(No Model.) 2 Sheets—Sheet 1.

L. F. PARKS.

COMBINATION WOODWORKING MACHINE.

No. 557,222. Patented Mar. 31, 1896.

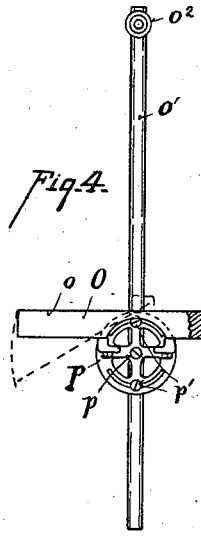

Fig. 4.

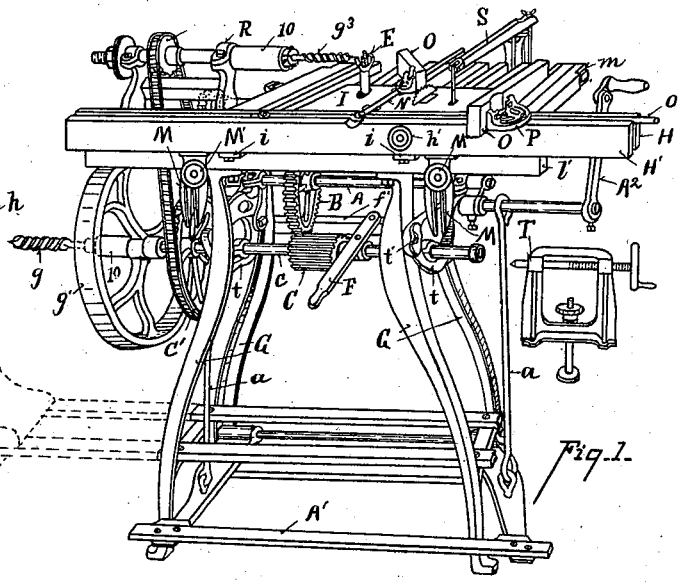

Fig. 1.

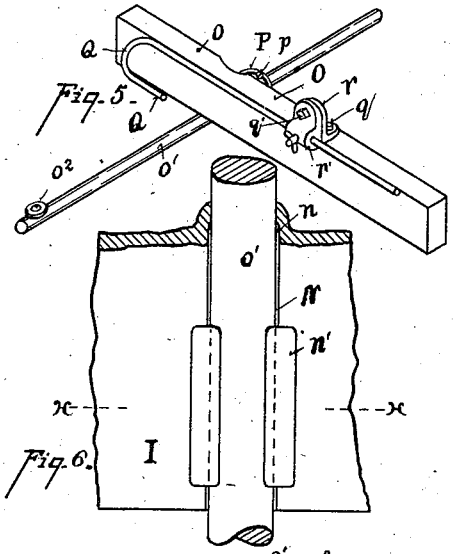

Fig. 5.

Fig. 6.

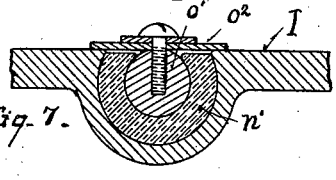

Fig. 7.

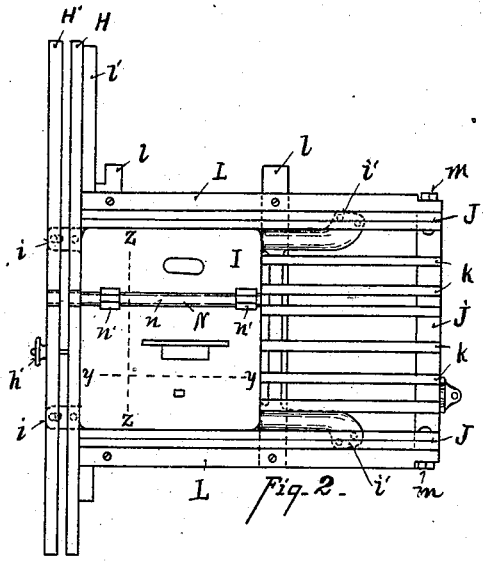

Fig. 2.

