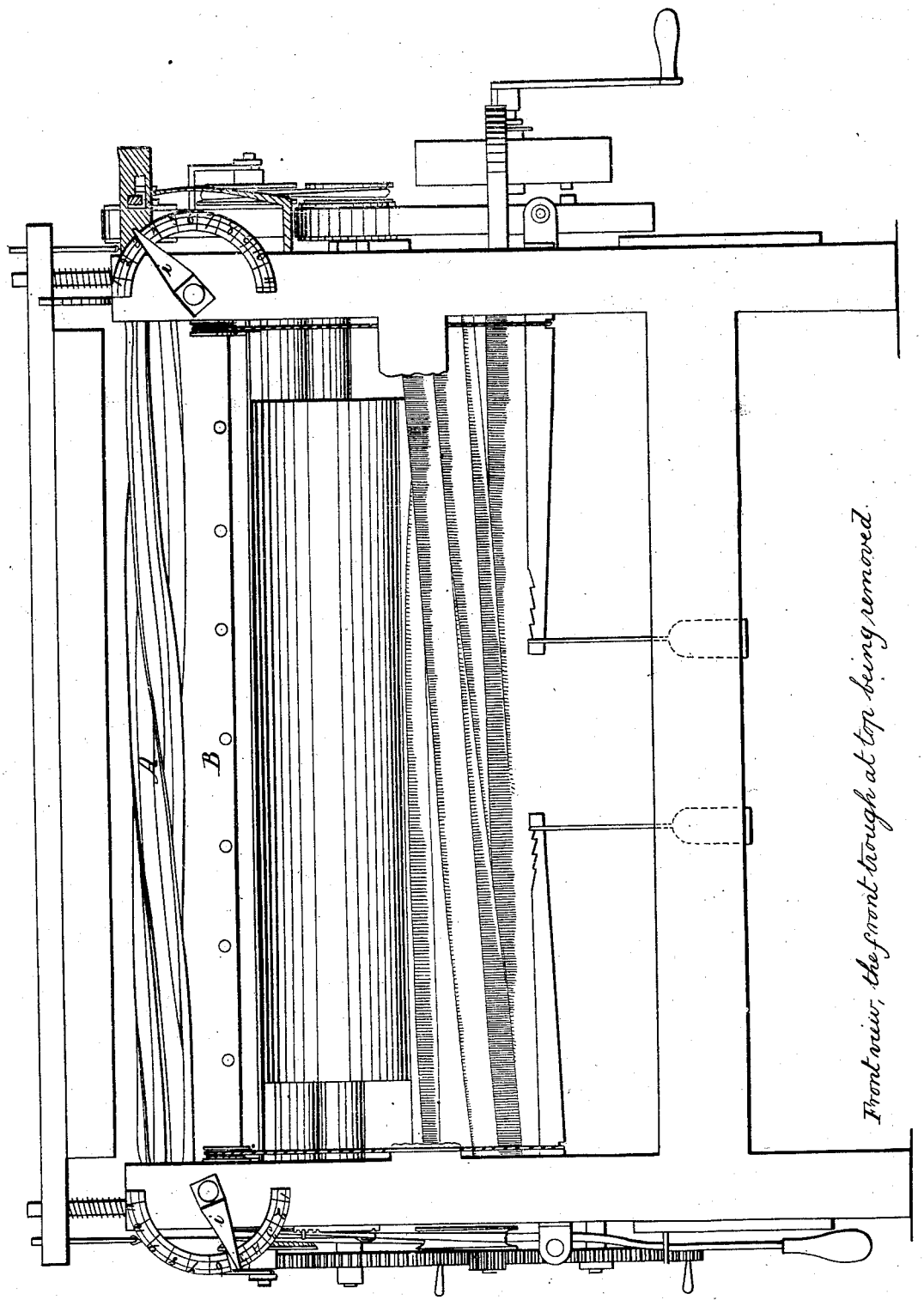
Sheet 1 - 5 Sheets.

S. Parsons.

Cloth Shearing Mach.

No. 1,015. Patented Nov. 25, 1838.



