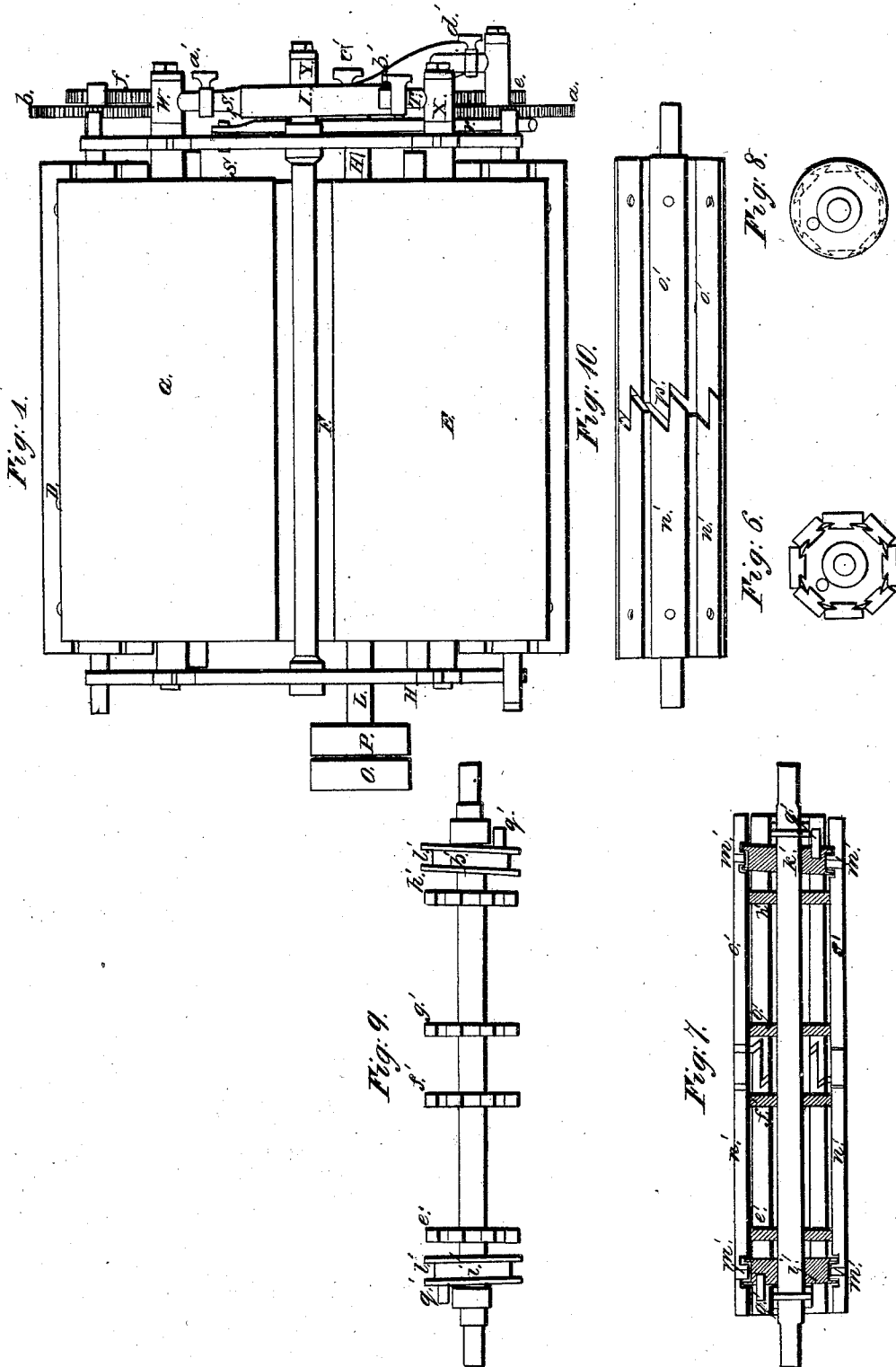


No. 8,563.

PATENTED DEC. 2, 1851.

