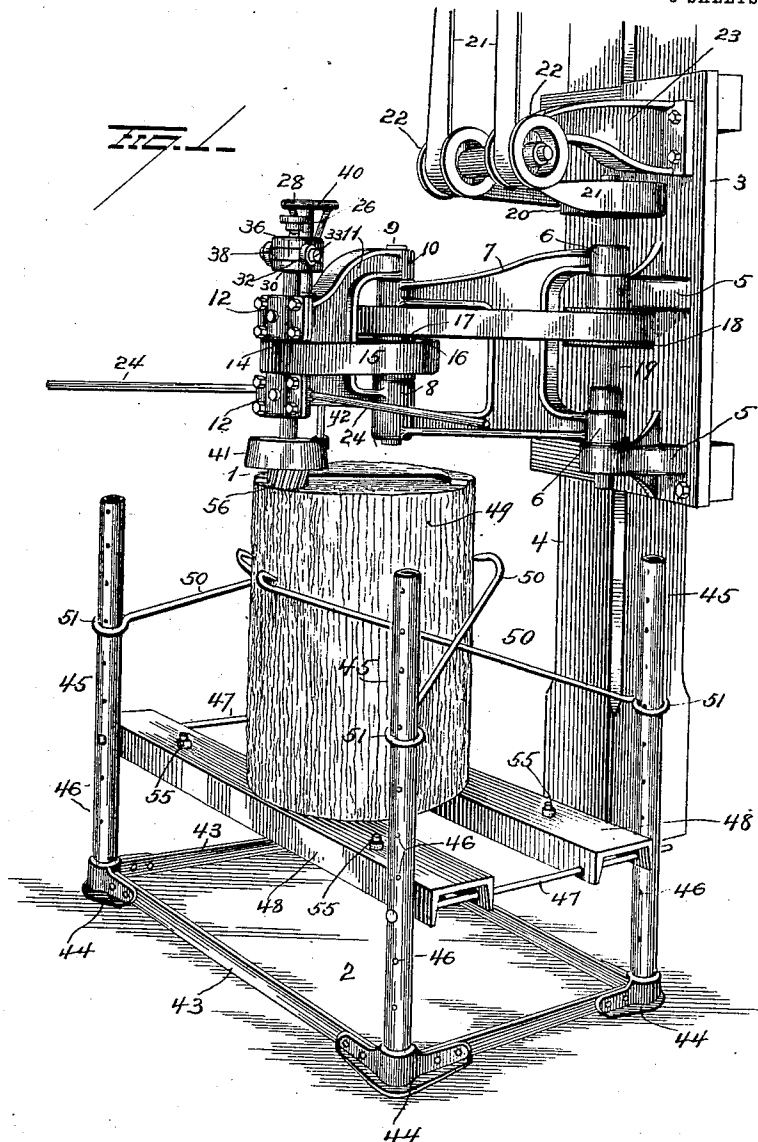


1,083,160.

W. E. VILLINGER.
PLANING MACHINE.
APPLICATION FILED JULY 12, 1912.

Patented Dec. 30, 1913.

3 SHEETS—SHEET 1.



WITNESSES
E. Nottingham
G. J. Downing.

