

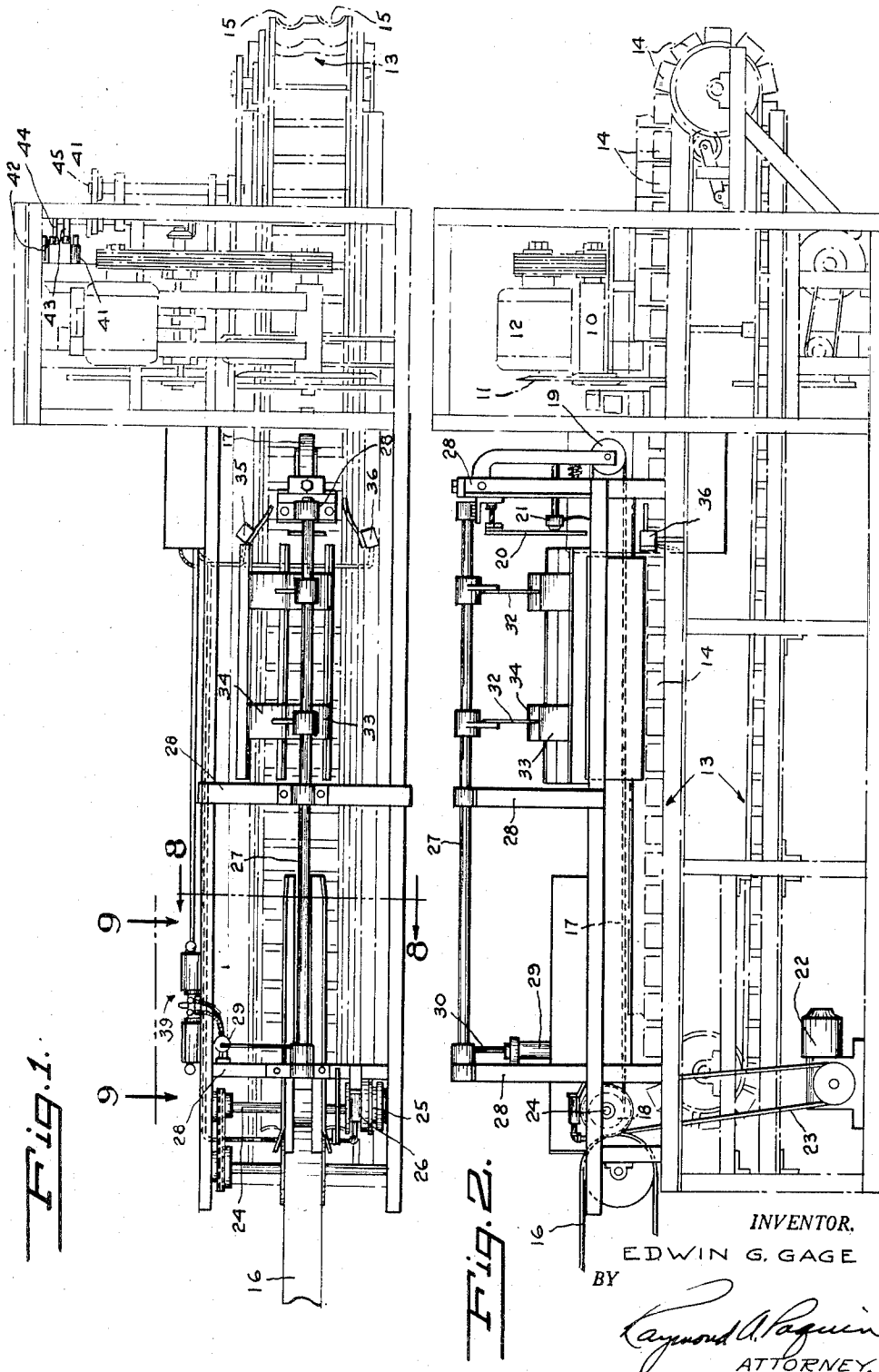
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E. G. GAGE
AUTOMATIC LOADER

