

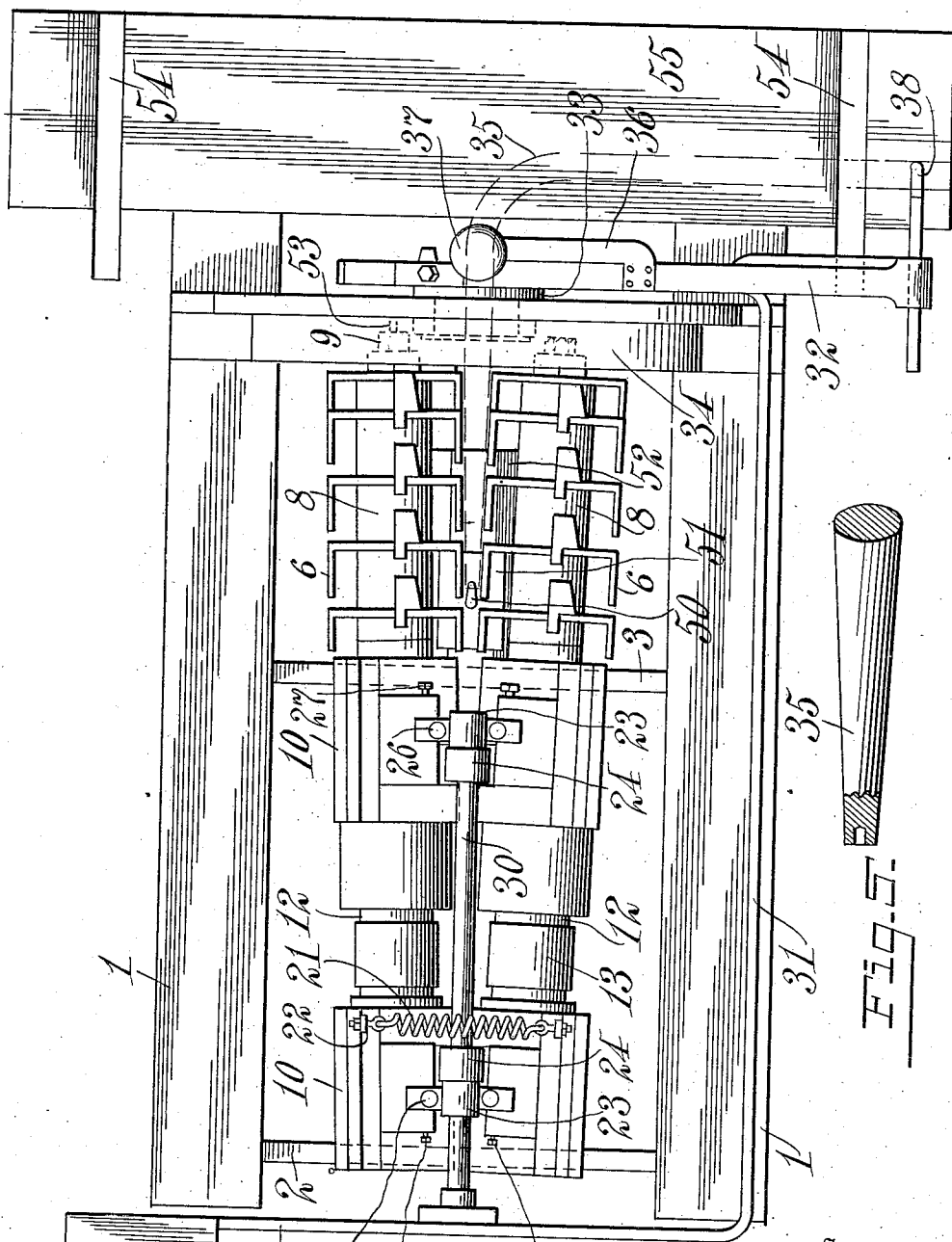
WOODWORKING MACHINE.

APPLICATION FILED JAN. 15, 1912.

Patented Mar. 18, 1913.

3 SHEETS—SHEET 1.

1,056,758.



5-011

Witnesses
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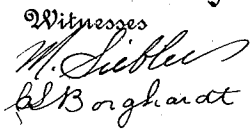
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1,056,758.

