

(No Model.)

3 Sheets—Sheet 1.

J. HOLMES & K. PETERSON.
WOOD CARVING MACHINE.

No. 507,007.

Patented Oct. 17, 1893.

Fig. 1.

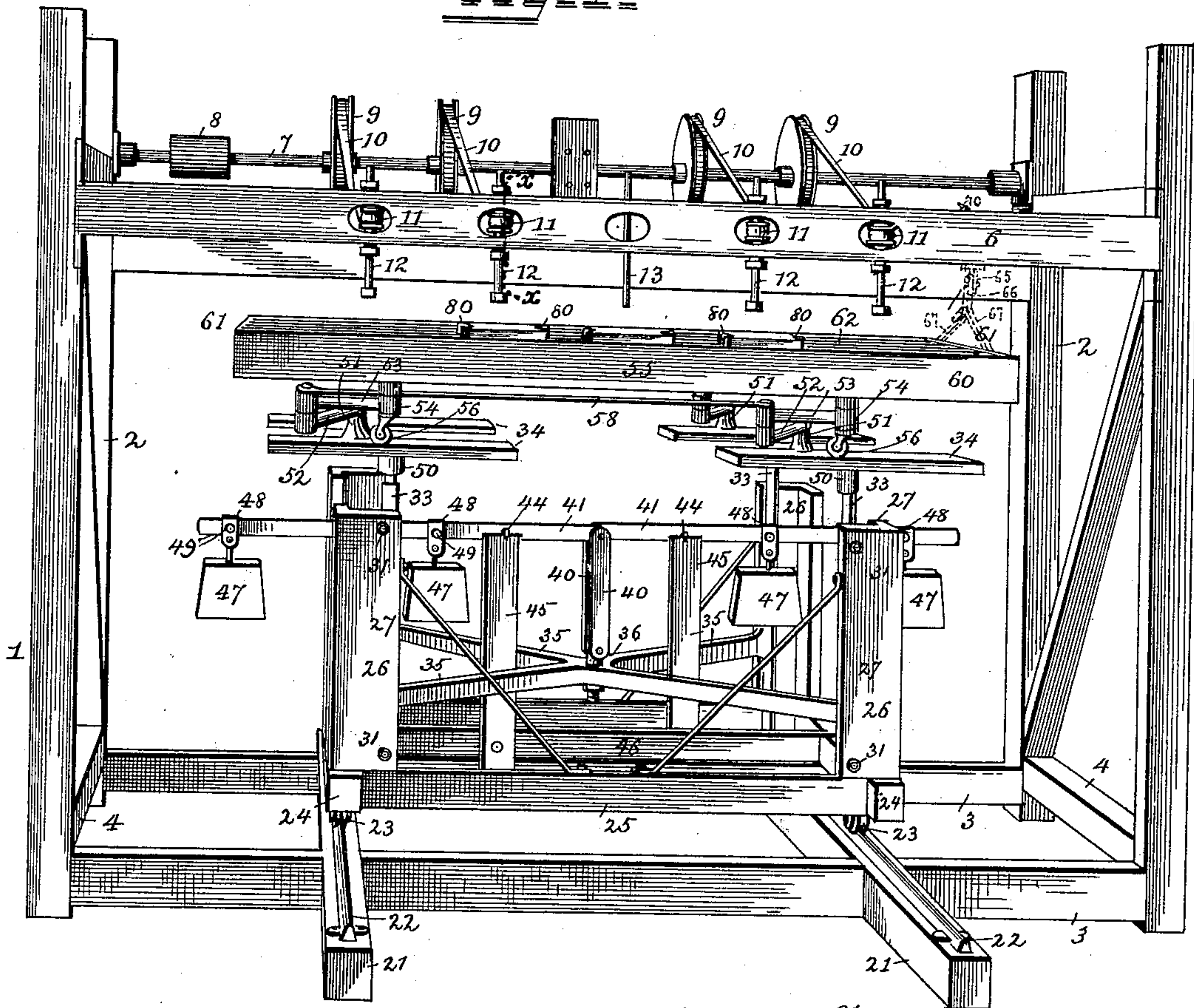


Fig. 8.

