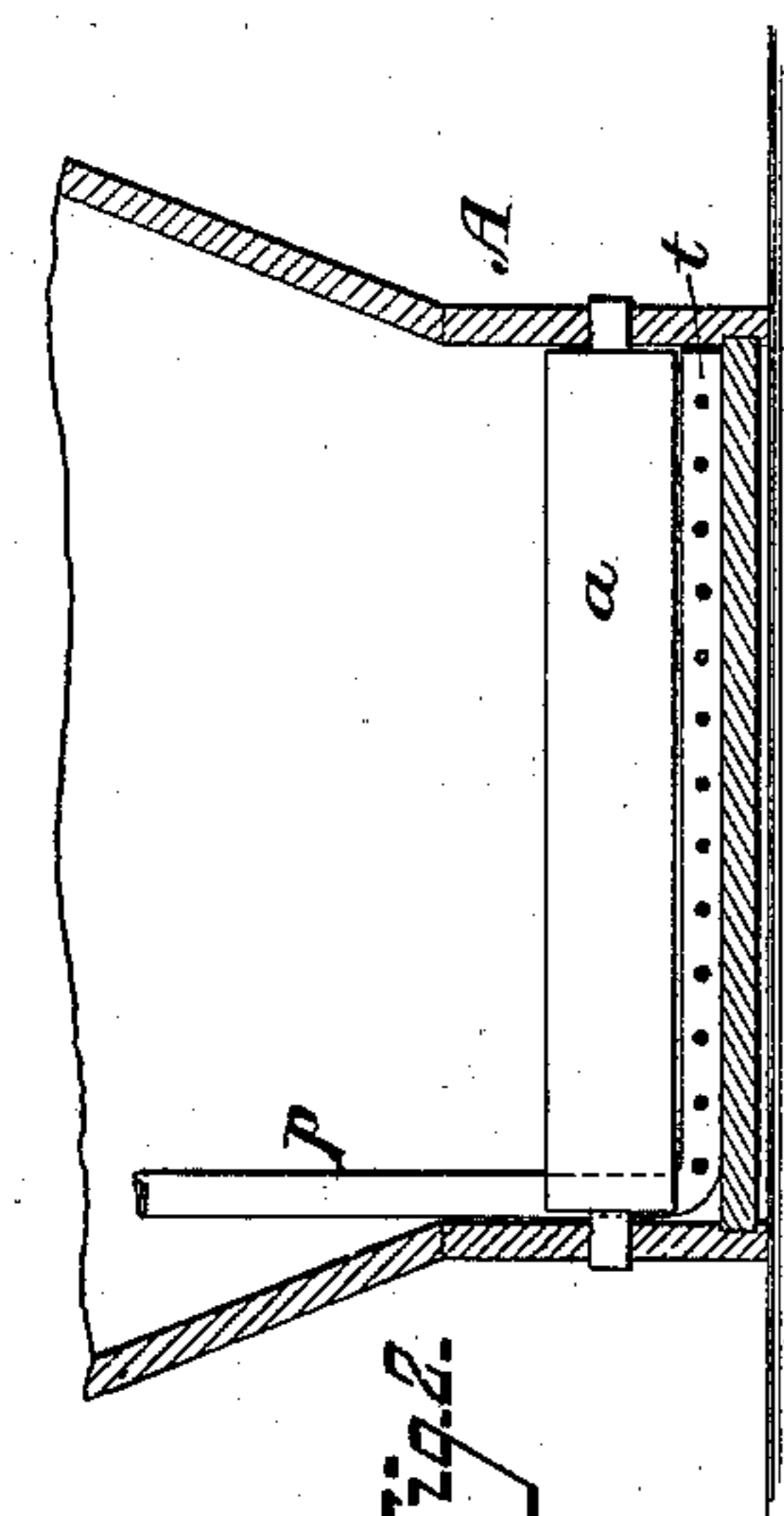


(No Model.)