3 SHEETS—SHEET 2.



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By

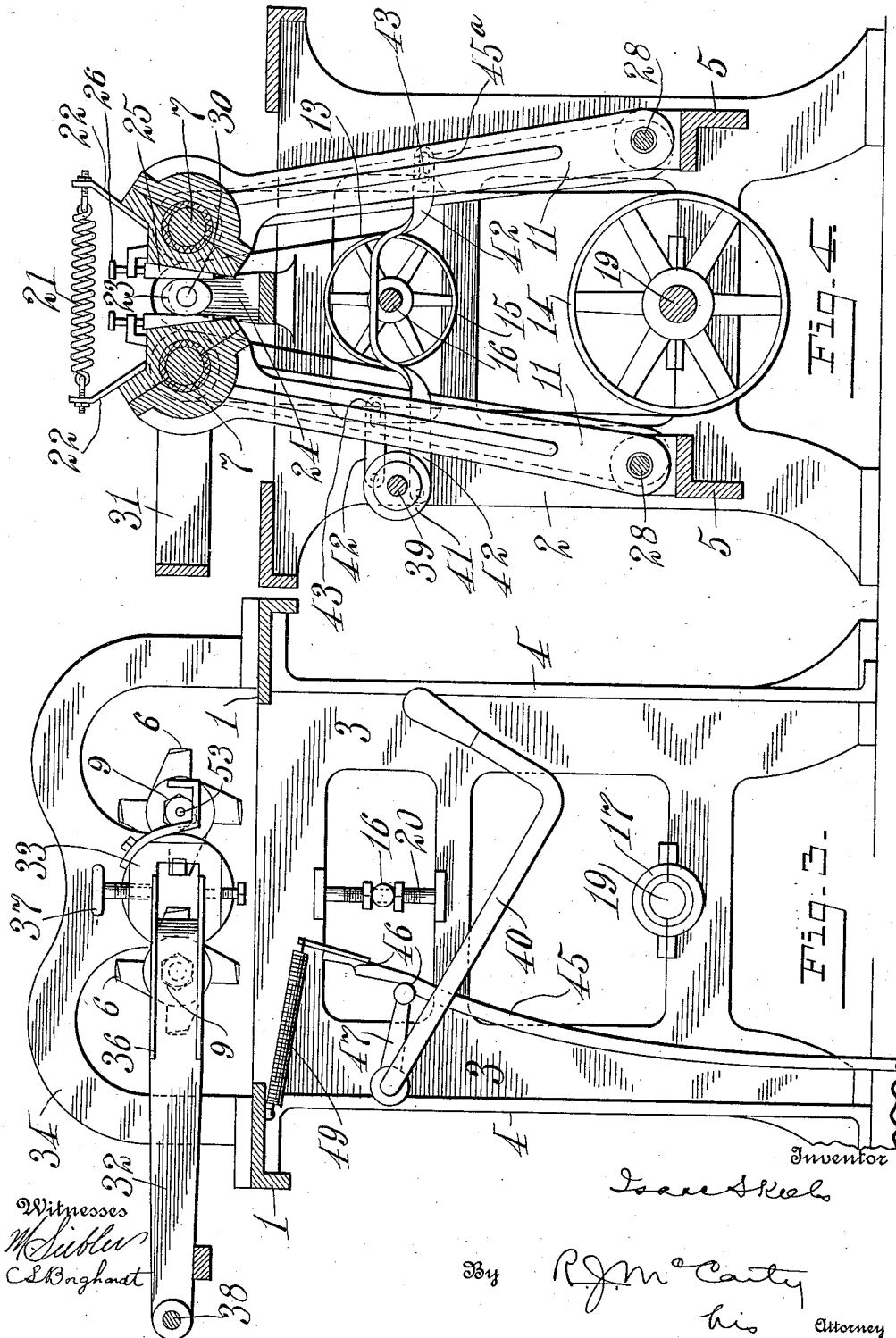
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I. SKEELS.
WOODWORKING MACHINE.
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

ISAAC SKEELS, OF DAYTON, OHIO, ASSIGNOR TO S. N. BROWN & COMPANY, OF DAYTON, OHIO.

WOODWORKING-MACHINE.

1,056,758.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed January 15, 1912. Serial No. 671,283.

To all whom it may concern:

Be it known that I, ISAAC SKEELS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Woodworking-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a wood-working machine adapted to taper the ends of bars or sticks. The machine is especially adapted to give a taper to the ends of bows which support the canopies of automobiles and other vehicles. The taper formed is of oval shape in cross section. These tapered ends, it will be understood, enter steel sockets which are hinged or secured to the body of the vehicle at suitable points. Heretofore, it has been customary to form these tapers by hand.

It is the object of the present invention to provide a machine which is capable of doing this work much more expeditiously and accurately than it has been heretofore done.

