No. 754,055. PATENTED MAR. 8, 1904.

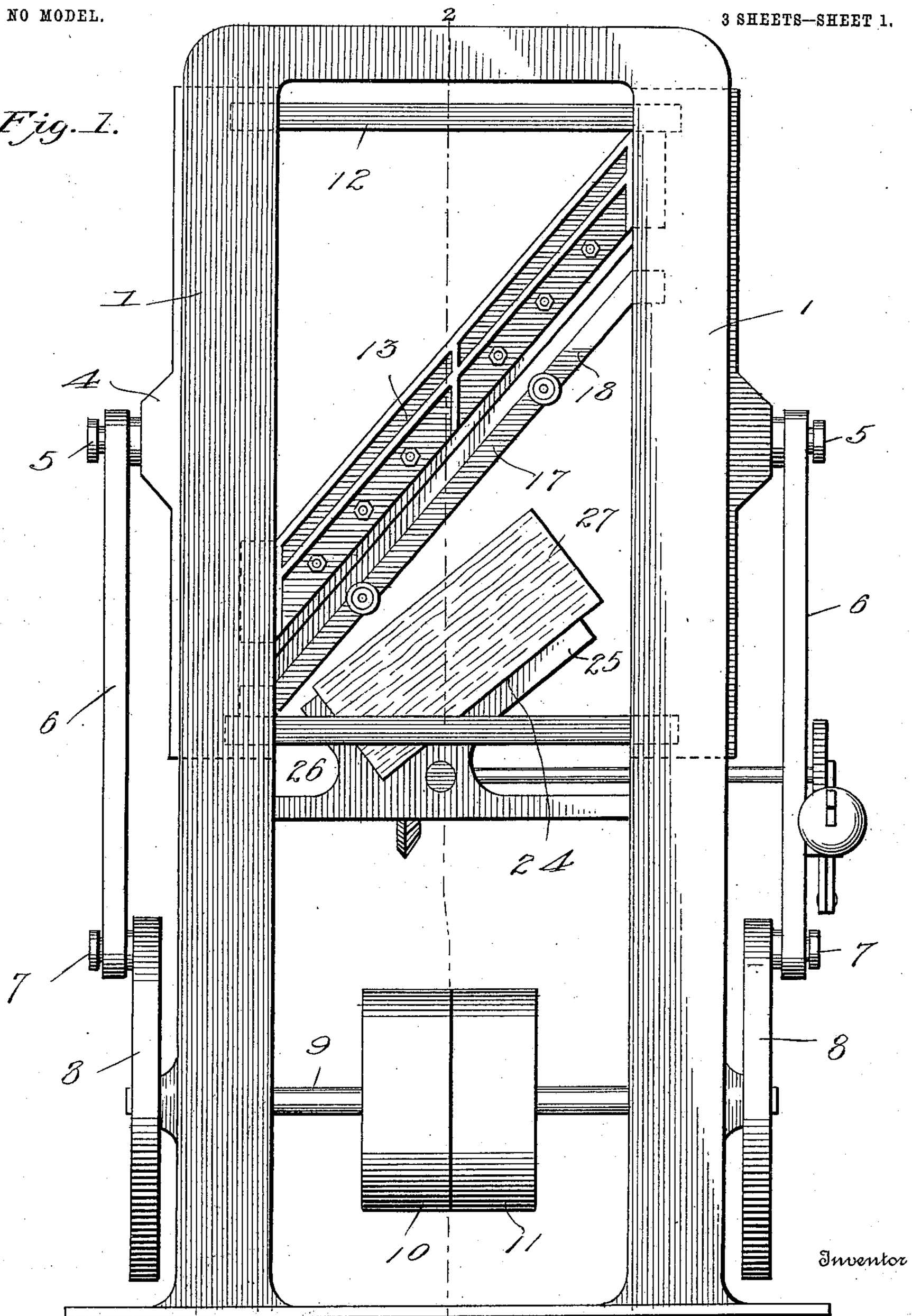
W. DIETMANN.

CUTTING MACHINE.