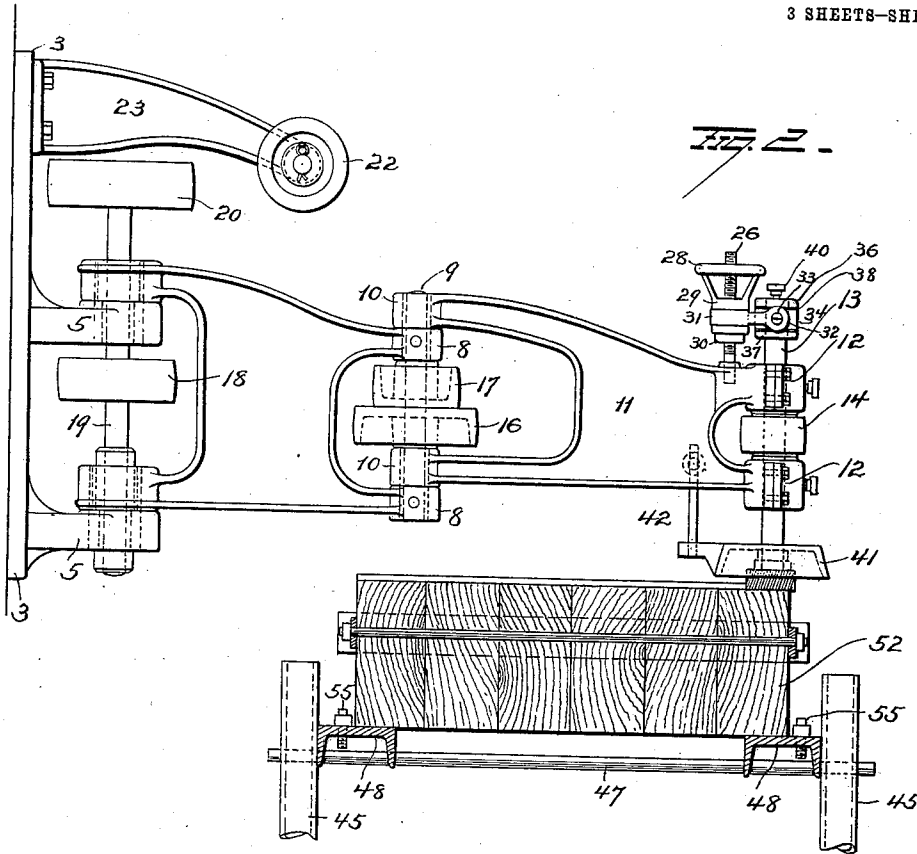
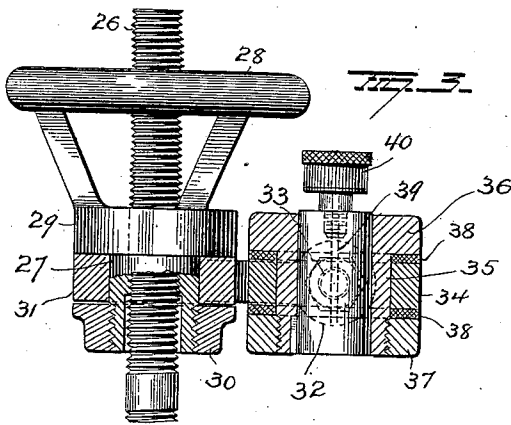
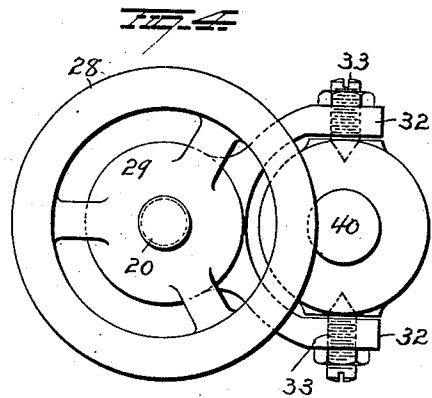
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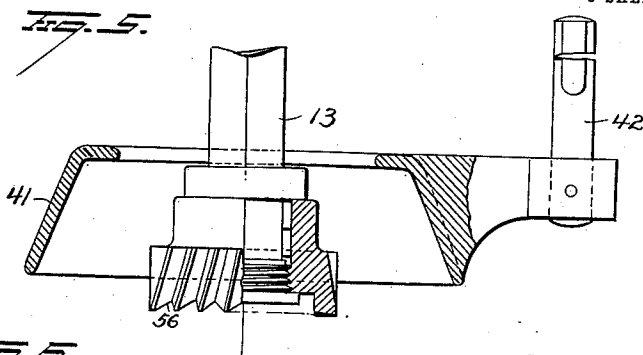
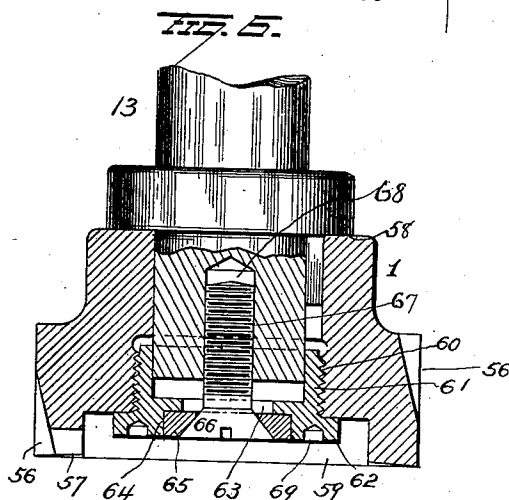
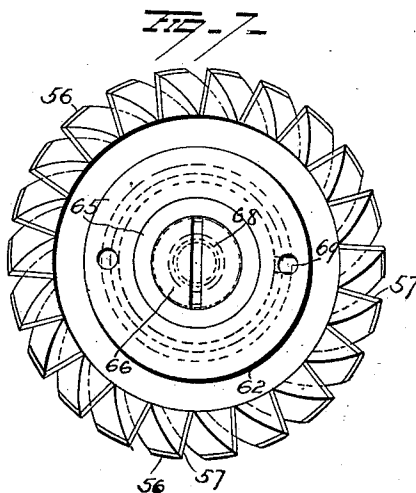
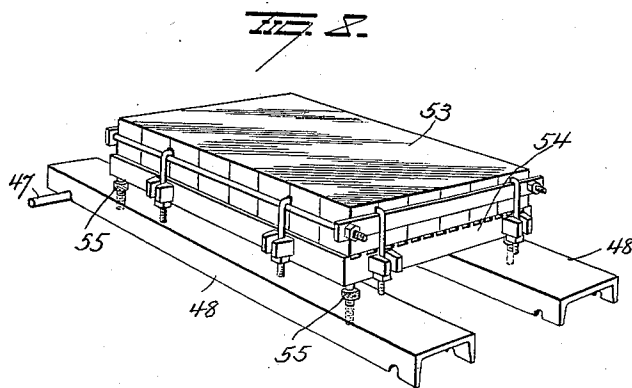
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