Referring to the accompanying drawings, Figure 1 is a top plan view of the machine; Figure 2 is a side elevation with portions broken away; Fig. 3 is a front elevation of the machine with parts broken away; Fig. 4 is a section approximately on the line *a-a* of Fig. 1; and Fig. 5 is a view of an end of a bow showing the taper.

Referring more particularly to the drawings, the main frame of the machine consists of two upper longitudinal members 1, which are supported by a rear frame 2, an intermediate frame 3 and forward supporting members 4. The rear frame 2 and the intermediate frame 3 are connected by horizontal members 5. The wood is acted upon by two revolving cutter-heads each of which consists of a series of knives 6 mounted on the overhanging ends of shafts 7. The said knives are separated by sleeves 8 and are secured on the shafts by nuts 9. The said shafts 7 are journaled in rear bearings 10 which are away from the knives, and said bearings are attached to the upper ends of swinging frames 11. The said shafts 7

are provided with pulleys 12 which receive a belt 13. The belt 13 passes around a drive pulley 14 and an idler pulley 15. The drive pulley 14 is mounted on a shaft 19 journaled in bearings 17 on the frames 2 and 3, and is provided with a pulley 18 through which the machine is driven. The idler pulley 15 is mounted on a stationary shaft 16 adjustably mounted on rods 20 attached to the frames 2 and 3. The idler pulley 15 is mounted below the pulleys 12. By thus arranging the belt 13 and the idler pulley 15, the frames 11, shafts 7 and knives 6 may be moved without disturbing their rotation.

The frames 11, and the cutter-heads carried thereby, are drawn toward each other by a spring 21 connected to arms 22 extending from said frames. The inward movement of the frames 11 and cutter-heads is arrested by front and rear oval shaped cams 23 mounted on a shaft 30 journaled in bearings 24 extending from the frames 2 and 3. It will be seen from the drawings that the cams 23 lie in a plane passing through the axes of the cutter heads. The cams 23 engage adjustable wedge members 25 slidingly mounted in the front and rear bearings 10. See Fig. 4. The positions of the wedge members 25 are controlled by thumb-screws 26, and are held in a set position by cap screws 27. By varying the position of said wedge members, the distance between the cutter-heads may likewise be varied. For example, the rear wedge members 25 control the distance between the forward ends of the cutter-heads, while the forward wedge members 25 control the distance between the rear ends of the cutter-heads. When said wedge members 25 are in engagement with the cams 23, the knives 6 of the cutter-heads are in position to operate upon the work.

To permit the cutter-heads and frames 11 to swing, said frames are pivotal at their lower ends. The lower arms of said frames on one side are attached to the cross members 5 by a universal pivot 28, while the opposite arms are attached to the rear frame 2 by links 29. By thus attaching the said swinging frames 11 to the main frame work, the said frames 11 may be swung in and out and the angle between the cutter-heads may be varied.

The cams 23 are rocked or rotated to control the position of the knives 6 of the cutter-head, by an oscillating frame which carries

ries the "bow" or work, the end of which is to be acted upon. This frame consists of a yoke 31, one end of which is attached to the shaft 30, while the other end is attached to a lever 32. The lever 32 is provided with a hollow head 33 journaled in a cross member 34 mounted on the longitudinal side members 1. The end of the "bow" 35 (shown in dotted lines in Fig. 1) is inserted within the hollow head 33, and is clamped therein by a spring 36 controlled by a hand screw 37. The free end of said "bow" 35 is carried by an arm 38 extending from the lever 32. Previous to the insertion of the end of the "bow" in the head 33, with the end lying between the knives, the cutter-heads are drawn apart by the following means. Journaled in the intermediate frame 3 and on one of the cross members 5 is a rock shaft 39 provided on its forward end with a crank arm 40, and on its rear end with a crank disk 41. The disk 41 is connected to the frames 11 by connecting rod 42 which engage pins 43 on the frames 11. The connecting rods 42 are provided with elongated recesses 45^a which receive the pins 43 and which permit the frames 11 to be rocked by the cams 23 without disturbing the shaft 39. When the crank arm 40 is elevated the frames 11 and cutter-heads are expanded which permits the unfinished work to be inserted between the cutter-heads. The crank arm 40 is held in its upper and lower positions by an arm 45 provided with recesses 46 which receive the end of an arm 47 extending from the shaft 39. The arm 45 is attached at its lower end to the main frame of the machine and is controlled by a spring 49. The extreme end of the "bow" is supported by a pin 50 mounted on an adjustable sliding member 51, secured to a bracket 52 extending from the intermediate frame 3. The said extreme end of the "bow" is provided with a cavity which receives the pin 50. See Figs. 2 and 5. The said cavity is conveniently formed therein by a drill 53 in one end of one of the shafts 7. The frame which carries the "bow" 35, and which consists of the yoke 31, lever 32 and head 33, is moved through approximately half of a circle, when the work is being acted upon by the knives 6. The movement of said frame is limited by projections 54 which extend from a table 55 mounted on the longitudinal members 1.

