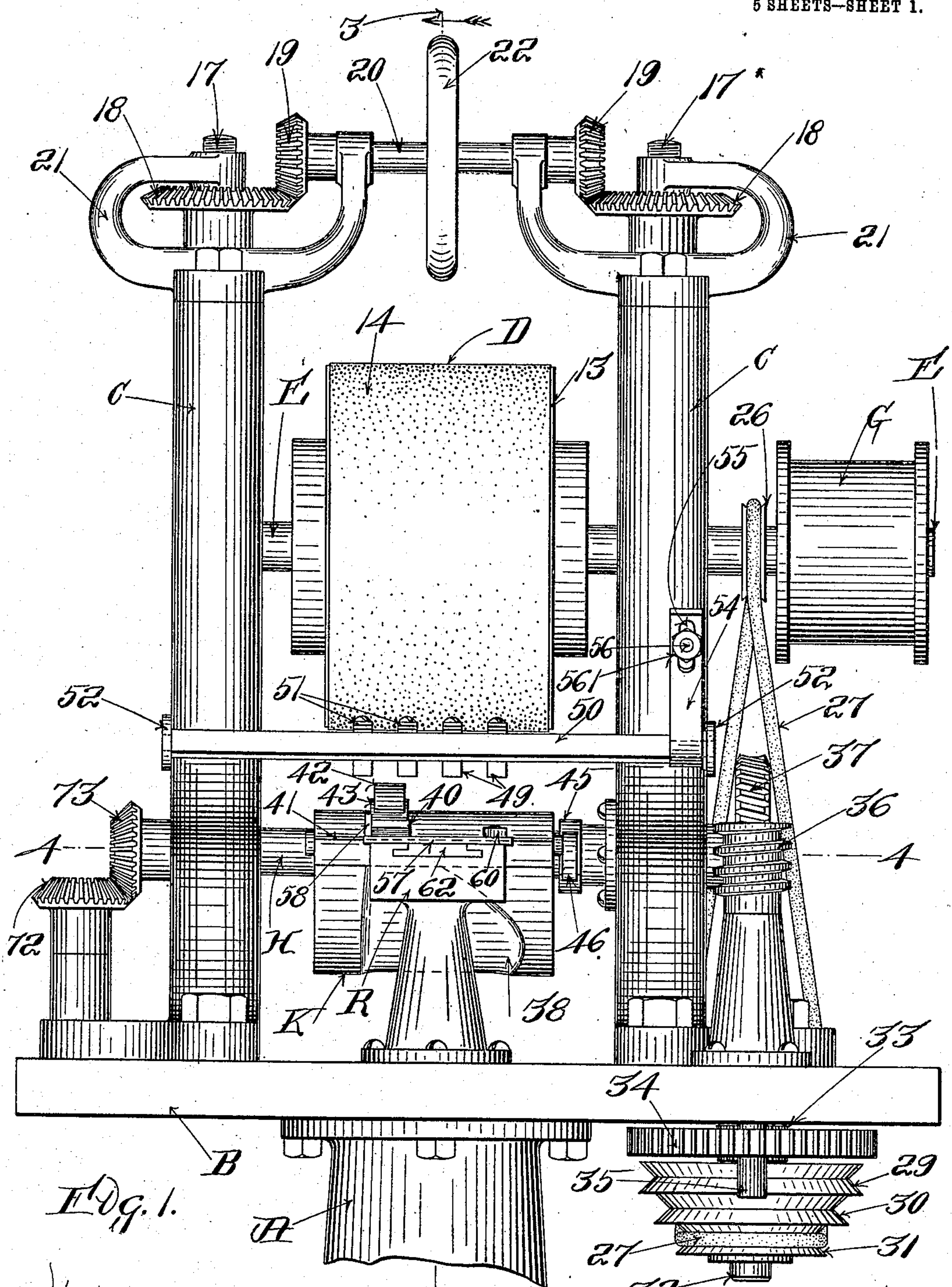


W. A. PARMENTER.
SCOURING MACHINE.
APPLICATION FILED JUNE 19, 1908.

932,638.

