M. A. FLAUTT.

SET WORKS FOR SAWMILLS.

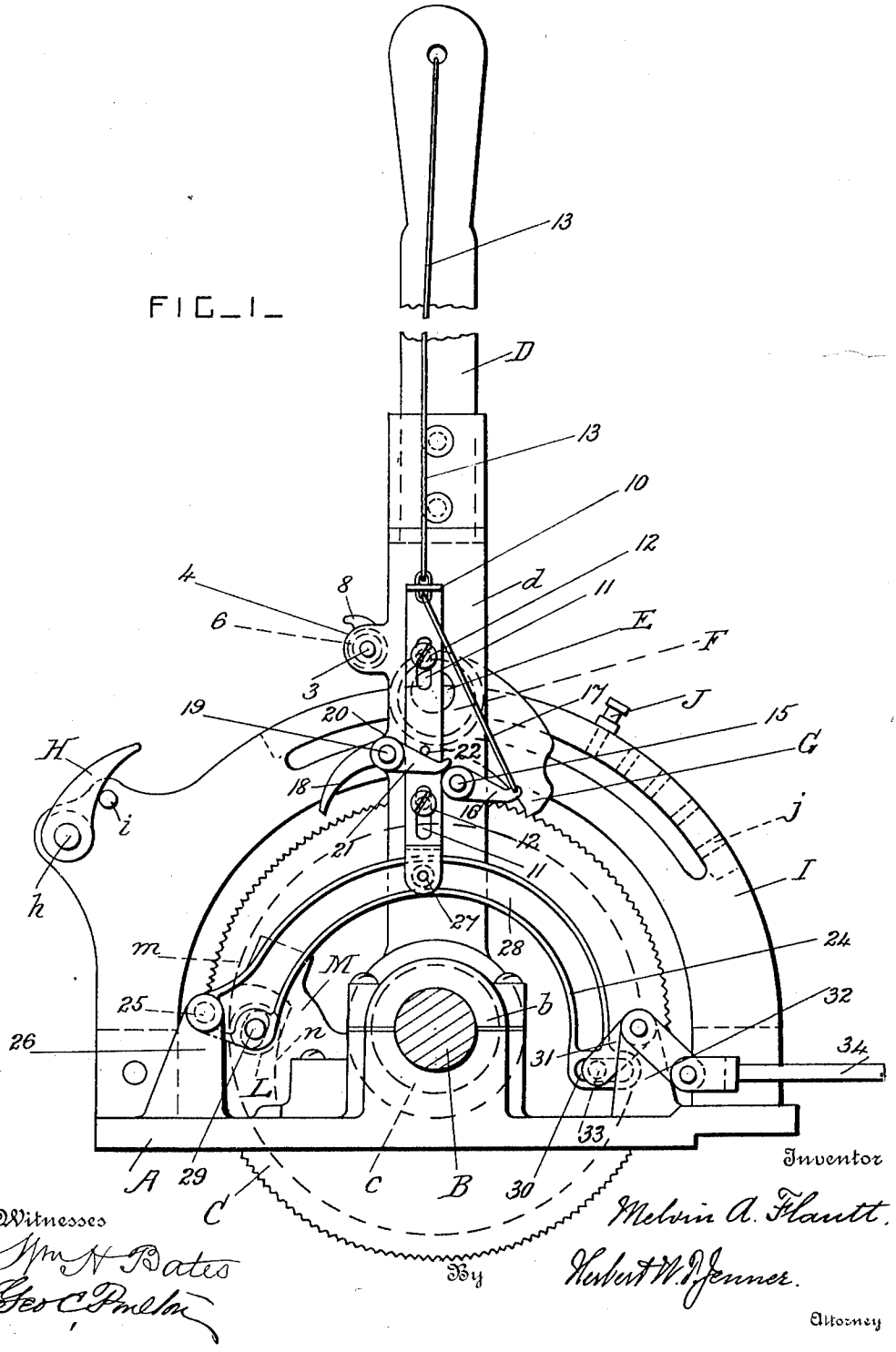
APPLICATION FILED FEB. 9, 1911.

**1,012,539.**

**Patented Dec. 19, 1911.**

3 SHEETS—SHEET 1.

FIG. 1.




