D. Mc Inroy.

Machine for Finishing Cords, Braid, &c.

No. 51,471. Patented Dec. 12, 1865.

Fig. 1.

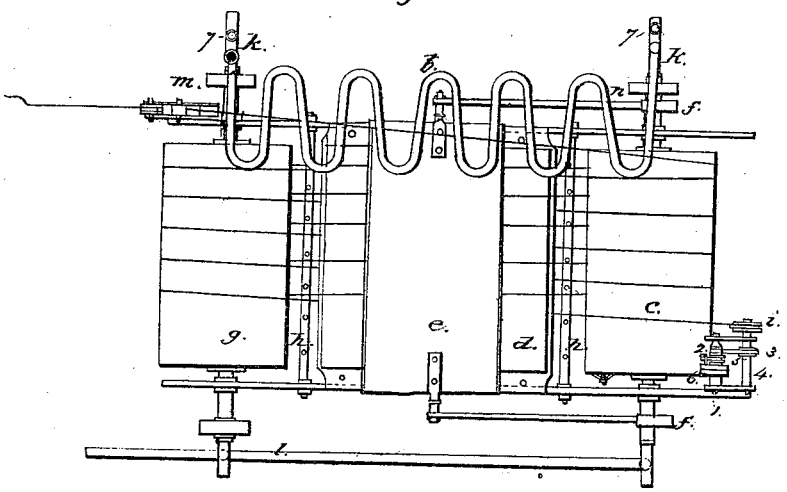


Fig. 2.

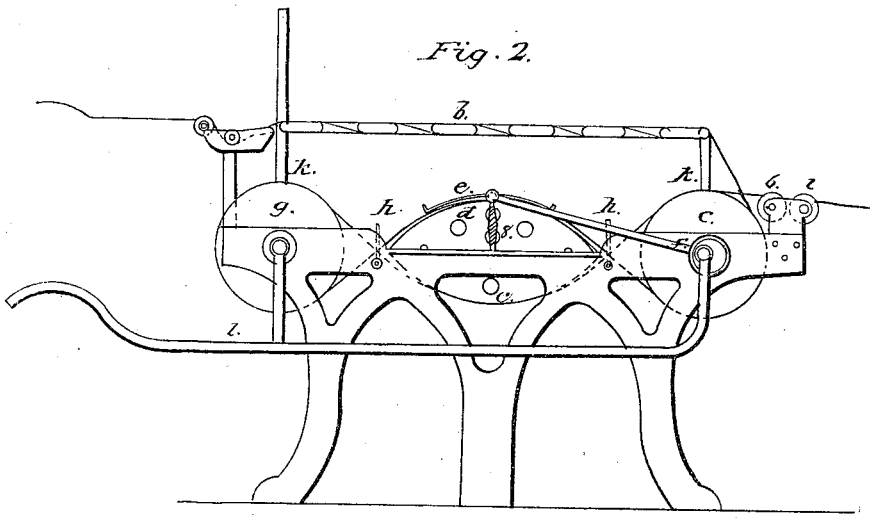
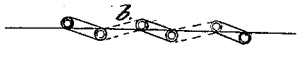


Fig. 3.



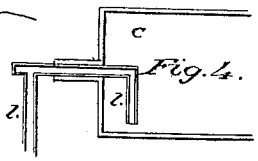


Fig. 4.

Witnesses
Chas. Geo Harvey
Chas. H. Smith

Inventor:
Donald McInroy

UNITED STATES PATENT OFFICE.

DONALD McINROY, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR STARCHING AND GLAZING CORDS, BRAIDS, &c.

Specification forming part of Letters Patent No. **51,471**, dated December 12, 1865; antedated December 7, 1865.

To all whom it may concern:

Be it known that I, DONALD McINROY, of the city, county, and State of New York, have invented a new and Improved Means for Sizing and Drying Cords, Braids, or other Fabrics; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, wherein—

Figure 1 is a plan, and Fig. 2 is an elevation, of my said apparatus.

