J. E. MITCHELL & D. PARKS.

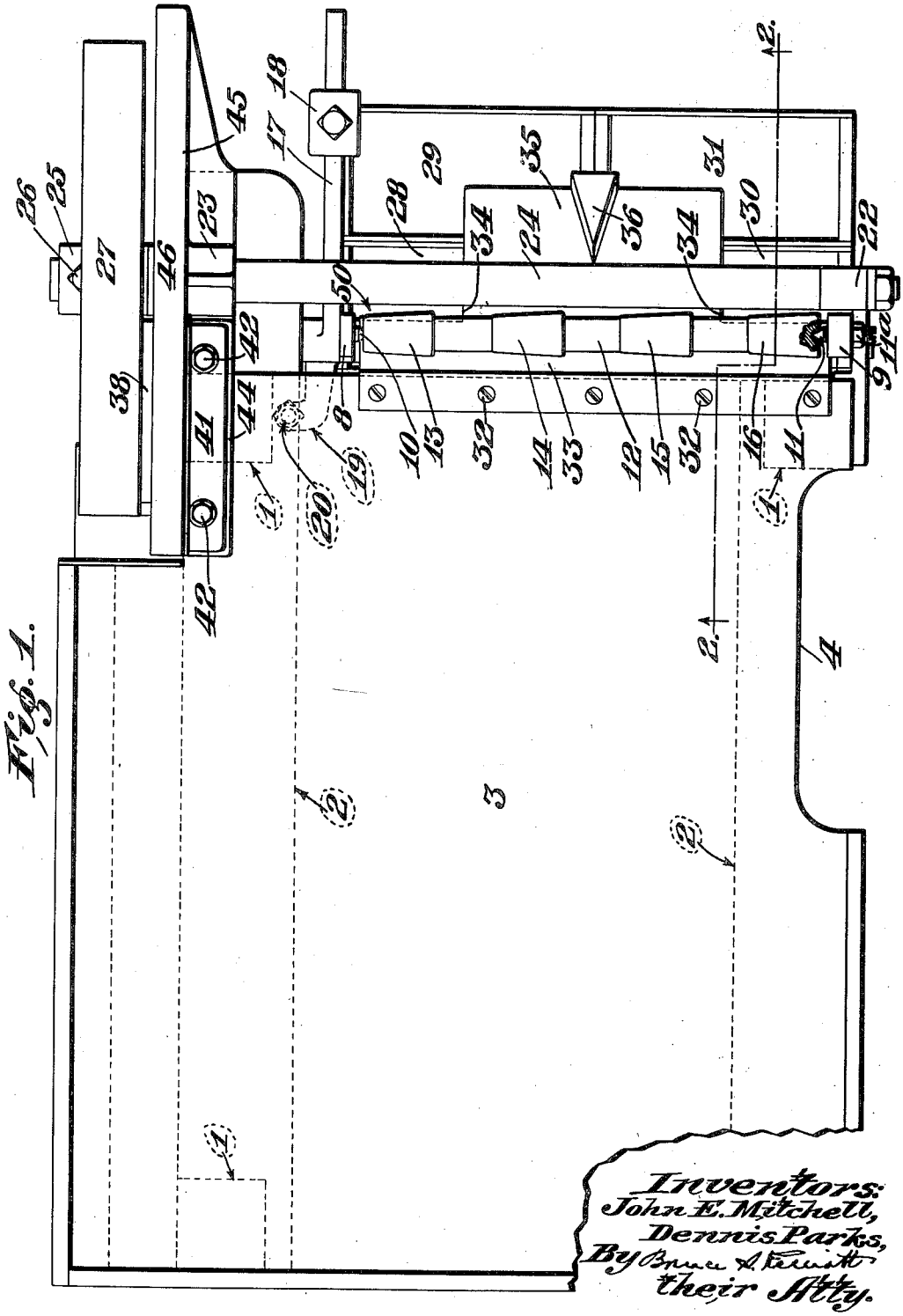
MACHINE FOR GRADING SCRAP LEATHER.

APPLICATION FILED JULY 22, 1915.

1,163,358.

Patented Dec. 7, 1915.