Witnesses

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3 SHEETS—SHEET 2.

FIG. 2.

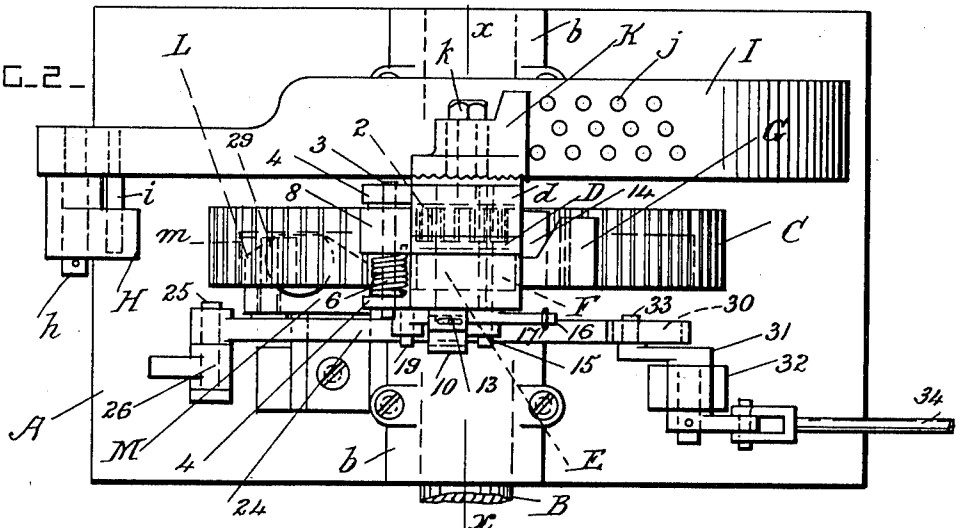
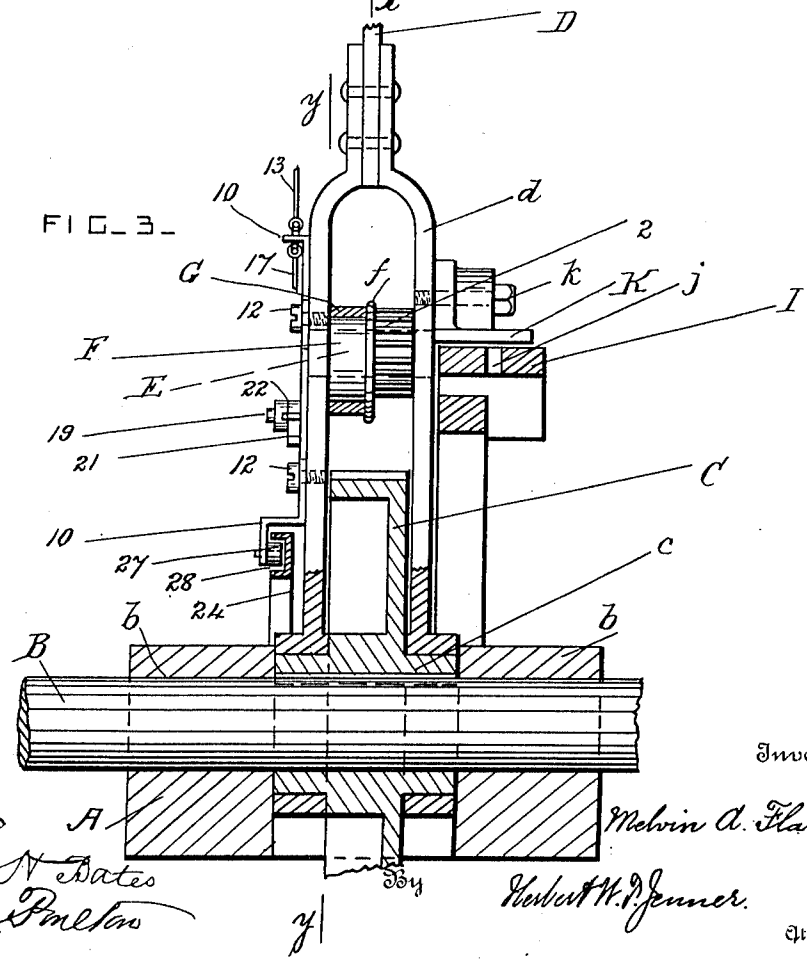



FIG. 3.