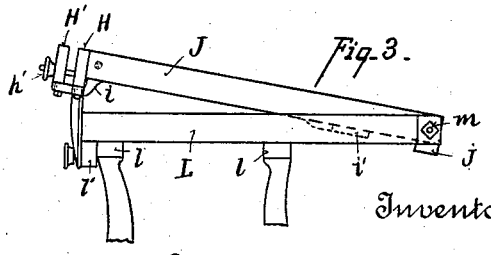

Fig. 3.

Witnesses

W. R. Wood

Oliver B. Kaiser

Inventor

Lewis F. Parks

By C. W. Miles

Attorney

(No Model.) 2 Sheets—Sheet 2

L. F. PARKS.

COMBINATION WOODWORKING MACHINE.

No. 557,222. Patented Mar. 31, 1896.

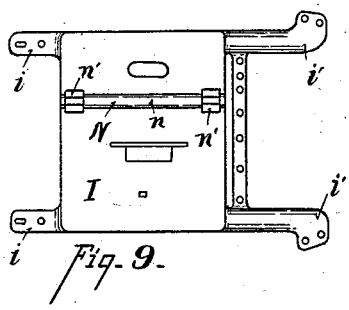

Fig. 9.

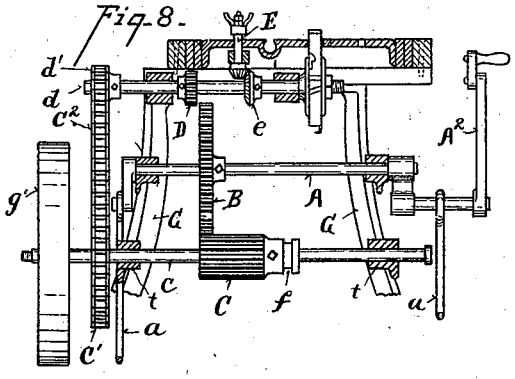

Fig. 8.

Fig. 10.

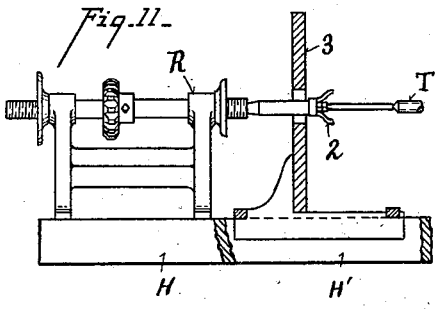

Fig. 11.

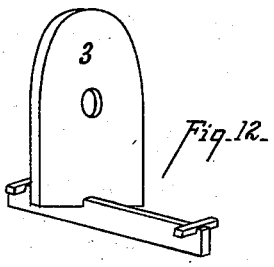

Fig. 12.

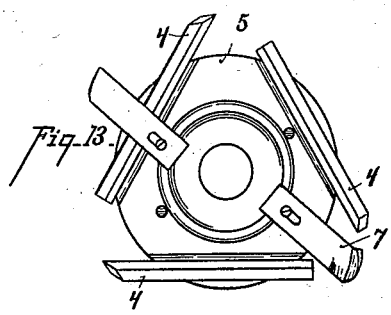

Fig. 13.

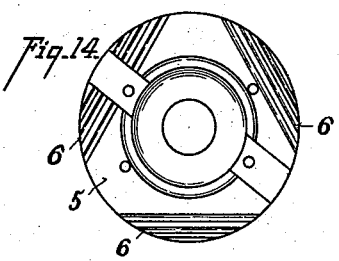

Fig. 14.

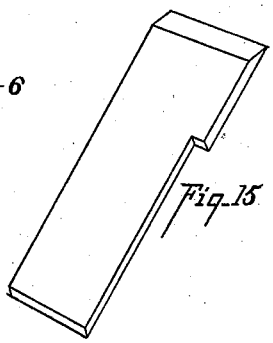
Fig. 15.

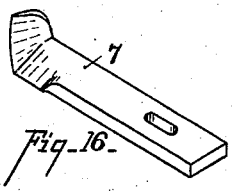

Fig. 16.

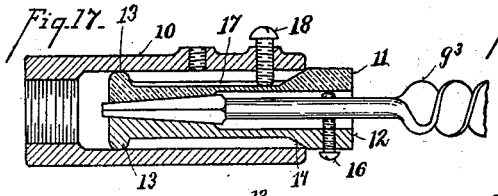

Fig. 17.