Patented Aug. 31, 1909.

5 SHEETS—SHEET 1.



Witnesses:
John T. Parker
R. Wallace

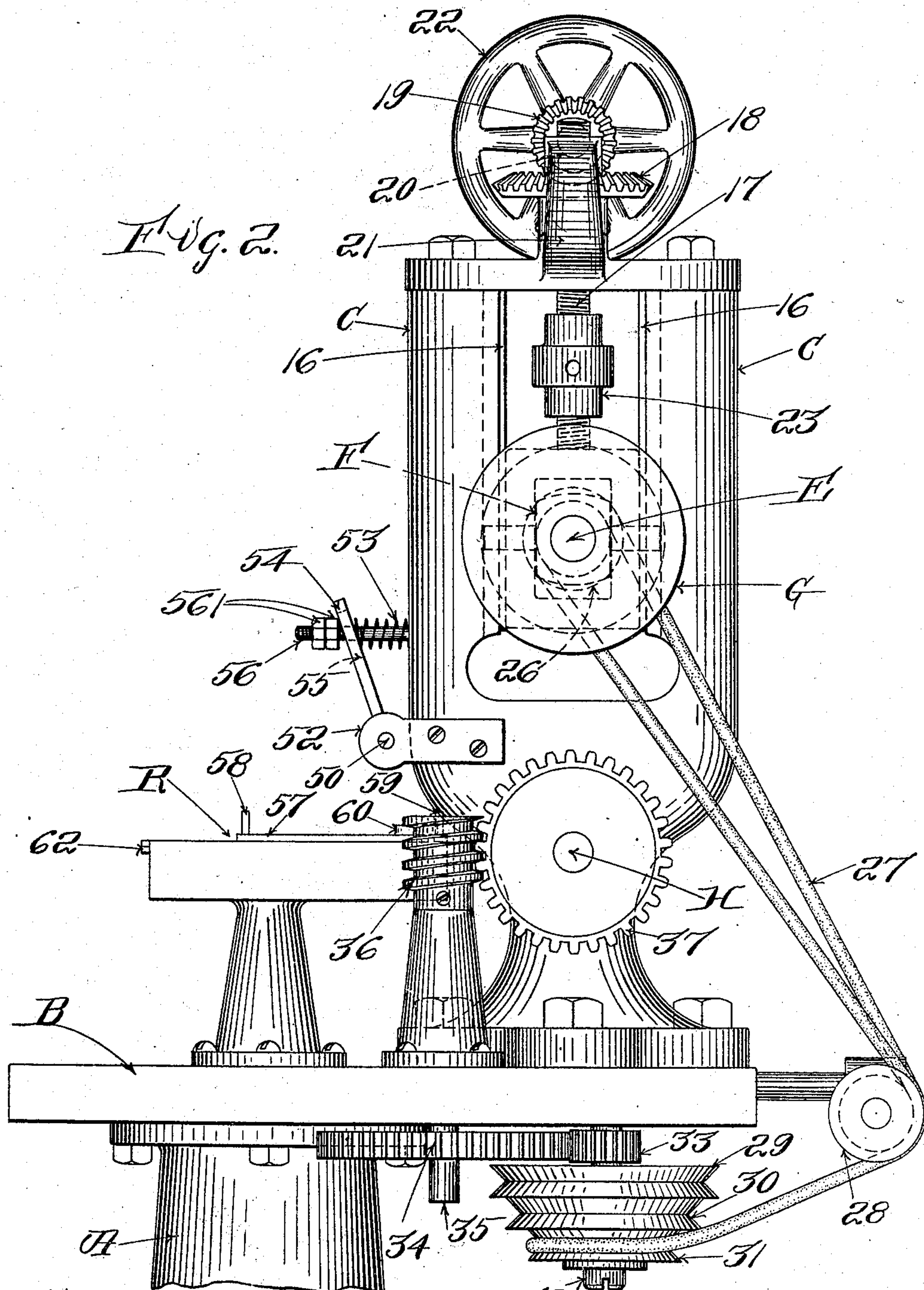
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5 SHEETS—SHEET 2.



