United States Patent [19]

Guy

[11] **3,780,779**

[45] **Dec. 25, 1973**

[54] **LOG SPLITTING DEVICE ADAPTED TO UTILIZE POWERED PISTON ON TRACTOR**

[76] Inventor: **Richard J. Guy,** 37 Redington St., Bay Shore, N.Y. 11706

[22] Filed: **Aug. 31, 1971**

[21] Appl. No.: **176,544**

[52] **U.S. Cl.** ..... **144/193 A,** 144/2 N
[51] **Int. Cl.** **B27l 7/00**
[58] **Field of Search** ..... 144/193 R, 193 A, 144/2 N

[56] **References Cited**

UNITED STATES PATENTS

3,280,864	10/1966	Spanenberg	144/193 A
3,461,927	8/1969	Funari	144/2 N
2,820,493	1/1958	Davis	144/2 N
3,319,675	5/1967	Bles	144/193 A

Primary Examiner—Andrew R. Juhasz
Assistant Examiner—W. D. Bray
Attorney—Dean S. Edmonds et al.

[57] **ABSTRACT**

A hand portable attachment for splitting logs readily attachable to and adapted to cooperatively operate with a powered piston on a tractor or similar equipment. The attachment includes a frame detachably engageable to the equipment, a wedge mounted on the frame adjacent one end of the path of travel of the piston and holding brackets to align and steady the cylinder which carries the piston. Logs are placed between the piston and the wedge and urged against the wedge causing them to split.