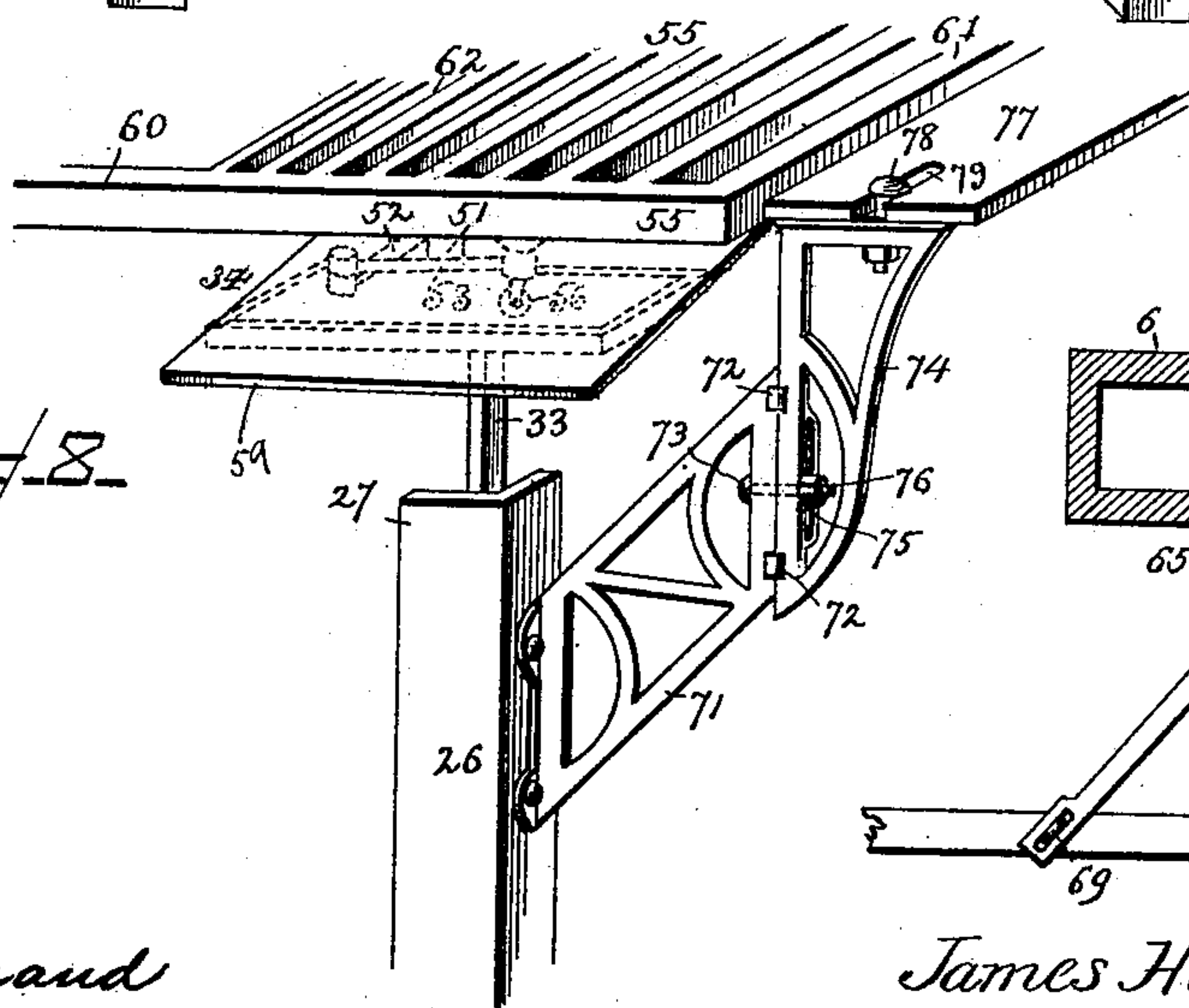
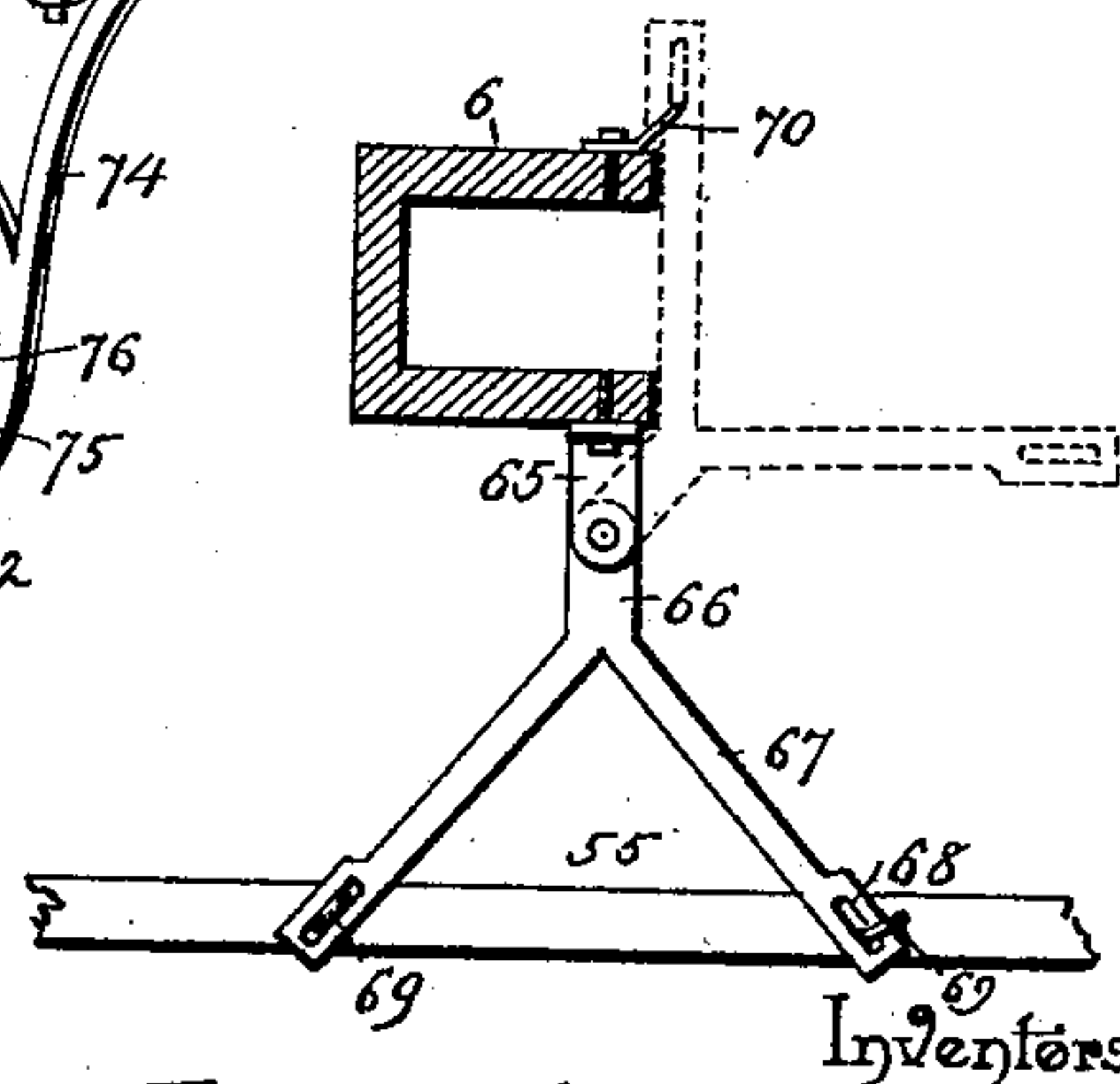


Fig. 7.