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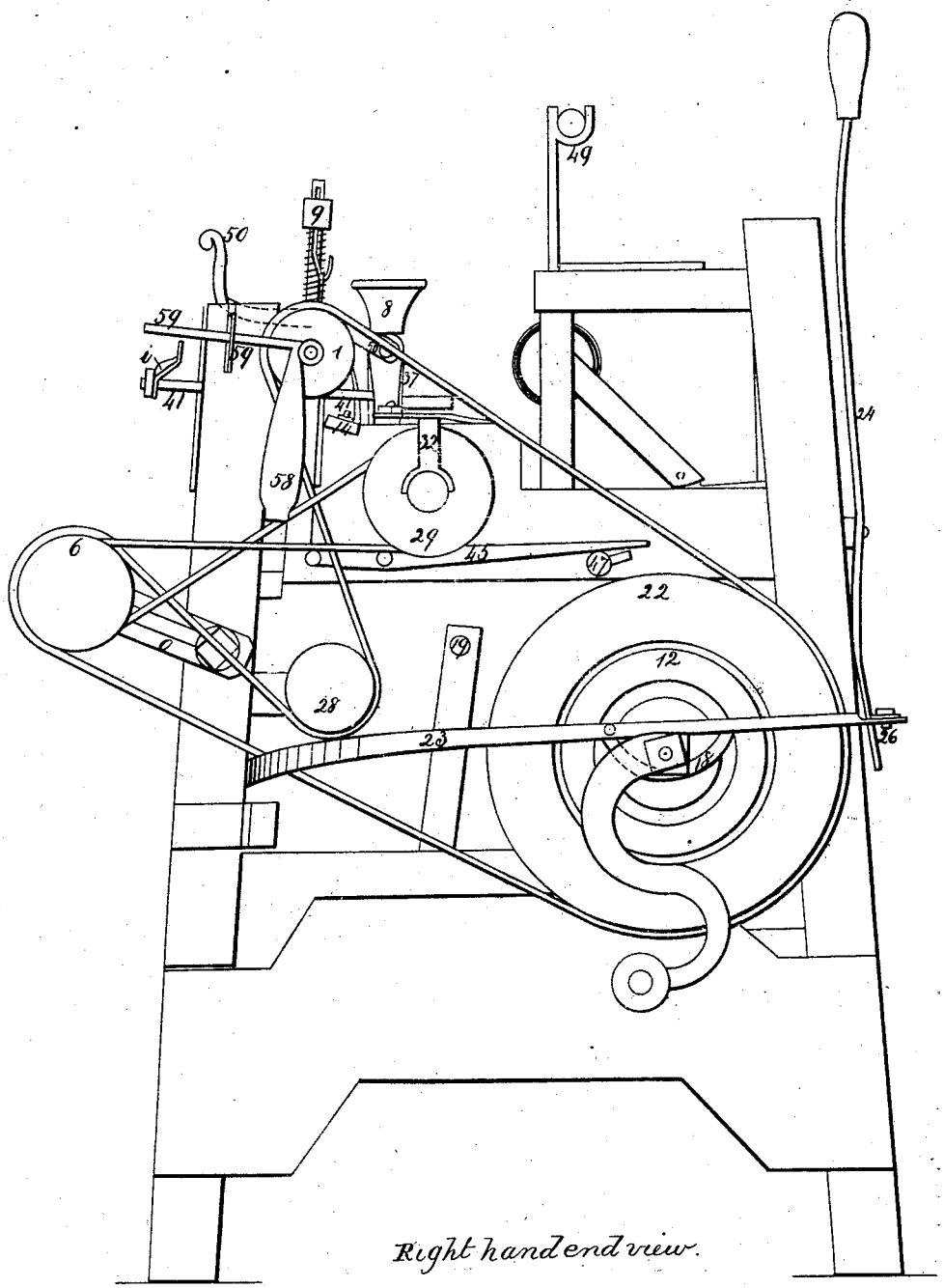

Right hand end view.

Sheet 3 - 5 Sheets.