The operation of the machine is as follows. It is to be understood that the cutter-heads are continuously revolving and it is not necessary to shut off the power to remove and insert the work. Previous to the insertion of the work, the extreme end of the "bow" is recessed by the drill 53, and the arm 40 is elevated to expand the cutter-heads. The "bow" is then inserted in the

head 33, with the extreme end thereof supported by the pin 50 and is clamped in such position by the hand screw 37 and the spring 36. The arm 40 is then depressed to permit the spring 21 to place the wedge members 25 in contact with the shaping cams 23 and the knives 6 in contact with the end of the "bow." The "bow" carrying frame, consisting of the head 33, lever 32, yoke 31, shaft 30 and cams 23, is then rotated through a half circle. During this movement, the cutting knives 6 are under the control of the cams 23 which so move said knives, that the end of the "bow" will be given an oval taper, the size of which depends upon the shape of the cams and the adjustment of the wedge members 25. After the "bow" carrying frame has made a half revolution, the arm 40 is elevated and the "bow" is withdrawn from the machine, and the operation is repeated, the work being rapid and accurate.

Without limiting myself to the precise arrangement shown and described which may be varied without departing from the underlying principles of my invention, I claim:

1. The combination of oppositely disposed movable frames, cutter heads mounted on said frames, and a cam in engagement with and controlling said frames, said cam lying in the same plane as the axes of the cutter heads and in axial alinement with the work acted upon by the cutter heads.

2. The combination of oppositely disposed movable frames, cutter heads mounted on said frames, a cam controlling said frames, said cam lying in the same plane as the axes of the cutter heads and in axial alinement with the work acted upon by the cutter heads, and adjusting devices mounted on said frames and engaging said cams.

3. The combination of oppositely disposed movable frames mounted on universal pivots, cutter heads mounted on said frames, cams controlling said frames, said cams lying in the same plane as the axes of the cutter heads, and adjusting devices mounted on said frames and engaging said cams.

4. The combination of oppositely disposed movable frames, cutter heads mounted on said frames, a pivotal frame adapted to hold the work acted on by the cutter heads, and a cam carried by the pivot of said pivotal frame in axial alinement with the work acted upon by the cutter heads and in engagement with and controlling said movable frames.

5. The combination of oppositely disposed movable frames, cutter heads mounted on said frames, a pivotal frame adapted to hold the work acted on by the cutter heads, a cam carried by the pivot of said pivotal frame in axial alinement with the work acted upon by the cutter heads and controlling said movable frames, and adjusting devices

mounted on said frames and engaging said cam.

6. The combination of oppositely disposed movable frames mounted on universal pivots, 5 cutter heads mounted on said frames, a pivotal frame adapted to hold the work acted upon by the cutter heads, cams carried by the pivot of said pivotal frame and controlling said movable frames, and adjusting devices mounted on said frames and en- 10 gaging said cams.

7. The combination of oppositely disposed movable frames, cutter heads mounted on said frames, a pivotal frame adapted to hold 15 the work acted upon by the cutter heads, and a cam carried by the pivot of said pivotal frame in axial alinement with the work acted upon by the cutter heads and controlling said movable frame, said cam lying in 20 the same plane as the axes of the cutter heads.

8. The combination of oppositely disposed movable frames mounted on universal pivots, cutter heads mounted on said frames, a

pivotal frame adapted to hold the work 25 acted upon by the cutter heads, cams carried by the pivot of said pivotal frame and controlling said movable frame, said cams lying in the same plane as the axes of the cutter heads, and adjusting devices carried by said 30 movable frames and engaging said cams.

9. The combination of oppositely disposed movable frames mounted on universal pivots, cutter heads mounted on said frames, a pivotal frame adapted to hold the work acted 35 upon by the cutter heads, cams carried by the pivot of said pivotal frame and controlling said movable frames, said cams lying in the same plane as the axes of the cutter heads, and wedge-shaped members mounted 40 on said movable frames and engaging said cams.

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

ISAAC SKEELS.

Witnesses:

MATTHEW SIEBLER,

PAUL R. BROWN.