Nov. 13, 1928.

1,691,102

G. S. WITHAM, SR

WOOD SPLITTING MACHINE

Filed May 31, 1927

2 Sheets-Sheet 1

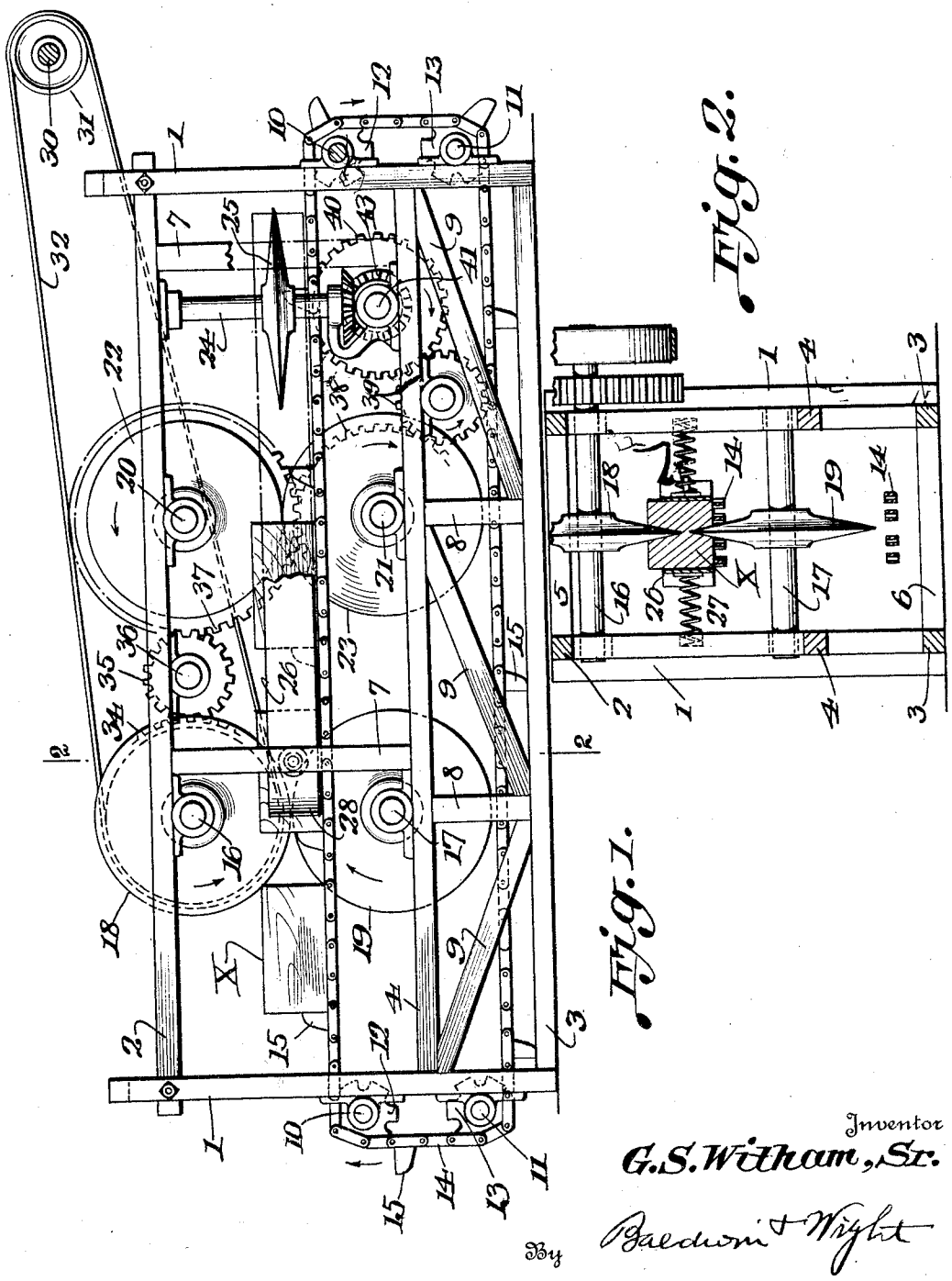


Fig. 2.

Fig. 1.

