

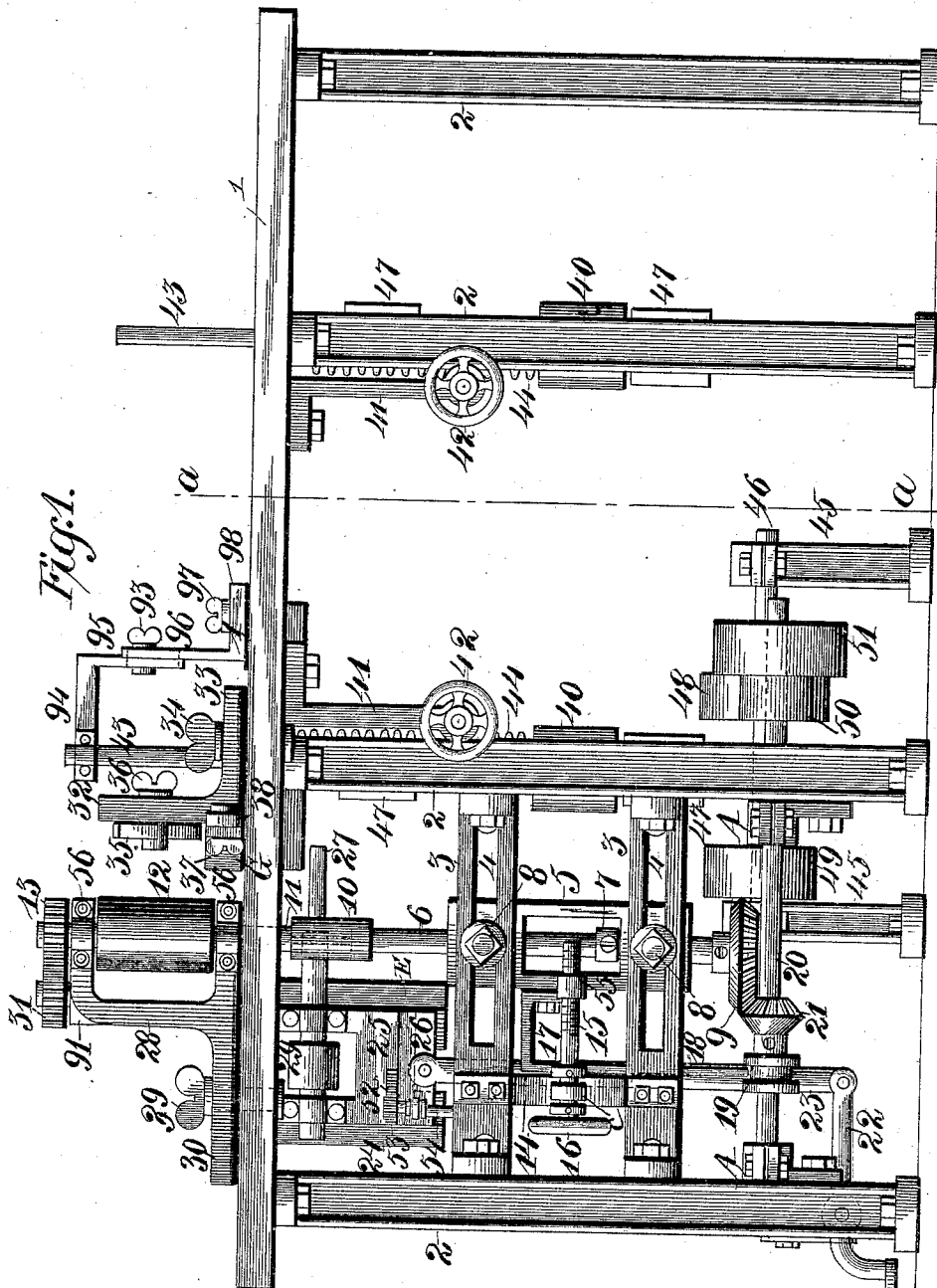
(No Model.)

