D. B. SALSTROM.

BELT GEARING FOR CARVING MACHINES.

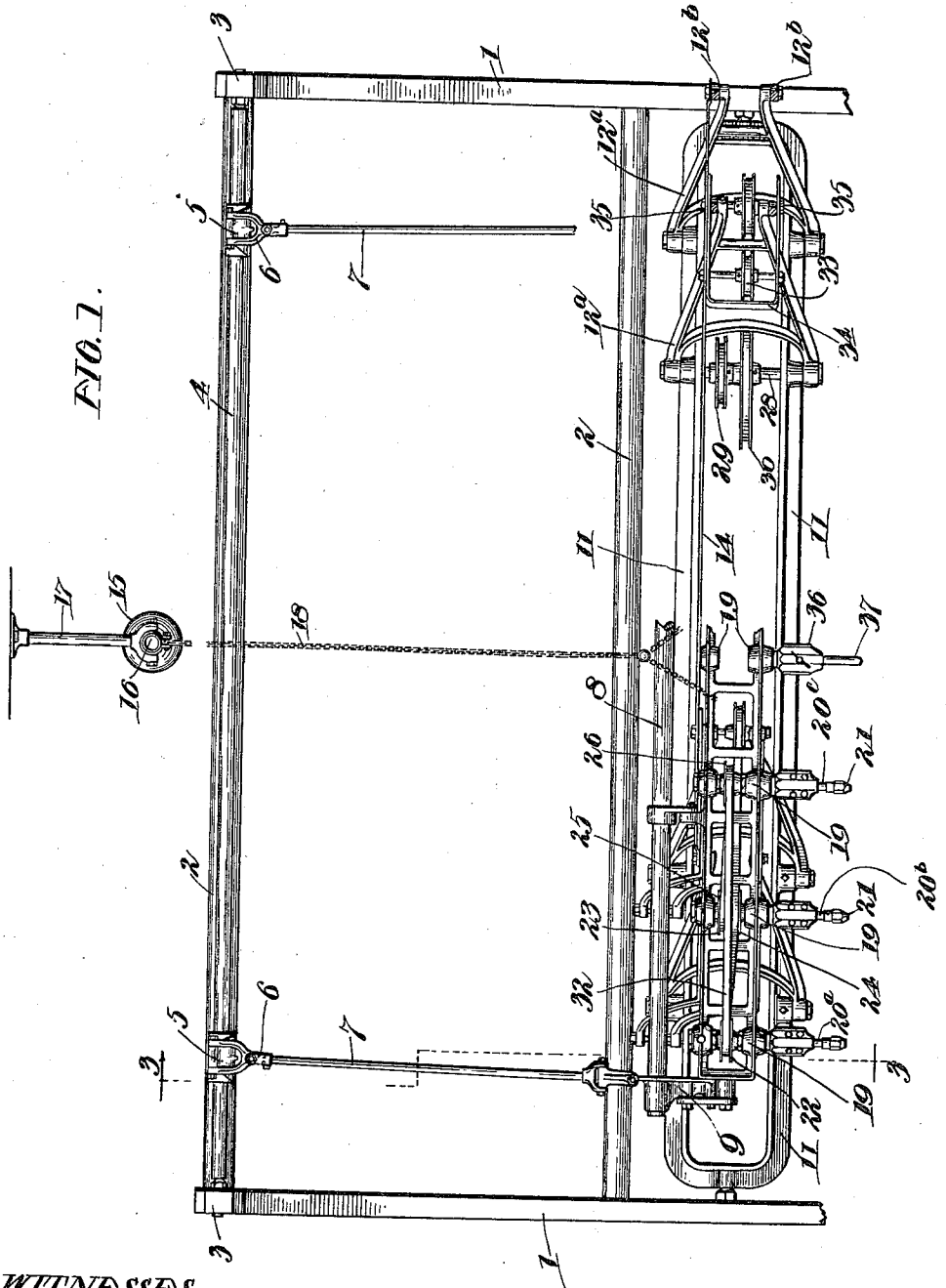
APPLICATION FILED JULY 19, 1906.

1,013,617.

