

(No Model.)

3 Sheets—Sheet 1.

J. W. HOLT & A. McQUILLAN.  
MACHINE FOR BURRING AND SPECKING CLOTH.

No. 376,440.

Patented Jan. 17, 1888.

Fig. 1.

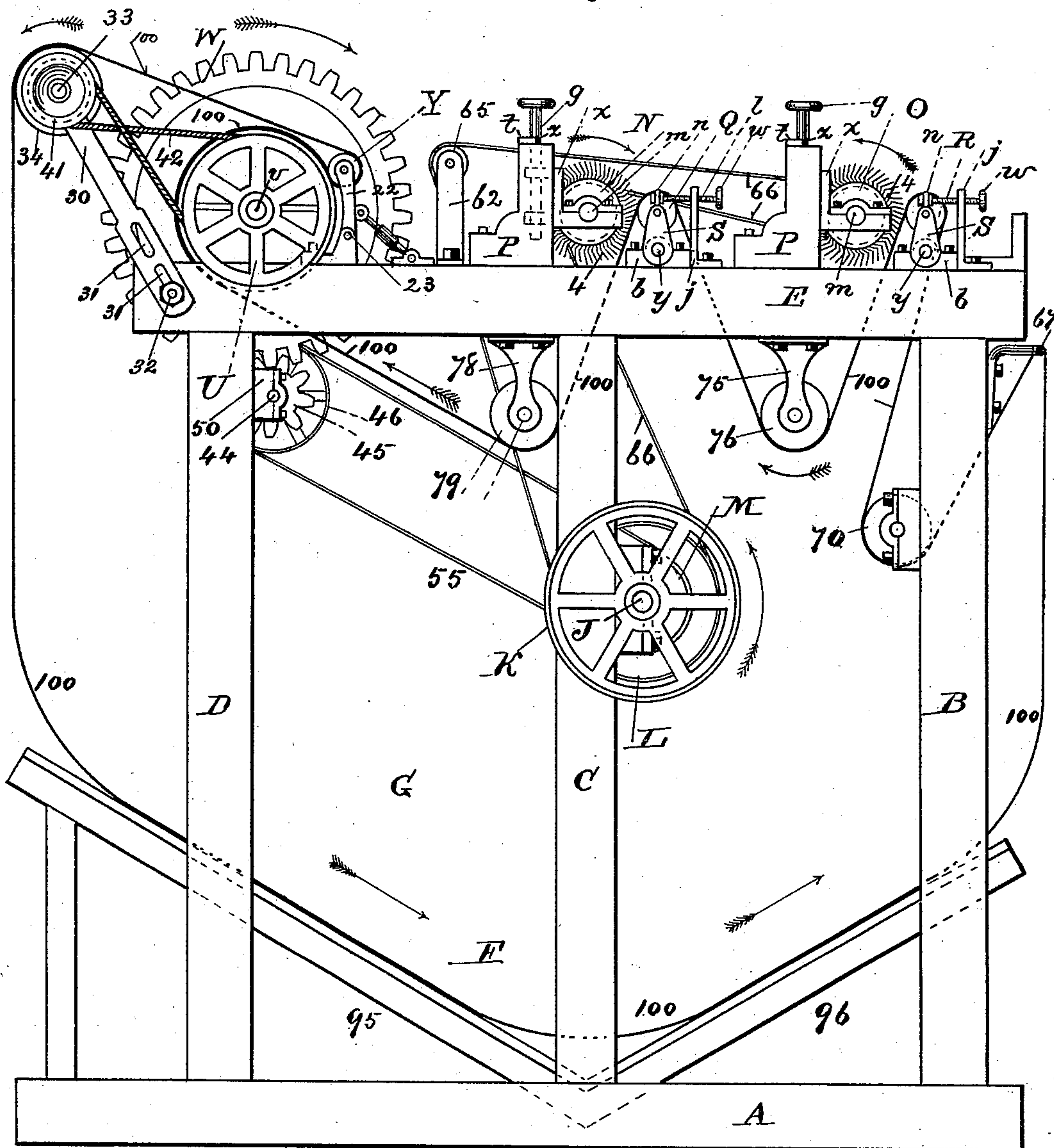
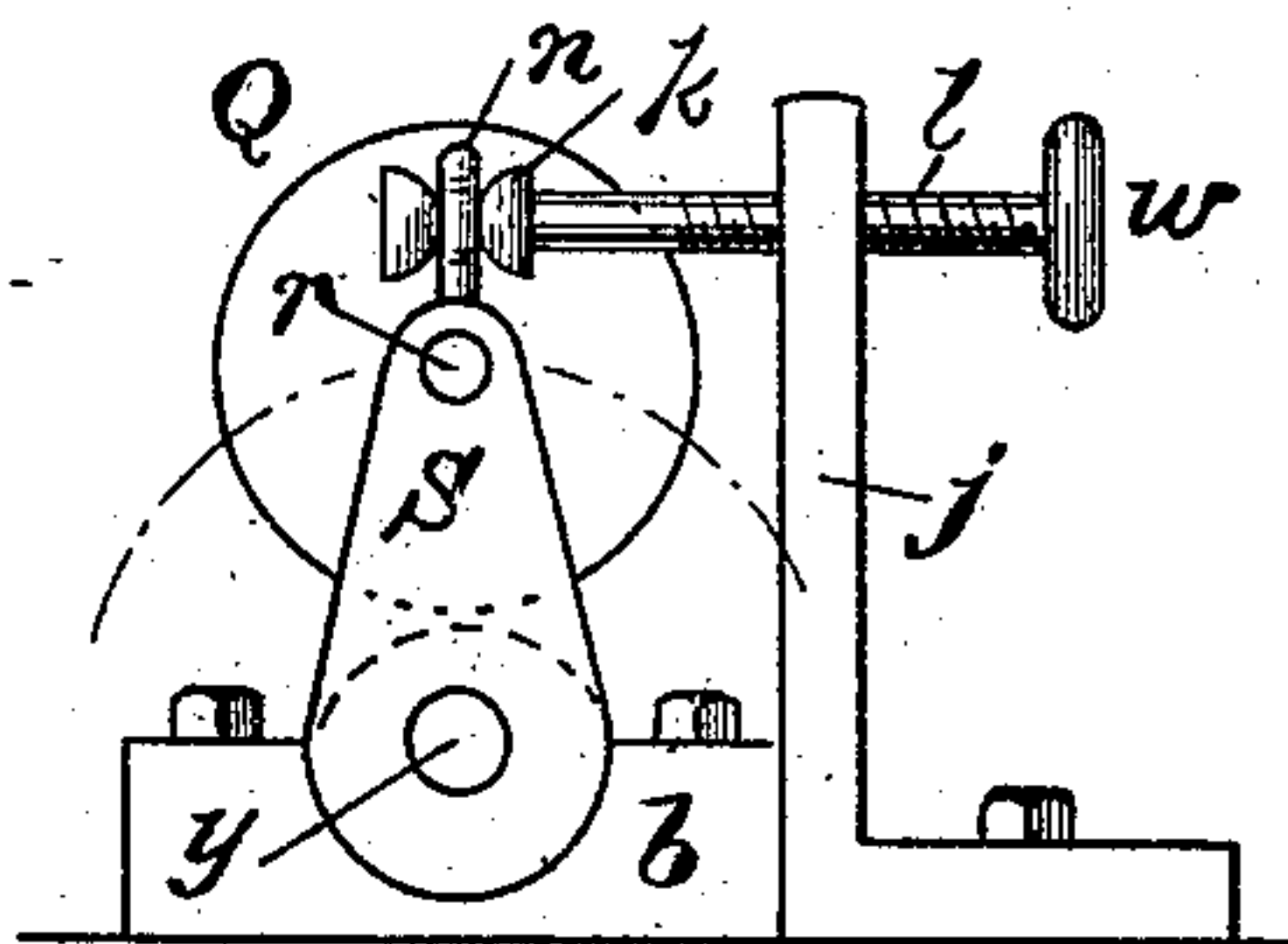