2 SHEETS—SHEET 1.



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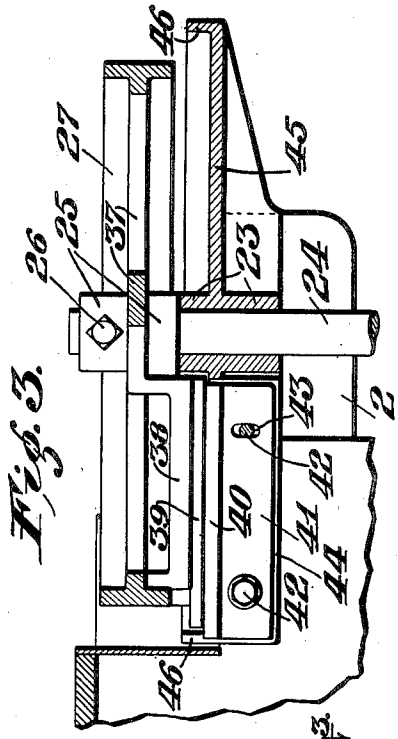


Fig. 3.

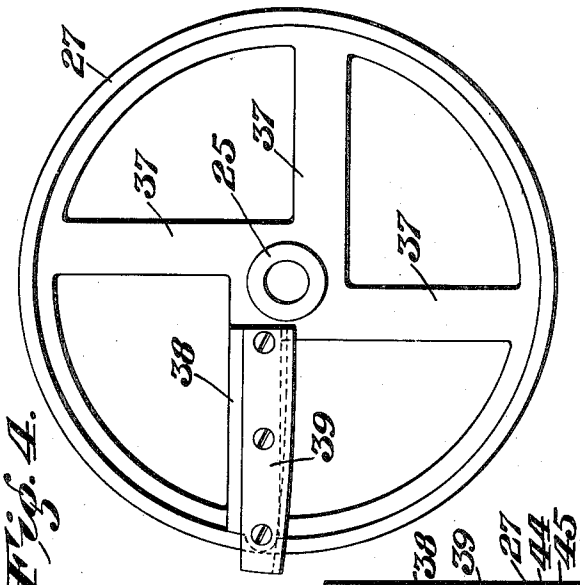


Fig. 4.

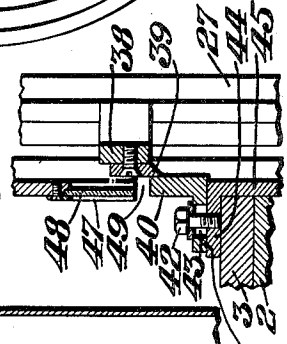


Fig. 5.