Patented Jan. 2, 1912.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES.

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FIG. 2

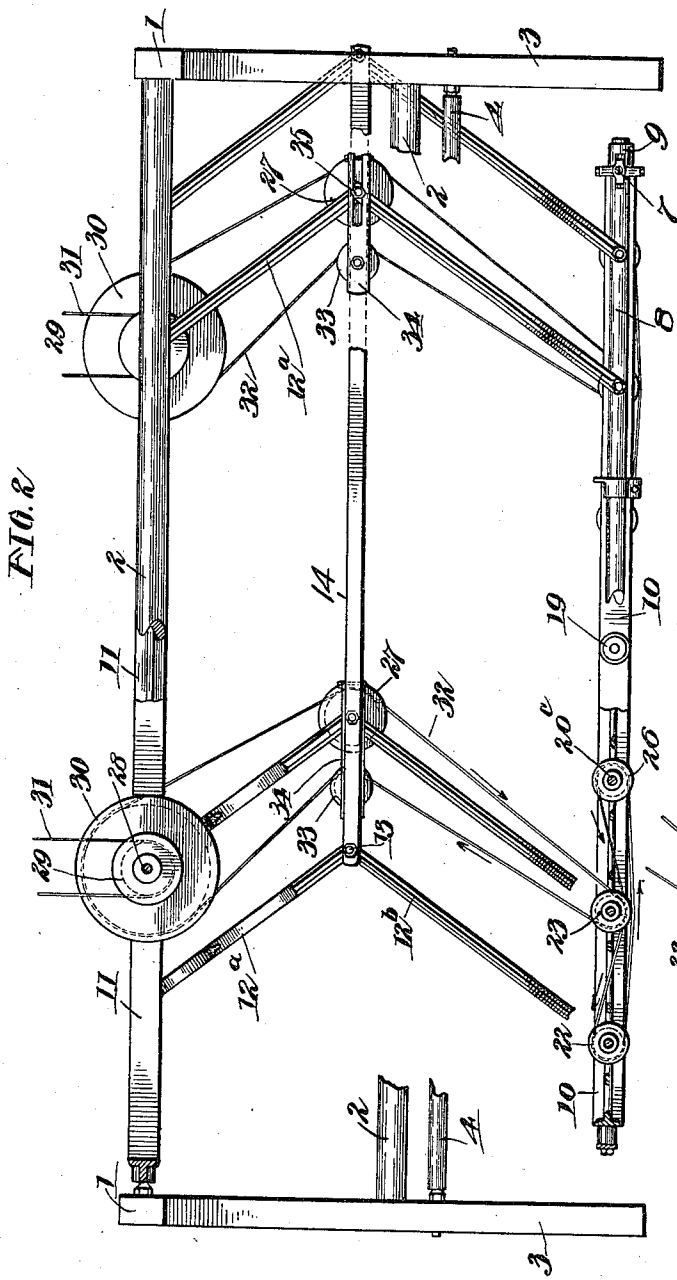
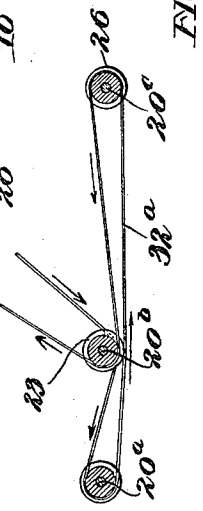