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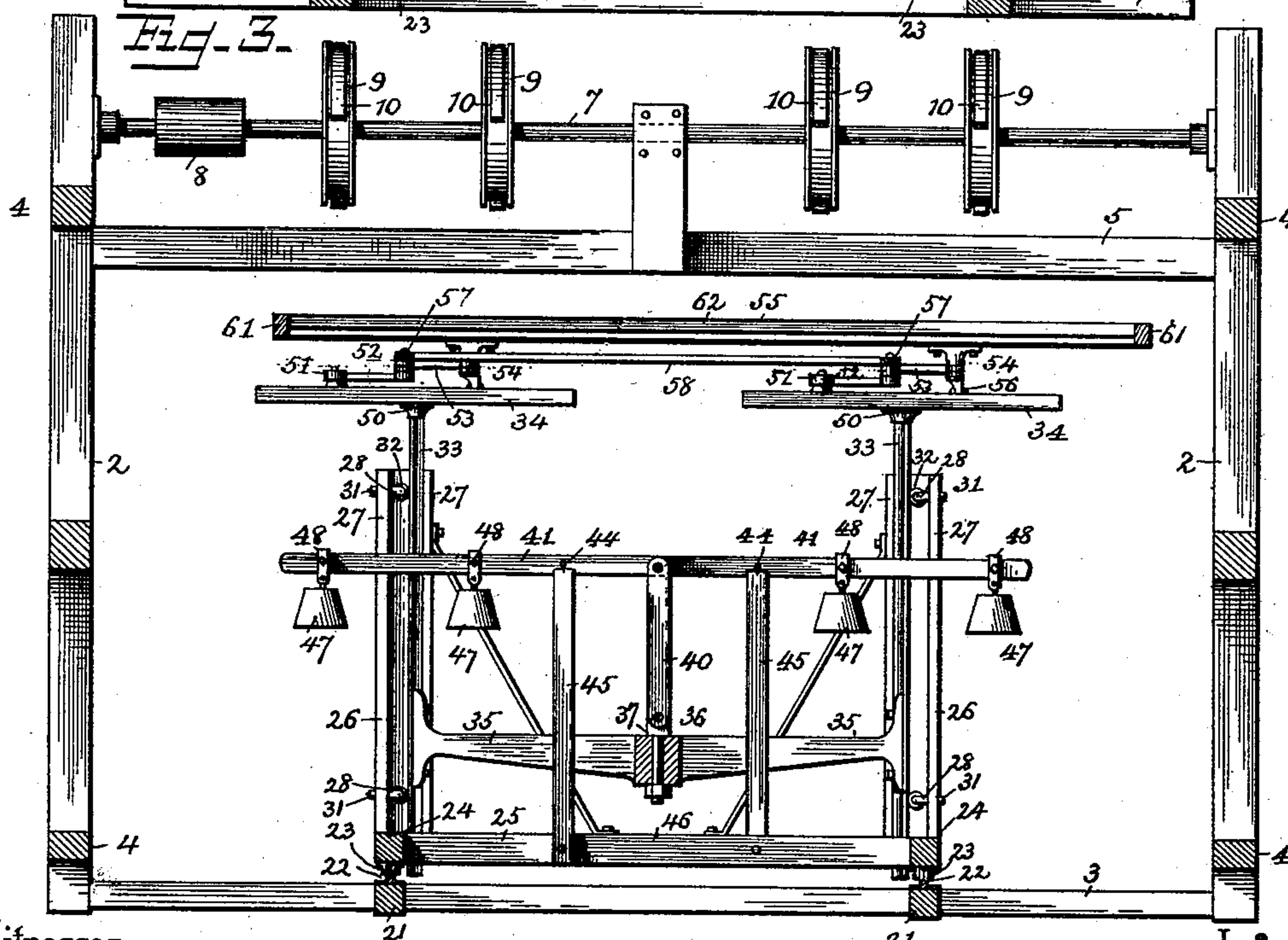
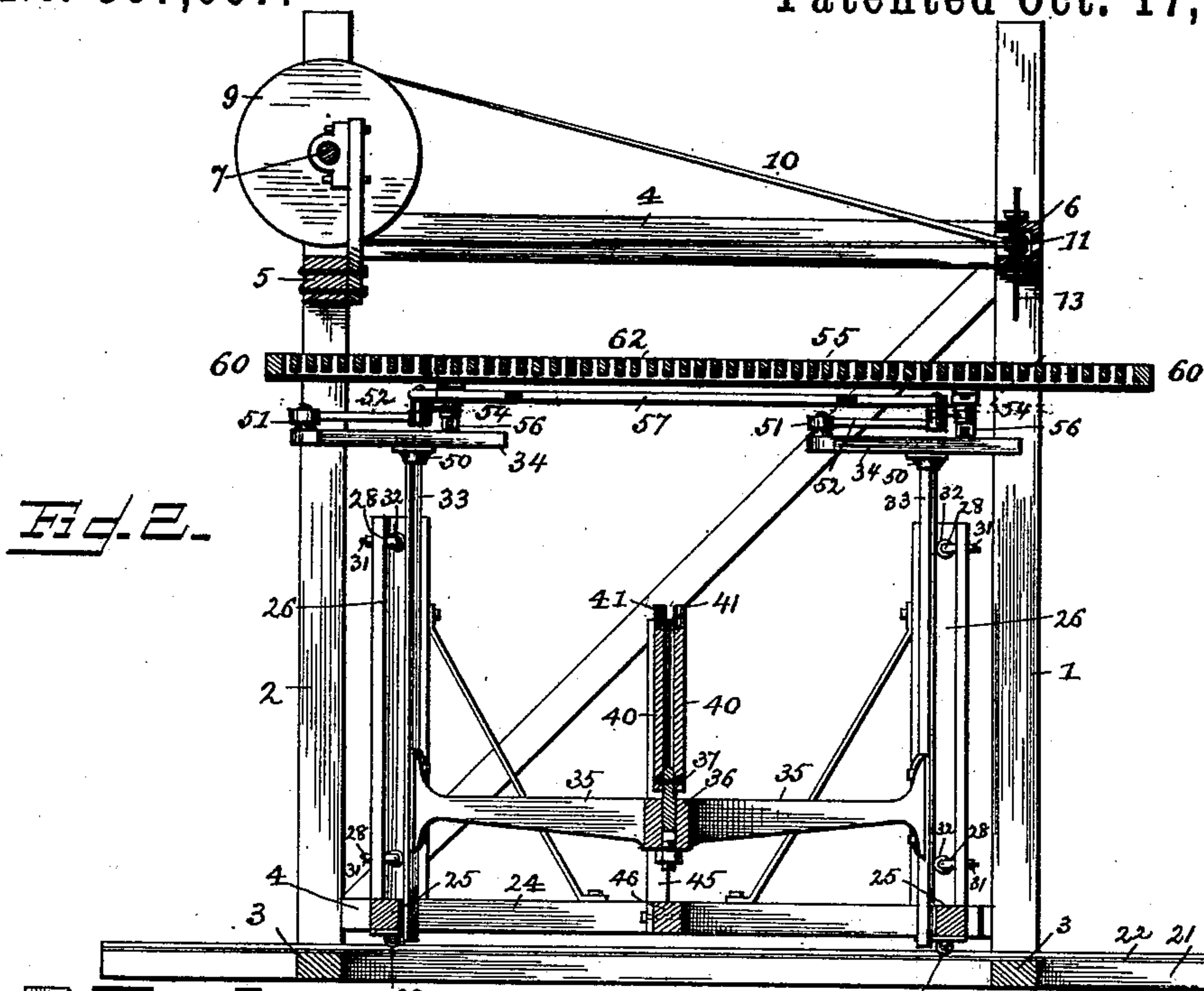
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3 Sheets—Sheet 2.

