

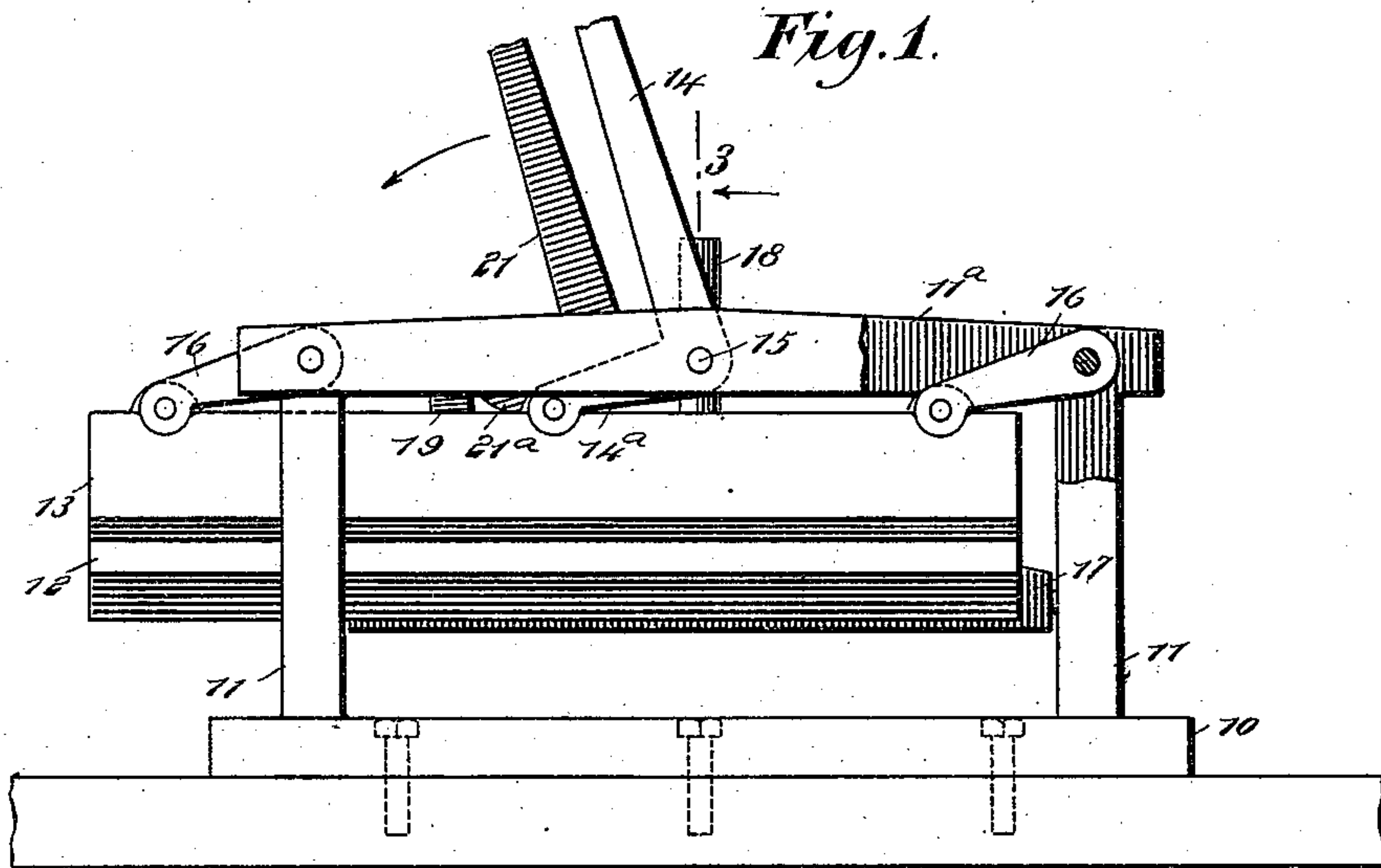
(No Model.)