T. BARROWS.
MACHINE FOR STRETCHING AND DRYING CLOTH.

3 SHEETS—SHEET 1.



T. BARROWS.
MACHINE FOR STRETCHING AND DRYING CLOTH.

3 SHEETS—SHEET 2.

Fig. 3.

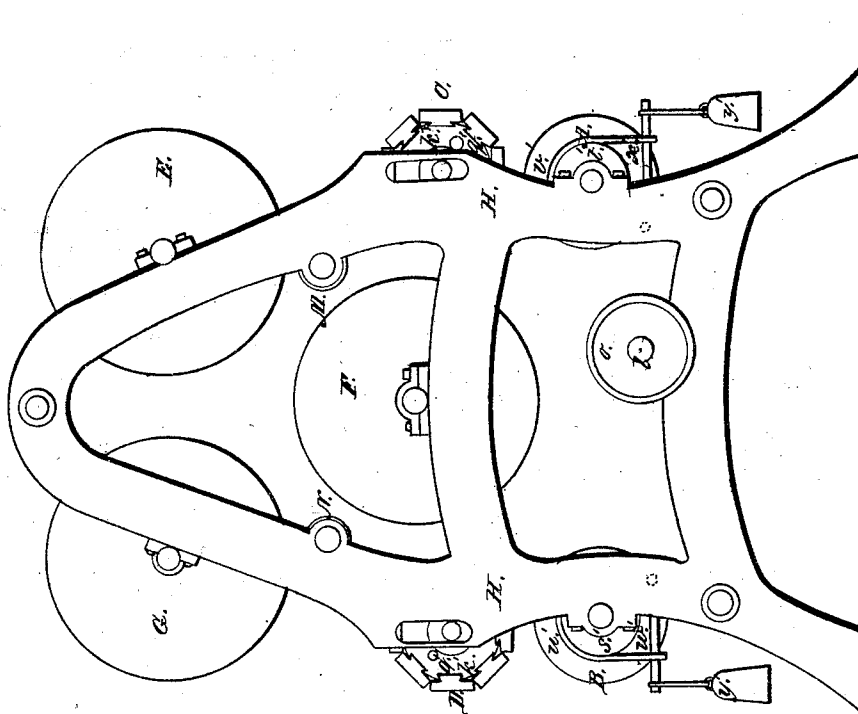
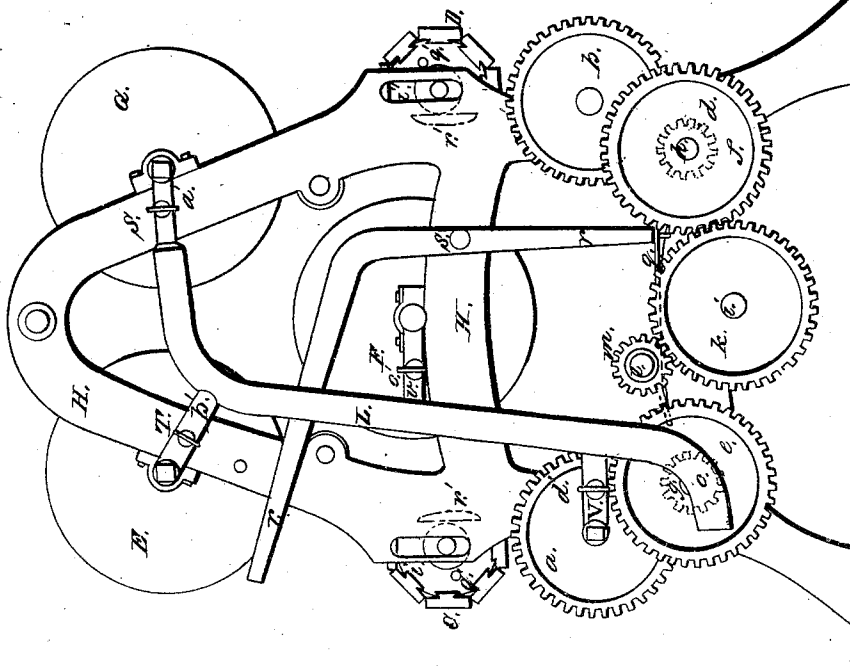


