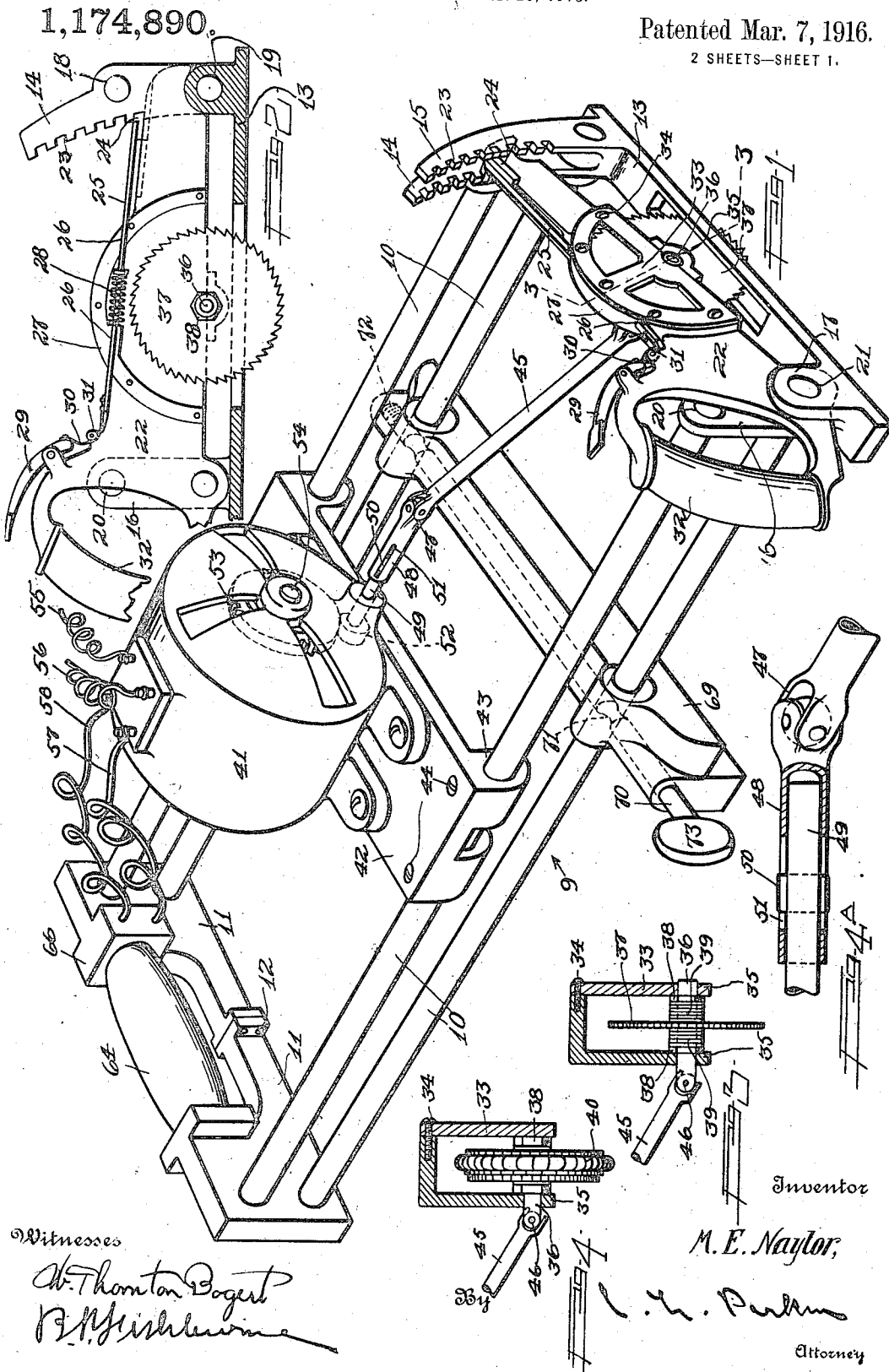


M. E. NAYLOR.
POWER OPERATED SAW.
APPLICATION FILED FEB. 20, 1913.

Patented Mar. 7, 1916.
2 SHEETS—SHEET 1.



