

No. 660,045.

Patented Oct. 16, 1900.

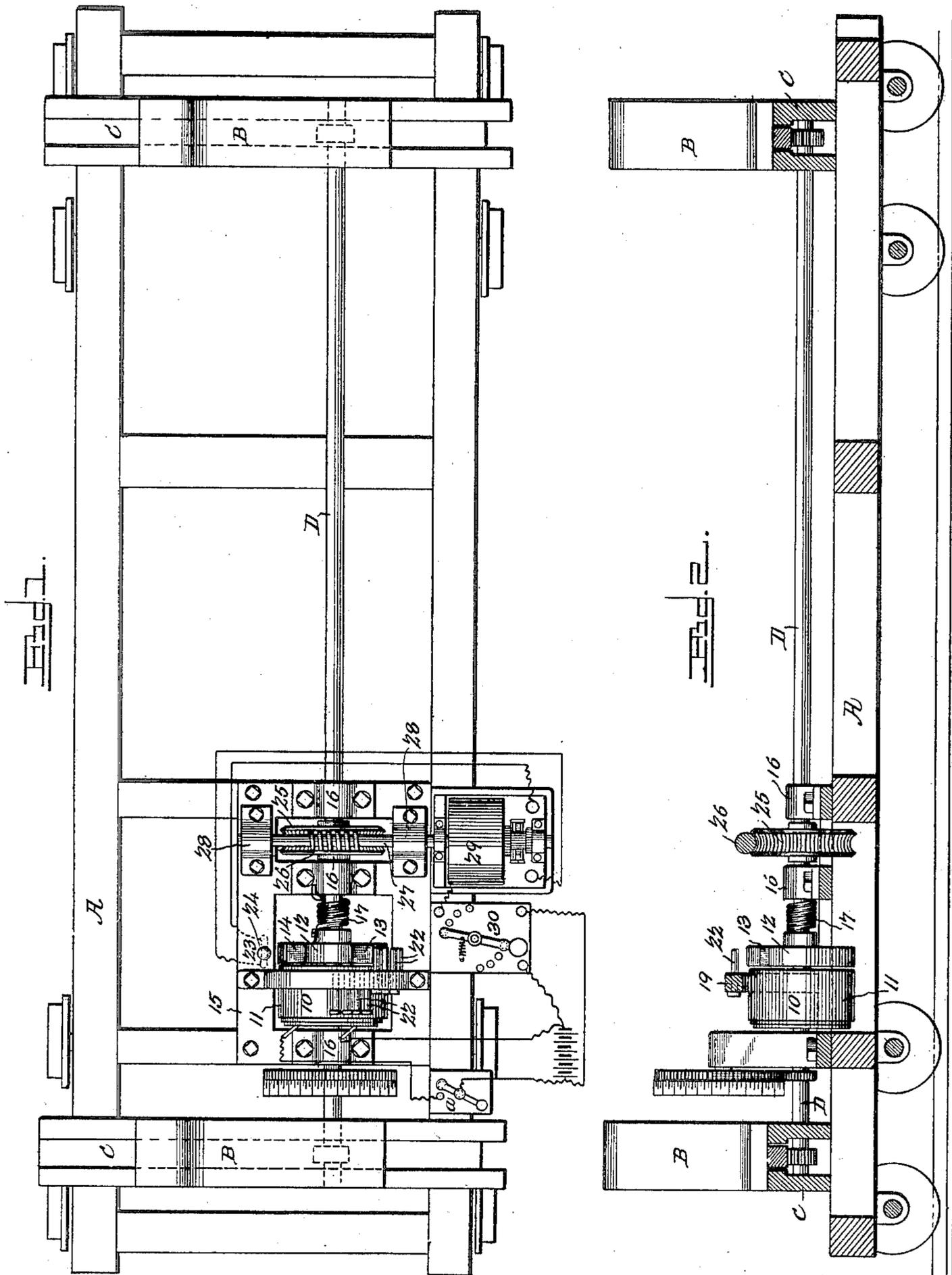
W. M. CARROLL.

ELECTRICALLY ACTUATED SAWMILL SET WORKS.

