

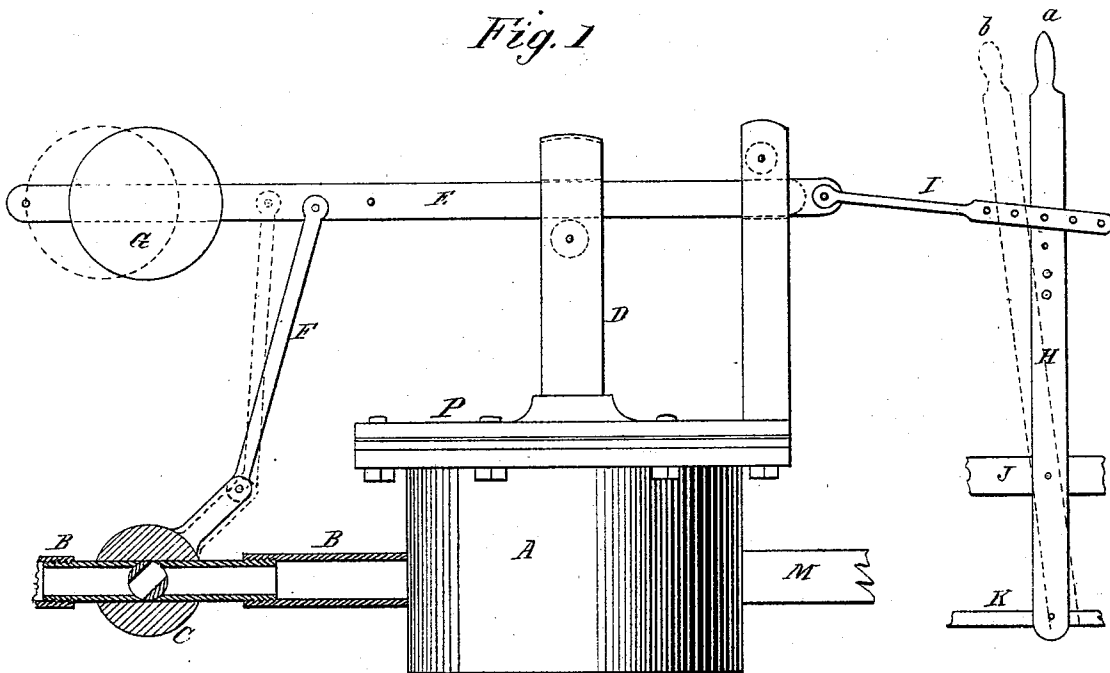
N. C. LOCKE.

Improvement in Steam-Pressure Regulators.

No. 126,065.

Patented April 23, 1872.

Fig. 1



Witnesses

*Alpheus C. Locke
Edwin H. Locke*

Inventor

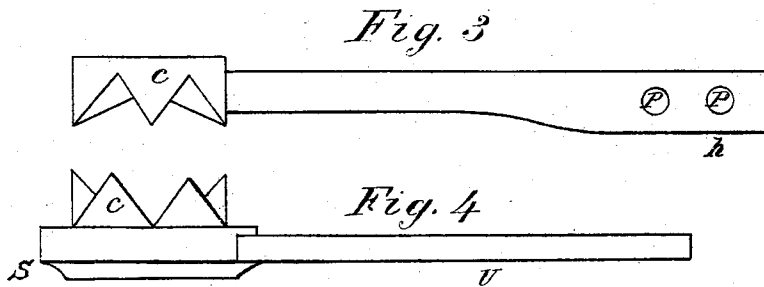
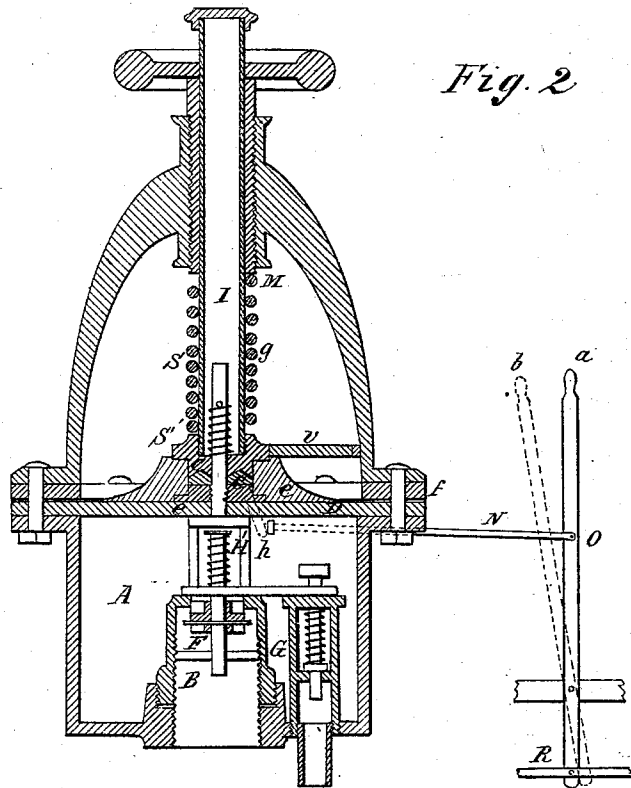
Nathaniel C. Locke

