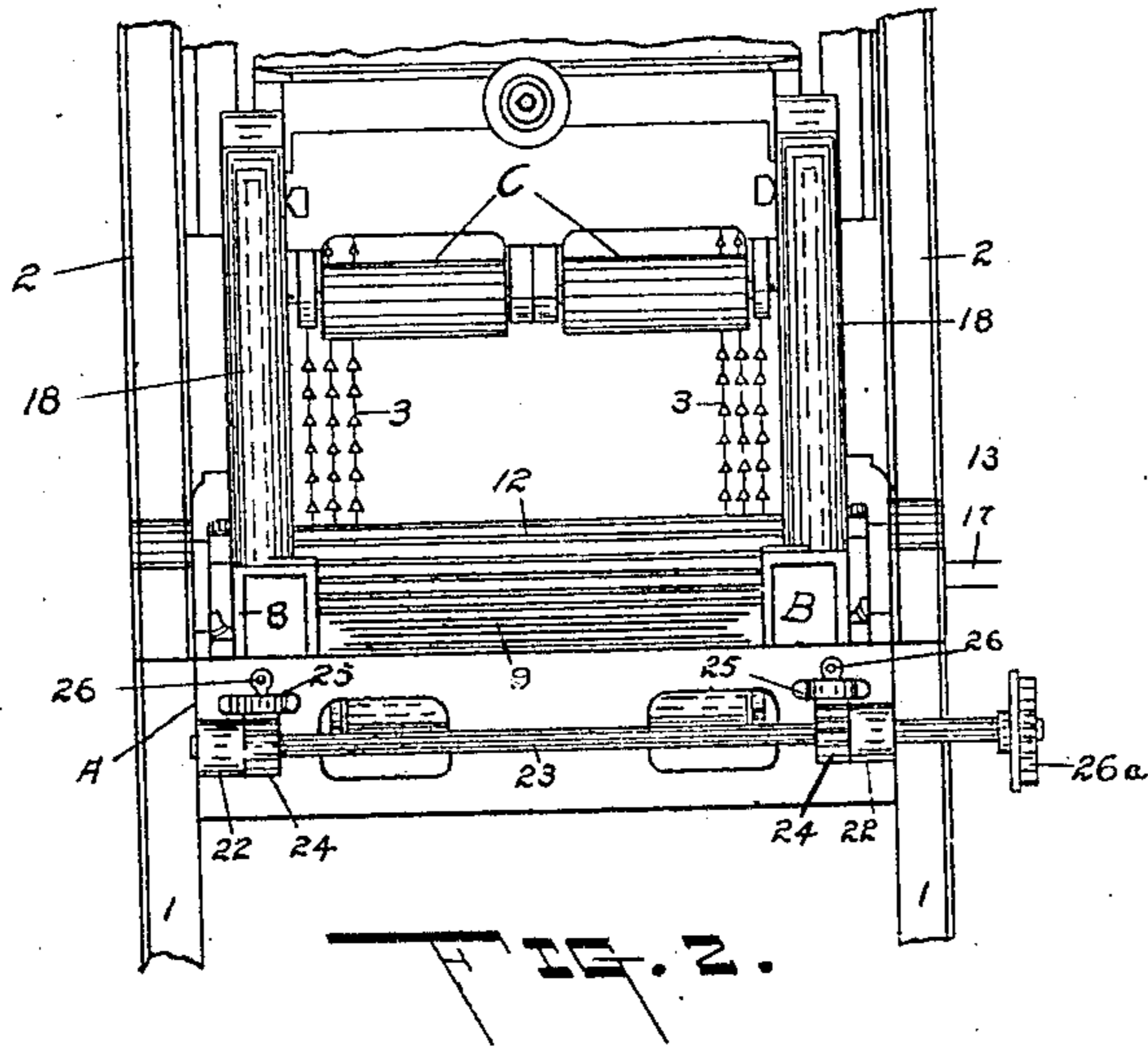