3 Sheets—Sheet 1.

E. H. GIBSON.  
WOOD WORKING MACHINE.

No. 445,446.

Patented Jan. 27, 1891.



Witnesses

*W. J. Hopper*  
*J. Schurz*

Inventor

*Edward H. Gibson*

By his Attorneys

*Higdon & Higdon*

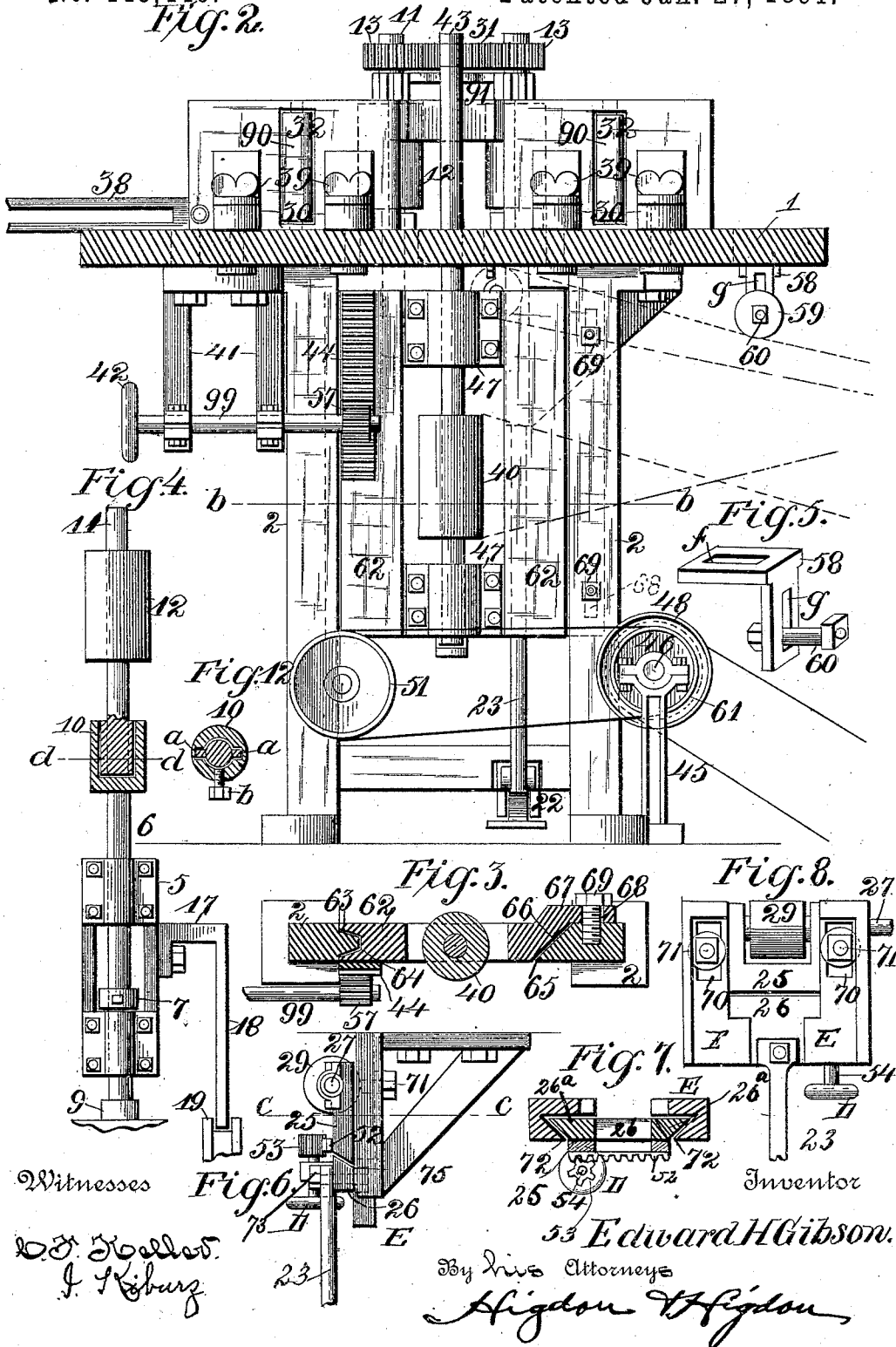
(No Model.)

