Oct. 27, 1936. R. A. GORSLINE ET AL 2,058,680

STOCK WORKING MACHINE

Filed April 4, 1934 3 Sheets-Sheet 1

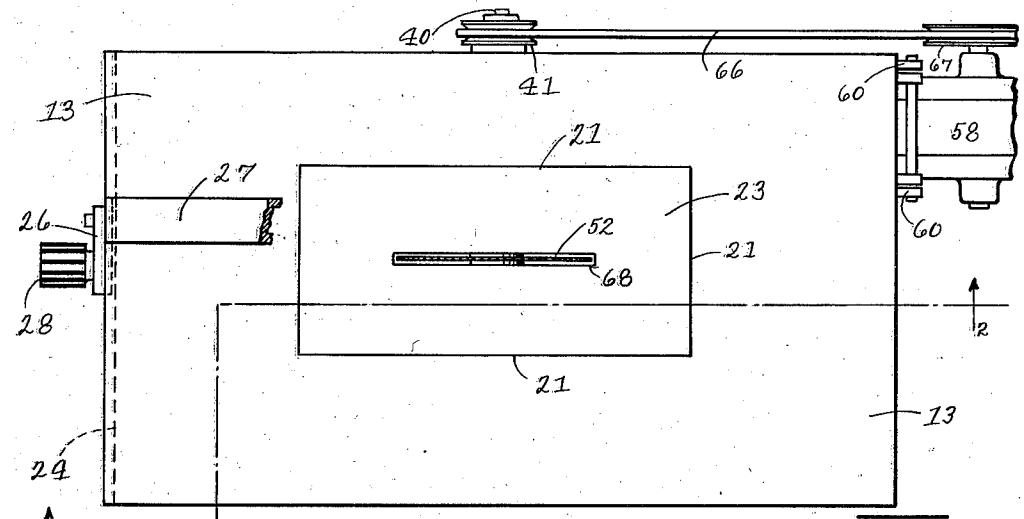


Fig. 1

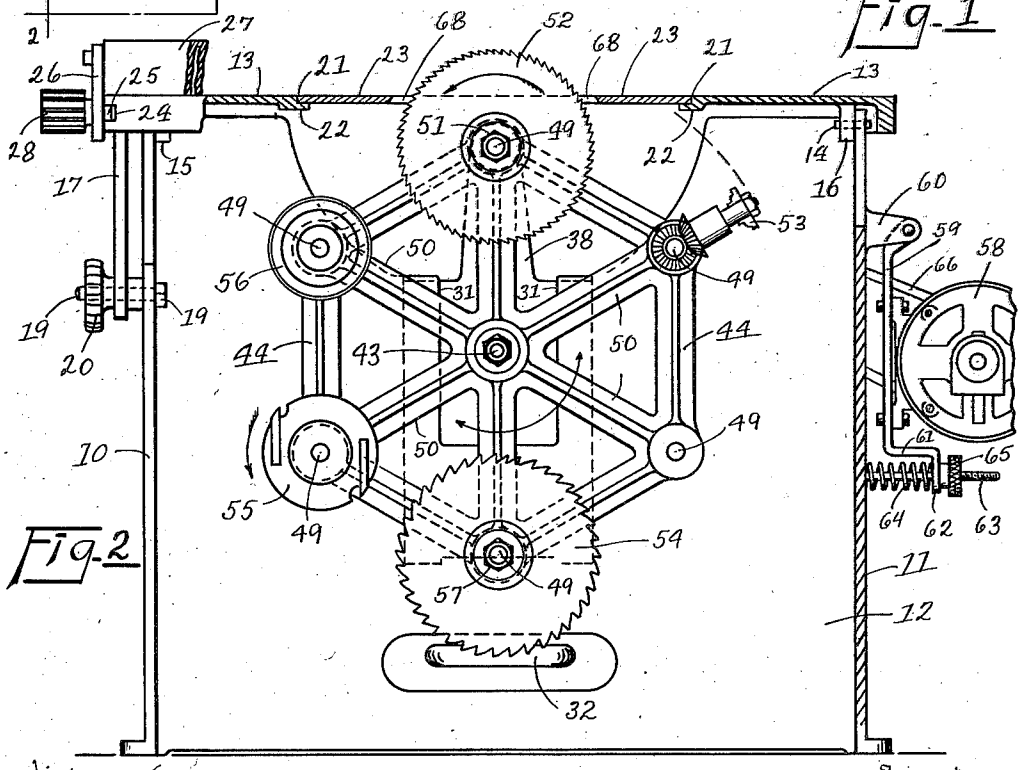


Fig. 2

Witness:
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STOCK WORKING MACHINE