FIG. 4



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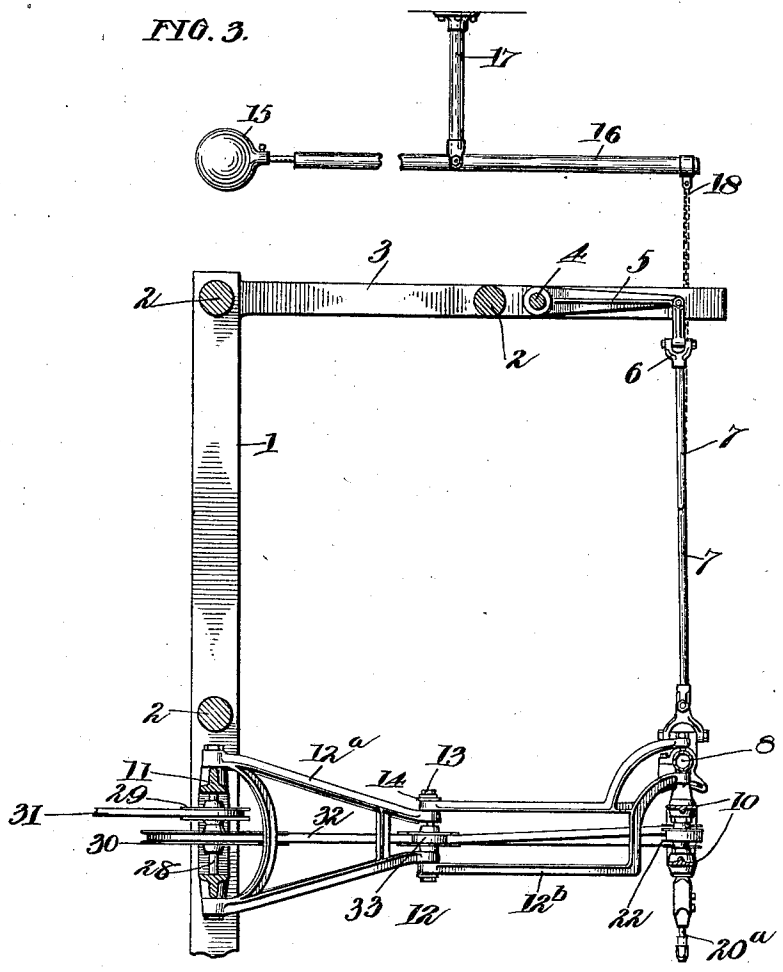
3 SHEETS—SHEET 3.

FIG. 3.



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BELT-GEARING FOR CARVING-MACHINES.

1,013,617. Specification of Letters Patent. Patented Jan. 2, 1912.

Application filed July 19, 1906. Serial No. 326,833.

To all whom it may concern:

Be it known that I, DAVID B. SALSTROM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Belt-Gearing for Carving-Machines, of which the following is a specification.

The object of this invention is the production of improved means, especially applicable to carving machines, for transmitting power from the prime mover to the carving spindle.

In the accompanying drawings, Figure 1 is a front elevation of the upper portion of a carving machine embodying the features of my invention, the right hand end of the spindle-carrying head being represented as broken away. Fig. 2 is a top plan view of said machine, certain parts being represented in section. Fig. 3 is a transverse vertical section through the machine on the plane of dotted line 3—3 of Fig. 1. Fig. 4 is a detail view showing the arrangement of the driving belt when large pieces of work are to be operated upon.

The embodiment herein shown and described of my invention comprises a supporting frame formed of side members 1 and bars 2, said side members having at their upper ends forwardly projecting arms 3 which support between them a rock shaft 4. Said shaft has fixed thereto two arms 5 connected by means of universal connections 6 with depending rods 7. At their lower ends the rods 7 have universal connections with a bar 8, which bar has rigidly secured to its ends brackets 9, between which is pivotally supported the spindle-carrying head 10.

A frame 11 is pivotally supported between the side members 1 and is connected with the bar 8 by means of a plurality of jointed arms 12, four arms being used in the present embodiment. As shown in Figs. 2 and 3, each of the arms 12 consists of a rear section 12^a and a forward section 12^b pivotally connected together at 13. The jointed arms 12 are maintained in parallel relation with each other by means of a bar 14 extending between the joints 13 of all of said arms. The weight of the spindle-carrying head 10 and the arms 5 and 12 is counterbalanced by means of a weight 15 fixed to a lever 16 hung in a bracket 17 depending from the ceiling or any suitable support, the forward end of said lever being connected with the head 10 by means of a chain 18.