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2 Sheets-Sheet 2

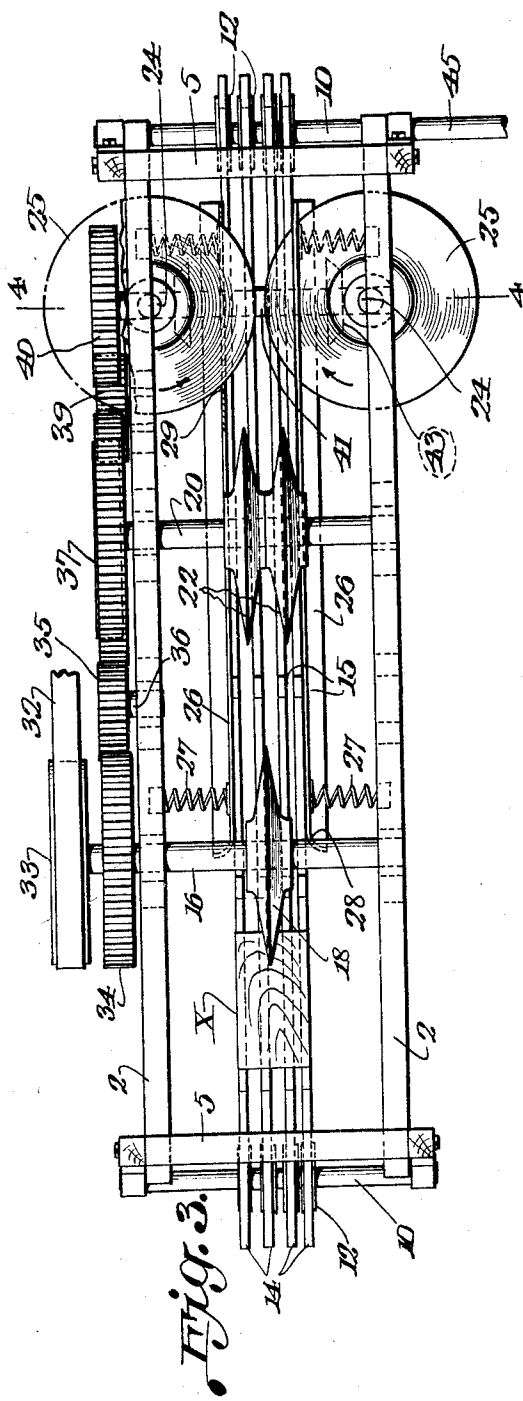


Fig. 3.

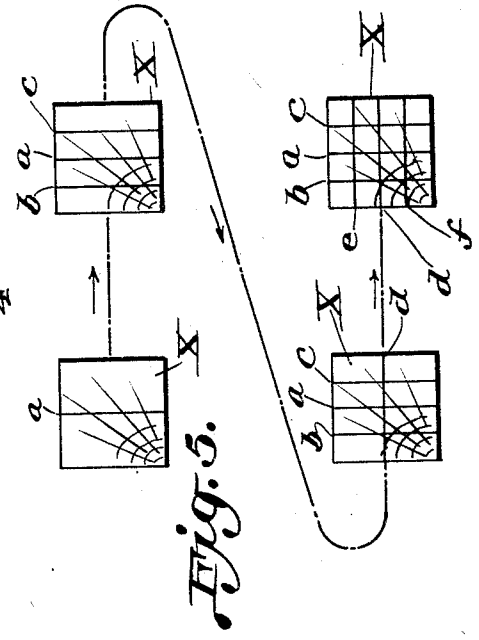


Fig. 5.

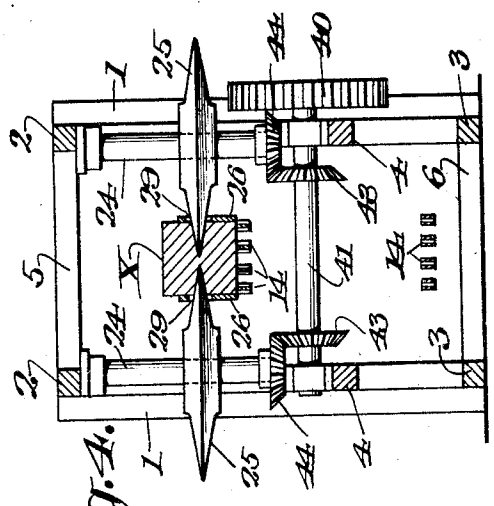


Fig. 4.

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UNITED STATES PATENT OFFICE.

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WOOD-SPLITTING MACHINE.

Application filed May 31, 1927. Serial No. 195,337.

