

(No Model.)

2 Sheets—Sheet 1.

W. D. WATSON.

MACHINE FOR RAISING THE PILE OF WOVEN FABRICS.

No. 485,400.

Patented Nov. 1, 1892.

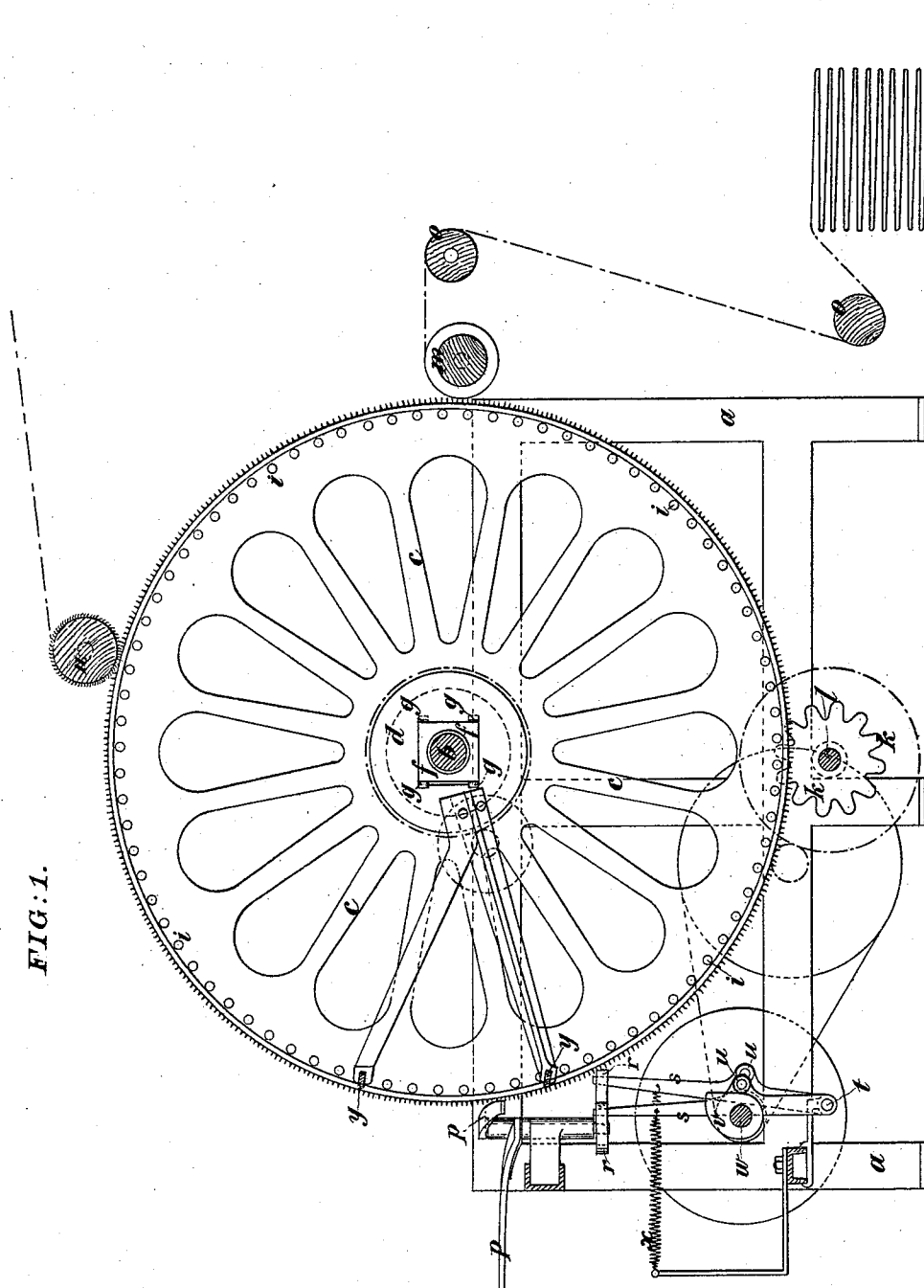


FIG: 1.

Witnesses.

John Revell  
George Baumann

Inventor.

William D. Watson  
By his Attys  
Howman and Howman.



# UNITED STATES PATENT OFFICE.

WILLIAM D. WATSON, OF ROCHDALE, ENGLAND.

## MACHINE FOR RAISING THE PILE OF WOVEN FABRICS.

SPECIFICATION forming part of Letters Patent No. 485,400, dated November 1, 1892.

Application filed June 17, 1891. Serial No. 396,559. (No model.) Patented in England August 22, 1890, No. 13,192.

*To all whom it may concern:*

Be it known that I, WILLIAM DOBSON WATSON, a subject of the Queen of Great Britain and Ireland, residing at Rochdale, in the county of Lancaster, England, have invented an Improved Machine for Raising the Pile of Woven Fabrics, (for which I have applied for British Patent, No. 13,192, dated August 22, 1890,) of which the following is a specification.