Witnesses

W. Thornton Bogert
R. H. Fishburne

Inventor

M. E. Naylor,

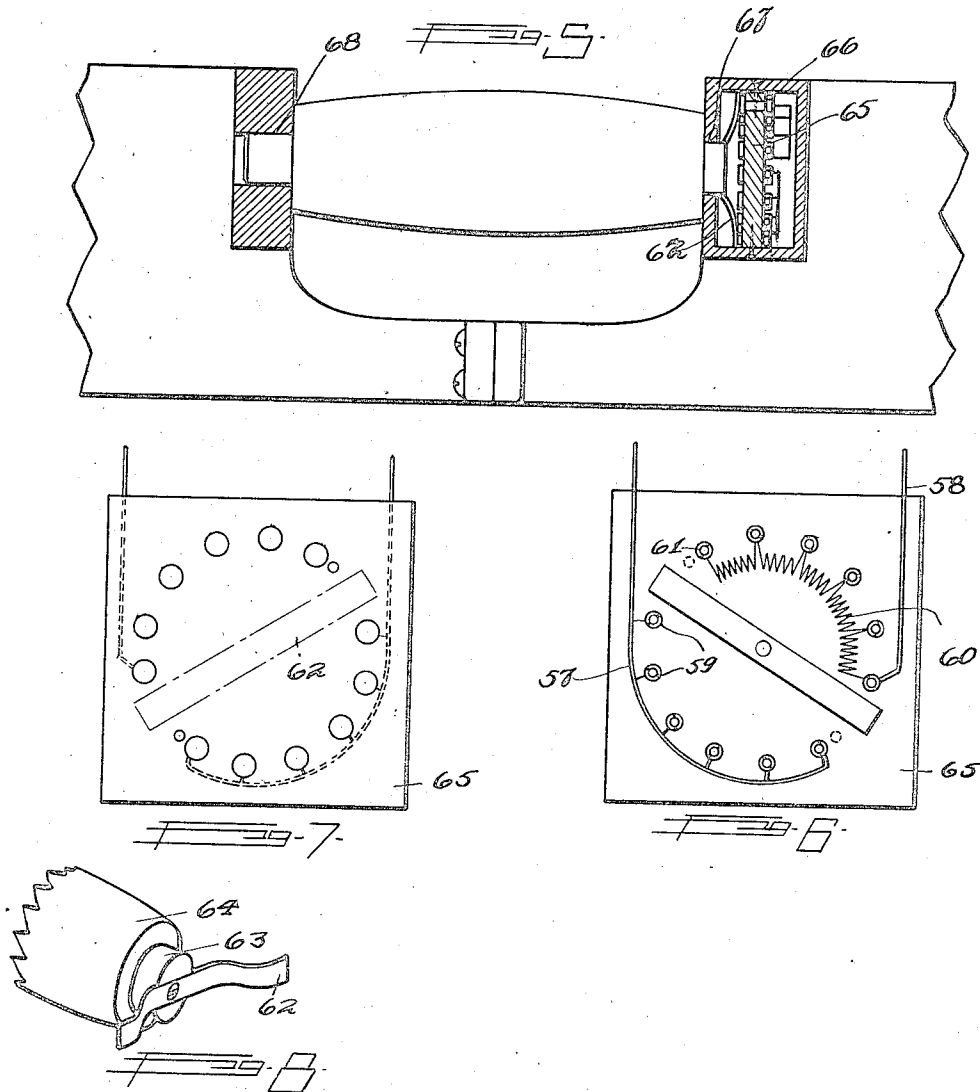
J. H. Parker

Attorney

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WITNESSES

W. Thornton Bogert
R. H. Kuhlman

INVENTOR

M. E. Naylor

By C. H. Parker

Attorney

UNITED STATES PATENT OFFICE.

MANSEL EAGLE NAYLOR, OF CINCINNATI, OHIO.

POWER-OPERATED SAW.

1,174,890.

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To all whom it may concern:

Be it known that I, MANSEL E. NAYLOR, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Power-Operated Saws, of which the following is a specification.

This invention relates to a power operated saw and has particular reference to apparatus of this character which is well adapted for use in cutting boards or the like into longitudinal strips.

An important object of this invention is to provide an apparatus of the above mentioned character, which is a time saver, easy to operate, reliable in such operation, and comparatively cheap to manufacture.

A further object of this invention is to provide means whereby the operator may conveniently control the operation of the motor while he is moving the entire apparatus longitudinally of the board or the like.

A further object of this invention is to provide means whereby the apparatus may be employed to longitudinally cut boards or the like into strips of different widths.

A further object of this invention is to provide novel means for vertically adjusting the saw or cutting element.

A further object of this invention is to provide means whereby different cutting elements or saws may be employed in connection with the apparatus.

Other objects and advantages of this invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a perspective view of the entire apparatus, Fig. 2 is a central vertical longitudinal sectional view through the saw portion of the apparatus, parts thereof being shown in elevation, Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1, Fig. 4 is a similar view showing a different form of cutting element, Fig. 4^a is a longitudinal section through a movable sleeve included in driving connecting means, Fig. 5 is an outer fragmentary side view of a portion of the frame work of the apparatus, parts thereof being shown in section for showing a switch, Fig. 6 is a face view of the switch block showing the rheostat connected therewith,

Fig. 7 is a face view of the opposite side of the switch block, and, Fig. 8 is a fragmentary perspective view of the handle which operates the switch.