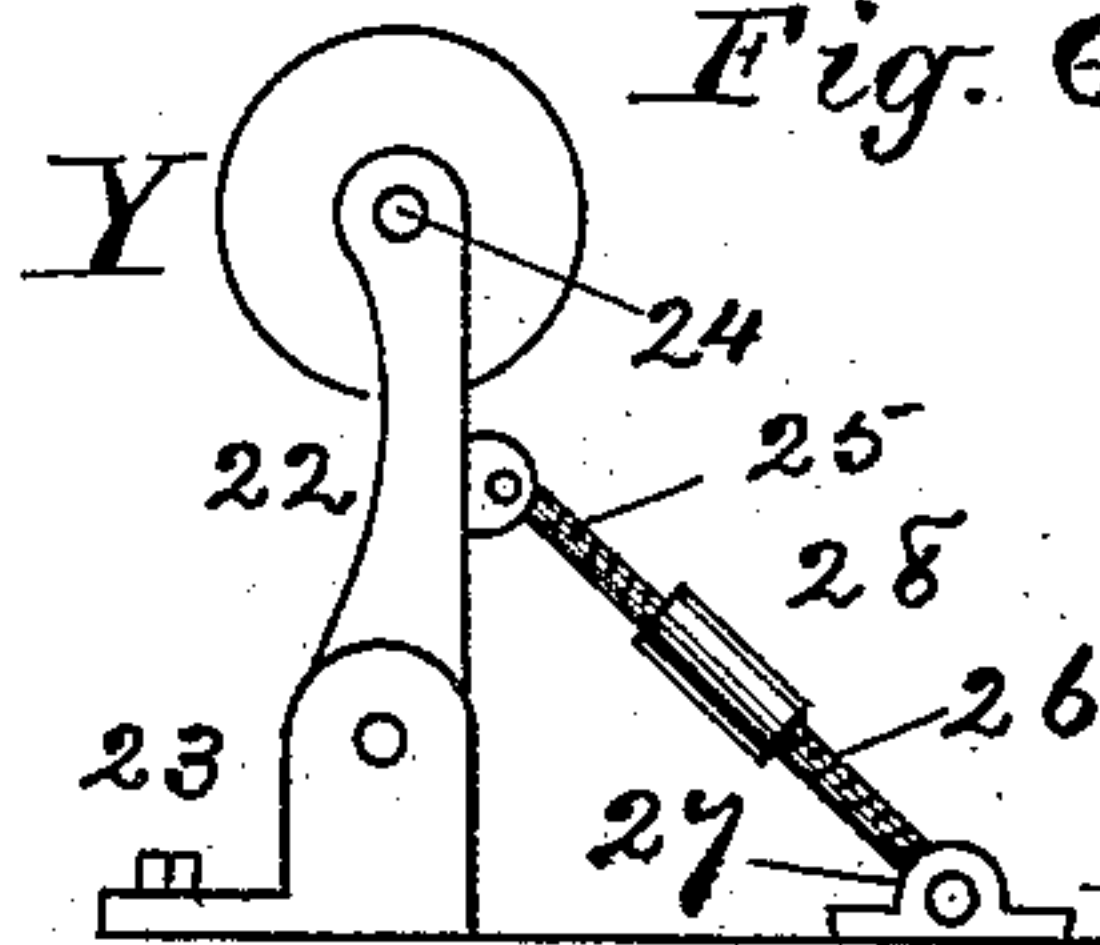
Fig. 2.