2,779,413

Filed June 23, 1954

4 Sheets-Sheet 1



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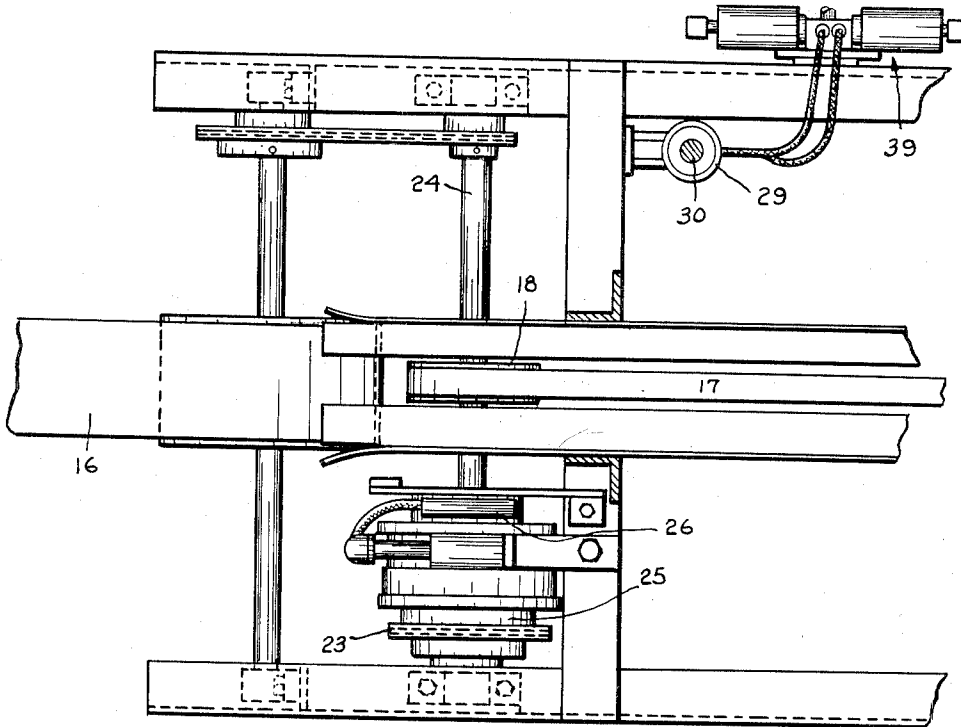


Fig. 3.

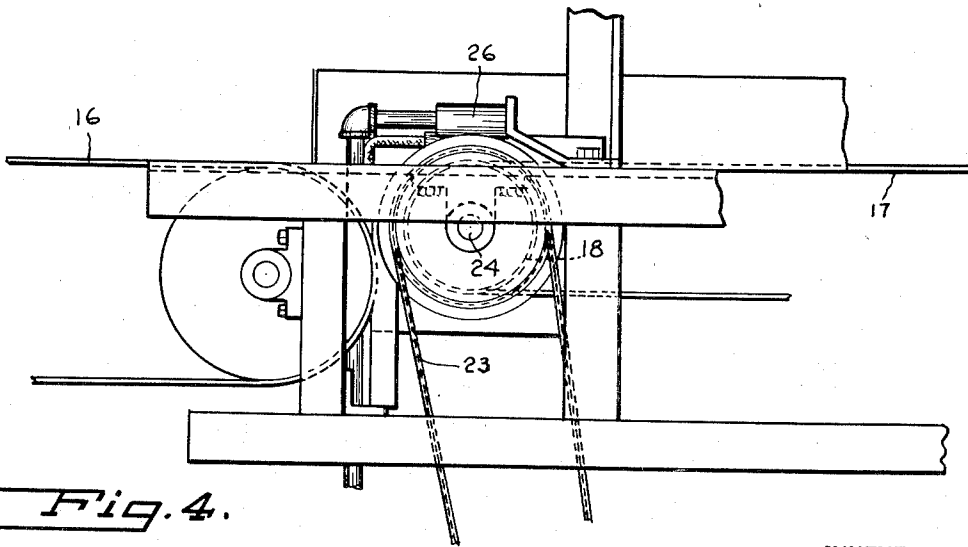


Fig. 4.