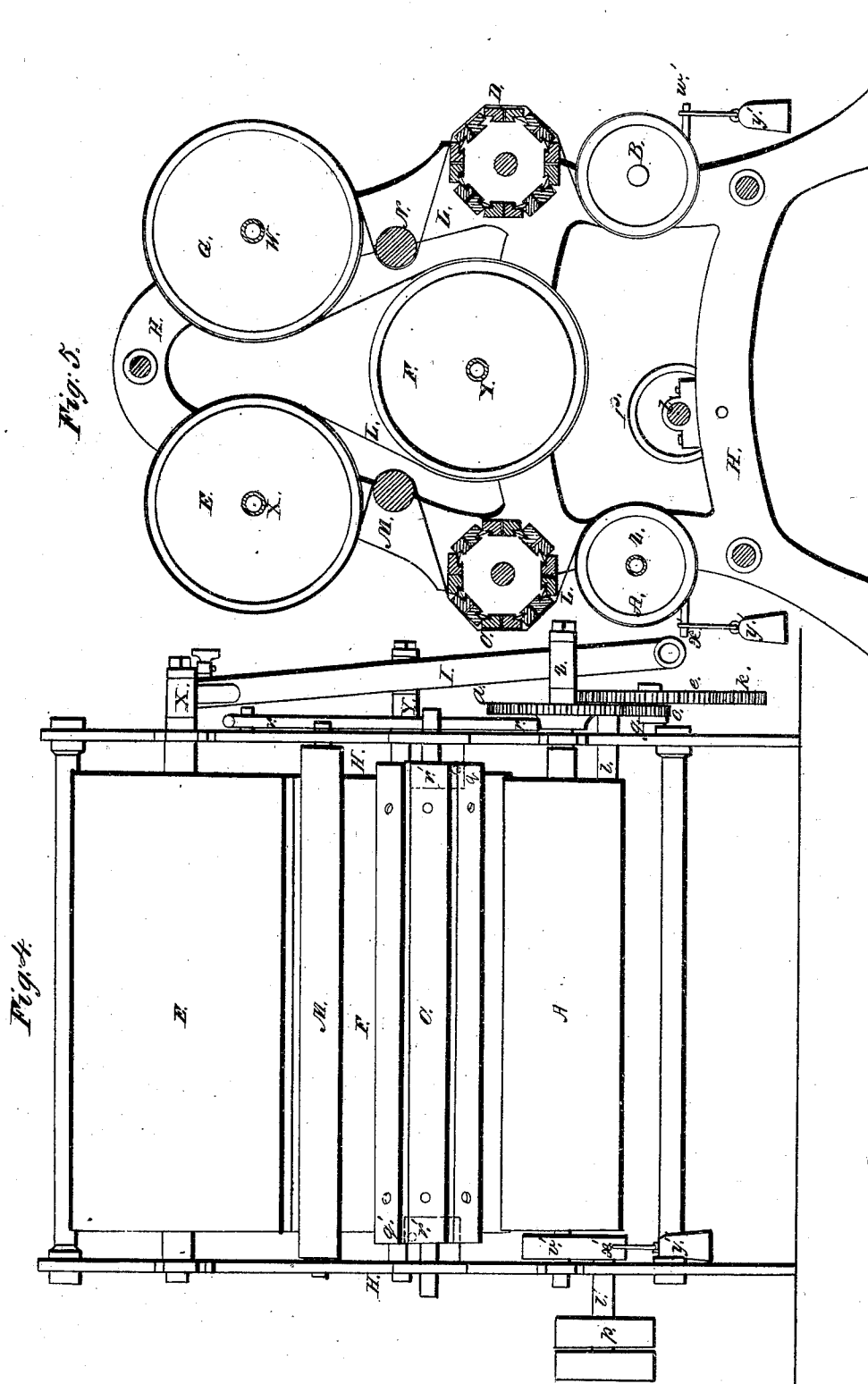
Fig. 2.