WILLIAM EDWARD VILLINGER, OF WILLIAMSPORT, PENNSYLVANIA.

PLANING-MACHINE.

1,083,160.

Specification of Letters Patent.

Patented Dec. 30, 1913.

Application filed July 12, 1912. Serial No. 709,060.

To all whom it may concern:

Be it known that I, WILLIAM E. VILLINGER, a resident of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Planing-Machines; and I do hereby 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.

This invention relates to improvements in planing machinery and particularly to machines which are especially adapted for use in trimming cutting blocks.

In the manufacture of shoes, gloves and other articles of leather or similar material, it is the practice to cut the blanks with the use of knives and dies,—the leather being laid upon wooden surfaces. These wooden surfaces are afforded in some instances by what are known as "tree blocks," and in other instances, "machine blocks" (usually made up in sections) are employed, while in other instances "clicking boards" are used. The knives or dies will soon cause the surfaces of the cutting blocks to become marred and irregular, and as it is a matter of importance that the cutting blocks shall present as smooth surface as is possible, it is necessary that the blocks shall be accurately trimmed in the first instance, and also when they shall have become marred and irregular after having been subjected to the action of knives or dies for a time.

The object of my present invention is to provide a machine which is adaptable for use in trimming and imparting a smooth, flat surface to either a "tree block," a "machine block" or a "clicking board."

A further object is to construct the machine in such manner that the surplus wood can be removed and the top surface of the block planed smooth, at a single operation, without danger of tearing the grain of the wood in a manner as occurs with the use of a saw.

With these and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a side elevation partly in section. Fig. 3 is an enlarged de-

tail view, partly in section and partly in elevation, of the devices for adjusting the cutter shaft. Fig. 4 is a plan view of the same. Fig. 5 is an enlarged sectional view, partly in elevation showing the cutter and guard. Fig. 6 is an enlarged sectional view of the cutter. Fig. 7 is a bottom plan view of the same, and Fig. 8 is a detail perspective view showing the manner of supporting a clicking board.

My improved machine comprises a vertically disposed cutter-head 1, which is constructed, supported and manipulated as hereinafter described, and a supporting frame for the work, (the block to be trimmed), located under the cutter head.

