

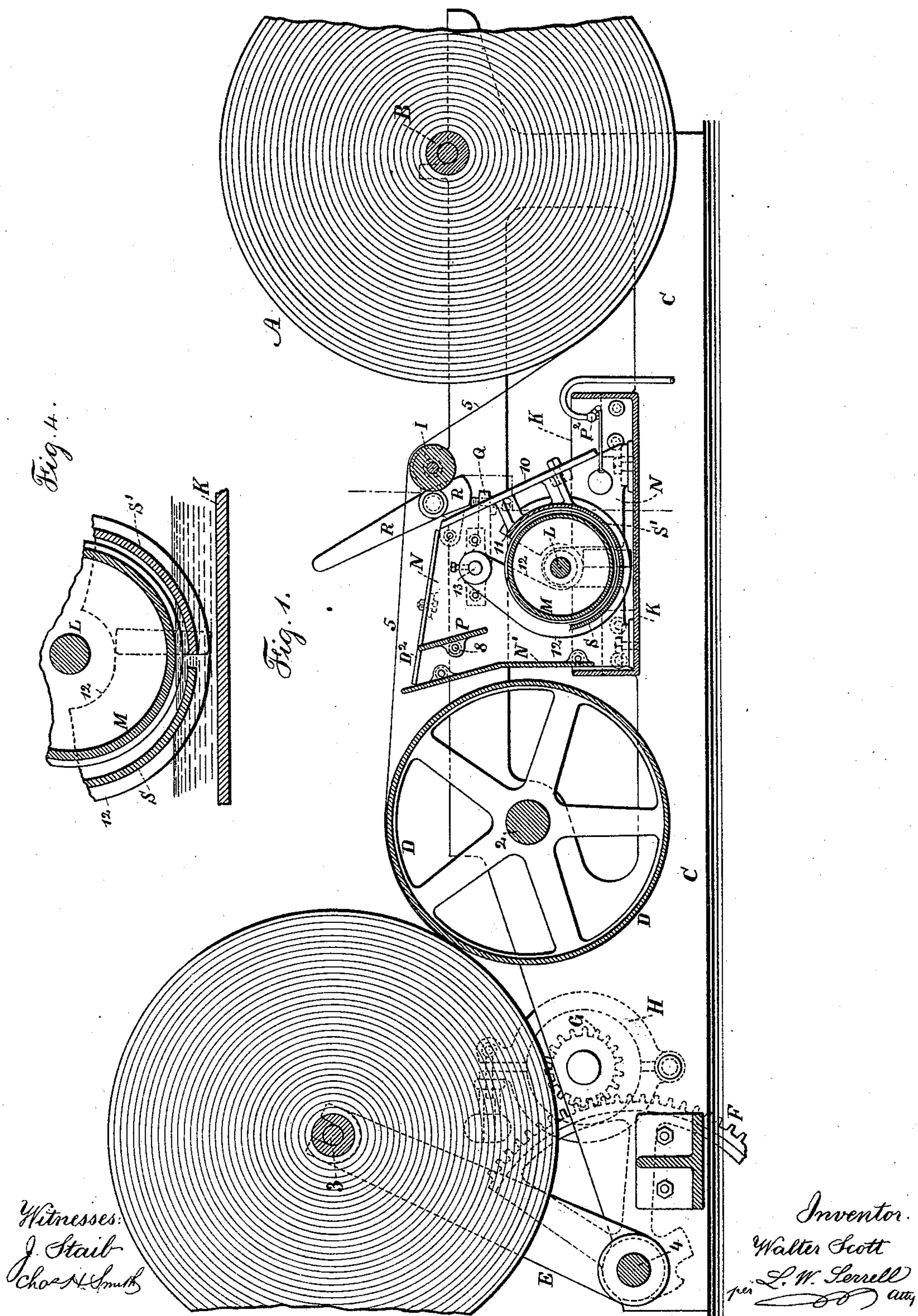
(No Model.)

3 Sheets—Sheet 1.

W. SCOTT.  
DAMPENING MACHINE.

No. 430,256.

Patented June 17, 1890.



