July 8, 1930. R. E. LANGILL ET AL 1,769,927

MECHANISM FOR CONTROLLING THE PRESS ROLLS OR LIKE ELEMENTS OF EDGERS

Filed Aug. 10, 1925 2 Sheets-Sheet 1

FIG. 1

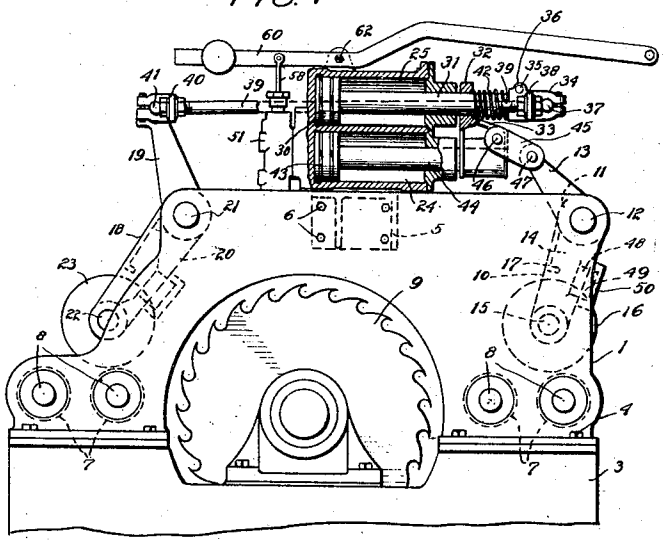
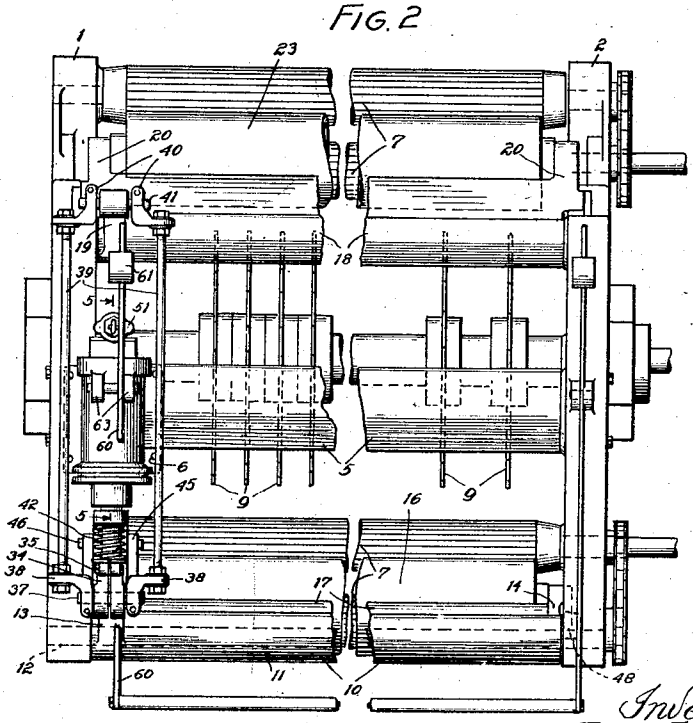


FIG. 2



Inventors
Ross E. Langill
William B. Grueter
Bottum, Hudnall, Locher & McNamara
Attys