(Application filed May 12, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses  
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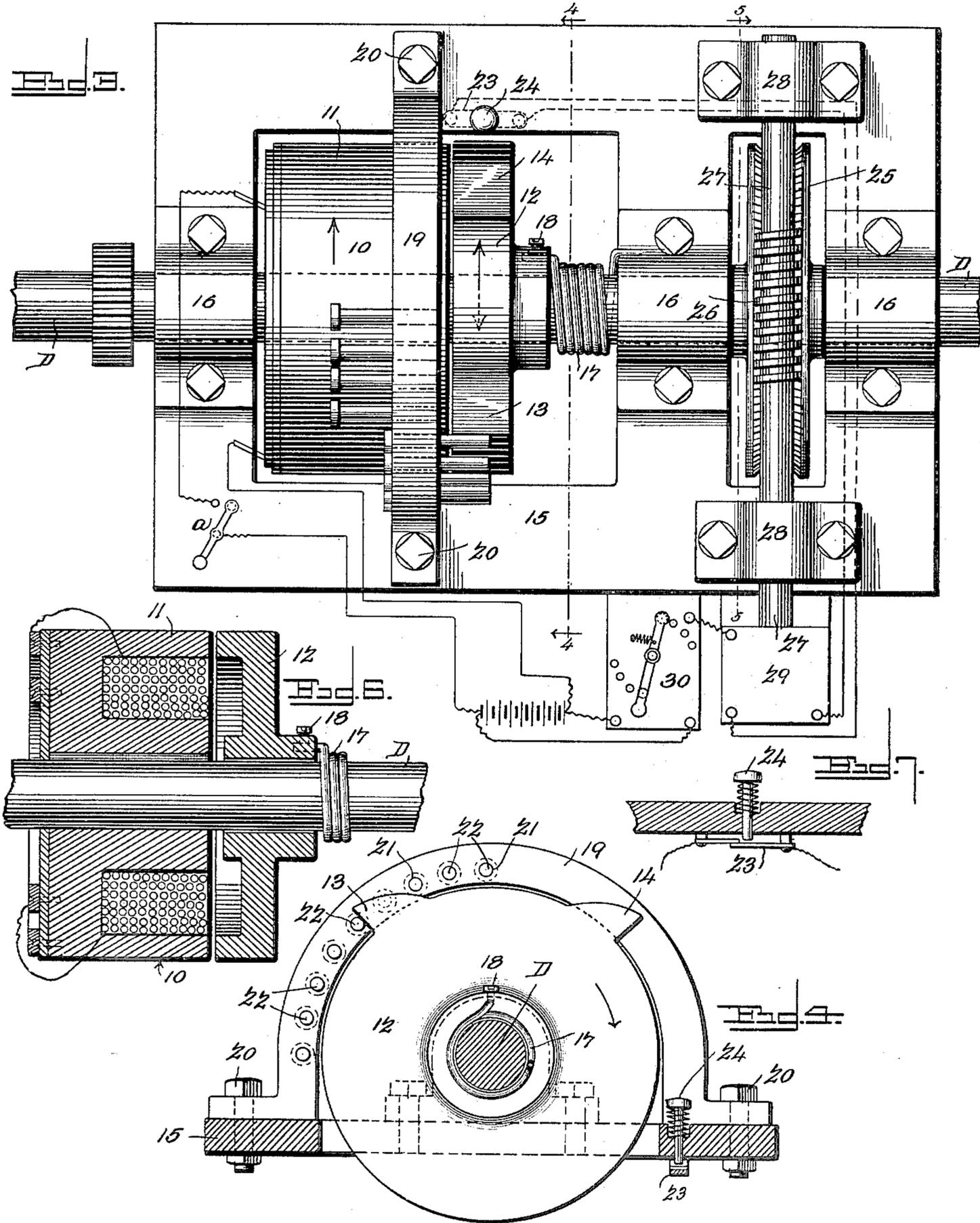
