No. 694,386. Patented Mar. 4, 1902.

A. JOHNSTON.

MACHINE FOR CUTTING IRREGULAR SURFACES.

(Application filed Apr. 15, 1901.)

(No Model.) 3 Sheets—Sheet 1.

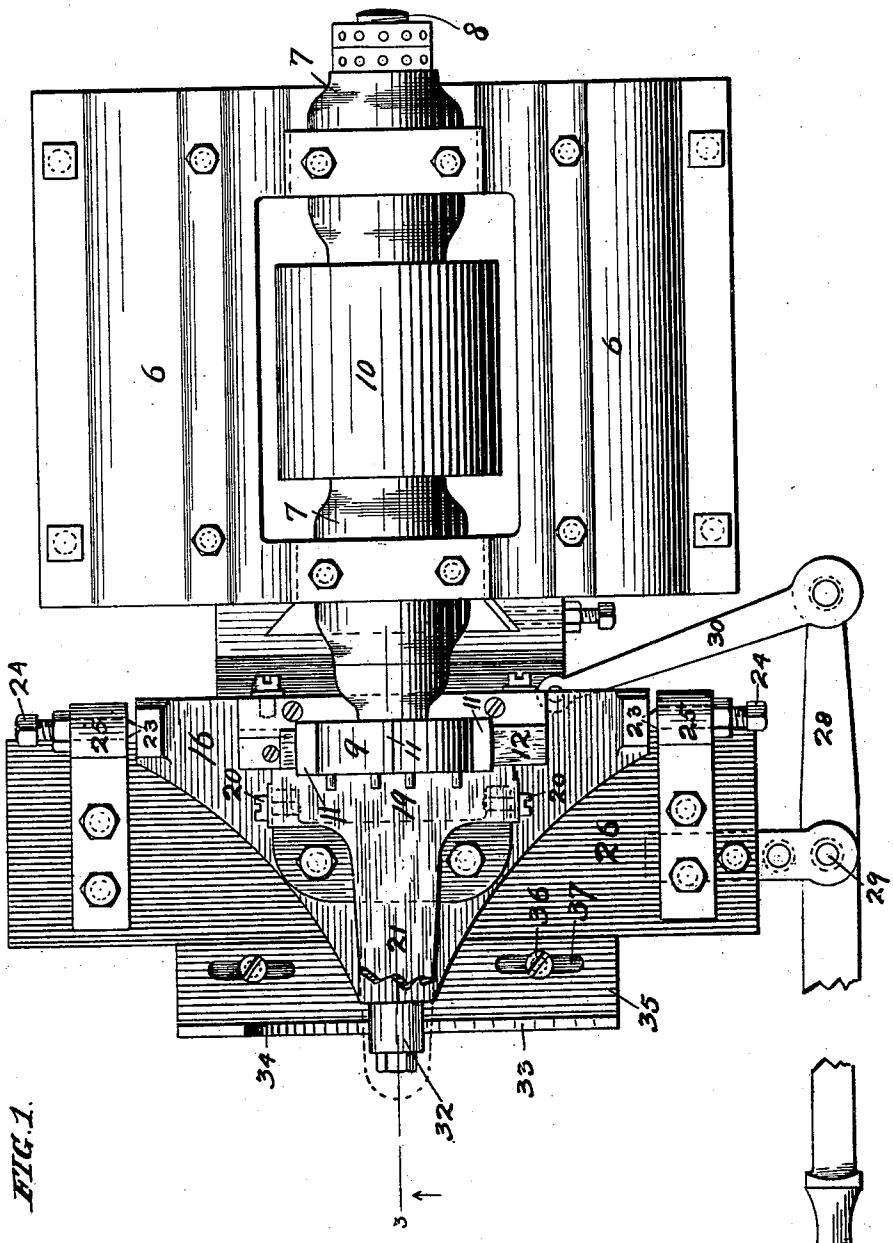


FIG. 1.