C. A. BYRD.  
CUTTING DEVICE.

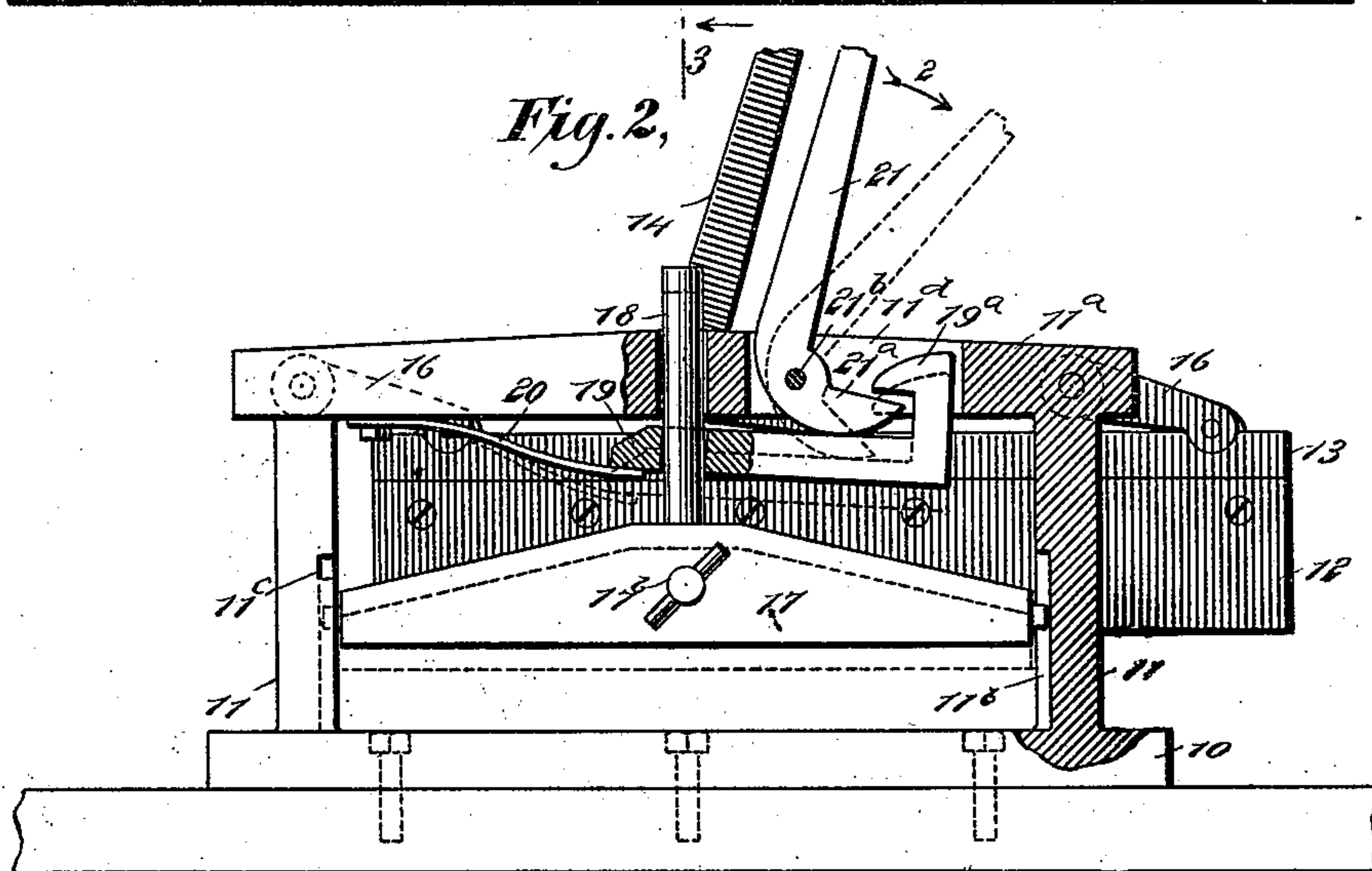
No. 546,607.

