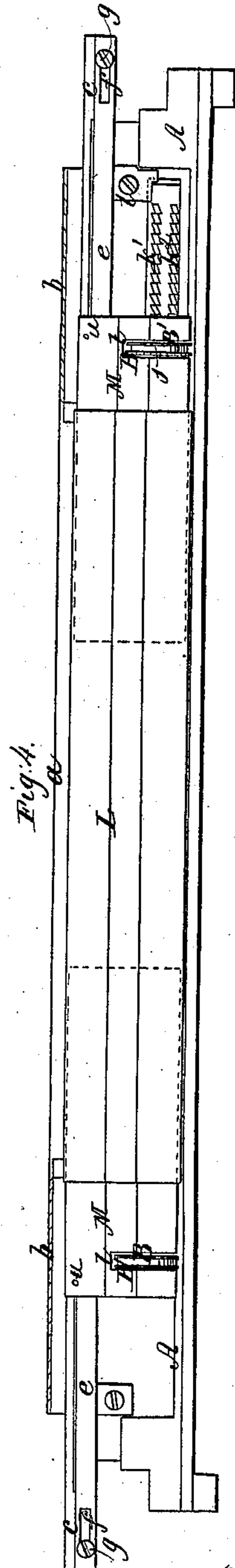
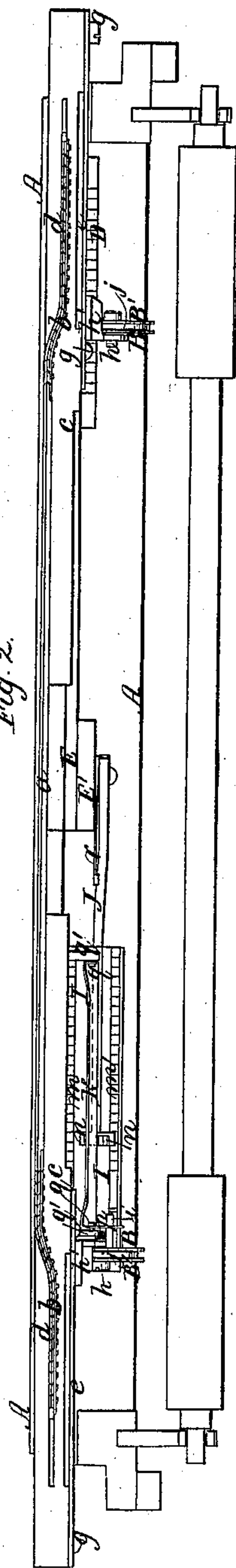
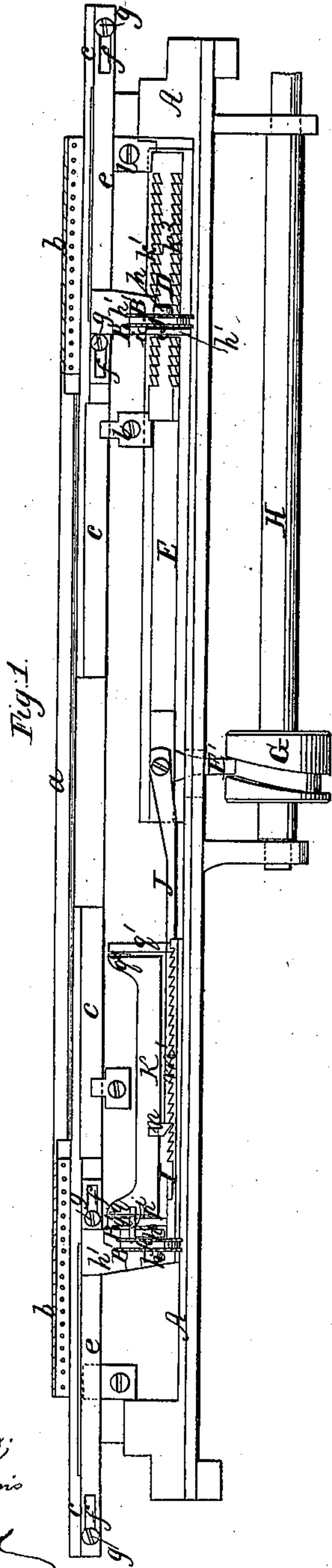
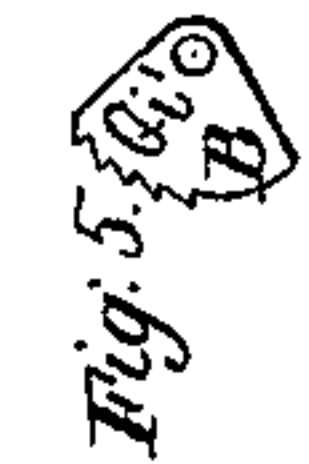
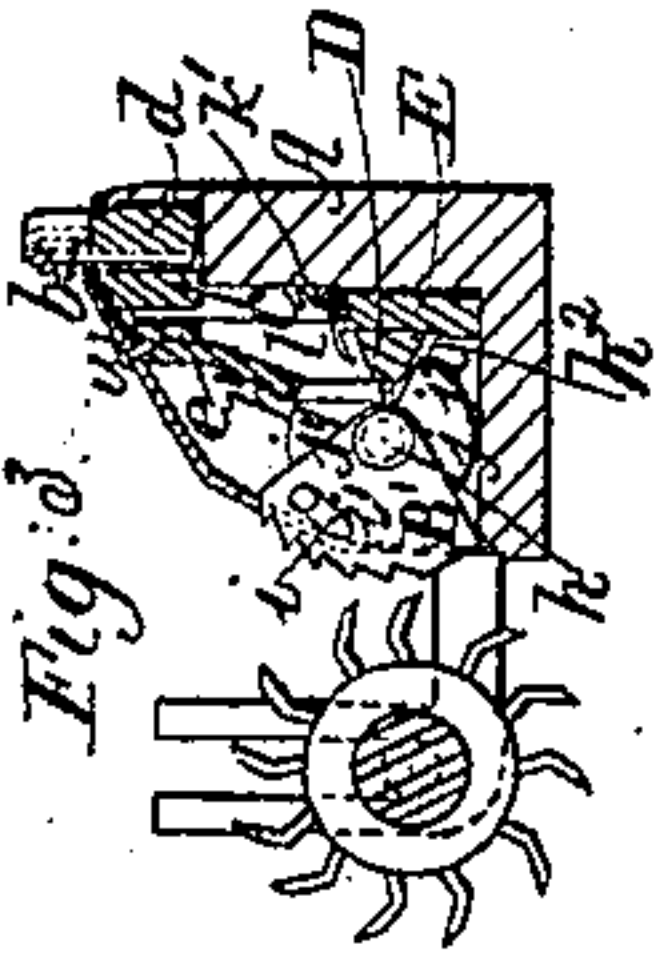