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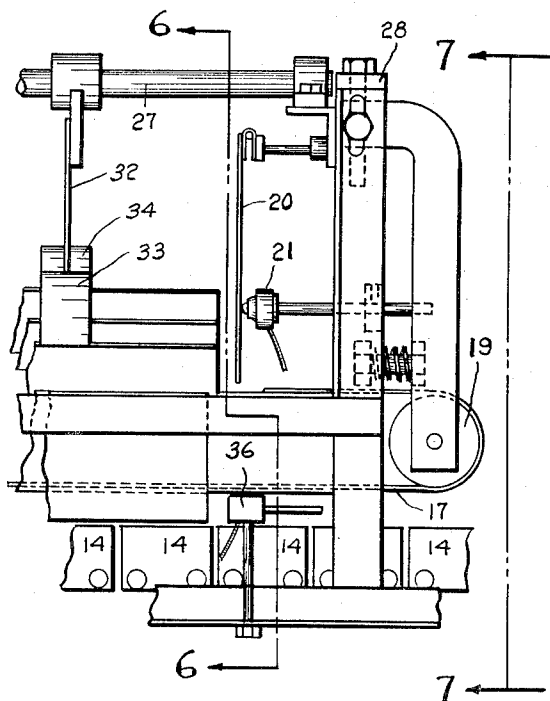


Fig. 5.

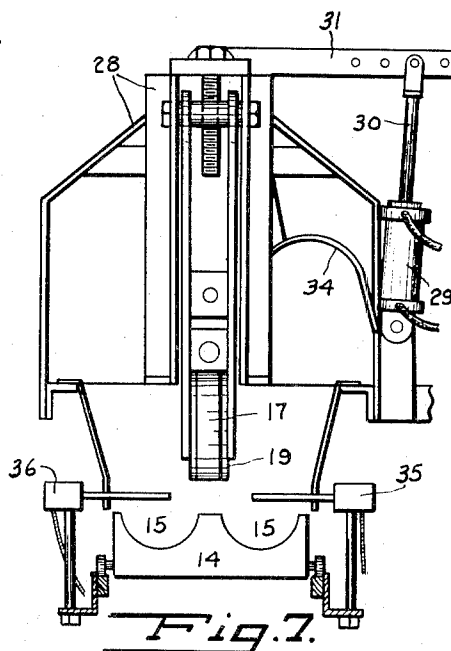


Fig. 7.

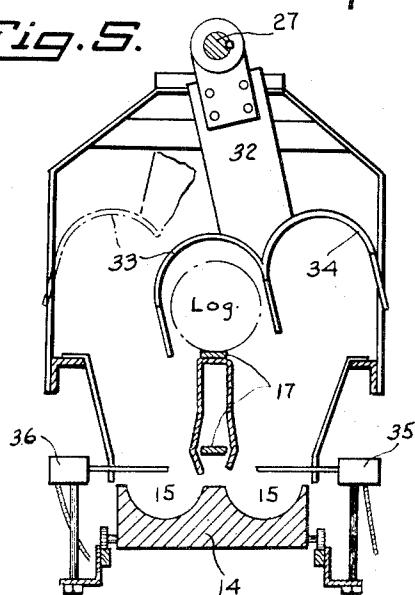


Fig. 6.

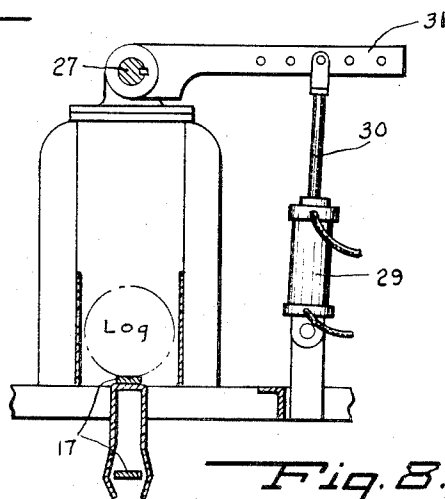


Fig. 8.

