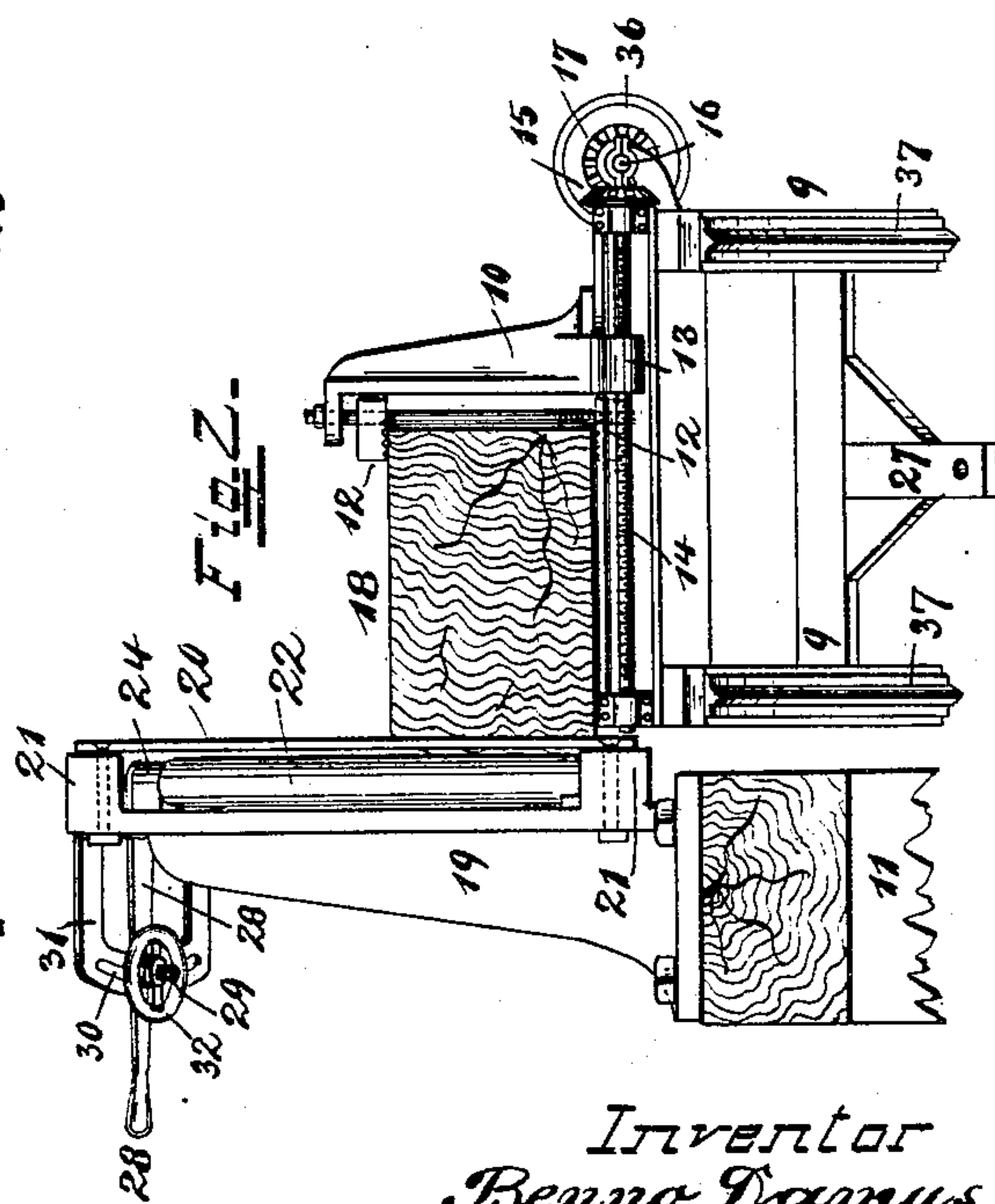
