the rod and acted on by the weight of the stock to rise and fall, and counterweight means connected to the upper end of the rod, substantially as described.

3. In combination with a stock box having an outlet cone, a bulb for controlling the escape of the stock through the cone, a rod connected to the bulb, a second bulb fixed on the rod above the first named bulb and acting to rise and fall in proportion to the weight of the stock, and means for adjustably tensioning said rod, substantially as described.

4. In combination with a stock box having an outlet cone, a bulb for controlling the outlet cone, a rod connected to the bulb, a second bulb on the rod acted upon by the weight of the stock to raise and lower the first named bulb, a beam through which said rod reciprocates, spring means bearing against the upper and lower sides of the beam, and adjustable means on the rod above and below the beam and adapted to bear against said spring means for tensioning the rod in its movements in both directions, and counterweight means also connected to said rod, substantially as described.

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