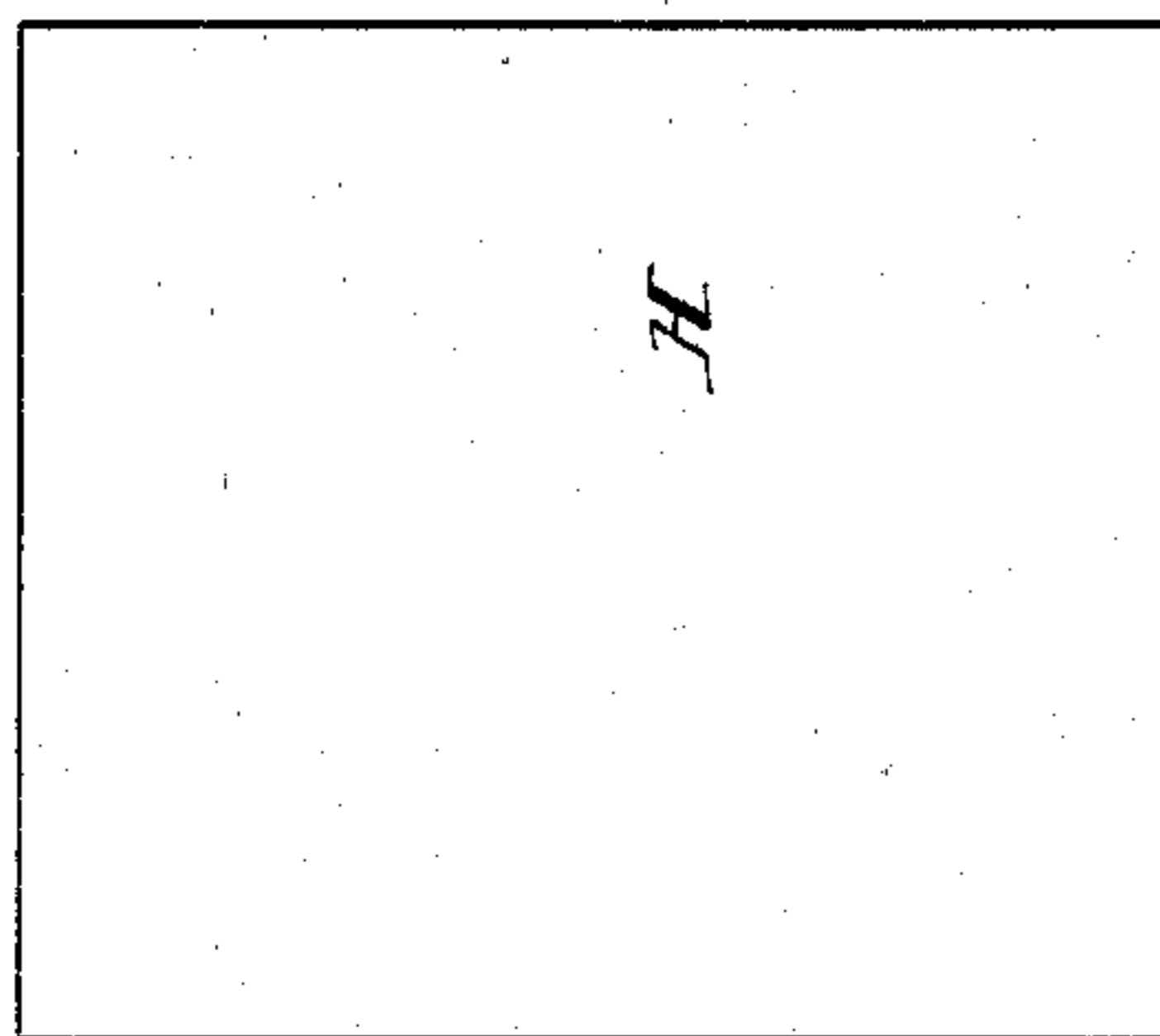
T. SIMPSON.
CHROMING FABRICS.

No. 254,713.

