

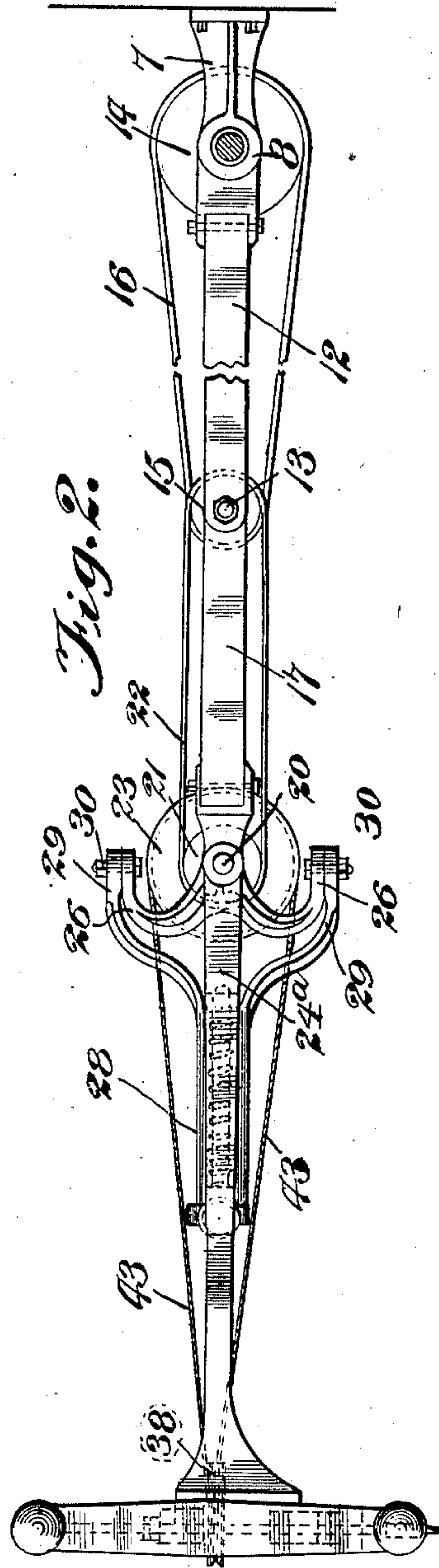
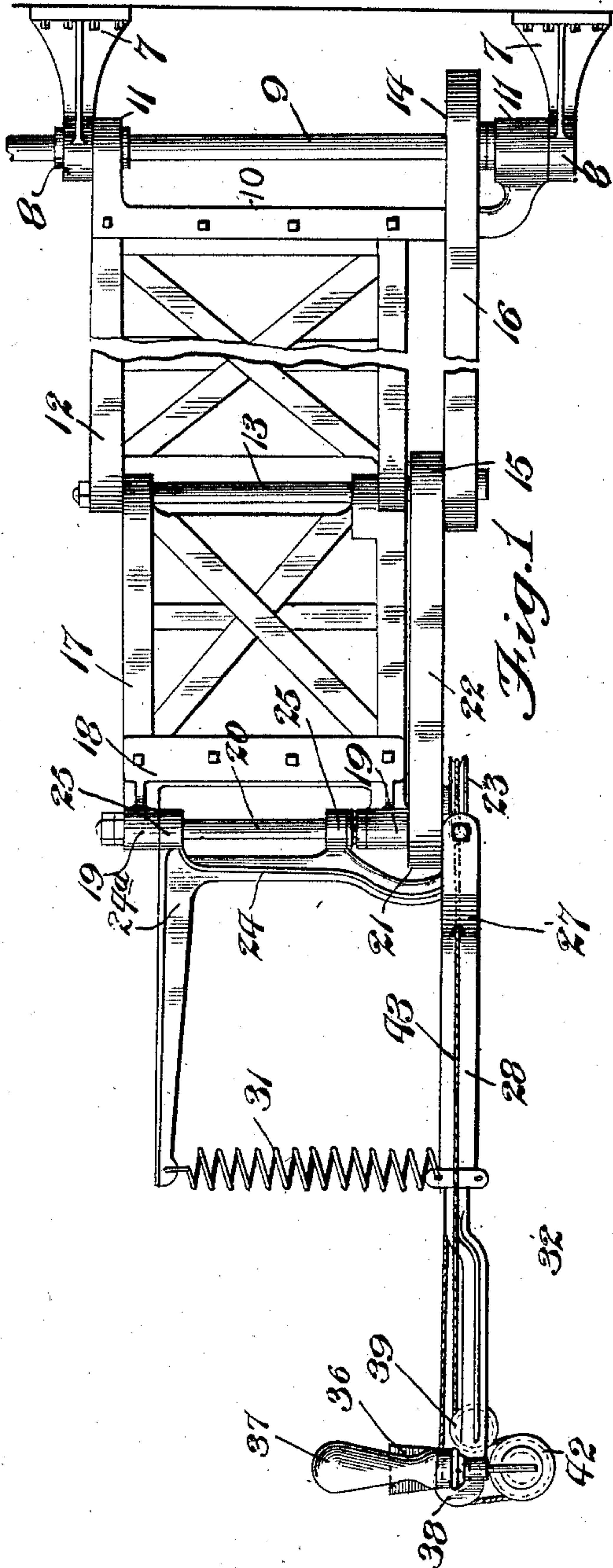
No. 749,820.