N. C. LOCKE.

Improvement in Steam-Pressure Regulators.

No. 126,065.

Patented April 23, 1872.



Witness

Alphus C. Locke
Edw'm H. Locke

Inventor

Nathaniel C. Locke

UNITED STATES PATENT OFFICE.

NATHANIEL C. LOCKE, OF SALEM, MASSACHUSETTS.

IMPROVEMENT IN STEAM-PRESSURE REGULATORS.

Specification forming part of Letters Patent No. 126,065, dated April 23, 1872.

To all persons to whom these presents shall come:

Be it known that I, NATHANIEL C. LOCKE, of Salem, in the county of Essex and State of Massachusetts, have invented a new and improved connection between a steam-pressure regulator and the machine in conjunction with which it is intended to operate; and that the following description, taken in connection with the accompanying plate of drawing, to which reference is hereafter made, is a full and complete specification of the same.

In the manufacture of paper and in the sizing and dressing of warps, as is well known, steam is used for the drying of the paper and of the warps, and for the regulation of the pressure within the cylinders employed as the drying mechanism apparatus known as steam-pressure regulators have been and are now employed, these regulators being suitably located between and connected with both the cylinders and the steam-generating apparatus, to secure the regulation of pressure desired—that is, to maintain within the drying-cylinders a stated amount of pressure, however great may be the pressure of steam within the steam-generating apparatus. In the use of steam-pressure regulators, as aforesaid, it has been found that with the machinery to which it was connected, when running, the pressure was regulated as desired, but that on arresting or stopping such machinery there would be in the drying-cylinders a pressure greatly in excess of that to which the regulator was adjusted, in many instances such pressures being double, thus straining the cylinders, causing leakage and a liability to explosion. This increase of pressure, as stated, within the cylinders, is supposed and believed to occur from the fact that there is no condensation of steam when the machinery is not running, but, on the contrary, an accumulation, increasing the pressure, the increase being that which (were the machinery running) would be taken up to dry the paper, warp, &c. The object of this invention is to overcome and prevent the said increase of pressure within the cylinders when the machinery is stopped; and for this purpose the invention consists of a connection between a steam-pressure regulator and a paper-drying machine or a slasher, so arranged and applied to the steam-pressure regulator and the said machines that the stopping of the machine will

set the regulator either entirely to arrest the flow of steam to the cylinders, or to admit less steam to the cylinders than that at which the regulator is set.

In the accompanying plate of drawing a connection for a steam-pressure regulator according to this invention is illustrated as applied to two forms of pressure-regulators—Figure 1 showing it in conjunction with a pressure-regulator such as is embraced in Letters Patent issued to me, bearing date November 22, 1870, and numbered 109,526; Fig. 2, in conjunction with a pressure-regulator such as is embraced in Letters Patent issued to me bearing date March 28, 1871, and numbered 113,069; Fig. 2 being a vertical section thereof. Figs. 3 and 4 are detail views of the cams.