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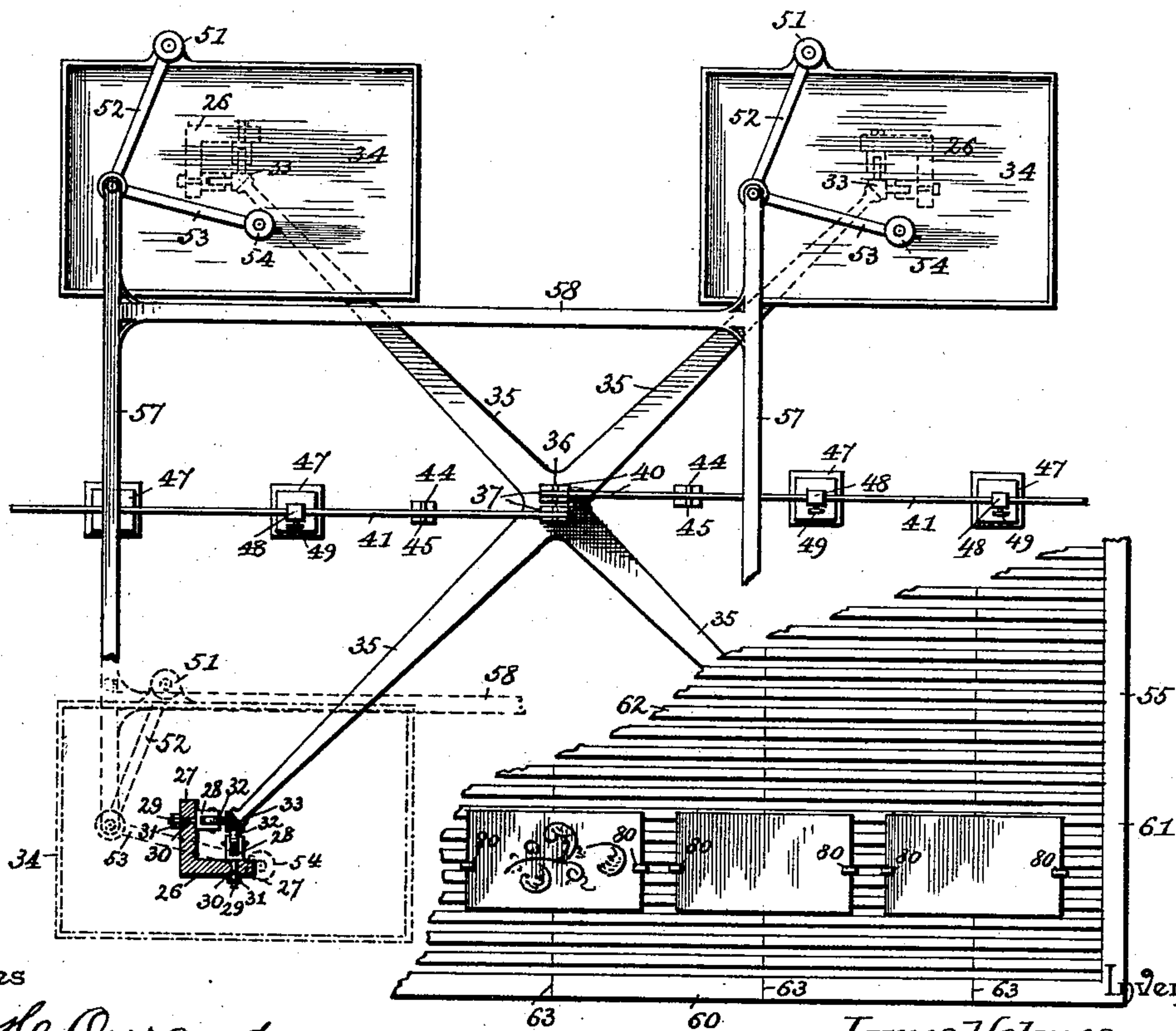