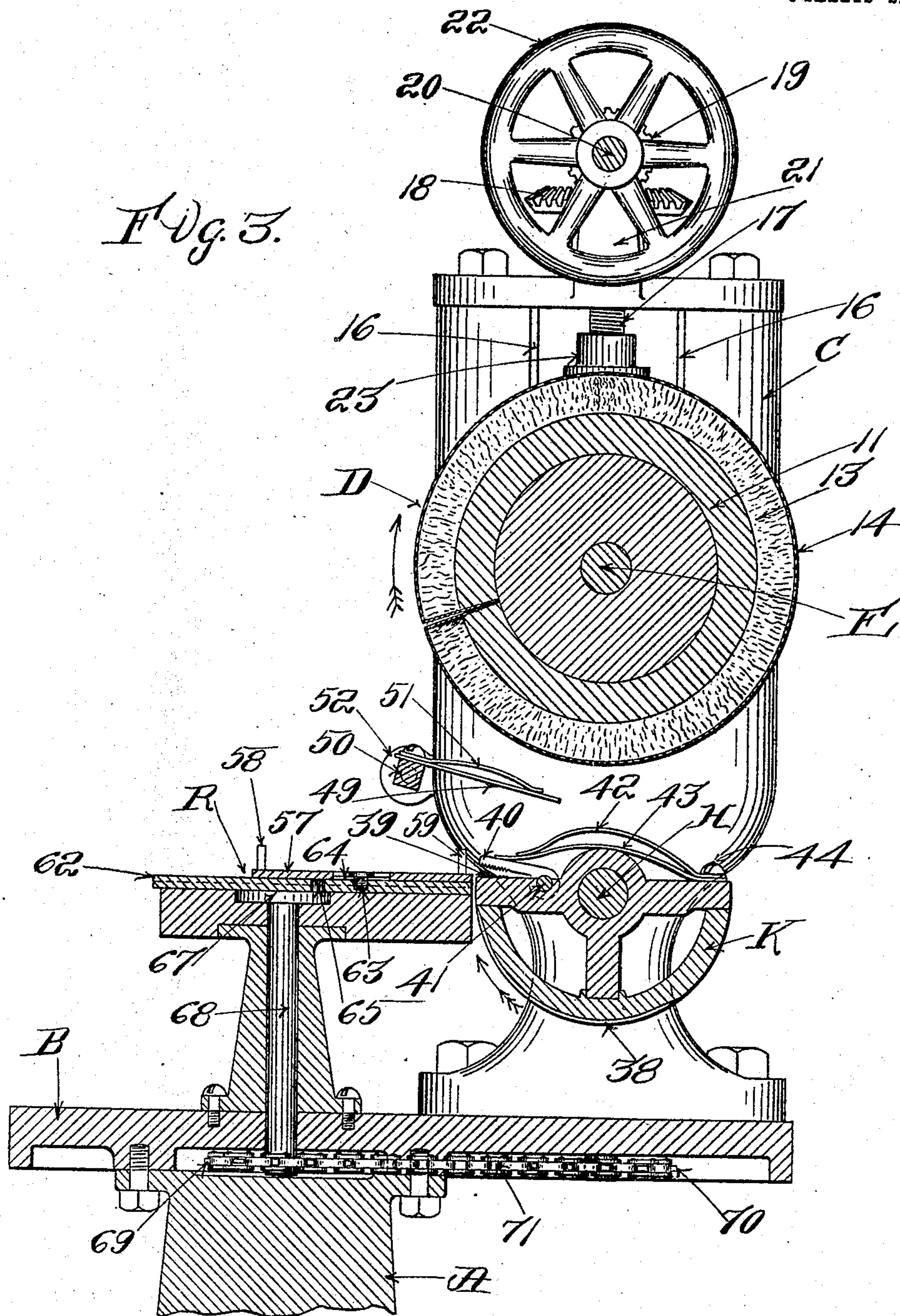
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5 SHEETS—SHEET 5.

