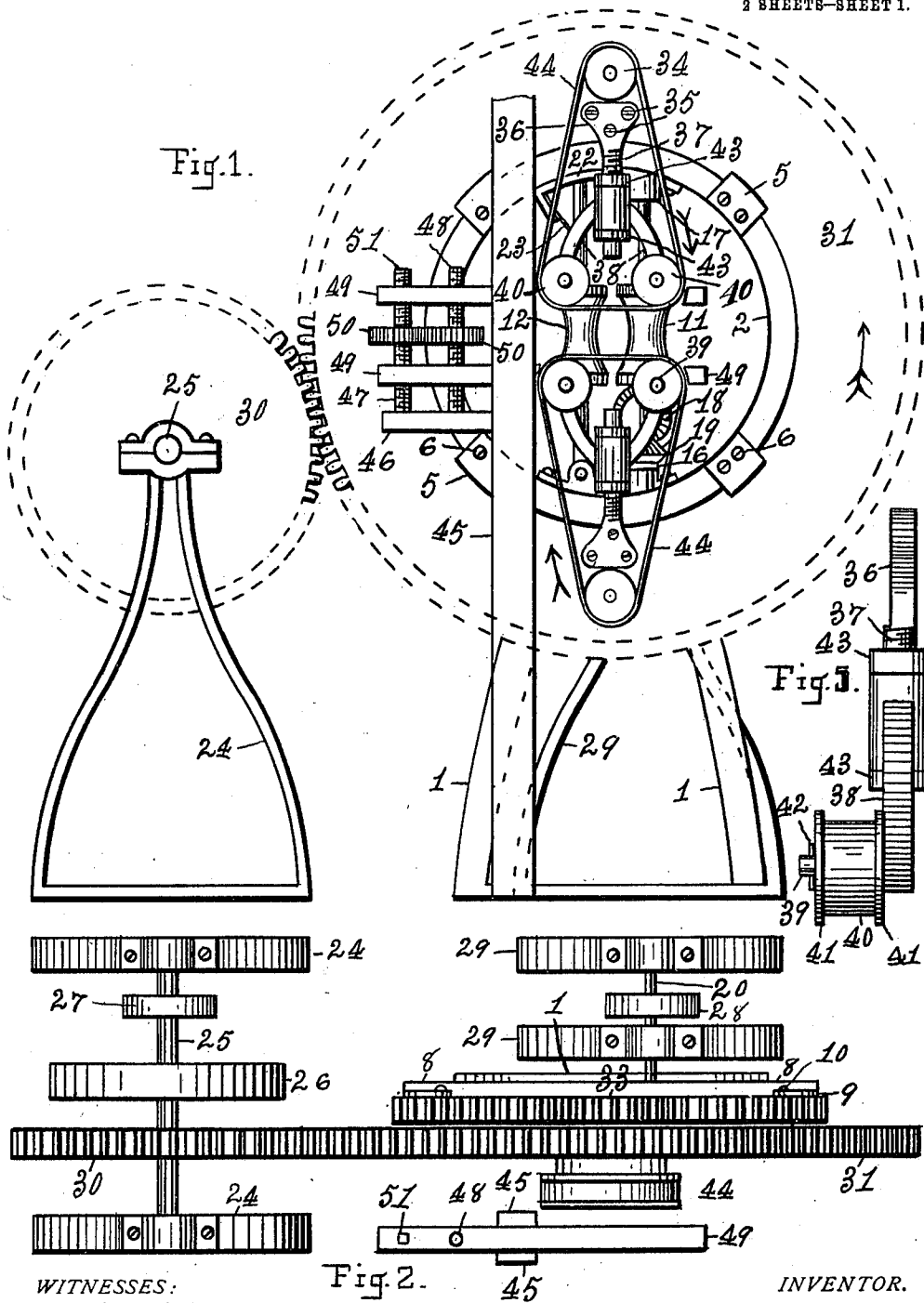


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Patented Dec. 13, 1910.

2 SHEETS-SHEET 1.



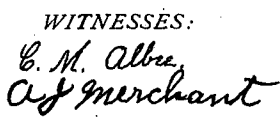
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Fig. 2.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

GEORGE SIMON, OF NEW LONDON, WISCONSIN.

