

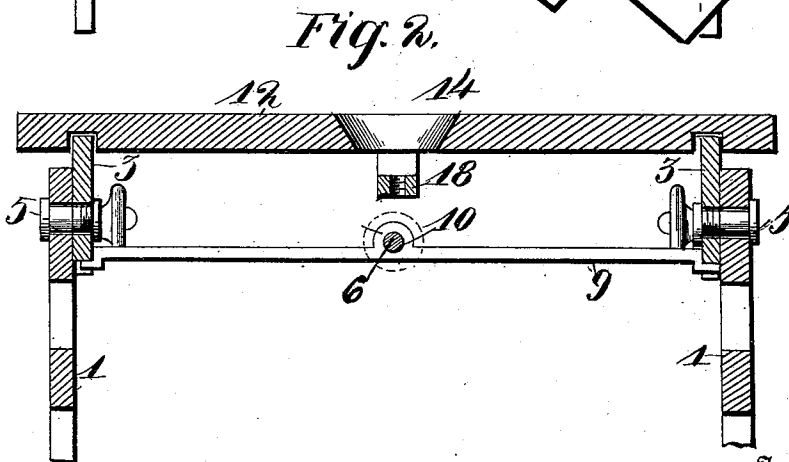
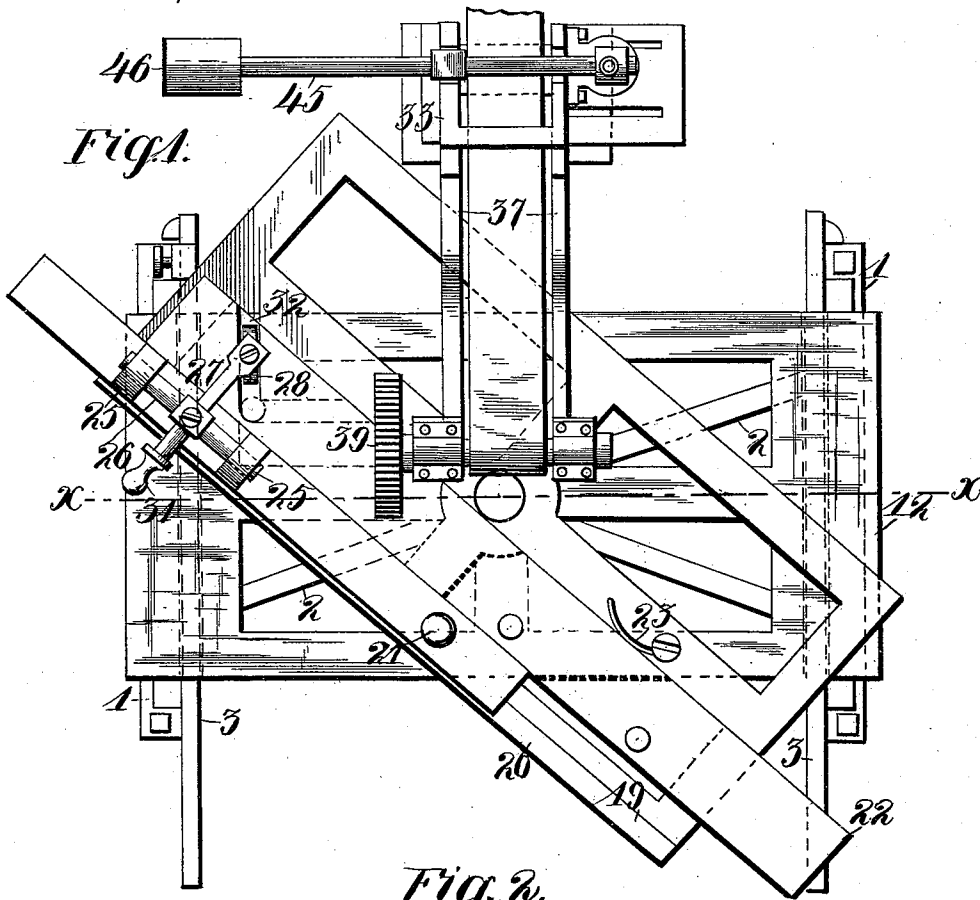
(No Model.)

2 Sheets—Sheet 1.

F. RICH & N. SONDAG.
WOOD WORKING MACHINE.

No. 468,897.

Patented Feb. 16, 1892.



Witnesses

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Inventors

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(No Model.)

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Fig. 3.