A. Woolson. Cloth Shearing Mach.

N^o 43,878.

Patented Aug. 16, 1864.



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UNITED STATES PATENT OFFICE.

AMASA WOOLSON, OF SPRINGFIELD, VERMONT.

IMPROVEMENT IN CLOTH-SHEARING MACHINES.

Specification forming part of Letters Patent No. 43,878, dated August 16, 1864.

To all whom it may concern:

Be it known that I, AMASA WOOLSON, of Springfield, in the county of Windsor and State of Vermont, have invented a new and useful Improvement in Machinery for Shearing Cloth; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal elevation of the stationary and movable rests of a cloth-shearing machine, with the appliances for producing the automatic extension and contraction, the covering plates being omitted to expose the said appliances to view. Fig. 2 is a plan of the same. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a longitudinal elevation of the same, with the covering-plates in place. Fig. 5 is a side view of one of the inner feelers. Fig. 6 is a side view of a plate attached to the outer feeler on the right of the rest.

Similar letters of reference indicate like parts.

This invention is an improvement upon the invention which constitutes the subject-matter of my Letters Patent dated May 28, 1850.

The improvement relates to the appliances producing the automatic extension and contraction of the movable or flexible rest.

The action of the mechanism for extending the rest is governed by what are termed "feelers," and when these have been applied as described in my aforesaid Letters Patent from twenty to sixty of them have been used in a gang on each side of the machine for the cloth to pass over. There have been two sources of trouble with these feelers, viz: first, the filling up of the spaces between them with flocks and dust from the cloth, which necessitates frequent cleaning; and, second, the liability to breakage of the frames which contain them, owing to the distance between the feelers being too small for a sufficient thickness of those portions of the frame between which the feelers are placed.

The object of my invention is to obviate these inconveniences; and to this end it consists, principally, in a novel mode of applying the feelers and combining them with the sliding bars which shift the movable rests, whereby

two feelers at each side of the machine are made to effect all that has been accomplished with the larger number.