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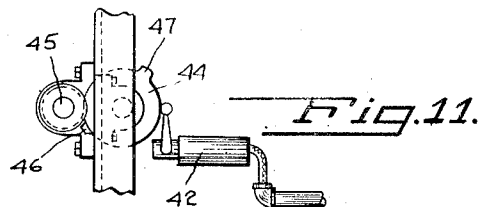
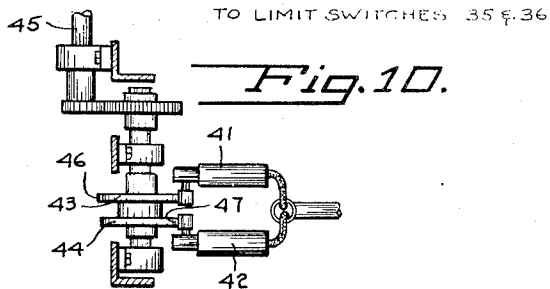
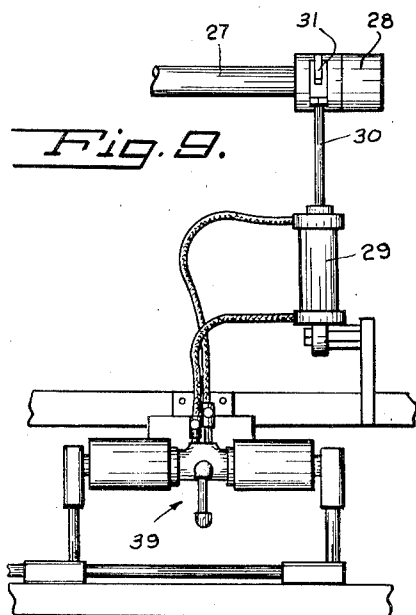
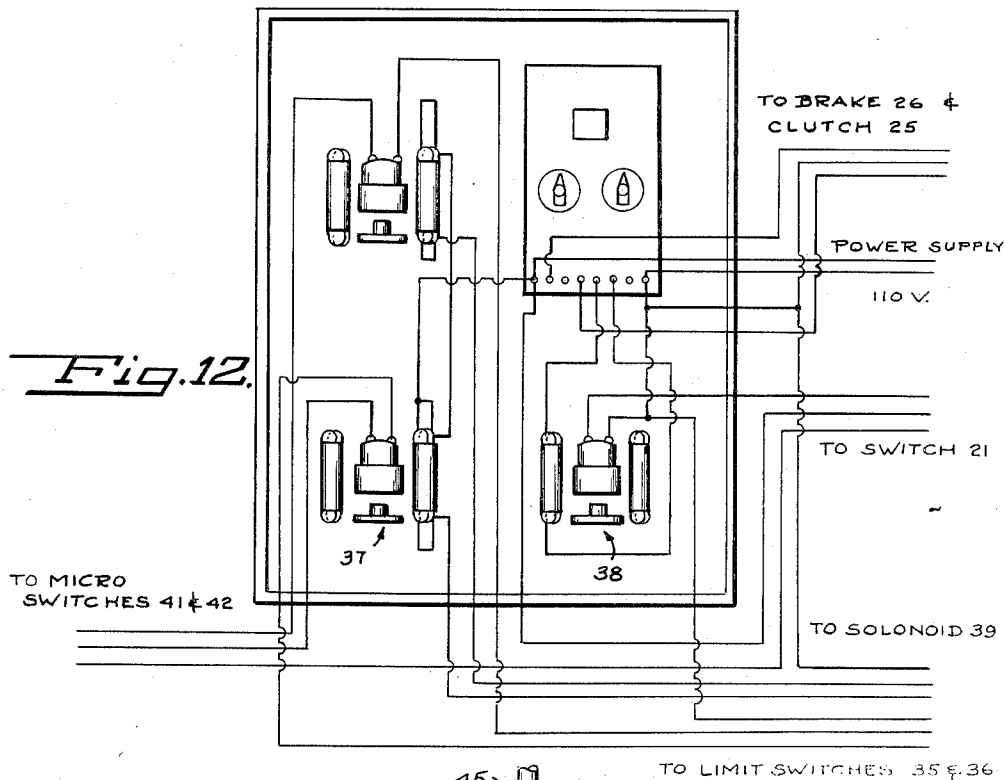
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2,779,413

AUTOMATIC LOADER

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5 Claims. (Cl. 164—61)

This invention relates to automatic feeding mechanisms and has particular reference to a new and improved apparatus for automatically feeding logs of rolled paper or the like to the carrier of an automatic cutting machine.

An object of the invention is to provide a new and improved feeding apparatus for automatic cutting machines or the like.

Another object is to provide an apparatus of the type set forth which is adapted for automatically supplying logs to the carrier and adapted to carry logs in parallel spaced relation.

Another object of the invention is to provide new and improved means for automatically controlling the operation of said carrier whereby said carrier will not operate until a pair of logs are placed thereon in operative position.

Another object is to provide a new and improved arrangement whereby logs may be carried to position over the feed carrier and then deflected into the proper portion thereof.

Another object is to provide new and improved automatically actuated switch control means for an apparatus of the type set forth.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings. It will be understood that changes may be made in the details of construction and arrangement of parts shown and described, as the preferred form has been given by way of illustration only.