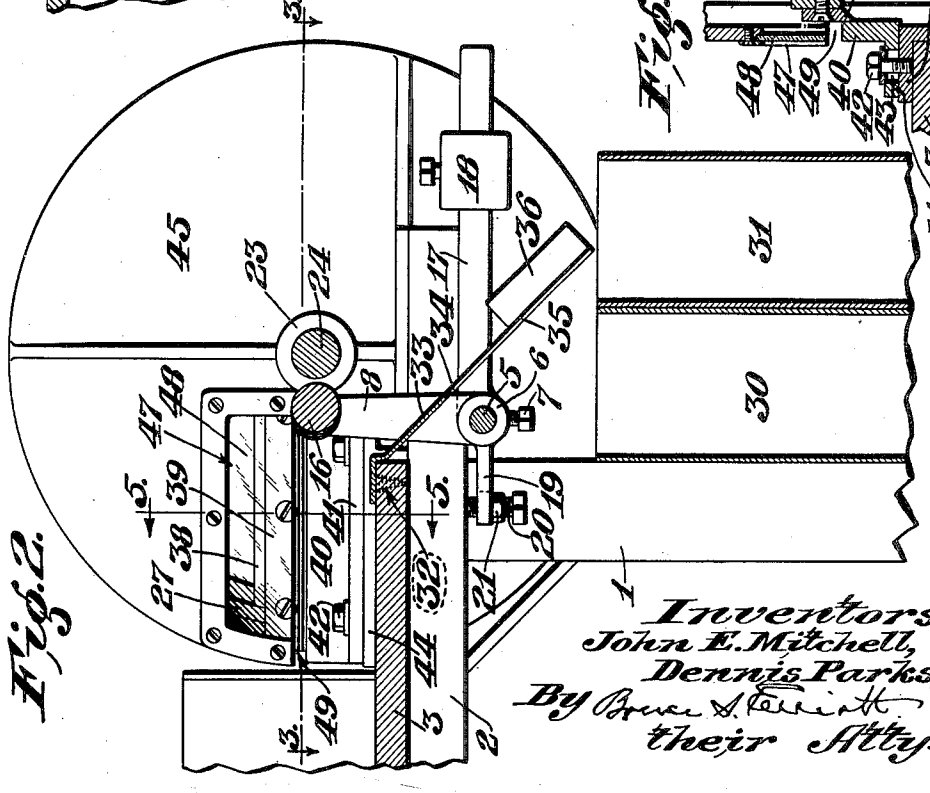


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN E. MITCHELL AND DENNIS PARKS, OF ST. LOUIS, MISSOURI.

MACHINE FOR GRADING SCRAP-LEATHER.

1,163,358. Specification of Letters Patent. Patented Dec. 7, 1915.

Application filed July 22, 1915. Serial No. 41,214.

To all whom it may concern:

Be it known that we, JOHN E. MITCHELL and DENNIS PARKS, citizens of the United States, residing in the city of St. Louis, State of Missouri, have invented new and useful Improvements in Machines for Grading Scrap-Leather, of which the following is a specification.

This invention relates to a machine for grading scrap leather, and has for its general object to provide a machine of this character which will operate to act upon pieces of leather passed through the same by an operator to cause the various pieces of leather to be automatically assembled in separate places, according to the thickness of such pieces of leather.

Other objects of the invention relate to details of construction and to combinations and arrangements of parts whereby the general object above recited is attained.

The invention comprises essentially a revolving and a companion rotatable roller arranged at an incline to each other, the rotatable roller having grading members thereon arranged at given distances from each other, and preferably inclined outwardly in the direction of convergence of the rollers, in coöperation with bins for receiving the various grades of leather, and means for effecting the discharge of the pieces of leather into the respective bins.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a machine constructed according to our invention; Fig. 2 is a cross sectional view of a portion thereof on the line 2—2 of Fig. 1; Fig. 3 is a sectional view substantially on the line 3—3 of Fig. 2; Fig. 4 is a view of the inner side of the pulley; and Fig. 5 is a sectional view on the line 5—5 of Fig. 2.

Referring now to the drawings, we provide a suitable frame of any preferred construction, and substantially rectangular in shape, the numeral 1, in Fig. 2, indicating one of the vertical supports or standards thereof, and the numeral 2 one of the top frame members. Mounted on the upper frame members is a table 3 which is cut away at one side, as indicated at 4, to enable the operator to reach to all parts of the table and to give him ready access to all parts of the machine. Mounted in suitable bearings on the frame members 2, or otherwise, is a rock shaft 5 which has mounted thereon at either end, as by means of a hub 6 and set screw 7, arms 8, 9, respectively, the upper end of the arm 8 carrying a conical stud 10, and the upper end of the arm 9 having mounted therein a pointed bearing screw 11 which is held in adjusted position by means of a nut 11ª.

Rotatably mounted on the bearings 10 and 11 is a roller 12 which is provided at equidistant points throughout its length with conical grading members 13, 14, 15 and 16, respectively. Secured on the shaft 5 is an arm 17 provided with an adjustable weight 18 and having a rearward extension 19 provided with a set screw 20 which engages with the under side of a frame member 2, or other fixed part of the machine, and which set screw may be held in adjusted positions by a jam-nut 21.