July 8, 1930. R. E. LANGILL ET AL 1,769,927

MECHANISM FOR CONTROLLING THE PRESS ROLLS OR LIKE ELEMENTS OF EDGERS

Filed Aug. 10, 1925 2 Sheets-Sheet 2

FIG. 3

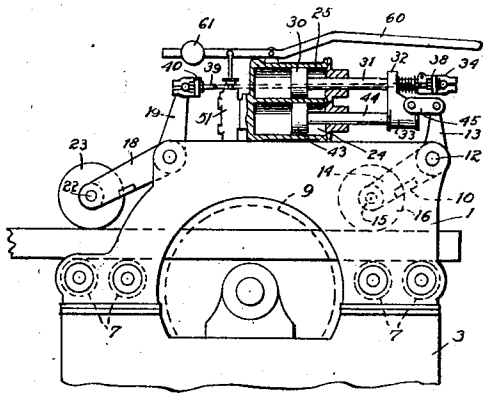


FIG. 4

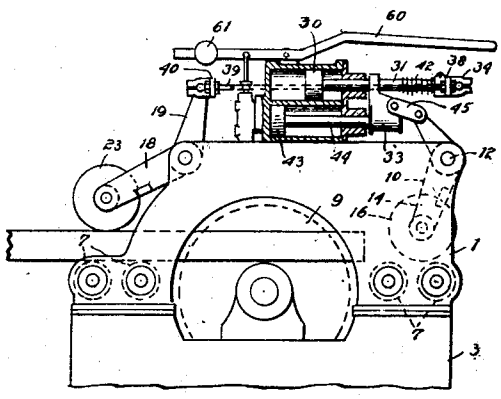
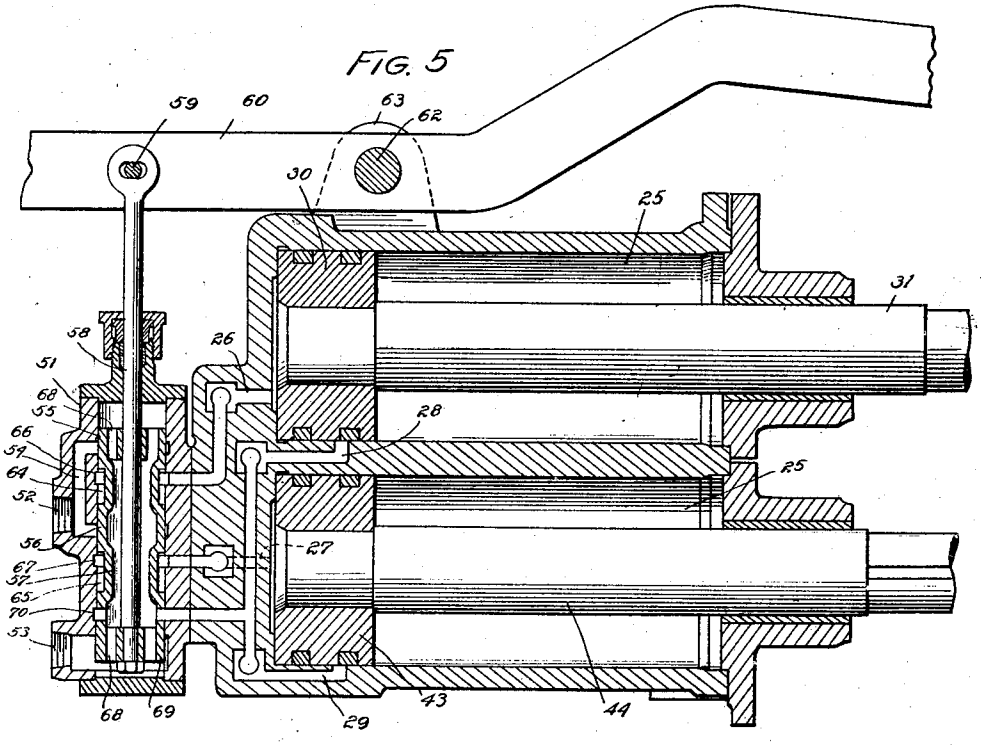


FIG. 5



Inventors
Ross E. Langill
William B. Grueter
Bolton, Hudnall, Zeiler & McNamara
Attys.

Patented July 8, 1930 1,769,927

UNITED STATES PATENT OFFICE

ROSS E. LANGILL AND WILLIAM B. GRUETER, OF MENOMINEE, MICHIGAN, ASSIGNORS TO THE PRESCOTT COMPANY, OF MENOMINEE, MICHIGAN, A CORPORATION OF MICHIGAN

MECHANISM FOR CONTROLLING THE PRESS ROLLS OR LIKE ELEMENTS OF EDGERS

Application filed August 10, 1925. Serial No. 49,171.

This invention relates to improvements in mechanism for controlling the press rolls or like elements of edgers.