Witnesses:  
J. Stail  
Chas. H. Smith

Inventor.  
Walter Scott  
per L. W. Lorrell atty

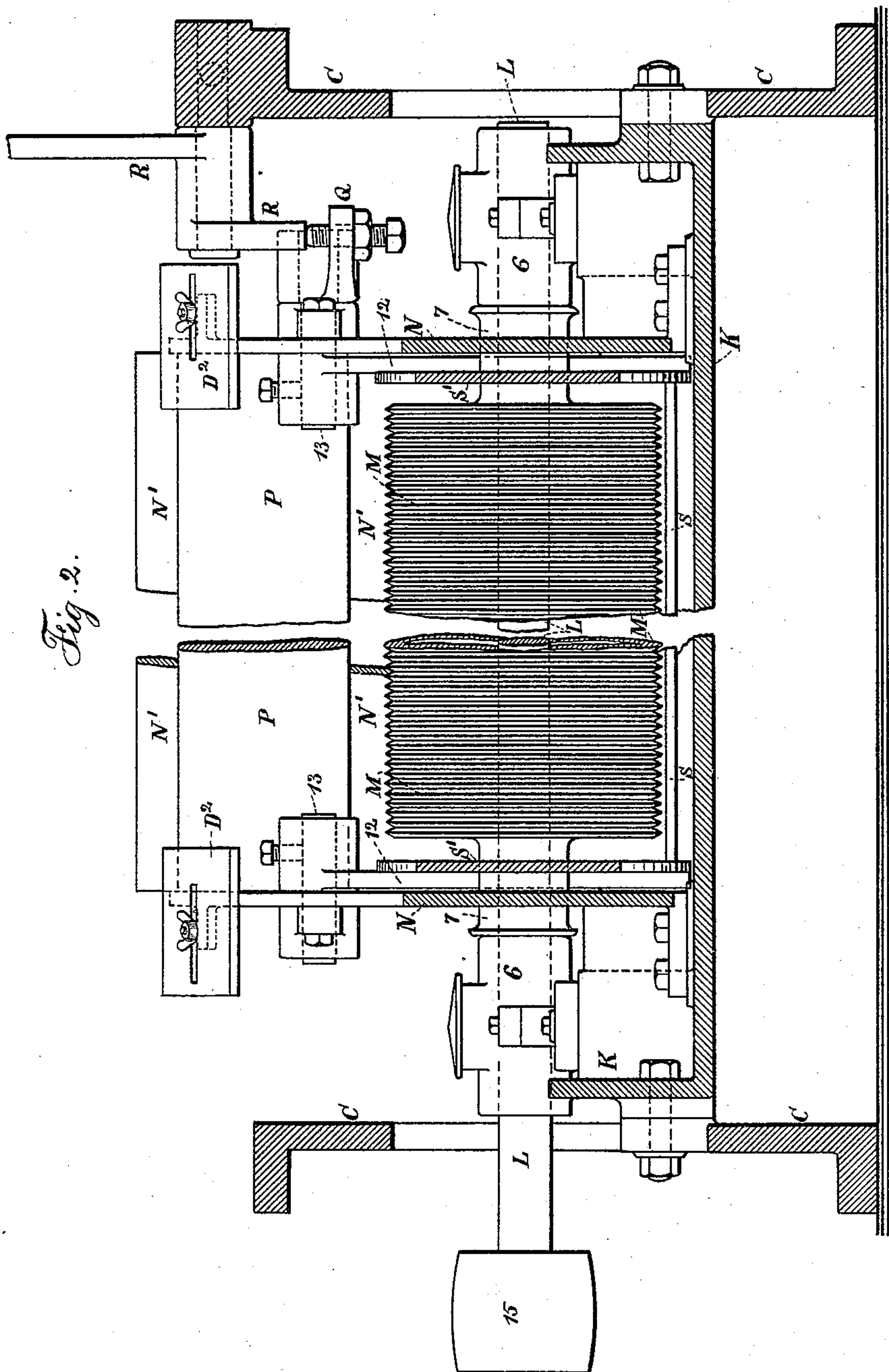
(No Model.)

3 Sheets—Sheet 2.

W. SCOTT.  
DAMPENING MACHINE.

No. 430,256.

Patented June 17, 1890.