APPLICATION FILED JULY 23, 1902. RENEWED NOV. 30, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



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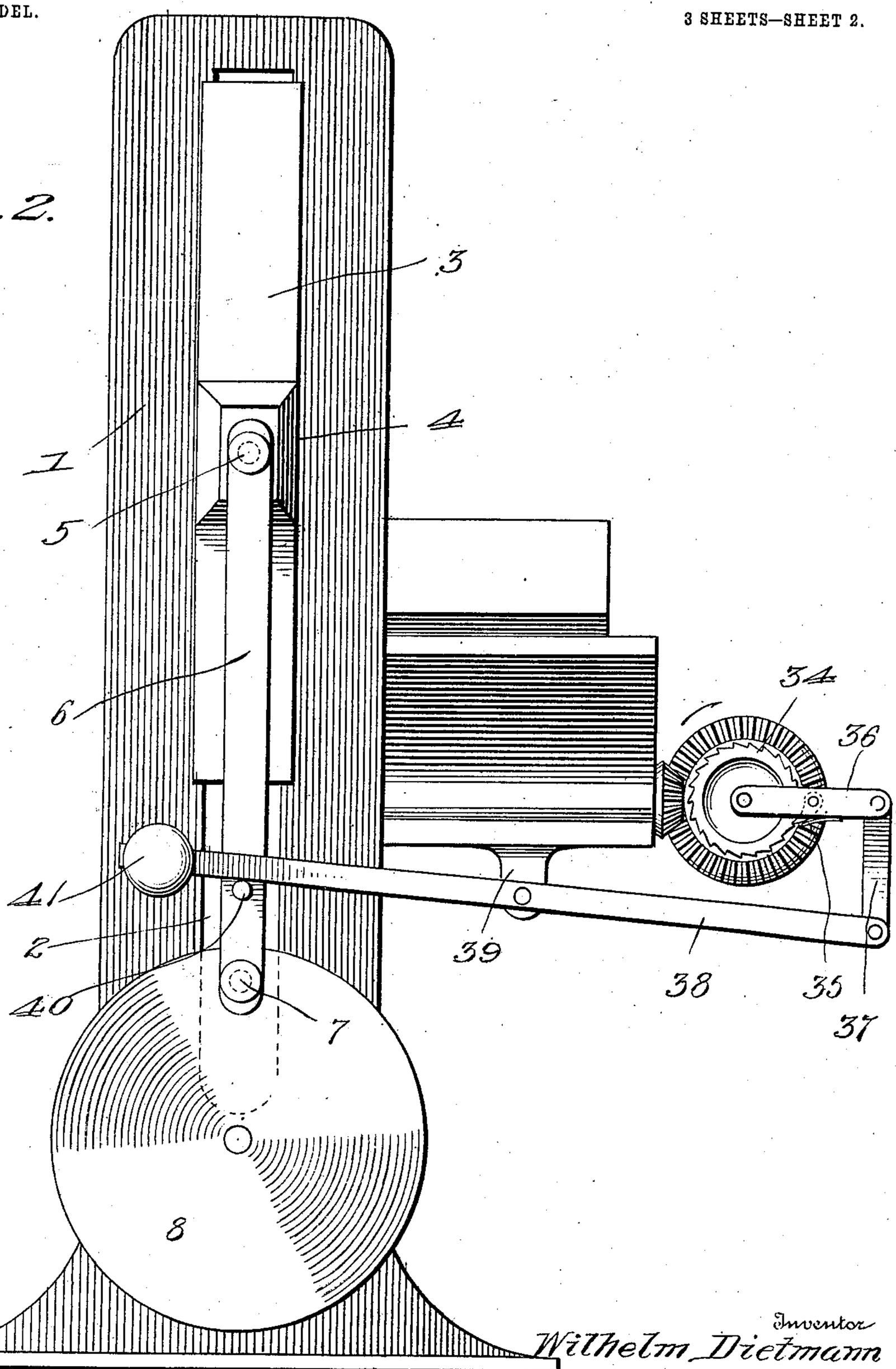
NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.