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C. L. Sawyer.

Fig. 6.



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Fig. 3.

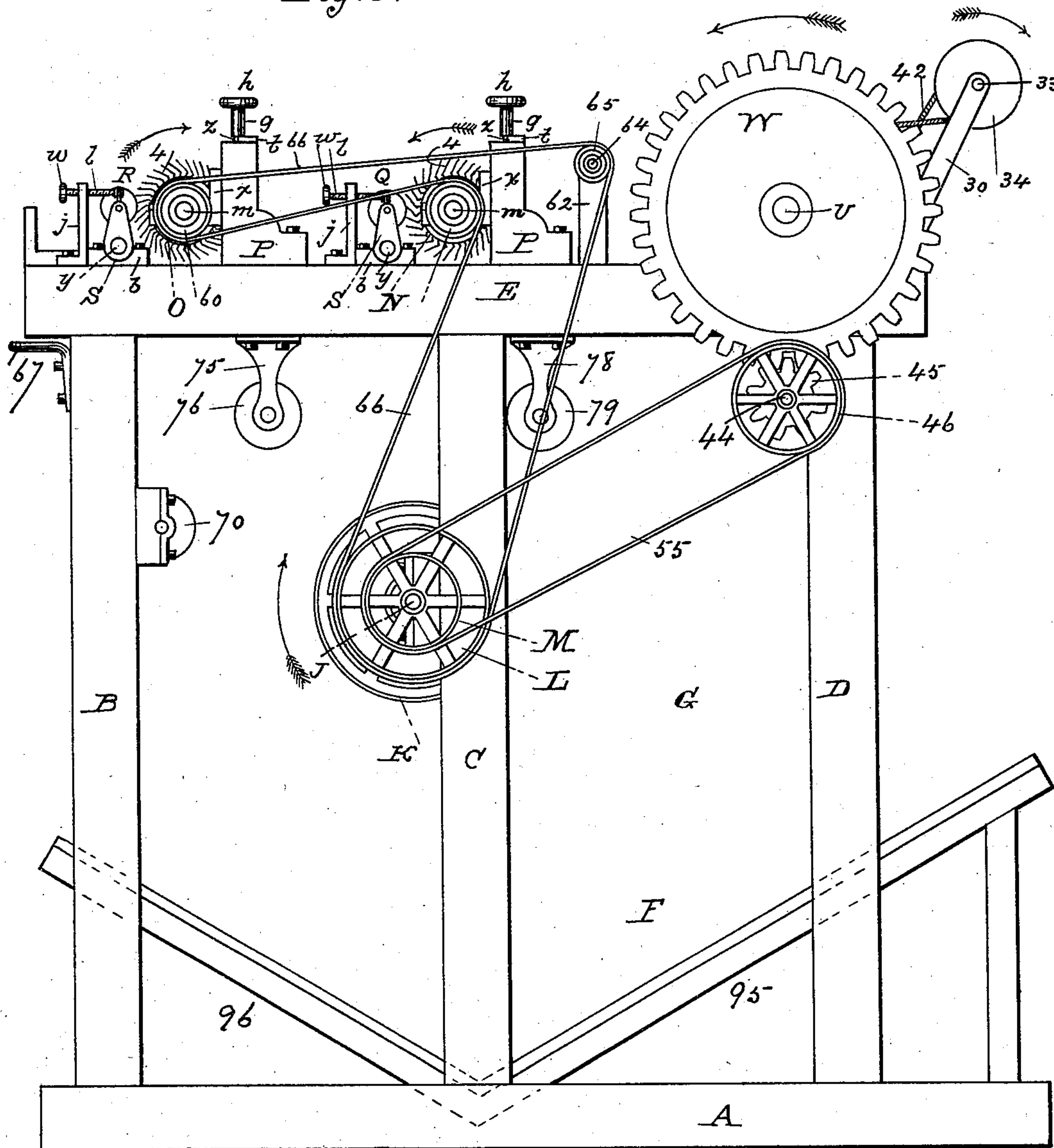
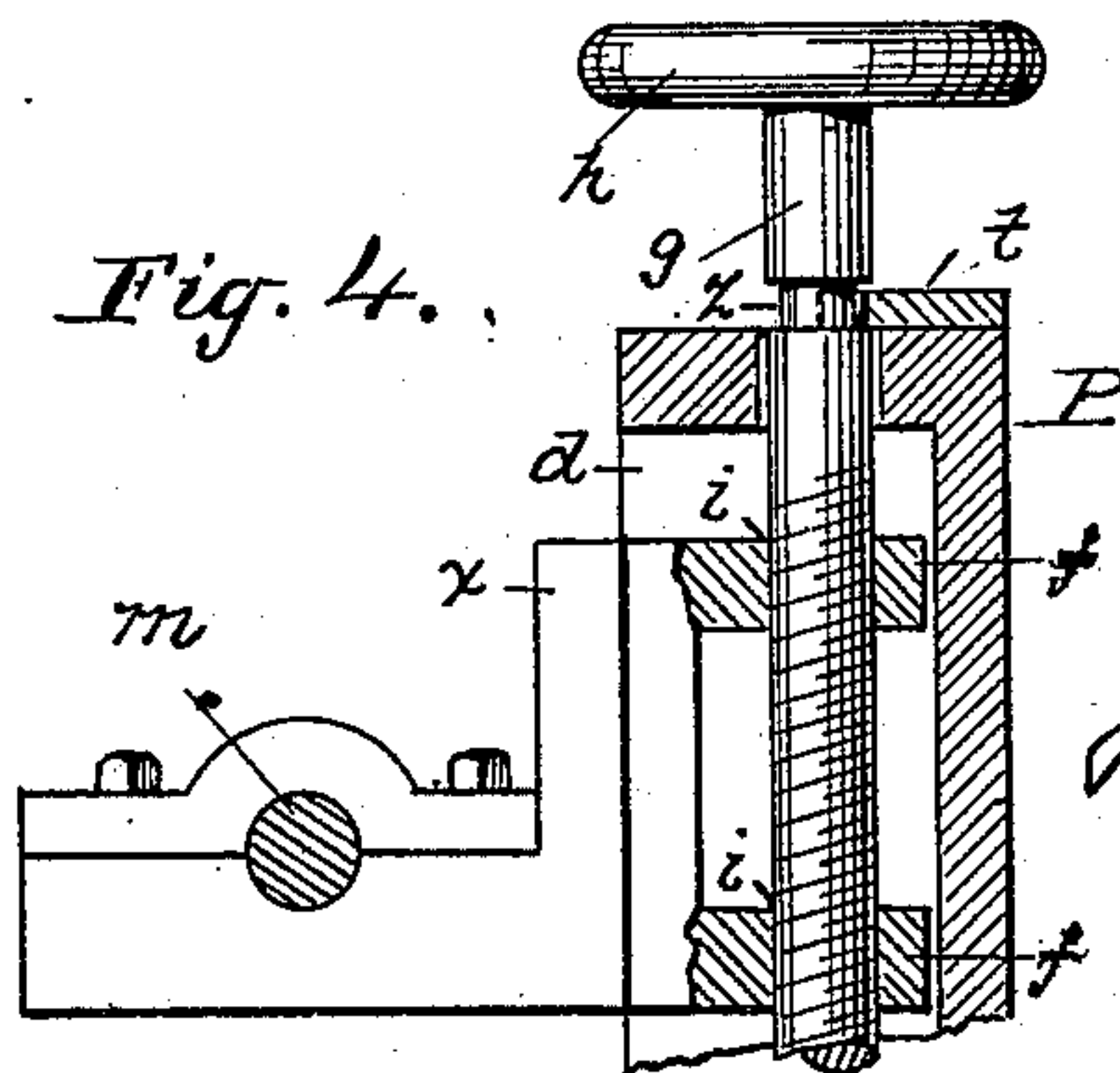


Fig. 4.



