Dec. 5, 1967 H. J. COLE 3,356,115

DEVICE FOR SPLITTING LOGS

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Fig. 1.

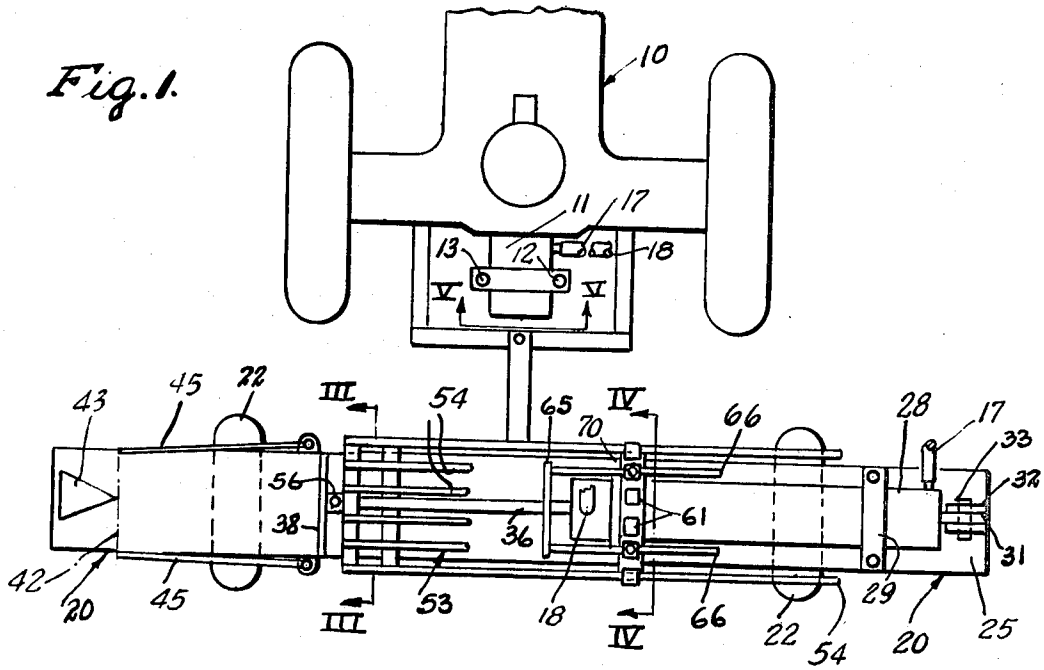
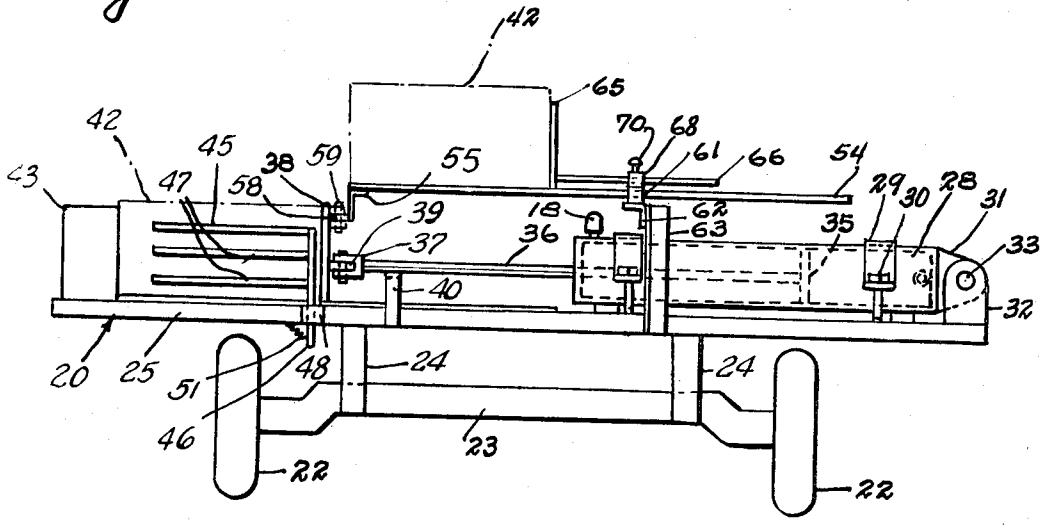


Fig. 2.



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Fig. 3

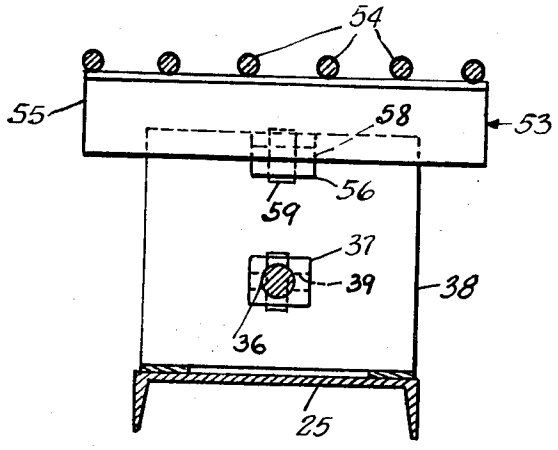


Fig. 4.