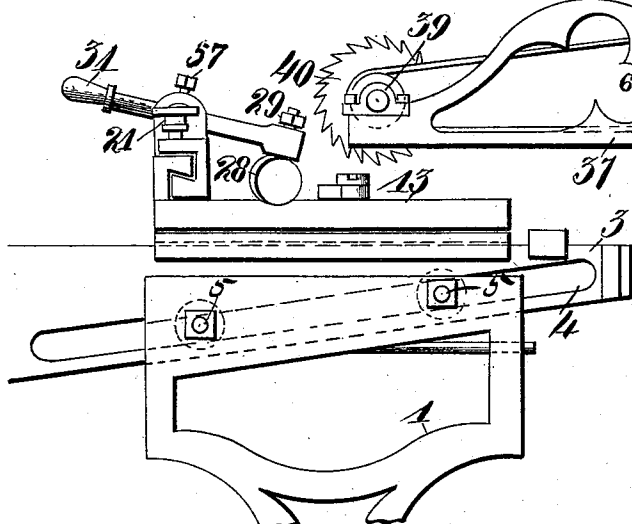


Fig. 5.

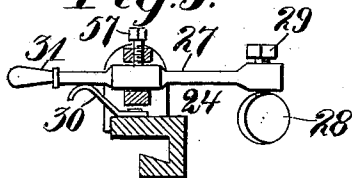


Fig. 4.

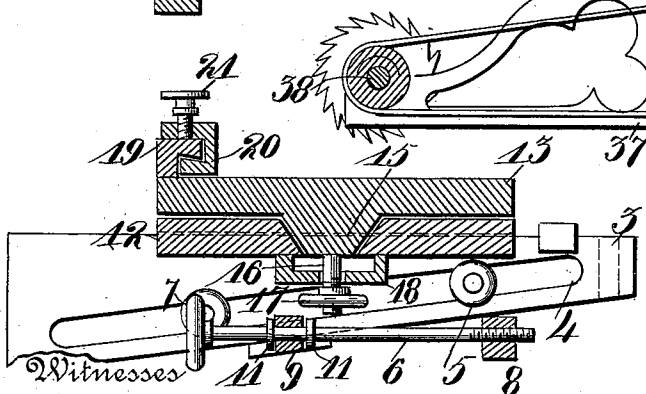
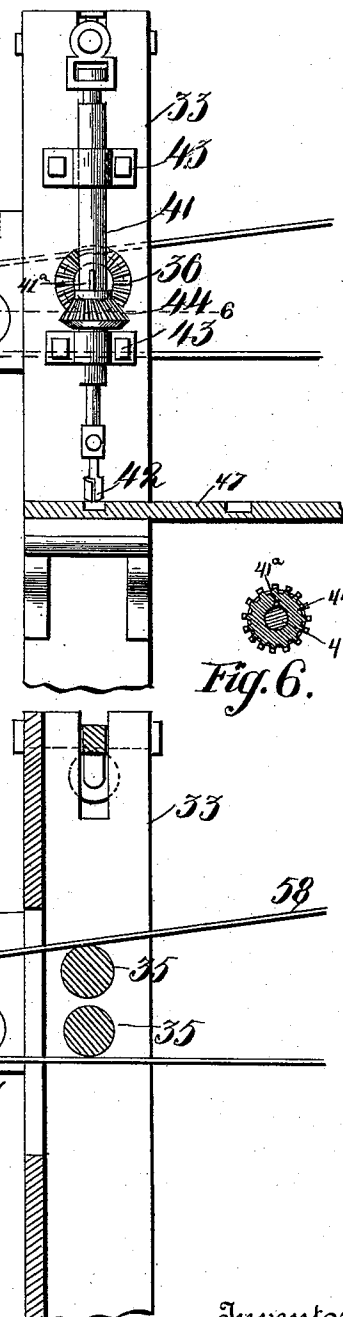


Fig. 6.



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UNITED STATES PATENT OFFICE.

FREDERICK RICH AND NICOLAS SONDAG, OF ST. LOUIS, MISSOURI.

WOOD-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,897, dated February 16, 1892.

Application filed February 20, 1891. Serial No. 382,184. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK RICH, a citizen of the United States, and NICOLAS SONDAG, a citizen of France, both residing at 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.

Our invention relates to improvements in wood-working machines; and it consists in the novel arrangement and combination of parts, as will be hereinafter more fully described, and designated in the claims.