3 Sheets—Sheet 2.

E. H. GIBSON.  
WOOD WORKING MACHINE.

No. 445,446.

Patented Jan. 27, 1891.



Witnesses  
D. D. Doolittle  
J. K. Kiburg

Inventor  
Edward H. Gibson.  
By his Attorneys  
Higdon & Higdon



# UNITED STATES PATENT OFFICE.

EDWARD H. GIBSON, OF ST. LOUIS, MISSOURI.

## WOOD-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 445,446, dated January 27, 1891.

Application filed June 16, 1890. Serial No. 355,602. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD H. GIBSON, of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Wood-Working Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has for its object to provide certain new and useful improvements in wood-working machines; and it consists in the novel combination and arrangement of parts, as will be hereinafter more fully described, and designated in the claims.

In the drawings, Figure 1 is a front elevation of my complete invention. Fig. 2 is a vertical cross-section taken on the line *a a* of Fig. 1. Fig. 3 is a cross-section taken on the line *b b* of Fig. 2. Fig. 4 is a front elevation of one of the feed-rollers and the mechanism for operating the same. Fig. 5 is a perspective view of the bracket which supports the friction-roller below the surface of the table. Fig. 6 is a side elevation of the carriage and its support for the horizontal rotating cutter-head. Fig. 7 is a cross-section taken on the line *c c* of Fig. 6. Fig. 8 is a rear view of the support for the carriage. Fig. 9 is a top plan view of my invention. Fig. 10 is a perspective view of the clamp used in connection with the vertical cutter-head. Fig. 11 is a perspective view of a guide-block. Fig. 12 is a horizontal cross-section taken on the line *d d* of Fig. 4.

Referring to the drawings, 1 represents the bed of the table, which is suitably supported by standards 2, to which the working parts of my invention are attached.

3 represents two longitudinal guides, one of which is located above the other, and which are suitably bolted or otherwise secured to the standards 2, said guides provided with slots for receiving two bolts 8 8, secured to the carriage 5, and which move transversely within the said slots.

5 represents a horizontally-moving carriage or otherwise in relation to the slots 4, through which carriage a vertical shaft 6 rotates and working in suitable boxes secured to the said carriage.

7 represents an adjustable collar encircling

the shaft 6, and which holds the same in position for the gearing.

The bolts 8 8 are provided with two nuts, which work or move on the forward face of the guides 3, which guide and support the carriage 5.

9 represents a comparatively large bevel-gear, which is secured or keyed to the lower end of the vertical shaft 6, and which meshes with a small bevel-gear 21, keyed to the horizontal shaft 20.

10 represents a collar secured to the upper end of the shaft 6, and provided with suitable recesses diametrically opposite one another, which recesses receive two vertical projecting feathers *a a*, preventing the upper section 11 from rotating only in the direction with the lower section. The collar 10 is also provided with a set-screw *b* as a further means of securing the two sections 6 11 in a locked position.

12 represents a feed-roller located above the bed of the table and keyed to the shaft 11 and rotating therewith when motion is imparted to said shaft.

13 represents a cog-wheel keyed to the upper end of the shaft 11 above the support 28, and which gears with similar gearing, as will be hereinafter more fully described.

14 is a support bolted at a suitable location to the horizontal guides 3, and provided with a suitable bearing *c*, within which the hand-screw 15 rotates. The hand-screw 15 has a hand-wheel 16 fastened thereto and screw-threads formed upon the same opposite to the said hand-wheel, which screw-threads work in corresponding screw-threads formed in the projection 55, which operates the carriage 5 and causes the feed-roller 12 to be moved to or from the gages 32, as may be desired, according to the thickness of material to be worked.