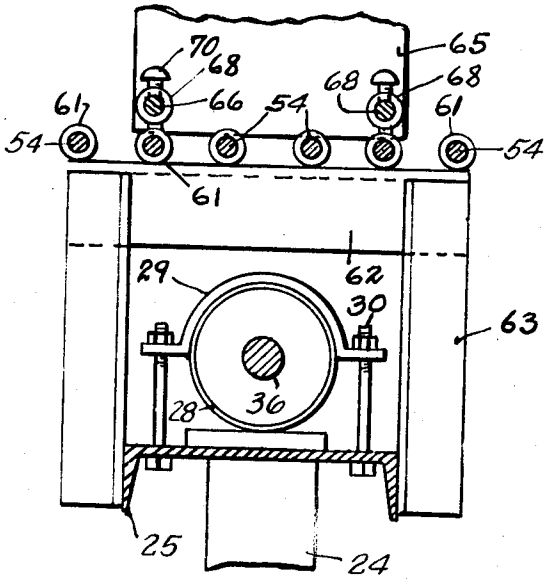
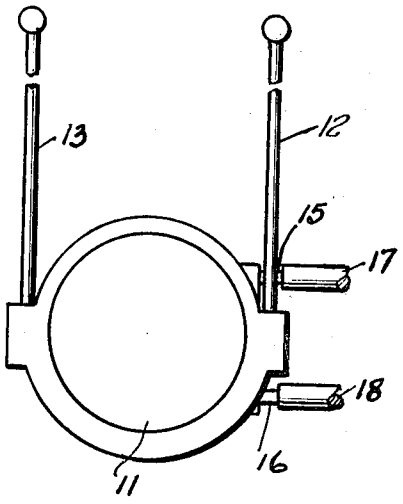


Fig. 5.



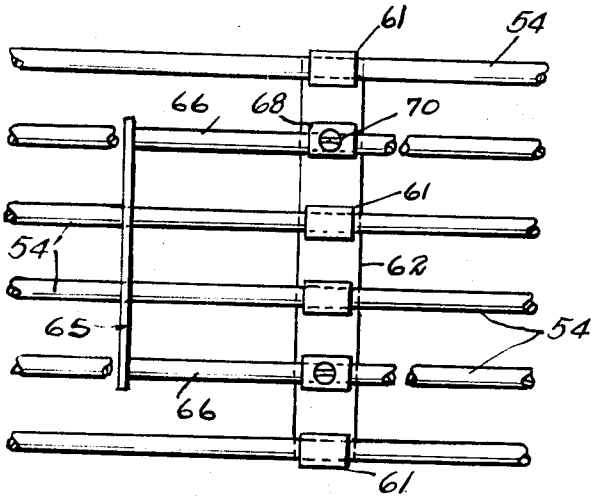


Fig. 6.

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DEVICE FOR SPLITTING LOGS

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5 Claims. (Cl. 144—193)

ABSTRACT OF THE DISCLOSURE

An apparatus for splitting logs, where a log is placed on a frame with one end of the log positioned adjacent the cutting edge of a member for splitting the log and the other end of the log engaging a pusher plate actuated by power of a hydraulic system which forces the log thru the splitting member. A rack for carrying a second log in readiness to be split is positioned above and secured to the pusher plate for providing sliding movement of the rack. The travel of the pusher plate carries the rack over the area where the first log was split and on reversing initial travel, the log on the rack is positioned on the frame for splitting.

This invention relates to a device for splitting logs and it has particular relation to an apparatus for splitting logs employing hydraulic pressure.

The primary object of the invention is the provision of a log splitter, hydraulically operated and employed in combination with a tractor having a hydraulic system, including a pump thereon.

Another object of the invention is the production of a machine of the character mentioned which will be durable and of economical construction and through the medium of which splitting of wood may be affected with ease. These and other objects will be apparent from the description and the drawings.

