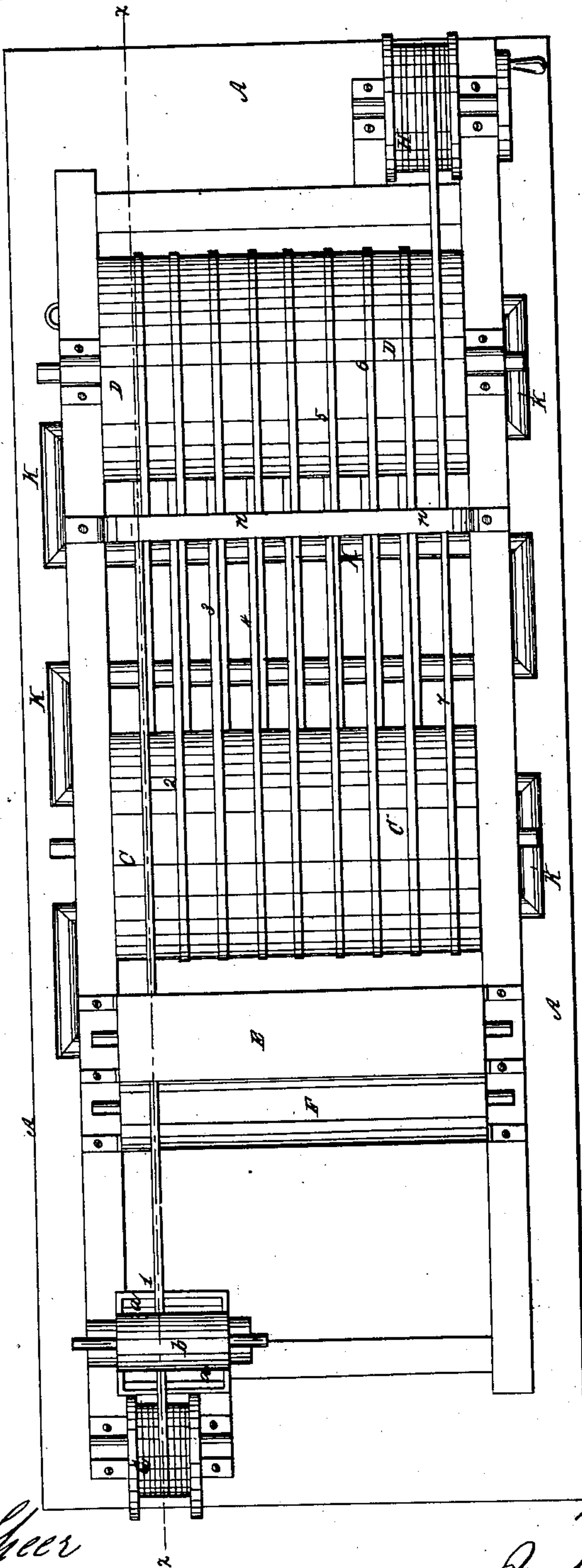


W.E. Frost.
Hoop Skirt Machine.
Nº 48765 *Patented Jul. 11, 1865.*

Fig. 1.

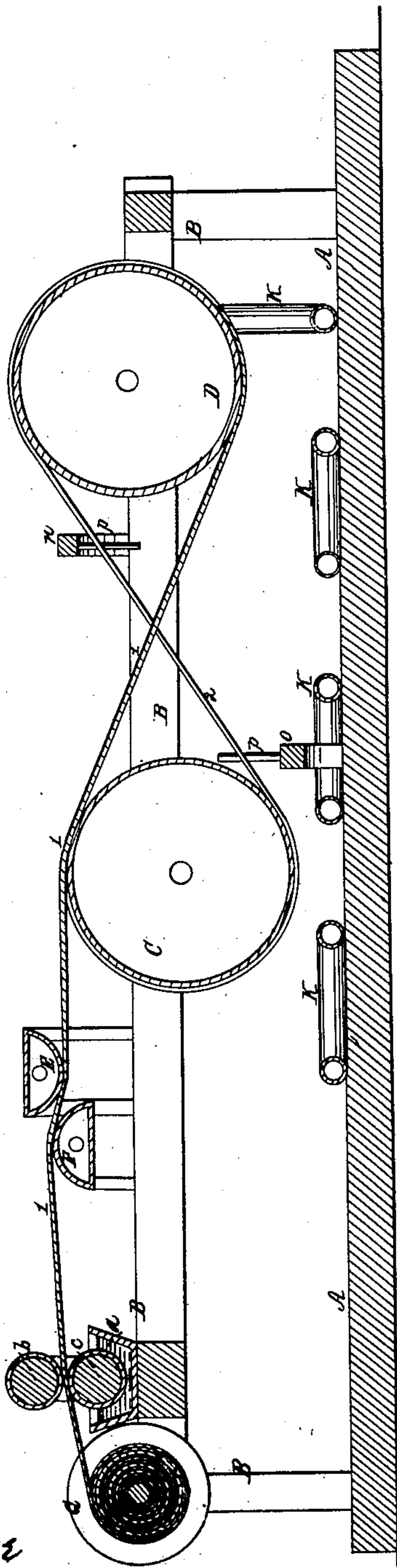


Witnesses.
Charles Speer
A. Smith

Inventor.
W.E. Frost.
By his attorney
J. V. McEntire

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Hoop Skirt Machine.
Nº 48765 *Patented Jul. 11, 1865.*

Fig. 2.