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3 Sheets—Sheet 3.

No. 376,440.

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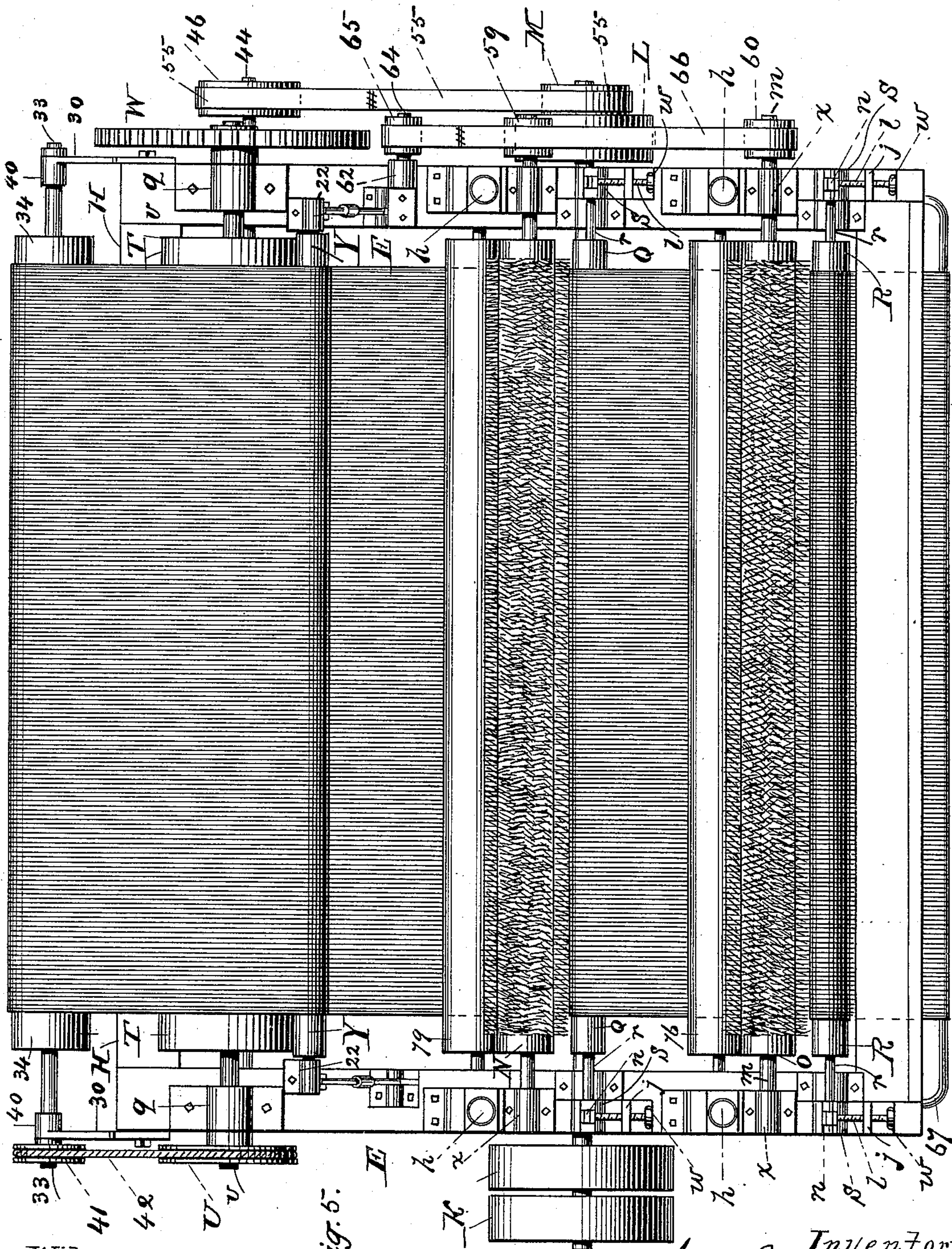


Fig 5:

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# UNITED STATES PATENT OFFICE.

JAMES W. HOLT AND ARTHUR McQUILLAN, OF SKOWHEGAN, MAINE.

## MACHINE FOR BURRING AND SPECKING CLOTH.

SPECIFICATION forming part of Letters Patent No. 376,440, dated January 17, 1888.