Filed April 4, 1934 3 Sheets-Sheet 2

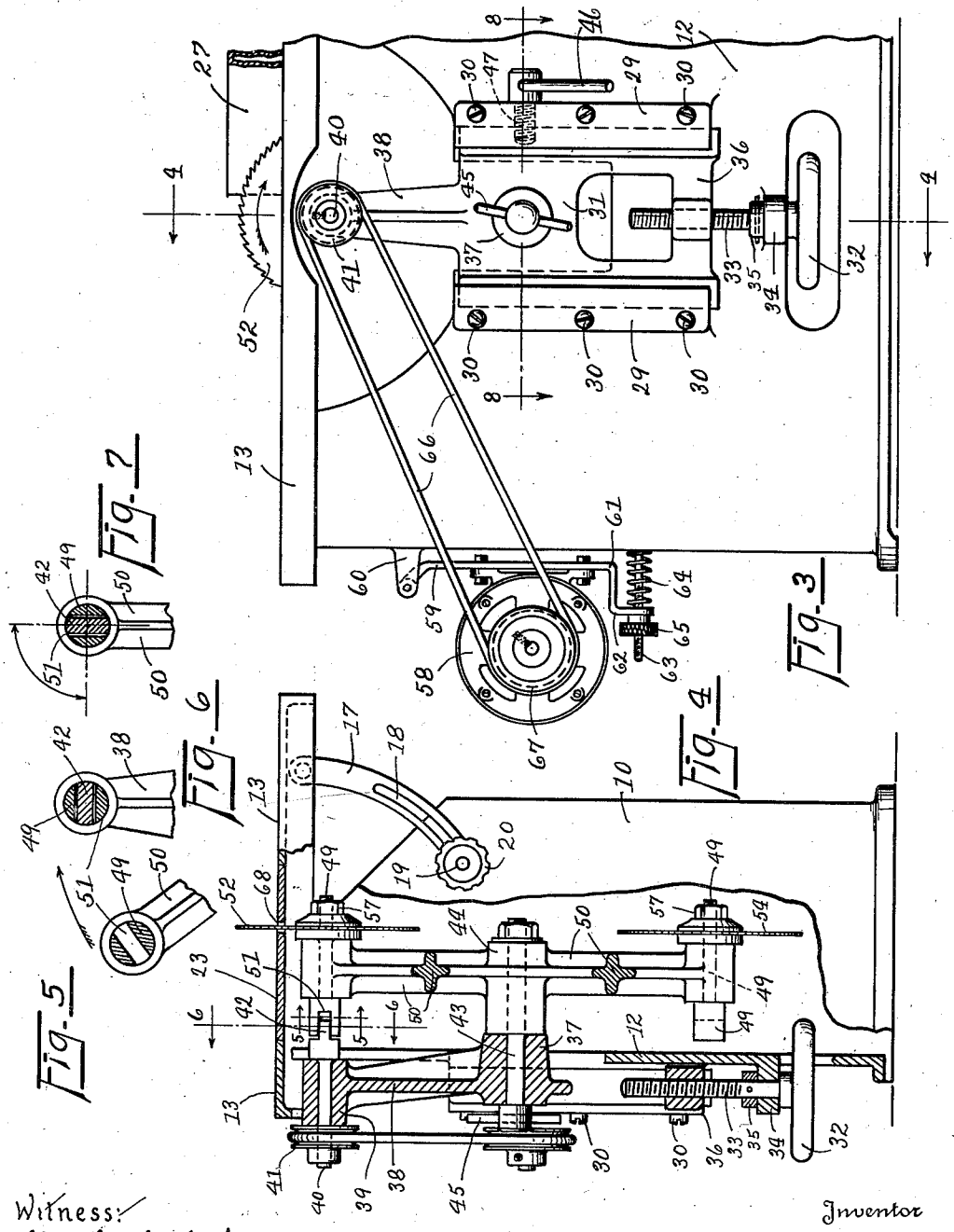


Fig. 3

Fig. 7

Fig. 6

Fig. 5

Fig. 4

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STOCK WORKING MACHINE

Filed April 4, 1934 3 Sheets-Sheet 3

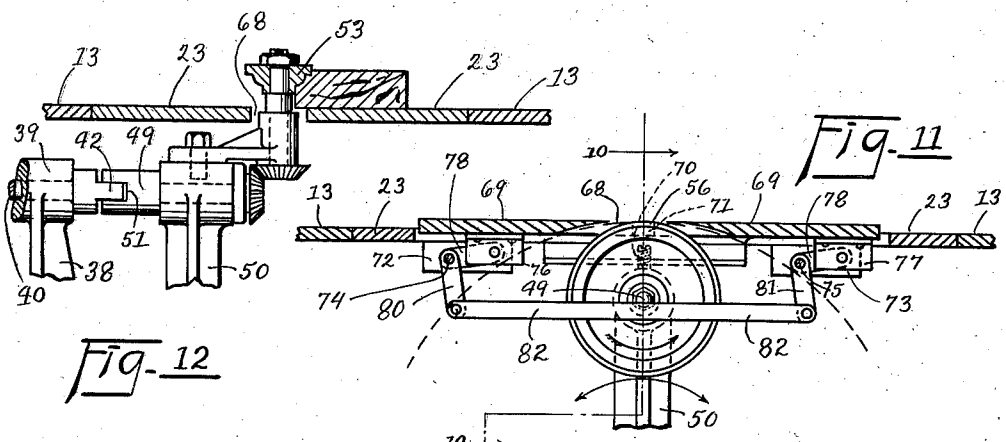


Fig. 12

Fig. 11

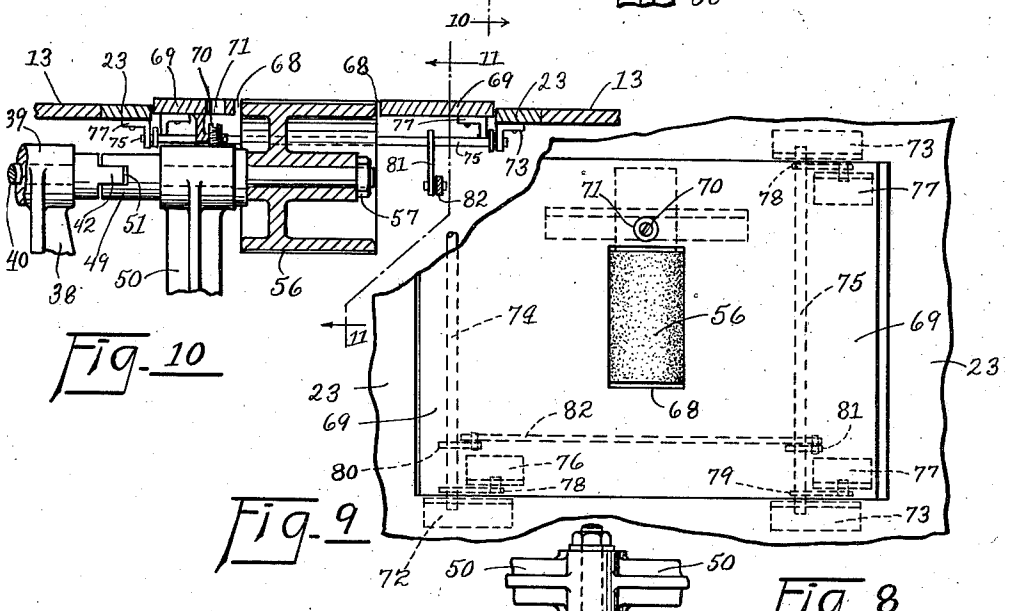


Fig. 10

Fig. 9

Fig. 8

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Patented Oct. 27, 1936 2,058,680

UNITED STATES PATENT OFFICE

2,058,680

STOCK WORKING MACHINE

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Application April 4, 1934, Serial No. 718,942

3 Claims. (Cl. 144—1)

The present invention relates to stock working machines and more particularly to machines provided with multiple selectively operative tools.

The principal objects of the invention are to provide a stock working machine provided with a plurality of different tools, each of which may be selectively used as may be desired; to provide such a machine having common driving means for operating the selectively used tool; to provide such a machine having means for detachably securing numerous types of tools; to provide means for adjustably elevating and maintaining the several selectively used tools in proper working position; and, to provide a machine of the character above indicated which is highly utilitarian in use and economical to manufacture.