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His ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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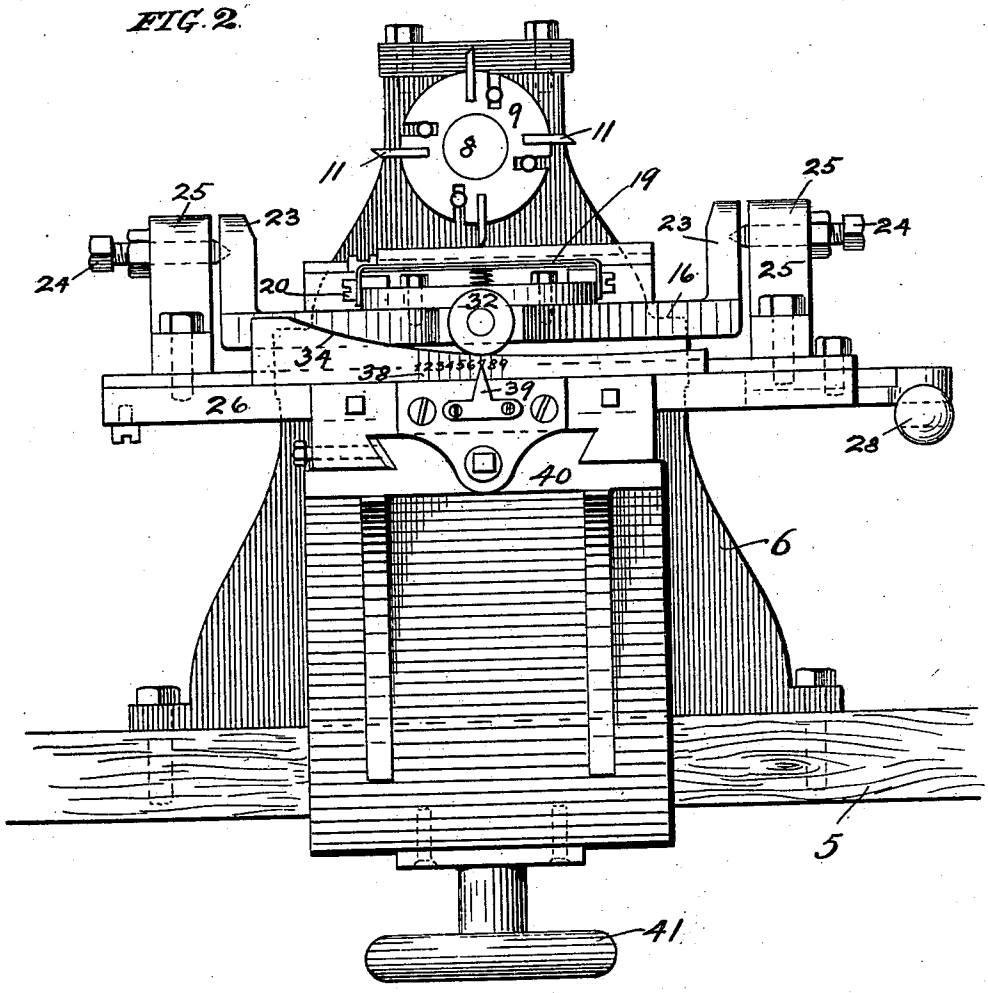
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FIG. 2.