PATENTED JAN. 19, 1904.

T. C. HANSEN.
CUTTING MACHINERY.
APPLICATION FILED MAY 18, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

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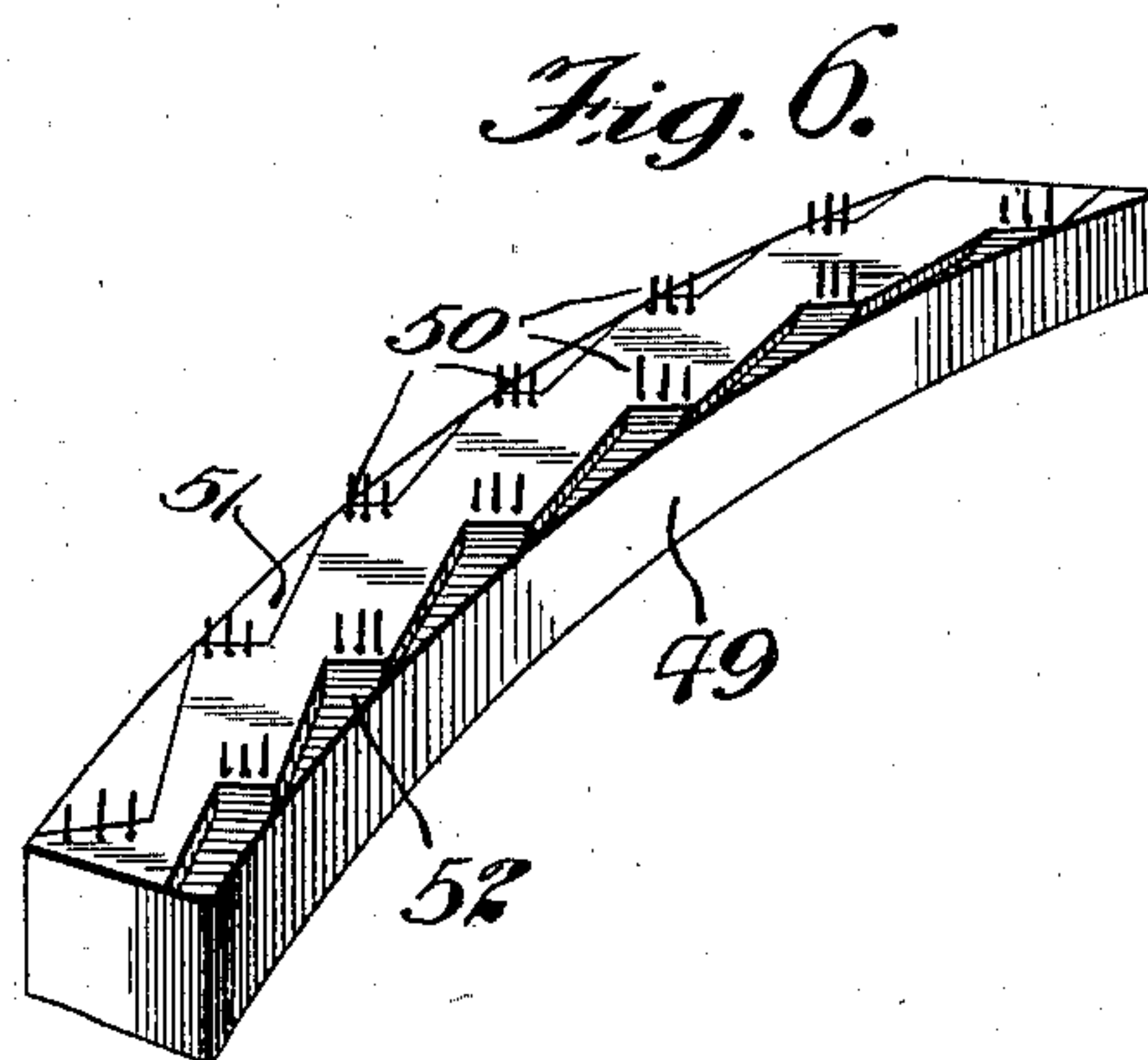