An illustrative embodiment of the invention is shown in the accompanying drawings, wherein:

Figure 1 is a top plan view of the machine;

Figure 2 is a sectional view thereof on line 2—2 of Figure 1;

Figure 3 is a fragmentary rear elevational view of the machine or of the side opposite that shown in Figure 2;

Figure 4 is a sectional view on line 4—4 of Figure 3;

Figure 5 is a sectional view on line 5—5 of Figure 4;

Figure 6 is a sectional view on line 6—6 of Figure 4;

Figure 7 is a sectional view of the coupling for detachably securing the driving shaft and the driven shaft of one of the selectively used tools, the coupling being turned a quarter way around from the position shown in Figure 6 as indicated by the double headed arrow;

Figure 8 is a sectional view on line 8—8 of Figure 3;

Figure 9 is a top plan view of an attachment for the machine;

Figure 10 is a sectional view thereof on line 10—10 of Figure 11;

Figure 11 is a sectional view on line 11—11 of Figure 10; and

Figure 12 is a view of one of the tools of the machine in work engaging relation with stock being worked.

Referring to the drawings in which like parts of the structure shown are designated by the same numerals in the several views, a housing comprising end walls 10, 11, a rear wall 12 and open front, supports a normally horizontally disposed stock supporting table 13 which is hingedly secured to each end wall 10, 11 as by the pintles 14 passing through the lugs 15, 16 on the under side of the table 13 and the inner sides of the end walls 10, 11 respectively. An arcuate arm 17 pivotally secured to the table depends therefrom adjacent one side thereof and is provided with a slot 18 which slidably embraces a stud 19 when the table is manually tilted. A manually turnable knob 20 secured to the stud in screw threaded engagement therewith provides means for maintaining the table in its tilted position (see Figure 4).

The table is provided with a tool circumscribing opening 21 having depressed and laterally offset ledges 22 on its opposite sides for supporting removable plates 23 used with different types of stock working tools. The edge of one side of the table 13 is provided with a groove 24 forming a track for the tongue 25 of the depending arm 26 which is rigidly secured to the stock gauge 27 and the manually turnable knurled nut 28 provides means for adjustably setting the stock gauge as may be determined and required.

A pair of vertically disposed parallel tracks 29 secured to the outer side of the rear wall 12 on opposite sides of the opening therein (see Figures 3 and 8) by means of machine screws 30 provides guides or ways for a carriage 31 which is vertically movable therein by means of the hand wheel 32 whose shaft 33 passes through the flanged bearing 34 and the shaft retaining collar 35 and is in screw threaded engagement with the lower end 36 of the carriage (see Figure 4).

This carriage is provided with a hub portion 37 and with a vertically projecting arm 38 at whose upper end is a hub portion 39 forming a bearing for the driving shaft 40. This driving shaft is provided with a pulley wheel 41 at its outer end and with a coupling portion, here shown as a tongue 42, at its inner end.

The hub portion 37 forms a bearing for the shaft 43 whose inner end supports a manually rotatable spider 44, here shown as a star wheel (see Figure 2) and whose outer end is provided with a manually turnable clamp 45 providing means preventing rotation of the star wheel after it has been turned to the desired position for purposes hereinafter described.

A manually operable lever 46 (see Figure 8) is provided with a laterally projecting screw 47 in screw threaded engagement with one of the tracks 29 and its inner end engages a slidable wedge 48 which is caused to abut one side of the carriage to maintain the carriage in adjusted elevated position when the lever 46 is tightened. The star wheel may be thus adjustably elevated by means of the hand wheel 32 and retained in adjusted position by means of the lever 46.

The star wheel is provided with a plurality of radially disposed driven shafts 49 adjacent its periphery and at the outer ends of its several spokes 50. Each shaft is provided with a coupling portion at one of its ends, here shown a groove 51 adapted to engage with the tongue coupling 42 of the driving shaft as hereinafter more fully described, and the other end of each driven shaft carries a tool such as the disc saw 52, shaper 53, rip saw 54, planer 55 and sander 56. These

tools are here shown as detachably secured to their respective driven shafts as by means of the nuts 57.

Suitable means for rotating the driving shaft are provided and in the embodiment here shown an electric motor 58 wired to a suitable source of electric energy is rigidly secured to a depending arm 59 pivotally suspended from the bracket 60 projecting from the end wall 11 of the housing. This depending arm has a laterally turned portion 61 and a downwardly turned portion 62 which is provided with a slot slidably embracing the laterally projecting rod 63 (see Figure 3). A coiled expansion spring 64 is interposed between the end wall of the housing and the downwardly turned portion 62 of the depending arm 59. This spring and the screw threaded adjusting nut 65 provide means for tensioning the belt 66 carried on the driving shaft pulley 41 and the motor pulley 67.