In Fig. 1 of the drawing the pressure-regulator there shown, as before stated, is that embraced in Letters Patent dated November 22, 1870, and numbered 109,526, and its construction is substantially the same as described in said Letters Patent, and it therefore needs no particular description herein. Pertaining to this regulator, the present invention is shown and carried out, as follows: H, the shipper-handle of the machine, to which the regulator is applied; E, the lever of the pressure-regulator, which lever carries a weight or load, G, and by a rod, F, is connected to the crank of the valve C to the regulator. The lever E, at one end, through a rod, I, is connected with the shipper-handle or lever H, and at its other end is arranged within the slotted or bifurcated post D of the diaphragm or piston P to the receiver A of the pressure-regulator. Within this post D the lever H' rests on a friction-roller, and beyond it the lever is extended through a slotted or bifurcated post fixed to the receiver A.

Having set or adjusted, in accordance with the Letters Patent No. 109,526, before referred to, the pressure-regulator to the amount of pressure desired to be maintained by it in the drying-cylinders, as the machine runs, the regulator, through the operation of its parts, as described in said Letters Patent, regulates the pressure within the drying-cylinders, the steam flowing to said cylinders through the valve C. The shipper-handle H is moved from *b* to *a* to stop the machine, and, in so doing, the rod I, connecting it with the loaded lever E, which

is moved through the slotted post D of the pressure-regulator, causes the valve C to be turned by the rod F so as to close it more to the passage of steam, and thus diminish the flow of steam through it, entirely preventing, as is obvious, an increase of pressure within the drying-cylinders, this movement of the valve taking place simultaneously with the stopping of the machine.

In Fig. 2 of the drawing the pressure-regulator there shown, as before stated, is that embraced in Letters Patent dated March 28, 1871, and numbered 113,069, and its construction and operation, except so far as pertains to the present invention, are substantially the same as described in the aforesaid patent, and therefore need no particular description herein. Pertaining to this regulator, the present invention is shown and carried out as follows: In Fig. 2, I is the valve-stem; O, the shipper-handle; and *c c*, two cams; N, a connecting-rod; and *h*, a handle to one of cams *c*; and *v*, an arm to hold stationary the other one of cams *c*. The cams *c c* are formed as shown in Figs. 3 and 4 more particularly, and are both loose about the valve-stem I, one of them being held from turning by the arm *v* interlocked with the frame of the regulator, and the other resting upon a fixed collar of the valve-stem I, so that, turning it by its handle *h*, it will move the valve-stem as its teeth pass out of the teeth on the other part, which is confined, as shown, both from a rotary and a lateral movement on stem I. This turning of the handle *h* is accomplished, through the connecting-rod N, by the shipper-handle O in the starting of the machine to which the regulator is applied, increasing the opening of the valve to said stem, and consequently the flow of steam from regulator, while, in the stopping of the machine, a reverse movement of the valve-stem is made, the spring S throwing it, the instant the connecting-rod N is released, by pushing or pull-

ing back the shipper-handle O, and thus the opening through the valve is decreased in size, reducing the amount of steam to pass through the valve.

In both the arrangements of parts hereinabove described it is obvious the result aimed at under this invention is accomplished—that is, an immediate adjustment of the regulator below its adjusted pressure by and through the stopping of the machine to which it is applied.

In lieu of the peculiar arrangement of connecting parts herein described, others may be employed, and the connection forming the subject of this invention may be with the running portions of the machine in lieu of directly with the shipper-handle; but connecting the regulator and shipper, substantially as described, has been found to be simple, efficient, and practical, and probably will be substantially the arrangement to be adopted.

Although I have herein described my invention as applied to two regulators, which form the subject of separate Letters Patent heretofore granted to me, as hereinbefore stated, I do not intend to limit my invention to any particular regulator, intending to apply the invention to whatever regulators it may be found applicable.

Claim.

Having thus described my invention, I will state my claim as follows:

A steam-pressure regulator of the class herein described, in combination with a slasher, when the regulator and machine are so connected that in the starting or stopping of the machine the regulator will be acted upon in the manner substantially as and for the purpose shown and described.

NATHANIEL C. LOCKE.

Witnesses:

EBEN N. WATSON,
ALPHEUS C. LOCKE.