This invention is intended principally for "batting" or raising the pile of a fabric known as "imitation seal-skin;" but it may also be used with advantage for raising the pile of other fabrics of a like nature which are woven double face to face and then split or cut asunder, so as to form two pieces having an erect pile.

The object of this invention is to stretch or distend the fabric widthwise and to raise the pile by batting or beating the surface with sticks while stretched to its fullest extent.

The nature of my said invention and the manner in which the same is to be performed or carried into practical effect will be readily understood on reference to the two sheets of drawings hereunto annexed and the following explanation thereof.

Figure 1, Sheet 1, of the drawings represents a vertical section, and Fig. 2, Sheet 2, a horizontal section, of the improved combined stretching and batting machine which forms the subject of my invention.

The improved apparatus consists, essentially, of a frame *a*, carrying an axle *b*, supporting two disks or wheels *c*, with pins or tenter-hooks around their circumference. The bosses *c'* of these wheels *c* run in circular grooves or otherwise revolve around two blocks or slides *d*, which are mounted upon the central shaft or axle *b*, upon which is cut or formed a right and left hand screw-thread *e*, and the blocks or slides *d* are bored and screwed to fit it. They are not, however, bored at right angles to the face of the same, but in a slightly-diagonal direction, as shown at the left hand of the machine on Sheet 2, so that the blocks *d* are inclined instead of being parallel to each other, or instead of boring out blocks in a diagonal direction they may be made larger, as shown at the right hand on Sheet 2, and have a rectangular opening

made at right angles. Inside this opening is a square nut *f*, which is bored out and screw-threaded to fit the axle *b*, and the block *d* is fixed thereon at the required inclination by means of reversed wedges *g*. Whichever method may be adopted, the blocks *d* are canted outward from each other, and the wheels or disks *c*, running thereon, are thus inclined in opposite directions, and it will be evident that as they revolve in the outside of the said blocks any two opposite points on their circumference will gradually approach to and recede from each other alternately. The blocks or slides *d* do not revolve, but they are mounted in or on slides, and they can beset nearer to or farther from each other, according to the width of the fabric, by turning the right and left hand screw-threaded shaft or axle *b* by means of the hand-wheel *h*, provided for that purpose. The two wheels or disks *c* are furnished on the outer side, near the circumference, with a circle of pins or pegs *i*, gearing into two spur-pinions *k*, keyed upon a revolving shaft *l*, whereby a slow revolving motion is given to the said wheels or disks.

A feeding-roller *m* (see Fig. 1) is provided for guiding the cloth onto the apparatus, and also a drawing or delivering roller *n*, (see also Fig. 1) which is covered with pins. Any requisite amount of drag or longitudinal stretch may be put upon the cloth previously to feeding into the machine by rollers *o* or by tension-bars or other known contrivances. The fabric is fed onto the tenter hooks or points at that part of the circumference of the two wheels or disks *c* which are nearest to each other, and it will be evident that as the wheels or disks revolve the selvages will be drawn gradually farther and farther apart until the fullest amount of lateral stretch has been obtained. At this point, which is about opposite to the feed-roller *m*, I arrange a series of sticks *p*, which are so mounted and acted upon by tappets or cams that they are alternately raised up or drawn back and caused to strike sharply upon the face of the material as it passes slowly along in a distended condition. The sticks *p* are preferably placed in a slightly-diagonal position, half the number being pivoted at the selvage and the other half at or about the center—some to the right

and some to the left—and so that their ends overlap in order that every part of the surface shall be equally battened and no stick-marks shall be apparent. Each stick has connected to its pivoted end a quadrant *q*, to which is attached a short strap *r*, the other end of which is connected to a lever *s*, vibrating on a fixed center at *t* (see Fig. 1) and provided with a bowl *u*, which is acted upon by a tappet *v*, mounted on a shaft *w*, to which a rapid revolving movement is transmitted by suitable gearing. The cams or tappets *v* are so formed as to give a rapid and smart blow, and the sticks are then drawn back by the coiled springs *x*. The fabric is supported while being battened by two bars *y* or other similar device, which may be heated, if necessary.

The amount of lateral or transverse stretch given to the material will depend upon the diameter of the wheels or disks *c* and the angle of inclination which is given to the sliding blocks *d*, round which they revolve.

I may here remark that I do not wish to confine myself to the exact arrangement shown and described for actuating the sticks

without departing from the distinctive features of my invention.

I claim as my invention—

1. In an apparatus for raising the pile of woven fabrics, the combination of two diverging rotary disks of large diameter, having hooks or pins upon their peripheries, with transverse overlapping battening-sticks to act upon the whole surface of the cloth and means for operating the battening-sticks, substantially as and for the purposes set forth.

2. In an apparatus for raising the pile of woven fabrics, the combination of two diverging disks having hooks or pins upon their peripheries with transverse battening-sticks, and means for operating the same, and supporting-bars between the disks to support the material while it is being battened, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM D. WATSON.

Witnesses:

GEORGE DAVIES,  
CHARLES A. DAVIES.