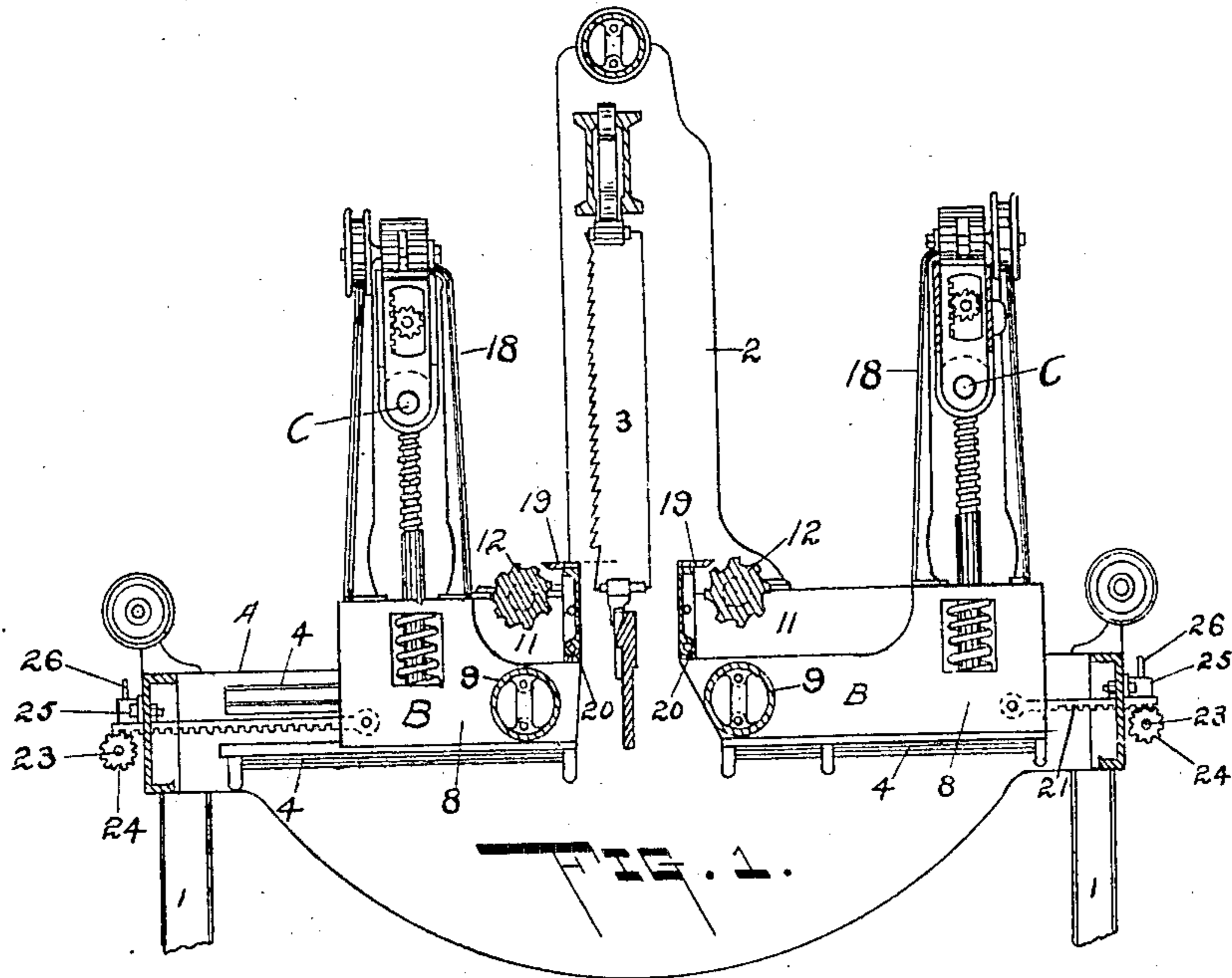