In the drawings, wherein for the purpose of illustration, I have shown a preferred embodiment of my invention, the numeral 9 designates a frame or support as a whole, comprising horizontal side rods 10, which are connected at corresponding ends with end pieces 11, which are connected by screws or bolts 12, as shown. The opposite ends of the horizontal rods 10 are connected with a horizontal stock or body portion 13, included in the saw portion of the apparatus, as shown. The stock 13 carries upstanding arms 14, 15, 16 and 17. One pair of the rods 10 extends through openings 18 and 19 formed through the arm 14. The upper rod 10 which extends into the opening 18 does not pass outwardly therebeyond, for a purpose to be hereinafter explained. The upper rod 10 of the other pair extends into an opening 20 formed through the upper end of the arm 16. The lower rod 10 of the same pair extends through openings 21 formed in the arms 16 and 17, and serves to pivotally support a vertically swinging carriage 22, having its forward end mounted between the upstanding arms 14 and 15, as shown. This forward end of the carriage 22 is capable of moving vertically between the arms 14 and 15.

The arms 14 and 15 are provided with spaced openings or notches 23, to receive a reciprocatory latch 24, which is slidably mounted upon the free end of the carriage 22. This latch is attached to one end of a reciprocatory rod 25, which operates through openings 26 formed through an enlarged housing 27 of the carriage 22. A compressible coil spring 28 serves to normally urge the latch into the openings or notches 23. The rod 25 is moved longitudinally in one direction by a pivoted lever 29, connected therewith by a flexible element 30, which passes beneath a pin or guide roller 31. Below and adjacent to the lever 29 is a hand grip 32, which is preferably formed integral with the carriage 22. As more clearly shown in Figs. 3 and 4, the housing 27 has one side 33 removable, the same being held in place by means of screws 34 or the like.

Rotatably mounted within bearings carried by the housing 27 and the removable side 33 thereof, is a shaft or spindle 36,

upon which is rigidly mounted a saw 37 or other cutting element. This saw 37 is preferably detachably mounted upon the spindle 36 and is clamped thereon by clamping nuts 38, between which and the saw are preferably arranged spacing rings 39, as shown. In Fig. 4 a different form of cutting element 40 is employed, the same being thicker than the saw 37, whereby the spacing rings 39 are dispensed with and only the clamping nuts 38 used.

The numeral 41 designates a motor, which is preferably a shunt wound motor, but it is to be understood that the invention is in no sense restricted to the use of a shunt wound motor, as a series wound or compound wound motor may be advantageously employed. This motor 41 is rigidly mounted upon a transverse horizontal support 42, provided with depending apertured ears 43 to receive the upper horizontal rods 10, as shown. The support 42 may be moved longitudinally of the upper rods 10 to assume a desired position thereon and the same is locked in such position by clamping bolts 44. A flexible and extensible driving connection is interposed between the saw or cutter 37 and the motor 41, the same comprising a shaft 45, having a universal connection 46 with the spindle 36. At its opposite end the shaft 45 has a universal connection or joint 47 with a longitudinally movable sleeve 48, which is slidably mounted upon a drive shaft 49. A transverse pin or spline 50 is carried by the shaft 49 and operates within elongated slots 51. Rigidly connected with the inner end of the shaft 49 is a small gear 52, engaging a large gear 53, which is rigidly connected with an armature shaft 54. The driving connecting means between the saw 37 and the motor 41 is self-adjusting, and the same is necessary on account of the vertical adjustment which may be imparted to the carriage 22, as above stated.

The numerals 55 and 56 designate feed and return wires which are connected with the poles or brushes of the motor and are hence included in the armature circuit. Connected in series with the shunt field circuit are wires 57 and 58. The wire 57, as more clearly shown in Figs. 6 and 7, is electrically connected with a plurality of spaced contacts 59. The wire 58 is electrically connected with resistance coils 60, which are connected in series, as is customary. These resistance coils are also electrically connected with spaced contacts 61. A spring contact arm 62 is adapted to engage with the contacts 59 and 61. The spring contact 62 is rigidly connected with a spindle 63 included in a handle 64, adapted to be turned upon its longitudinal axis. The contacts 59 and 61 and associated elements are suitably mounted upon a switch block 65, dis-

posed within a housing 66, as shown. The ends of the spindle 63 are journaled within openings 67 and 68. It is obvious that by turning the handle 64 the field magnets of the motor may be entirely cut out of circuit or cut into circuit for receiving the proper amount of current, to cause the motor to stop or operate at a desired speed. Any other form of rheostat or switch may be employed to control the operation of the motor.