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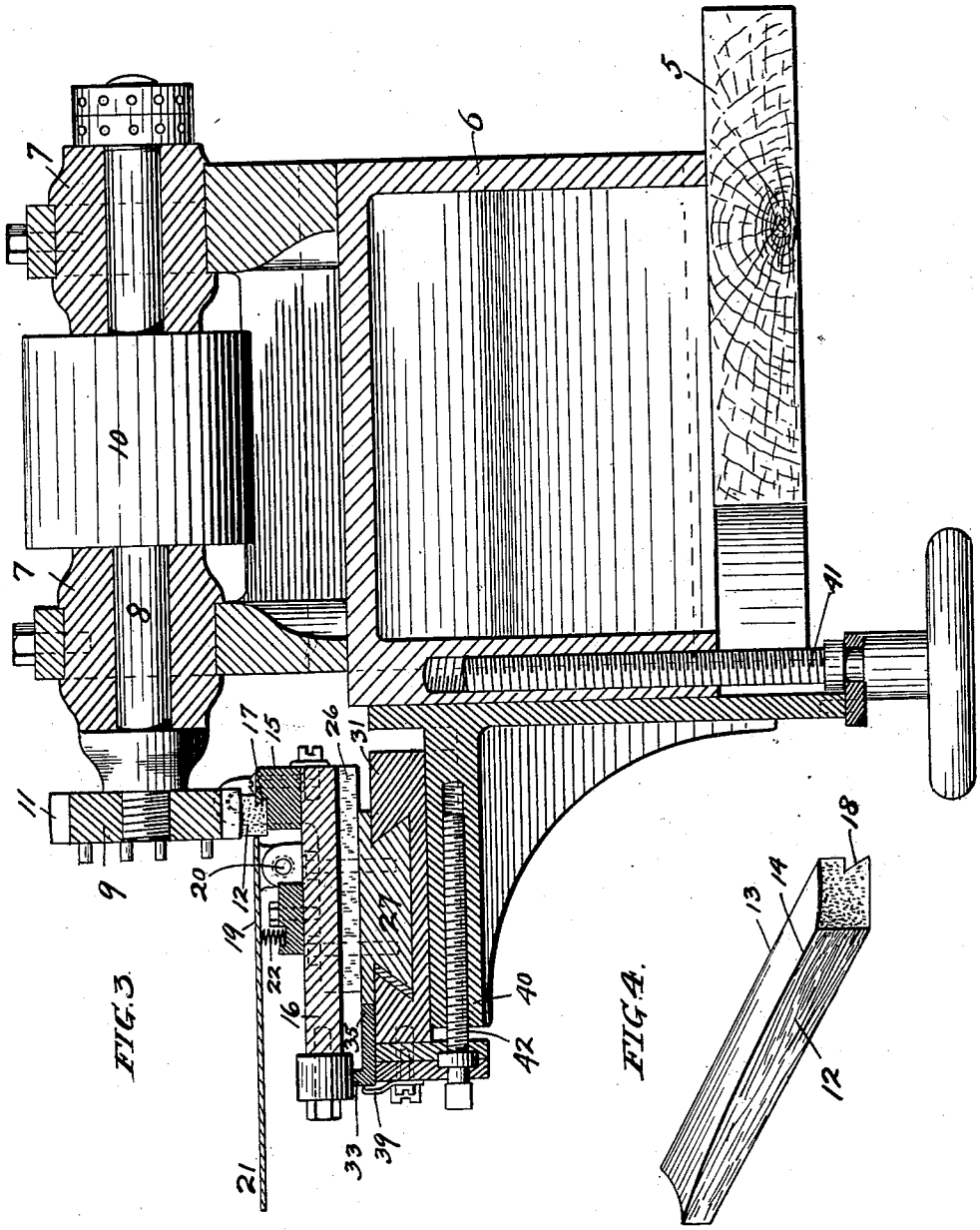


FIG. 3.

FIG. 4.

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UNITED STATES PATENT OFFICE.

ALLEN JOHNSTON, OF OTTUMWA, IOWA.

MACHINE FOR CUTTING IRREGULAR SURFACES.

SPECIFICATION forming part of Letters Patent No. 694,386, dated March 4, 1902.

Application filed April 15, 1901. Serial No. 55,837. (No model.)

To all whom it may concern:

Be it known that I, ALLEN JOHNSTON, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented a new and useful Improvement in Machines for Cutting Irregular Surfaces, of which the following is a specification.

This invention relates to the construction of a machine devised more especially to form the irregular concave twisted surface on the face of a block of wood shown in the drawings accompanying this application and forming a part thereof. Blocks of this kind are used as a backing for cutlery when it is being ground in automatic machines and are thus shaped in order that they may conform nearly to the surface of the cutlery.

The nature of the invention will be fully understood from the subjoined description and said drawings.

In the drawings, Figure 1 is a plan, and Fig. 2 a front elevation, of the machine. Fig. 3 is a vertical section on the line 3 of Fig. 1. Fig. 4 is a perspective of one of the blocks shaped by the machine.

Referring to the drawing, 5 represents the bed upon which the machine is mounted, and 6 is a frame supporting the moving parts of the machine upon the bed. Directly on top of the frame are located the bearings 7 7 of the journal 8 of the cutter-head 9, and the pulley 10, by which the shaft is driven, is located between said bearings. The cutter-head is provided with a series of knives 11, having cutting edges convex to give the concave surface to the block adjustably secured in it and projecting from its periphery and having their outer edges sharpened, as will be understood from the drawing, though any other suitable form of cutters may be used.