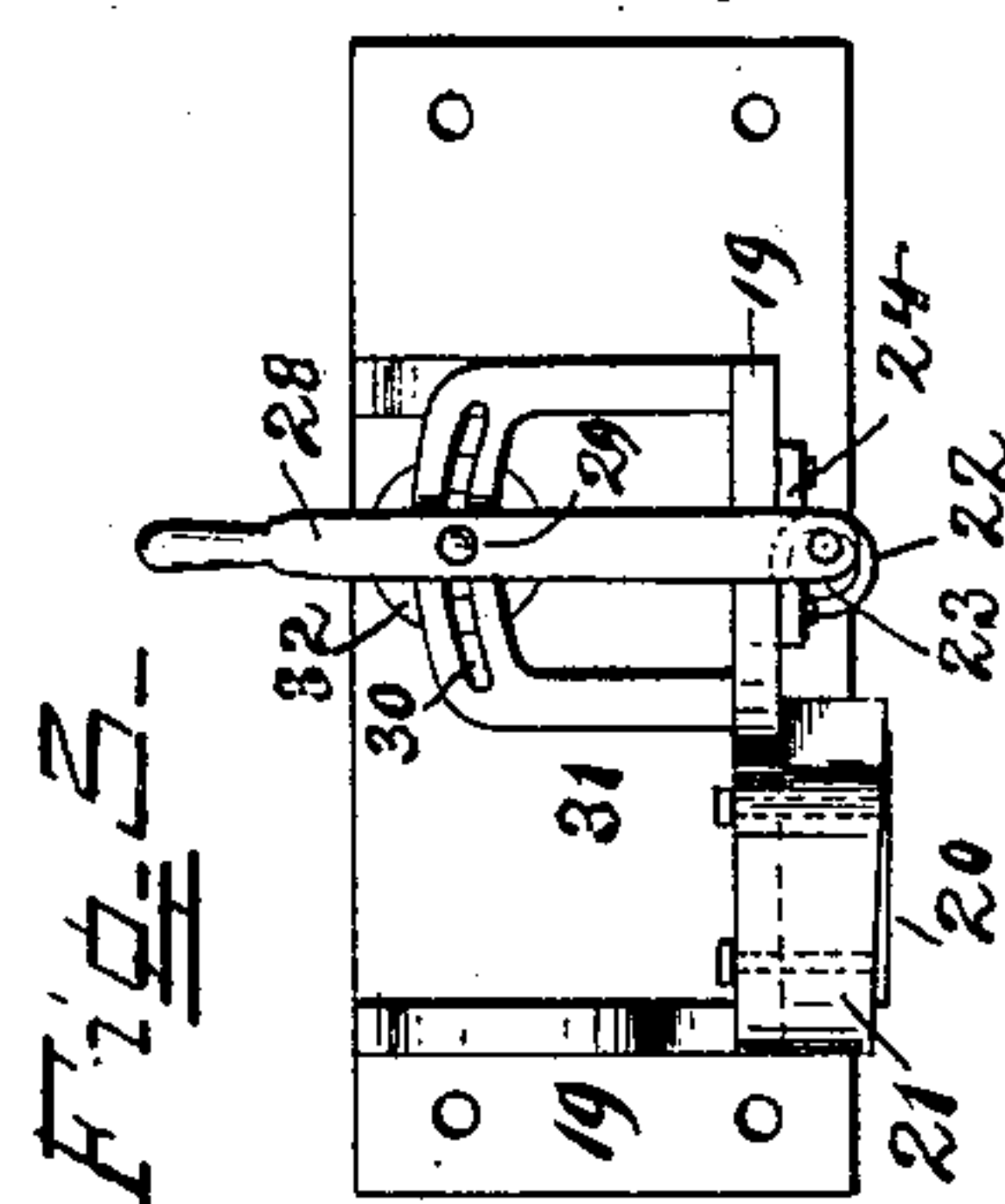
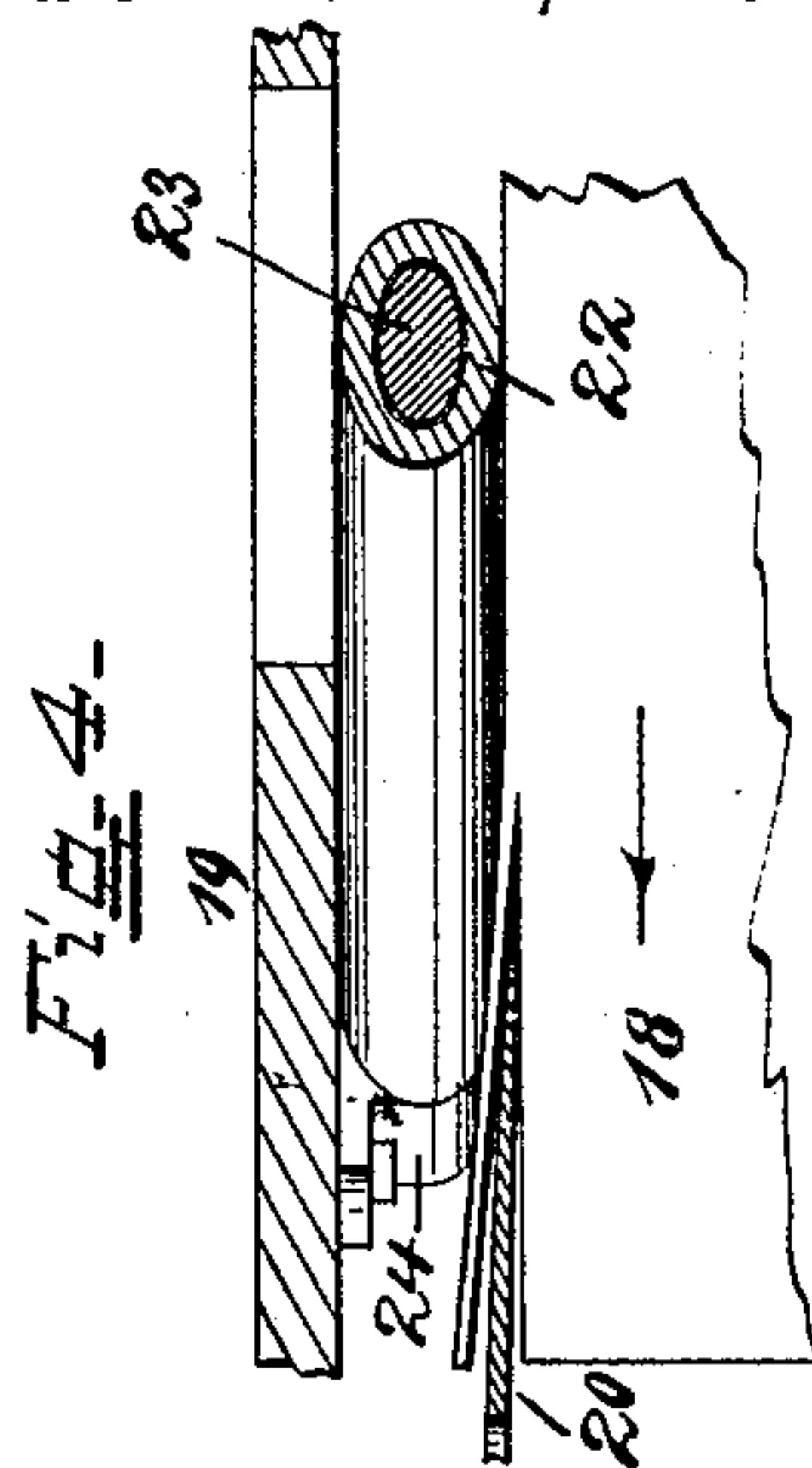