Longitudinally movably mounted upon the lower rods 10 is a transverse guide 69, provided with a longitudinal opening for receiving a clamping rod 70, which is provided with recesses 71 to receive the rods 10, as shown. The clamping rod 70 is disposed in a plane below the lower rods 10, as is obvious. The clamping rod 70 has its free end screw-threaded, as shown at 72, for engaging within a screw-threaded opening formed in the end of the guide 69. A head 73 is carried by the opposite end of the clamping rod 70.

The operation of the apparatus is as follows:—The transverse guide 69 is first moved to the desired position upon the lower rods 10, depending upon the width of the strip to be cut. The transverse guide 69 is then placed in engagement with one longitudinal edge of the board, the operator holding the handle 64 in his left-hand and the hand grip 32 in his right-hand. It is obvious that he may readily move the entire apparatus longitudinally of the board and at the same time turn the handle 64 for regulating the operation of the motor 41 and also raise and lower the carriage 22.

It is to be understood that the form of my invention herewith shown and described, is to be taken as a preferred example of the same, and that certain changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus fully described my invention, I claim:—

1. The combination with a supporting frame of a shape and size to adapt the same to be manually moved longitudinally of a plank or the like to be cut, of cutting mechanism mounted upon one end portion of the supporting frame, means to raise and lower the cutting mechanism with respect to the frame, a motor mounted upon the supporting frame near the central portion thereof, extensible self-adjusting driving connecting means between the motor and the cutting mechanism, hand grips connected with the opposite ends of the supporting frame, and a guide adjustably mounted upon the supporting frame between the ends thereof to cause the entire apparatus to partake of the proper longitudinal movement.

2. The combination with a supporting

frame adapted to be moved longitudinally of a plank to be cut, guide means connected with the supporting frame to slidably engage the plank to be cut, cutting mechanism connected with one end of the supporting frame and embodying a hand grip, a motor mounted upon the supporting frame between the ends thereof, driving connecting means between the motor and the cutting mechanism, and means to control the operation of the motor embodying a hand grip connected with the opposite end of the supporting frame and movable with relation thereto.

3. The combination with a supporting frame of a shape and size to be manually moved longitudinally of a plank or the like to be cut, of a guide connected with the lower portion of the supporting frame to engage the plank and cause the frame to partake of the proper longitudinal movement, a motor mounted upon the supporting frame at a point substantially equi-distant from the ends thereof, cutting mechanism connected with one end of the supporting frame, driving means between the cutting mechanism and motor, means to raise and lower the cutting mechanism embodying a hand grip also serving to move the supporting frame longitudinally, and a second hand grip connected with the opposite end of the supporting frame and embodied in means to control the operation of the motor.

4. The combination with a stock provided with a longitudinally extending opening, of a carriage provided at one end with a hand-grip and pivotally connected with the stock at a point near the hand-grip to swing in a substantially vertical plane longitudinally of the stock, a cutter connected with the carriage and adapted for movement into and out of the longitudinal opening, spaced upstanding members secured to the stock and receiving the free end of the carriage therebetween to serve as a guide means therefor and provided upon their inner edges with teeth, a reciprocatory latch element extending longitudinally of the carriage and adapted to engage and disengage the teeth, and a pivoted lever arranged adjacent the hand-grip and operatively connected with the reciprocatory latch element.

5. The combination with a main frame of a shape and size adapted to be manually moved by a single operator longitudinally of a plank to be cut, a stock connected with one end of the main frame and extending transversely thereof and provided with a longitudinally extending opening, a carriage provided at one end with a hand-grip and pivotally connected with the stock near the hand-grip to be swung in a substantially vertical plane longitudinally of the stock and with relation thereto, a rotatable cutter connected with the pivoted carriage between the ends thereof, a motor mounted upon the main frame between the ends of the same, self compensating connecting means between the motor and the rotatable cutter, means to control the operation of the motor embodying a hand-grip connected with that end of the main frame opposite the cutting mechanism and extending transversely thereof and adapted to be turned upon its longitudinal axis with relation to the main frame, and a guide adjustably connected with the lower portion of the main frame to engage the plank to be cut and movable laterally toward and away from the cutting mechanism.

6. The combination with a main frame of a shape and size adapted to be manually moved by a single operator longitudinally of the plank to be cut, of cutting mechanism connected therewith and adapted to cut the plank longitudinally upon the movement of the main frame longitudinally of the plank, a guide connected with the main frame and adapted to cause the same to travel in the proper longitudinal path with respect to the plank, means connected with the cutting mechanism to drive the same, and means to control the operation of the first named means embodying a hand-grip connected with the main frame to also serve as means for effecting the movement of the main frame longitudinally of the plank.

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

MANSEL EAGLE NAYLOR.

Witnesses:

JOEL F. KINNEY,
I. M. SHUMARD.