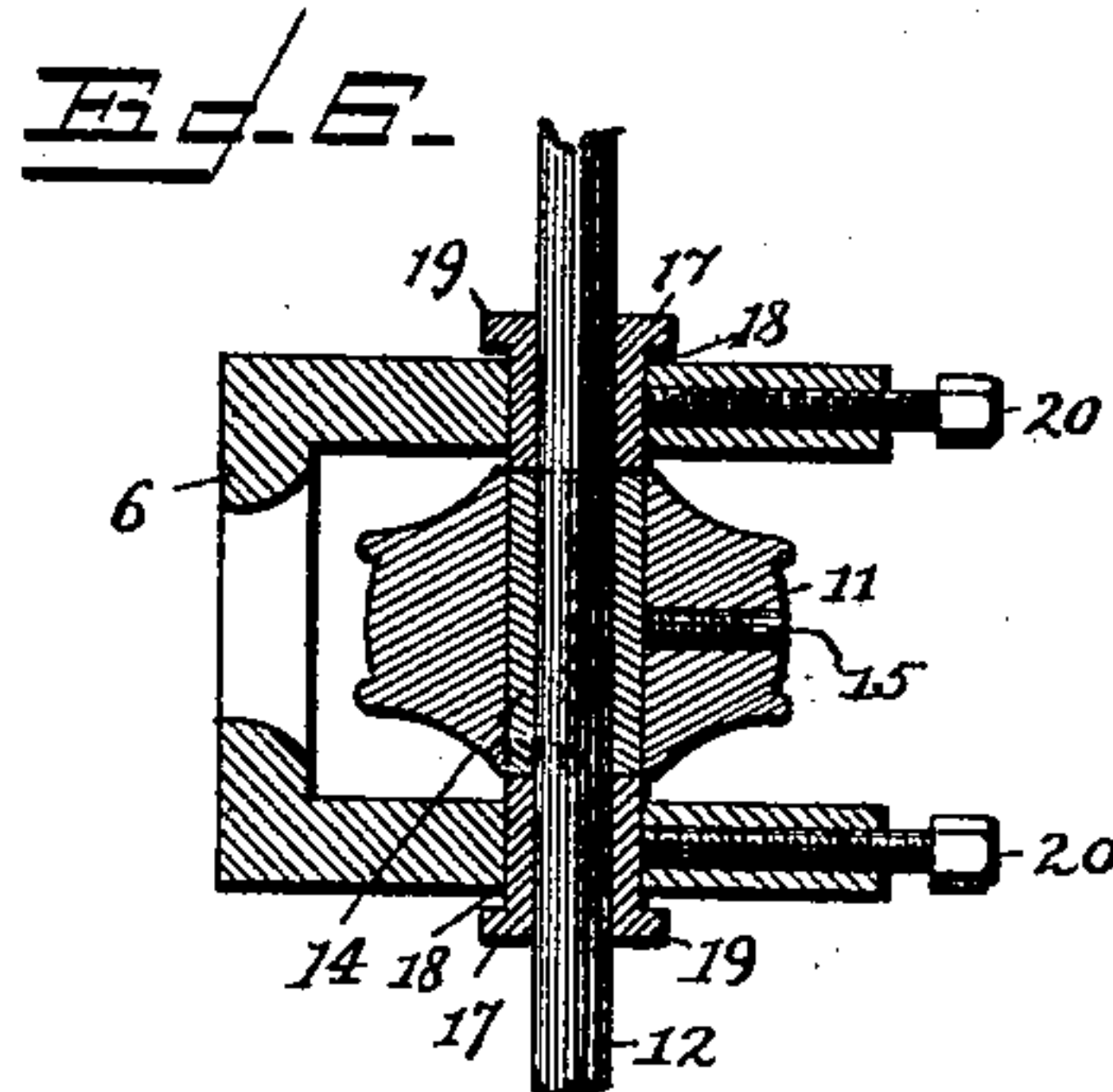
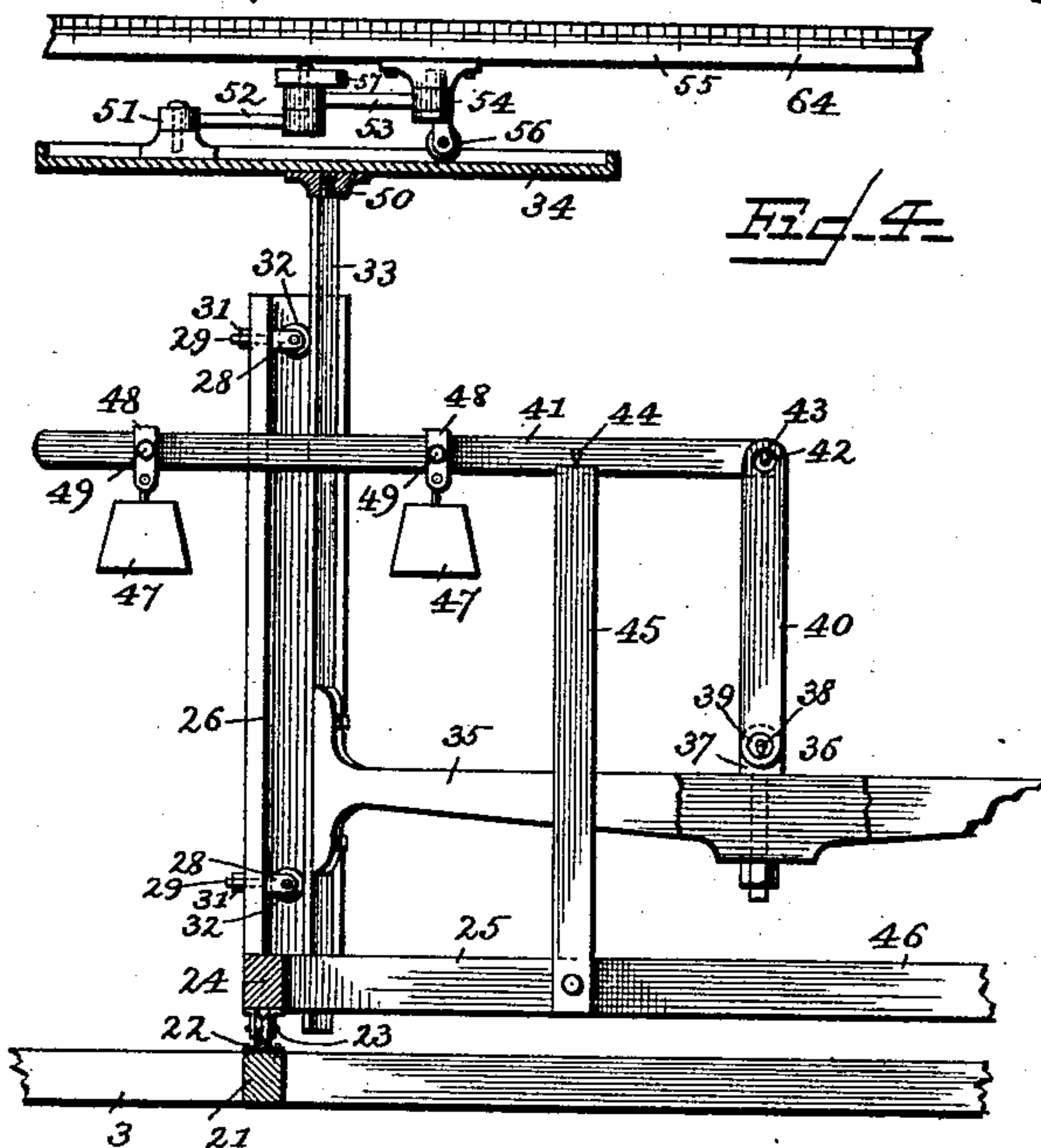
(No Model.)