S. Parsons.

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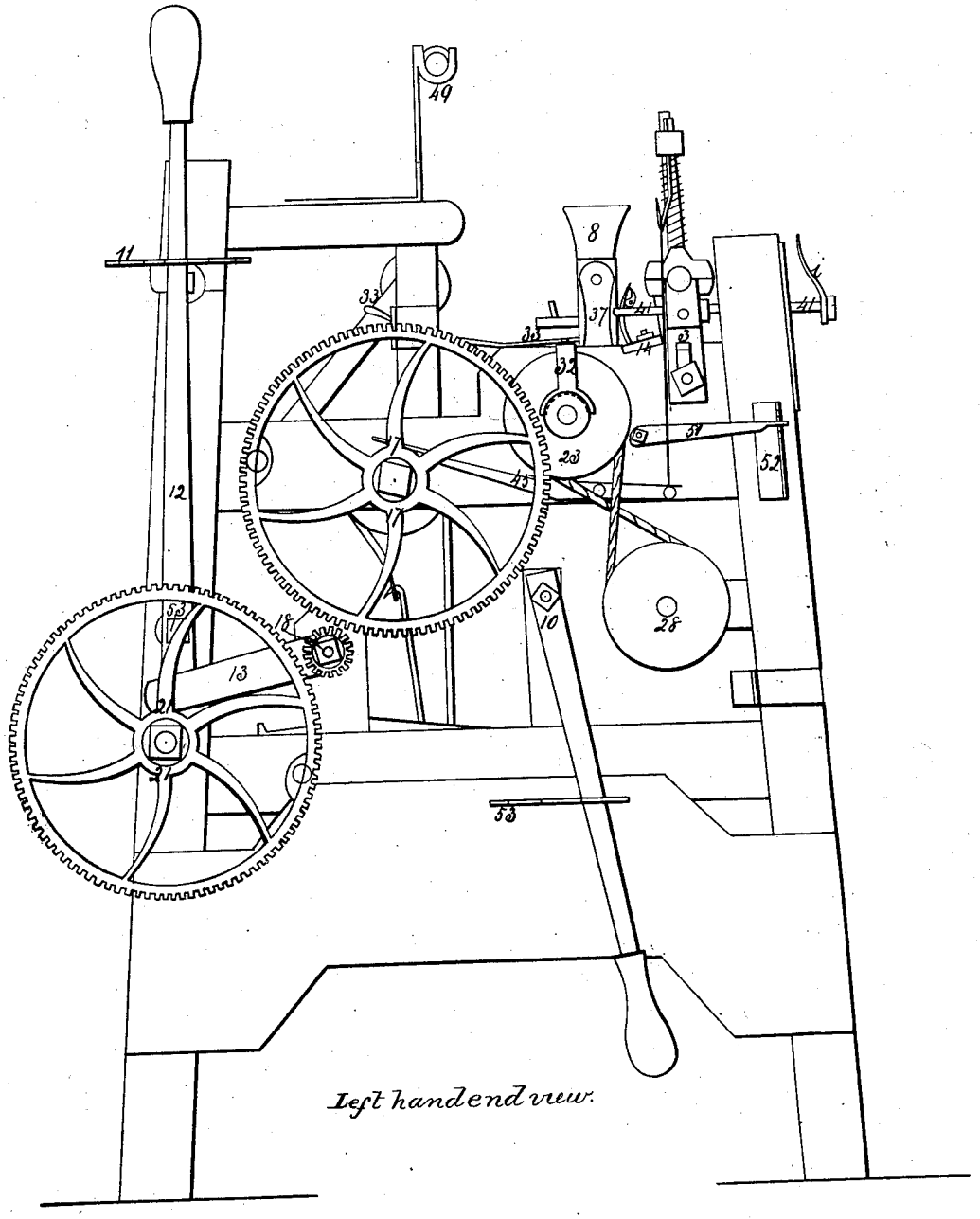

Left hand end view.

Sheet 4 - 5 Sheets.

S. Parsons.

Cloth Shearing Mach.