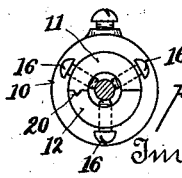

Fig. 18.

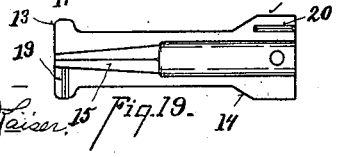

Fig. 19.

Witnesses
W. R. Wood
Oliver B. Kaiser

Inventor
Lewis F. Parks
By C. W. Miles
Attorney

UNITED STATES PATENT OFFICE.

LEWIS F. PARKS, OF CINCINNATI, OHIO.

COMBINATION WOODWORKING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,222, dated March 31, 1896.

Application filed April 1, 1895. Serial No. 544,124. (No model.)

To all whom it may concern:

Be it known that I, LEWIS F. PARKS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Combination Woodworking-Machines, of which the following is a specification.

My invention relates to improvements in combination woodworking-machines. Its objects are, first, to provide and combine a number of different woodworking devices and tools in a single machine in such manner that each may be quickly and conveniently put into operation and without inconvenience on account of the other devices, and, second, in the improvement and simplification of various parts, including the operative table.

Figure 1 represents a perspective view of my device. Fig. 2 is a top plan view of the work-supporting table. Fig. 3 is a side elevation of the same. Fig. 4 is a top plan view of one of the guides. Fig. 5 is a perspective view of the same with adjustable stop attached. Fig. 6 is a detail view showing the manner of supporting the guide upon the table. Fig. 7 is a section on line *x x*, Fig. 6. Fig. 8 is a vertical section through the machine on the line of the operative shafts. Fig. 9 is a top plan view of the metal table-plate. Fig. 10 is a detail view of the crank-wheel for driving the scroll-saw. Fig. 11 is a central vertical section through an attachment to the lathe. Fig. 12 is a perspective view of the same. Fig. 13 is a side elevation of one of the cutter-heads with the upper clamping-plate removed. Fig. 14 is an inside plan view of one of the clamping-plates. Figs. 15 and 16 are perspective views of the knives. Fig. 17 is a central vertical section through the bit-chuck. Fig. 18 is an end view of the same. Fig. 19 is a plan view of one of the jaws.

A represents the main driving-shaft, driven by means of treadle A′ through connecting-rods *a*, or by means of crank-arm A^2, or by both together.

B represents a gear on shaft A, meshing with either gear C on shaft *c* or with gear D on shaft *d*, according to the speed required. When gear B meshes with gear C, a high speed is transmitted to the operative shaft *d* through sprocket-wheels *c′ d′* and chain c^2. Shaft *d* is adapted at its forward end to receive a variety of circular saws, gaining-heads, and similar revolving tools. It is also provided with a beveled gear *e*, which drives the frizzer-spindle E.

Gear C is much wider than gear B, and its hub is provided with a groove *f* to receive a metal strap secured to lever F, which is hinged to the cross-bar *f′* on the frame G of the machine. The shaft *c* may thus be fed endwise by means of lever F. Suitable bits *g* are secured to this shaft outside the fly-wheel *g′*, which bits are used in connection with a suitable rest *h* to do heavy boring. Shaft *c* is journaled in brackets *t* pivoted to the rear frame-pieces or legs G and secured to the front frame-pieces by means of bolts *t′* passing through slotted openings in said brackets, by which means the shaft may be adjusted vertically.

The table consists of a cast center plate I, provided at its four corners with arms or brackets *i i′*, latheways H H′ secured upon the arms *i*, wooden side bars J, which are mortised into the way H and secured at their rear ends to brackets *i′*, a rear cross-bar J, and short bars *k* secured to the plate I and to the cross-bar J.

L represents side rails secured upon cross-bars *l l′*, fastened to the frame G. The table is pivoted at *m* to the side rails, so that the table, including the latheways, may be adjusted to the desired angle, as indicated in Fig. 3, where it is held by forked arms M and clamp-nuts M′, or it may be raised to a vertical position to give access to the parts beneath.