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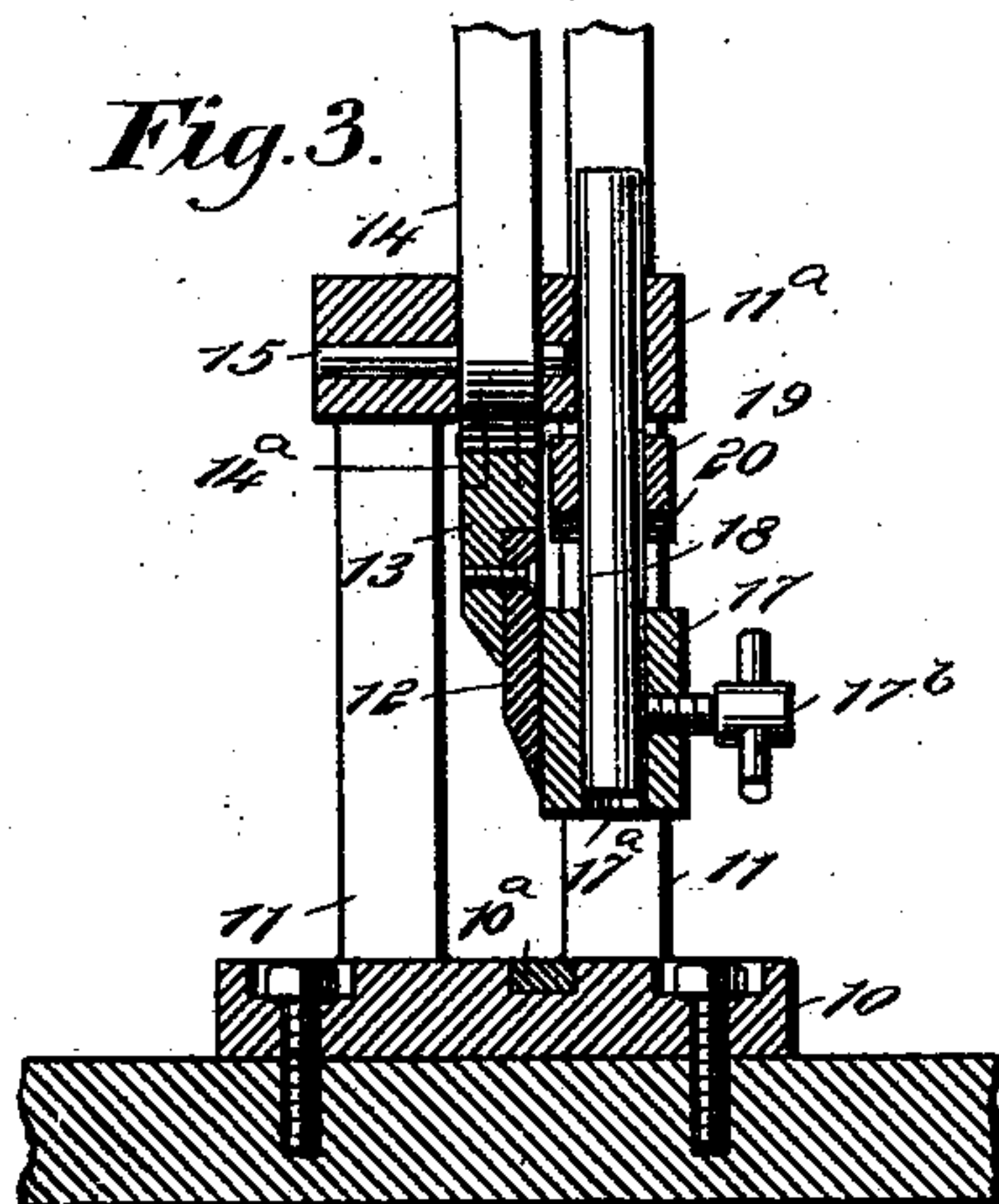
*Fig. 1.*



*Fig. 2,*



*Fig. 3.*



**WITNESSES:**

Edward Thorpe.  
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# UNITED STATES PATENT OFFICE.

CHARLES A. BYRD, OF DRAIN, OREGON.

## CUTTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 546,607, dated September 17, 1895.

Application filed March 7, 1895. Serial No. 540,871. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. BYRD, of Drain, in the county of Douglas and State of Oregon, have invented a new and Improved Cutting Device, of which the following is a full, clear, and exact description.

This invention relates to an improved cutting device, which is particularly well adapted to truly cut the edges of paper or pasteboard and also to subdivide the same for the production of stock for business or other cards or book material, as may be desired.

The objects of the invention are to provide a device of the indicated character which will be simple, strong, very effective in operation, and that will be inexpensive to produce, affording a cheap and convenient cutter that can be manually operated, and will be well adapted for the use of country printers, who occasionally need a paper-cutter and do not care to invest a considerable amount in an expensive machine of the indicated character.

The invention consists in the construction and combination of parts as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side view of the machine with parts adjusted to receive material that is to be cut. Fig. 2 is a partly-sectional view of the opposite side of the machine, showing a paper-clamping device which embodies features of the invention; and Fig. 3 is a transverse sectional view substantially on the line 3 3 in Fig. 1.

A base-plate 10 is provided for the support of other parts of the cutting device and attachment of the complete machine on a heavy table, bench, or other stable support by bolts or other means. A sufficient length and width are afforded the base-plate for the reception of a housing-frame, which comprises four posts 11 and a cap-piece 11<sup>a</sup>, and these parts may be integrally formed together and with the base-plate or separately, as may be preferred. The four posts are so spaced apart in pairs that the cutting device proper may be located and freely work between them longitudinally of the machine.