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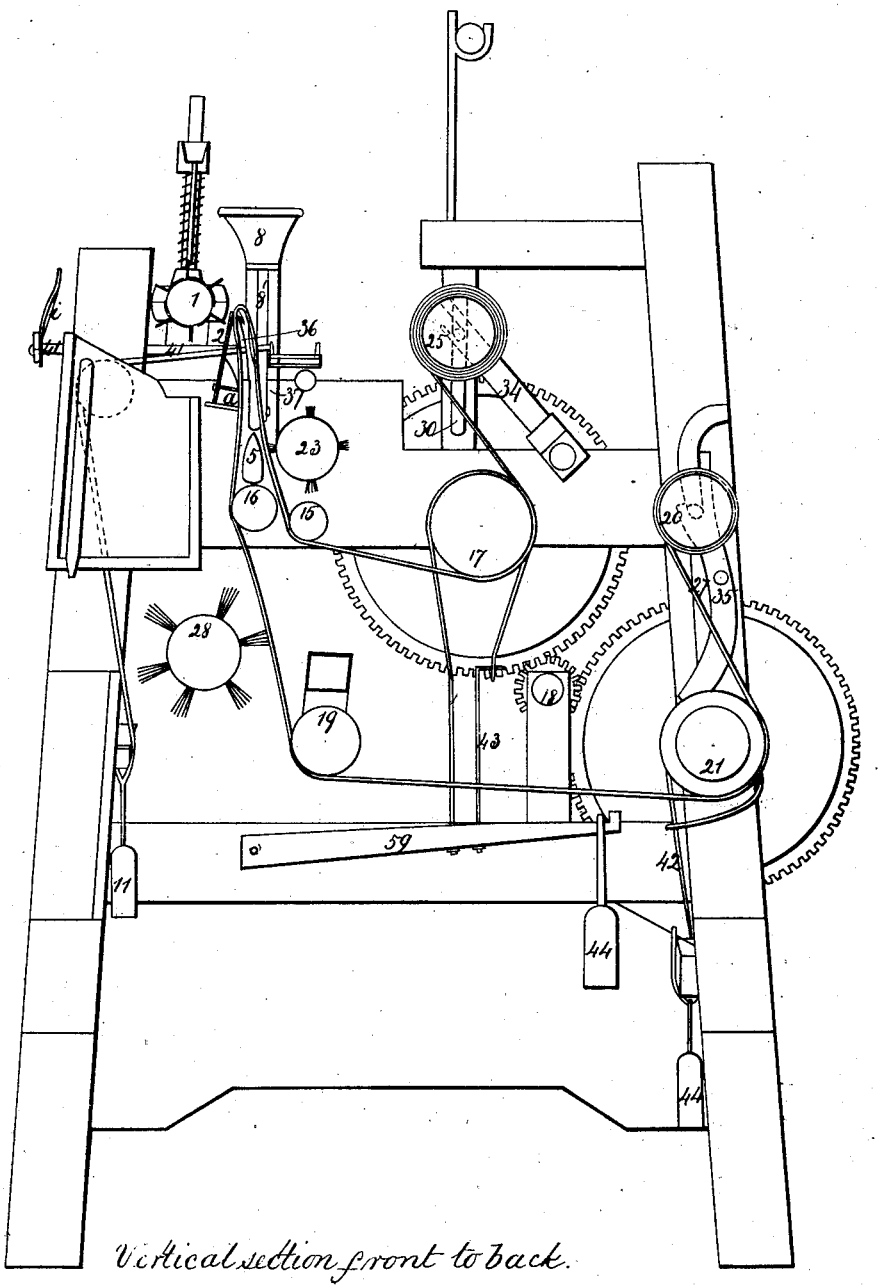


Vertical section front to back.

Sheet 5 - 5 Sheets.

S. Parsons.

Cloth Shearing Mach.

No. 1,015. Patented Nov. 25, 1838.

Fig. A.

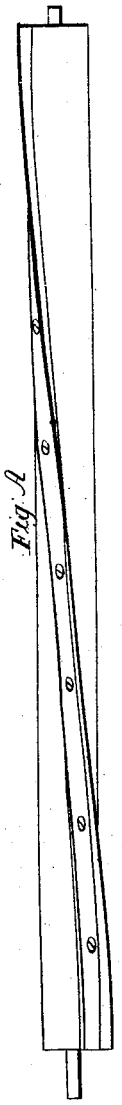


Fig. B.

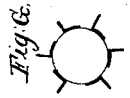


Fig. E.

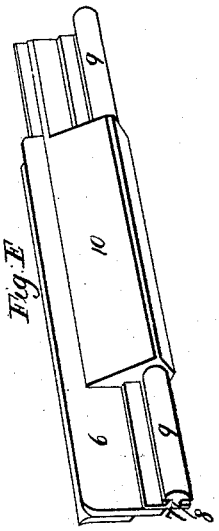


Fig. C.

Fig. D.

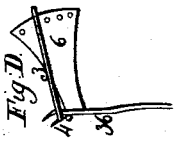
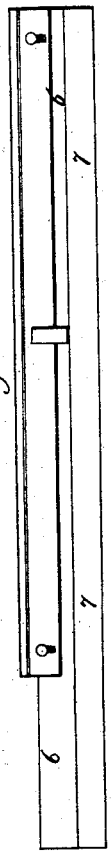


Fig. F.



UNITED STATES PATENT OFFICE.

SETH PARSONS, OF HOOSICK FALLS, NEW YORK.

MACHINE FOR SHEARING WOOLEN CLOTHS.

