B. Sexton.

Cloth Drying Mach.

No. 28,202. Patented May 8, 1860.

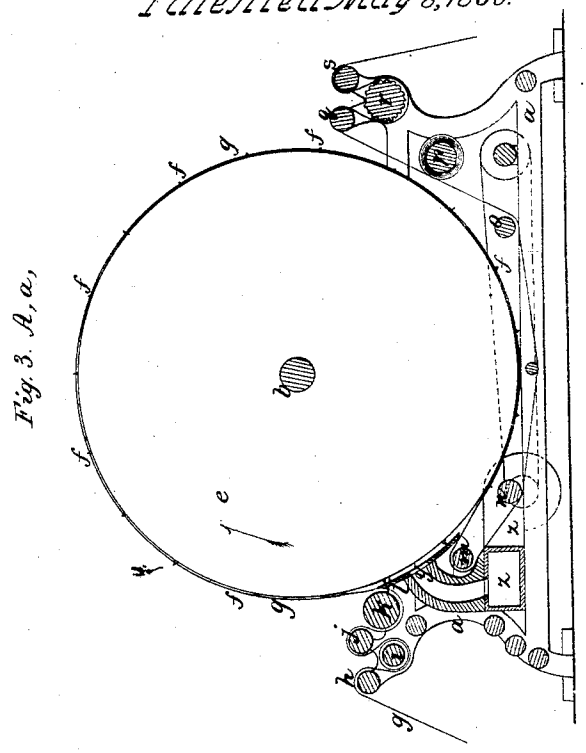


Fig. 3. A, a,

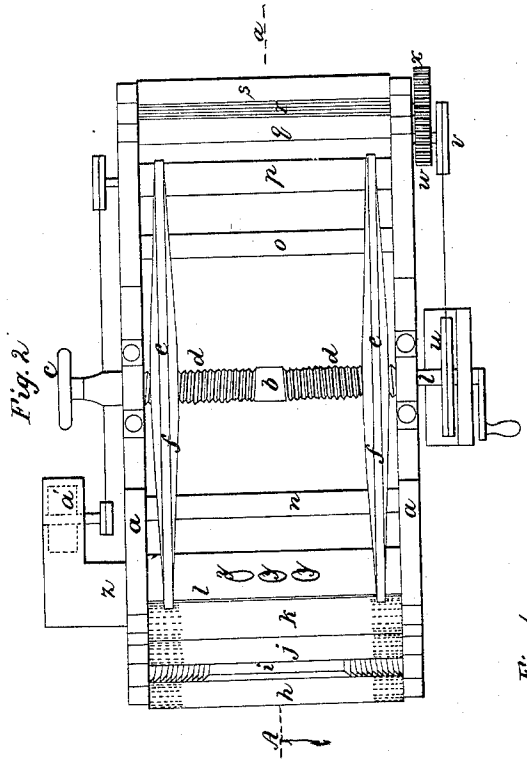


Fig. 2.

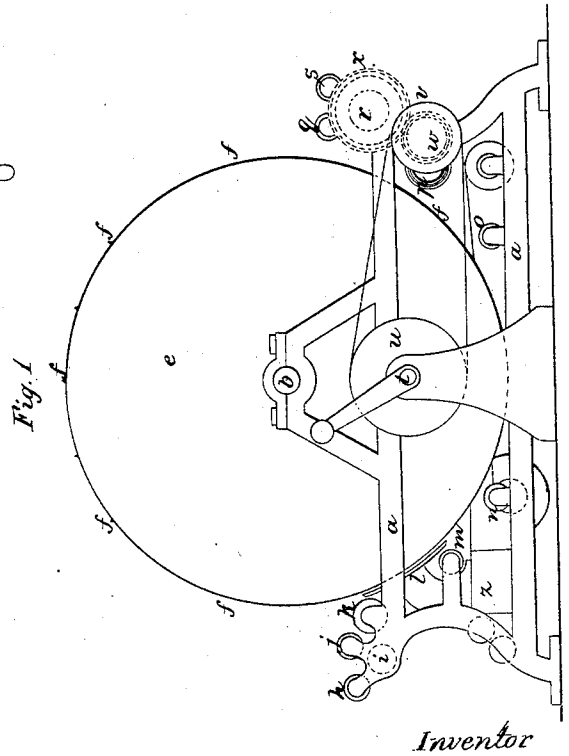


Fig. 1.

Witnesses
Wm. H. Baldwin
Andrew De Lacy

Inventor
B. Sexton

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BEZABEEL SEXTON, OF EAST WINDSOR, CONNECTICUT.

MACHINERY FOR DRYING CLOTHS.

Specification forming part of Letters Patent No. 28,202, dated May 8, 1860; Reissued September 25, 1860, No. 1,050.

To all whom it may concern:

Be it known that I, BEZALEEL SEXTON, of East Windsor, in the county of Hartford and State of Connecticut, have invented certain new and useful Machinery for Drying Cloths; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a plan or top view, and Fig. 3, a longitudinal vertical section taken at the line A, *a*, of Fig. 2.

The same letters indicate like parts in all the figures.

My invention relates to machinery for drying cloth by currents of air which are forced against and through the cloth to produce the same effect as in drying in the open air and avoid the delay, labor and expense of such mode of drying, and at the same time avoid the bad effects due to drying cloths in contact with heated metal cylinders as heretofore generally practiced. And my said invention relates to mechanism by which the blast of air, whether heated or cold is forced by a suitable blowing apparatus, through apertures in a plate which forms a segment of a hollow cylinder, at the periphery of two wheels provided with tenter hooks, or equivalents therefor, and which receive the cloth to be dried at or near the upper edge of the said plate and thence all around to the lower edge of the said segment plate where it is drawn off from the said tenter hooks, thus forming a complete cylinder of the moving cloth to be dried, and of the perforated segment plate through which the blast of air is admitted, so that the blast shall be equal or nearly so throughout the length of the cylinder, and while in the best drying condition shall act on the cloth where it is in the wettest state that is, where it begins the periphery of the hollow cylinder, and where it is nearest dry to complete the drying that is, where it approaches the place of delivery.