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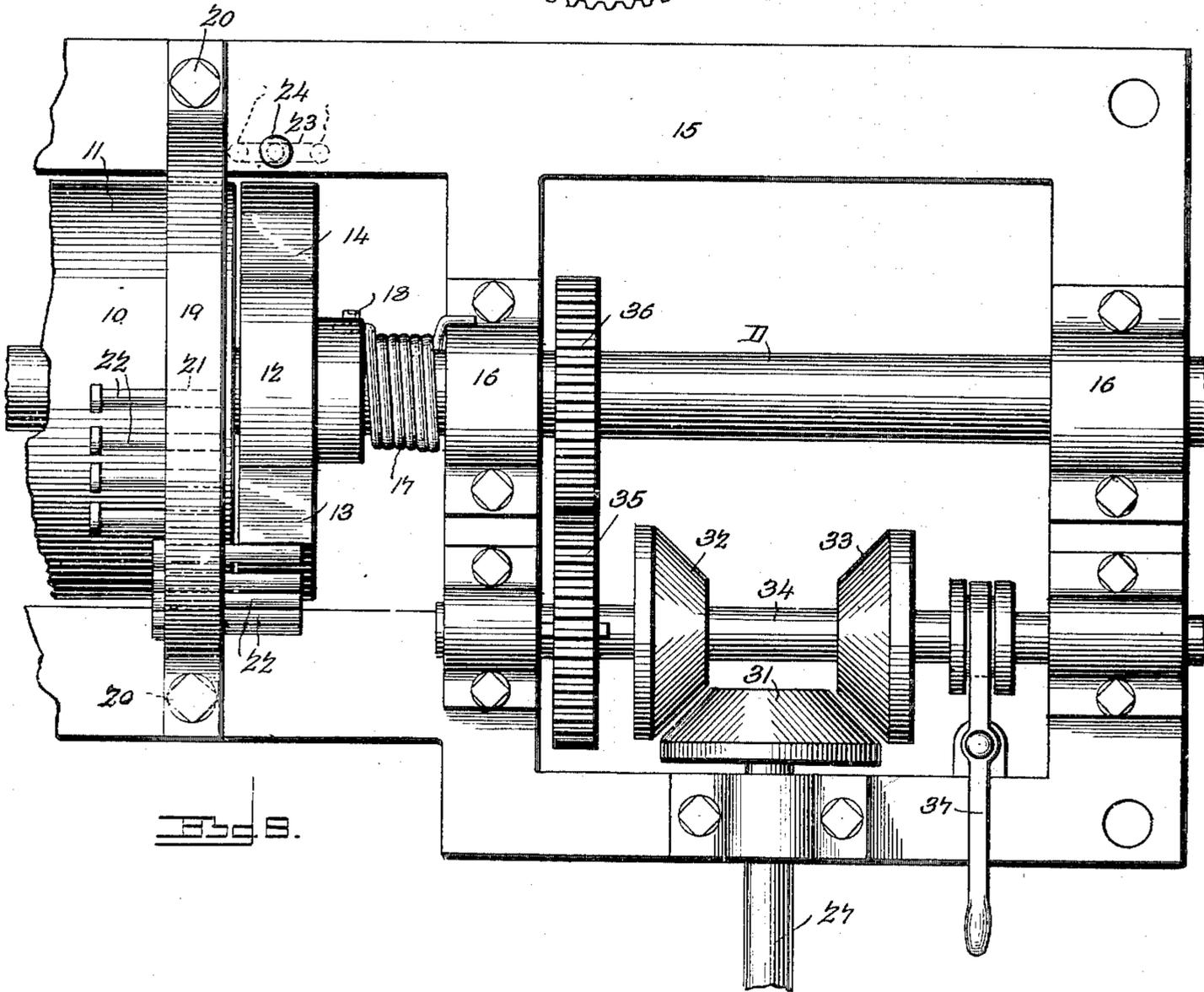
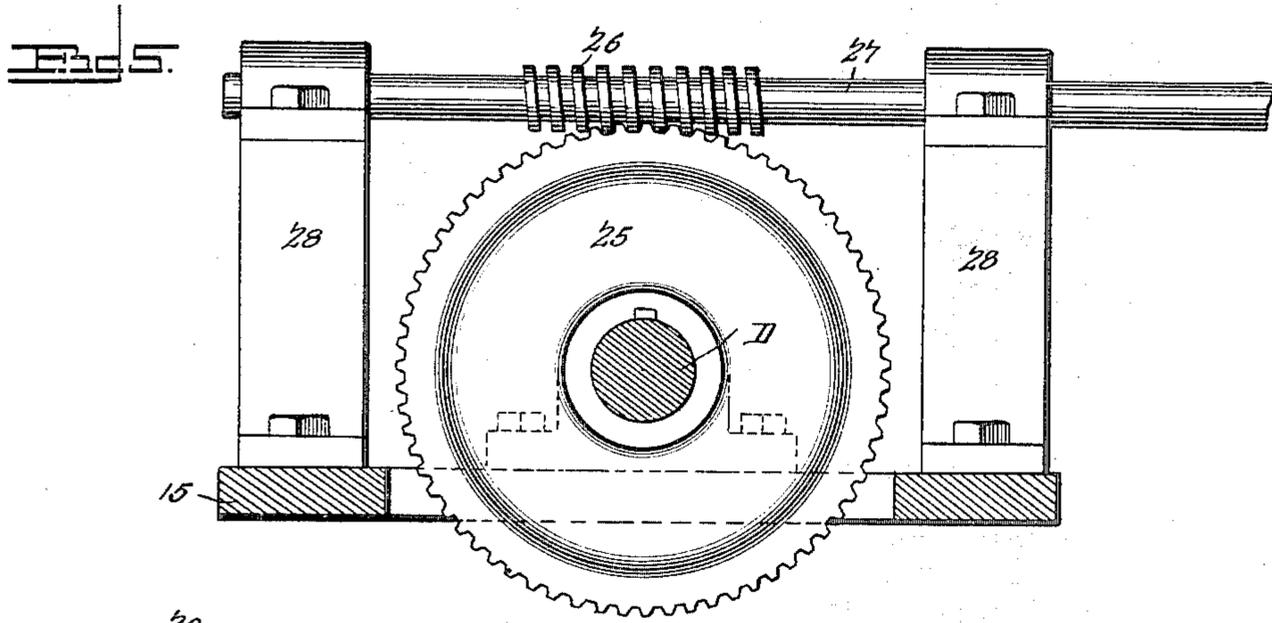
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# UNITED STATES PATENT OFFICE.