Mounted in suitable bearings 22, 23, (see Figs. 1 and 2) located at either side of the machine, is a roller 24 which has secured on one end, as by means of a collar 25 and set screw 26, a pulley 27 which is driven from any suitable source of power by a belt in the usual manner. The roller 24 is located adjacent to the roller 12, but the latter roller is inclined toward the roller 24, as shown more clearly in Fig. 1. This inclination of the roller 12 is effected by loosening one of the set screws 7 and moving the arm 8 carrying the stud 10 in a direction away from the roller 24; or if found necessary, the set screw 7 of the arm 9 may also be loosened and the end of the roller 12 bearing on the stud 11 may be moved toward the roller 24, after which adjustment the set screws 7 are of course turned home. A further adjustment of the roller 12, as a whole, toward and from the roller 24 may be effected by adjusting the set screw 20, which, as will be readily understood from an inspection of Fig. 2, will, by such adjustment, hold the roller 12 at any given distance from the roller 24, according to the extent to which the set screw is screwed up in the extension 19 of the arm 17. The numerals 28, 29, 30 and 31 indicate, respectively, four bins of rectangular shape, which are positioned side by side, and end to end, as shown by Fig. 1, with their upper open ends located below the plane of the table 3. The roller 12 is located above and slightly beyond one end of the table 3, and secured on this end of the table, as by screws 32, is an inclined apron 33, which is cut away near opposite

ends, as indicated at 34, to provide a space to permit pieces of leather to fall into the respective bins 28 and 30, and has a central extension 35 projecting part way over the bins 29 and 31, the extension 35 being provided centrally of its length with a triangular guide block 36, the pointed end of which extends upwardly, and is located centrally between the two grading members 14 and 15 in order to direct pieces of leather carried by said grading members and falling on the apron 33 to the respective bins 29 and 31. Pieces of leather carried between the rollers 12 and 24 fall by gravity into the respective bins 28 and 30.

Referring particularly to Figs. 3, 4 and 5, three of the spokes 37 of the pulley 27 are in the same plane, but the fourth spoke 38 is off-set inwardly, and has secured thereon a knife-blade or shear 39, which is adapted to be carried by the rotation of the pulley into close proximity, or shearing contact, with a fixed cutter 40, which is mounted on a flanged piece 41 and is adjustable toward and from the shear 39 by means of set-screws 42 extending through slots 43 in said flange and screwed into a flanged extension 44 (see Fig. 5) of a frame member 45 mounted on the main frame of the machine. This frame member 45 also provides a circular flanged housing 46 within which the spoke 38 and blade 39 rotate. The housing 46 is provided at one side with a sight-opening 47 which is partly covered by a piece of glass 48, the lower edge of said piece of glass providing, with the upper edge of the fixed cutting member 40, a rectangular opening 49 for the insertion of pieces of leather therethrough to be cut by the shear 39.

In the operation of the device the pieces of leather to be straight-edged and graded are piled on the table 3. The operator picks up one piece of leather after another, and after first inserting each piece in the space 49 to permit the shear 39 to cut a straight edge thereon, inserts said piece in the relatively wide opening 50 between the rollers 12 and 24 and moves the same along until it binds between one or the other of the grading members 13, 14, 15 or 16, and the roller 24 and the instant this occurs the rotation of the roller 24 will cause the piece of leather to be carried through, and according to its position with respect to said grading members when it is thus carried between the rollers, it will fall in one or the other of the bins before referred to. This operation is performed very rapidly, and the grading of the leather is accurately accomplished. Owing to the inclination of the grading roller 12 to the roller 24 the space between the two rollers of course gradually narrows from the opening 50 at one end between the grading member 13 and the roller 24 to the narrowest portion of the space between the wide end of the grading member 16 and the roller 24. Through the adjustments described the space between the rollers may be varied. Preferably we adjust the incline of the roller 12 so that the difference in width of the space between the wide end of successive grading members, beginning with the grading member 13, and the roller 24 decreases by approximately a thirty-second of an inch. It should be stated that the grading members 13, 14, 15 and 16 are of the same dimension, and the relative variations in space between the grading members and the roller 24 are readily accomplished by adjusting the incline of the roller 12 with respect to the roller 24 in the manner previously described. The average width of the converging space between the rollers is varied by adjusting the set screw 20 on the arm 17.