17 represents a projecting arm fastened in any suitable manner to one side of the carriage 5, and is provided with a dependent blade 18, which works in the usual recess formed in the double flanged wheel 19.

20 is a horizontal rotating shaft mounted in suitable boxes *A*, secured to the standards 2, to which shaft the bevel-gear 21 and double flanged wheel 19 are suitably fastened, but

adjustable thereon. To the projecting end of the shaft 20 are keyed two belt-pulleys 50 and 51, forming a speed-pulley for receiving the drive-belt, and which in its turn operates the feed-rollers, as will be fully seen.

22 represents a foot-lever bolted to one of the standards, to which is bolted the vertical rod 23, and connected to the vertical sliding lower section 26 of the carriage for raising and lowering the horizontal rotating shaft 27 at the will of the operator.

E represents a bracket or support for the lower section 26 of the carriage, the said bracket being provided with two openings 70 and 71, through which the bolts 71, carried by the top forks 26<sup>a</sup> of the lower section 26 of the carriage, pass, the said top forks being secured to the upper surface of the said lower section in any approved manner or being formed integral therewith. The support E is provided with two beveled grooves 72 for securing a corresponding projection or flange formed upon the said top forks for guiding and supporting the said lower section of the carriage, which is thus movable in a vertical direction.

75 represents a beveled face formed upon the outer face of the lower section of the carriage, which face receives the beveled edge formed upon the lower end of the upper section 25 of the carriage, allowing the said upper section to be moved in a horizontal direction, or, in other words, in an opposite direction to the lower portion 26. By this means the horizontally-rotating cutter head or shaft 27, carrying said cutter-head, may be moved in either a vertical direction or in a horizontal direction, as may be desired, thereby locating the cutter-head in a desired position to suit the convenience of the material to be worked.

To the upper section 25 of the carriage is secured a horizontal rack-bar 52, and to the lower section 26 is secured a bearing or box, within which a vertical shaft 54 is mounted.

53 represents a pinion mounted upon the upper end of the vertical shaft 54, carried by the projection 73 upon the lower section 26 of the carriage, and D represents a hand-wheel secured to the opposite end of the said shaft for rotating the said pinion, which pinion meshes with the rack-bar 52 and causes the upper section 25 of the carriage to be moved in a horizontal direction at the will of the operator.

28 28 are two supports located above the bed of the table 1, and provided with boxes 56 for receiving the vertical shaft carrying the feed-rollers 12. The supports 28 are provided with a rearward extension 30, within which are formed slots *h*, and through said slots pass thumb-bolts 39, by which means the said supports are adjustable in a longitudinal direction to and from the cutter head. A cross-brace 91 is connected to the supports 28, upon which is mounted an intermediate cog-wheel 31 for imparting motion from the cog-wheel 13, located upon the shaft 11, to

the opposite cog-wheel 13, which in turn revolves the shaft C and feed-roller 12.

32 32 are two adjustable guides provided with right-angled extensions 33, within which extension slots *i* are formed.

74 74 represent two slots formed in the bed of the table 1 and in a reverse direction to the slots *i*, formed in the extensions 33 of the guide. Within the slots 74 thumb-bolts 34 are movable and are of sufficient length to also extend to the slots *i* for the purpose of adjusting the guides 32 in any location or angle upon the bed of the table in relation to the cutter-head. Within the guides 32 are journaled rollers 90, thereby reducing all friction when the material is fed to the cutter-heads, which would otherwise bear against the flat surface of the said guides. The inner edges of the guides 32 are provided with upright recesses 77 for receiving the wings 76, formed upon the guide-block 75. The guide-block 75 guides the material to be worked from one guide to the other, thereby forming a continuous and smooth surface and preventing said material from jamming against the inward edge of the opposite guide from which the same is fed. These guide-blocks are to be of different sizes, according to the space between the guides 32. To one of the guides 32 is attached a flat spring 35, the lower end of which presses upon the material to be worked and presses the same upon the bed of the table when fed to the cutter-heads. The spring 35 is made adjustable by the thumb-nut 36, which can be thrown at any inclination, as may be desired.