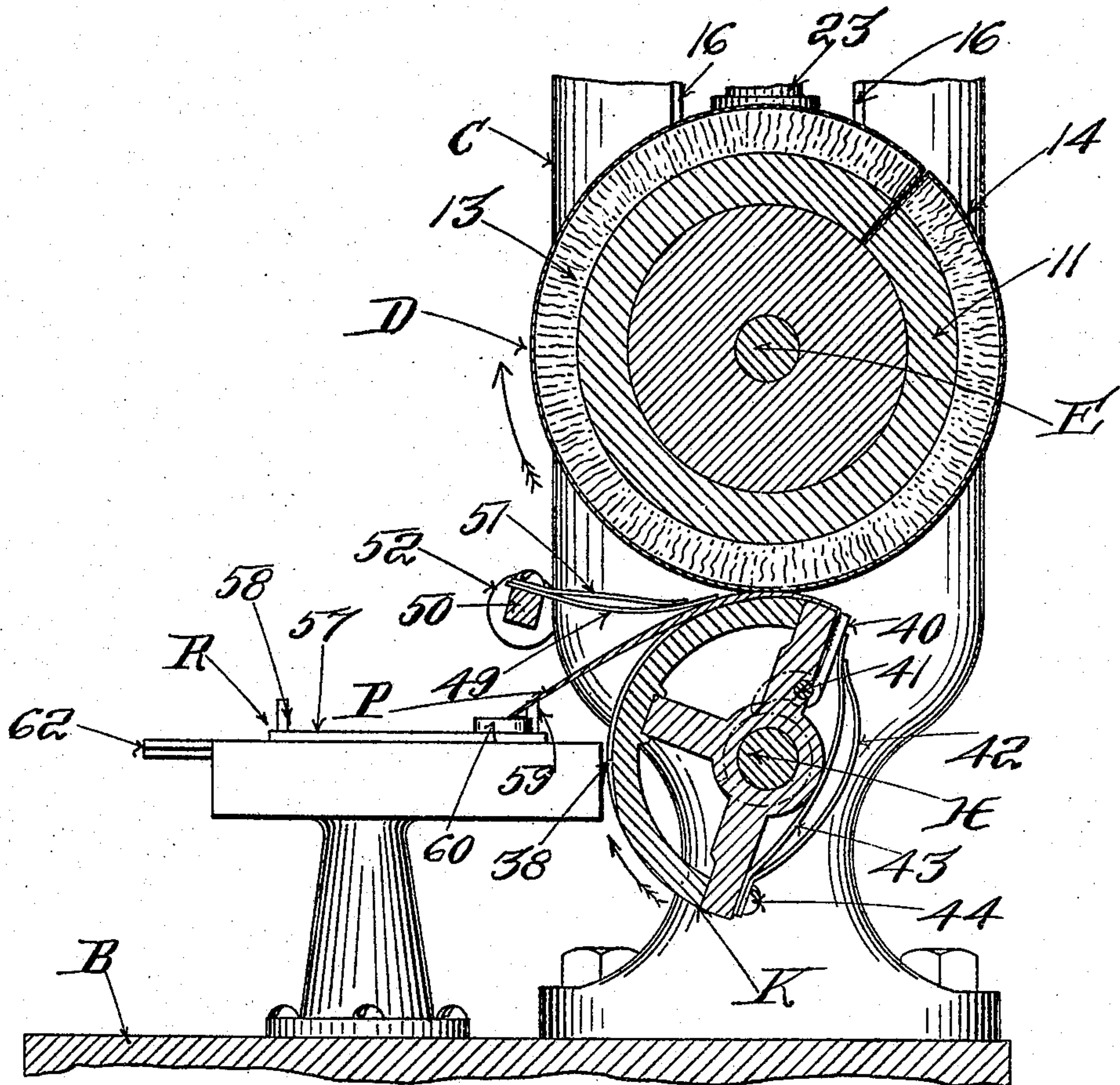


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM A. PARMENTER, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO CHARLES S. PIERCE,
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SCOURING-MACHINE.