Application filed May 2, 1887. Serial No. 236,771. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES W. HOLT and ARTHUR McQUILLAN, both of Skowhegan, in the county of Somerset, State of Maine, have  
5 invented a certain new and useful Improvement in Machines for Burring and Specking Cloth, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which  
10 said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of our improved  
15 machine, represented with the cloth inserted, being a view of the side opposite that shown in Fig. 3; Fig. 2, an enlarged side elevation showing the construction of the adjusting devices for the feed-rolls detached; Fig. 3, a  
20 side elevation of the machine, represented with the cloth removed, being a view of the side opposite that shown in Fig. 1; Fig. 4, an enlarged sectional view of a detail, showing the construction of the adjusting devices for the  
25 bearings of the brushes; Fig. 5, a top plan view of the machine, represented as in use, or with the cloth inserted; and Fig. 6, an enlarged side elevation showing the construction of the adjusting mechanism for the presser-  
30 roll.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates to the class of mechanism employed for removing burrs, "specks,"  
35 and other extraneous substances from woolen fabrics after they are taken from the loom and prior to shearing; and it consists in a novel construction and arrangement of parts, as  
40 hereinafter more fully set forth and claimed, by which a more effective and otherwise desirable device of this character is produced than is now in ordinary use.

In the manufacture of woolen fabrics it is  
45 well known that it is necessary to remove the burrs, specks, and other protuberances from the surface of the cloth before shearing it, this being usually accomplished by means of tweezers or "nippers," operated by hand, the  
50 entire web being passed slowly and intermittently over a table in front of the workman and one burr or speck removed at a time.

There are, however, several objections to the use of tweezers for this purpose, among which may be mentioned the great length of time 55 required to perform the work, the liability of the workman to miss burrs, thus causing "outs" or imperfections in the cloth when it is sheared, and the injury caused to the fabric by forcibly extracting the burrs, &c., one or 60 more threads being sometimes broken in the careless performance of the operation.

Our improvement is designed to obviate these and other objections, and to that end we make use of means which will be readily 65 understood by all conversant with such matters from the following explanation:

In the drawings, A A represent the sills; B B, the front posts; C C, the central posts; D D, the rear posts; E E, the top rails, and H H 70 the girders or upper cross-ties, these and other cross-ties or girders (not shown) nearer the bottom of the machine being all properly connected and constituting, when considered as a whole, the body or main frame-work G of 75 the machine.

Journaled horizontally on the standards C C there is a main driving-shaft, J, provided at one end with fast and loose pulleys K and at the other with a large pulley, L, and small 80 pulley M. A centrally-disposed cylindrical brush, N, is journaled horizontally in adjustable bearings supported in standards attached to the top rails, E, nearly over the posts C, a corresponding brush, O, being journaled in 85 like manner in adjustable bearings supported in standards attached to said rails at the front of the machine near the post B. The brushes N O are arranged parallel with each other, being respectively supported on shafts *m*, 90 mounted in vertically-adjustable boxes or bearings *x*.

The construction of the boxes *x* and means for rendering them adjustable, as described, is shown in Fig. 4, in which P is the supporting-standard, *x* the box, and *m* the brush shaft 95 or journal. The standard is provided with a lateral slot, *d*, and fitted to work vertically in said slot there are two arms, *f*, which project horizontally from the box *x*, said arms being 100 provided with corresponding screw-threaded holes, *i*. A rod, *g*, provided with a hand-wheel, *h*, at its upper end, is journaled vertically in the standard P, said rod being exte-



riorly screw-threaded to fit the screw-threaded holes *i* of the arms *f*, in which it works. An annular groove, *z*, is cut in the rod above the top of the standard *P*, into which a locking-plate, *t*, extends to prevent said rod from being withdrawn from its bearings when turned by the wheel *h*.

From the foregoing it will be obvious that when the rod *g* is revolved to the right or left the box *x* and shaft *m* will be raised or lowered, as the case may be, and the brush adjusted accordingly.

It will be understood that each brush is provided with two of the boxes *x*, one at each end, and that the boxes are respectively mounted in standards *P*, secured to the top rails, *E*, and rendered adjustable therein, substantially as shown and described.

A feed-roll, *Q*, is journaled horizontally in laterally-adjustable arms *S*, mounted on the top rails, *E*, in front of the brush *N*, said roll being arranged parallel with said brush and adapted to work in connection therewith; but instead of said roll a smooth bar rigidly attached to the arms may be employed, if preferred. The method of mounting and rendering said roll adjustable is shown in Fig. 2, in which *j* is a bracket secured to the top rail, *E*, (see Fig. 1,) and *l* a screw provided with a hand-wheel, *w*, mounted in said bracket. A block, *b*, is secured to the top rail, *E*, to which the lower end of the arm *S* is pivoted, as shown at *y*, the shaft *r* of the roll *Q* being journaled in the upper end of said arm. Projecting upwardly from the top of the arm *S* there is a bifurcated stud, *n*, and formed on the outer end of the screw *l* there is a neck, *k*, which is fitted to work in the slot or "forks" in said stud, thereby enabling the screw to be turned in either direction without being withdrawn therefrom.