The nature of my invention consists in a means for sizing and drying cords, braids, or other fabrics after being passed through a trough of starch or other suitable substance, and then subjecting the fabric to a regulated pressure between heated surfaces for producing a handsome gloss or finish to such material or fabric.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The process starts by drawing from a reel a length of cord, braid, covered skirt-wire, or any other textile fabric requiring to be starched and glazed. From the reel it is conducted through a trough of starch or other suitable glazing material, and thence is made to pass over and in contact with the drying and glazing surfaces of my machine. The cord is first conducted along in contact with a convoluted hollow pipe, *b*, heated by steam or otherwise. Said fabric is passed around then under the convolutions alternately, so as to produce an intimate contact of the fabric with the pipe, and also to give tension. The tension may be regulated by the length of the convolutions, or by passing the substance over a greater or less number of these bends, as the case may require. The friction of the fabric on the pipe *d* may be lessened by bending the convolutions alternately up and down, as seen in Fig. 3, so that the fabric will pass in nearly a straight line, but remain in contact on opposite sides with the pipe. From these pipes the material passes around and beneath the hollow cylinder *c*, thence over the heater *d*, beneath the reciprocating or ironing surface or plate *e*, a suitable motion to which is imparted by the cams or eccentrics *f*. The cord or fabric is thence conducted under and around the cylinder *g*, thence under the bottom of the heater *d*, thence over the cylinder *c*. The fabric may be passed back and forth through the machine in this manner as often as desired, and is guided by the cross-bars and vertical pins at *h*. From the cylinder *c* the material is drawn upon the reel or spool *i*. Now, as the cloth or yarn accumulates upon the reel *i* it tends to make too great tension and strain, which is regulated as follows:

On the shaft 1 is a fixed pulley, 2, communicating by belt (see Fig. 1) with pulley 3 on the shaft 4 of the reel. The pulley 2 is driven by a friction-strap, 5, controlled by a screw passing through a lug on the pulley 6, so that by the friction of this strap, as regulated by its screw, the reel *i* may be turned with more or less power to take up the fabric as delivered from the cylinder *c*. This pulley 6 is to be revolved by a band from the cylinder *c* or other source of motion.

The cylinders *c* and *g* have steam-pipes *k* introduced through their bearings or shafts, which shafts are formed hollow, and the steam-pipe united by a suitable packing to allow the shaft to turn; and in the pipes *k*, at 7, are spring-valves opening inward, so as to allow air to pass into the cylinder and prevent their collapsing in case of any sudden condensation of the steam in them. The water of condensation in the cylinders *c* and *g* is drawn off by the pipes *l*, which pass down inside the respective cylinders, as seen in Fig. 4, and form siphons to draw over the water and keep the cylinders nearly empty; and to prevent the siphons becoming empty and ceasing to operate the pipe *l* may be carried up to a higher point than the bottom of the cylinders, as shown, so that the siphons will cease to act before the water comes below either end; hence they will always be kept full and operate as soon as the level of the condensation-water in the cylinder is higher than the outlet of *l*.

The heater *d* is formed hollow, and I prefer to employ jets of gas within to heat the same, as giving a higher heat than steam at atmospheric pressure, and by the reciprocations of the ironer *e*, as kept down by its weight or spring 8, the material is thoroughly dried and a polish imparted to the surface.

The cylinders *g* and *c* may be rotated by

power applied through belts to the pulleys *m* *n*, to cause the material to be drawn along and passed through the machine.

It will be evident that the water from the pipes *l* might be discharged through a steam-trap similar to that employed in steam-heating apparatus.

What I claim, and desire to secure by Letters Patent, is—

1. The convoluted pipe *b*, forming a drier to the fabric drawn through between the pipes, as and for the purposes specified.

2. The hollow drier *d* and ironer *e*, applied as and for the purposes set forth.

3. The winding-up reel *i*, actuated by the pulleys and regulated by the friction-strap, as specified.

In witness whereof I have hereunto set my signature this 20th day of March, 1865.

DONALD McINROY.

Witnesses:
THOS. GEO. HAROLD,
CHAS. H. SMITH.