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Blanchard

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(54) **SHEARING MACHINE, HORIZONTAL**

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Letters Patent.

The schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said Thomas Blanchard himself of his horizontal shearing Machine

The invention of this improvement in machinery for shearing cloth, called the horizontal shearing machine consists in the constructing the moving horizontal shear so as to have it moved back and forth in the operation of cutting with two cranks on an axis, with a crank near each end, together with the other necessary parts constructed in the manner required for this machine A proper wooden frame about three feet high and as wide as the cloth intended to be generally sheared may require, is made of good sawed timber, having its bottom sills framed together which receive and support two posts which all the operating parts of the machine such as shear, rollers, rolling bench, beams, band, wheel shafts cleats and cross bars are fixed. To complete this frame two cross beams are fixed on the outside of said posts about fifteen or twenty inches from each sill and to the ends of these cross beams which may be three feet long or more are fixed, first the rolling beam on which the cloth to be sheared is first wound & at the other ends of said cross beams is fixed the axis containing the cranks to give motion to the shear & cross bar is also put through said posts from side to side being at right angles and at the middle of said outside cross beams and screwed on said posts with wedges, upon the upper edge of this cross bar the edge of the under and stationary shear rests, that is when shearing the cloth passes between the edge of the stationary shear and the upper edge of this cross bar, which supports the said

shear, the edge of said cross bar must be straight.

This stationary shear is a flat plate of steel as long as the width of the cloth may require and about three inches wide having at each end a gudgeon on the line of the back of said shear plate which said gudgeons go into the ends of said cross so that said shear plate is nearly horizontal & its cutting edge perfectly straight & fitted to the edge of the cross bar. This shear plate being thus hung by its end gudgeons is easily turned up when the cloth is put in to be sheared so as to make it convenient to put the cloth between the said cross bar and said shear into the rollers under them which feed in the cloth in a regular manner when shearing.

The moving shear is placed over the stationary shear consisting of two or more plates, which form a proper angle with the stationary shear as may be necessary for shears to have. When the moving shear moves forward it is raised up and when it is forward it is then pressed down against the stationary shear and moved back when it cuts the knap off of the cloth as it is wanted. The plates of the moving shear and edgeways to their width being nearly perpendicular are fixed by screws of iron clasps to a cross bar, as the frame which cross bar or shear frame is fixed to the horizontal fast shafts of the cranks that give motion to the moving shear in the manner above mentioned. Shear has fast or crank shafts extend horizontally about seventeen inches from said cranks a little beyond the shears and the ends there are connected by joint pins to two perpendicular arms which arms are at the upper ends fixed by joint pins to a bar extending across from post to post, and the moving shears being thus fixed firmly into a frame connected to said cranks has thereby such a motion given to it as to be peculiarly advantageous in shearing cloth, as said cranks shafts have something of a spring in their operation which causes the cutting of the shears. The joint pins to the

upper ends of said arms, are fixed so as to be easily taken out and the moving shear and its frame raised up out of the way when the cloth is first put into the machine to be sheared. The axis of said crank has at each end screws which run in the ends of adjusting screws by which said cranks are kept tight. said cranks are formed of a suitable bar of iron so bent near its ends as to form two cranks on the same side of the bar of iron, on one end of this axis a wooden wheel is fixed for the hand by which it is put in motion. The said crank shaft are connected to said cranks with proper boxes so made as to be tightened with screws & kept firm and the cross bar to which the arms connected to said crank shafts are fixed, is made to be elevated or depressed so as to bring the edges of the shears to bear on the same near every time.

A long brush made to revolve on an axis is placed in the frame and its gudgeons go into said posts of the frame of the machine & the brush is turned by a band going round a wheel on one end of the axis of said brush so as to brush the knap of the cloth up to the edge of the shears when it is sheared off.

Between this revolving long brush, and the rolling beam on which the cloth is first wound is placed a slat over a cross bar of the frame, and this slat lying upon the cloth, presses it down on said cross bar so as to prevent the cloth from being drawn on to the shears in too slack a manner, at each end of this slat a weight is suspended to give a proper degree of obstruction to the motion of the cloth as the same is drawn into the machine on one end of said rolling beam, a weight is also suspended by a rope which goes round the rolling beam in manner like a band, & this is to obstruct said rolling beams turning rounds too easily, The axis of the band wheel which gives motion to this machine is placed over the shears and a little backward of them and the gudgeons turn in the upper ends of said posts of the frame, The band wheel on this axis to run this axis

to carry the said crank shaft and revolving brush, it about a foot in diameter & the whole or said crank shaft about two inches in diameter more or less at the other end of this band wheel shaft the pinion extends out beyond the post of the frame two or three inches and has four conical cogs put through it so as to take into the holes made in the wide leather band which goes round a large band wheel on the pinion of the main roller which drives on the cloth when shearing and the calculation here is to have the roller which drives in the cloth the band wheel on the pinion of this roller (and the pinion and cogs in it) of the great band wheel shaft so proportioned both as to size and number as to have the cloth carried in one minute's part of an inch or thereabouts for every cut or operation of the shears. One of the said rollers which draw in the cloth is hung by its pinions in a frame and so contrived as to have this roller compressed against the other by a spring &c. Hence as to hold the cloth light between them & be sure of drawing it in as wanted. The drawing rollers is covered with cloth. A long cut or trough is fixed at the back and a little under the shears to receive the knaps as cut off and keep it from falling down on the cloth after it is sheared. This machine may be carried by water or any other adequate power; And it is to be noted that the ends of the plates forming the moveable shears run by each other a little so that a complete cutting edge is formed from one end to the other of the shears. The rollers must be turned perfectly round, and true, as also their own pinions.

All parts of the machine requiring adjustments are contrived with adjusting screws and wedges.

Witnesses

John Fairbanks

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Thomas Blanchard