It will be understood that the shaft or journal *r* at each end of the roll *Q* is mounted in a pivoted arm, *S*, provided with a screw, *l*, and hence it will be obvious that said roll may be readily adjusted with reference to the brush *N* by simply turning the screws *l* in or out, as required.

The brush *O* being provided at its front side with a feed-roll, *R*, which is mounted and rendered adjustable in substantially the same manner as the roll *Q*, it is not deemed essential to more fully describe the same. A smooth bar rigidly secured to the arms *S* may also be used in place of the feed-roll *R*, if preferred.

Journaled horizontally in boxes *g* on the top rails, *E*, at the rear of the machine there is a draft roll, *T*, its shaft *v* being extended beyond said rails and provided at one end with a pulley, *U*, and at the other with a large gear, *W*. A presser-roll, *Y*, is journaled horizontally in front of the draft-roll *T*, being so mounted as to be laterally adjustable with reference to the draft-roll. In place of the presser-roll a smooth bar rigidly secured to the arms 22 may be employed, if preferred.

The method of mounting the presser roll

and rendering it adjustable is best shown in Fig. 6, in which 22 represents an arm which is pivoted at its lower end to a bracket, 23, on the top rail, *E*, one end of the shaft 24 of the roll *Y* being journaled in the upper end of said arm. A right-hand screw, 25, has one of its ends jointed to the arm 22, a left-hand screw, 26, being jointed in like manner to a plate, 27, on the top rail, *E*, the free ends of said screws being inserted in a correspondingly-threaded nut, 28, and by turning the nut to the right or left the pressure of the roll *Y* on the draft-roll (or cloth between the rolls *T* and *Y*) may be varied as desired.

It will be understood that each end of the presser-roll *Y* is mounted as shown in Fig. 6, and that its ends are to be moved toward or away from the draft-roll *T*, as the case may be, in unison, or so as to cause a uniform pressure throughout its length on the periphery of the roll *T*, or on the cloth between the rolls *T* and *Y*.

An arm, 30, projects upwardly from each of the top rails, *E*, at the rear of the roll *T*, said arms being made adjustable by slots 31 and nuts and bolts 32.

Journaled horizontally in bearings 40 at the outer end of the arms 30 on a shaft, 33, there is a delivery-roll, 34, for receiving the cloth from the presser-roll *Y* and delivering it to the hopper, as hereinafter described, said shaft being provided at one end with a pulley, 41, which is connected with the pulley *U* by a crossed belt, 42.

A stub shaft, 44, is secured by a bracket, 50, to one of the posts *D*, and mounted on said shaft there is a pinion or small gear, 45, and pulley 46, which are rigidly attached to each other, the pinion 45 intermeshing with the gear *W*, and the pulley 46 being connected to the small pulley *M* on the main shaft *J* by the belt 55.

The shaft *m* of the brush *N* is provided at one end with a pulley, 59, the shaft *m* of the brush *O* being also provided at one end with a corresponding pulley, 60.

A vertically-arranged bracket, 62, is mounted on one of the top rails, *E*, said bracket being provided at its upper end with a horizontally-arranged stub-shaft, 64, on which a guide-pulley, 65, is mounted.

An endless belt, 66, connects the pulley *L* on the shaft *J*, pulley 59 on the brush *N*, pulley 60 on the brush *O*, and guide-pulley 65 on the shaft 64, as best seen in Fig. 3.

A horizontally-arranged guide-bar, 67, is secured to the outer faces of the posts *B* at the front of the machine, and journaled horizontally on the inner faces of said posts there is a guide-roll, 70.

Suspended from each of the top rails, *E*, midway between the posts *B* and *C* there is a hanger, 75, and journaled horizontally in said hangers there is a guide-roll, 76. A corresponding pair of hangers, 78, are suspended from said top rails between the posts *C* and *D*, near the posts *C*, and journaled horizontally.



in said last-named hangers there is a guide-roll, 79.

A hopper or receptacle, F, is disposed in the lower portion of the frame-work or body G of the machine, the sides 95 and 96 of said hopper being inclined downward from the front and rear of the machine and meeting near the center of the sills A, as shown in Figs. 1 and 3. The object of the hopper is to keep the cloth out of contact with the floor, and also to dispose of the "slack" or loose portion of the web between the delivery-roll 34 and guide-bar 67 as it passes beneath the main driving-shaft J through the frame-work of the machine, the web being received on the upper end of the inclined side 95 as it leaves said delivery-roll, and sliding down said side to the center or bottom of the hopper, from whence it is drawn over the guide-bar 67 during the operation of removing the burrs, as hereinafter more fully described.