3 represents the supporting plate on which the planing mechanism is mounted, and this plate is adapted to be secured in a vertical position to a post 4 or other vertical supporting means. The plate 3 is provided with superposed brackets 5 with which tubular bosses 6 on an arm 7 have hinged connection. The arm 7 is bifurcated and the superposed members are provided with tubular bosses 8, for the accommodation of a shaft 9 which also passes through bosses 10 on the superposed members of a bifurcated arm 11,—the arms 7 and 11 being thus hinged together and also hinged to the supporting plate 3, so that said arms can be swung freely in a horizontal plane.

The free end of the arm 11 is bifurcated and provided with suitable bearings 12 for a vertical cutter shaft 13, to the lower end of which latter, the cutter head 1 is attached in the manner hereinafter explained.

The cutter shaft 13 has keyed thereto (between the bearings 12) a pulley 14, which receives motion, by means of a belt 15, from a pulley 16 mounted loosely on the shaft 9. Another pulley 17 is also mounted on the shaft 9 in a manner to rotate with and thus impart motion to the pulley 16. Motion is transmitted to the pulley 16 by means of a belt 17 from a pulley 18 on a shaft 19 suitably mounted coincident with the axis of the hinge connection of the arm 7 with the brackets. The shaft 19 projects above the arm 7 and is provided with a pulley 20 to receive a belt 21 from any suitable source of power,—said belt being guided around the pulley 20, by means of guide wheels or pulleys 22 mounted on suitable journals supported by a bracket 23 secured to the upper portion of the plate 3.

From the construction and arrangement of mechanism thus far described, it is apparent that the cutter can be freely moved in a horizontal plane over the work (the trimming block) on the supporting frame 2,—such free horizontal movement being afforded by the hinged arms 7 and 11. To facilitate such horizontal movement of the cutter, in manipulating the same to trim a block, rods or handles 24 are secured at or near the free end of the arm 11.

The cutter head may be adjusted vertically with relation to the work, to regulate the depth of the cut, by means of devices which will now be explained. A screw-threaded rod 26 is secured to the arm 11 and projects upwardly therefrom in proximity to the cutter shaft 13. The hub 27 of a handle wheel 28, is threaded on the rod 26 and provided at its upper end with an annular shoulder 29,—the lower end of said hub being threaded exteriorly for the reception of a collar 30. A collar 31 is loosely mounted on the hub 27 between the annular shoulder 29 and the collar 30, and said collar 31 is provided with arms 32 which form a yoke provided with screws 33 having pivotal bearings in suitable sockets formed in a ring or collar 34. This ring or collar is loosely mounted on a sleeve 35 keyed to the cutter shaft 13, and is provided at its upper end with an annular shoulder 36. The lower end of the sleeve 35 is threaded exteriorly for the accommodation of a collar 37. Between the ring 34 and the shoulder 36 and between said ring and the collar, suitable washers 38 are disposed. The sleeve 35 may also be provided with a lubricant 39 closed by a plug 40. It is apparent that by manipulating the hand wheel 28, the cutter shaft can be adjusted vertically to adjust the cutter, without interfering with the rotary operation of said shaft.

In order to protect the operator, a hood or guard 41 may be made to encircle the shaft 13 over the cutter head 1 and be supported by a standard 42 secured to and depending from the arm 11.

The frame 2 which supports the work (the block to be trimmed) comprises a rectangular base preferably constructed of angle irons 43 and corner brackets 44,—the latter having sockets for the accommodation of a series of uprights 45. These uprights may, if desired, be made tubular in form, and each is provided with a plurality of perforations 46, for the adjustable attachment of cross-rods 47 which connect the uprights 45 at respective ends of the frame, at any desired elevation. The cross rods 47 serve as adjustable supports for a platform on which the block to be trimmed is mounted, and this platform, as shown in the drawing, comprises a plurality of channel bars 48, disposed with their flanges depending from

their web portions, and the rods 47 are passed through holes in these depending flanges. A frame thus constructed is adapted to support any form of cutting block used in the leather industry, so that the same shall be held in proper position under the planing or cutting head, to have its upper surface trimmed.