Specification of Letters Patent No. 1,015, dated November 25, 1838.

To all whom it may concern:

Be it known that I, SETH PARSONS, of Hoosick Falls, in the county of Rensselaer, in the State of New York, have invented certain new and useful Improvements in Machines for Shearing Woolen Cloth, by means of which improvements I am enabled to shear broad and narrow cloths, the machine operating upon it in its passage back and forth both ways without changing it from end to end, thereby saving much time, while by the general construction of the machine other important advantages are obtained; and I do hereby declare that the following is a full and exact description thereof.

In many respects this machine resembles that for which I obtained Letters Patent, dated the 2nd day of March, in the year 1819, but it differs from it in the essential particular above referred to, namely, in its shearing the cloth in its passage back and forth. In connection with this I have also devised a mode of reversing the motion of the brush, so as to brush the nap either way, as occasion may require, and to raise and lay the nap with the same brush. I have also constructed improved regulating plates, which are attached to the cushion over which the cloth passes as it is presented to the action of the shears.

In this machine I employ the flying shears for the manufacturing of which Letters Patent were granted to me, dated the 7th day of June, 1838, and which are fastened by screws on to a hollow wrought iron shaft usually of about two and a half inches in diameter. In the drawing No. 1, which is an elevation of the front of the machine, these flying shears, on their shaft, are shown at A, and in No. 5, Figure G, which is an end view, also separately, in the drawing Fig. A, No. 5, where only one blade of the shears is represented on the shaft that it may be seen more distinctly. They are also seen in section marked 1, in drawing No. 4, which is a vertical section of the machine from front to back, exhibiting the respective rollers, brushes, and other parts to be described. The blades of the flying shears as they revolve, operate against the bed shear, (2) which is a plate of iron, faced with steel, about the same thickness with the blades of the flying shears, and about three inches wide. This bed shear is marked B, in the front elevation, No. 1; it is ground off, along its upper side, so as to form a suitable edge for the flying shears to act upon. This plate, or bed shear is affixed to a cast iron bar to give it sufficient support (*a*) No. 4, to which it is attached by screws the heads of which are shown in it at B, No. 1. The ends of this bar rest upon the frame at either end of the machine (14) Nos. 2 and 3, which are a right and a left hand view of the ends of the machine. The bearing of this bar is usually about 2½ inches wide, having mortises through to regulate it by means of nuts and screws up to the flying shears. The shaft of these shears run in adjustable standards (3), made to raise, or lower by means of nuts and screws, as may be found necessary.

The cushion over which the cloth passes, and by which it is presented to the action of the shears against the bed shear, is constructed as follows: A cast iron bar, to give to it the requisite stiffness, reaches across the machine in the manner of that attached to the bed shear. A section of this cushion is shown at (36) No. 4, and separately at C, No. 5; (7) is the cast iron bar, (36) is a cushion plate attached by rivets to this bar, which plate is about the same thickness and width as the bed shear. On the front side of this cushion plate is placed a strip of iron called the regulating plate (4) Fig. C, No. 5, this is about one and a fourth inch wide, and of the same length with the cushion plate; it is hinged on its lower edge, so as to admit its upper edge to be brought close up under the edge of the cushion plate, or removed to the distance of half an inch, or to any intermediate distance from it, carrying the cloth, as it passes over it, and over the edge of the cushion plate, to, or from the bed shear. The manner in which this regulating plate is held in its place, is shown at Fig. D, No. 5.

A plate (5) projects at right angles from one end of the cushion plate, to which it is attached, a spring lever (3) is attached at one end to the regulating plate (4) and has near its other end a pin which falls into holes in the plate (5) drilled in a segment of a curve of which the hinge of the regulating plate forms the center. There may be any convenient number of such holes, to govern the approach of the regulating plate toward the bed shear. The object of this