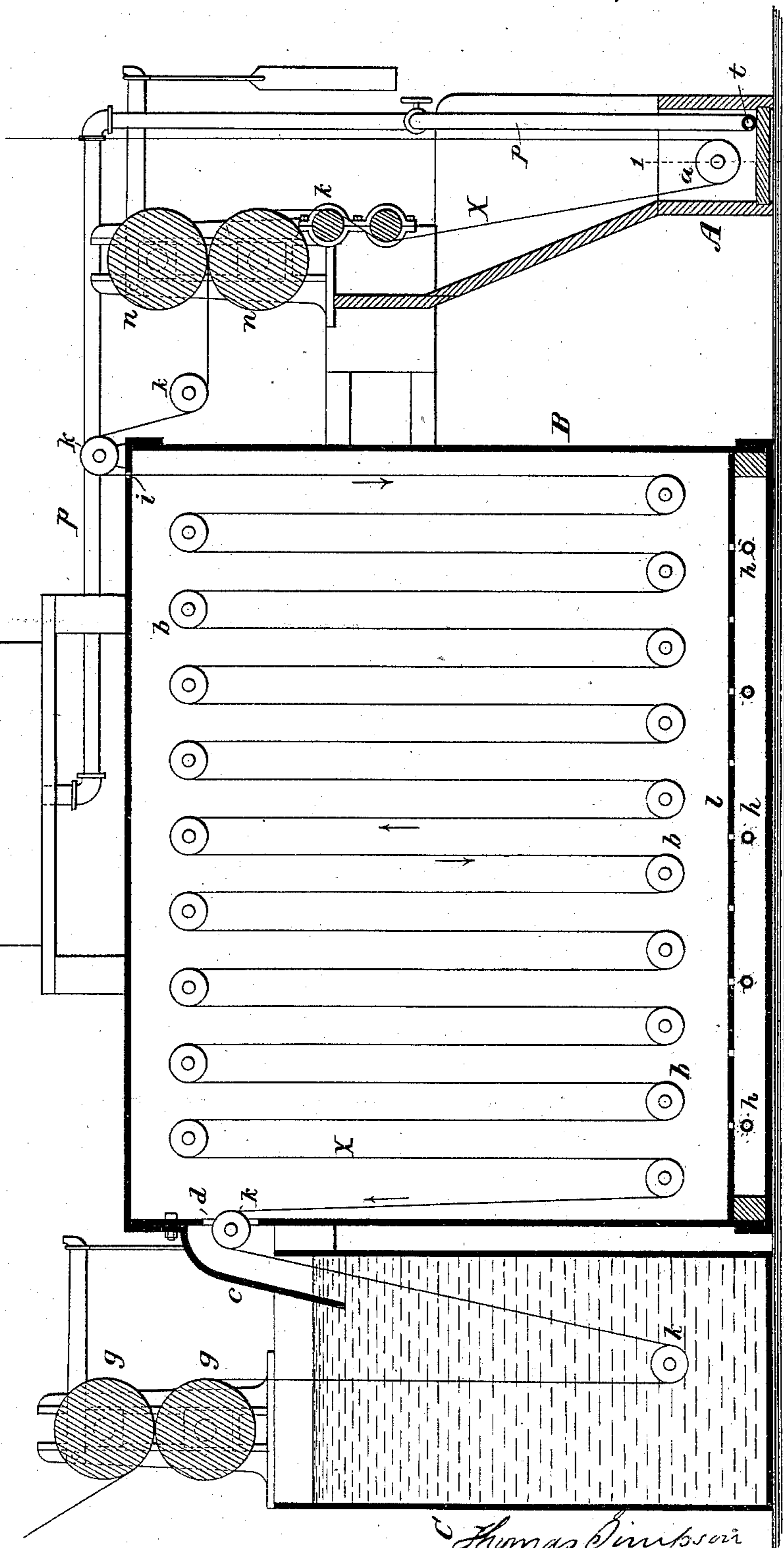
Patented Mar. 7, 1882.



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Attest:
Courtney G. Cooper
William M. Eston

Thomas Simpson
By his attorney
Charles E. Foster

UNITED STATES PATENT OFFICE.

THOMAS SIMPSON, OF PHILADELPHIA, PENNSYLVANIA.

CHROMING FABRICS.

SPECIFICATION forming part of Letters Patent No. 254,713, dated March 7, 1882.

Application filed January 3, 1882. (No specimens.)

To all whom it may concern:

Be it known that I, THOMAS SIMPSON, a citizen of the United States, residing in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Chroming Fabrics, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

My invention relates to certain improvements in chroming fabrics, fully described hereinafter, whereby absolute uniformity in color is secured and much of the waste incident to the usual modes of operation is avoided.