The cutter-blade 12 consists of a metal plate, preferably steel, rectangular in form and having its lower edge sharpened by beveling this straight edge from one side of the blade, as shown in Fig. 3. A supporting-stock 13 is provided for the cutter-blade, having one side at the lower edge rabbeted, of a suitable width for the reception of the cutter-blade, the upper edge of the latter having contact with the shoulder produced by the formation of the rabbet, and the blade and stock are secured together, preferably by screws, to permit a detachment of these parts. It is essential that the cap-piece 11<sup>a</sup> be made strong enough to sustain upward strain without deflection, and it may be, and preferably is, thickened toward the center from each end for the purpose mentioned. A longitudinal slot of suitable length is formed in the cap-piece 11<sup>a</sup> for the reception of the bell-crank lever 14, that is pivoted in the slot by a pin-bolt 15, which engages a transverse perforation in the cap-piece, and also a perforation formed in the lever at the junction of its long and short limbs, as shown in Fig. 1.

The longer limb of the bell-crank lever 14 projects above the cap-piece 11<sup>a</sup>, and its short limb 14<sup>a</sup> is downwardly extended, its lower extremity being pivoted to the upper edge of the stock 13. A knuckle-joint formation is preferably produced between the end of the limb 14<sup>a</sup> and the knife-stock 13, so that the circular edge of the lower extremity of said limb may be partly embedded in corresponding recesses in the stock, and thus afford such a contact of these parts as in service will relieve the pivot connection of said parts from strain, the thrust of the lever in action being mainly sustained by the knuckle formation that is of the usual construction, as indicated in Figs. 1 and 3. Near each end of the cap-piece 11<sup>a</sup> two similar link-bars 16 are pivoted by their upper ends in the longitudinal slot in said cap-piece, as shown in Figs. 1 and 2, their lower ends being pivoted by knuckle-joint formations to the upper edge of the stock 13, which connection of parts adapts the lower ends of the links to receive the major portion of the thrust of said links and relieve their pintles from bending strains. The links 16 and lever-limb 14<sup>a</sup> incline in the same direction when the knife blade and stock are



raised from the base-plate, and it will be seen  
 that a rocking movement of the lever 14 in di-  
 rection of the curved arrow in Fig. 1 will pro-  
 5 ject the stock and blade downwardly sub-  
 stantially parallel with the base-plate 10, so  
 that the sharp edge of the blade will be caused  
 to engage with a strip 10<sup>a</sup>, of slightly-yield-  
 ing material, which is preferably held in place  
 beneath the knife by its embedment in the  
 10 upper face of the base-plate, as shown in Fig.  
 3. There is a clamping attachment provided  
 for the paper-cutting machine to retain ma-  
 terial firmly in place while being operated  
 upon by the cutter-blade, the said attach-  
 15 ment consisting, essentially, of the following-  
 described parts: A heavy presser-block 17,  
 having a straight lower face, is loosely entered  
 at its ends in upright grooves 11<sup>b</sup>, formed to  
 20 receive said ends in two of the posts 11, which  
 are in the same vertical plane, and at the up-  
 per ends of these grooves lateral notches are  
 formed in the outer sides of the posts, so as  
 to permit the insertion and also the removal  
 of the presser-block by withdrawing its ends  
 25 through said notches, one notch being shown  
 at 11<sup>c</sup> in Fig. 2. At or near the longitudinal  
 center of the presser-block 17 a guide-rod 18 is  
 erected on said block, and preferably it is made  
 adjustable in the latter by its sliding engage-  
 30 ment with a vertical perforation in the block,  
 as indicated at 17<sup>a</sup> in Fig. 3. A screw-threaded  
 clamping-bolt 17<sup>b</sup>, having a grip-piece on its  
 outer end, has a threaded engagement with a  
 tapped perforation in the outer side of the  
 35 block over the guide-rod and serves to tem-  
 porarily secure the rod within the block, and  
 the guide-rod projects loosely through the  
 cap-piece 11<sup>a</sup> of the housing-frame. There is  
 a presser-arm 19 loosely secured near one  
 40 of its ends on the guide-rod 18 by an engage-  
 ment of the latter with the wall of a vertical  
 perforation formed in the arm, a clamping  
 engagement of the edges of the perforation at  
 opposite points on the guide-rod being en-  
 45 forced by the spring 20, which is preferably  
 in plate form and is secured at one end to  
 the cap-piece 11<sup>a</sup> so that its free end can up-  
 wardly press on the adjacent end of the arm  
 19, whereby the presser-arm is slightly de-  
 50 pressed at its opposite end and the bite of  
 said arm on the rod will retain it at any de-  
 sired point of vertical adjustment on the  
 guide-rod. An upward extension is formed  
 on the presser-arm 19, which may loosely  
 55 slide in the slot 11<sup>d</sup>, formed to receive it in  
 the cap-piece 11<sup>a</sup>, as represented in Fig. 2,  
 and a hook-nose 19<sup>a</sup> is produced on the ex-  
 tension of said arm and has engagement with  
 the toe 21<sup>a</sup> of the angular bent lever 21, that  
 60 is pivoted to rock in the slot 11<sup>d</sup>. It will be  
 seen that when the paper, pasteboard, or  
 other material the cutter-blade is to engage  
 with is placed on the base-plate 10 below the  
 presser-block 17 and cutter-blade 12 and the  
 65 block is then lowered so as to rest on the mate-  
 rial the spring 20 will retain the presser-arm  
 near the lever 21, so that an engagement of