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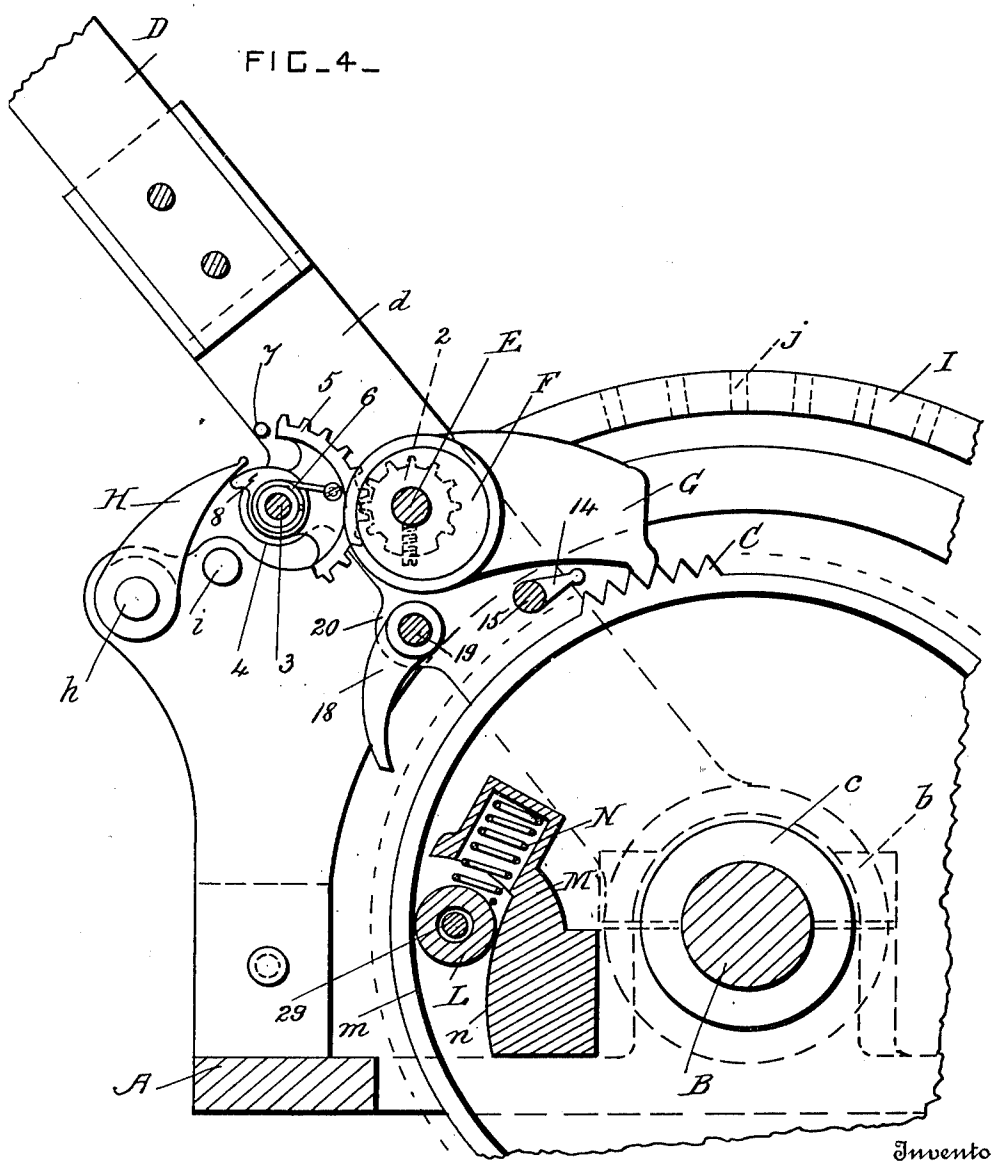
3 SHEETS—SHEET 3.

FIG_4_

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# UNITED STATES PATENT OFFICE.

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## SET-WORKS FOR SAWMILLS.

1,012,539. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed February 9, 1911. Serial No. 607,674.