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3 SHEETS--SHEET 3.



UNITED STATES PATENT OFFICE.

THOMAS BARROWS, OF DEDHAM, MASSACHUSETTS.

MACHINE FOR STRETCHING AND DRYING CLOTH.

Specification of Letters Patent No. 8,563, dated December 2, 1851.

To all whom it may concern:

Be it known that I, THOMAS BARROWS, of Dedham, in the county of Norfolk and State of Massachusetts, have invented a new or
5 Improved Machine for Stretching and Drying Cloth in the Piece; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

10 Of the said drawings, Figure 1, denotes a top view of my said machine. Fig. 2 is an elevation of one end of it. Fig. 3 is an elevation of the other end thereof. Fig. 4 is a side elevation. Fig. 5 is a central, vertical and transverse section of it. Fig. 6 is an
15 end view of one of the widthwise rotary stretchers. Fig. 7 is a central and longitudinal section of it (the stretcher). Fig. 8 is an end view of the shaft and cams, and slat holders of the widthwise stretching apparatus.

20 A, B, are two metallic cylinders arranged with their axes parallel to one another, and supported by the framework H; such cylinders being so applied to such framework as to be capable of being put in rotation around their respective axes. Each of said cylinders has a spur gear wheel *a* or *b*, fixed
25 upon its shaft, which spur wheel engages with a pinion *c*, or *d*, represented in dotted lines (in Fig. 2), and affixed to the side of another spur gear *e*, or *f*, which turns on a stationary axle *g* or *h*. One of the gear
30 wheels viz, *f* is made to engage with another spur gear *k*, which turns on a stationary axle *i*; all these gears being arranged with respect to one another as seen in the drawings.

35 The driving shaft of the machine is represented at *l*, and as having a pinion *m*, fixed upon one end of it, and made to engage either with the wheel *e* or the wheel *k*, at pleasure, so as to impart a rotary movement
40 to either one of the cylinders A, B, as the case may require. There is a fast pulley *o*, and a loose pulley *p*, applied to the other end of the driving shaft, a band from some suitable power, being made to operate
45 around one or the other, and when upon the fast pulley, to impart rotary motion to the driving shaft. The journal of that end of the driving shaft, which is nearest to the pinion of the said shaft, is affixed upon a
50 slide *q*, which is jointed to or so connected

with a hand lever *r*, turning on a fulcrum *s*, as to be capable of being moved by said hand lever, and so as to cause the pinion of the shaft to engage with one or the other of the spur gears *e*, or *k*, as circumstances may
60 require.

Over the cylinders A, B, are three or any other suitable number of steam drying cylinders, E, F, G, the three represented in the figure, being arranged with respect to the
65 rotating cylinders or beams A, B, and to certain widthwise rotary stretchers C, D, as seen in the drawings. Each of the rotary stretchers being placed directly over one of the cylinders A, B, and for the purpose of
70 stretching the cloth widthwise. The rotary stretcher will be hereinafter more particularly described.

Each drying cylinder E, F or G, is made to receive steam from a boiler through a
75 conducting pipe I, which proceeds from the boiler, and has a series of branch pipes S, T, U, V, which lead the steam from it into the hollow axles W, X, Y, of the drying cylinders, and also into that (Z), of one of
80 the cylinders A, B. Each branch pipe is provided with a stop cock *a'*, *b'*, *c'*, or *d'*, by which the steam may be let in or let off at pleasure.