In the drawings, Figure 1 is a top plan view of our complete invention, showing a piece of wood in position to be worked upon. Fig. 2 is a vertical cross-section taken on the line x of Fig. 1. Fig. 3 is a side elevation of our invention. Fig. 4 is a longitudinal vertical section of our invention. Fig. 5 is a vertical cross-section of the gaging mechanism. Fig. 6 is a cross-section on line 6 6 of Fig. 3.

The object of our invention is to construct a machine for working wood, and especially designed for mortising or grooving planks in the construction of steps, stoops, &c., and for various other purposes too numerous to mention.

Referring to the drawings, 1 indicates the horizontal table-supports. Said supports are firmly secured at their lower extremities to any support on which it is adapted for the operating mechanism of our machine to be placed. Said supports 1 are laterally secured together or braced by means of a horizontal cross-piece 2. This cross-piece 2, as well as the supports 1, may be constructed in any finished form according to the taste and judgment of the manufacturer. To the upper portions of said upright supports are adjustably secured wedge-shaped sliding plates 3. Said plates are provided with elongated slots 4, through which slots thumb-screws 5 pass, thereby holding and adjustably securing said plates 3 to the upright supports 1. Said plates are movable in a forward and backward direction, this forward and backward motion, however, being effected by means of a screw-threaded shaft 6, the front end of which has secured to it a wheel 7, and the opposite end is provided with screw-threads and adapted to be screwed

in a screw-threaded perforation formed in a horizontal cross-piece 8, the ends of which are rigidly secured to upright supports 1. Said shaft has its bearings in a horizontal cross-piece 9, the ends of which cross-piece are rigidly secured to the wedge-like sliding plates 3. Said horizontal cross-piece 9 is provided with a bearing projection 10, which is interposed between collars 11, rigidly secured to shaft 6. By rotating wheel 7, and consequently shaft 6, to which said wheel is rigidly secured, the wedge-shaped sliding plates 3 are adjusted or moved in a forward or rearward direction.

12 indicates a horizontal table, which is movably secured to the sliding wedge-shaped plates 3 in any suitable and mechanical manner, and is adjustable in a forward or rearward direction as said wedge-shaped sliding plates are adjusted, as hereinbefore stated. As said wedge-shaped plates are pushed forward, from the peculiarity of their construction, of course, the horizontal table 12 will be elevated, and by moving said sliding plates in an opposite direction as a natural consequence said table will be lowered, the extent of the elevation and depression of said table of course corresponding to the excess of the inequality of the width of the opposite ends of said sliding plates 3.

13 indicates a rotating table, which is pivotally secured and mounted on table 12 in the following manner, to wit: Table 12 has formed in it a conical depression 14, in which depression a conical projection 15, formed on table 13, is adapted to snugly fit. Said projection has rigidly secured to it a screw-threaded stud 16, on the screw-threaded portion of which a small tightening-wheel 17 may be screwed. Said stud 16 has its bearing in a U-shaped plate 18, which is rigidly secured to the bottom of table 12. The front portion of table 12 is provided with an L-shaped bar 19, over which bar a bar 20, provided with a dovetailed groove, may be slipped, and is adjustable thereon, the desired adjustment being effected by means of a set or thumb screw 21, which is adapted to pass through the upper portion of bar 20 and impinge on the upper surface of the L-shaped bar 19. The L-shaped bar 19 and the adjustable bar 20, movable along the same, is used for adjusting the work endwise when it is not desired to gage, as hereinafter explained.

Referring to Fig. 1, 22 indicates a piece of wood which is desired to be worked upon. The wood is placed firmly against the adjustable bar 20, and is held in said position by means of a spring 23, which is firmly secured to the rotating table 13 by means of a screw, as can be readily perceived. As the bar 20 is adjusted or moved, the piece of wood 22 will also be adjusted, as the tension of the spring will create sufficient friction between the wood and bar to enable the latter to move the wood when it is moved itself, and by this means the distance between grooves may be adjusted.

As the table 13 is not laterally adjustable, it is absolutely necessary that a construction like the one just described or one similar thereto should be used for effecting this lateral adjustment. The rotating table 13 is to adjust and regulate the angles of the grooves or mortises.