In Figures 1 to 4, the disc saw 52 is shown in operative position and, as hereinbefore described, may be elevated to adjusted position depending upon the thickness of the stock to be cut, by means of the hand wheel 32, the manually operable lever 46, and the manually turnable star wheel clamp 45. In instances wherein it is desired to make use of one of the other tools, the star wheel clamp 45 is loosened permitting manual rotation of the star wheel. When the tongue of the driving shaft 42 engages within the groove 51 of the driven shaft 49 of the selected tool, the star wheel clamp 45 is reversely turned to clamp the star wheel into engagement with the carrier. The selected tool may then be adjustably elevated and maintained in position by the hand wheel 32 and lever 46.

Since the several multiple tools have working surfaces of varying widths, removable plates 23 supported within the tool circumscribing opening 21 are provided with varying width openings 68. Thus the removable plate 23 in Figures 1 to 4 accommodating the disc saw 50 has a narrower opening 68 than has the plate 23 of Figure 12 whose opening 68 accommodates the shaper 53.

The removable plate 23 in Figures 9 to 11 is provided for accommodating the use of the sander 56. This plate for the sander 56 has an inner adjustable section 69 provided with the opening 68 to accommodate the sander 56 and a screw threaded stud 70 is adjustable as to height through the aperture 71.

Secured to the under side of the sander plate 23 at each of the four corners of the opening within which is the adjustable section 69 are depending pairs of brackets 72, 73, each pivotally supporting the rods 74, 75 respectively. The adjustable section 69 is likewise provided with depending pairs of brackets 76, 77, each pair of brackets having links 78, 79 pivotally secured thereto but rigidly secured to the rods 74, 75 respectively. Each of these rods has a rigidly secured link 80, 81 whose outer ends are pivotally secured to the ends of the longer link 82. Each pair of links 78, 79 which are rigidly secured to the rods 74, 75 respectively and each link 80, 81 which is likewise rigidly secured to the rods 74, 75 respectively, form bell crank levers thus affording an automatic parallel lift when the outer end of the spoke 50, which forms the hub bearing for the driven shaft of the sander, engages the adjustable screw threaded stud 70 as best shown in Figures 10 and 11. It is thus sometimes more convenient to substitute the sander plate with its adjustable section 69 than to readjust the sander by means of the hand wheel 32.

The driving shaft 40 is coupled or clutched with any one of the driven shafts 49 by manually rotating the star wheel to move the rib 42 into the groove 51, these shafts having been turned to the interrelative position shown in Figure 4.

It will thus be seen that a machine provided with multiple tools capable of selective use has been herein shown and described which is highly utilitarian in use and economical to manufacture.

While but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

We claim:

1. In a machine of the class described: a stock-supporting table having an opening therethrough; a driving shaft; a wheel mounted for rotation under the table; a plurality of angularly spaced driven shafts journalled on the wheel each carrying a tool operating through said opening on the stock supported by the table; couplings for coupling the driving shaft with the driven shafts selectively comprising a pair of members at the adjacent ends of the shafts to be coupled including a tongue extending transaxially of the driving shaft and corresponding grooves extending transaxially of the driven shafts respectively, the tongue being adapted to be moved into and out of operative engagement in the groove of the driven shaft to be coupled in one relatively turned position of said shafts.

2. In a machine of the class described: a stock-supporting table having an opening therethrough; a driving shaft; a wheel mounted for rotation under the table; a plurality of angularly spaced driven shafts journalled on the wheel each carrying a tool operating through said opening on the stock supported by the table; couplings for coupling the driving shaft wtih the driven shafts selectively comprising a pair of members at the adjacent ends of the shafts to be coupled including a tongue extending transaxially of the driving shaft and corresponding grooves extending transaxially of the driven shafts respectively, the tongue being adapted to be moved into and out of operative engagement in the groove of the driven shaft to be coupled in one relatively turned position of said shafts; means for releasably holding the wheel in the rotated position wherein said members are in their operative mutual engagement.

3. In a machine of the class described: a stock-supporting table having an opening therethrough; a table portion in said opening mounted for upward-downward movement in the first-mentioned opening and having an opening; a driving shaft; a wheel mounted for rotation under the table and turnable to a position engaging said table portion for holding the same in raised position; a plurality of angularly spaced driven shafts journalled on the wheel each carrying a tool operating through the opening in said table portion on the stock supported by said portion; means for coupling the driving shaft with the driven shafts selectively.

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