3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

JAMES HOLMES AND KARL PETERSON, OF JAMESTOWN, NEW YORK.

WOOD-CARVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,007, dated October 17, 1893.

Application filed June 27, 1892. Serial No. 438,169. (No model.)

To all whom it may concern:

Be it known that we, JAMES HOLMES and KARL PETERSON, citizens of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Wood-Carving Machine, of which the following is a specification.

This invention relates to carving machines, and has special reference to that class of machines wherein the tools are held stationary as to adjustment, and supported over a universally movable table on which the work is placed, and consists of the construction, arrangement, and combination of the parts thereof as a whole and in detail, as will be more fully hereinafter described and claimed.

The object of the present invention is to provide mechanism for supporting the work which is freely movable and adapted to duplicate carvings, and to produce a true copy of the same from a pattern, through the medium of a stationary guiding tool moving over said pattern, and produce a similar result on material held on the table of the device and under the carving tools.

In the drawings:—Figure 1 is a perspective view of the improved machine. Fig. 2 is a transverse vertical section taken through the center thereof. Fig. 3 is a central longitudinal section of the same. Fig. 4 is a sectional elevation of a portion of the mechanism broken away in parts and on a large scale. Fig. 5 is a plan view of a part of the mechanism, broken away in parts. Fig. 6 is a section on the line $x-x$, Fig. 1. Fig. 7 is a sectional elevation showing an attachment for holding the table stationary when arranging the work thereon. Fig. 8 is a detail perspective view of an attachment.

Similar numerals of reference are employed to indicate corresponding parts in the several figures.

Referring to the drawings, the numerals 1 and 2 designate uprights or corner posts of the frame which are connected by parallel longitudinally disposed base bars 3, and transverse connecting bars 4. The upper portion of the said uprights or corner posts are connected by a rear longitudinal beam 5, and a front spindle beam 6, the latter being formed preferably of U-shaped channeled iron or other material.

Between and supported by the two posts 2 is a driving shaft 7, which carries a driving pulley 8 and a series of flanged band pulleys 9. The pulleys 9 are suitably positioned and have belts 10 running therefrom and to horizontally disposed pulleys 11, surrounding or carried by the spindles 12 of the carving tools, which depend below the said spindle beam 6 a suitable distance. In the center of the said beam 6, is the guiding spindle 13, to which the guiding tool or tracer is fastened. As seen in Fig. 6 each of the spindles 12 is surrounded by a split bushing 14, on which bears and is mounted a pulley 11, and held in connection therewith by a set screw 15. To enable each of the spindles 12 to be adjusted, the said construction is employed, and also preserve the spindle against scratching or marring, by having the said set screw 15 bear against the bushing 14 and still provide the requisite clamping connection. The said spindles are made adjustable vertically in order that they may be adapted for use in carving various thicknesses of wood. Boxes or journals 17, are adjustably mounted in openings 18, in the flanges of the beam 6 and surround each of the spindles, and are adapted to have their ends bear against the bushing 14 to hold the pulley in the proper adjusted position. The said boxes or journals are formed with flanged outer ends or heads 19, which prevent the same from moving entirely through the openings 18, and provide a limitation or stop for the same, and when said boxes or journals are properly adjusted they are sustained in such adjustment by means of horizontally disposed set screws 20, extending inward from the edges of the flanges of the beam 6, and bearing thereagainst. The belts 10 pass over the pulleys 9 in vertical planes, and where said belts pass around the spindle pulleys 11 they assume a horizontal position, which is made necessary by the position of said spindle pulleys.

Extending transversely across the beams 3 and projecting beyond the same are beams 21, on which are supported rails 22 adapted to be engaged by grooved rollers 23 carried by transverse cross beams 24, the latter being connected by beams 25, and the said beams 24 and 25 form a base frame or support, from the corners of which vertically rise an-

gular corner posts 26. The said angular corner posts 26 comprise two flanges 27, each of which has yokes 28 mounted in connection therewith in vertical alignment, and provided with screw shanks 29, which extend through openings 30 in the said flanges of the corner posts and are held in position by nuts 31, which engage the said screw shanks and bear against the outer sides of the said flanges. The said yokes 28 carry anti-frictional rollers 32, which bear against a triangular shaped post 33. One of the said posts 33 is arranged in connection with each of the corners of the frame just set forth, and the said anti-frictional rollers 32 bear against the outer faces of the same which are arranged at right angles to each other.

To the upper ends of each of the posts 33 is secured a table 34, which is made longer than it is broad or of substantially rectangular form, and to the lower portion of each of the said posts is bolted the outer end of an arm 35, as shown more fully at 36 in Fig. 4. The arms 35 extend outwardly at right angles from a central web 36 and are four in number. Rising vertically from the said web 36, is a pair of centers or fulcrums 37 which are adjacently situated and have scale or knife edges 38 in connection therewith. The said knife or scale edges 38 project through openings 39 in the lower portions of upright posts 40, which support oppositely extending beams or bars 41, the said upright posts 40 constituting vertical forks and having openings 42 in the upper portions thereof, which receive scale or knife edges 43, as fully shown in Fig. 4. The beams or bars 41 have knife or scale edges 44 in the bottom thereof and projecting from opposite sides, and which bear on the top portions of vertical fulcrum bars 45 extending upward from and secured to a centrally disposed longitudinal beam 46, between the beams 25 before set forth, and securely attached to the cross beams 24, the said fulcrum bars 45 being located on opposite sides of the beam 46 in order to properly position the same with relation to the beams or bars 41. On the beams or bars 41 are suspended weights 47, which are connected to yokes 48, having set screws 49 therein adapted to engage the said beams or bars 41 to hold the weights in proper adjusted position. Each of the posts 33 carries one of the tables 34, and is secured to screw-apertured lugs 50, located at the under central portion of each of the tables, and by this means four tables are employed which are normally arranged in parallel planes, and project over the corner posts 26, as fully shown. From the upper surface of each of the tables rises a lug 51, to which is pivotally secured a horizontally disposed arm 52, having connected to the free end thereof an arm 53, whose free end is attached to a lug or projection 54, extending from the under side of the table 55. One of the lugs 54 is located at the opposite sides of the said table 55 adjacent to the corners

of the latter and are thereby four in number. Casters or rollers 56 are inserted through openings in the free ends of the arms 53, and the lugs or projections 54, and contact with the upper surface of the tables 34, and are adapted to sustain the table 55 in adjustable elevation above the said tables 34.

To the upper portion of the end of the arm 53, where it is connected with the end of the arm 52, at each corner of the device or at a point adjacent to each of the four corners of the table 55, is pivotally secured the end of an arm 57, and these arms project inward to form a substantially rectangular frame, being connected by longitudinally-extending bars 58, and by this means any motion or movement in a horizontal plane of the table 55 will be equalized and made synchronous or in unison in all parts of the said table and the mechanism in connection therewith after the manner of a rigid construction. The construction just set forth will make all four corners of the table 55 respond to power applied to move the same at one side and cause the four corners thereof to describe the same movement, and by this means the transfer of work as conducted through the tracing tool carried over the design to be copied to the carving tools, will be the same upon any portion of the table,

Under the table 55, and above the tables 34 and the arms 52 and 53, are located thin sheet plates 59 of suitable metal, as shown in Fig. 8, to prevent shavings or cuttings from falling on the tables 34, said plates being arranged at an angle to deflect the material therefrom.