932,638.

Specification of Letters Patent.

Patented Aug. 31, 1909.

Application filed June 19, 1908. Serial No. 439,424.

To all whom it may concern:

Be it known that I, WILLIAM A. PARMENTER, citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented a certain new and useful Improvement in Scouring-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object a machine to be employed in the manufacture of boots and shoes to scour both surface and the edges of box-toes and the like.

In the manufacture of shoes, it is desirable that the pieces of leather employed to produce the box-toe be thick in the center and grow gradually thinner toward the edges. The box-toe should be as thin as possible around the edge and at the same time have an even and uniform thickness without an irregular or ragged edge.

Heretofore in the manufacture of shoes it has been customary to pass the blanks from which the box-toes are to be made through a skiving machine which trims the edges of the blank to a required thickness. After being operated upon by the skiving machine, it has been customary to grind the box-toes to the desired thickness at its edge and at the same time scour or smooth all the under surface of the blank by holding the blank against a rapidly revolving abrading or scouring roll commonly covered with sand paper or the like. My present invention affords means by which this operation may be performed mechanically, it being only necessary for the operator to feed the blanks to the machine. By the use of my new and improved machine, box-toes may be scoured more uniformly than has heretofore been possible even by the best operator. The operation is very rapid and a skilled operator is not required so that by the employment of the machine embodying my invention the expense of producing this part of a boot or shoe is very materially reduced.

While I have described my invention as embodied in a machine especially adapted for scouring box-toes, it is equally adapted for the production of any other parts of a boot or shoe, the edge or edges of which require to be thinned or ground down such for instance as the counter or heel stiffener.

The invention will be fully understood from the following description taken in con-

nection with the accompanying drawings, and the novel features are pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a front elevation of a machine embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical section on line 3—3 of Fig. 1 looking in the direction of the arrows. Fig. 4 is a section on line 4—4, Fig. 1, looking down. Fig. 5 is a side elevation partly in section of a portion of the machine, certain of the parts being in a different position. Fig. 6 is a detail of the clamping mechanism.

Referring now to the drawings and more particularly to Figs. 1, 2 and 3, there is seen at A the base or pedestal of the machine, said base or pedestal being of a height convenient to support the various parts of the machine on a level slightly above that of the operator's elbows. On the pedestal A is supported the table B having thereon a pair of uprights C, C, between which are supported the parts of the machine which operate upon the blanks.

At D is shown a scouring roll mounted on the shaft E in boxes F in the said uprights C, C. The outer end of the shaft E is supplied with a pulley G which is driven from any suitable source of power. In practice I find it desirable to rotate the shaft E at a speed of about 2,800 revolutions per minute. The construction of the scouring or sandpaper roll D is clearly seen in Fig. 3. It is provided with some suitable center about which is a layer of felt upon which the sandpaper or other abrasive material is yieldingly supported. The sandpaper 14 is fastened to the said roll by being pinched between the parts of the pulley in the well known manner.

The scouring roll D is adjustable by hand vertically in the following manner:—The boxes F are constructed to slide vertically in the upright C on ways 16 and are moved up and down by means of screws 17 engaging the said boxes F and the upper end of the said screws 17 are furnished with bevel gears 18 meshing with other bevel gears 19 on a cross shaft 20 supported on brackets 21, the said shaft 20 being rotated by a hand wheel 22. As the screws 17 are alike, it will be seen that the rotation of the hand wheel 22 moves both ends of the shaft E up and down uniformly. Provision is made for an inde-

pendent adjustment of the ends of the shaft E by means of the turnbuckles 23, only one of which is shown (see Fig. 2), a portion of the screws 17 which engage the said turnbuckles 23 being screw-threaded in opposite directions.