SANDING-MACHINE.

978,497.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed August 29, 1910. Serial No. 579,539.

To all whom it may concern:

Be it known that I, GEORGE SIMON, a citizen of the United States, residing at New London, in the county of Waupaca and State of Wisconsin, have invented a new and useful Sanding-Machine, of which the following is a specification.

My invention relates to a machine for sanding and polishing round pieces of wood, and particularly, bent chair backs and similar bent or irregular shaped furniture pieces, and other stock, and it consists of a supporting stand upon the upper end and at one side of which is secured in a vertical plane a ring having gear teeth around the circumference thereof, said ring being provided with a shoulder upon which a revoluble ring is mounted, the latter ring being provided with two pinions which are each mounted for revolution with a shaft which passes through and revolves in said revolving ring and each shaft is provided with a sanding belt pulley on the side of the revolving ring opposite said pinions. Each of said two pulleys are the driving pulleys for sanding belts each of which is carried upon two idle pulleys which are arranged upon the same opposite sides of the axial line of said revoluble ring as their driving pulleys and between which two sanding belts the chair or other stock is to be fed by suitable feeding means, such as rolls, as herein described, with suitable power for operating the mechanism as is shown in the accompanying drawing, in which,—

Figure 1 is a side elevation of the delivery side of the stock, showing the sanding belts. Fig. 2 is a plan of the entire machine and its main driving shaft. Fig. 3 is a side elevation showing the opposite side from that shown in Fig. 1. Fig. 4 is a detail showing the mounting of the sanding belt driving pulleys and that of their operating pinions. Fig. 5 is a side elevation of an idle sanding belt pulley and an edge view of the bracket upon which it is mounted for revolution. Figs. 6 and 7 are plan and side elevation respectively of a chair back, that being one of the articles for which the machine is adapted to polish. Fig. 8 is a vertical section across the fixed ring and the revoluble ring, and showing how the latter is mounted on the former, and said former upon its supporting stand. Fig. 9 is a plan of a cap piece for receiving the upper ends of two feed roll shafts.

Figs. 4 and 5 are upon a larger scale than the others.

Similar numerals indicate like parts in the several views.

1, indicates the stand upon which the sanding mechanism is mounted; 2, a fixed ring arranged vertically and its lower ring part connected to the upper end of the stand at one side thereof with bolts 3, (see Fig. 8). The fixed ring is provided at the side thereof opposite its supporting stand, with a shoulder 4, upon which the revoluble ring is mounted, the ring being retained upon said shoulder by means of a plurality of clips 5 and screws 6. The stock to be sanded is represented by the chair back 7, and it is to be fed in between the sanding belts from the side of the machine shown in Fig. 3. The fixed ring is provided with parallel bars 8, which are provided with slotted ears 9, at each end, for their adjustment toward or from the axial line of the rings, and are secured to the ring 2 with bolts 10.

Inside of the ring 2, feeding rolls 11 and 12, each having preferably a longitudinally concaved surface, are arranged upon their respective shafts 13 and 14. The roll 11 is tight upon the shaft 13, but the roll 12 is loose upon the shaft 14 and is held in position thereon by means of a collar 15, secured to the shaft. The shaft 13 is stepped in a step 16, which is bolted to the bottom of the inside of the ring 2, and the shaft is provided with a retaining cap 17, which is bolted to the top of the inside of the ring. Secured to the shaft 13 near its lower end is a bevel gear wheel 19, which is engaged and driven by the bevel gear wheel 18, upon the shaft 20, which latter shaft may be called the feed driving shaft. The support for the driving shaft is broken in Fig. 3 but its position can be seen in Fig. 2. It is arranged for running in the right direction for feeding material in between the rolls 11 and 12. The shaft 14 is hinged upon the pin 21, at its lower end and is held within a slotted keeper 22, at its upper end for permitting material of varying diameter to be entered between the feed rolls. A spring 23, is arranged near the upper end of said shaft for pressing the roll 12 toward the roll 11. Mounted upon stands 24 is a shaft 25 carrying a pulley 26 by which said shaft may be revolved from any suitable source of power. Upon this shaft, is a pulley 27, which is arranged to

drive the shaft 20 by its pulley 28, the latter shaft being arranged for revolution upon the stands 29. This as far as described comprises the feeding mechanism. We will now
5 describe the sanding mechanism.

