N. B. HOOPER & T. S. CRANE.

Felting-Machine.

No. 166,699. Patented Aug. 17, 1875.

Fig. 1.

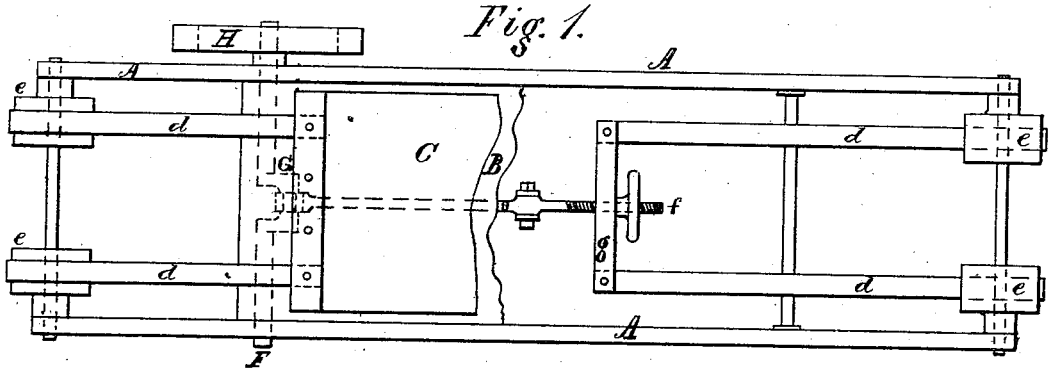
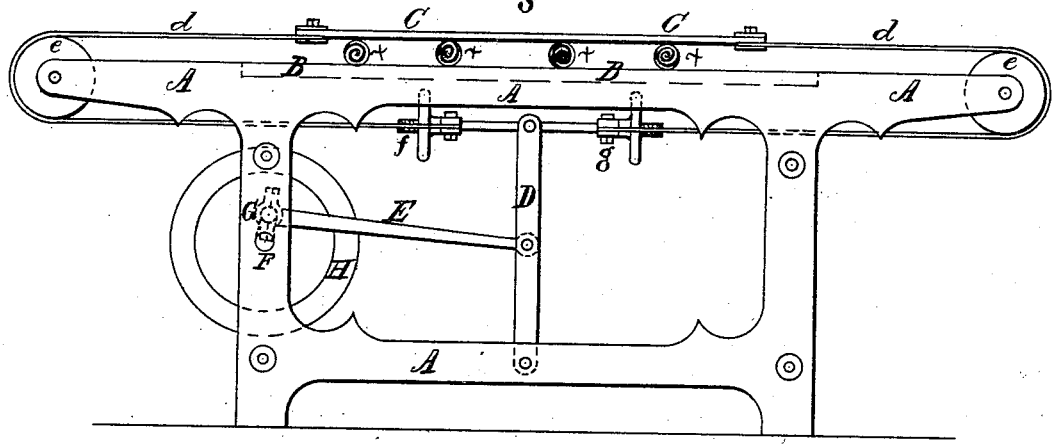


Fig. 2.



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UNITED STATES PATENT OFFICE.

NICHOLAS B. HOOPER, OF BROOKLYN, NEW YORK, AND THOMAS S. CRANE, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN FELTING-MACHINES.

Specification forming part of Letters Patent No. **166,699**, dated August 17, 1875; application filed June 2, 1875.

To all whom it may concern:

Be it known that we, NICHOLAS B. HOOPER, of Brooklyn, New York, and THOS. S. CRANE, of Newark, Essex county, New Jersey, have invented certain Improvements in Hat-Sizing Machines, of which the following is a specification:

Our invention relates to an improvement in felting-machines, the nature of which will be understood by reference to the accompanying drawing, in which—

Figure 1 is a plan of the machine, and Fig. 2 a side elevation of the same.

A is a frame, supporting a table, B. C is a tablet, and shown in the drawing as a board of wood or other suitable material, to which straps *d d* are attached at each end and passed over idle-pulleys *e e* to a reciprocating lever, D, to which they are attached by cross-bars *g g* and tightening-screws *f f*. The lever D receives a back-and-forth motion from a connection, E, and crank G, and, being pivoted to the frame A at its lower end, the upper extremity, where it is attached to the straps *d d*, receives a motion much greater than that of the crank G, which is operated by the shaft F and fly-wheel H.

It will be evident that a rotary motion applied to the wheel H will set the tablet C in motion back and forth over the table, and give a motion identical to that of hand-sizing to the hats *x x* between the table and the tablet.

It will also be obvious that two cranks and two levers might be used to drive the two straps *d d*, instead of the one shown, with a suitable adjustment of the tightening device, which in that case would be made without such long bars *g g*, substituting short ones to hold a single strap.

It will be perceived that this arrangement of mechanism leaves the top of the machine entirely free from machinery or vibrating pieces other than the tablet and its connecting-straps. The importance of this can be judged from the fact that no hat-sizing machine has proved of practical use constructed on other plans, with more parts and less facility of access, while seven of the machines described herein are in practical use in one factory, sizing hats in the most superior manner.

We are aware that many sizing-machines have been constructed in which the equivalent of our tablet has been employed, but we only use it in common with others, but operated in such a novel manner as to free the machine from its chief objections.

We are also aware that levers and cranks have been used before in sizing-machines, but not arranged as we have done, nor combined with a tablet in such a manner that the reciprocating mechanism is beneath a table, to effect which we employ the straps *d d* and rolls *e e*, and only claim the above devices in the arrangement described.

In the second sizing of the hats we roll the hat upon a hard pin, of wood or other suitable substance, and the effect of the hard tablet, rolling the hat upon the pin against the hard surface of the table, is to solidify the texture of the hat to an extent not attainable by any other means.

We find that each machine constructed as above described is capable of doing the work of five men at hat-sizing, and the product of a very superior quality.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

The crank G, connection E, lever D, and tightening apparatus *g g* and *f f*, arranged and operated under a table, B, in combination with the tablet C and straps *d d*, working above the table, and connected with the reciprocating mechanism over the rolls *e e*, in the manner and for the purpose described.

NICHOLAS B. HOOPER.
THOS. S. CRANE.

Witnesses:
S. WERNER,
GEO. A. DICKERSON.