Beneath the scouring roll D and mounted upon a shaft H, is the matrix K upon which the box-toe or other piece of leather to be operated upon is supported during the scouring operation. The matrix shaft H is caused to rotate in the following manner. On the main shaft E is located a pulley 26 which is preferably narrow and has a V-shaped rim to contain a round belt 27. The belt 27 runs over a pair of adjustable idle pulleys 28 which serve to turn the belt and keep it tight, and then over one of the pulleys 29, 30 and 31 on the vertical stud or shaft 32 supported on the under side of the table B. Fast to the said pulleys 29, 30, 31, and carried on the stud-shaft 32 is a pinion 33 which meshes with a gear 34 on the vertical shaft 35. The upper end of said vertical shaft 35 is provided with a worm 36 meshing with a worm gear 37 on the matrix shaft H. From the foregoing, it will be seen that the matrix shaft H is caused to rotate very slowly as compared with the scouring roll D and that the speed of rotation may be varied in accordance with the size of whichever of the pulleys 29, 30, 31, the belt 27 is running upon. In practice, I find that a speed of from eighteen to thirty revolutions a minute may be given to the matrix K but this speed will be varied according to the size of the box-toe which is being operated upon.

The matrix K is semi-cylindrical (see Figs. 3 and 5) and is provided upon its periphery with a depression or indentation 38 in which the article lies while it is being operated upon. The shape and depth of the depression 38 vary with the size and shape of the article to be scoured. The article to be scoured is held upon the matrix K by means of a pair of jaws, one of which is formed by roughing a portion of the matrix K, as shown at 39, and the other of which is a movable piece 40 pivoted on a rockshaft 41 on the frame of the matrix K. The said movable jaw 40 is normally held close by means of the leaf springs 42, 43, secured at 44 to the matrix K, but the said jaw is opened once for each revolution of the matrix K by means of a cam 45 fastened to the frame of the machine and engaging an arm 46 on the rock shaft 41 on which the movable jaw 40 is pivoted. The opening of the jaw 40 is timed by the position of the cam 45 and occurs as the jaws pass the feed table.

The articles to be scoured are pressed firmly into the depression or indentation 38 in the matrix by means of a series of flexible brushes 49 supported upon a rock shaft 50 and strengthened by means of a leaf spring

51. Said rock shaft 50 is supported in the brackets 52, 52, on the uprights C, and the tension on the flexible brushes 49 is determined by the position of an arm 54 on the rock shaft 50, said arm being slotted as shown at 55 to receive the stud 56. The position of the arm 54 is changed by means of the nuts 561, the spring 562 serving to maintain the arm 54 against the nuts 561.

The piece to be scoured P is fed to the matrix K by means of a reciprocating table R, plainly seen in section in Fig. 3 and in plan in Fig. 4. This table consists of an upper bed plate 57 upon which the work P is placed, having one edge against the studs or stops 58, 59, and another edge against the stop 60 which is adjustable on the screw 61. The said upper bed plate 57 is mounted on the slide 62 and is adjustable thereon by means of the screw 63 movable in the slot 64. The slide 62 is reciprocated by means of a crank pin 65 working in a cam groove 66 in the said slide 62. Said crank pin 65 is carried on a disk 67 on the upper end of a vertical shaft 68 which is caused to rotate once for each rotation of the matrix shaft H by means of two sprocket wheels of equal size 69 and 70, a chain 71, and a pair of miter gears 72, and 73, the last mentioned of said miter gears being on an extension of the matrix shaft H (see Fig. 1). From the foregoing it will be seen that the said table R is given one complete reciprocation for each revolution of the matrix K but that the movement of the table R is slightly retarded at one point by means of the shape of the cam slot 66 in order that the piece P may be presented to the gripping jaws more certainly.