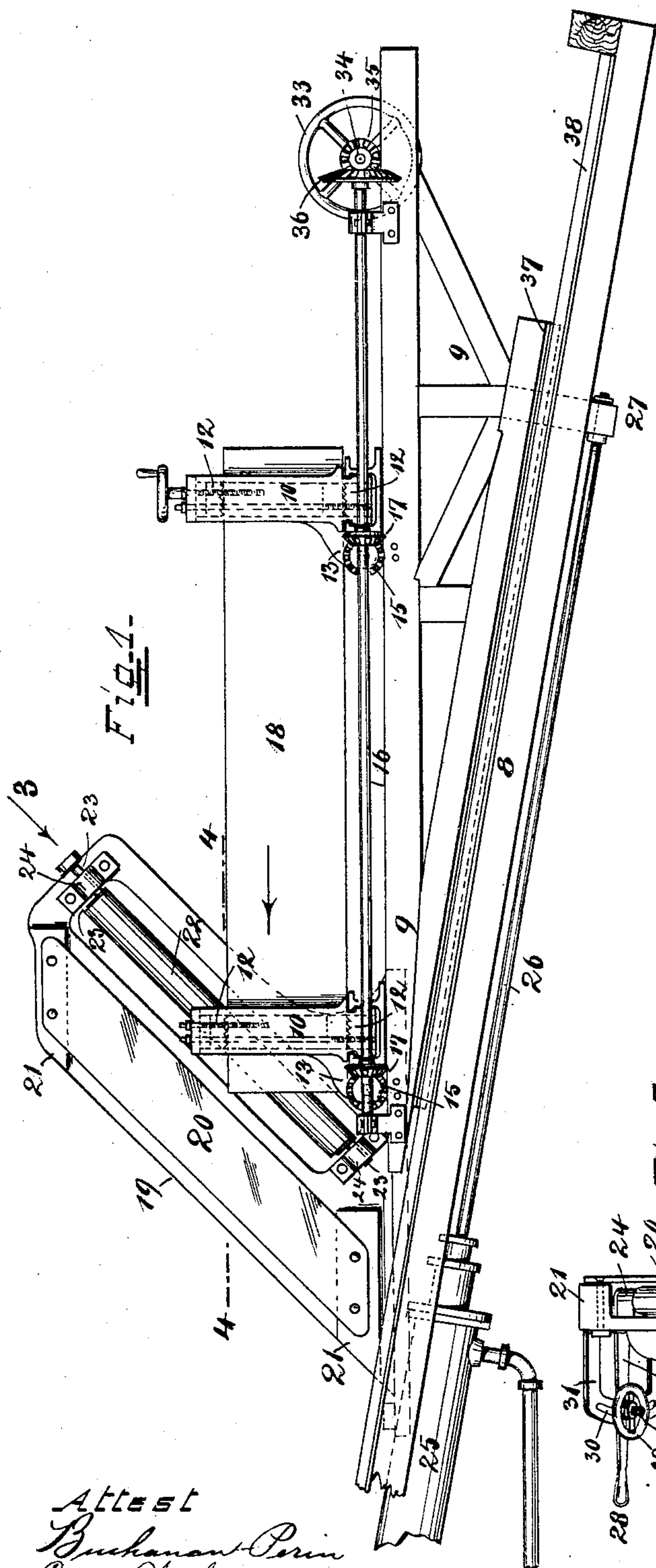