In the present embodiment of my invention, the spindle-carrying head 10 is provided with seven pairs of alined spindle bearings 19. Each of said pairs of bearings is adapted to support a spindle 20 provided at its lower end with a chuck 21 for the reception of a carving tool (not shown). For convenience in describing the manner in which power is communicated to the spindles for rotating them, I will designate the spindle nearest each end of the spindle-carrying head 20^a, the one next to it 20^b, and the third one from the end 20^c. Within the spindle-carrying head 10 the spindle 20^a has fixed rigidly thereto a pulley 22. Upon the spindle 20^b is fixed a double pulley 23 having two belt faces 24 and 25. Upon the spindle 20^c is fixed a pulley 26. At the pivotal joint of two of the arms 12 is rotatably supported an idler pulley 27. Within the frame 11 are rotatably supported two shafts 28, each having fixed thereto two pulleys 29 and 30. The pulley 29 carries a belt 31 by means of which belt power is communicated from any suitable source to the shaft 28 for rotating it. A belt 32 extends about the pulley 30, thence over the idler pulley 27, over the face 24 of the double pulley 23, around the pulley 22, thence to the pulley 26, and over the face 25 of the double pulley 23 to the pulley 30. To take up slackness in the belt 32 I provide an idler pulley 33 rotatably supported in a U-shape frame 34. The arms of said U-shape frame are slotted to receive the pivot of one of the jointed arms 12, said frame being adjustably secured in place by means of nuts 35 bearing on said slotted frame-arms. The central spindle-bearing 19 ordinarily receives a socket-piece 36 in which is secured the tracer 37, but, as will appear hereinafter, said socket-piece may be inserted in any of the spindle bearings 19.

The present embodiment of this invention comprises six spindles, the maximum capacity of the machine, therefore, being six pieces of work at one time. The size of each piece is, of course, limited by the distance between adjacent cutting tools, but I have adapted the machine for the necessary modification when it is desired to cut larger pieces than the six-spindle arrangement permits of. The modification or rearrangement

referred to consists in placing the spindle 20^c at the left-hand end of the head 10 in the central pair of spindle bearings 19, transferring the tracer-socket 36 to the bearing formerly occupied by the spindle 20^c, and providing a belt 32^a arranged as shown in Fig. 4, the second spindle from each end of the head 10 and the transferred spindle 20^c being permitted to run idle. In other words, when the larger sizes of work are to be cut, each alternate spindle-bearing is used for a tool or for the tracer 37, the tools being carried by the end spindles and the third spindle from the right-hand end and the tracer being located in the third bearing from the left-hand end of the head 10. It is obvious that the rearrangement of spindles just described for the left-hand end of the head 10 may be made at the right-hand end of the head, if desired.

The work-table has been omitted from the drawings, as my invention does not relate thereto.

In operation, power is communicated to the spindles from the pulleys 30 by means of the belts 32. It will be seen that each of said belts drives three spindles, thus obviating the use of separate belts for each spindle, as in prior machines. The spindle-carrying head 10 may be moved vertically, from side to side, and forward and back, and may also be tilted to place the cutting tools in position to undercut.

I claim as my invention:

1. The combination, with a relatively stationary drive pulley, of a plurality of operating spindles supported to move toward and away from said drive pulley; and a single belt extending from said drive pulley to all of said spindles.

2. The combination, with a relatively stationary drive pulley, of three operating spindles supported to move toward and away from said drive pulley; and a single belt extending from said drive pulley to all of said spindles.

3. The combination, with three movably-supported spindles, of a relatively stationary drive pulley; a double pulley on the middle spindle; a pulley on each of the other spindles; and a belt extending around said drive pulley to said double pulley, thence to one of said other spindle pulleys, thence to the third spindle pulley, thence to said double pulley and to said drive pulley.

4. The combination, with a relatively-stationary frame, of a drive pulley mounted in said frame; a member having a plurality of spindles mounted therein; a jointed arm for connecting said member with said frame; two idler pulleys carried by said arm at the joint thereof, one of said idler pulleys being adjustable in position; and a single belt extending over said drive pulley, idler pulleys and spindles.

5. The combination, with a relatively stationary pivoted frame, of a member having six spindles rotatably mounted therein; means for supporting and counterbalancing said member; four jointed arms connecting said member to said frame; a bar connecting the pivotal joints of all of said arms; two drive pulleys mounted in said frame; and a single belt running over each of said drive pulleys and three of said spindles.

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