Each of the widthwise rotary stretchers
85 is made in the following manner; that is to say, it consists of a horizontal shaft, having four octagonal or other proper shaped heads *e'*, *f'*, *g'*, *h'*, fixed upon it, and two cylinders *i'*, *k'*; the periphery of each of the said cylinders, has a circular groove *l'*, in and
90 around it, (as shown in Fig. 9); which is an external view of the shaft, its cylinders, and octagonal plates or heads. Fig. 10 is an external side view of the widthwise stretching apparatus. The grooves of the periph-
95 eries of the cylinders of the shaft of the widthwise stretching apparatus are not made in planes which are respectively at right angles to the axles of the shaft, but are
100 in planes, which each stand at an acute angle with the shaft. Each of these grooves receives a projection *m'*, from one of the slats *n'*, *n'*, *n'*, *o'*, *o'*, *o'*, the said slats being supported (so as to be capable of being
105 moved endwise) by the polygonal heads *e'*, *f'*, *g'*, *h'*. Two of these polygonal heads, viz, *e'*, *f'*, support one set of the slats on their polygonal sides; while the other two, support the other set in the same manner.
110

Each slat of one set is arranged in a line of some one of the other set, and made to lap by it, as seen at p' .

Projecting from the external side of each of the circular heads i' , k' is a small stud q' , which comes in contact with the side of a projection r' , extending from the inner side of the end of the frame of the machine and toward the external surface of the circular head; the position of each of these projections being represented by red lines. As the circular heads i' , k' , turn freely upon their shaft, the object of their studs and the projections from the framework is to hold said heads stationary, during the rotation of the shaft and slats, and polygonal slat holders of the widthwise stretching apparatus; the studs of the heads, as well as the projections from the framework, being so arranged as to bring the grooves of the heads into the right position to move two of the stretching slats (in line with one another), at their greatest distance apart when they are directly over, and nearest to, the cylinder or beam A, B, immediately under them.

The external surface of the slats of the stretching apparatus is to be made rough or furnished with points teeth, or other suitable contrivances, such as will enable them to adhere to the surface of the cloth passing over them.

The course of the piece of cloth is represented by a blue line at L in the drawing, one end of the cloth being fastened to one cylinder A or B, while the remainder of the cloth is carried between the said cylinder, and the widthwise stretching apparatus C or D, over it; thence under a guide roller M or N; thence over and around the drying cylinder E or G, which is directly over said guide roller; thence down, underneath and nearly around the drying cylinder E; thence upward over and around the other upper drying cylinder; thence under the second guide roller; thence over and partially around the next widthwise stretching apparatus, and next wound upon the cylinder or beam, under said last named widthwise stretching apparatus, the end of said piece being previously attached to the cylinder. Now by putting the other or first named cylinder or beam in motion, in the right direction, we draw the cloth away from the second one, and wind it on the first, the cloth in the meantime, being stretched, not only

lengthwise by the draft upon it, but widthwise by the action of the widthwise stretching apparatus. We next reverse the action of the machine, by throwing the pinion on the main driving shaft into gear with the other of the two gears k , e ; this will cause the cloth to be drawn back again, and re-wound upon the beam or roller A or B, from which it was previously unwound, it being understood that the several steam cylinders are in a heated state, in consequence of steam being admitted within them. The cloth may be thus operated on as many times as may be necessary to stretch it both lengthwise and widthwise, and to dry it, and to impart to it a luster and finish such as may be desirable and this without the necessity in the meantime (as is the case in other machines of the kind) of removing it and replacing it in the machine.

In order to increase the power of my improved mechanism, to stretch a piece of goods lengthwise I apply to each shaft of the main beams or cylinders A, B, a friction pulley s' , or t' , (see Fig. 3) and a friction yoke or brake u' , or v' , the said yoke being attached to a lever w' , or x' , which turns upon a stationary pin or fulcrum (at one end), projecting from the main framework. On the other end of this lever, a weight y' , is hung, such as may be sufficient to produce the necessary degree of pressure of the friction brake upon its pulley.

What I claim as my invention is—
The combination of the two winding and lengthwise stretching contrivances or stretchers, the two widthwise rotary stretchers C, D, and the three or any other suitable number of drying cylinders E, F, G, substantially as described, so as to enable a person to cause a piece of cloth to pass in one direction over and around the drying cylinders, and next in the opposite direction, as many times as may be desirable, in order to stretch, dry and finish the same to the extent that may be required.

In testimony whereof I have hereto set my signature this thirtieth day of July, A. D. 1851.

THOMAS BARROWS.

Witnesses:

EZRA WILKINSON,
GEO. ELLIS.