No. 849,601.

PATENTED APR. 9, 1907.

D. CRANE.  
SAWMILL CARRIAGE.  
APPLICATION FILED MAR. 28, 1906.

3 SHEETS—SHEET 1.



WITNESSES:  
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*A. A. Easterly.*

*Daniel Crane* INVENTOR

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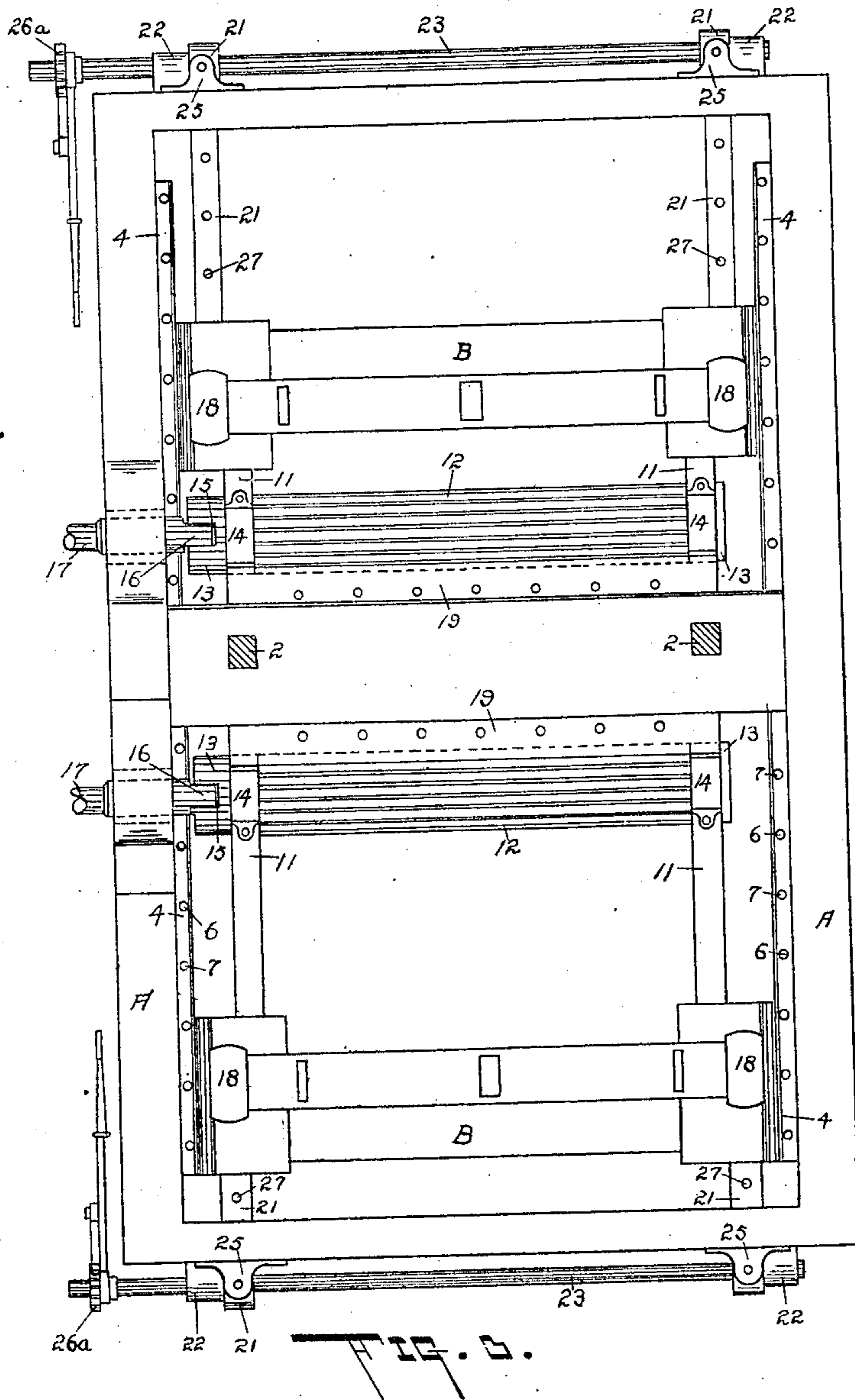
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3 SHEETS—SHEET 2.