*To all whom it may concern:*

Be it known that I, MELVIN A. FLAUTT, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Set-Works for Sawmills; 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 set works for saw mills; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby all lost motion in the ratchet wheel and pawl mechanism is taken up, and whereby the pawls can be reversed at will.

In set works as ordinarily constructed there is always more or less lost motion when the operating lever is moved forward, as the push pawl does not always commence to revolve the toothed wheel immediately, and the planks therefore vary more or less in thickness. When valuable hard wood is being sawed up, the loss occasioned in this way is considerable, and the present invention is intended to overcome this difficulty and enable the operator to saw all the planks of uniform thickness.

In the drawings, Figure 1 is a front view of a set works constructed according to this invention. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section through the set works, taken on the line $x$—$x$ in Fig. 2. Fig. 4 is a detail view of the mechanism for operating the eccentric, taken in section on the line $y$—$y$, in Fig. 3, and showing also the friction check pawl.

A is a supporting stand provided with bearings $b$; and B is a shaft journaled in the bearings $b$ and connected with the saw mill in any approved manner so as to move the lumber step by step as the planks are cut from it.

C is a toothed wheel secured on the shaft B; and D is the operating lever provided with a forked lower end portion $d$ which is pivoted on the end portions of the hub $c$ of the wheel C, and which straddles the wheel C. The forked lower end portion is made of two parts which are bolted to the handle portion of the lever.

E is a shaft which is journaled in the forked portion of the operating lever, and which has an eccentric F formed on or secured to it, and provided with a flange $f$ on one side.

G is the push pawl which is pivoted on the eccentric F, and which engages with the teeth of the wheel C. A toothed pinion 2 is secured on the shaft E on the other side of the flange $f$ from the push pawl and eccentric.

A pin 3 is secured in lugs 4 on the forked part of the operating lever behind the shaft E; and 5 is a toothed segment mounted on the pin 3 and gearing into the pinion 2. A spring 6 is coiled around the pin 3 and is connected to the lever and to the segment, and this spring operates normally to hold one end of the segment against a stop 7 on the lever, thereby turning the eccentric downwardly and forwardly as shown in Fig. 1.

H is a detent or tappet pivoted to the frame A by a pin $h$, and normally resting on a stop $i$ on the frame. The point of this detent is arranged in the rearward path of a lug 8 on the segment 5, so that when the operating lever is moved rearwardly, as shown in Fig. 4, the segment is partially revolved, and the pinion moves the eccentric upwardly and rearwardly carrying the push pawl with it. Before the parts arrive at the positions shown in Fig. 4 the lug 8 slips under the detent and automatically disengages itself from the detent. The coiled spring 6 now moves the segment toward its original position, and the eccentric presses the push pawl firmly against a tooth of the wheel C. When the operating lever is moved forward there is no lost motion because the push pawl is already bearing against the tooth of the wheel, instead of being more or less clear of the tooth, as is usually the case in set works as ordinarily constructed. If desired, the detent can be turned over on its pivot and placed out of action, so that the set works can be used for rough saw work in the ordinary way. When this device is used the teeth of the wheel C do not have to be spaced or cut with particular accuracy, as the eccentric and spring compensate for the inaccuracies of the wheel teeth.

I is a curved plate secured to the stand, and provided with a removable stop pin J which engages with any of a series of holes $j$ arranged staggered in several rows in the said plate.

K is an adjustable stop block secured to one side of the operating lever by a bolt *k*. The opposed surfaces of the block and lever are preferably serrated or roughened, and the bolt hole in the stop block is elongated, to permit the block to be secured in any desired position. The block K strikes the pin J when the operating lever is moved forward, and the stroke of the lever is thereby limited.

The wheel C is provided with any approved form of check pawl to prevent it from moving backward with the lever.

L is a friction roller which operates as a check pawl and which is arranged to run in contact with the inner cylindrical surface *m* of the wheel C. This roller is arranged in a housing M secured to the stand A and provided with a curved surface *n* arranged at an angle to the surface *m* on the wheel.

N is a spring in the housing which presses the roller against the two curved surfaces, so that the wheel is prevented from revolving backward.