In the use of our machine the web 100 of cloth to be burred is placed in the hopper F and one of its ends carried upward over the guide-bar 67 at the front of the machine, thence downward beneath the first guide-roll, 70, thence upward over the feed-roll R of the brush O, thence downward beneath the second guide-roll, 76, thence upward over the feed-roll Q of the brush N, thence downward beneath the third guide-roll, 79, thence upward beneath and partially around the draft-roll T, thence under the presser-roll Y, thence over the delivery-roll 34 into the hopper F, where said end is stitched or secured to the opposite end of the web, thereby converting the web into an endless belt. The presser-roll Y is then adjusted by the nuts 28 to exert the requisite pressure on the roll T, or on the web of cloth between the rolls Y and T, and the feed-rolls Q R adjusted to bring the web into proper contact with the brushes, after which power is applied to the main driving-shaft J and the operation of burring and "specking" the cloth performed in a manner which will be readily obvious without a more explicit description.

The brush cylinders or rolls are covered with card-clothing having metallic teeth 4, the wires of the teeth being fine and long, or preferably of about thirty-four gage and three-quarters of an inch in length. The teeth are bent at an obtuse angle near their centers like the teeth of ordinary card-clothing, as shown in Figs. 1 and 3, and the clothing is so arranged on the body or cylinder of the brush that the teeth "drag" over the surface of the web of cloth with a yielding pressure as the brush revolves, instead of hooking into it, as they would if reversed, this arrangement of the teeth having been found to be preferable to any other, as when so arranged they exert sufficient force on the cloth to remove all burrs, specks, &c., without liability of injuring it.

It will be understood, of course, that the

web is to be run through the machine a sufficient number of times to fully perform the work or remove all burrs, specks, &c.; also, that all the working parts of the machine are to be so adjusted and "timed" as to perform their various functions properly.

We do not confine ourselves to the specific device shown for drawing the web of cloth through the machine, or to the use of two brushes, as one or more may be employed, as preferred. Neither do we confine ourselves to the special means shown for adjusting either the feed-rolls or the presser-roll, as any other equivalent means for the same purpose may be respectively employed; nor to the use of a brush the body or cylinder of which is covered with card-clothing, as a cylindrical brush having wire bristles which are not bent may be employed, if desired, although one with bent teeth or bristles is preferable; nor to making the feed-roll for presenting the cloth to the brush adjustable, as the brush may be made adjustable with respect to the feed-roll, if desired, and accomplish substantially the same result; nor to the use of a frame-work or body of any specific construction or form, as any suitable body for supporting the working parts of the machine may be employed; nor to the use of wire bristles, as a brush with ordinary bristles may be employed, although with less satisfactory results.

Having thus explained our invention, what we claim is—

1. The combination of a feed-roll, pivoted arms in which said feed-roll is journaled, stationary brackets adjacent to said arms, and set-screws mounted in said brackets and loosely connected with said arms for oscillating the same to adjust the roll, substantially as described.

2. The combination of the pivoted arms 22, the presser-roll Y, journaled in said arms, the jointed screws 25 and 26, and the nuts 28 on said screws for adjusting said roll, substantially as described.

3. The combination of a cylindrical brush, as O, means for adjusting said brush vertically, a feed-roll, as R, adjacent to said brush, and means for adjusting said feed-roll laterally, whereby said brush and feed-roll may be brought into proper relative positions with respect to each other, substantially as described.

4. The combination of a cylindrical brush, as N, means for vertically adjusting said brush, a cylindrical brush, as O, means for vertically adjusting said brush, feed-rolls, as Q R, adjacent to said brushes, means for adjusting said feed-rolls laterally, the driving-shaft, as J, pulleys L, 65, 59, and 60, and an endless belt, 66, passing over said pulleys, substantially as described.

5. The delivery-roll 34, provided with the pulley 41, in combination with the draft-roll T, provided with gear W, and the pulley U, the presser-roll Y, pinion 45, connected with



the pulley 46, the belt 42, and means for adjusting said presser-roll with respect to the draft-roll, substantially as described.

6. The improved burring and specking machine herein described, the same consisting, essentially, of the frame G, rotary cylindrical brushes N and O, bearings for the shafts of said brushes, means for adjusting said bearings, pulleys 59 and 60 on said shafts, feed-rolls Q and R, disposed adjacent to said brushes, respectively, bearings for the shafts of said feed-rolls, means for adjusting said bearings, a draft-roll, T, provided with the pulley U and gear W, presser-roll Y, bearings

for said presser-roll, means for adjusting said bearings, a delivery-roll, 34, the shaft of which is provided with the pulley 41, a shaft, 44, the pinion 45 on said shaft 44, and the pulley 46, attached to said pinion, the guide-rolls 70, 76, and 79, guide-bar 67, guide-pulley 65, shaft J, pulleys L, M, and K, and belts 42, 55, and 66, said parts being constructed and arranged to operate substantially as set forth.

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Witnesses:

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