its toe 21<sup>a</sup> will be maintained with the hook-  
 nose 19<sup>a</sup> and the lever by a rocking movement  
 of its main limb in direction of arrow 2 (see 70  
 Fig. 2) will engage its lower edge with the  
 top edge of the presser-arm. The lower edge  
 of the toe-piece 21<sup>a</sup> is curved, so as to pro-  
 duce a cam formation eccentric with regard  
 to the pivot 21<sup>b</sup> of the lever 21. Hence if the 75  
 lever is rocked into the position indicated by  
 dotted lines in Fig. 2 the presser-block will  
 be correspondingly depressed and the mate-  
 rial on the base-plate 10 will be firmly held  
 in a compressed condition. 80

It will be evident that by the peculiar con-  
 struction of the clamping attachment which  
 has been described any thickness of material  
 within the range of the device may be firmly  
 clamped, be it a single sheet or a number of 85  
 pieces, forming considerable bulk. When  
 paper or pasteboard stock has been clamped  
 in position for cutting, the rocking movement  
 of the lever 14 to effect a depression of the  
 knife 12 will produce a longitudinal move- 90  
 ment of the said blade after it impinges the  
 clamped material beneath it.

The link bars 16, together with the short  
 limb of the bell-crank lever 14, will exert a  
 powerful pressure, as these members of the 95  
 machine serve as toggle-levers while approach-  
 ing a perpendicular position, and the body of  
 material held beneath the sharp edge of the  
 cutter-blade will be smoothly and easily  
 sheared into pieces, the exertion of manual 100  
 force required being comparatively moderate.  
 After material has been cut by the machine,  
 said clamped material may be released by  
 rocking the lever 21 in a direction away from  
 the hook-nose 19<sup>a</sup>, as this movement of the 105  
 lever will cause its toe 21<sup>a</sup> to lift the engaged  
 end of the presser-arm 19, thereby releasing  
 the perforated end of the lever from its  
 clamped engagement with the guide-rod 18,  
 so that the presser-block 17 may be upwardly 110  
 moved for release of the clamped material.

As the main portions of the cutting-machine  
 can be formed of cast metal, such as iron or  
 low-grade steel, the cost of production can be  
 reduced to a minimum amount and the im- 115  
 proved machine be afforded at a low cost.

Having thus described my invention, I  
 claim as new and desire to secure by Letters  
 Patent—

1. The combination with a supporting 120  
 frame, of a cutter blade, mechanism for im-  
 parting a vertical and lengthwise movement  
 to said blade, the presser block, an upright  
 adjustable guide rod therefor, a lateral presser  
 arm adjustable on the guide rod and having 125  
 a hook-nosed extension, means for holding the  
 presser arm in yielding tilting contact with  
 the arm, and a lever having a cam-shaped end  
 to engage and operate the presser arm and  
 block, substantially as described. 130

2. In a cutting device, substantially as de-  
 scribed, the clamping attachment comprising  
 a presser block, an upright guide rod thereon,  
 a lateral presser arm adjustable on the guide



rod, and having a hook nosed extension, means for holding the presser arm in yielding biting contact with the arm and a lever having a cam-shaped end to engage and operate 5 the presser arm and block, substantially as described.

3. In a cutting device, substantially as described, the clamping attachment, comprising a presser block loosely engaging its ends with 10 grooves in the cutter frame, and vertically perforated near its center, a guide rod adjustably held in the perforation in said block, a presser arm having an adjustable clamped

connection with the guide rod and provided with an extension at one end having a hook 15 nose thereon, a spring adapted to enforce an interlock of the presser arm with said guide rod, and a cam lever pivoted on the cutter frame, and having a toe engaged with the hook nose on the presser arm, which arm is de- 20 pressed when the cam lever is rocked toward the hook nose, as specified.

CHARLES A. BYRD.

Witnesses:

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J. A. BLACK.