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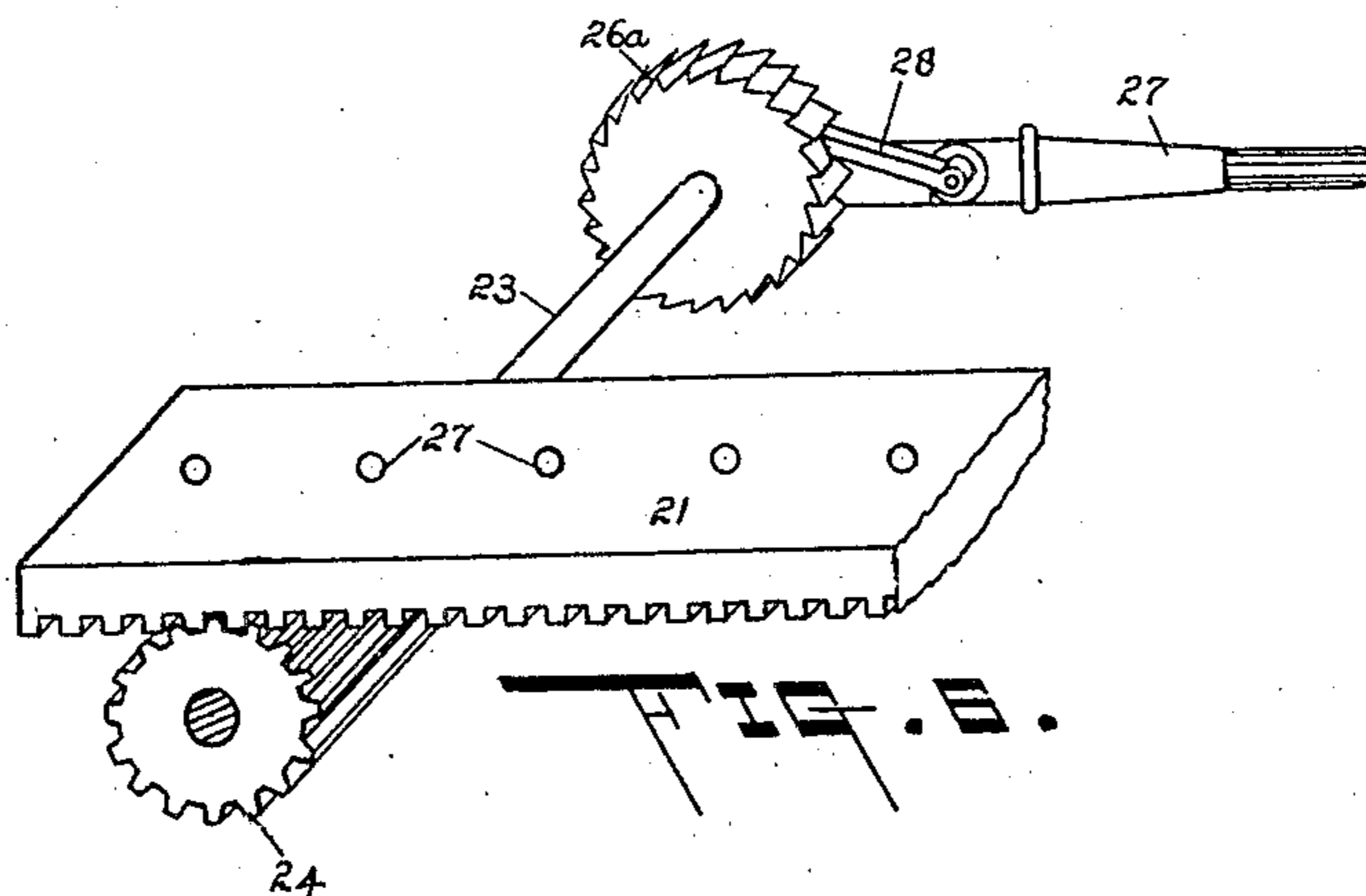
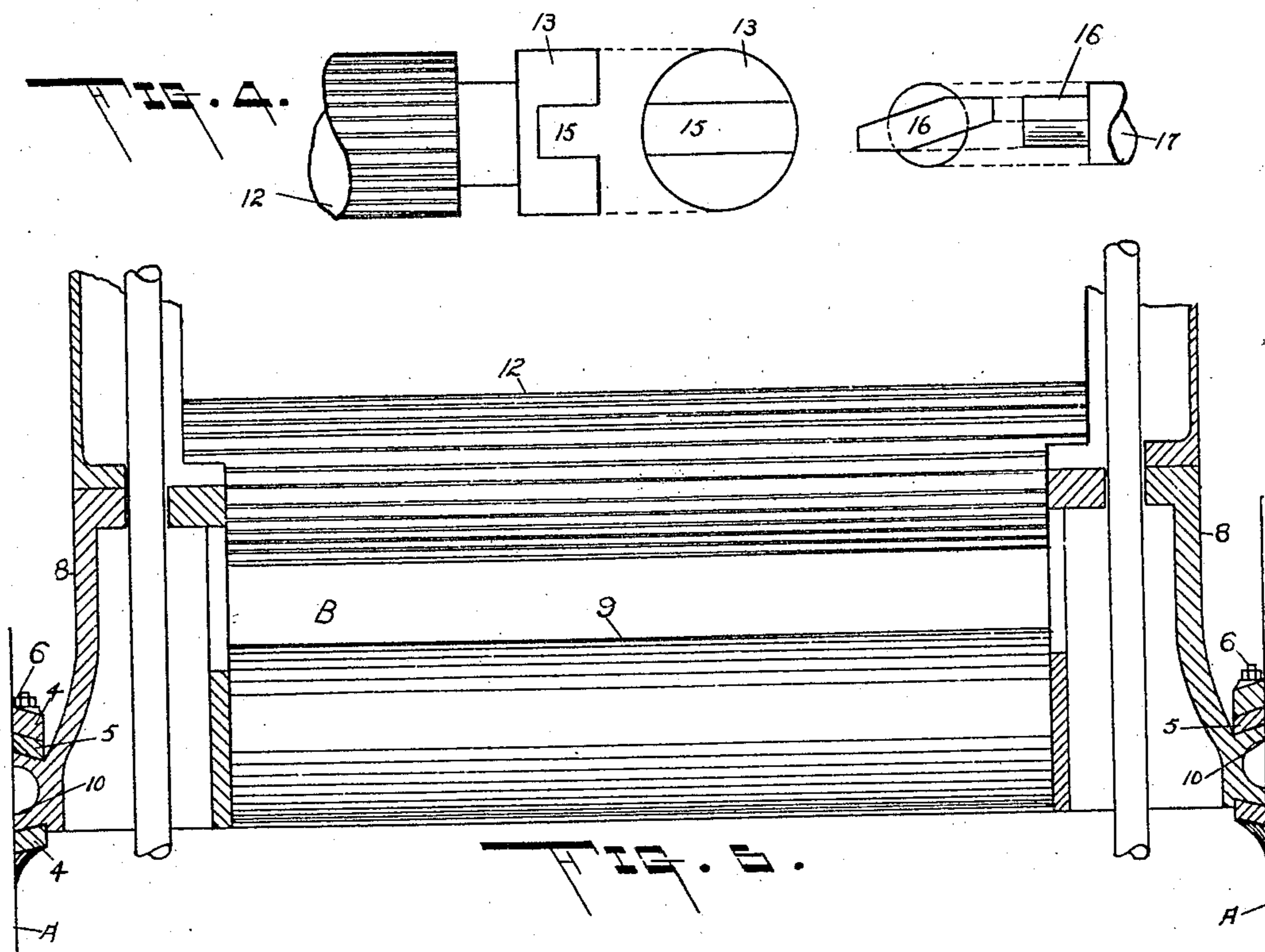
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SAWMILL CARRIAGE.  
APPLICATION FILED MAR. 28, 1906.