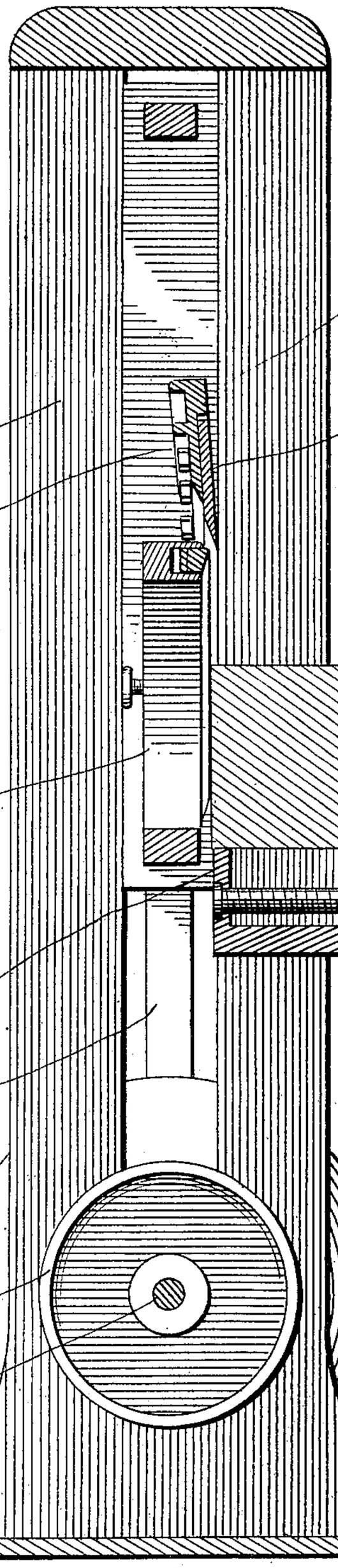
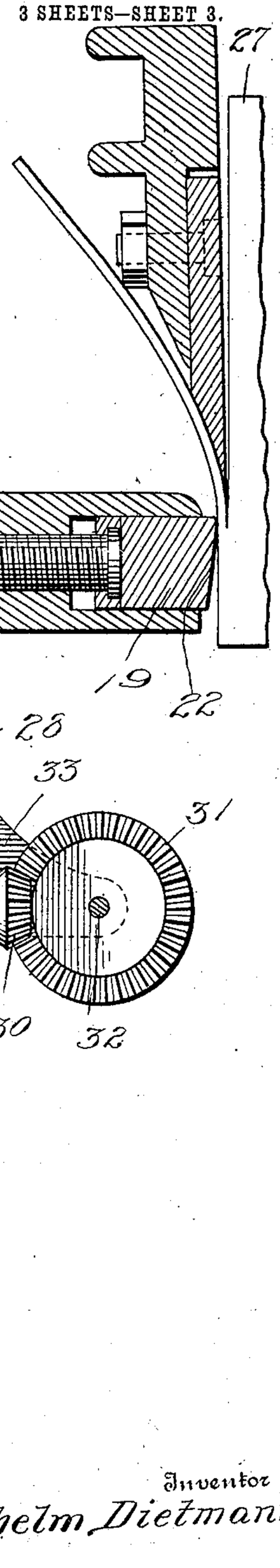


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILHELM DIETMANN, OF SLOTERGEMEENTE, NETHERLANDS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JOHN H. G. STUURMAN, JR., OF BROOKLYN, NEW YORK.

CUTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 754,055, dated March 8, 1904.

Application filed July 23, 1902. Renewed November 30, 1903. Serial No. 183,292. (No model.)

To all whom it may concern:

Be it known that I, WILHELM DIETMANN, a subject of the Queen of the Netherlands, residing at Slotergemeente, in the Province of North Holland, Netherlands, have invented new and useful Improvements in Cutting-Machines, of which the following is a specification.

This invention relates to a machine for cutting blocks or bolts of wood into thin planks or strips for use in the manufacture of cigar and other light boxes or inclosures.

The essential or primary object of the present machine is to avoid the disadvantages heretofore existing in the preparation of thin strips for cigar and other boxes by instituting a draw cut and having the cutting blade or knife disposed at an angle to the block or bolt of wood upon which it is to operate to thereby sever the planks or strips by cutting through a plurality of veins or fibers at one and the same time and avoid breaking, cracking, or splintering the planks or strips severed from the block or bolt of wood.

A further object of the invention is to expedite the formation of thin planks or strips for use in box structures, and thereby materially reduce the cost of manufacture and also to economize in the use of the wood.

The invention, broadly stated, consists in the provision of an angularly-disposed vertically-reciprocating knife or cutter which cooperates with a support or holder for the block or bolt of wood to be cut, the said support or holder being also so constructed and arranged that the wood disposed therein will be held at an oblique angle to a horizontal plane.