Witnesses.

Charles Spear
A. Smith.

Inventor.

W. E. Frost.
My true attorney.
J. H. Mc Intire

UNITED STATES PATENT OFFICE.

W. E. FROST, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO I. WASHBURN AND P. L. MOEN, OF SAME PLACE.

IMPROVEMENT IN SIZING AND FINISHING COVERED SKIRT-WIRE.

Specification forming part of Letters Patent No. 48,765, dated July 11, 1865.

To all whom it may concern:

Be it known that I, W. E. FROST, of Worcester, of Worcester county, in the State of Massachusetts, have invented certain new and useful Improvements in Machinery for Sizing and Finishing Covered Skirt-Wire; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to certain improvements in machinery for sizing and finishing braided or covered skirt-wire or other similar articles or material.

Previous to my present invention it has been customary to perform the operations of sizing and finishing upon braided wire by passing it through a starch bath, and thence back and forth around or over heated rolls, as, for instance, in the manner set forth and described in an application for other Letters Patent by me.

It is sometimes desirable to put a considerable gloss or polish on the finished article or fabric, and I have discovered that by first passing the material, while the coating of size is yet wet, in contact with smooth hot surfaces, or against rapidly-revolving surfaces moving in an opposite direction to that in which the wire is moving, so as to create friction and heat, and then over the cylinders, a fine gloss may be produced.

My present invention consists in passing the wire or other equivalent material through a size or starch mixture, thence between and in contact with ironers or polishers, from whence it passes over the drying-rolls, as will be hereinafter more fully described.

To enable those skilled in the art to make and use my invention, I will proceed to describe the same, referring by letters to the accompanying drawings, in which—

Figure 1 is a top view of my improved machine or apparatus. Fig. 2 is a vertical section at the line *x x*, Fig. 1.

In the several figures the same part is indicated by the same letter of reference.

A is the base or floor upon which the working parts of the machine are erected. In a suitable frame-work, B, are hung two metallic hollow rolls, C D, which I propose to make of copper, which turn freely upon their axes.

Near one of these rolls, C, are arranged, supported by said frame-work, two semi-cylinders, E F, which are hollow, and supplied with steam or other heating medium, and which serve as polishers or ironers, as will be presently explained, and beyond these polishers is arranged the starch bath or vat *a* and its rollers *b c*, and beyond this again is hung the reel G, from which the wire is supported to the machine. H is another reel at the other end of the frame-work, which is rotated by any suitable means, and draws off the finished wire. The wire to be sized and finished is passed from a reel or coil at G through or between the sizing-rolls *b c*, where it is coated with the starch mixture, and thence between the convex surfaces of the polishers E F, and thence back and forth over the rolls C D, (crossing each time,) and thence off onto the reel H, as clearly illustrated at 1, 2, 3, &c. By passing the coated wire directly from the size bath, or where it is coated, to the polishers, as described, the ironing-surfaces of the said polishers are brought in contact with both the moist sized surfaces of the wire, and the said surfaces are drawn along in such contact, whereby a finer gloss is imparted to the surface of the material than it would receive by merely passing over the rolls and being dried.

K are heater-pipes, which are arranged below the drums, over which the wire passes back and forth, and which, being heated by steam or otherwise, serve to dry the coated wire as it passes back and forth over the rolls.

The polishers E F should be set so that a horizontal plane tangential to the convex surface of the lower one will be a little above a similar plane touching the surfaces of the upper ironer. By thus arranging the polishers it will be seen that considerable friction will be created between the said polishers and the material as the latter passes between them, whereby the surfaces (both of them) will be glossed.

In lieu of the hollow steam-heated polishers E F, as shown, two series of smooth steam-pipe, arranged each in the arc of a circle, may be used without departing from the spirit of my invention; or, in place of the said polishers, two revolving shafts may be employed, turned smooth on their surfaces and rotated in a di-

rection opposite to that in which the wire is fed along. I have found that small revolving shafts thus arranged will create heat and friction sufficient to beautifully gloss the surface of the wire.

The number of ironers or polishers may be varied, of course, without departing from my invention.

The only object and advantage of passing the sized and ironed wire over the rolls C D and near the steam-pipes K are to thoroughly dry the wire before it is re-reeled, otherwise it will be apt to corrode.

Bars *n o* may be so arranged with guide-pins *p p* as to keep the strands in their proper relative positions.

Where it is desired to put a fine gloss on the

material it may be expedient to put a proper amount of spermaceti in the starch or size.

Having fully described my improvement, what I claim as new, and desire to secure by Letters Patent, is—

Passing the wire through the starch or size, and thence directly in contact with ironers or polishing-surfaces, substantially as described, for the purpose set forth, from whence it may be passed over rolls and heaters previous to the reeling.

In testimony whereof I have hereunto set my hand and seal this 13th day of May, 1865.

W. E. FROST. [L. S.]

In presence of—

J. C. MCINTIRE,
ANDREW I. TODD.