3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## SAWMILL-CARRIAGE.

No. 849,601.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed March 28, 1906. Serial No. 308,494.

*To all whom it may concern:*

Be it known that I, DANIEL CRANE, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Sawmill-Carriages; and I do hereby 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.

This invention relates to gang-saws, and more particularly to the provision of a sawmill-carriage for such sawmill, and I have chosen to illustrate herein one embodiment of my invention of a carriage for gang-saw mills.

Heretofore, so far as I am aware, gang-saw mills have never had applied thereto a carriage movable toward and from the saw-frame and carrying or supporting holding-down rolls, work-supports, and feed-rolls. Instead, the feed-roll has usually been mounted directly in the frame of the sawmill and the holding-down means supported by the frame of the gang above the feed-roll in any suitable manner.

One object of my invention, therefore, is the provision of a carriage for gang or other sawmills adapted to carry the feed and holding-down rolls and the work-support.

Another object is the provision of means for moving the carriage toward and from the saws easily and quickly, whereby it is possible to speedily remove and replace broken or worn saws when necessary, since the parts normally lying adjacent the saw-frame are movable away from the frame to permit free access thereto.

It will be understood that it is necessary to remove the feed-rolls and holddown-rolls from proximity to the gang two or three times a day at least for the purpose of replacing worn or broken saws with new ones, and it is necessary to mount the feed-roll as close as possible to the sash and also above the lower hangers by which the saws are connected with the sash. The first condition is necessitated by the fact that it is desirable to afford a support for the cant at a point near the saws to decrease the leverage exerted on the cant by the contact of the saws therewith. The second condition is

necessitated by reason of the desirability of affording a sufficient clearance between the hangers and the feed-roll for the splinters and sawdust created by the passage of the saws through the cant, such splinters and sawdust forming a mass at the lower edge of the kerf which would seriously interfere with the proper operation of the machine if it were not permitted to lie at a point below the upper edge of the feed-roll and above the lower hangers.

In the old forms of gang-saw mills with which I am familiar it was necessary when changing the saws to remove the feed-roll from its bearings, itself no small weight, and either adjust the holddown or press rolls at their highest limit of movement or swing them out of the way, all of which took time and often resulted in injury to the gears or to the operators. Indeed, in order to save time it has been customary in many instances to mount the feed-roll in open bearings, so that no cap would need to be removed. The bearings quickly collected dust and dirt to the great detriment thereof.

Another object attained by means of my invention is the disconnection and connection of the feed-roll and its driving-shaft without necessitating the use of tools.

Still other objects will be brought out hereinafter; and to these ends my invention consists in the present embodiment of certain novel features and combinations of parts, together with their equivalents, which will be more fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional side view of a portion of a sawmill embodying my invention. Fig. 2 is an end view showing the means for actuating the carriage. Fig. 3 is a top plan view of a carriage, and Fig. 4 is a detail view of the connection between the feed-roll and drive-shaft. Fig. 5 is a transverse sectional view through the carriage and frame. Fig. 6 is a detail perspective view of the rack-operating mechanism.

Proceeding to the description of this embodiment of my invention, A indicates a suitable frame of any approved form, supported by the legs 1 1 and having the sash-casing 2 located intermediate its ends for the proper guidance of the saw-sash carrying the

saw-blades or gang-saws 3, the sash being actuated by suitable means. (Not shown.)

The frame is approximately a hollow oblong to the inner longitudinal faces of which are secured the means for supporting and guiding the carriages hereinafter referred to. Obviously this guiding and supporting means might be variously constructed, one of many forms being shown and consisting of parallel ways 4, which may be cast integral with the frame and are undercut or inclined to form a dovetail groove. The upper way may have a filling or clearance strip 5, connected thereto by the bolts 6 6, the way also carrying adjusting-screws 7 7, bearing against the filling-strip to adjust the latter to take up wear and prevent a loose engagement of the rails of the carriage with the ways.