In sawing up a log into boards of the desired thickness, the log is dogged on a sawmill log carriage and about one-third thereof sawed off. The log is then given a quarter turn on the carriage and a like amount of the log sawed off to form more boards. The sawing of the log is continued in this manner until it is completely sawed up into boards. The edges of many of these boards are part of what was formerly the outer surface of the log, and are rough and provided with some of the bark. These boards are, therefore, run through a machine known as an edger which removes the rough edges and bark and cuts the boards to the various widths desired. These edgers comprise, generally, a table provided with live rolls, a number of circular saws extending above and arranged between and transversely of the live rolls, means for shifting the saws transversely of the table, press rolls pivotally supported over the live rolls and arranged in front of and back of the saws, and suitable means such as a fluid-pressure cylinder and connections between the cylinder and press rolls for raising the latter into position to receive the lumber and to permit the same to drop into inoperative position after the lumber has passed from beneath the back or rear press roll, these press rolls acting to hold the lumber down upon the live rolls and in proper operative position with respect to the saws as the lumber is fed through the latter by the live rolls. In edgers constructed heretofore, the various types of connections to the power means for raising the press rolls to operative position to receive the lumber, have been such that the press rolls are fixed for movement together and cannot move into either their respective operative or inoperative positions independently of a like movement of the other. In these edgers, therefore, the front press roll still remains in raised position and is not permitted to drop after the lumber has passed from beneath the same for the reason that the rear press roll is still engaging the lumber and is held in raised position thereby, and because of the connections between the press roll yokes and the fluid-pressure cylinder. When the end of the lumber passes from beneath the front press roll and reaches the saws, there is a tendency for the latter to break away a portion of the lumber at this end, in which case the piece of wood or lug broken off is violently thrown or hurled back toward the operator through the opening between the live rolls and the front press roll which is still held in raised position on account of its interconnection with the rear press roll, the speed of the lug approximating the peripheral velocity of the saws. In some instances these pieces of wood or lugs have been thrown backward by the saw and have severely injured or killed the operators. One of the objects of the present invention, therefore, is to provide improved mechanism for controlling the press rolls or like elements of edgers whereby the front press roll is permitted to drop to inoperative position while the rear press roll is still engaging the lumber and is held in raised or operative position thereby, the front press roll and the supporting means or yoke therefor thus effectively closing the opening in the front of the machine before the uncut end of the lumber passes through the saws and thereby preventing injury and possible death to the operator by the pieces of wood or lugs which the saws tend to break off from this end of the lumber and hurl backward toward the operator at a high velocity.

Another object is to provide mechanism for controlling the press rolls of edgers whereby movement of the front press roll into inoperative position is permitted as soon as the same is cleared by the lumber being fed through the machine and while the rear press roll is still engaging the lumber and is held in raised or operative position thereby, thus permitting insertion between the live rolls and front press roll of a piece of lumber having a thickness less than that of the preceding piece of lumber which is still passing through the machine and is still between the live rolls and rear press roll, thereby permitting the feeding of pieces of lumber butt to butt if desired.

Another object is to provide the press rolls

of an edger with mechanism for controlling the same which is simple in construction, efficient, and which may be manufactured at a comparatively small cost.

Other objects and advantages will hereinafter appear.

For the purpose of illustrating the invention an embodiment thereof is shown in the drawings, in which:

Figure 1 is a side elevation, partly in section, showing the front and rear press rolls in their respective inoperative or rest positions;

Fig. 2 is a plan view;

Fig. 3 is a view similar to Fig. 1, showing each of the press rolls engaged by a piece of lumber and in their respective raised or operative positions;

Fig. 4 is a view similar to Fig. 1, showing the front press roll in its rest or inoperative position to close the opening in the front of the machine, and the rear press roll still engaged by the lumber and held in its raised or operative position thereby; and

Fig. 5 is an enlarged section on line 5—5 of Fig. 2.