In the accompanying drawings (*a*) represents a suitable frame and (*b*) a horizontal shaft mounted in suitable boxes at the upper part of the frame, and provided at one end with a hand wheel (*c*) or a crank handle by which it can be turned when desired. This shaft is formed as at (*d*, *d*,) from each journal toward the middle with a right and left handed screw to which are tapped the hubs of two wheels or disks (*e*, *e*), so that by turning the shaft in the wheels, or turning the wheels on the shaft the wheels will be drawn closer to each other or separated to suit different widths of cloth, or to stretch the cloth after it has been put onto the wheels, as will be hereinafter described. The two wheels (*e*, *e*) are provided with tenter hooks (*f*, *f*) projecting from their peripheries, and near the inner edges thereof to catch and hold the edges of the piece of cloth (*g*) when introduced and to hold it across the space between them.

The end of the cloth (*g*) taken from a roll presented in any suitable manner in front of the machine, is passed over a guide roller (*h*) and thence passes under a stretching roller (*i*) formed with a right and left handed thread at the ends to stretch the cloth in the direction of its breadth as it passes through. From this stretching roller the cloth is carried over another guide roller (*j*), under another guide roller (*k*) and thence in front of a guard plate (*l*) where it is presented to the periphery of the two wheels (*e*, *e*) and caught and held by the tenter hooks. The wheels are then turned in the direction of the arrow until the forward end of the cloth reaches the lower edge of the guard plate (*l*) and it is then carried around a guide roller (*m*) back under a series of guide rollers (*n*, *o*) by a rapidly rotating brush (*p*) to and over a guide roller (*q*) thence under a fluted roller (*r*) by which it is pulled through the machine and thence over another guide roller (*s*) from which it hangs and drops onto any suitable receptacle. The fluted roller (*r*) receives motion from a driving shaft (*t*) by a train of band and cog wheels (*u*, *v*, *w*, *x*) for the purpose of drawing the cloth through the machine at the required speed to effect its drying while passing through, and by being thus pulled the cloth then imparts motion to the wheels (*e*, *e*) and to the stretching, and the several guide rollers, whose journals are mounted to turn freely in suitable boxes as represented.

The rotating brush if used can be driven in any suitable manner not necessary to be described. In this way a hollow cylinder is constituted whose entire periphery is formed by the piece of cloth to be dried except the

space occupied by the guard plate (*l*). This plate is pierced with numerous holes (*y*) along the middle of its width which communicate with a wind box (*z*) into which a blast of hot air is forced by a suitable blower (*a'*) to be driven by suitable and well known means at a high velocity. In this way it will be seen that a blast of heated air is continually blown into the hollow cylinder and through the pores of the cloth, if it be pervious, thereby not only having the effect to dry the cloth by evaporation, but to force the moisture out of the cloth, and at the same time raise the nap on the cloth. And I also avoid an inconvenience heretofore experienced in machinery or apparatus for drying cloth, and that is that the heated air after taking up moisture by contact with a part of the cloth is not brought in contact with other parts thereof. The motion of the cloth can be so regulated relatively to the blast, the condition of the air and the amount of moisture in the cloth as to insure its being thoroughly dried before it is drawn off. Cloth dried in this way will be found to have all the softness of cloth dried in the open air, a result which, so far as I am informed has never been obtained by any machine or apparatus known prior to my invention. When my said invention is to be applied to the drying of cloths or fabrics which are not pervious to air, or which are of such close texture as to prevent the passage of air by the use of a blast, I prefer to leave sufficient space between the cloth and the periphery of the wheels (*e*, *e*) for the escape of air from the inside of the cylinder. And although I have herein described the use of a blast of heated air, and the production of the required current by a facing blower, I do not wish to be understood as limiting myself thereto as atmospheric air without being artificially heated may be used, and in some instances it may be desired to use other gases. And instead of blowing a blast of air within the cylinder a like result may be obtained by encasing the apparatus and exhausting the air thereof or by exhausting the air from within the cylinder formed by the cloth to induce the current of air against and through the cloth, if pervious, in opposite directions, such substitutes being well known equivalent modes of inducing currents of air or other gases. And although I have above described the use of two wheels as a means of forming a hollow space surrounded by the cloth to be dried, and deem that the best mode of applying the principle of my said invention, nevertheless I do not wish to be confined thereto as other and equivalent modes of application may be substituted, such as two endless chains or bands traveling on, or at, or near the edges of two side pieces, the said chains or bands being provided with tenter hooks or other suitable means for holding the selvages or edges of the cloth. Or the end pieces may be so formed or provided with suitable means for holding the edges or selvages of the cloth as to allow the cloth to move thereon or therein, all of which would involve the mode of operation which constitutes the character of my said invention, although inferior in my judgment to the mode of application which I have adopted and above specifically described.

What I claim as my invention and desire to secure by Letters Patent is—

The arrangement of the perforated segment plate connected with a blowing apparatus, in combination with the wheels armed with tenter hooks or their equivalents, and with the rollers or their equivalents for introducing the cloth to make part of a hollow cylinder, and for drawing of the cloth when dry, substantially as described.

B. SEXTON.

Witnesses:
WM. H. BISHOP,
PETER DE LACY.