(No Model.)

B. DAMUS.  
WOOD CUTTING MACHINE.

No. 477,201.

Patented June 21, 1892.



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# UNITED STATES PATENT OFFICE.

BENNO DAMUS, OF CINCINNATI, OHIO.

## WOOD-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,201, dated June 21, 1892.

Application filed June 5, 1891. Serial No. 395,176. (No model.)

*To all whom it may concern:*

Be it known that I, BENNO DAMUS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Wood-Cutting Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a machine to be used for the purpose of reducing wood in the shape of logs or timber to board or veneer form. The reduction here in view is accomplished by cutting with a knife, and for this reason is confined to boards of limited thickness and to veneer sheets.

The novel features of this invention reside in certain details of construction, which will be more clearly understood from the following specification, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the machine. Fig. 2 is an end view of the knife and carriage, the track omitted. Fig. 3 is a top view of the knife-frame, looking at it in the direction of the arrow shown in Fig. 1 and marked 3. Fig. 4 is a horizontal section through knife and guide-roller, taken on line 4 4 of Fig. 1.

8 is an inclined track, upon which a carriage 9 travels with a reciprocatory movement. It carries a number of suitable head-blocks 10, with suitable clamping devices 12, which hold the timber in position while being reduced. These head-blocks are provided with stationary nuts 13, through which screw-shafts 14, provided with bevel-wheels 15, pass. Another shaft 16 runs lengthwise with the carriage and is provided with a number of bevel-wheels 17, which mesh into the wheels mentioned before. By revolving this latter shaft all the bevel-gears, screw-shafts, and nuts are simultaneously affected and advance the log 18 laterally toward the knife as the former is gradually reduced. To one side of the carriage is located a suitable strong frame 19, securely fastened to the floor or to a convenient substructure 11, serving