In the construction shown I have disclosed a frame having two carriages B B, located on opposite sides of and movable toward and from the gang; but it is evident to the practical sawyer that the rear carriage would be seldom moved, and its use may be obviated, some other construction being substituted therefor to hold the feed-roll, the support, and the holding-down or press rolls if a set be used. I will therefore describe the front carriage, the rear carriage being substantially similar thereto in all essential features. The carriage, therefore, consists of two preferably hollow castings 8 8, connected to each other by means of a preferably hollow tie-bar 9, bolted to the castings in any suitable manner. The outer longitudinal faces of the castings are provided with dovetailed rails 10 10, received between the ways 4 4 for supporting the carriage therein. The forward ends of the castings are reduced, as shown, to leave an upstanding flange 11 on each casting, said flanges having half-journals formed therein to receive the bearings of the feed-roll 12, the latter being conveniently provided with heads 13 13 at its outer ends, which lie outside the flange and in the reduced portions of the casting, and preferably I provide caps 14 14, which are removably secured over the journals and bearings to prevent the entry of dust and dirt. The caps are not essential, however.

One of the heads 13 of the feed-roll may be diametrically grooved, as shown in the detail view at 15, the groove adapted to receive a cross-key 16, carried on the inner end of a shaft 17, journaled in the frame and rotated in any suitable manner, the key slidingly fitting into the groove in the head and lying in the path of movement of the head.

It is obvious that when the key and groove are rotated to an approximately horizontal position the carriage may be withdrawn from the saws to admit of access to the gang without disturbing either roll or drive-shaft, and after the gang is repaired or cleaned the carriage may be returned to its position

easily and quickly, the groove receiving the key, whereupon the machine can be set in motion and the work continued. This is of considerable advantage also in many ways. The carriage of course remains stationary during the sawing operation, the cant being held down to its place by the press-rolls C, mounted in standards 18, carried by the castings, the operating mechanism of said press-rolls also being supported by the carriage; but as it constitutes no part of my present invention I have not described it. The press or holddown rolls need not be mounted on the carriage, but may be otherwise supported. The press-rolls hold the cant or flitch firmly upon the fluted feed-roll, a support or jaw 19 being located in front of the feed-roll and between the latter and the saws for the purpose of sustaining the cant or flitch just prior to its engagement by the saws.

Preferably the jaw is seated on the shoulders 20 20, formed at the forward ends of the castings by the reduced portions, and extends between the castings to which it is bolted, thus cooperating with the tie-bar to afford a strong brace and connection between the castings.

It will thus be seen that in the present construction the press-rolls, feed-roll, and jaw are all mounted in the movable carriage. As the cant moves toward the saws, owing to the rotation of the feed-roll, it passes lightly over the jaw which receives and sustains the force of impact of the saws with the cant to prevent the breaking down of a defective timber or thin flitches and the pounding of the cant. Now in case of accident during the sawing operation and after the cant has been partially sawed the operator need only stop the feed and the machine, run the cant back by manually rotating the feed-roll in the reverse direction until the cant clears the saws, and then withdraw the carriage from its proximity to the saws, repair the saws, return the carriage to place, and start the feed and the machine. The cant having been held in position all the while by the rolls will move forward, and the saws will be received in their respective kerfs. By this means I have saved the time hitherto necessary in running up the press-rolls, removing the cant entirely from the machine, and throwing out and replacing the feed-roll.

The extreme forward end of the carriage is preferably undercut to afford a clearance for the movement of the saws.

The movement of the carriage toward and from the gang may be accomplished in any suitable manner; but as a convenient mechanism for accomplishing this result I have shown the following construction: Secured preferably near the rear end of each of the castings or slides 8 8 and extending rearwardly therefrom is a rack-bar 21, which may conveniently pass through an aperture in the

end of the frame. Suitably journaled in bearings 22 22 is a shaft 23, extending across the frame exteriorly thereof, the shaft carrying gears 24 24, with which the rack-bars mesh, and as one means for retaining the carriage in its adjusted position and preventing accidental movement thereof I preferably locate apertured brackets 25 25 above each rack-bar, the brackets carrying removable pins 26 26, adapted to drop into recesses 27 27, formed on the upper surface or back of each of the bars. One end of the shaft 23 may extend beyond one side of the frame and have secured thereto a ratchet-wheel 26<sup>a</sup>, a lever 27 being provided, the lever having one end journaled on the shaft adjacent the wheel and carrying a pawl 28, which engages the ratchet-wheel to rotate a shaft and reciprocate the carriage. Any other means for effecting a rotation of the shaft might be used, however.