regulating plate is to govern the length of the nap on the different kinds of goods; and is a mode of effecting this object more perfectly than any of those heretofore employed, as it regulates from end to end by one and the same motion. The whole of the cushion, including the cushion plate, regulating plate, and the castiron stiffening bar to which they are attached, is made capable of adjustment, so that it can be either raised, or lowered, or made to approach, or recede from, the flying shears, and bed shear. For this purpose these are iron plates (37) Nos. 2, 3, and 4, which are about nine inches long, and an inch and a half wide, one at either end of the cushion, lying flat against the ends of the frame, to which they are attached at their lower ends by joint pins, or screws, upon which they vibrate. These plates have longitudinal mortises in them which receive the ends of the cushion, formed into tenons for that purpose; the mortises are made long enough to allow the tenons to have play up and down within them. A screw (8′) No. 4, serves to raise or lower the cushion, working in female screws formed therein for that purpose. These screws may have wooden heads (8) Nos. 2, 3, and 4, by which they may be readily turned. The weight of the cushion may be so managed as to cause it to incline toward the shears, or it may be kept up by the action of the weight (11) No. 4, attached to a line passing over a pulley, and to the shank of the screw (8′) or to the bars (37), or in other ways. To regulate the distance at which it shall stand from the flying shears, screws, (41) Nos. 2, 3, and 4, pass through the front of the frame, their inner ends bearing against the plates (37). These screws have indexes on them (*i*) Nos. 1, 2, 3, and 4, with index plates, No. 1, by which to adjust them with great precision. When it is desired to shear the cloth and save the list, I effect this by a modification in the construction of the cushion. Fig. E, No. 5, shows the cushion thus modified, in perspective, as seen on the back side of it. A cast iron plate (7) which for a full sized machine may be one fourth of an inch thick, and three inches wide, has a rib (8) along the middle of it, which may be half an inch thick, and rise to the same distance, which serves not only to stiffen the plate, but receives two half round pieces of iron (9), which may be seven eighths of an inch wide, and eighteen inches long, and are firmly riveted to said rib. This half round serves as a support, and as a center for the cushion to turn upon, to and from the shears; suitable bearings being provided to receive these half rounds, in standards rising perpendicularly from arms running horizontally back from the front posts of the machine for that purpose; they are so fixed as to be raised and lowered by means of screws, the screws (41) Nos. 2 and 3, before described, serving to adjust this cushion on its face. The half rounds allow it to be shifted endwise on its bearings. A piece of nail plate (6) which may be three inches wide, is riveted along the cast iron plate (7) lapping upon it about an inch; its upper edge is made straight, and in proper shape for the cloth to pass over. On this is to be fixed a regulating plate, operating and governed like that already described. Fig. F, is a front view of said cushion. A piece of wood (10) is fastened by wood screws on the back of the above described plates. It is so formed as to admit the cloth to pass readily over it, and is faced by an iron plate; by which means great additional stiffness is given to the whole cushion.

In order to draw the cloth through the machine from both ends, I construct two drawing rollers; which rollers, as will presently appear, are alternately used as friction rollers also to strain the cloth and keep it taut. The lower drawing roller, which takes the cloth forward, is shown at (21) No. 4. On one end of the shaft of this roller is a cog wheel (21) No. 3, which is about one foot in diameter, and has 130 cogs; (17) No. 4, is the upper drawing roller, which draws the cloth back, after it has passed the shears in the forward motion. The upper drawing roller is carried by a cog wheel (17) No. 3, similar to that on the lower drawing roller. These two cog wheels are alternately driven by a pinion (18) on one end of the main shaft. This pinion has its gear from one to the other, changed by means of the lever (12) carrying the arm (13) No. 3, thus causing the reversing motion of the drawing rollers, and carrying them with equal velocity in either direction. The arm (13) forms the bearing of one end of the main shaft, which, of course vibrates with it. The fulcrum of the lever (12) is at (53) on one of the corner posts of the machine, at about one fourth of the length of the lever from its lower end. The upper end of the lever is held in place by two notches in an iron plate (11), into which it springs, keeping the pinion in either of the cog wheels as required.

On the right hand end of the machine No. 2, is a stationary pulley (22) on the opposite end of the main shaft, fourteen inches in diameter. On the same end of this shaft is a second pulley (12) nine inches in diameter, which is either a fast or loose pulley according as it is thrown into or out of gear with the pulley (22), it being furnished with two engaging cogs for that purpose. The pulley (12) is that to which the driving power is applied. The band on pulley (22), drives the shears (1) and the brush (28). The pulley (12) is engaged