as a support for the knife 20, which is secured to two extensions 21, projecting out from that side of the frame which faces the carriage and located in such a position as not to be in the path of the traveling log. The knife is of a shape most plainly shown in Fig. 4 and is secured to these projections in a manner that its cutting-edge stands out somewhat farther and closer to the log than its rear edge, so that the former is the only part of the knife which touches the log, and by which arrangement the friction is avoided which would be caused if the log while passing would touch through its entire length touch fully the flat surface of the knife-blade and rub continually against the entire width of the same. Somewhat in advance of the knife is located a roller 22, turning around shaft 23, journaled in bearings 24, which latter extend out from the top and bottom of the main frame. The carriage may be propelled by any suitable motor and connected to it in any suitable way. In the case under consideration a so-called "shot-gun" feed is used, which consists of a steam-cylinder 25, containing a piston, the movements of which are controlled by a suitable supply-valve, the piston-rod 26 being connected to a downward extension 27 of the carriage. The thickness of the board or veneer to be cut depends upon the position of roller 22 with reference to the knife-blade. The log is so placed that it will be in close contact against this roller, but clear and pass it as it advances. The cutting-edge of the knife extends out somewhat farther from the frame than this roller and closer to the log, so as to be in the latter's path as it approaches, and cuts into and through the same as the log advances. The difference of the distance of extension between roller and the cutting-edge of the knife regulates the thickness of the board. The log in passing on strikes the cutting-edge of the knife, its cut-off portion passing between the former and the frame. After the cut is completed the carriage is returned, the log reset by advancing it laterally toward roller 22 by an operation of the head-blocks, after which the carriage is started up again. The journals of shaft 23 are eccentrically located thereon, so that by the operation of a lever 28, secured to the upper end of said shaft, roller 22 may be moved in or out from the



frame, or, which is the same, moved farther or closer to the knife in a lateral direction, permitting thus an accurate adjustment of the cut. A screw-threaded pin 29 is secured to this lever and extends into and through a slot 30, located in a segmental bracket 31, which latter is bolted to a frame 19. A screw-wheel 32 engages with pin 29 and by being tightened secures and holds lever and roller in their adjusted positions.

In the practical operation of this machine the attendant may ride upon and with the carriage, or he may stand to one side of it. In this latter case the hand-wheel for operating and setting the head-blocks and designated by 33 is placed upon a shaft 34, reaching across the carriage, and transmits the motion to shaft 16 by means of a pair of bevel-wheels 35 36. As will be seen, the log rises continually while passing the knife, thus producing a shearing cut, which greatly facilitates the cutting operation. By inclining the knife and its frame toward the approaching carriage, as shown, the degree of the shearing cut is materially increased.

Roller 22, in addition to regulating the thickness of the boards, also prevents the cut from following the grain and causing the log to run off and into the knife, a possibility which exists and which is favored by certain formations of the grain and when the same runs inclined or different to the line of the cut.

It should be mentioned here that I find it preferable in most cases to soften the log by steaming previous to commencing its reduction. Its gradual advancement on its supports and toward the knife might be done automatically instead of being accomplished by hand, which substitution has, however, no direct bearing on my invention. The adjustment of the thickness of the boards might be accomplished by having roller 22 stationary and knife 20 adjustable, which would be a mere reversal of the functions of these parts as first described, without producing any new results.

In the drawings the bottom timbers of the carriage are provided with runners 37, sliding in grooved rails 38. This might be reversed, however, or wheels or rollers substituted for the runners.

Having described my invention, I claim as new—

1. In a wood-cutting machine, the general construction and combination of an inclined track, a stationary knife-frame with knife secured beside the track and inclined thereto, a carriage having inclined runners and a horizontal platform and provided with means to hold the wood thereon, an extension 27, reaching down from the under side of the carriage, and connecting means 26, connecting the carriage to the motive power through the medium of said extension, all as substantially shown and described.

2. In a wood-cutting machine of the kind described, the means to regulate the thickness of the cut and to prevent the same from following the grain in a direction different from the intended line of cut, said means consisting of a roller 22, a shaft 23, on which the former turns, eccentric-bearings on which said shaft turns, an adjusting-lever, and means to hold it in its position, and whereby roller 22 may be adjusted laterally with reference to the knife, all as shown and described.

3. In a wood-cutting machine, the general construction and combination of an inclined track, a stationary knife-frame secured beside the track in an inclined position and provided with extensions to which the knife is secured and with bearings for roller-shaft 23 and with a segmental bracket 31, a carriage having a horizontal platform and inclined runners and suitably prepared to securely hold the wood, an extension 27 on said carriage, to which the motive power connects, a roller 22, being laterally adjustable in its position between the carriage and the knife-frame, serving as a means to regulate the thickness of the cut and as a guide, a shaft 23, on which this roller turns, eccentric-bearings on which this shaft turns, an adjustable lever, and means to hold it in its position on bracket 31, all as substantially shown and described.

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

BENNO DAMUS.

Witnesses:

BUCHANAN PERIN,  
CARL SPENGEL.