The invention further consists in the details of construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is an elevation of a machine embodying the features of the invention. Fig. 2 is an end elevation thereof. Fig. 3 is a transverse vertical section of the same. Fig. 4 is an enlarged detail sectional view of the knife and guard, showing their position and operation in cutting a plank or strip from a block or bolt of wood.

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

The numeral 1 designates opposite sides, which are substantially rectangular in form and open to lighten the structure and permit the cutting operation to be carried on in full view of an operator, as well as afford convenient means for supplying the machine with blocks or bolts of wood to be cut. The sides 1 will be tied or connected by any suitable means to maintain them in proper spaced relation, and each is formed with an elongated vertically-disposed slot 2. The slots 2 of the sides have vertically-movable or reciprocating slides 3 mounted therein and formed with outer intermediate bosses or enlargements 4, from which wrist-pins 5 project to loosely receive the upper ends of connecting-links or drive-bars 6, having their lower terminals also loosely attached to wrist-pins 7, eccentrically disposed on the outer sides of disks 8, mounted on a power-shaft 9. The said shaft has loose and fast pulleys 10 and 11 thereon for engagement by a belt from a suitable power source, and it is obvious that any preferred form of belt-shifter can be used to move the belt from one pulley to another, as may be desired during the operation of the machine.

From the foregoing description it will be seen that the slides 3 have an equal vertical reciprocation imparted thereto, and to insure an absolute synchronous operation of the slides they are connected by upper and lower cross-bars 12. Connected to and movable with the slides 3 is an obliquely-disposed knife-frame 13, having a recess 14 in one side to removably receive a knife 15, held in place by bolts 16. The knife-frame 13 extends upwardly at an angle to near the lower extremity of one slide 3 to near the upper extremity of the opposite slide, and in addition to this angular disposition of the frame it also has an inclination relatively to a vertical plane, so that the knife or cutter 15 will approach and operate on the block or bolt of wood at an angle to the latter in order to force out the plank or strip severed from the said block or bolt. The angular disposition of the knife-frame and the knife or cut-

ter carried thereby will also cause the strip or plank to be severed from the block or bolt by a shear cut and without materially compressing the fiber or veins of the wood and also cause a plurality of superposed fibers or veins to be severed or cut simultaneously. A guard 17 is also terminally secured to the slides 3 at a distance below and in a plane parallel with the cutting edge of the knife or cutter 15, the said guard always occupying a constant or immovable position in relation to the knife or cutter and operating to press against the strip or plank as it is cut from the block or bolt of wood and reinforce said strip or plank in such manner as to prevent breaking or splitting of the same. The guard comprises a channeled or grooved support 18, in which a pressure-bar 19 is adjustably mounted and controlled in its adjustable movement by screws 20, connected thereto and having outer hand-wheels 21 for engagement by an operator to gradually move the bar 19 proportionately to the reduction of the block or bolt of wood. The face or edge 22 of the pressure-bar 19, which comes into engagement with the block or bolt of wood, is beveled in a downward and outward direction, so as to permit the bar to clear the upper edge of the block or bolt of wood when the guard descends, and thereby avoid splitting or breaking said edge of the block or bolt. The pressure-bar 19 will also be adjusted to such a degree as to readily move over the surface of the block or bolt of wood without scoring or abrading the latter, but at the same time have sufficient pressure tension to brace or reinforce the plank or strip which is cut or sliced from the block or bolt at a point below the cutting edge of the knife or cutter 15, as clearly shown by Fig. 4.