It is obvious that hand splitting of logs entails a tedious, slow and back breaking operation. It is costly and time consuming to any business which splits logs as a step of manufacturing operation. In the present invention, I have provided a mobile device that may be easily moved from place to place as required. The invention, in its simplest form provides a horizontally extending frame mounted on a carriage or as commonly known the running gears of the device. Mounted at one end of the frame is a hydraulic cylinder having an inlet and return fluid connections which are mounted to the hydraulic system of the tractor. The cylinder is provided with a piston to which is secured a pusher rod having mounted thereon a plate adapted to engage an end of a log to be split, the other end of the log engaging a wedge shaped member mounted on the end of the frame, opposite the end of the frame on which the cylinder is mounted. In operation the cylinder is actuated from the hydraulic system of the tractor. The pusher plate engages the end of the log and forces it smoothly along the wedge, thus splitting the log. For a better understanding of the invention references may now be had to the accompanying drawings forming a part of this application together with the following description, in which:

FIG. 1 is a plan view of the invention employed in combination with a tractor, portions omitted for the sake of clearness.

FIG. 2 is a side elevation of a log splitter employed in the invention.

FIG. 3 is a sectional view of the invention, taken along line 3—3 of FIG. 1.

FIG. 4 is a sectional view of the invention, taken along line 4—4 of FIG. 1.

FIG. 5 is an end elevational view of a hydraulic pump employed in the invention and

FIG. 6 is a fragmentary plan view of the sectional view of FIG. 4.

In practicing the invention a tractor **10** having a pump **11** as a part of a hydraulic system is provided. The pump is provided with operating levers **12** and **13** together with an inlet connection **15** together with a return connection **16** to which are connected hoses **17** and **18** respectively. The hoses are connected to a log splitter **20**, as will hereinafter be described.

The log splitter **20** forming a mobile unit is provided with a pair of wheels **22**, one each mounted on an axle formed on each end of a member **23** having uprights supports **24** mounted on the member **23** and rigidly supports a frame **25** in a horizontal position in line with the center of the wheels. Mounted centrally of the frame **25** adjacent one end thereof, a hydraulic cylinder **28** is provided. The cylinder is secured against vertical movement by clamp members **29** and bolts **30** secured to the frame **25**. A lug **31** formed on the end of the cylinder engages a U-shaped member **32** and the cylinder is held against horizontal movement by means of a pin **33** extending through the members **31** and **32**.

The cylinder **25** is provided with a piston or ram **35** secured to one end of a piston rod **36**. The ram is actuated by fluid pressure through the inlet hose **17** and return line **18** extending from the pump **11** to the cylinder **28**. Rigidly mounted on the other end of the piston rod **36** is a clevis **37** which engages a lug **39** mounted on a pusher plate **38**. Fitted to the underside of the piston rod, best shown in FIG. 2 is a guide member **40** which fits over the frame **25** thus maintaining the piston rod in alignment. The pusher plate engages a log **42** to be split. The log is positioned to engage the edge of a splitting element or wedge shaped member **43** mounted on the end of the frame **25** opposite the end of the frame that supports the cylinder.

A pair of members **45** mounted on each side of the frame for pivotal movement to hold the log **42** in position against lateral movement, to retain the log in position for splitting. Each of the members **45** is formed with a vertical rod **46** and horizontal rods **47** rigidly secured to the rod **46**. The pivotal motion is provided by the rod **46** mounted in a bearing member **48** rigidly secured to the frame **25** with the rod extending below the member **48**. A spring member **51** secured to the rod **46** adjacent the lower end thereof is connected to the frame **25** to members **45** in contact with the log **42**.

A rack **53** horizontally positioned above the frame **25**, as shown in FIG. 2 is provided to carry a second log **42** in readiness and in position above the frame for splitting. The rack **53** is formed of a plurality of round bars **54** rigidly secured at one end thereof to an angle **56** supported adjacent the top of the pusher plate **38** by means of a clevis **56** secured to the angle **55** and engaging a lug **58** formed as a part of the pusher plate and held in position by a pin **59**. The bars **54** are of such length as to permit travel of the rods the distance required to split the log in operation. The bars **54** are slidably mounted through bearing members **61** rigidly supported on an angle **62** positioned about intermediate the ends of the bars, with the angle being supported on the frame **25** by means of members **63** mounted on the sides of the angles. A plate **65** extending upward from the bars **54** is positioned for adjustable movement, to maintain the second log in position. Rods **66**, best shown in FIG. 4, slidably mounted through bearing members **68** are formed for adjustment with relation to the plate **65** and the length of the log **42**. After adjustment the rods **66** are held securely in position by means of stud bolts **70** threaded through the bearings.

In operation of the aparatus, as shown in FIG. 1, the lever **12** of the hydraulic system **11** is moved permitting

fluid under pressure to enter the hydraulic cylinder through hose **17**. Pressure is exerted on the piston, through the piston rod to the pusher plate forced against the log **42**, the log is thereby forced through the wedge and split. The travel of the pusher plate carries with it the rack **53** in a position directly over the area of the log that was split. With the movement of the lever **13** the pressure in the system is reversed with the piston moving in reverse of the initial travel, thereby allowing the rack **53** to travel with the pusher plate and piston. In this movement, the log on the rack **53** is dropped therefrom to the position on the frame adjacent the wedge, ready for cutting during the next cycle.