This invention relates to an improved machine for splitting, slabbing or quartering wood or similar material and has for its purpose the provision of a device which will rapidly and efficiently divide a slab of wood into the desired number of parts. The revolving disks or knives are held stationary against any movement except rotary movement and the blocks of wood are drawn into contact with said disks by means of a traveling carriage which as herein illustrated is in the form of an endless chain or chains passing over suitable guiding means.

The revolving disks or knives may be mounted either vertically or horizontally and the number thereof may be varied in accordance with the number of pieces in which it is desired to split the block of wood. Further details of the invention will be apparent from the following description and set forth in the appended claims.

In the drawings:

Figure 1 is a side elevation of a machine embodying the invention.

Figure 2 is a vertical section on the line 2—2 of Figure 1.

Figure 3 is a top plan view of a machine.

Figure 4 is a vertical section on the line 4—4 of Figure 3.

Figure 5 is a view which is diagrammatic in character and discloses the successive operations performed upon the block of wood.

A suitable framework is provided which as illustrated consists of four vertical posts 1, upper longitudinal connecting bars 2 at the side, similar lower bars 3 and intermediate bars 4. At each end transverse connecting bars 5 are employed at the top and similar transverse bars 6 at the bottom. Intermediate vertical members 7 extend between the longitudinal bars 2 and 4 and intermediate bars 8 between the longitudinal bars 3 and 4. Bracing members 9 may also be employed as desired. These various members which constitute the frame may be of any desired or suitable material and may be fastened together in any suitable manner without affecting the scope of the invention.

Mounted outside of the frame bars 1 and in suitable bearings attached thereto at each end of the machine are transverse shafts 10 and similar shafts 11 are supported at a lower level. The upper shafts 10 each are provided with a plurality of sprocket wheels 12 arranged adjacent each other and similar sprocket wheels 13 are mounted on the lower shafts 11. Endless sprocket chains 14 pass around each series of sprocket wheels and these chains together form a traveling bed or platform upon which may be supported the wooden blocks X. Each of the chains carries projections or shoulders 15 which engage the blocks and force them against and past the splitting disks or knives.

Suitable bearings on the longitudinal top bars 2 support a transverse shaft 16 and similar bearings on the upper side of the longitudinal bars 4 support a similar transverse shaft 17. An upper splitting disk or knife 18 is carried by the shaft 16 and a similar lower disk or knife 19 is carried by the shaft 17. The edges of these disks are in alignment and are close enough together so that they will split the block of wood by their simultaneous action thereon. These two disks obviously split the original block into two smaller blocks, each of which may be split into two parts. For this purpose a similar transverse shaft 20 is supported by the upper longitudinal bar 2 and a shaft 21 by the longitudinal bars 4. These shafts carry pairs of disks or knives 22 and 23 in such position that each pair 22—23 will split one of the two smaller blocks into two parts. Obviously, if it is desired to still further split these pieces the frame may be extended and further splitting disks or knives provided as desired.

In advance of the disks 22—23, two vertical shafts 24 are mounted in appropriate bearings in the sides of the machine, and each of these carries a rotary disk or knife 25 which lies in a horizontal plane. If it is merely desired to quarter the block of wood this pair of horizontal disks may be substituted for the disks 22, 23. Moreover, if it is desired, additional pairs of horizontal disks may be provided similar to the disks 22, 23 for the purpose of splitting the block still further on horizontal lines. It is to be understood that the drawing is to be regarded as illustrative and not as limiting the number of splitting elements which may be employed nor their specific relation to each other.

For the purpose of guiding the blocks after they have been once split, there is provided a guide constituted by side plates 26 and suitably supported by springs 27 which may have central plungers therein and which engage in sock-

ets in the vertical side bars 7 of the frame and are connected to the guides 26 at their other ends. These guides are formed at their entrance ends with outturned portions 28 so that the block of wood will be guided between the same but will be held in proper position to the subsequent splitting knives by the force of the springs 27. These guides 26 will be provided with suitable slots 29 through which pass the cutting disks 25.