WILLIAM M. CARROLL, OF BEAUMONT, TEXAS.

## ELECTRICALLY-ACTUATED SAWMILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 660,045, dated October 16, 1900.

Application filed May 12, 1900. Serial No. 16,500. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. CARROLL, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have invented a new and useful Electrically-Actuated Sawmill Set-Works, of which the following is a specification.

My invention is an improved electrically-actuated sawmill set-works, one object of my invention being to combine with the set-works an electromagnetic clutch forming a stop on the set-shaft and means to regulate the rotation of said clutch-stop and set-shaft, and thereby predetermine the extent of the movement of the knees.

Another object of my invention is to combine with the set-works the electromagnetic clutch-stop and the electrically-actuated mechanism for the set-works, means to break the electric circuit when the knees have been moved to the required adjustment, and thereby cut out the actuating-motor and simultaneously stop the rotation of the set-shaft.

My invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of a sawmill-carriage provided with electrically-actuated set-works constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a top plan view of my improved set-works, the electric circuits being indicated diagrammatically. Fig. 4 is a detail sectional view taken on the line 4 4 of Fig. 3. Fig. 5 is a similar view taken on the line 5 5 of Fig. 3. Fig. 6 is a detail sectional view of the electromagnetic clutch. Fig. 7 is a detail view of the circuit-breaker. Fig. 8 is a top plan view of a modified form of my improved sawmill set-works.

The carriage A, head-blocks C, knees B, adjustable thereon, and set-shaft D, geared to the knees to actuate the same, are of the usual construction, well known to those skilled in the art to which this invention relates.

In the embodiment of my invention I provide an electromagnetic clutch 10, one member of which, 11, is keyed or otherwise firmly secured to the set-shaft and revoluble therewith and is adapted to be magnetized electrically

by the passage of an electric current through a winding, as will be understood, a suitable form of the device being illustrated in Fig. 6 of the drawings; but the same may be varied without departing from the spirit of my invention. The member 12 of the clutch, which constitutes the armature, is in the form of a disk, which is loose on the shaft, is circular in form, and is provided on its upper side with a pair of radially-projecting stops 13 14. A base or supporting plate 15 has suitable bearings 16 for the set-shaft D, and a coiled spring 17 is located loosely on the set-shaft. One end of the said spring is secured to the member 12, as at 18 or in any other suitable manner, and the other end of the spring bears against one of the bearings 16, the spring serving to move the member 12 in one direction, as hereinafter described, an entire revolution of the set-shaft. The said member 12 will be hereinafter referred to as the "clutch-stop."

An arch-bar 19 is disposed transversely on the plate 15, extends from one side to the other thereof, is secured thereto either by bolts, as here shown at 20, or by other suitable means, and said arch-bar passes over and is concentric with the electromagnetic member 11 of the clutch. The said arch-bar is provided with a series of openings 21, the spaces between the centers of which represent units of measure, as inches, and in the said openings are stop-pins 22, which are adapted to be moved lengthwise in said openings and to be extended from the side of the arch-bar on which the clutch-stop is located in the path of the engaging stop or shoulder 13 thereof. The spring 17 keeps the stop or shoulder 13 normally in engagement with one of the pins 22.

A make and break 23, which forms the terminals of an electric circuit, including an electric source, as a dynamo and a motor, has a button 24, which is disposed in the path of the stop or shoulder 14 of the clutch-stop 12, and it will be understood that when the set-shaft is turned in the direction indicated by the arrow in Fig. 4 to adjust the knees on the head-block the said button 24 is engaged by the stop-shoulder 14 of the clutch-stop, thereby breaking the electric circuit to cut out the motor and stop the rotation of the set-

shaft by coming in contact with the plate, and hence limiting the movement of the knees.