Side frame members 1 and 2 are secured to a suitable table 3 by means of bolts 4 and are connected by means of a cross member 5 arranged transversely of members 1 and 2 and connected to the latter by any suitable means such as bolts 6 extending through members 1 and 2 and into the ends of member 5. Live rolls 7 are arranged, as shown, and rotatably mounted on shafts 8 secured between members 1 and 2, circular saws 9 being supported and driven in the usual manner and arranged between the live rolls and extending above the latter. A yoke 10 comprises a sleeve 11 loosely mounted on a shaft 12 extending transversely of members 1 and 2 and having its ends fixed in the upper front corners thereof, an upwardly extending arm 13 fixed to sleeve 11, and downwardly extending spaced arms 14 also fixed to sleeve 11 and supporting at their lower ends a shaft 15 upon which the front press roll 16 is rotatably mounted in any suitable manner, the yoke 10 being provided with a plate 17 which may be cast integrally therewith and which extends between arms 14 and from sleeve 11 to within a short distance of roll 16. Referring more particularly to Figs. 3 and 4, it will be seen that when the front press roll has dropped to its rest or inoperative position after the uncut end of the piece of lumber has passed from beneath the same, that plate 17 and roll 16 completely close the opening in the front of the machine before the uncut end of the piece of lumber reaches saws 9, thus preventing any pieces of wood or lugs from being hurled backward by the saws through the front opening in the machine and toward the operator. A similar yoke 18 provided with an upwardly extending arm 19 and downwardly extending spaced arms 20 is loosely mounted on a shaft 21 extending transversely of members 1 and 2 and suitably fixed in the upper rear corners thereof, as shown, a shaft 22 extending through the free ends of arms 20 and being fixed therein. The rear press roll 23 is rotatably mounted in any suitable manner upon shaft 22, as shown.

The power means and connections between the same to the press roll yokes 10 and 18 whereby the press rolls may be raised together to their respective operative positions to receive the lumber and the front press roll permitted to drop by its own weight into rest or inoperative position, as shown in Fig. 4, while the rear press roll is still engaging the lumber and is held in raised or operative position thereby, will now be described, referring more particularly to Figs. 1 and 5. Cylinders 24 and 25 which may be cast in one piece, are arranged as shown and secured in any suitable manner to frame member 1 and cross member 5 and provided respectively with inlet passages 26 and 27 and exhaust passages 28 and 29, which latter passages open into these cylinders at points somewhat removed from the adjacent ends thereof for the purpose hereinafter explained. A piston 30 is loosely fitted in cylinder 25 and provided with a piston rod 31 extending loosely through a lug 32 cast integrally with the cross head 33, a split socket member 34 being fitted upon the end of piston rod 31 and fixed thereto by means of a clamping bolt 35 extending through lugs 36 on opposite split portions of member 34. A pin 37 extends through the outer end of member 34 and through L-shaped pieces 38 which are connected by means of rods 39 to similar L-shaped pieces 40 pivotally connected by means of a pin 41 to the upper end of arm 19 of the rear press roll yoke 18. A coil spring 42 is arranged upon piston rod 31 between lug 32 of cross head 33 and socket member 34. A piston 43 is loosely fitted in cylinder 24 and provided with a piston rod 44 fixed to cross head 33 which, in turn, is connected by means of links 45 and pins 46 and 47 to the upper end of arm 13 of the front press roll yoke 10. The respective downwardly extending spaced arms 14 and 20 of the press roll yokes may be provided with laterally extending lugs 48 arranged to engage suitable cushion members such as rubber pieces 49 inserted into inwardly extending recessed lugs 50 which may be cast integrally with frame members 1 and 2, when the press rolls drop to their rest or inoperative positions. A valve chest 51 is secured to one end of the cylinders and provided with an inlet opening 52 and an exhaust opening 53 and a passage 54 communicating with inlet passage 52 and having its ends arranged to be closed by the head 55 and the central portion 56 of a piston valve 57 when the latter is in its

lowermost position, as shown in Fig. 5, the valve being provided with a suitable stem 58 pivotally connected at 59 to an actuating lever 60 having a weight 61 at one end thereof and pivotally mounted by means of a pin 62 to lugs 63 which may be cast integrally with cylinder 25. The valve 57 is provided with annular recesses 64 and 65 which communicate with similar recesses 66 and 67, respectively, in the valve chest, these latter recesses communicating with the respective inlet passages 26 and 27 of the cylinders. The valve 57 is hollow and provided with openings 68 extending through the heads 55 and 69 thereof, an opening 70 in the valve being arranged to communicate with the exhaust passages 28 and 29 of the cylinders to connect the latter to exhaust opening 53 when the valve is in its lowermost position, as shown in Fig. 5.