Referring to the drawings:

Fig. 1 is a top or plan view of an automatic cutting machine embodying the invention;

Fig. 2 is a side view thereof;

Fig. 3 is a fragmentary top view thereof on an enlarged scale;

Fig. 4 is a fragmentary side view on an enlarged scale;

Fig. 5 is another fragmentary side view on an enlarged scale;

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5 looking in the direction of the arrows;

Fig. 7 is a view taken on line 7—7 of Fig. 5, looking in the direction of the arrows;

Fig. 8 is a sectional view taken on line 8—8 of Fig. 1, looking in the direction of the arrows;

Fig. 9 is a fragmentary view taken on line 9—9 of Fig. 1, looking in the direction of the arrows;

Fig. 10 is a plan view of the automatic operating mechanism;

Fig. 11 is a side view of the apparatus of Fig. 10; and Fig. 12 is a schematic view of the control panel.

Referring more particularly to the drawings wherein similar reference characters designate corresponding parts throughout, the apparatus shown in Figs. 1 and 2 comprises an automatic cutting machine for cutting logs of rolled paper or the like into sections of desired length. This automatic cutting machine arrangement is the subject of my application Serial Number 331,892, filed Jan-

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uary 19, 1953 and now Patent No. 2,752,999 to which reference is made for any further desired description. This machine comprises broadly a cutter comprising a carriage 10 on which is pivotally mounted rotary blade 11 adapted to be rotated by means of motor 12 and carriage 10 is adapted to be oscillated into and out of cutting position.

The logs to be cut are carried by the endless carrier 13 comprising a plurality of spaced sections 14 each having a pair of depressions 15 whereby a pair of logs are carried in parallel spaced relation and fed simultaneously to the cutter which cut between adjacent supports 14, as shown in Fig. 2.

By means of a Geneva wheel drive or other suitable drive, the carrier 13 is advanced intermittently and stopped during the cutting operation after which it is advanced to carry a new section into cutting operation.

The feeding arrangement shows an endless belt or other member 16 which may be so positioned as to carry logs from other apparatus such as the rolling apparatus whereby logs will be fed directly from the rolling machine to the cutting machine.

Aligned with a belt 16 is an endless belt or carrier 17 on the rollers 18 and 19 and belt 17 is positioned over the center of carrier 13 whereby logs from belt 16 are automatically carried by belt 17 into a position over the center of carrier 14 until the forward end of the log engages pivoted stop plate 20 which is then pivoted to actuate switch 21.

The belt 17 is adapted to be driven by motor 22 through chain drive 23 which engages a sprocket on shaft 24 and is adapted to drive pulley 18 which is on shaft 24 subject to the control of magnetic clutch 25 and magnetic brake 26.

Above the center of carrier 13 and extending parallel therewith is shaft 27 mounted for pivotal movement in supports 28 and adapted to be pivoted in either direction by double acting pneumatic cylinder 29 in which is positioned ram 30 on the end of which is a piston. Ram 30 is connected at its free end to lever 31 which is rigidly connected at its opposite end to shaft 27 whereby turning of lever 31 by ram 30 and cylinder 29 will effect pivotal movement of shaft 27.

Rigidly mounted on shaft 27 is the log positioning apparatus comprising the depending supports 32 which are rigidly connected to shaft 27 and adapted to pivot therewith. Adjacent the lower ends of supports 32 is secured the log deflecting or positioning mechanism having the pair of log receiving portions 33 and 34 adapted to substantially enclose a log on belt 17 and when pivoted upon pivoting of shaft 27 by cylinder 29 and ram 30 to deflect the log into a respective one of the log receiving portions 15 of carrier 13. The shaft 27 is adapted to be pivoted or oscillated alternately in opposite directions whereupon a log will be enclosed by each of the deflecting portions 33 and 34 successively and said portions will alternately deflect the logs toward its respective side whereby each of channels 15 of carrier 13 will be loaded alternately.

Limit switches 35 and 36 connect through relays 37 and 38 respectively to double acting solenoid operated four way valve 39 to control cylinder 30 and engage logs in their respective channels 15 to prevent a new log being dropped or deflected into either of channels 15 until the prior log in that channel has completely passed its respective limit switch.

Plate 20 acts as a locator and trim set for each new log and also controls the movement of new logs on belt 17 by controlling motor 22 through switch 21 which is connected to two of the relays to engage brake 26 and disengage clutch 25 to prevent the advancement of additional

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logs and to engage clutch 25 and disengage magnetic brake 26 to allow the feeding of additional logs.