The table 55 is constructed with side-bars 60, and end-bars 61, to which is secured a series of longitudinally-disposed slats 62, having transverse lines 63 thereon, arranged at predetermined intervals and corresponding with the centers of the spindles 12 and also of the guiding spindle 13, to thereby provide means for properly positioning the work upon the said table, as fully shown in Fig. 5. On the edge of the said table 55, is formed a scale 64, representing feet and inches from the center of the guiding tool, to assist in rapidly placing the work and model upon the said table without delay and inconvenience arising from having to measure with extraneous implements the distance which the work is to be placed from the guiding tool. By forming the table 55 with the slats 62; and having intervening spaces between the said slats as shown, the shavings or cut material such as the chippings or dust, may readily pass between the said slats and thereby clean the table and avoid congregation of waste material on the said table.

From the under side of the channeled beam 6, depends a projecting arm 65, which is rigidly secured thereto, and has an inverted V-shaped yoke 66 pivotally connected thereto, whose arms 67 have slots 58 therein adapted to engage screw hooks 69, secured to one of

the sides of the table 55. By this means the said table 55 may be held rigid while the work and pattern are being adjusted thereon, and when the said yoke is not in use, it is turned upward as shown in dotted lines in Fig. 7, and held in said position by a turn screw or hook 70 connected to the upper portion of the spindle beam 6.

A bracket 71 is secured to one of the posts 26, and extends upward at an angle of inclination, having formed at the free end thereof jaws 72, and an opening 73 extending through the center of the same. The said jaws 72 are adapted to receive and embrace a depending end bracket 74, which has an opening 75 therein adapted to align with the opening 73 of the bracket 71 for the purpose of receiving a clamping bolt and nut 76, which holds the two brackets detachably connected with each other.

On the bracket 74 is secured a rest or board 77 by means of a bolt 78, which passes through the said parts. This construction is shown in Fig. 8, and only one end thereof is illustrated, as the opposite portion of the same is a duplicate of that which has already been described. Both of the bolts 76 and 78 are mounted in slots, as the opening 75 is elongated and thereby provides for the vertical adjustment of the bracket 74. In like manner the bolt 78 is fitted in a slot 79 which may be made of any suitable length and thereby arranges for an endwise adjustment of the rest or board 77. The object of this construction is to provide a rest for the operator when moving the table 55, and it also acts as a convenient means for moving the mechanism connected to the table 55, and thereon may be placed tools, wrenches and other devices employed in the work of carving.

In operation, the table 55 is held rigid by the attachment illustrated in Fig. 7, the work is placed in proper position together with the model or pattern, the guiding tool held by the guiding spindle is adjusted so that it will touch the highest point on the pattern, and the carving tools adjusted by lowering the spindles, so that they will touch the boards or pieces of wood to be carved. One board may be of one inch thickness and the others more or less. This done, the attachment is turned up and fastened in the position shown by dotted lines, the spindles set in motion and the table 55 moved so that the tool held by the guiding spindle may be traced over the model or pattern to transfer the design therefrom to the work adapted to be completed. Through the mechanism set forth, the table may be moved in any manner desired, as when any varying thicknesses, or rounding off, in the pattern, as in relief or raised carving, the said table may be simultaneously moved horizontally and vertically, that is obliquely or at any angle desired; horizontally, by the casters 56 rolling on the tables 34, and vertically by the posts 33, carrying tables 34, sliding between the rollers 32, the said posts being connected

by arms 35, which are supported by counterbalancing weights and levers, as set forth. The slatted construction of the table 55 also provides for the positioning of suitable clamps 80 for holding the work in position, which may be passed between the said slats and are of any preferred form of construction. The rollers 23 carried by the end cross beams 24, and in connection with the operating and supporting mechanism of the table 55, provide for an adjustment of all the parts supported by the said rollers outwardly, as may be required, when the work to be carved is of greater length than the width of the plates 34, so that it may be properly and successfully manipulated.

The parts of the framework of the device set forth may be constructed of any suitable material and in any preferred form, which will be best adapted for the proper support of the mechanism.

The advantages of the device set forth will be readily apparent to those skilled in the art, and need not be further enlarged upon herein.

By means of the knife or scale edges in connection with the parts set forth, a very sensitive construction is provided which will respond to the slightest adjustment with exceptional beneficial results, as will be seen.

Having thus described the invention, what is claimed as new is—

1. In a carving machine, the combination of a series of carving tools, a transversely adjustable support, and a table having an individual free movement transversely and longitudinally in a horizontal plane and vertically in a vertical plane and located under said tool, said table and support being unitedly adjustable transversely, substantially as described.

2. In a carving machine, the combination of a series of carving tools, a stationary beam supporting said tools, a work-table mounted under the tools having rollers pivoted to the under side adjacent to the corners thereof, and vertically-adjustable smaller tables on which said rollers are freely mounted to have universal movement, substantially as described.

3. In a carving machine, the combination of a series of rotatable carving tools, and a stationary guiding tool, a stationary beam carrying said tools, a transversely-adjustable support, and a slatted work-table held by said support and located under said tools and having lines thereon extending across the same directly under the centers of said tools, said work-table having an individual free movement transversely and longitudinally in a horizontal plane and vertically in a vertical plane, and said table and support being unitedly adjustable transversely, substantially as described.

4. In a carving machine, the combination of a series of carving tools, a stationary beam in which said carving tools are rotatably

mounted, a non-rotatable guiding-tool between said carving tools, a slatted work-table having lines thereon directly under the centers of the said carving tools, and a scale on the front edge thereof, and a support arranged at each of the corners of the table and having a vertical and a transverse adjustment and to which the four corners of the said table are pivotally attached to provide a universal movement for the latter, substantially as described.

5. In a carving machine, the combination of tools, a horizontally and vertically adjustable table below said tools and an adjustable frame supporting the said table, and levers and weights carried by said frame for sustaining the table in its vertical adjustment, substantially as described.

6. In a carving machine, the combination of a work supporting table, casters or rollers secured to said table, smaller tables on which said casters or rollers have adjustable bearing vertically adjustable posts connected to said smaller tables, and a frame having angularly-disposed corner-flanges in which said posts are freely adjustable automatically, substantially as described.

7. In a carving machine, the combination of a work supporting table, casters or rollers connected to said table, smaller tables on which said casters or rollers have adjustable movement, vertically adjustable posts attached to said smaller tables, pivotally connected arms attached to said smaller tables and said work supporting table and tools located over the latter or work supporting table, substantially as described.

8. In a carving machine, the combination of tools, a work supporting table, smaller tables on which said supporting table is mounted, angular posts supporting said smaller tables and connected to each other, and angular corner posts carrying anti-frictional rollers on the inner faces of each and bearing against the said angular posts, on two sides of the latter substantially as described.