The operation of the improved mechanism for controlling the press rolls will now be explained, assuming that the latter are in their respective rest or inoperative positions, as shown in Fig. 1, and valve 57 held in its lowermost position by weight 61 on lever 60 whereby cylinders 24 and 25 are connected with exhaust opening 53. When the piece of lumber is in proper position and ready for movement through the machine, the operator presses down upon lever 60 to raise valve 57 against the action of weight 61, thereby closing exhaust passages 28 and 29 of the cylinders by means of head 69 of the valve and connecting the respective inlet passages 26 and 27 of the cylinders with inlet opening 52 through passage 54 and annular recesses 64, 65, 66 and 67. Pistons 30 and 43 will then move to the right and raise press rolls 16 and 23 to their respective operative positions, as shown in Fig. 3, to receive the lumber. When the piece of lumber is between live rolls 7 and front press roll 16, the operator releases lever 60 so that valve 57 drops to its lowermost position, as shown in Fig. 5, under the action of weight 61, in which position of the valve the cylinders are shut off from the fluid pressure supply and connected with the outlet or exhaust opening 53. The rear press roll 23 will then drop a certain amount by its own weight and compress spring 42 between member 34 fixed to the end of piston rod 31 and lug 32 of cross head 33 which is held against movement to the left by reason of its connection with the front press roll yoke 10. When the piece of lumber engages press roll 23, the latter will be swung upwardly to the position thereof shown in Fig. 3 and act with the front press roll 16 to hold the lumber down upon live rolls 7. When the piece of lumber passes from beneath front press roll 16, as shown in Fig. 4, the latter will instantly drop by its own weight to rest or inoperative position, during which movement of the front press roll and the parts associated therewith, lug 32 forming part of cross head 33 will slide along piston rod 31 and permit spring 42 to expand. Exhaust passage 29 of cylinder 24 communicates with the latter at a point slightly removed from the end thereof so that when piston 43 covers exhaust passage 29, the air thereby confined between the end of the cylinder and the piston provides a cushion to let front press roll 16 down easily into its rest position and to prevent sudden impact of lugs 48 with the rubber pieces 49. From the foregoing it will be seen that the front opening in the machine is closed by press roll 16 and plate 17 the instant the uncut end of the lumber passes from beneath this press roll and before it passes through saws 9, thus preventing the catapulting of pieces of wood or lugs by the saws backward through the front opening in the machine and toward the operator. When the piece of lumber passes from beneath rear press roll 23, the latter will be free to drop by its own weight to rest or inoperative position, as shown in Fig. 1, piston 30 being thereby moved to the position thereof shown in Fig. 5, and spring 42 compressed between lug 32 of cross head 33 and member 34 secured to the end of piston rod 31, the spring thereby acting as a cushion to break the fall of the rear press roll. The exhaust passage 28 of cylinder 25 also opens into the latter at a point removed from the end thereof to provide an air cushion when piston 30 covers this passage, yoke 18 and press roll 23 carried thereby finally coming to rest against the rubber cushion members 49.

From the foregoing it will be seen that an improved mechanism has been provided for controlling the press rolls of edgers and which permits movement of the front press roll into its rest or inoperative position to close the opening in the front of the machine at the instant at which the piece of lumber passes from beneath this roll and before the same passes through the saw and from beneath the rear press roll, thereby preventing the hurling of pieces of wood or lugs back through the front opening in the machine and toward the operator and permitting the feeding of pieces of lumber of varying thickness butt to butt through the machine if desired.

The mechanism shown in the drawings and described above represents one embodiment of the invention, but of course various changes in the size, shape and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the claims.

The invention claimed is:

1. In a machine of the character described, the combination with a supporting table for lumber and a saw associated therewith and arranged to cut said lumber as the same is moved with respect to said table, of a plural-

ity of members adapted and arranged to engage the lumber and to hold the same in proper position during movement thereof through said saw, a fluid-pressure cylinder connected to one of said members for moving the same to operative position, a second fluid-pressure cylinder connected to the other of said members for moving the same to operative position, and means common to said fluid-pressure cylinders for admitting and exhausting fluid under pressure to and from the latter, one of said members being adapted to move into inoperative position while the other of said members is in operative position and upon movement of said means to exhaust the fluid from said cylinders.