It will be understood that prior to the movement of the clutch-stop 12 with the shaft D in the direction indicated by the arrow in Fig. 4 the clutch member 11 is magnetized by closing the electric circuit, as by means of a switch, (indicated at *a* in Figs. 1 and 3,) the magnetized member 11 turning with the set-shaft D and the clutch-stop 12, which, as before stated, constitutes the armature, turning with said magnetized member by the attraction of the latter, as will be understood. By means of the pins 22 the "throw" of the clutch-stop 12 may be regulated, and hence at each operation of the set-shaft and set-works the adjustment of the knees on the head-blocks may be predetermined, as may be required, the spring 17 returning the clutch-stop to its initial position when the clutch member 11 is demagnetized by breaking the circuit controlled by switch *a*, the rearward throw of the clutch-stop being limited by an appropriate regulating-pin 22, which is extended into the path of and becomes engaged by the stop-shoulder 13.

I will now describe means for rotating the set-shaft in order to adjust the knees on the head-blocks.

A worm-gear 25 is fast on the set-shaft and is engaged by a worm 26, which is included in a shaft 27, the bearings 28 of which are mounted on the plate 15. The shaft 27 is revolved by an electric motor, (indicated diagrammatically at 29,) which should preferably derive its current from the same electric source as that which supplies current to the windings of the electromagnet clutch member 11. A suitable reversible motor-controller, (indicated diagrammatically at 30,) is included in electric circuit with the motor 29, by means of which the latter may be speeded and driven in either direction, as may be required. This motor being geared to the shaft D, as hereinbefore described, communicates power to the set-works, as will be understood.

In Fig. 8 I show a modification of my invention in which the shaft 27 is provided with a friction-cone 31, which may be engaged by either of a pair of reversely-arranged friction-cones 32 33 on a longitudinally-movable shaft 34, geared to the set-shaft D by gears 35 36, said longitudinally-movable shaft 34 being provided with a shifting lever, as at 37. The shaft 27 is rotated continuously by an electric motor. The set-shaft may be caused to rotate in either direction as may be required to adjust the knees by causing the cone 31 to be engaged either by the cone 32 or the cone 33, and when said cone 31 is in engagement with neither of said cones 32 33 the set-shaft is at rest.

Having thus described my invention, I claim—

1. The combination with sawmill set-works, having a set-shaft and means to actuate the

same, of an electromagnetic clutch having one member fast on said shaft and one member loose thereon, means for magnetizing said clutch and thus carrying the loose member therewith, means for demagnetizing the clutch, means to move said loose member in one direction independently of said set-shaft when the clutch is demagnetized, means to arrest the movement of said loose member with the shaft, and means to predetermine the extent of the rotary movement of said loose member, substantially as described.

2. The combination with sawmill set-works, having a set-shaft and means to actuate the same, of an electromagnetic clutch having one member fast on the set-shaft, the other member affected by the electromagnetic action, being loose on said shaft, engaging devices forming, with said loose member, a stop to limit the rotation of said set-shaft, means to move said loose member independently of said set-shaft in one direction when the clutch is demagnetized and means to predetermine the extent of the rotary movement of said loose member, substantially as described.

3. The combination with sawmill set-works having a set-shaft, and means to actuate the same, of an electromagnetic clutch member fast on said shaft, a clutch member loose on said shaft, forming an armature, and engaging devices forming, with said loose member, a stop to limit the rotation of the set-shaft in one direction, a spring to move said loose clutch member in one direction independently of the set-shaft when the electromagnetic clutch member is demagnetized, means to arrest the movement of the loose member with the shaft and means to limit and predetermine the extent of the rotary movement of said loose member, substantially as described.

4. The combination with sawmill set-works, having a set-shaft, and means to actuate the same of an electromagnetic clutch member fast on said shaft, a clutch member loose on said shaft, forming an armature, engaging devices forming, with said loose member, a stop to limit the rotation of the set-shaft in one direction, a spring to move said loose clutch member in one direction independently of the set-shaft when the electromagnetic clutch member is demagnetized means to arrest the rotary movement of said loose member with said shaft and electromagnetic member when the latter is magnetized and to predetermine the range of movement of said loose member, and a make and break operable by said loose clutch member at one limit of the rotary movement thereof, to break the electric circuit, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM M. CARROLL.

Witnesses:

J. W. GARNER,  
MAY C. GLADMOND.