45 45 represent two supports for the horizontal shaft 46, upon which shaft a belt-pulley 49 is keyed, which imparts motion by means of suitable belting to the said shaft. Upon the shaft 46 are also attached two pulleys 48 and 61, over which a belt passes to the pulleys 50 and 51 for imparting motion to the shaft 20, the object of which has been previously stated, the said shaft also carrying the pulley 49, over which the main driving-belt may pass.

Between a pair of the supports 2 is a vertical sliding carriage 62, one edge of which is provided with a longitudinal channel 64 for receiving a corresponding projection 63, formed upon one of the inner surfaces of the legs or supports 2, as best illustrated in Fig. 3. The opposite edge of the carriage 62 is provided with a bevel surface 66, which works against a bevel projection 65, formed upon the opposite leg or support.

To the carriage 62 is formed an extension 67, which is provided with slots 68, through which tightening-bolts 69 pass and are fastened in the support. It will thus be seen that the carriage 62 is firmly secured and yet movable in a vertical direction; or it can readily be detached from the supports 2, when desired.

To the carriage 62 are secured journals 47, within which rotates the vertical shaft 43,

upon which shaft the cutter-head, saw, or other devices used generally in this class of machinery may be attached above the surface of the table.

5 To the vertical shaft 43 and between the bearings 47 is keyed a belt-pulley 40, which receives a belt from any source of power, and which imparts motion to the said shaft.

10 To one side of the carriage 62 is secured a vertical rack-bar 44, as best illustrated in Fig. 2, which receives a pinion 37, secured to one end of the shaft 99.

15 To the under surface of the table 1 is attached a dependent bracket 41, terminating with the bearings for the shaft 99, which shaft is provided with a hand-wheel 42 for raising and lowering the carriage 62 when necessary.

20 To one of the guides 32 is attached a slotted extension, the forward face of which is provided with an adjustable slide-block G, and which is made adjustable thereon by means of the thumb-nut 37. This device is used as a support for material to be worked of a uniform length in large quantities, and can be readily adjusted to suit any length at the will of the operator.

30 To the upper surface of the bed of the table is secured a right-angled arm 98, and fastened thereto by means of a thumb-nut 97, the upright arm 96 of which supports an arm 95, which slides thereon, the said arm 95 carrying a support 94, encircling the shaft 43. A thumb-bolt 93 passes through the upright arms 95 and 96, making the parts thereof adjustable when it is desired to raise or lower the vertical shaft 43. By this means the shaft 43 is held in a rigid position at its extreme upper end, which shaft would otherwise give more or less when revolved.

40 Over the hole formed in the bed of the table for the vertical shaft 43 is placed the usual surface-plate 79 for reducing the opening formed in the bed of the table, according to the size of the cutter-head to be used. To the rear of the machine is attached a similar shaft 43 and carriage 62 for the same, both of which are operated in a like manner to that previously described, and is to be used for such work that cannot be accomplished by the other.

55 Upon the top of the table 1 is secured a combined right and left hand gage, as best shown in Fig. 9.

60 80 represents the above-named gage, having a right-angled extension 83, and within the said extension a slot 87 is formed, which receives a thumb-bolt 85, by means of which a gage 84 is made adjustable thereon. The gage 80 is fastened to the table by means of a thumb-bolt 81, which passes through the slot 82, and is secured to the table 1, by which means the gage is made adjustable and detachable from the said table. When used as a left-hand gage, the same is located in relation to the cutter-head in a position as shown by dotted lines, Fig. 9, thereby adapting itself

to either a right or left hand gage, against which the work may be fed to the cutter-head. When the shaft 20 is revolved, the vertical shaft 6 is also rotated through the medium of the bevel-gears 9 and 21, thus imparting motion to the feed-rollers 12 through the medium of the gear-wheels 13 and 31.