Witnesses:  
J. Stait  
Chas H Smith

Inventor:  
Walter Scott  
per Lemuel W. Serrell



(No Model.)

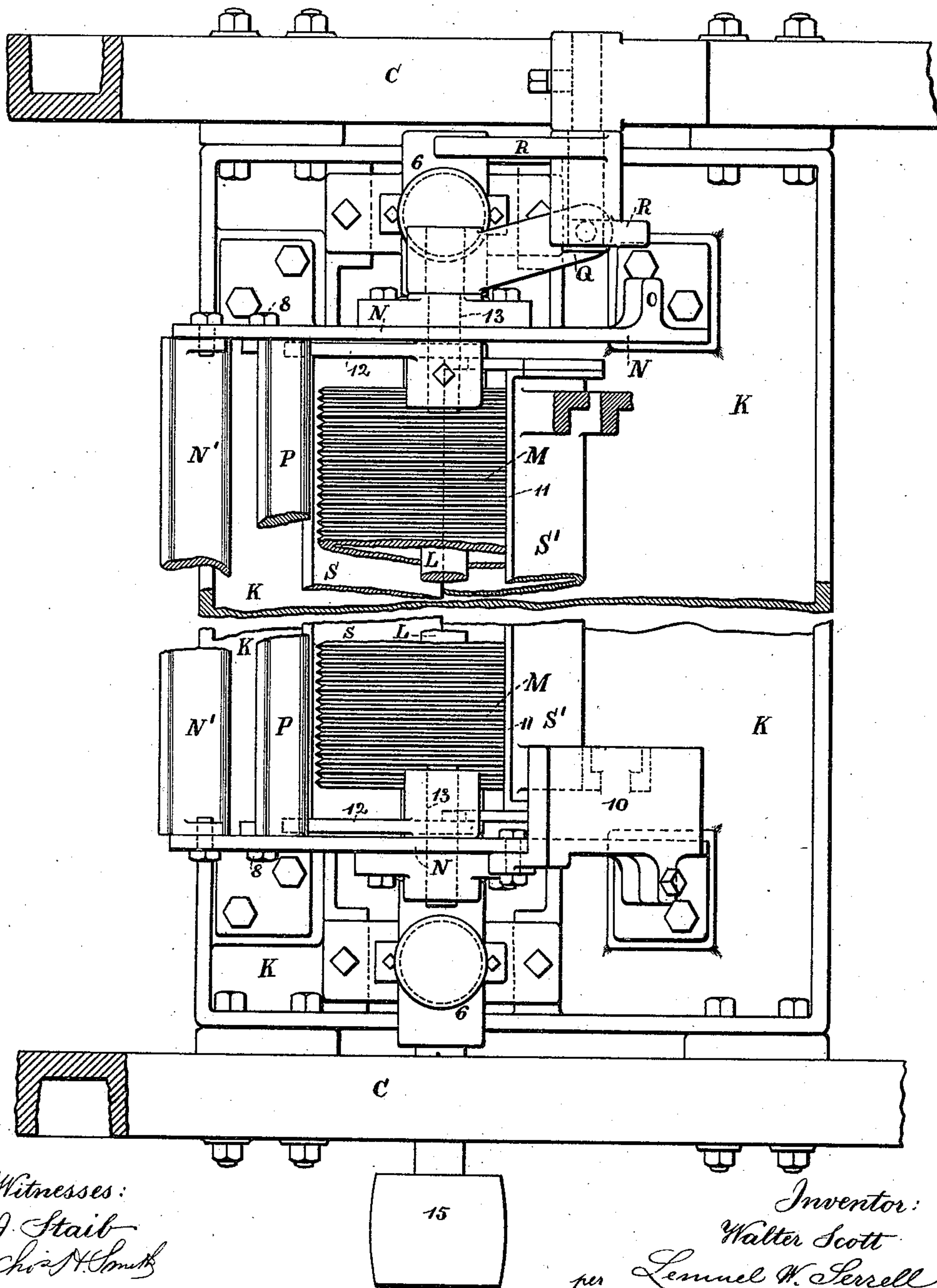
3 Sheets—Sheet 3.

W. SCOTT.  
DAMPENING MACHINE.

No. 430,256.

Patented June 17, 1890.