9. In a carving machine, the combination of a work supporting table, a supporting frame adjustable transversely of the machine and carrying a series of levers a portion of which have weights thereon, a series of smaller tables connected to posts attached to a portion of said levers and adapted to have vertical movement and on which the said work supporting table is freely movable, and a rectangular frame connecting said smaller tables, and the working table, suitable tools being mounted over said work supporting table, substantially as described.

10. In a carving machine, the combination of a work supporting table, a series of smaller tables, arms pivotally connecting said work supporting table and said smaller tables, casters or rollers carried by said work supporting table and a part of said arms, and movable on said smaller tables, posts connected to said smaller tables, arms uniting the said posts

and supporting weighted beams or bars, corner posts carrying anti-frictional rollers, which bear against the posts supporting said smaller tables, and tools mounted over the said work supporting table, substantially as described.

11. In a carving machine, the combination of tools, a work supporting table a series of smaller tables to which said supporting table is pivotally connected, said smaller tables having depending posts, a frame in which said posts of the smaller tables are adjustably mounted and a base frame over which the aforesaid frame is adjustable transversely of the machine, substantially as described.

12. In a carving machine, the combination of tools, a work table adjustably mounted under said tools, a series of smaller tables under said work table, arms pivotally connected to said smaller tables and work-table, and to each other, rollers or casters in connection with said work-table and a portion of the arms and adapted to bear against the said smaller tables, a frame connecting the whole series of said arms, and an adjustable supporting-frame for the said smaller tables, substantially as described.

13. In a carving machine, the combination of tools, a work-table adjustably mounted under said tools, supports for said work-table, arms connecting said supports and extending diametrically from a common center or web, an upright or fork extending from the said common center or web, weighted bars or beams in connection with said upright or fork and extending in opposite directions, and a beam having fulcrum bars extending upwardly therefrom and on opposite sides thereof on which the said bars or beams connected to the upright or fork have bearing, the said bars or beams being supplied with weights, substantially as described.

14. In a carving machine, the combination of a work table, a series of smaller tables supporting the same in adjustable elevation, posts connected to said smaller tables, arms diametrically opposed and connecting the said posts to provide a unitary adjustment of the same, weighted levers connected to said arms for automatic adjustment and a transversely-adjustable frame supporting said parts, substantially as described.

15. In a carving machine, the combination of an outer frame, transverse beams extending across the lower portions of the same, and having tracks thereon, a transversely adjustable frame having rollers engaging said tracks, vertically adjustable supports carried by the latter frame, tables secured to said supports, a work table connected to said latter tables and freely movable thereover and tools above said work table, substantially as described.

16. In a carving machine, the combination of tools, a work table having lugs or projections extending from the under side thereof, an arm connected with each of said lugs or

projections, a series of casters connected with said projections, an arm pivotally connected to the aforesaid arm in each series of said arms, smaller tables to which said arms are pivotally connected, a frame connecting all of said arms and located horizontally under the said work table, upright posts secured to said smaller tables, diametrically opposed arms secured to said uprights or posts, and supporting weighted bars or beams, a frame having angular corner posts carrying anti-frictional rollers adapted to bear against the opposite faces of the said uprights or posts, grooved rollers attached to the lower portion of said frame, and a track upon which said rollers are mounted to have free movement, substantially as described.

17. In a carving machine, the combination of tools, a work table, smaller tables supporting said work table, supports for said smaller tables adapted to be adjusted vertically, arms connecting said supports and extending diametrically from a common center or web, a pair of fulcrums rising vertically from said center or web, and provided with scale or knife edges, a pair of upright bars having openings in the lower portion of the same engaging said scale or knife edges, and similar openings in the upper part thereof, oppositely extending beams or bars carrying scale or knife edges engaging said upper openings of the upright bars, vertical fulcrum bars engaging with knife or scale edges on the oppositely extending beams or bars, and adjustable weights carried by said beams or bars, substantially as described.

18. In a carving machine, the combination of tools, a work supporting table under said tools, a series of smaller tables on which said work supporting table is freely movable, and thin sheet metal plates inserted between said work supporting table and over each of said smaller tables, substantially as and for the purposes specified.

19. In a carving machine, the combination of tools, a work supporting table and smaller tables on which said work supporting table is freely movable and having a weighted frame in connection therewith, provided with track-wheels, and a base-frame having tracks thereon extending transversely of the machine and over which all of said parts are unitedly adjusted, substantially as described.

20. In a carving machine, the combination of tools, a work table a series of automatically adjustable supports for and upon which the said work table is freely movable, and means for unitedly adjusting said table and supports in a transverse direction substantially as described.

21. In a carving machine, the combination of a spindle beam, an inverted V-shaped yoke pivotally connected to said beam, a work supporting table, having screw hooks attached thereto adapted to engage the said yoke, and operating tools, substantially as described.

22. In a carving machine, the combination of a spindle beam, a projection extending from the lower side thereof, an inverted V-shaped yoke pivotally connected to said projection, and having slots in the ends of the arms thereof, a work supporting table, having screw hooks to engage the slots in the arm of said yoke, and operating tools, substantially as described.

23. In a carving machine, the combination of a spindle beam having a hook connected to the upper portion thereof and a projection depending from the lower side of the same, an inverted V-shaped yoke having slots in the ends of the arms thereof and adapted to be turned upward to engage the hook on the spindle beam, a work table having screw hooks to engage the slots in the ends of the arms of the yoke, and operating tools, substantially as described.

24. In a carving machine, the combination of tools, a work-supporting table, and a series of adjustable smaller tables above which said work-supporting table is mounted and to which it is pivotally connected to have free movement in a horizontal plane, said smaller tables being of greater length than they are wide, substantially as described.

25. In a carving machine, a beam having aligned vertical openings formed in upper and lower horizontal flanges thereof, a carving tool supported in said flanges of the beam and having a split bushing thereon located between said flanges, a pulley bearing on said bushing, two flanged journal boxes inserted through said openings in the flanges of the beam and surrounding said tool, the said boxes being adjustably held against the opposite ends of the said bushing and the flanges thereof located, respectively, above and below the outer surfaces of the said flanges of the beam to limit the inward movement of the boxes, and set-screws extending through said flanges from the rear in horizontal planes and engaging said boxes, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JAMES HOLMES.
KARL PETERSON.

Witnesses:

G. B. JONES,
OLOF A. OLSON.