The improved machine is also provided with a bed or support 23, having an angular seat 24, formed by intersecting long and shorter members 26, arranged in planes at right angles to each other and in reverse acute angles to the bed or support 23. By this means the block or bolt 27 is held at an angle to a horizontal plane, and this angular disposition is regulated in such manner as to have the knife or cutter 15 engage the block or bolt of wood at an angle of about fifty degrees in order to have said knife or cutter engage a plurality of superposed fibers or veins at one and the same time and remove any tendency toward crushing the fiber or grain and also facilitate the shear or draw cut desired. The bed or support 23 has a follower 28 mounted thereon and gradually operated to move inwardly toward the plane of reciprocation of the knife or cutter by a feed-screw 29 passing therethrough and having a bevel-pinion 30 on the outer end thereof. This pinion is held in continual mesh with a bevel-gear 31, rotatably mounted on a shaft 32, fixed in an outer bearing-support 33. Intimately related and secured to the gear 31 is a ratchet-wheel 34, with which a spring-actuated pawl 35 is held in constant engagement, said pawl being carried by a swinging arm 36, fulcrumed at its inner end on the shaft 32. The outer end of the arm 36 has a link 37 movably secured thereto and extending to the outer end of an actuating-lever 38, both terminals of the link 37 being movably connected. The lever 38 is pivotally mounted on a depending fulcrum ear or projection 39, extending from the bed or support 23, and projecting outwardly from one of the drive-bars 6 is a pin or projection 40, on which the inner extremity of the lever 38 has loose bearing, the inner end of said lever having a weight 41 secured thereon to cause the same to gravitate quickly after an elevation by the pin or projection 40. When the drive-bar 6, carrying the pin or projection 40, moves upwardly, the inner end of the lever 38 is similarly elevated, thereby pulling downwardly on the arm 36 and causing the ratchet-wheel 34 and gear 31 to revolve in a direction to rotate the screw 33 and cause the block or bolt 27 to be fed inwardly a distance desired or in accordance with a preliminary adjustment to form or cut planks or strips of the required thickness. When the drive-bar 6, carrying the pin or projection 40, descends, the lever 38 will follow the same, in view of the weight 41 thereon, and thereby throw the swinging arm 36 upwardly to cause the pawl to engage the ratchet-wheel at a proper point for a successive feeding operation. This adjustment is regularly carried on until the block or bolt is completely cut or sliced. The inner end of the bed or support 23 is formed with an upstanding flange 42, on which the inner end of the block or bolt 27 has bearing, it being understood that the said block or bolt is fed inwardly through the plane of movement of the vertically-reciprocating knife or cutter 15.

In preparing the block or bolt for the cutting operation it is first soaked in hot water and then placed upon the bed or support 23 in the seat 24, as clearly shown by Fig. 1. The machine is then set in motion and the knife or cutter 15 and its frame 13 regularly descend and ascend together with the guard and cooperate with the block or bolt 27, as clearly shown by Fig. 4, to regularly sever or slice thin planks or strips from the block or bolt in accordance with the inward feed of the latter.

A very material advantage in the present arrangement or angular disposition of the cutter is that the strips or planks when severed from the block or bolt will be cut smooth and ready for use in forming boxes without requiring a second operation of dressing or finishing the same.

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

1. In a machine of the class set forth, the combination of an obliquely-arranged vertically-reciprocating cutter also disposed at an

angle to a vertical plane, vertically-reciprocating slides to which the knife is secured, a guard terminally secured to said slides at a distance below and in a plane parallel with the edge of the cutter, the said guard always occupying a constant or immovable position in relation to the cutter and comprising a channeled or grooved support having a pressure-bar adjustably mounted therein and provided with outer hand-wheels whereby the said bar may be moved proportionately to the reduction of the block of wood, the face or edge of the bar which comes into engagement with the block of wood being beveled in a downward and outward direction, a bed having a work-supporting means at an angle to a horizontal plane, and mechanism for automatically feeding the bed and the work held thereby toward the cutter proportionate to the vertical reciprocation of the latter.

2. In a machine of the class set forth, the combination of vertical side members having slots extending longitudinally thereof, slides mounted in the said slots and formed with outer intermediate bosses provided with wrist-pins, drive-bars loosely attached at their upper terminals to said wrist-pins, a power-shaft having disks thereon to which the lower ends of the drive-bars are eccentrically attached, the said slides being connected by upper and lower cross-bars, an obliquely-disposed knife-frame terminally attached to the slides and having a knife removably held in one side thereof and disposed at an angle of inclination to a vertical plane, a guard terminally secured to the slides at a plane below and parallel to the knife-frame and comprising a pressure-bar adjustably mounted therein and having outer hand-wheels whereby the bar may be adjusted proportionate to the reduction of the block of wood operated upon, a bed having a work-supporting means at an angle to a horizontal plane, and mechanism for automatically feeding the bed and the work held thereby toward the cutter proportionate to the vertical reciprocation of the latter.

In testimony whereof I affix my signature in presence of two witnesses.

WILHELM DIETMANN.

Witnesses:

CORNELIN WONTHERM STUURMAN,

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