2. In a machine of the character described, a supporting table for lumber, a saw associated therewith and arranged to cut said lumber as the same is moved with respect to said table, a plurality of members pivotally mounted for movement toward and away from said table and arranged when in operative position to engage the lumber and to hold the same in proper position with respect to said saw, a fluid-pressure cylinder for effecting movement of one of said members to operative position, means connecting said member to said fluid-pressure cylinder, a second fluid-pressure cylinder for effecting movement of the other of said members to operative position, means connecting said last-mentioned member to said second fluid-pressure cylinder, and means for admitting and exhausting fluid under pressure to and from said cylinders, said first and second-mentioned connecting means being so related and arranged as to move together in effecting movement of said members to their respective operative positions and to permit movement of said second-mentioned member to inoperative position while said first-mentioned member is in operative position and upon exhaust of the fluid from said cylinders.

3. In a machine of the character described, a supporting table for lumber, a saw associated therewith and arranged to cut said lumber as the same is moved with respect to said table, a plurality of members pivotally mounted for movement toward and away from said table and arranged when in operative position to engage the lumber and to hold the same in proper position with respect to said saw, a fluid-pressure cylinder provided with a piston rod and a crosshead fixed thereto, means connecting one of said members to said fluid-pressure cylinder for movement into operative position by the latter upon admission to the same of fluid under pressure, a second fluid-pressure cylinder having a piston rod extending loosely through said crosshead and connected to the other of said members whereby the latter is moved to operative position upon admission of fluid under pressure to said second fluid-pressure cylinder, said first-mentioned member being adapted for movement into inoperative position upon exhaust of the fluid from said first-mentioned fluid-pressure cylinder and while said second-mentioned member is in operative position, and means for admitting and exhausting fluid under pressure to and from said cylinders.

4. In a machine of the character described, a supporting table for lumber, a saw associated therewith and arranged to cut said lumber as the same is moved with respect to said table, a plurality of members pivotally mounted for movement toward and away from said table and arranged when in operative position to engage the lumber and to hold the same in proper position with respect to said saw, a fluid-pressure cylinder provided with a piston rod and a crosshead fixed thereto, means connecting one of said members to said fluid-pressure cylinder for movement into operative position by the latter upon admission to the same of fluid under pressure, a second fluid-pressure cylinder having a piston rod extending loosely through said crosshead and connected to the other of said members whereby the latter is moved to operative position upon admission of fluid under pressure to said second fluid-pressure cylinder, a spring arranged upon said second-mentioned piston rod and adapted for coaction with said crosshead to provide a cushion for said second-mentioned member upon movement thereof into inoperative position, said first-mentioned member being adapted for movement into inoperative position upon exhaust of the fluid from said first-mentioned fluid-pressure cylinder and while said second-mentioned member is in operative position, and means for admitting and exhausting fluid under pressure to and from said cylinders.

5. An edger having a front press roll, a rear press roll, power means for lifting said rolls and a one-way connection between said rolls restraining lowering of the rear press roll as long as the front press roll is elevated but permitting the front press roll to lower independently of the rear press roll.

6. An edger comprising a supporting table for the lumber having the usual live rolls and the usual press rolls swingably mounted in cooperable relation with respect to the live rolls, mechanism for swinging press rolls including shiftable members, a cross head fixed to one of said members and connected to one of the press rolls, said cross head having a sliding connection with the other shiftable member, an abutment on the last mentioned shiftable member for limiting the movement of the cross head thereon in one direction and means for shifting said members to cause the press rolls to be swung to a position to have operative engagement with the lumber.

7. An edger having a front press roll, a rear press roll, power means for lifting said rolls, motion transmission mechanism between said power means and said front and rear press rolls, and means interconnecting and coordinating the action of said front and rear press rolls to restrain lowering of the rear press roll as long as the front press roll is elevated but permitting the front press roll to lower independently of the rear press roll.

8. An edger having a front press roll, a rear press roll, a separate motor unit for each roll, a separate motion transmission train between each motor unit and its roll, and a connection between said motion transmission trains acting to restrain lowering of the rear press roll as long as the front press roll is elevated but permitting the front press roll to lower independently of the rear press roll.

In witness whereof we hereto affix our signatures.

WILLIAM B. GRUETER.
ROSS E. LANGILL.