In Fig. 1 of the drawing, I have illustrated what is commonly known in the trade, as a "tree" block 49. When such a block is mounted on the supporting frame 2, it will be held from movement, by means of hooks 50, the shanks of which are provided at their outer ends with hooks 51 which embrace the uprights 45 and have frictional engagement therewith.

What is commonly known in the trade as a "machine block" is made up of a plurality of blocks or strips clamped together. Such a block is illustrated at 52, in Fig. 2. When a machine block is to be trimmed, hooks or other means for securing the same to the supporting frame, are unnecessary, as the downward pressure of the cutter head on such a rectangular, made-up block, will be sufficient to prevent displacement.

Clicking boards, such as shown at 53, Fig. 8, are quite shallow or thin as compared to "tree" and "machine" blocks, and hence it is desirable when such a board is to be trimmed, that a plate 54, with the board secured thereto by clamps 55 shall be mounted on the platform of frame 2 as shown in Fig. 8. In order to properly level the clicking board, the plate 54 will preferably be mounted upon adjustable supports 55 having threaded portions passing through the channel irons 48 of the platform.

The cutter head 1 is provided with up-right peripheral cutting edges 56 diagonally disposed as shown in Figs. 5, 6 and 7, and with an annular series of end cutting edges 57 disposed approximately at right angles to the cutter 56, as also shown in said figures of the drawing.

The cutter or planer head is keyed to the lower end of the shaft 13, as clearly shown in Fig. 6, and the upper end of said cutter head bears against an annular shoulder 58 on the shaft 13. The lower end of the cutter head is constructed with a recess 59 with which the spaces between the bottom cutter edges communicate. The lower portion of the bore of the cutter head is threaded as at 60 to receive the threaded portion of a hollow adjusting nut or member 61, the latter being also provided with an annular flange 62 which may abut against the base of the recess 59 when said nut or member 61 is in its position of highest elevation. The part 61 is made with an opening 63 and below this opening, with a recess 64,—in which latter, a disk 65 is located. The disk 65 is provided with an opening, the wall of which

forms a seat for the head 66 of a screw 67 which enters a socket 68 in the lower end of the shaft 13.

The features of the cutter above described serve to secure the cutter head to the shaft 13, but the part 61 also serves another and important function. The said part 61 is adjustable vertically (sockets 69 being provided to receive a wrench for facilitating such adjustment) so that the extent of shaving cut by the end cutters 57 can be regulated to a nicety, and thus insure the smooth planing of the top of the block without tearing the grain.

It will be understood that in the operation of my improvements, the side cutters will operate to remove surplus wood of the block and that simultaneously with such operation, the end cutters will remove a shaving and thus render the top of the block, not only perfectly level, but smooth and in condition for immediate use.

Various slight changes might be made in the details of construction of my improvements without departing from the spirit of my invention or limiting its scope, and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. A machine for trimming and smoothing the upper surface of cutting blocks, comprising a shaft support capable of universal horizontal movement, a shaft vertically movable in said support, means associated with said support and shaft for rotating the latter, a cutter head at the lower end of said shaft, said cutter head having peripheral

cutting edges and also having cutting edges on its bottom, said cutter head also having a central recess in its bottom, means within the recessed lower end of the cutter head for adjusting the depth of cut in a block under the same, and means for adjusting cutter shaft vertically.

2. In a planing machine, the combination with a support, a cutter shaft mounted therein, means for adjusting the cutter shaft longitudinally and means for rotating said shaft, of a cutter head secured to one end of said shaft, said cutter head having a recess in its bottom and also having a peripheral series of cutting edges and an end series of cutting edges, and an adjustable member in the recess in the end of the cutter head to regulate the extent of cut of the end cutting edges.

3. In a planing machine, the combination with a support, a cutter shaft, and means for rotating said shaft, of a cutter head on one end of said shaft, said cutter head having a recess in its bottom, said cutter head also having an annular series of end cutting edges surrounding said recess, said cutter also having peripheral cutting edges, a hollow member adjustable in the recessed bottom of the cutter head, a disk mounted in said hollow member, and a screw having a head seated in said disk and entering the adjacent end of the cutter shaft.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILLIAM EDWARD VILLINGER.

Witnesses:

JAMES I. PAUL,
N. B. BASTIAN.