3 Claims, 4 Drawing Figures

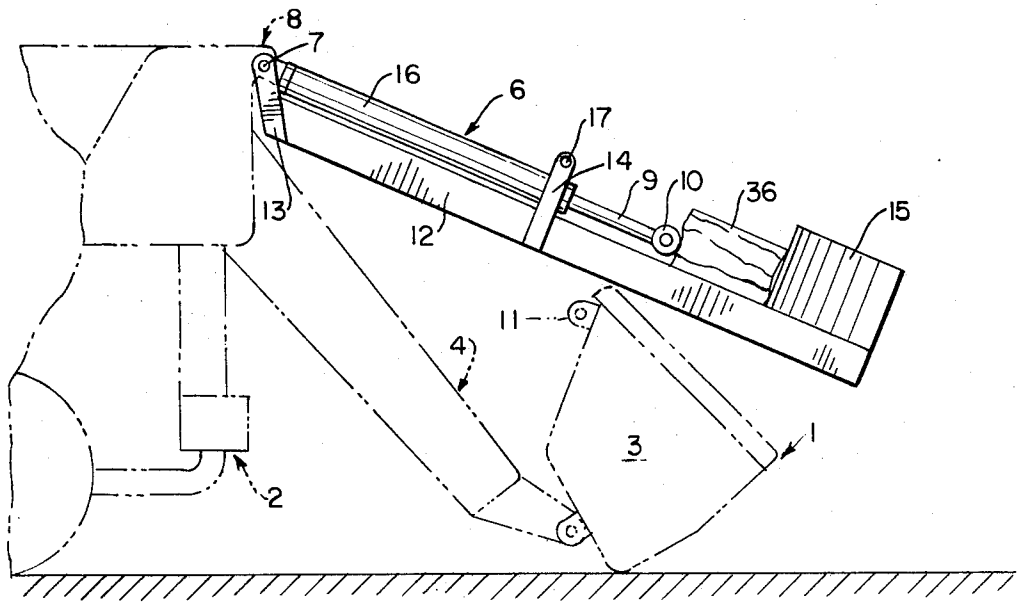


FIG. 1

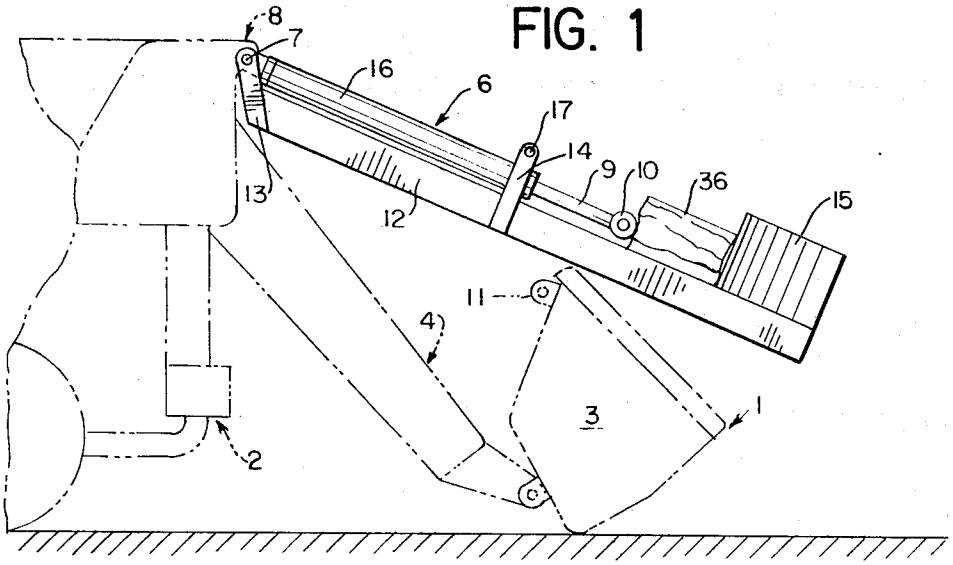


FIG. 2

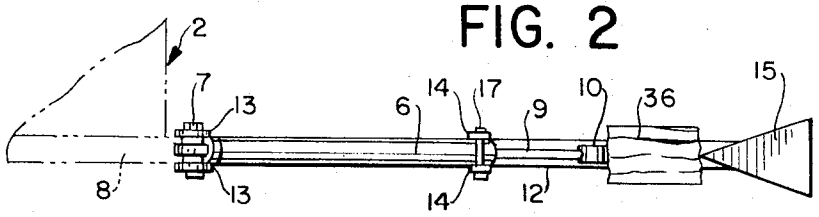


FIG. 3

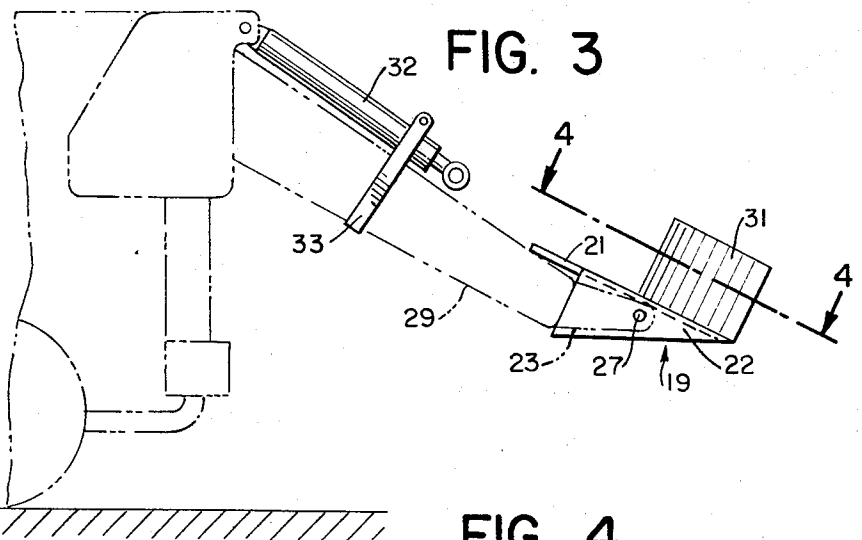
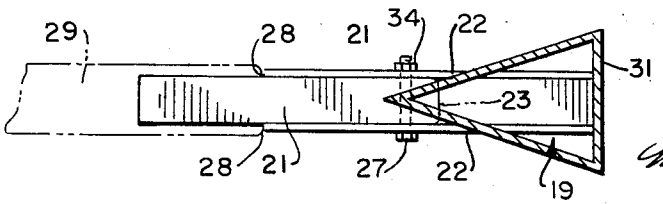


FIG. 4



INVENTOR.
RICHARD J. GUY
BY Fennie, Edmonds,
Morton, Taylor & Adams
ATTORNEYS

LOG SPLITTING DEVICE ADAPTED TO UTILIZE POWERED PISTON ON TRACTOR

BACKGROUND OF THE INVENTION

Power-operated log splitters including motors and the related equipment for developing hydraulic pressure to move a hydraulic piston have been in use for a number of years. These units are large and relatively expensive in that they include an internal combustion engine, a hydraulic system and a frame of sufficient strength to support these components.

The present inventive device is a compact, portable and inexpensive attachment which is easily hand carried for use and storage. The attachment, when positioned and attached to the equipment having a powered piston, provides a log splitting apparatus capable of performance equal to the substantially more complicated and expensive log splitters which have been commercially available for some years. The device is readily attachable to any item of equipment which has a powered piston that can be readily disengaged from the unit or object it normally powers. For example, tractors with hydraulically operated front end loaders are particularly well suited since a hydraulic piston is easily detached from the bucket it normally powers.