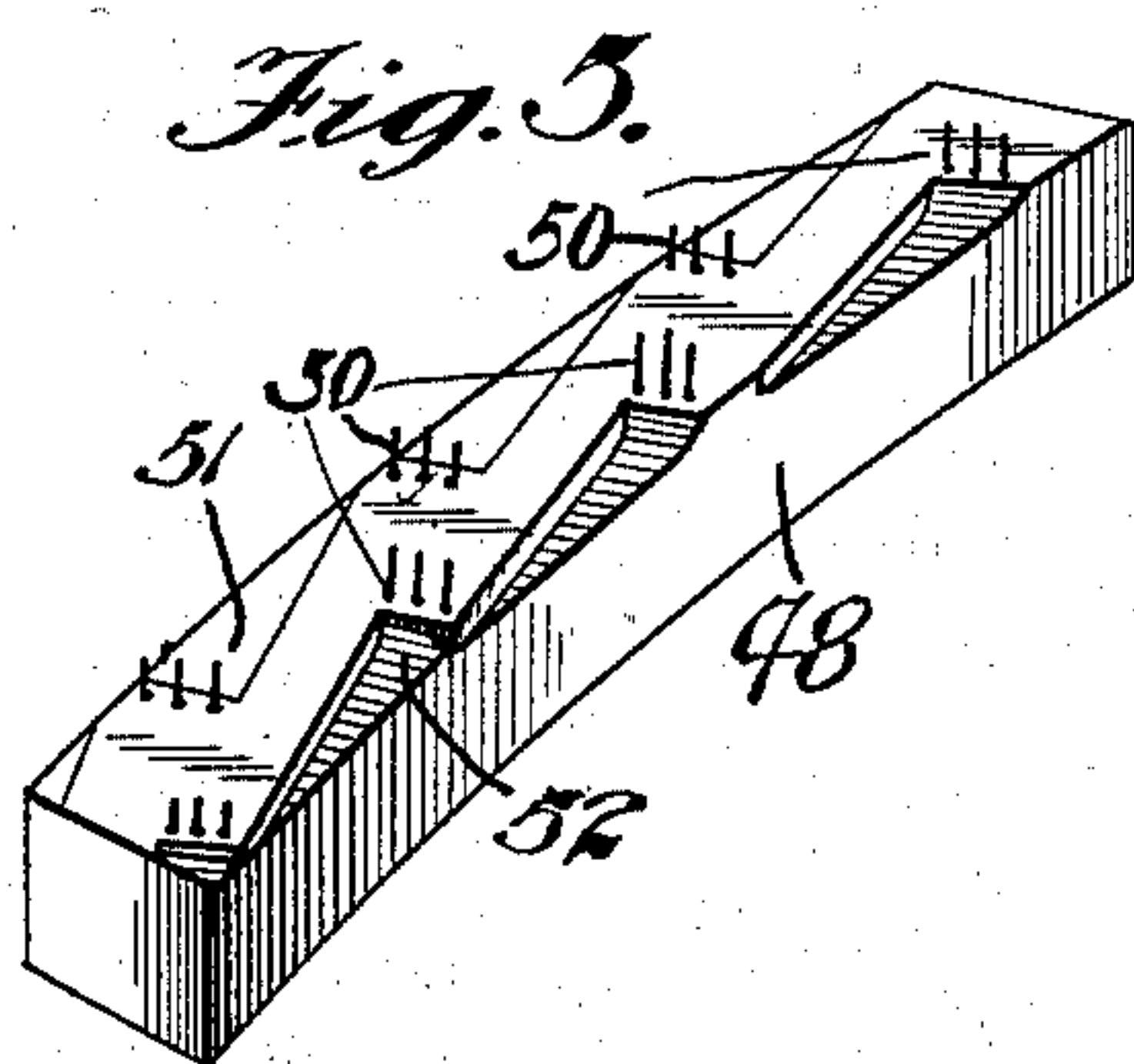
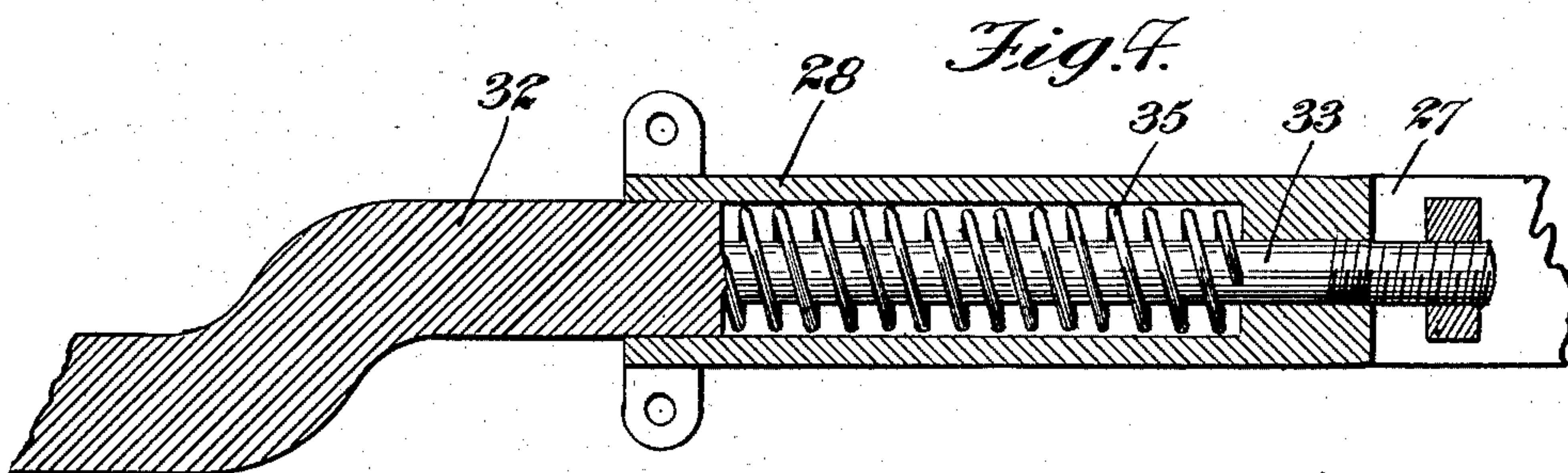
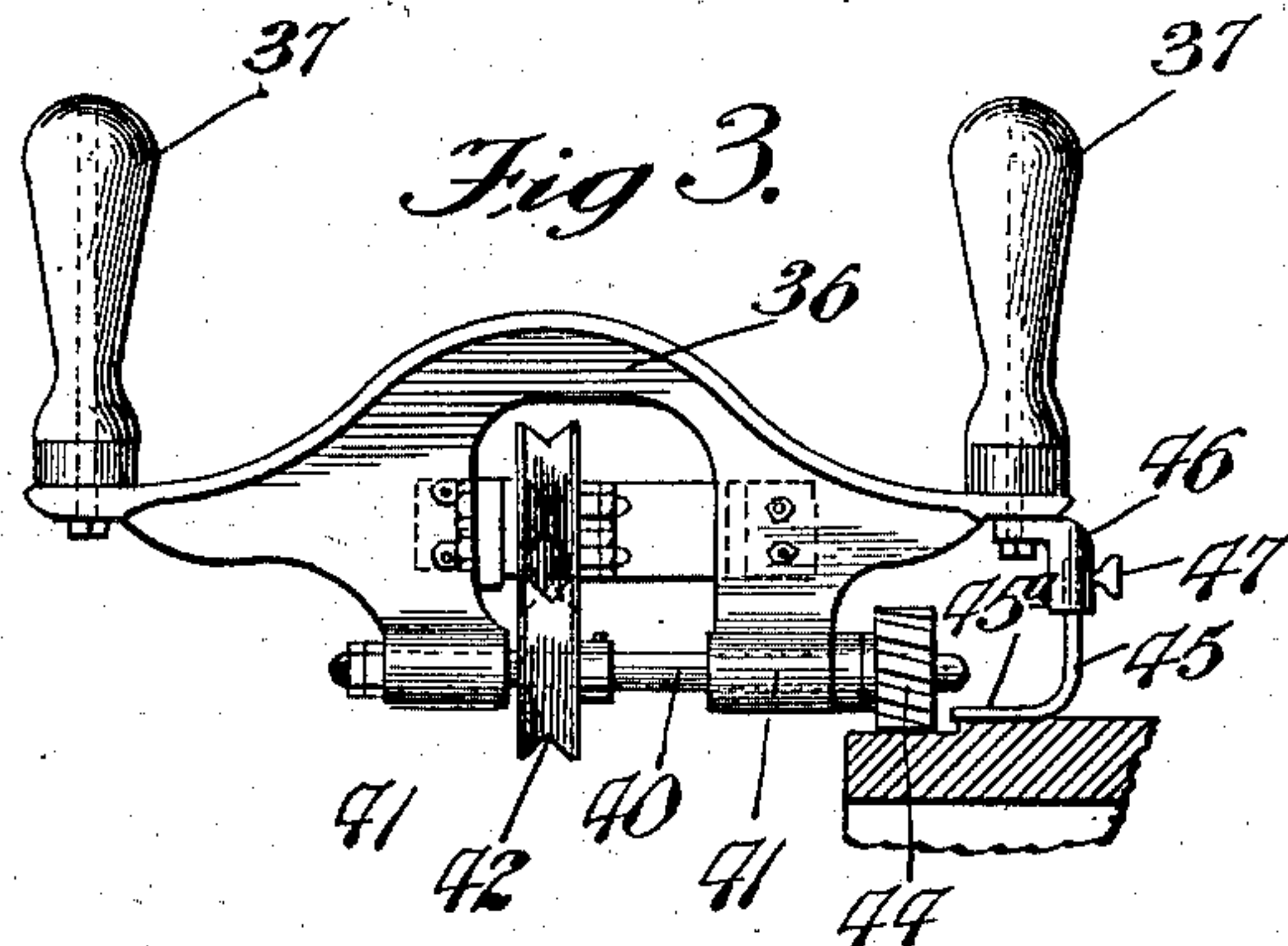
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2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