The block for the shaping of which the machine is intended is shown at 12. As plainly illustrated in Fig. 4, one surface is shaped to conform to the cutlery, and this surface is straight, or nearly so, along one corner 13, while the other corner 14 is rounded down toward the end and for two-fifths, or thereabout, of its length. The surface is also slightly concaved between the corners 13 and 14.

The block is placed in a holder consisting of a back 15, rigidly secured to a carriage 16 and having an undercut shoulder 17, adapted to engage the reversely-formed shoulder 18 on one of the surfaces of the block not operated upon by the machine, and, opposing said back, a clamping device, consisting of a plate 19, pivoted to the carriage by pivots 20, located at the ends of the plate. The plate has a forwardly-projecting arm 21, by which it may be operated, and a spring 22, located under its forward portion and tending to keep it against the block. The block is released and may be removed by simply depressing the arm 21.

The carriage is supported at its ends by vertical arms 23, swinging on the points of pivot-bolts 24, located substantially in a plane coincident with the plane in which the cutters act on the block. The bolts pass through posts 25, rising from a plate 26, attached to a slide 27, actuated in its sliding movements by the lever 28, fulcrumed stationarily at 29 and connected to the slide or to plate 26 by a swinging link 30. The slide moves in ways formed in a bed 31, hereinafter mentioned. Through the movement imparted by this lever the slide is actuated in directions lateral of the cutter and moves the work carriage and holder past the cutter, so that the block is subjected to the action of the cutter.

The irregularity in the surface cut by the machine is obtained by tipping the carriage 16 upon its pivots 24, and this I do by providing a roller 32 on the front of the carriage and a track 33, upon which the roller bears, and making a portion 34 of the track inclined. The lifting of the front of the carriage by the inclined portion of the track raises the corner 14 of the block, so that more of it is cut away than at other points. The track 33 is adjustable lengthwise on the bed 31 and is provided with a horizontal flange 35, so that it may be secured in its adjusted positions by screws 30, passing through slots 37 in the flange 35 into the bed 31.

The amount of the wood cut away and the length of the curve at corners 14 may be varied by adjusting the track lengthwise, and in order that the adjustments may be accurate I provide a series of indicating-marks 38 on the front of the track and a pointer 39, attached to the bed 31 and extending into proximity to the marks.

The bed 31 is supported on the horizontal member of a vertically-adjustable L-shaped

frame 40, moving in vertical ways formed on the front surface of frame 6, the adjustments of frame 40 being effected by the screw 41 entering a threaded recess in the leg of frame 6, as shown at Fig. 3. The bed 31 is also adjustable horizontally backward or forward upon frame 40 by screw 42, as will be understood from Fig. 3. Through these several features a wide range of adjustment is permitted, fitting the machine to use with various sizes and shapes of blocks. The track may also be reversed or given different inclinations, or its incline may be straight instead of curved, or it may extend through the entire length of the block instead of a portion only of its length to vary the action of the cutter. The block is so located that it moves directly under the cutter, so that the tipping is enabled to produce the effect stated.

I claim—

1. In a machine for producing a concave twisted surface on wood or like material, the combination with a revolving cutter, of a reciprocating carriage adapted to feed the block to the cutter, pivotal supports for said carriage arranged parallel with the line of feed, and located substantially in the plane to which the cutter cuts, and means for tipping the carriage as it moves, substantially as specified.

2. The combination with the cutter having convex cutting edges, of a reciprocating carriage supporting the work and pivoted in the plane to which the cutters cut, and means for tipping the carriage, whereby a concave twisted surface having a straight line at or near one edge and an inclined line at the other edge is produced, substantially as specified.

3. The combination with the cutter of the work-holder, the reciprocating and tipping carriage, the supports for the latter having both horizontal and vertical adjustments, substantially as specified.

4. The combination with the cutter of the reciprocating and tipping carriage and a work-holder consisting of a back piece 15 and a pivoted clamping-plate 19, substantially as specified.

5. The combination with the cutter of the reciprocating and tipping carriage and a work-holder consisting of a back piece 15 and a pivoted clamping-plate 19 having a spring 22, substantially as specified.

ALLEN JOHNSTON.

Witnesses:
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