*Fig. 3.*





# UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

## DAMPENING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 430,256, dated June 17, 1890.

Application filed November 25, 1889. Serial No. 331,434. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER SCOTT, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Dampening-Machines, of which the following is a specification.

The object of this invention is to apply water in the form of a fine spray to the surface of paper as such paper is unwound from one roll and wound up again in the form of a roll. The water is supplied in a regular quantity to the surface of a rapidly-revolving cylinder having a ribbed or plain surface, and the water is thrown off such cylinder, preferably against a deflector, and scattered in the form of spray against the under surfaces of the paper or other fabric in its passage along through the machine.

In the drawings, Figure 1 is a longitudinal section of the machine. Fig. 2 is a cross-section, in larger size, of the end portions of the cylinder and adjacent mechanism. Fig. 3 is a similar plan view of the centrifugal cylinder and the vessel for holding the water and the parts adjacent thereto; and Fig. 4 is a detached view, in large size, of the bottom parts of the cylinder and shells.

The roll of paper A is upon an axis or spool B, that is supported by suitable frames C, and there is a winding-up drum D upon a shaft 2, supported by the frame C, and the web of paper is wound upon a shaft 3, resting in forked bearings at the end of the crank-arms E upon the shaft 4, and there is a gear-wheel or segment F gearing into a pinion G, to which a friction-brake H is applied similar to the devices shown in my patent, No. 272,588, dated February 20, 1883, so that as the roll of paper increases in diameter as it is wound upon the shaft 3 pressure is exerted against the paper by the winding-drum D in consequence of the friction upon the pinion G. The power made use of is applied to the shaft 2 of the winding-drum by any suitable pulley and belt, and a friction mechanism is preferably provided to act upon the driving-pulley, so as to prevent the momentum of the parts from continuing the motion after the driving-belt has been thrown upon the loose pulley to stop the movement of the paper.

My improvement relates especially to the devices hereinafter described for applying

water to the web of paper 5 as it passes from the guide-roller I to the winding-drum D. 55

Between the frames C is the water-box K, of a size adapted to receive the proper quantity of water, and preferably made of cast-iron, so that the journal-boxes 6 for the shaft L are within the sides of the water-boxes and rise above the same, and so that the other parts of the dampening apparatus may be supported by the water-box, in order that surplus water running on the parts may be returned into said box. The shaft L carries the centrifugal cylinder M, the surface of which is either smooth or provided with projections, preferably in the form of peripheral corrugations, and there are collars 7 upon the shaft L, that prevent water passing to the journal-boxes 6. 60 65 70

Within the water-box K are end plates N and a side plate N', forming an inclosure to the centrifugal cylinder M, and the distance between the end plates N should be as great as the width of the widest web of paper that is to be dampened in the machine, and these side and end plates are preferably castings bolted together, and there is preferably a deflector-plate P between the end plates N, that passes across beneath the web of paper, and it is attached to the side plates by bolts 8, so that it may be placed at any desired angle to the drops of water that are thrown against the same by the centrifugal action when the cylinder M is rapidly revolved, and such drops of water are by their momentum broken up into fine spray by striking the plate P, and the spray is deflected or thrown up against the under side of the web of paper 5 as it passes along from the guide-roll I to the winding-drum D, and any surplus water is retained between the side and end plates and runs back into the water-box in consequence of the side and end plates extending almost up to the paper, and there are movable top plates D<sup>2</sup>, that can be placed and held in the required position for contracting the width of the spray to the width of the web of paper. 75 80 85 90 95

It is important to regulate exactly the quantity of water applied to the surface of the paper, so that the dampening operation may be uniform and of the required extent. To effect this object water in a regulated quantity may be admitted by a cock P<sup>2</sup> into the box K; but I prefer to partially surround the 100 105



centrifugal cylinder M with the two-part shell S S'. Each shell is made as a segment of a cylinder. The shell S' is provided with flanges 10 or other suitable devices, by which  
 5 it is connected to the end plates N, and the curved portion of this shell extends around the centrifugal cylinder M from the bottom of such cylinder, and the upper edge 11 is near the top of the cylinder and preferably  
 10 in such a position that a tangent projected from the upper edge of this shell will intersect the central portion of the deflector-plate P; hence this shell S' will confine the water to the surface of the centrifugal cylinder M  
 15 until such water is thrown off with rapidity in the form of a fine spray, and the drops strike against the said deflector-plate P and are also divided into sprays, as aforesaid.