THEODORE C. HANSEN, OF CHICAGO, ILLINOIS.

CUTTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 749,820, dated January 19, 1904.

Application filed May 18, 1903. Serial No. 157,641. (No model.)

To all whom it may concern.

Be it known that I, THEODORE C. HANSEN, 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 Cutting Machinery, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to cutting machinery, and particularly to machinery adapted to cut away portions on the sides of piano-bridges upon each side of the portion in which the pegs are inserted for the support of the strings in order to leave the strings free to vibrate. It may, however, be used for any other suitable purpose.

The object of my invention is to provide a woodworking-tool mounted in a suitable support in such a way that it may be swung over any part of the work and worked in any position on the work and may be conveniently and readily manipulated to do the work.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a top or plan view. Fig. 3 is a detail, being a view of the cutter and its support and handles for operating the same. Fig. 4 is an enlarged detail showing the mounting of the tool-carrying arm in its support in vertical section; and Figs. 5 and 6 are perspective views of portions of the piano-bridges, showing the character of the work for which the tool is particularly adapted.

Referring to the drawings, 7 indicates brackets which are secured to the wall or any suitable support and provided with journals 8.

9 indicates a shaft which is journaled in the journals 8 of the brackets 7 and is driven by any suitable mechanism. (Not shown.)

10 indicates a bracket which is provided with sleeves 11, by means of which it is rotatably mounted on the shaft 9, so as to be held rigid vertically, but capable of being swung laterally from side to side.

12 indicates a frame which is bolted or otherwise secured to the bracket 10.

13 indicates a rod which is carried by the forward ends of the frame 12.

14 indicates a pulley which is keyed or otherwise secured to the shaft 9, so as to rotate therewith.

15 indicates a pulley which is journaled upon the lower end of the rod 13.

16 indicates a belt which connects pulleys 14 and 15.

17 indicates a frame which is journaled on the rod 13, so as to be held rigid vertically thereon and with reference to the frame 12, but adapted so as to be swung from side to side laterally on the rod 13. The frame 17 carries at its outer end a bracket 18, which is bolted or otherwise secured thereto and which is provided with supports 19.

20 indicates a rod which is mounted in the supports 19.

21 indicates a pulley which is journaled near the lower end of the rod 20 below the bracket 18.

22 indicates a belt which connects the pulley 15 to the pulley 21.

23 indicates a pulley which is either formed integral with or rigidly secured to the pulley 21 and journaled in the lower end of the rod 20.

24 indicates a bracket which is provided with sleeves 25, journaled upon the rod 20, so as to be held rigid vertically on said rod and with reference to the frame 17, but capable of being swung laterally thereon. Bracket 24 is provided with a forward-projecting arm 24^a at its upper portion and with arms 26 at its lower end, which extend in a curve outward upon each side of the pulley 23.

27 indicates an arm provided with a sleeve 28 at its outer end and with forks 29 at its rear end, which spread laterally, so as to embrace the arms 26 of the bracket 24. The forks 29 are pivotally connected with the arms 26 by means of bolts 30, whereby the arm 27 is adapted to be swung vertically on its pivotal support.

31 indicates a spiral spring which connects the forward end of the arm 24^a with the forward end of the arm 27.

The arm 26 and forks 29 are provided with suitable openings to permit the passage through them of the belt 43, hereinafter described.

The spring 31 is made of sufficient tension to yieldingly support the arm 27 with the devices mounted therein.

32 indicates a rod which is provided at its

inner end with a pin 33, screw-threaded at its end. The rod 32 enters the sleeve 28, as is best shown in Fig. 4, and the pin 33 extends backward through the sleeve 28 into the space between the forks 29 and is prevented from being pulled out by means of a nut 34, screwed upon the outer end of the pin 33.

35 indicates a spiral expansion-spring which is placed around the pin 33 within the sleeve 28 and operates to push the rod 32 forward, so as to keep proper tension upon the belt, hereinafter described. The rod 32 is cylindrical at its inner end, so as to turn upon its longitudinal axis in the sleeve 28.

36 indicates a head or bracket which is secured to the outer end of the rod 32 and is provided with handles 37.

38 39 indicate guide-pulleys which are journaled, respectively, in the head 36 and in the outer end of the rod 32 and operate to guide the rope or belt, hereinafter described.

40 indicates a shaft which is journaled in suitable bearings 41 on the head or bracket 36.

42 indicates a pulley which is keyed or otherwise secured to the shaft 40.

43 indicates a belt which passes around pulley 23, over guide-pulleys 38 39, and around pulley 42.