The forked arms M are of wedge or taper form in side elevation. This form is particularly advantageous in adjusting the height of the table, as when the nut M′, Fig. 3, is slackened the taper-arms M and table slip down slowly as the nut is turned, and when the right height is attained the nut is clamped tightly to hold the table in position.

The lathe head-stock R has two positions—one upon the ways H H′ and the other upon the ends of the cross-bars *l l′* in the rear of the ways H H′, as shown in Fig. 1. It is preferably placed in the latter position and pro-

vided with suitable bits g^3 when used as a boring-spindle for light work. The lathe-mandrel is driven from sprocket-wheel c' by substituting a longer chain for chain c^2, which is used to drive shaft d.

The vertical adjustment of the table, together with the ways H H′ and other guide-ways, is of great utility, as it enables the operator to adjust the table to the varying heights required in using bit g^3 or to regulate the depth of cut of the saws or gaining-heads on shaft d.

The table as here constructed has many advantages over tables as heretofore constructed. The metal plate with its projecting arms forms a light, strong, and indestructible frame, by which the wooden bars and frame-pieces are firmly bound together and from which they may be readily detached and replaced. The table is free from all tendency to shrink or warp and is very economical in construction.

N represents ways for the saw or boring-machine guide O. Only one of these ways is shown upon the table; but others may be provided, if desired, upon dotted lines y y z z, Fig. 2. They are formed in the following manner: A groove n is cast in the face of the table with two or more pockets to receive Babbitt or similar metal boxes or supports n' for the guide-rod. The guide is formed of the cross-arm o, secured by means of a slotted segment P to the guide-rod o', which is preferably formed of a piece of shafting and is provided at its forward end with a disk or plate o^2, which serves to guide the end of the rod into the close-fitting boxes n' and also prevents the end of the rod dropping down into the groove. The segment P is preferably secured at three points of attachment to the rod o', p being the pivotal point and p' clamping-bolts, in order to clamp the round rod firmly in the adjusted position. In Fig. 5 an adjustable stop is shown mounted upon the cross-bar o. It consists of a bracket composed of two pieces r r', swiveled at points q q' and supporting a rod Q, one end of which is bent into a **U** form to present the end Q′ as a stop or gage where a number of pieces are to be cut or bored at the same distance from the end. This stop has a wide range of adjustment, which permits it to be used with material of widely-different proportions.

The latheways H H′ are designed also to serve as ways for the guide O, as shown in Fig. 1, the rod o' resting between the ways, while the cross-arm serves to feed material to the boring-spindle, or the rod o' may be clamped between the ways H H′ by means of the hand-wheel h' and the cross-arm used as a side guide for the circular saw or gaining-head.

It is frequently desirable in frizzing long, large, or irregular pieces of work to hold the article vertically and have a horizontal cutter-head. This I provide in Figs. 11 and 12. 2 represents a frizzing-spindle supported between the head and tail stocks of the lathe. 3 represents a vertical rest for the work mounted and clamped upon the latheways.

In Figs. 13 to 16 is represented a gaining cutter-head adapted to be used on shaft d of my device. 4 represents knives secured between clamping-plates 5. 6 represents grooves in the face of the clamping-plates, in which the edges of the knives 4 rest. The knives may thus be set at any angle desired by placing the edges of the knives on one side in, say, the outer groove and on the other side in the second or third groove from the edge, thereby giving the knives an easy draw cut instead of a scraping cut, which would result from setting the knives at right angles to the plates 5. 7 represents auxiliary knives which are set, one or more, upon each side and cutting a little in advance of the other knives. The working portion of these knives is angular in form. The vertical or shank portion of the blade travels in advance of the end of the blade, thereby giving the peripheral portion of the blade also a draw cut, preventing the shank of the blade from springing away from its work. The object of these knives is to cut across the grain and preserve a smooth edge while the knives 4 remove the bulk of the material.