The shell S is preferably a segment of a  
 20 cylinder and its lower edge coincides with the lower edge of the shell S', and the end portions 12 of the shell S are extended up to the pivots 13, so that this shell can be swung upon the said pivots to open or close the longitudinal slot between the lower edges of the  
 25 shells S and S' and thereby regulate the quantity of water admitted within such shells, and it is to be observed that the end portions of the respective shells lap past each other, as  
 30 indicated in Fig. 3, so that there is no opportunity for water to pass into the shells except through the longitudinal slot between the lower edges of such shells S S', and by swinging the shell S upon the pivots 13 such  
 35 longitudinal slot can be opened or closed more or less and the supply of water accurately adjusted.

In order to give motion to the shell S any suitable means may be employed. I have,  
 40 however, represented one of the pivots 13 as provided with a lever-arm Q, passing out beneath the cam-lever R and provided with an adjusting-screw, against which such cam-lever acts, and it will be now apparent that the  
 45 weight of the shell as it hangs upon the pivots 13 will tend to swing such shell S toward the stationary shell S' and that by moving the cam-lever R its cam end will act upon the arm Q and open the slot or mouth between  
 50 the shells S and S' to any desired extent, so that the required quantity of water will be admitted from the box into the shell in proportion to the speed of the paper and the dampness required.

The shaft L of the centrifugal cylinder M is provided with a pulley 15 for a driving-belt, and the speed of rotation can be sufficiently high—say about eleven hundred revolutions a minute—for the centrifugal action to  
 60 divide the drops of water into fine-spray as they are thrown off from the cylinder or deflected from the plates P.

If the water is admitted gradually to the box K by the cock, the shells S S' may be dis-  
 65 pensed with, or the quantity of water thrown off may be regulated by the velocity of the cylinder, and when the cock P<sup>2</sup> is provided

with a float the water may be maintained at any desired height with uniformity.

I claim as my invention—

1. The combination, with mechanism for holding the roll of paper and for winding up the web, of a water-holding vessel, a centrifugal cylinder, the surface of which is moistened with the water, and a deflector-plate adjacent to the web of paper and against which the drops of water thrown by centrifugal force from the cylinder strike and are divided into spray and directed upon the surface of the paper, substantially as set forth.

2. In a paper-dampening machine, the combination, with a revolving centrifugal cylinder, of a shell partially surrounding the lower side of such centrifugal cylinder, and means for admitting a regulated quantity of water into the shell, substantially as set forth.

3. The combination, in a dampening apparatus, of a centrifugal cylinder, a two-part shell partially surrounding such cylinder, and mechanism for moving one portion of the shell in relation to the other for opening and closing the longitudinal aperture for the admission of the water beneath the centrifugal cylinder, substantially as set forth.

4. In a dampening apparatus for a web of paper, the combination, with the means for holding the roll of paper and for winding the same up, of a water-box beneath the web of paper, a centrifugal cylinder and its shaft, side and end plates, a deflecting-plate beneath the web of paper, and a shell partially surrounding the centrifugal cylinder for directing the particles of water thrown off by the centrifugal cylinder, substantially as set forth.

5. The combination, with a revolving centrifugal cylinder and the water-box for the same, of a deflector-plate, a two-part shell partially surrounding the centrifugal cylinder, pivots upon which one part of the shell is hung, a lever-arm, and mechanism for acting upon the lever-arm to swing the moving shell and vary the opening between the moving and stationary shell, substantially as set forth.

6. The centrifugal cylinder having peripheral corrugations, in combination with the water-box, the means for supporting and moving along a web of paper, and an inclosure directing the water to the paper, substantially as set forth.

7. The combination, with the centrifugal cylinder and water-box, of the end plates and the separate adjustable top plates above the cylinder for directing the water-spray upon the under side of the moving web of paper, substantially as set forth.

Signed by me this 22d day of November, 1889.

WALTER SCOTT.

Witnesses:

GEO. T. PINCKNEY,  
 WILLIAM G. MOTT.