The operation of my machine is exceedingly simple. The sandpaper roll D and the matrix K revolve constantly at the proper speed as previously described and the table R constantly reciprocates for the purpose of presenting the box-toes or other pieces to be operated upon to the jaws of the matrix roll. The operator places the box-toe in its proper position as determined by the stops on the reciprocating table R, retaining it in position by the pressure of his fingers until it is caught by the jaws on the matrix. When in position on the reciprocating table R, its front end projects over the end of said table as shown in Fig. 4. By the forward movement of the table the projecting end of the piece P is carried between the jaws on the matrix which thereupon seize it and carry it around with the matrix during one revolution thereof. As the matrix revolves, the brushes 49 crowd the piece of leather P into the indentation 38 in the matrix so that it is properly presented to the scouring wheel D. The scouring wheel D thereupon scours the leather, thinning the edges and smoothing the surface as desired, taking off all parts of

the leather which lie above the level of the matrix. Just before the matrix completes its revolution, the jaws are opened by the action of the cam 45 so that the box-toe P is dropped and the machine is in position to operate upon another piece.

What I claim is:—

1. In a machine of the character described, the combination of a scouring roll, a matrix having a semi-cylindrical exterior surface with an indentation therein to receive the work, and having a flattened side, the edge of said flattened side forming a jaw, and a movable jaw pivoted on said flattened side and coöperating with said first mentioned jaw to hold the work.

2. In a machine of the character described, the combination of a scouring roll, a matrix having a semi-cylindrical exterior surface with an indentation therein to receive the work and having a flattened side the edge of which forms a jaw, a movable jaw pivoted on said flattened side and coöperating with said first mentioned jaw to hold the work, and a spring acting on said movable jaw to close the said jaw upon the work.

3. In a machine of the character described, the combination of a scouring roll, a matrix having a semi-cylindrical exterior surface with an indentation therein to receive the work and having a flattened side the edge of which forms a jaw, a movable jaw pivoted on said flattened side and coöperating with said first mentioned jaw to hold the work, a spring to hold said movable jaw normally closed, and means to open said jaws at pre-determined intervals.

4. In a machine of the character described, the combination of a scouring roll, a matrix having a semi-cylindrical exterior surface with an indentation therein to receive the work, and having a flattened side, the edge of said flattened side forming a jaw, a movable jaw pivoted on said flattened side and coöperating with said first mentioned jaw to hold the work, and a yielding brush to press the work into the indentation in the matrix just before it is operated upon by the scouring roll.

5. In a machine of the character described, the combination with the scouring roll and rotating matrix having a fixed jaw thereon, of a movable jaw pivoted on the said matrix, a spring engaging the said movable jaw and normally holding it closed and a cam on a fixed part of the machine operating to move

the said movable jaw against the action of the said spring during a portion of the revolution of the matrix.

6. In a machine of the character described, the combination of a scouring roll, a rotating matrix, jaws on the said matrix to hold the work, and feeding mechanism to insert the work between the said jaws at the proper time.

7. In a machine of the character described, the combination of a scouring roll, a matrix having jaws thereon to hold the work, and a reciprocating table to present the work to the said jaws.

8. In a machine of the character described, the combination of a scouring roll, a rotating matrix having jaws thereon to hold the work, and a reciprocating table to present the work to the said jaws, the said table making one complete reciprocation for each revolution of the matrix.

9. In a machine of the character described, the combination of a scouring roll, a matrix, jaws thereon to hold the work, a matrix shaft, a reciprocating table to present the work to the said jaws, and means to give the said table one complete reciprocation for each revolution of the matrix, comprising a crank and crank pin engaging the table, a crank shaft and a train of gearing connected with the matrix shaft and the crank shaft.

10. In a machine of the character described, the combination of a scouring roll, a matrix, jaws thereon to hold the work, a reciprocating table to present the work to the said jaws, means for actuating the said table comprising a crank pin engaging a cam slot in the table whereby the reciprocation of the table is retarded during a portion of the stroke.

11. In a machine of the character described, the combination of a scouring roll, a cylindrical matrix having an indentation in the surface thereof, jaws on the said matrix to hold the work while it is being operated upon by the scouring roll, means for adjusting the said scouring roll bodily vertically and means for independently adjusting vertically the ends of the scouring roll.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM A. PARMENTER.

Witnesses:

GEORGE P. DIKE,

ALICE H. MORRISON.