Under ordinary circumstances the weight 18 holds the roller 12 in fixed relation to the roller 24 but should the finger of the operator become engaged between one of the grading members and the roller 24, the roller 12 would readily yield, being swung outward on the rock shaft 5, and the operator, by raising the arm 17, can readily remove his finger without any resultant injury. In the same way, should a tool, or any hard substance, fall between the rollers the roller 12 would yield in like manner to let it pass through without breaking or in any manner injuring the machinery. In fact, the resistance of the roller 12 to bodily movement on the rock shaft is not great, as very slight engagement of a piece of leather between one of the grading members and the roller 24 is sufficient to cause the piece of leather to be withdrawn from the hand of the operator and carried downward between the rollers. The pressure, therefore, that could be exerted by the rollers 12 under any conditions is not sufficient to injure the hand or finger of the operator even if it should pass between the rollers.

We desire to emphasize the fact that our machine is so simple and reliable in operation that unskilled labor may be employed in its use, the straight edging of the pieces of leather merely requiring the insertion of the leather through the opening 49, and the proper grading of it being accomplished by inserting the leather between the rollers 12 and 24 in the relatively wide space 50 at one end, and moving it rapidly in the direction of their length and the moment the piece of leather binds between a grading member and the roller 24 it is automatically withdrawn from the hand of the operator and drops, or is directed by the extension 35 of the apron 33, and guide block 36, into the proper bin.

We claim:

1. A machine for grading scrap leather

comprising a driven and a rotatable roller affording a space between them for the passage of leather, one of said rollers being provided with a series of separated grading members converging toward the other roller and separated therefrom at distances gradually decreasing from one end to the other of said rollers.

2. A machine for grading scrap leather comprising a driven roller and a rotatable roller coöperating therewith and positioned to afford a path between the rollers for the passage of leather, said rotatable roller being provided with a series of separated grading members converging toward said driven roller and separated therefrom at distances gradually decreasing from one end to the other of said rollers.

3. A machine for grading scrap leather comprising a driven roller and a rotatable roller positioned at an incline to each other and affording between them a path for the passage of leather, said rotatable roller being provided with a series of separated conical enlargements.

4. A machine for grading scrap leather comprising a driven cylindrical roller and a rotatable roller coöperating therewith and positioned to afford a path between the rollers for the passage of leather, said rotatable roller being provided with a series of separated conical grading members converging toward said driven roller and separated therefrom by distances uniformly decreasing in one direction of the length of the rollers.

5. A machine for grading scrap leather comprising a driven cylindrical roller and a rotatable roller positioned at an incline thereto, said rotatable roller being provided with a series of separated conical enlargements.

6. A machine for grading scrap leather comprising a driven cylindrical roller and a rotatable roller, said rollers being relatively inclined one to the other, said rotatable roller being provided with a series of separated conical enlargements outwardly inclined in the direction of the convergence of the rollers.

7. A machine for grading scrap leather comprising a driven cylindrical roller and a rotatable roller positioned at an incline thereto, said rotatable roller being provided with a series of separated conical enlargements outwardly inclined in the direction of the convergence of the rollers.

8. A machine for grading scrap leather comprising a driven and a rotatable roller affording between them a space for the passage of leather, said rotatable roller being provided with a series of grading members and being held in yieldable relation with said driven roller.

9. A machine for grading scrap leather comprising a pair of members providing between them a series of graduated grading zones and adapted to have pieces of leather passed between them in the direction of their length, and means for automatically removing each piece of leather from between the grading members when in the movement of the leather it reaches a grading zone corresponding in effective dimensions with the thickness of such piece of leather.

10. A machine for grading scrap leather comprising a pair of converging members providing between them a series of separated grading zones graduated in order from one end of said members to the other, said members being adapted to have pieces of leather pass between them in the direction of their length, and means for automatically removing each piece of leather from between said members when, in the movement of the former, it reaches a grading zone corresponding in effective dimensions with the thickness of such piece of leather.

11. A machine for grading scrap leather comprising a driven roller and a rotatable roller adjustably positioned at an incline thereto, said rollers affording between them a space for the passage of leather, and said rotatable roller being provided with a series of separated grading members outwardly inclined in the direction of the convergence of the rollers.

In testimony whereof, we have hereunto set our hands.

JOHN E. MITCHELL.
DENNIS PARKS.