Upon the shaft 25 a gear wheel 30 is shown having teeth which are engaged with gear teeth on the ring 31, but gear teeth are not essential, the two wheels having pulley
10 faces placed at a suitable distance apart serving just as effectually, the teeth being shown for making the machine more compact. Passing through the ring 31 are two shafts 32, upon one end of each of which is
15 a pinion 33, and upon their other end a sanding belt pulley 34, the pinions engaging the teeth of the fixed ring and the pulleys serving as the driving pulleys for two sanding belts. The revolutions of the pinions 33
20 and pulleys 34 are produced by the teeth of the pinions engaging with the teeth of the fixed ring as the ring 31 is revolved around the fixed ring. Secured to the ring 31 with screws 35 are two brackets
25 36, the stems 37, of which are screw threaded and carry branching arms 38, from each of which a shaft 39, extends, and upon which shafts the idle sanding belt pulleys 40, are
30 mounted. (See Fig. 5.). These sanding belt pulleys are provided with side flanges 41, and the idle pulleys retained upon their shafts by means of cotter pins 42, or otherwise, the pulleys 34 and pinions 33 being
35 keyed or otherwise made fast to their shafts. The arms 38 are adjustable upon the stems 37 by means of nuts 43, which engage the threads of the stems for giving the necessary
40 tension to the sanding belts 44, of which there may be different lengths of pairs for sanding different diameters of stock.

For receiving the stock being sanded as it is fed between the rolls 11 and 12, posts 45, are erected in front of the rings, between
45 which an arm 46 is secured, it extending from the posts horizontally, and having two screw threaded rods 47 and 48, stepped thereon, the rods extending upward and their
50 threads engaging the arms 49, which are arranged to extend horizontally, one above and one below the axial line of the ring 31, the arms being broken in front of the sanding
55 belts and idle pulleys so as not to obscure said parts. The rods are provided with intermeshing gears 50, and one of them with a square upper end 51, for receiving a crank
60 by which the rods, which have right and left threads 52 and 53, may be turned for adapting the distance between the arms 49 for the size of the stock being sanded. The parallel
65 bars upon the entering side of the fixed ring and the arms upon the delivery side act as aids in supporting and holding the stock to be sanded, and do not require to be at all times in contact with it, and with some arti-
cles to be sanded, one or both may be dis-

pensed with, and with some light articles and their number limited, they may be fed in between the sanding belts by the operator, with possibly an assistant, by hand and without the use of the feed rolls. The stock to be
70 sanded is to be taken by the operator, who is to stand at the right hand of the machine in Fig. 1, and with the right hand enter the piece to be sanded, (which as shown in Fig. 6, has one end tapered for the purpose), be-
75 tween the rolls 11 and 12, and as it is fed through between the two sanding belts, is to be received in the left hand of the operator. It will be noted by the arrows in Fig. 1, that the sanding belts where they engage the
80 piece being sanded, run in opposite directions, and as they are continually revolving around the axial line of the rings, the article fed through will be sanded and polished
85 equally over its entire surface.

Arrows indicate the direction in which the sanding belts and the ring run, but it should be understood that the direction for those to run is immaterial, that for the feed rolls
90 only being essential.

Having described my invention, what I claim and desire to secure by Letters Patent, is—

1. In a sanding and polishing machine, a suitable stand or support for the mechanism
95 to be supported, a ring supported from one side of the upper end of said supporting means in a vertical plane and secured thereto at the lower portion of said ring, gear
100 teeth around the circumference of said ring, a shoulder upon the side of said fixed ring opposite its attached supporting means, a revoluble ring mounted for revolution upon
said shoulder, means for revolving the revoluble ring upon the shoulder of said fixed
105 ring, two shafts passing through said revoluble ring, a pinion secured to one end of each shaft, the teeth of which are engaged with the teeth around said fixed ring, a sand-
110 ing belt pulley secured upon each of said shafts upon the opposite side of said revoluble ring from said pinions, and serving as driving pulleys for sanding belts, two idle
115 pulleys for each driving pulley mounted for revolution upon a suitable bracket, secured to said revoluble ring upon the same side of the axial line of said revoluble ring as their
120 driving pulley, means for moving said idle pulleys toward and from their driving pulley, a sanding belt mounted upon each driv-
ing and its two idle pulleys, and means for revolving said revoluble ring.