SUMMARY OF THE INVENTION

The present invention is a device for engagement to, and cooperating operation with, an item of equipment having a power operable piston and cylinder unit which unit is easily disengageable from the object it normally powers and is assessable for ready engagement and disengagement of the present device.

Broadly, the device comprises a frame which is connectable to the equipment adjacent the piston and cylinder unit using a readily detachable fastener, holding means for aligning the piston and cylinder with the frame and wedge means secured to the frame a sufficient distance from the aligned with the path of the piston to permit the piston to split a log interposed between the piston and wedge means.

It is a feature of the invention that the device may be readily adapted for attachment to various types of farm and industrial equipment including road building equipment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings, FIGS. **1** and **2** show a preferred embodiment adapted to be attached to a hydraulic system of a front end loader **1** of a farm tractor **2.** Loader **1** includes bucket **3,** spaced-apart arms **4** and a hydraulic piston-cylinder unit **6.** In the particular loader arrangement shown, two arms **4** are employed, one on each side of the hydraulic piston-cylinder unit **6** which is centered between the arms and under normal operation engages the center of the bucket at bracket **11.**

Piston-cylinder unit **6** is attached to the tractor **2** by fastener **7** passing through upper bracket **8.** At the other end of unit **6,** piston **9** is normally pivotably secured to bucket bracket **11** through it cylindrically-shaped bearing **10.** FIG. **1** shows piston **9** detached from the bucket with the device of present invention pivotable mounted about fastener **7** through two upstanding spaced-apart ears **13.** The weight of frame **12** may rest on bucket **3,** as shown, or be supported in any other suitable manner.

Frame **12** also includes upstanding guide pieces **14** which are preferably secured to the frame and spaced apart sufficiently to hold cylinder **16** against any substantial lateral movement so that as piston **9** reciprocates it remains in a path parallel to and above the frame. Ears **13** and guide pieces **14** are preferably welded to the sides of frame **12.** Tie-bolt and nut **17** passes through the guide pieces **14** to limit any upward movement of the cylinder **16.** Splitting wedge **15** is secured to frame **12.**

Turning to FIGS. **3** and **4,** another embodiment of the invention is shown which is adaptable for a front end loader which has a piston-cylinder arrangement above each bucket arm. The frame **19** in this embodiment is connected to the end of one of the bucket arms and the piston-cylinder guide means is a separate element adapted to be mounted on the bucket arm.

Frame **19** comprises a base plate **21** and triangular side pieces **22** which are shaped and dimensioned to slide over and be attached to the narrowed end section **23** of bucket arm **24.** A nut and bolt fastener **26** is positioned through hole **27** in end section **23.** Side pieces **22** are dimensioned and positioned to abut the end surfaces **28** of arm section **29** to prevent rotation of frame **19** around the axis of fastener **26.** Rotation of the frame may also be prevented by detachable securing base plate **21** to the arm by bracket, strap or other suitable means. Wedge **31** is secured to frame **19.**

Piston and cylinder unit **32** is held in alignment on the top surface of arm section **29** using U-shaped bracket **33** which is sufficiently resilient to be pinched against the sides of section **29** by nut and bolt fastener **34.**

In the operation of each device, a log **36** is placed between the end of the piston and the wedge and the hydraulic controls of the tractor (not shown) are operated to move the piston until the log splits into two sections. The piston is then moved away from the wedge and the process repeated for additional logs. Upon completion of the log splitting operation, the device is removed and the tractor bucket, arm and piston-cylinder unit reassembled for normal operation of the tractor.

The hydraulic controls at the driver's seat on the tractor can be operated from the front of the tractor by use of suitable remote control arrangements such as ropes, linkages or other suitable devices.

I claim:

1. A log splitting device adapted to be readily mounted on a machine which device together with the machine are capable of performing a log splitting operation in which the machine includes a piston-cylinder unit which is readily disengageable from the object on the machine which the piston normally causes to move comprising

1. holding means attachable to the machine for performance of the log splitting operation and thereafter removable from the machine, said holding means positioned, when attached, for holding the piston-cylinder unit after the unit's disengagement from the object the piston normally causes to move, to assure that the piston moves in substantially the same paths as it is moved under normal loading;
2. frame means attachable to the machine for performance of the log splitting operation and thereafter removable from the machine, said frame means

positioned, when attached, adjacent the disengaged piston; and

3. wedge means permanently connected to the frame means and positioned adjacent one end of the path of the piston to split a log interposed between the piston and the wedge means.

2. The device of claim **1** in which the holding means are secured to the frame means.

3. The device of claim **1** in which the holding means includes bracket means which are engageable with said machine.

* * * * *