with, or disengaged from the larger pulley (22) by the apparatus attached to the spring lever (23), one end of which is attached to the front post of the machine; it has on it a bow (18), which is received into a groove, on the hub of the pulley (12); the other end of the spring (23), is held by a suitable latch, or catch, at (26), so that it may be moved in, or out of gear by means of the lever (24) No. 2. The cloth beams are marked (20) and (25) No. 4. These are placed above the drawing rollers, upon which they rest, and are carried around by their friction against them. The cloth beams are kept in their places, and allowed to play up and down by the passing of their gudgeons into long mortises (27) and (30) No. 4, in the timbers which sustain them, thus adapting themselves to the quantity of cloth wound upon them. When the cloth is being wound off from one of these beams, it is being wound on to the other, and it is requisite that the one from which it is to be wound shall turn freely, which it could not do if resting upon the drawing roller. It is therefore raised up, clear from said roller, and so retained as long as it is being drawn off. This may be effected in various ways, but that which I have adopted is shown at (34) and (35), No. 4, which are studs, or catches of iron, about eight inches long, so placed that when turned up, their hooked ends, prepared for that purpose, will catch under the gudgeons, and hold the cloth rollers up.

Bridles (42) and (43) with weights (44) operating upon them, so as to strain the cloth, are to be put upon the ends of the drawing rollers, operating and regulated in the same way with the bridles on the cloth beam in my former patent. I employ the same kind of oiling apparatus, also, as that used by me under my former patent, excepting that the oiler levers (45) Nos. 2 and 3, are moved by a pin, or cog (47) No. 2, in the drawing roller, instead of the cloth beam, and are put on outside of the frame.

When this machine is put into operation, the cloth starts from the upper cloth beam (25) No. 4, and the drawing roller (17), passes thence under the cylinder (15), thence up between the brush (29), and the knuckle board (5); which knuckle board extends along the machine turning on gudgeons on its ends, and is acted upon by the spring lever (51) No. 3, which spring lever is held in its place by notches in the plate (52), it is thus made to bear the cloth with any desired degree of force against the brush (29) No. 4. Thence it passes up over the cushion and regulating plate, to be sheared against the bed shear; it then passes down over roller (16), above and back of the brush (28), and under the cylinder (19) which I call the relief cylinder, as it turns upon a frame (48), by the aid of which the cloth may be removed toward, or from the brush (28), as may be desired. After leaving the roller (19) the cloth is conducted to the drawing roller (21), and on to the cloth beam (20) as represented and described. The lever (10) No. 3, serves to turn the frame of the relief cylinder, and is held in place by notches on the iron plate (53). A rod of wood, to sustain the cloth when first put upon the machine, is sustained by the standards (49) Nos. 2, 3, and 4. An iron plate (50) No. 2, is used to hold the cushion back when necessary. The shifting brush (29) is about three inches in diameter, and has a pulley on its shaft at each end, one of these pulleys, in driven from that of the lower brush (28) No. 3; the other is driven by a band from the tightening pulley (6) No. 2, which pulley runs upon a regulating plate (*o*) having a slot in it, and fastened by a screw nut. The object of having a driving pulley upon each end of this brush, is to give an opportunity of reversing its motion, according as one, or the other of these pulleys is in gear with its shaft. A rod, or bar extends from side to side of the machine, and is bent down at right angles at each end, forming the plates (32) (32) Nos. 2, and 3. These plates are arched at their lower ends and are received into a groove on the hubs of the respective pulleys (29) (29); by shifting this rod endwise, which may be done by a lever (33) No. 3, or in any other convenient way, one of the pulleys is thrown out of gear with the brush shaft, and the other in, by engaging gear well known to machinists. This brush is thus used either to raise or lay the nap as required. The pulley (1) of the flying shears shaft, is also thrown out of, and into gear, by sliding it endwise. For this purpose, I employ the spring lever (58) No. 2, which acts within a groove in the hub of that pulley; there being a notch in an iron plate (59), to hold the spring lever (58), when the pulley is thrown out of gear; the spring returning it into gear when liberated from the notch.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment of the drawing apparatus, as herein described, for the purpose of passing the cloth from end to end in both directions, and shearing it in its passage back and forth. I do not claim the drawing apparatus when used singly, and operating in a manner analogous to that above described; but that combination and arrangement thereof by which the double action is effected.

2. I claim also the mode of employing the draw cylinders, alternately, as friction, or bridle cylinders, to strain the cloth, substantially in the manner set forth.

3. I also claim the particular manner of

forming the cushions, with their regulating plates, either as constructed for shearing the whole width of the cloth, or of saving the list, as described.

4. I claim likewise the reversing of the motion of the brush, so as to operate upon the nap in either direction in combination with the drawing apparatus as herein described.

SETH PARSONS.

Witnesses:
L. CHANDLER BALL,
LYMAN WILDER.