It also consists in a novel mode of combining two feelers on either side of the machine, to make them so operate that the movable rests are kept stationary, except when the edge of the cloth runs uneven.

It further consists in the employment, in combination with the movable rests, of what I call "sliding covers," which cover up all of the mechanism by which the said rests are operated, except portions of the feelers, and which serve to lead the lists of the edges of the cloth to the feelers.

A is the rest-frame, the upper edge, *a*, of which forms the stationary rest. *b b* are the movable or flexible rests, and *c c* and *d d* the sliding bars for shifting the said rests. These parts are all constructed and combined substantially as described in my Letters Patent hereinbefore referred to.

e e are the adjustable gage-bars, slotted at *f f*, and attached to the sliding bars *c c* by screws *g g* in the same manner as those described in my aforesaid Letters Patent; but these gage-bars, instead of having notches in them to be acted upon by the feelers for shifting the movable rests, have the feelers *B B'* themselves attached to them. These feelers—two on each side of the machine—are like those described in my aforesaid Letters Patent, and arranged to vibrate vertically on a pivot, *h*, secured in a plate, *h'*, which is attached rigidly to their respective gage-bar.

Figs. 1 and 2 of the drawings represent, in connection with the two movable rests, two different modes in which the feelers are made to govern the extension and contraction of the rest. As I prefer that represented on the right-hand side, on account of its simplicity, I will proceed to describe it. The inner feeler, *B*—that is to say, the one which first comes in contact with the edge of the cloth—has cut in it a short concentric curved slot, *i'*, as shown in Fig. 4, and dotted in Fig. 3, for the reception of a pin, *i*, which is secured to the inner side of the outer feeler, *B'*. The catch-plate *h'* has formed upon it two catches, *j'* and *j''*, one to enter the ratchet-like notches *k'* in the upper edge of a horizontal bar, *D*, which is attached to a slide, *E*, working in suitable guides *l l* at the back of and parallel with the rest-

frame, and the other to enter the similar but reversed notches k^2 in the lower edge of the said bar D. The slide E has secured to it a tongue, E' , which enters the groove of a cam, G, which is fast on a horizontal shaft, H, arranged in suitable bearings attached to the bottom of the rest-frame. This shaft has imparted to it a rotary motion from any suitable shaft of the shearing-machine, and the cam is thereby caused to produce a regular short reciprocating motion of the slide E and notched bar D. Any other means of producing this reciprocating motion may be used. When the edge of the cloth does not reach the outer feeler, B' , the two feelers rest on the lower part of the frame A, the pin i is at the top of the slot i' , and the lower catch, j^2 , is within range of the notches k^2 in the lower edge of the notched bar D, so that in the outward movement of the said bar with the slide E one of the said notches will pass the said catch, and the return or inward movement of the slide will cause the notched bar to draw the catch-plate, the feelers, the gage-bar, and the sliding bars $c d$ inward, and thereby cause the contraction of the rest. This operation is repeated, if required, with every inward movement of the notched bar, until the inner feeler comes within range of the list of the cloth, when the cloth, passing over and in contact with the said feeler, lifts it up and brings its upper edge in contact with the plate h' , causing the pin i to move up in the slot i' , and thus lift the catch-plate and outer feeler high enough to bring the catch j^2 out of range of the notched bar, but not high enough to bring the upper catch, j , within range thereof, and the movable rest remains stationary. In case of the cloth running off the feeler B again the said feeler drops, and with it the catch-plate, thereby bringing the catch j^2 again within range of the notched bar, causing the feeler B to be lifted, and causing the contraction of the rest, as before described; but in case of the cloth becoming wider, or its edge varying outward so that its edge runs over the outer feeler, B' , the cloth passing over the latter feeler raises it and the catch-plate j still higher than they have been raised by the action of the inner feeler and until the upper catch, j' , enters one of the upper notches, k' , of the bar D, so that it is pushed outward by the next movement of the bar, carrying with it the gage-bar and sliding bars $c d$, and thereby extending the rest. This operation is repeated, if required, with every outward movement of the notch until the outer feeler works clear of the cloth and leaves it upon the inner one, when the rest becomes stationary.