24 indicates a gaging mechanism or device by which we set off and regulate the exact distance between the grooves, thereby making them all of the same distance apart. Said device consists of perforated ears 25, which are firmly secured to bar 20, a small shaft 26, mounted in said perforated ears, provided with an angular perforation through which a small angular rod 27 is adapted to pass, and is adjustably secured in the same by means of a thumb or set screw 57, an adjustable disk 28, secured to one end of said rod 27 by means of a set-screw 29, and a spring 30, the function of which is to press up upon bar 27 and hold disk 28 in engagement with the grooves. Said disk 28 can be regulated or adjusted at an angle corresponding to the angles of the grooves that are cut and is adapted to fit down in said grooves. In order to disengage said disks with the grooves, it is only necessary to press down on handle 31 of the bar or lever 27. When the first groove, 32 for instance, referring to Fig. 1, has been cut in the strip of wood 22, the disk 28 is placed in the same and another groove or mortise is cut and the stick of wood is moved so that said disk 28 may be placed in said groove. By this means the exact distance between the grooves or mortises may be adjusted or regulated.

33 indicates a vertical column for the sawing and cutting mechanism of our device. Said column 33 is preferably hollow, and located in the same are belt-pulleys 35, vertically arranged relative to each other. The upper of said pulleys has secured to it on the exterior of said vertical support a bevel gear-pinion 36, for the purposes hereinafter more fully specified.

37 indicate supporting-arms, which project horizontally from said column, and secured in the front terminal portions thereof is a similar belt-pulley 38, the shaft of which carries the cutting device—for instance, a saw. Said belt-pulley is secured and mounted in suitable bearings or boxings 39.

40 indicates a saw which is rigidly secured

to the shaft of said belt-pulley and is carried thereby. The belt 58 is adapted to pass over and rotate all the belt-pulleys hereinbefore stated simultaneously, as shown in Fig. 4.

41 indicates a vertical shaft, to the lower end of which is secured in any mechanical manner a boring-bit 42. Said shaft is revolvably mounted in bearings 43, which bearings or boxings are secured in the vertical support 33. Said vertical shaft 41 is adjustable in a vertical direction.

44 indicates a bevel gear-wheel, which is mounted on shaft 41 in such a manner that it may slide thereon; but it is prevented from revolving independent of the shaft by means of a lug or key 41^a, secured to said shaft and entering a slot in the gear. The object of this construction will be readily understood when it is remembered that the shaft must have vertical movement as it carries the bit, and the gear 44 must always mesh with gear 36. The vertical adjustment of said vertical shaft 41 is effected by means of a lever 45, one arm of which is secured to the upper portion of said vertical shaft 41 in any suitable and mechanical manner so as not to interfere with the rotating or revolving of said vertical shaft 41. The other arm of said lever 45 has secured thereto the gravity-weight 46, which depresses said arm and elevates the vertical shaft 41 when in use, as desired by the operator.

47 indicates a table-support, which is situated vertically under boring-bit 42 and secured to vertical support 33 in any suitable and mechanical manner, on which support the material to be worked is placed.

Having described the mechanical parts of our invention, we will now proceed to describe the operation of the same. If it is desired to cut out mortises or grooves in planks in constructing stairways, steps, stoops, &c., the operator can proceed immediately without laying off the distances apart of the grooves or mortises. Our invention is especially designed to do away with the marking or laying off of the distances between the grooves or mortises before cutting the same. After the first groove is cut, which can be cut at any desired angle by manipulating the rotating table 13, the other grooves can be adjusted at definite and exact distances apart. Although we have before stated that the wood is moved by operating the bar 20 when it is desired to gage, the wood should be moved by hand, for if the bar 20 were moved, the gage being on said bar, the desired measurement could not be made.

By inspecting Figs. 3 and 4 it is perceived that the same belt 58 turns the saw 40, and also the bevel gear-pinion 36, which operates the boring-bit 42.

Having fully described our invention, what we claim is—

1. A wood-working machine consisting of supports 1, a horizontal table 12, indirectly supported by the same, a rotarily-adjustable table 13, mounted on said table 12 for adjust-

ing the angles between the cutting-instrument and the wood to be worked, a sliding bar 20, bearings 25 thereon, a shaft 26, mounted in said bearings, a rod 27, carried by the shaft, a disk 28 on the outer end thereof, a cutting-instrument, and means for operating said instrument, substantially as set forth.

2. In a wood-working machine, a laterally-adjustable table 12, a rotarily-adjustable table 13, mounted thereon, an L-shaped bar 19 on table 13, a dovetailed grooved bar 20, adapted to slide on said bar 19, means to hold said bar 20 in the desired position, bearings 25 on the bar, a shaft 26, mounted therein, a rod 27, carried by said shaft, and a disk 28 on the outer end of rod 27, substantially as described.