2. In a sanding and polishing machine comprising a fixed ring supported vertically upon a suitable supporting stand and hav-
125 ing gear teeth around its circumference, a revoluble ring mounted for revolution upon a shoulder upon said fixed ring, two pinions mounted each upon a shaft revolubly ar-
130 ranged and extending through said revolu-

ble ring and each shaft being provided with a sanding belt pulley which serves as a driver in a sanding belt system, a sanding belt on each of said driving pulleys and one or more idle pulleys to each driving pulley of each system, the combination of a feeding device for feeding the stock to be sanded through said fixed and revoluble rings, consisting of two shafts arranged vertically and substantially parallel with each other and spaced apart across the inside of said fixed ring, one shaft revoluble in suitable bearings secured upon the inside of said fixed ring at the top and bottom thereof, a gear wheel secured upon said shaft, suitable mechanism and means provided for revolving said gear wheel, the other shaft being hinged near its lower end to a suitable holder secured at the lower inside surface of said fixed ring and being movable at its upper end within a suitable holder toward and from the revoluble shaft, a spring arranged near the upper end of said hinged shaft for pressing it toward the revoluble shaft, a feed roll secured to the revoluble shaft, a feed roll mounted loosely upon the hinged shaft, means for supporting the loose roll at a corresponding height as the fixed revolving roll, and a concave surface longitudinally of each roll whose smallest diameter is arranged in the horizontal axial plane of said fixed ring.

3. In a sanding and polishing machine, a suitable stand or support for the mechanism to be supported, a ring supported from one side of the upper end of said supporting means in a vertical plane and secured thereto at the lower portion of said ring, gear teeth around the circumference of said ring, a shoulder upon the side of said ring opposite its attached supporting means, a revoluble ring mounted for revolution upon said shoulder, means for revolving the revoluble ring upon the shoulder of said fixed ring, two shafts passing through said revoluble ring, a pinion secured to one end of each shaft, the teeth of which are engaged with the teeth around said fixed ring, a sanding belt pulley secured upon each of said shafts upon the opposite side of said revoluble ring from said pinions, and serving as driving pulleys for sanding belts, two idle pulleys for each driving pulley mounted for revolution upon a suitable bracket, secured to said revoluble ring upon the same side of the axial line of said revoluble ring as their

driving pulley, means for moving said idle pulleys toward and from their driving pulley, a sanding belt mounted upon each driving and its two idle pulleys, means for revolving said revoluble ring, a feeding mechanism for feeding the stock to be sanded through said rings and between the sanding belts, consisting of two shafts arranged vertically and substantially parallel with each other and spaced apart across the inside of said fixed ring, one shaft revoluble in suitable bearings secured upon the inside of said fixed ring at the top and bottom thereof, a gear wheel secured upon said shaft, suitable mechanism and means provided for revolving said gear wheel, the other shaft being hinged near its lower end to a suitable holder secured at the lower inside surface of said fixed ring and being movable at its upper end within a suitable holder toward and from the revoluble shaft, a spring arranged near the upper end of said hinged shaft for pressing it toward the revoluble shaft, a feed roll secured to the revoluble shaft, a feed roll mounted loosely upon the hinged shaft, means for supporting the loose roll at a corresponding height as the fixed revolving roll, and a concave surface longitudinally of each roll whose smallest diameter is arranged in the horizontal axial plane of said fixed ring.

4. In a sanding device for sanding and polishing chair backs and round bent stock for furniture or other purposes, consisting of a stationary ring supported in a vertical plane upon a suitable support and having a ring mounted for revolution upon said stationary ring through both of which rings the article to be sanded is to be fed and two sanding belts arranged upon said revoluble ring and revolving with it around the article to be sanded, the combination therewith of guiding bars for guiding the article relative to said belts, consisting of two horizontally arranged bars fitted to be attached to a stationary part upon opposite sides of the line of feed of the article to be sanded, and made adjustable nearer to or farther from said line for adapting the space between said bars to articles of different diameter.

GEORGE SIMON.

Witnesses:

W. E. BROWN,
H. C. HILTON.