The micro switches 41 and 42 are provided for preventing a new log from dropping into position in channel 15 while conveyor 13 is in motion.

The switches 41 and 42 are controlled by cams 43 and 44 which are operatively connected to shaft 45 which actuates the Geneva wheel for intermittently advancing carrier 13. The switches 41 and 42, one of which is provided for each of the channels 15, only make contact when engaged by raised portions 46 and 47 on said cams respectively.

In operation, logs are fed by belt 16 to belt 17 by which a log is advanced until it contacts plate 20 and thereby actuates switch 21 which through engagement of brake 26 and disengagement of clutch 25 prevents further feeding of logs until the log engaging plate 20 is placed in one of the channels 15 in carrier 13. This is accomplished by pneumatic cylinder 29 and ram 30 unless one of the limit switches is engaging a log in a channel in conveyor 13, and when one of said limit switches is not engaging a log, the log on belt 17 and engaging plate 20 is deflected into said free channel 15 on conveyor 13 by which the logs are brought into cutting position.

The logs are deflected into each of channels 15 alternately as the shaft 27 is pivoted first in one direction and then in the other in the manner above described.

From the foregoing, it will be seen that I have provided new and improved means for accomplishing all of the objects and advantages of the invention.

I claim:

1. In a device of the character described, a carrier for feeding logs to a cutter or the like, said carrier having a pair of spaced log carrying portions and means for automatically directing logs into either of said log carrying portions, said means comprising an endless member for positioning logs above the center of said carrier and deflector means for directing logs into each of said log carrying portions of said carrier, said deflecting means comprising a pivotable member having a pair of log engaging portions and means for pivoting said deflecting member, a stop plate aligned with said deflecting member and adapted to be engaged by a log and switch means adapted to be actuated by said stop plate to effect actuation of said deflecting member.

2. In a device of the character described, a carrier for feeding logs to a cutter or the like, said carrier having a pair of spaced log carrying portions and means for automatically directing logs into either of said log carrying portions, said means comprising an endless member for positioning logs above the center of said carrier and deflector means for directing logs from said endless member into each of said log carrying portions of said carrier alternately, said deflecting means comprising a rod pivotally mounted above said carrier, a pair of log engaging members mounted on said rod for pivotal movement thereby and means for effecting pivotal motion of said rod in opposite directions alternately.

3. In a device of the character described, a carrier for feeding logs to a cutter or the like, said carrier having a

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pair of spaced log carrying portions and means for automatically feeding logs alternately to each of said log carrying portions, said means comprising an endless member positioned above the center of said carrier, a stop plate aligned with said endless member and adapted to be engaged by a log carried by said endless member, log deflecting means for deflecting a log into one of said log carrying portions of said carrier and switch means adjacent said stop plate and adapted to be actuated upon engagement of a log with said stop plate to effect actuation of said deflecting means and limit switch means on said carrier and adapted to prevent the feeding of a log thereto until a log in said carrier passes said switch means.

4. In a device of the character described, a carrier for feeding logs to a cutter or the like, said carrier having a pair of spaced log carrying portions and means for automatically feeding logs to said log carrying portions, said means comprising an endless member positioned above the center of said carrier, a stop plate aligned with said endless member and adapted to be engaged by a log carried by said endless member, log deflecting means for deflecting a log from said feeding means to one of the log carrying portions of said carrier and switch means adjacent said stop plate and adapted to be actuated upon engagement of a log with said stop plate to effect actuation of said deflecting means, a cutter for cutting said log into sections, means for advancing said carrier toward said cutter intermittently and switch means for preventing deflecting of a log into said carrier during the advancement of said carrier.

5. In a device of the character described, a carrier for feeding logs to a cutter or the like, said carrier having a pair of spaced log carrying portions and means for automatically feeding logs to said log carrying portions, said means comprising an endless member positioned above the center of said carrier, a stop plate aligned with said endless member and adapted to be engaged by a log carried by said endless member, log deflecting means for deflecting a log from said feeding means to one of the log carrying portions of said carrier and switch means adjacent said stop plate and adapted to be actuated upon engagement of a log with said stop plate to effect actuation of said deflecting means and limit switch means on said carrier and adapted to prevent the feeding of a log thereto until a log in said carrier passes said switch means, a cutter for cutting said log into sections, means for advancing said carrier toward said cutter intermittently and switch means for preventing deflecting of a log into said carrier during the advancement of said carrier.

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