The foregoing description is thought to fully set forth the operation of my invention and the important features thereof, whereby I attain a result not hitherto accomplished and provide a machine to which access may readily be had at all times without injury to the work.

It is evident that many changes and alterations might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction set forth.

Having thus fully disclosed my invention, what I claim as new, and desire to secure, is—

1. The combination in a gang-saw mill, with a frame and a gang, of a carriage on the frame movable toward and from the gang and a feed-roll on the carriage, means at one point in the travel of the carriage for engaging and rotating the feed-roll, the carriage adapted to support the work which engages the feed-roll and remain stationary while the work is being fed to the gang.

2. The combination in a gang-saw mill, with a cutting mechanism, of a carriage movable toward and from the mechanism, a feed-roll and a press-roll, both mounted on the carriage and movable therewith.

3. The combination in a gang-saw mill, of a carriage movable toward and from the gang, and a feed-roll and a jaw mounted on the carriage.

4. The combination in a gang-saw mill, of a carriage movable toward and from the gang, means for moving the carriage toward and from the gang, a feed-roll mounted on the carriage, and a shaft for actuating the feed-roll, the shaft mounted in the frame and detachably connected with the feed-roll on the carriage.

5. The combination in a gang-saw mill, of a carriage movable toward and from the

gang, a feed-roll and a support for the work, carried by the forward end of the carriage next the gang.

6. A gang-saw mill comprising a frame, ways carried thereby, a carriage moving on and supported by said ways, the carriage comprising a pair of slide members, a tie-bar connecting the forward ends of the members, near the gang, a feed-roll, and a work-support extending between and secured to the members at the extreme forward end thereof next the gang, to support the work just prior to its engagement by the gang.

7. In a gang-saw mill, the combination with a frame and a gang, of a carriage movable toward and from the gang, a work-support mounted on the carriage at its forward end next the gang to sustain the work just prior to its engagement by the gang means for moving the carriage toward and from the gang and a feed-roll for feeding the work to the gang.

8. The combination in a gang-saw mill, with a frame and a gang, of a carriage movable on the frame toward and from the gang, a feed-roll journaled in the carriage, means supported by the frame for engaging and rotating the feed-roll, the carriage adapted to support the work which is engaged by the feed-roll and to remain stationary as the work is fed to the gang, and a work-support carried by the inner end of the carriage in advance of the feed-roll and adjacent the gang.

9. In a gang-saw mill, the combination with a frame, of a carriage movably mounted thereon, a rack secured to the carriage, a rotatable gear mounted on the frame and engaged by the rack, and means for releasably locking the carriage in its adjusted position and a feed-roll for feeding the work to the gang.

10. The combination in a gang-saw mill, with a frame and a gang, of a carriage movable on the frame toward and from the gang, a rotatable feed-roll journaled in the carriage, means for actuating the roll, the carriage adapted to support the work which engages the feed-roll and remain stationary while the work is being fed to the gang.

11. In a gang-saw mill, the combination with a frame, of a carriage movably mounted thereon, an apertured rack secured to the carriage, a gear engaged by the rack, means for rotating the gear in opposite directions, and a pin carried by the frame and receivable in any one of the apertures in the rack to releasably lock the carriage in its adjusted position and a feed-roll for feeding the work to the gang.

12. A carriage for gang-saw mills, the forward end of which is reduced to form a flange and a shoulder, bearings formed in the flange, a feed-roll journaled in the bearings, a shaft

journaled apart from the carriage, and means for detachably engaging the shaft and feed-roll.

5 13. The combination in a gang-saw mill frame, with a gang, of a carriage movable toward and from the gang, a feed-roll journaled in the carriage, one end of the feed-roll being grooved, a shaft journaled in the frame, and a key carried by the shaft and

removably received in the groove of the feed-roll, the key lying in the path of movement of the carriage.

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

DANIEL CRANE.

Witnesses:

C. E. RUSSELL,

MARY L. RUSSELL.