From the foregoing it will be apparent that I have provided a device for splitting logs that is simple in construction, low in cost and efficient in operation. Moreover, it is apparent that I have provided a new and useful contribution to the art, one that is needed in this particular field and that the many advantages and uses of the invention will be apparent to those familiar with the art. It is to be understood that various modifications may be made without departing from the scope of the appended claims.

What I claim:

1. In combination with a tractor having a hydraulic system therewith including a pump, a device for splitting logs comprising a supporting member having a frame mounted thereon, a hydraulic cylinder including a piston and piston rod mounted on the frame adjacent one end thereof, a pusher plate slidably mounted on the frame, the plate secured to an end of the piston rod, a wedge member mounted on the frame opposite the end of the frame supporting the cylinder, the wedge shaped member spaced from the pusher plate to allow an area of the frame for holding a log to be cut, a rack member positioned above the frame, the rack secured to the pusher plate adjacent the top of the plate, the rack formed to move with the travel of the pusher plate, said rack supporting a second log to be split and means operatively connected to the hydraulic pump of the tractor and the hydraulic cylinder for actuating the pusher plate forward to split the log together with means for a return of the pusher plate.

2. In combination with a tractor having a hydraulic system therewith including a pump, a device for splitting logs comprising a supporting member having a frame mounted thereon, a hydraulic cylinder including a piston and piston rod mounted on the frame adjacent one end thereof, a pusher plate slidably mounted on the frame, the plate secured to an end of the piston rod, a wedge shaped member mounted on the frame adjacent the end opposite the cylinder, a rack member positioned above the frame for supporting a log, said rack formed of an angle secured to the pusher plate adjacent the top of said plate, a plurality of bars rigidly mounted in spaced relation on the angle, the bars mounted for sliding movement in bearings secured to an angle supported on the frame intermediate the end of the bars, the rack formed to travel with the movement of the pusher plate and means operatively connected to the hydraulic pump of the tractor and the hydraulic cylinder for actuating the pusher plate forward to split the log together with means for a return of the pusher plate.

3. In combination with a tractor having a hydraulic system therewith including a pump, a device for splitting logs comprising a supporting structure having a pair of wheels mounted thereon, a frame for carrying the splitting apparatus, the frame rigidly secured to the supporting structure, a hydraulic cylinder mounted on the frame, the cylinder formed with a piston and piston rod, a pusher plate slidably mounted on the frame, the plate secured to an end of the piston rod, a wedged shape member mounted on the frame adjacent one end thereof, a rack positioned above the frame, said rack secured to the pusher plate adjacent the top thereof, the rack formed to move back and forth with the pusher plate, the rack supporting a second log to be cut and means operatively connected to the hydraulic pump of the tractor and the cylinder for actuating the pusher plate forward to split the log together with means for a return of the pusher plate.

4. In combination with a tractor having a hydraulic system therewith including a pump, a device for splitting logs comprising a supporting structure having a pair of wheels mounted thereon, a frame for supporting the splitting apparatus, said frame positioned at right angles to the track of the wheels, the frame rigidly secured to the supporting structure, a hydraulic cylinder mounted adjacent one end of the frame, the cylinder formed with a piston and piston rod, a pusher plate slidably mounted on the frame with the pusher plate secured to the piston rod on the end opposite the piston, a wedged shape member mounted on the frame at the end opposite the cylinder, a rack member positioned above the frame for supporting a second log, said rack formed of an angle secured to the pusher plate adjacent the top of said plate, a plurality of bars rigidly mounted in spaced relation on the angle, the bars mounted for sliding movement in bearings secured to an angle supported on the frame intermediate the end of the bars, the rack formed to travel with the movement of the pusher plate and means operatively connected to the hydraulic pump of the tractor and the hydraulic cylinder for actuating the pusher plate forward to split the log together with means for a return of the pusher plate.

5. In combination with a tractor having a hydraulic system therewith including a pump, a device for splitting logs comprising a supporting structure having a pair of wheels mounted thereon, a frame for carrying the splitting apparatus, the frame secured to the supporting structure, a hydraulic cylinder mounted on the frame, the cylinder formed with a piston and piston rod, a pusher plate slidably mounted on the frame, the pusher plate secured to an end of the piston rod, a wedged shape member mounted on the frame adjacent an end of the frame, a pair of brackets pivotally mounted one on each side of the frame, said structure formed to retain the log in position during the cutting operation, a rack positioned above the frame, said rack secured to the pusher plate adjacent the top thereof, the rack formed to move back and forth with the pusher plate, the rack supporting a second log to be cut and means operatively connected to the hydraulic pump of the tractor and the cylinder for actuating the pusher plate forward to split the log together with means for a return of the pusher plate.

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