Movement may be given to the splitting knives in various ways but as illustrated there is shown a power shaft 30 which may be driven from any suitable source of power and is provided with a pulley 31 around which passes a belt 32, which belt passes around a pulley 33 on the shaft 16. This shaft 16 is also provided outside the frame with a gear 34 which meshes with an intermediate gear 35 mounted on a stub shaft 36 and also with a gear 37 on the shaft 20. This gear 37 meshes with a gear 38 on the shaft 21 which in turn meshes with a gear 39 on a stub shaft carried by the frame and the gear 39 in turn meshes with a gear 40 on a transverse shaft 41. This shaft 41 is provided with bevel gears 43 which mesh respectively with beveled gears 44 on the lower end of shafts 24. It will be obvious that by this train of gearing all of the splitting disks or knives will be turned simultaneously and in the same direction from a single source of power.

The sprocket chains 14 will be driven in any desired manner and as indicated, one of the shafts 10 may be extended as shown at 45 and this may be driven in any suitable or desired manner from the same source of power which drives the shaft 30. The particular manner in which motion is transmitted to these parts may be varied widely and according to circumstances and in itself forms no part of the invention.

Figure 5 illustrates diagrammatically the action of the machine upon a block of wood X. As this block comes in contact with the splitting elements 18 and 19 it is first divided along the vertical plane *a*. It next enters the guide 26 and the two parts which have been thus formed are again divided along the lines *b* and *c*. In its further travel a single pair of horizontal splitting machines 25 will divide the four blocks that have been formed along the line *d*. The disclosure in Figure 5 also assumes the extension of the framework and the provision of two pairs of horizontally placed disks or knives corresponding to the vertical knives 22 and 23 and these will divide the previously formed portions of the block along the lines *e* and *f*. It is thus apparent that by a single passage through the machine the original block X has been divided into sixteen parts. As has already been stated, the number and arrangement of the vertical and horizontal disks may be varied as desired and the invention is not limited to any precise number or to their relative position.

Many details may be varied widely without in any way departing from the spirit of the invention which is to be regarded as limited only by the scope of the appended claims.

I claim as my invention:

1. A wood splitting machine comprising a frame, an endless chain carriage for supporting and moving wood blocks and a plurality of pairs of disks arranged in vertical and horizontal planes and positioned to act in sequence upon said blocks and split the same along a plurality of planes by a single passage through the machine, the discs of each pair having their edges in alignment and close together.

2. A wood splitting machine comprising a frame, an endless chain carriage for supporting and moving wood blocks, a plurality of pairs of splitting disks positioned to act in sequence upon said blocks and split the same along a plurality of planes by a single passage through the machine and spring pressed means for maintaining the blocks in proper position during said passage.

3. A wood splitting machine comprising a frame, an endless chain carriage for supporting and moving wood blocks, a plurality of pairs of disks arranged in vertical and horizontal planes and positioned to act in sequence upon said blocks and split the same along a plurality of planes by a single passage through the machine and spring pressed means for maintaining the blocks in proper position during said passage.

4. A wood splitting machine comprising a frame, a carriage supported thereby for feeding wood blocks through the machine, a pair of vertically arranged splitting disks opposite each other and mounted for rotary movement only to split the block along a vertical plane, and a pair of horizontally arranged disks opposite each other and mounted for rotary movement only with which the block is brought into engagement at another point in its travel to split the same along a horizontal plane, the discs of each pair having their edges in alignment and close together.

5. A wood splitting machine comprising a frame, a carriage supported thereby for feeding wood blocks through the machine, a pair of vertically arranged splitting disks opposite each other and mounted for rotary movement only to split the block along a vertical plane, a pair of horizontally arranged disks opposite each other and mounted for rotary movement only with which the block is brought into engagement at another point in its travel to split the same along a horizontal plane, and spring pressed means for maintaining the blocks in proper position while being fed through the machine.

6. A wood splitting machine comprising a frame, an endless carriage supported thereby

for feeding wood blocks through the machine, a plurality of pairs of splitting disks, each pair composed of two disks opposite each other, which engage the block at different points in its travel and split it along a plurality of planes, and a guideway having spring pressed sides through which the blocks pass while being split.

7. A wood splitting machine comprising a frame, an endless carriage supported thereby for feeding wood blocks through the machine, a plurality of pairs of splitting disks, each pair composed of two disks opposite each other, which engage the block at different points in its travel and split it along a plurality of planes, and a guideway having spring pressed sides through which the blocks pass while being split, one of said pairs being arranged in a vertical plane, and another in a horizontal plane, and the sides of said guideway having slots through which pass the disks arranged in the horizontal plane.

In testimony whereof, I have hereunto subscribed my name.

GEORGE S. WITHAM, SR.