3. A wood-working machine consisting of supports 1, wedge-shaped sliding plates 3, provided with inclined slots 4, adjustably secured to said supports by means of thumb-screws 5, a horizontal table 12, movable on said plates, a rotarily-adjustable table 13, pivotally secured to said table 12, a horizontal cross-piece 8, secured to said upright pieces 1, said piece provided with a screw-threaded perforation, a horizontal cross-piece 9, provided with a perforated projection, a screw-threaded shaft 6, adapted to pass through said perforated projection and be screwed into cross-bar 8 for adjusting said plates 3 and their attachments in a forward and rearward direction, a saw or cutting-instrument, and means for operating the same, substantially as set forth.

4. A wood-working machine consisting of supports 1, wedge-shaped plates 3, provided with elongated slots 4, adjustably secured to said supports by means of thumb-screws 5, a horizontal table 12, movable on said plates, a rotarily-adjustable table 13, pivotally secured to table 12 by means of a stud 16 and wheel 17, cross-piece 8, provided with screw-threaded perforation secured between said uprights, a similar cross-piece 9, provided with a perforated projection, a screw-threaded shaft 6, provided with shoulders 11, located on opposite sides of said perforated projection, a wheel 7 for rotating said shaft and consequently adjusting plates 3 and their attachments to or from the cutting-instrument, as desired, a cutting-instrument, and means for operating the same, substantially as set forth.

5. A wood-working machine consisting of supports 1, wedge-shaped plates 3, provided with elongated slots 4, adjustably secured to said supports by means of thumb-screws 5, a horizontal table 12, movable on said plates, a rotarily-adjustable table 13, pivotally secured to table 12 by means of a stud 16 and a wheel 17, an L-shaped bar 19, secured to said rotarily-adjustable table, a dovetailed grooved bar 20, adapted to slide on said bar 19, a thumb-screw 21 for holding said bar 20 in its desired adjustment, cross-piece 8, provided with a screw-threaded perforation secured between said uprights, a similar cross-piece

9, provided with a perforated projection 10, a screw-threaded shaft 6, provided with shoulders 11, located on opposite sides of said perforated projection, a wheel 7 for operating said shaft, and consequently adjusting said plates 3 and their attachments to or from the cutting-instrument, as desired, a cutting-instrument, and means for operating the same, substantially as set forth.

6. A wood-working machine consisting of supports 1, wedge-shaped plates 3, provided with elongated slots 4, adjustably secured to said supports by means of thumb-screws 5, a horizontal table 12, movable on said plates, a rotarily-adjustable table 13, pivotally secured to table 12 by means of a stud 16 and wheel 17, an L-shaped bar 19, secured to said rotating table, a dovetailed grooved bar 20, adapted to slide on said bar 19, a thumb-screw 21 for holding said bar 20 in its desired adjustment, a gaging mechanism 24, firmly secured to bar 20, cross-piece 8, provided with a screw-threaded perforation secured between said upright pieces 1, a similar cross-piece 9, provided with a perforated projection 10, a screw-threaded shaft 6, provided with shoulders 11, located on opposite sides of said perforated projection, a wheel 7 for rotating said shaft, and consequently adjusting plates 3 and their attachments to or from the cutting-instrument, as desired, a cutting-instrument, and means for operating the same, substantially as described.

7. A wood-working machine consisting of supports 1, wedge-shaped plates 3, provided with elongated slots 4, adjustably secured to said supports by means of thumb-screws 5, a horizontal table 12, movable on said plates, a rotarily-adjustable table 13, pivotally secured to table 12 by means of a stud 16 and wheel 17, an L-shaped bar 19, secured to said rotating table, a dovetailed grooved bar 20, adapted to slide on said bar 19, a thumb-screw 21 for holding said bar 20 in its desired adjustment, a gaging mechanism 24, firmly secured to bar 20, cross-piece 8, provided with a screw-threaded perforation secured between said upright pieces 1, a similar cross-piece 9, provided with a perforated projection 10, a screw-threaded shaft 6, provided with shoulders 11, located on opposite sides of said perforated projection, a wheel 7 for rotating said shaft, and consequently adjusting plates 3 and their attachments to or from the cutting-instrument, as desired, a vertical support 33, arms 37, secured to said support, a belt-pulley 38, mounted on said arms, a cutting-instrument 40, secured to the shaft of said belt-pulley, and means for operating said pulleys, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK RICH.
NICOLAS SONDAG.

Witnesses:

EDWARD E. LONGAN,
JNO. C. HIGDON.