I will now proceed to describe the other mode by which the feelers B B' govern the extension and contraction of the rest, and which is illustrated at the left-hand side of Figs. 1 and 2. These feelers are applied and combined in precisely the same manner as those at the right-hand side but the pin i is much longer, so that it extends some distance through the inner feeler, B, for the purpose to be presently

explained, and the plate j^0 , which is attached to the feeler B' , unlike the plate j , is made without catches, as it is only required to keep the feelers apart and carry the pin i . The plate h' , to which the said feelers are attached, has rigidly connected with it a horizontal ratchet-plate, I, which slides on the lower part of the rest-frame A, and on the upper surface of which there are two parallel ratchets, m and m' , arranged at some distance apart, as shown in Fig. 2, the said ratchets being set in opposite directions. Attached to the reciprocating slide E or its equivalent, deriving motion from the cam G or other suitable means, is a double-headed reciprocating pawl, J, the head n of which lies on the ratchet-plate. One side of this head is formed to fit the inner ratchet, m , and the other side to fit the outer ratchet, m' ; but the space between the ratchets is wide enough to allow the head n to work between the two ratchets without gearing in either. Above the pawl J there is arranged a hanging guide, K, composed of a thin piece of steel plate, straight for the greater portion of its length, but bent at a right angle at its outer end, as shown at p , in Figs. 1 and 2. This guide is hung on two pivots, $q q$, arranged in a line parallel with the fixed portion of the rest and supported by two small standards, $q' q'$, secured to the bottom of the rest-frame A. The straight lower edge of this plate enters a notch in the back of the head n of the pawl J and forms a guide to the said head. The pin i enters a slot in the bent outer end of the said plate. The pawl J has a spring, r , (see Fig. 2,) applied to its inner side, which exerts an outward pressure which tends to press the guide K outward and make it bring the head of the pawl into gear with the outer ratchet, m' , at the same time making it, by its action upon the pin i , hold down the feeler B' . When the edge of the cloth covers the feeler B, but not B' , and the first-mentioned feeler is raised up with its upper edge against the plate h' , the pin i presses back the hanging guide K to such a position that it causes the head n of the pawl J to work between the ratchets $m m'$, leaving the movable rest on that side of the machine stationary. In case of the edge of the cloth running off the feeler B and letting it drop, the pawl J is pressed outward by the spring r and caused to engage in the ratchet m' , and the reciprocating movement of the pawl is then caused to draw in the ratchet-plate, the feelers, the gage-bar, and the sliding bars $c d$, and so contract the rest until the inner feeler comes back under the edge, when the said feeler is again raised and the pawl moved back to its position between the two ratchets $m m'$; or, in case the edge of the cloth running over the outer feeler, B' , and lifting it up, as before described, with reference to the right-hand side of the rest, the pin i is caused to press back the hanging guide K and make it press back the pawl into gear with the ratchet m , and the ratchet-bar, feelers, gage-bar, and sliding bars $c d$ are thereby

moved outward and the rest extended until the outer feeler passes from under the edge of the cloth, when the pawl is brought back to its position between the ratchets. A single feeler might be used at each side of the rest, instead of two combined, as described, but this would be liable to the objection that the movable portions of the rest would never be perfectly stationary, and an unnecessary wear of the flexible or movable rests and their appliances would be the result.

L is a stationary cover, and M M two sliding covers, consisting of thin steel plates of suitable form in their transverse section, to enable them to fit between the bottom of the rest-frame A and the back of the rest and cover in all of the rest shifting mechanism but the toothed portions of the feelers. These plates present smooth surfaces for the cloth to pass easily over on its way to the edge of the rest. The sliding covers M are inserted under the ends of the stationary cover L, which always laps closely over a portion of them. They are made with slots *t t*, to allow the feelers to protrude far enough to catch in

the cloth as it passes over them, and they are attached by pins *u* to the plates *h'*, so that they slide in and out under the stationary plate as the feelers move in and out, and the contraction and extension of the movable rests are produced. The sliding covers M M lead the lists or edges of the cloth to the feelers.

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

1. The attachment of the feelers to the gage bars *e e* or their equivalents, substantially as and for the purpose herein specified.

2. The two feelers B B', combined with each other by means of a slot, *i'*, and pin *i*, and combined with the mechanism by which the shifting of the movable rests is effected by means of a double ratchet, or its equivalent, substantially as herein specified.

3. The sliding cover M M', applied in combination with the feelers and rests, substantially as and for the purpose herein specified.

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