70 When it is desired to change the location of the feed-rollers, the thumb-nut 39 is loosened and the hand-wheel 16 turned in either direction, as may be desired, according to the thickness of the material to be worked, and when so adjusted the said thumb-nuts 39 are again tightened, holding the said support and feed-rollers 12 attached thereto in a rigid and secure position.

80 When it is desired to bead the material, pressure is applied upon the foot-lever 22, causing the shaft 27 for the cutter-head to be raised and bring the said cutter-head in contact with the work and which may be held in that position by any suitable device.

85 If it be desired to change the location of the shaft 27 in a horizontal direction, the hand-wheel D is turned, causing the pinion 53 to work against the rack-bar 52 and move the carriage 25 in either direction, as may be desired.

90 The vertical or main shaft for the vertically rotating cutter-head is raised or lowered by the hand-wheel 42, which in its turn operates a pinion 57, which pinion meshes with the rack-bar 44, secured to the carriage 62, upon which carriage the said vertical shaft is mounted and movable therewith. A right-angled bracket 58 is secured to the lower surface of the table 1, the slot *f* in its upper surface permitting its proper adjustment, and carries in the slot *g* in its vertical arm a shaft 60, in which the roller 59 revolves, which by its weight is caused to keep the driving-belt to the pulley 29 on the horizontal shaft 27 taut.

95 By the use of my invention I am enabled to work any two surfaces of material—namely, by plowing the same with the vertical cutter-head or shaft 43, carrying the same, and at the same time bead one side thereof by the cutter-head carried by the shaft 27.

100 It will be readily seen the work which has heretofore been passed through several machines to accomplish a certain object is done by one operation by use of my invention, thereby saving time and labor, which is of great value in this class of machinery. It will be further noted that all the parts of my invention which are located above the surface of the table can be readily detached therefrom, leaving thereby an uninterrupted surface for any other material to be worked, or any well-known devices in this class of machinery, to accomplish certain results, attached thereto. The gages 32 are adjustable either to or from each other, or in a reverse direction to and from the feed-rollers, as may be desired, adapting themselves to any thickness of material to be worked. When

the hand-wheel 16 is turned, the blade 18 is also moved, causing the double-flanged pulley 19, which is integral to the bevel-gear 21, to also be moved, thereby keeping the said bevel-gear in a working-connection with the large bevel-gear 9.

Having fully described my invention, what I claim is—

1. In a wood-working machine, the adjustable guides 32 32, provided with slots or recesses 77, in combination with the guide-lock 75, provided with wings 76, substantially as described.

2. In a wood-working machine, the combination, with a guide-bracket, of a carriage thereof being vertically movable in the said bracket and having a beveled face on its surface, the upper section of the said bracket sliding on the said face on the lower section and having a rack-bar thereon, a vertical shaft mounted upon the said lower section and having a gear-wheel upon its upper end engaging the said rack-bar, a horizontal shaft mounted in the upper section of the said carriage, and a tool mounted upon the said shaft, as described.

3. In a wood-working machine, the combination, with a table, of two opposite supports therefor having tongued and beveled inner surfaces, respectively, a sliding carriage having opposite grooved and beveled ends sliding between the said supports, a vertical shaft carried by the said carriage, and a cutter-head upon the said shaft, as described.

4. In a wood-working machine, the combination, with a table, of two opposite supports therefor having tongued and beveled inner surfaces, respectively, a sliding carriage having opposite grooved and beveled ends sliding between the said supports, a vertical rack-bar upon the said carriage, a horizontal shaft carried by the said table, and having a wheel thereon gearing with the said rack-bar, a vertical shaft carried by the said carriage, and a cutter-head upon the said shaft.

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

EDWARD H. GIBSON.

Witnesses:

C. F. KELLER,  
I. KIBURZ.