Figs. 17, 18, and 19 illustrate a chuck for holding various bits commonly employed by woodworkers when my device is to be used as a boring-machine. 10 represents a sleeve screw-threaded at its rear end in order to attach it to the spindle. 11 12 represent the jaws employed for holding small bits. These jaws are provided with a flange 13 at the rear end, loosely fitting the bore of the sleeve, and at the forward end preferably with a taper-flange 14 slightly larger than the bore of the sleeve, while the intermediate portion of the jaws is of less diameter than the bore of the sleeve. The jaws are provided with an angular socket 15 at the rear end to hold the shank of the bit and at the forward end with set-screws 16 to engage the stem of the bit. 17 represents a groove in the neck of one of the jaws, in which the set-screw 18 seats. 19 20 represent **V**-shaped lugs on one of the jaws, engaging corresponding grooves in the face of the opposite jaw, which prevents the displacement of the same.

The chuck is operated as follows: When it is desired to remove the bit, Fig. 17, the set-screw 18 is loosened and the jaws drawn forward, when the jaws will open at the forward end, due to the reduced circumference of the neck, and release the bit. The jaws are prevented from dropping out by the screw 18. When it is desired to set a hollow auger in the chuck, the screw 18 is loosened until the jaws can be removed. The hollow auger, the shank of which registers with the bore of sleeve 10, is then inserted and clamped by set-screw 18.

S represents a scroll-saw hinged to the cross-bar j and readily detachable therefrom. The

saw is reciprocated by means of a crank-wheel 8, detachably secured to the end of shaft *d*, the crank-pin of wheel 8 engaging and reciprocating the lower arm of the saw.

What I claim is—

1. In a work-supporting table for woodworking-machines the combination of the central metal plate I provided with projecting brackets *i i'* with a wooden framework composed of latheways H H' and bars J, *j*, *k*, secured upon and bound together by said brackets, substantially as specified.

2. A work-supporting table for woodworking-machines composed of a central metallic plate I provided with projecting arms or brackets, and a superstructure composed of wooden bars secured to and bound together by said arms or brackets, substantially as specified.

3. A work-supporting table for woodworking-machines hinged at its rear end to the frame of the machine and provided with latheways H H', and clamp *h'* at its forward end, said ways being secured to and vertically adjustable with said table, and adapted to be used either as latheways or as ways for a saw-guide, substantially as specified.

4. A work-supporting table for woodworking-machines hinged at its rear end to the frame of the machine, ways H H' secured to the forward end of said table, with their upper edge flush with the top of the table, the wedge-shaped forked adjusting-arms M and nuts M' substantially as specified.

5. In combination with a slotted table, a saw and boring-machine guide composed of the cross-arm *o*, and guide-rod *o'* provided with disk o^2, said cross-arm and guide-rod being adjustably secured together by means of segment P provided with a pivotal bolt *p* and clamp-bolts *p'* located upon opposite sides of pivotal bolt *p* substantially as specified.

6. A saw and boring-machine guide composed of the cross-arm *o*, and rod *o'* adjustably secured together by means of segment P, the swivel-plates *r r'* and U-shaped stop-arm Q adjustably secured thereto, substantially as specified.

7. In a woodworking-machine the combination with a work-supporting table provided with one or more grooved guideways *n*, provided with Babbitt-metal boxes or supports *n'*, of a guide-rod seated in said boxes and carrying an adjustable cross-bar *o*, substantially as specified.

8. In a woodworking-machine a revolving cutter-head composed of duplicate clamping-plates 5 provided with grooves 6 arranged in series near the edge of said plates, a series of knives 4 seating in said grooves and adjustable to different angles by their engagement with different grooves in opposite plates, and one or more auxiliary angle-knives 7, substantially as specified.

9. In a woodworking-machine a bit-chuck composed of sleeve 10, provided with set-screw 18, the removable counterpart jaws 11, 12 having flanges 13, 14, at their opposite ends, and a reduced slotted neck connecting said flanges, an internal polygonal seat at the rear end to engage the shank of the bit and a series of set-screws located in flange 14 to center and hold the stem of the bit, substantially as specified.

10. The combination of a work-supporting table provided with one or more grooves *n*, and Babbitt-metal boxes *n'* cast therein, with an adjustable guide composed of the round guide-rod *o'* and cross-bar *o*, pivotally secured together and adapted to be rigidly clamped in the adjusted position, substantially as specified.

In testimony whereof I have hereunto set my hand.

LEWIS F. PARKS.

Witnesses:
C. W. MILES,
OLIVER B. KAISER.