In the ordinary process of chroming padded or printed fabrics the fabric after padding or printing and drying is passed through a vat containing the entire body of heated chroming-solution, and is then squeezed preparatory to soaping, washing, and drying. The large body of solution in which the fabric is immersed in its passage to the squeezing-rollers dissolves or washes off portions of the material used for padding, which precipitate in the vat, the precipitate accumulation reducing the strength of the liquor and rendering it dirty, so as to streak the fabric and gradually so impair the solution that the portions of fabric last dyed are of a different shade from those first treated. Efforts are made to avoid this by constantly feeding the vat with fresh liquor, but this also varies the strength and the color of the goods, and in time the vat becomes so choked that the entire contents must be thrown away as waste matter.

To secure an absolutely uniform product and reduce the waste incident to the above-described process, I pass the fabric through a very limited volume of solution, supplied as fast as it is used from the main body, so that there is no opportunity for the liquor to dissolve or wash off the padding, and the solution is maintained of uniform strength. I further heat the fabric after chroming, and submit it to a bath, whereby the chroming action is arrested when the fabric has the proper color.

Different apparatus may be employed in carrying out my improved process. That which has proved in practice to be effective is shown in the annexed drawings, in which—

Figure 1 is a sectional elevation of the apparatus, and Fig. 2 a detached sectional view.

The body of chroming-liquor is contained in the main reservoir or tank H, and thence is

supplied to a supplemental tank, A, through a pipe, *p*, having a lateral extension, *t*, perforated, as shown in Fig. 2, so as to uniformly distribute the chroming-solution in the tank, and thereby prevent one side or part of the fabric from being colored more than another.

B is the heater, consisting of a box containing a number of conducting-rolls, *b*, and with the box communicate perforated steam-pipes *h*, from which the steam flows upward and through a perforated plate, *l*, that distributes it uniformly.

C is a bath-tank, through which water flows freely. *g g* and *n n* are squeezing-rolls. *a* is a conducting-roll arranged in the supplemental tank A; and *k k* are guide-rolls by which the strip X of fabric after passing from the squeezers *n n* is conducted to an inlet-opening, *i*, of the box B, and after passing around the rolls *b* is directed through an opening, *d*, carried to the bottom of the bath-tank C, and thence to the squeezers *g g*. By thus dividing the chroming-liquid into two bodies I avoid passing the strip of fabric through the main volume, and submit it to the action of such a very limited quantity that none of the padding can be dissolved or washed off, and there being consequently no precipitate in the chroming-tank, the uniform quality of the chroming solution is maintained. It is desirable that the volume of liquid through which the traveling strip of fabric passes be as much reduced as is practicable, it being only necessary that it shall be sufficient to insure a thorough saturation of the fabric at the rate at which it passes through it. If the speed of the fabric is reduced, the volume of liquid in the supplemental tank A may likewise be reduced; but when the fabric is carried rapidly through the tank there should be sufficient liquid maintained therein to thoroughly charge the strip during the limited time for which it is immersed. Whatever liquid is taken up by the saturation of the fabric is supplied from the main tank, so as to maintain a constant quantity in the supplemental tank. The heating of the strip in the box B after passing it through the chroming-tank facilitates the chroming action, and the immersion of the strip in the water-bath arrests this action when it has reached the proper stage, preventing any further change or deterioration of color. I am thus able to insure the most absolute uniformity in the treatment of the goods, and thus secure the pro-

duction of goods of uniform color. After the strip passes through the bath it may be soaped, washed, and dried, as usual.

I do not here claim the apparatus described, as it constitutes the subject of a separate application for Letters Patent; but

I claim—

1. The mode described of chroming fabrics, the same consisting in passing a traveling strip of padded or printed and dried fabric through a volume of chroming-solution, sufficient to permit the thorough saturation of the moving strip, and feeding said volume from a main body as fast as it is taken up by the fabric, then heating said fabric without drying, and then passing the same while wet through a bath of water.

2. In the chroming of fabrics, feeding the

chroming-solution into a supplemental tank, through which the fabric travels, so as to maintain a uniform quantity therein, and after passing the fabric from said tank heating the same and passing it before drying through a water bath, as specified.

3. In the process of chroming fabrics, first chroming the fabric, then heating the same, and then subjecting it before drying to a bath, as and for the purposes set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOS. SIMPSON.

Witnesses:

CHARLES E. FOSTER,
T. H. PALMER.