In order to reverse the action of the set works, when required, a slidable reversing bar 10 is arranged on one side of the reversing lever. This bar 10 has slots 11 which slide over guide pins 12 on the lever, but it may be guided in any other approved manner. A flexible connection 13 is secured to the bar 10 and to the handle of the operating lever, and affords a means for raising the bar. This connection 13 may be a chain, cord or other similar device. A trip 14 is pivoted by a pin 15 to the side portions of the operating lever and is arranged under the push pawl. A lever or arm 16 is secured on the projecting end of the pin 15 and is connected to the bar 10 by a connection 17 such as a chain, cord or link. The reverse pawl 18 is secured on a shaft 19 which is pivoted in lugs 20 on the operating lever. A lever 21 is secured on one projecting end portion of the shaft 19, and 22 is a pin on the bar 10 which bears on the arm or lever 21 and normally holds the reverse pawl 18 out of engagement with the wheel C. A curved lever 24 is pivoted at one end by a pin 25 to a lug 26 on the stand A, and this curved lever extends over and is arranged substantially concentric with the shaft B. The lower end of the bar 10 is pivotally connected with the lever 24 by a pin and roller 27 which works in a curved slot 28 in one side of the lever. A pin 29 is secured to the lever 24 near its pivot pin 25, and projects through a slot in the housing M and has the roller L loosely journaled on it. The free end portion of the curved lever 24 has a slot 30, and 31 is a crank which is journaled in a lug 32 on the stand A. The crank 31 is provided with a pin 33 which engages with the slot 30, and 34 is a rod or other connection for operating the crank 31 from a distance, when required. When the bar 10 is raised, either by the connection 13 or by the crank 31, the push pawl and the check pawl or roller are both raised out of engagement with the wheel C, and the reverse pawl 18 is permitted to descend by gravity into engagement with the wheel C. The wheel C can now be revolved step by step backward, by means of the reverse pawl, until the bar 10 is allowed to descend and the parts assume their original positions. As the curved lever 24 is substantially concentric with the shaft B, the operating lever can be moved back and forth without moving the curved lever, and the curved lever can be operated at any point of the stroke of the operating lever.

What I claim is:

1. In a set works, the combination, with a toothed driving wheel, of a pivoted operating lever, a spring-controlled eccentric carried by the operating lever, a push pawl pivoted on the said eccentric and pressed by it into engagement with the wheel teeth, tappet mechanism operating to turn the eccentric and retract the push pawl when the operating lever is moved backward, and a stop for limiting the forward movement of the operating lever.

2. In a set works, the combination, with a toothed driving wheel, of a pivoted operating lever, a spring-controlled eccentric carried by the operating lever, a toothed pinion revolving with the said eccentric, a push pawl pivoted on the said eccentric and pressed by it into engagement with the wheel teeth, a toothed segment also carried by the operating lever and gearing into the said pinion, a stationary tappet arranged in the path of the said segment and operating to turn the eccentric and retract the push pawl when the operating lever is moved backward, and a stop for limiting the forward movement of the operating lever.

3. In a set works, the combination, with a driving wheel, of a pivoted operating lever, a stand supporting the said parts, a spring-controlled eccentric carried by the operating lever, a push pawl pivoted on the said eccentric and pressed by it into engagement with the wheel teeth, a disengageable detent pivoted to the said stand and operating when in its normal position to turn the eccentric and retract the push pawl when the operating lever is moved backward, and a stop for limiting the forward movement of the operating lever.

4. In a set works, the combination, with a toothed driving wheel, of a pivoted operating lever, a shaft carried by the operating lever, an eccentric and a toothed pinion secured together and mounted on the said shaft, a push pawl pivoted on the said eccentric, a toothed segment also carried by the operating lever and gearing into the said pinion, a stop on the operating lever which

limits the movement of the segment in one direction, a spring which normally holds the segment against the said stop and forces the push pawl into engagement with the wheel teeth, a stationary tappet arranged in the path of the said segment and operating to turn the segment and retract the push pawl when the operating lever is moved backward, and a stop for limiting the forward movement of the operating lever.

In testimony whereof I have affixed my signature in the presence of two witnesses.

MELVIN A. FLAUTT.

Witnesses:
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ALF. N. RUSSELL.