44 indicates a rotary cutter which is keyed or otherwise removably secured to the shaft 40 at its outer end.

45 indicates a gage, one arm of which enters a suitable support 46, secured to the head 36, so as to be slidingly carried therein, and is held at the required height on the support 46 by means of the set-screw 47. The lower end 45^a of the gage 45 is bent, as shown in Fig. 3, so as to approach near the cutter 44 and regulates, by bearing upon the surface of the material to be cut, the depth of the cut produced by the cutter 44, as is best shown in Fig. 3.

When the shaft 9 is driven, the pulley 14 is of course carried with it by means of the several belts and pulleys above described, and the cutter 44 is driven at a suitable speed for doing the work.

In Figs. 5 and 6, 48 49 indicate portions of the piano-bridges for supporting the strings of the piano in order to show the work for which the mechanism above described is peculiarly adapted. 50 in each of said figures indicates the pins against which the strings of the piano (not shown) bear in the well-known and usual way. 51 52 indicate the cuts made in the upper surface of the bridges by the cutter 44.

It will be obvious that by means of the three-part frame above described the cutter may be swung over any portion of the work and may be swung so as to make the cuts parallel with each other, if desired, in whatever portion of the work on the bridge the cut is being done. Substantially the same three-part frame by which this result is attained is shown, de-

scribed, and claimed in and forms part of an application for Letters Patent filed by me and now pending in the Patent Office, the same being Serial No. 117,141, filed July 26, 1902. I therefore do not claim said frame in this application. As the support 27 is pivoted, as above described, so as to be swung vertically, the head 36, with the cutter 44, may be brought down upon the work, so as to cut to any required depth and measured by the position of the gage 45. The rod 32 also being mounted in the sleeve 28, the rod 32 may be rotated upon its own axis, so as to produce any required inclination of the cut, the head being operated by the handles 37. As was said above, the spring 35 operates to keep proper tension upon the belt 43.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame member and movable laterally and vertically thereon, a bar carried by said third member and rotatable on its longitudinal axis thereon, a cutter carried on said bar, and means for driving said cutter, substantially as described.

2. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame-section and movable laterally and vertically thereon, a bar carried by said third member rotatable longitudinal of its axis and movable longitudinal of itself thereon, a cutter carried by said bar, and means for driving said cutter, substantially as described.

3. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame-section and movable vertically and laterally thereon, a sleeve on said third member, a bar rotatably mounted in said sleeve and movable longitudinally of itself therein, a spring in said sleeve bearing on said bar and adapted to force said bar outward, means for limiting the outward movement of said bar in said sleeve, a cutter carried by said bar, and means for driving said cutter, substantially as described.

4. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally

thereon, of a third member pivoted to said second frame-section and movable vertically and laterally thereon, a sleeve on said third member, a bar rotatably mounted in said sleeve and movable longitudinally of itself therein, a spring in said sleeve bearing on said bar and adapted to force said bar outward, means for limiting the outward movement of said bar in said sleeve, a head on the outer end of said bar, a rotatable cutter carried by said head, means for driving said cutter, and a spring adapted to yieldingly support said third member, substantially as described.

5. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a bracket journaled on said second frame-section, rigid vertically and movable laterally thereon, a support pivoted on said bracket and adapted to be swung vertically on said pivot as a center and provided with a sleeve at its outer end, a spring connecting said bracket and said support and adapted to yieldingly support the same, a bar rotatably carried in said sleeve, a head mounted on said bar, a rotatable cutter journaled in said head,

and means for driving said cutter, substantially as described.

6. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a bracket journaled on said second frame-section, rigid vertically and movable laterally thereon, a support pivoted on said bracket and adapted to be swung vertically on said pivot as a center and provided with a sleeve at its outer end, a spring connecting said bracket and said support and adapted to yieldingly support the same, a bar rotatably carried in said sleeve and movable longitudinally of itself therein, a spring mounted in said sleeve and bearing against said bar and adapted to force said bar outward, means for limiting the outward movement of said bar, a head carried on said bar, a rotatable cutter journaled on said head, and means for driving said cutter, substantially as described.

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