P. F. LUETH.

INDEPENDENT DIRECT ACTING SKID LIFT.

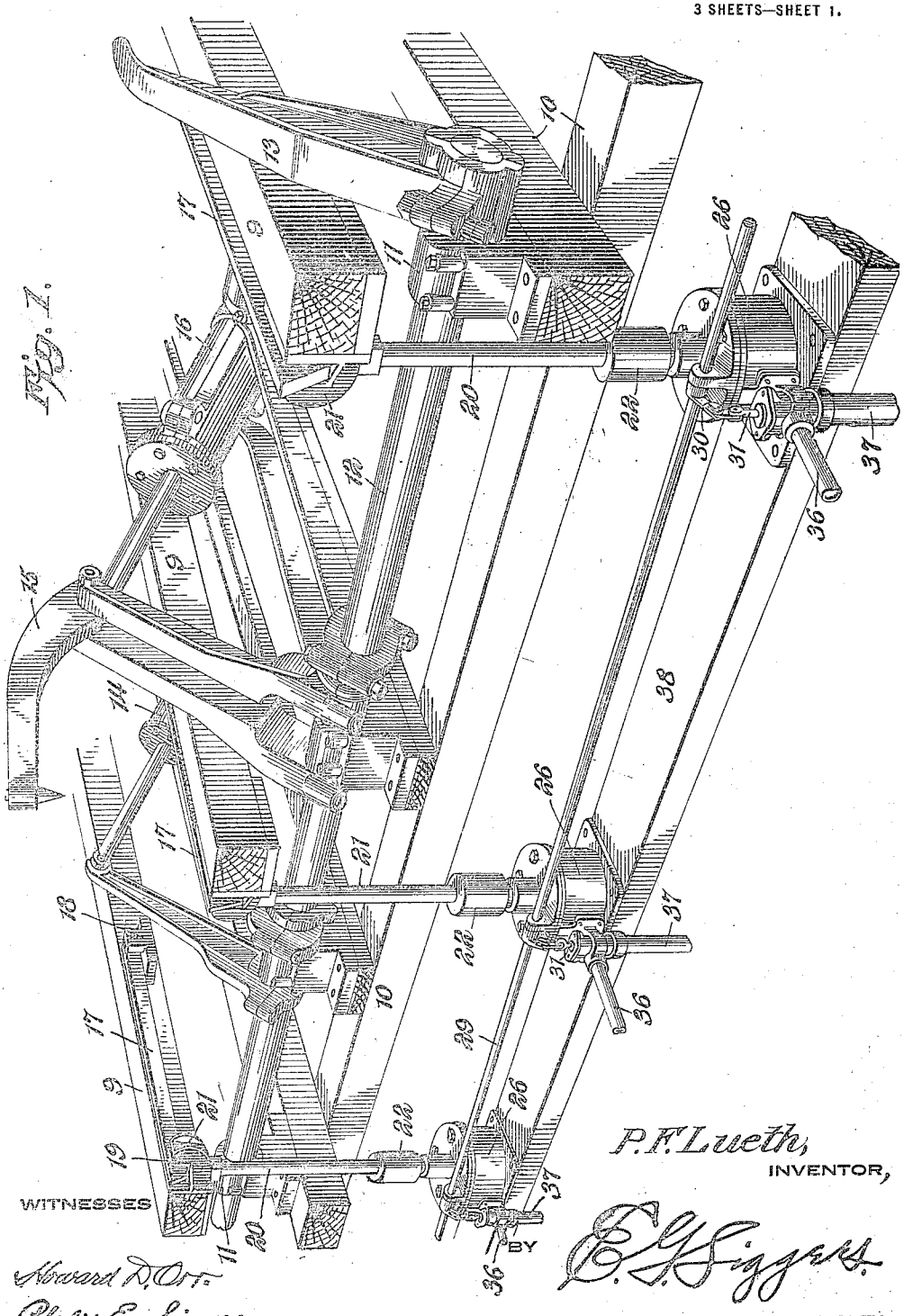
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1,436,623.

Patented Nov. 21, 1922.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

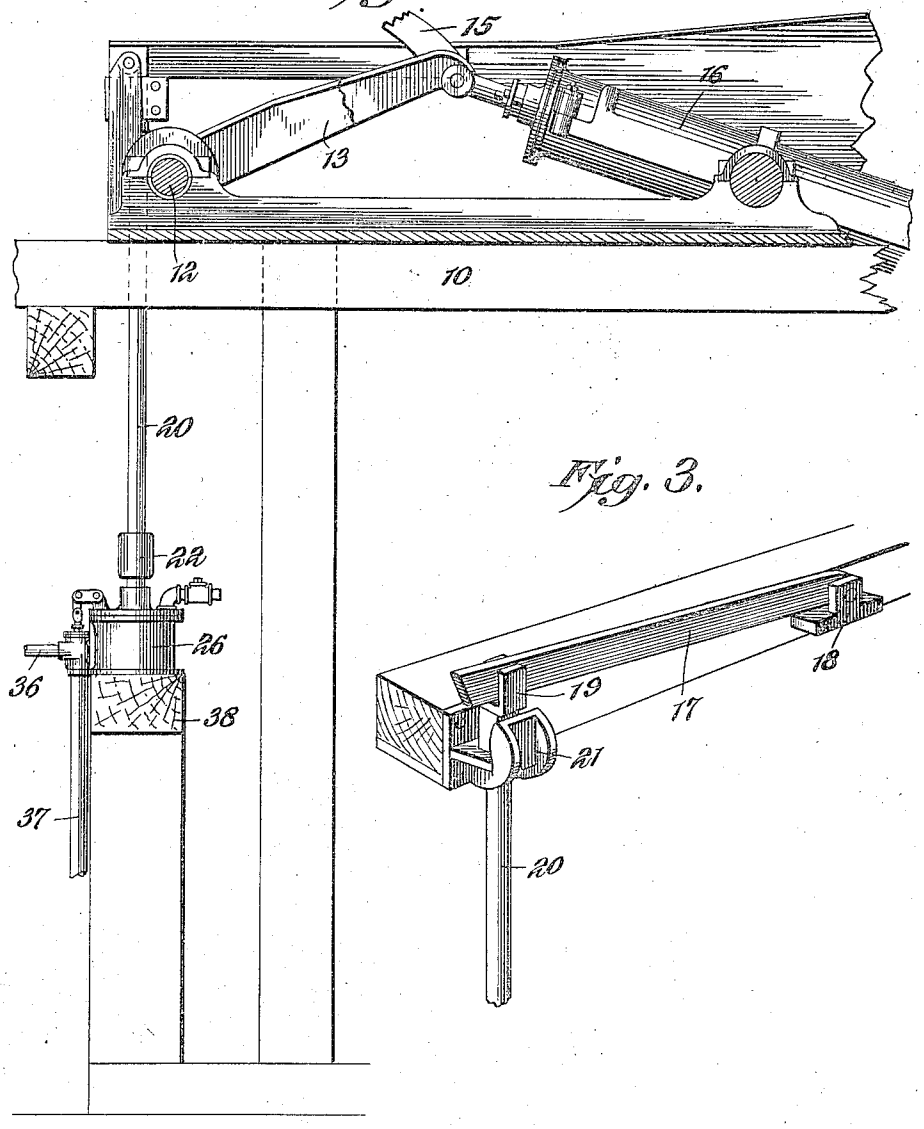


Fig. 3.

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3 SHEETS—SHEET 3.

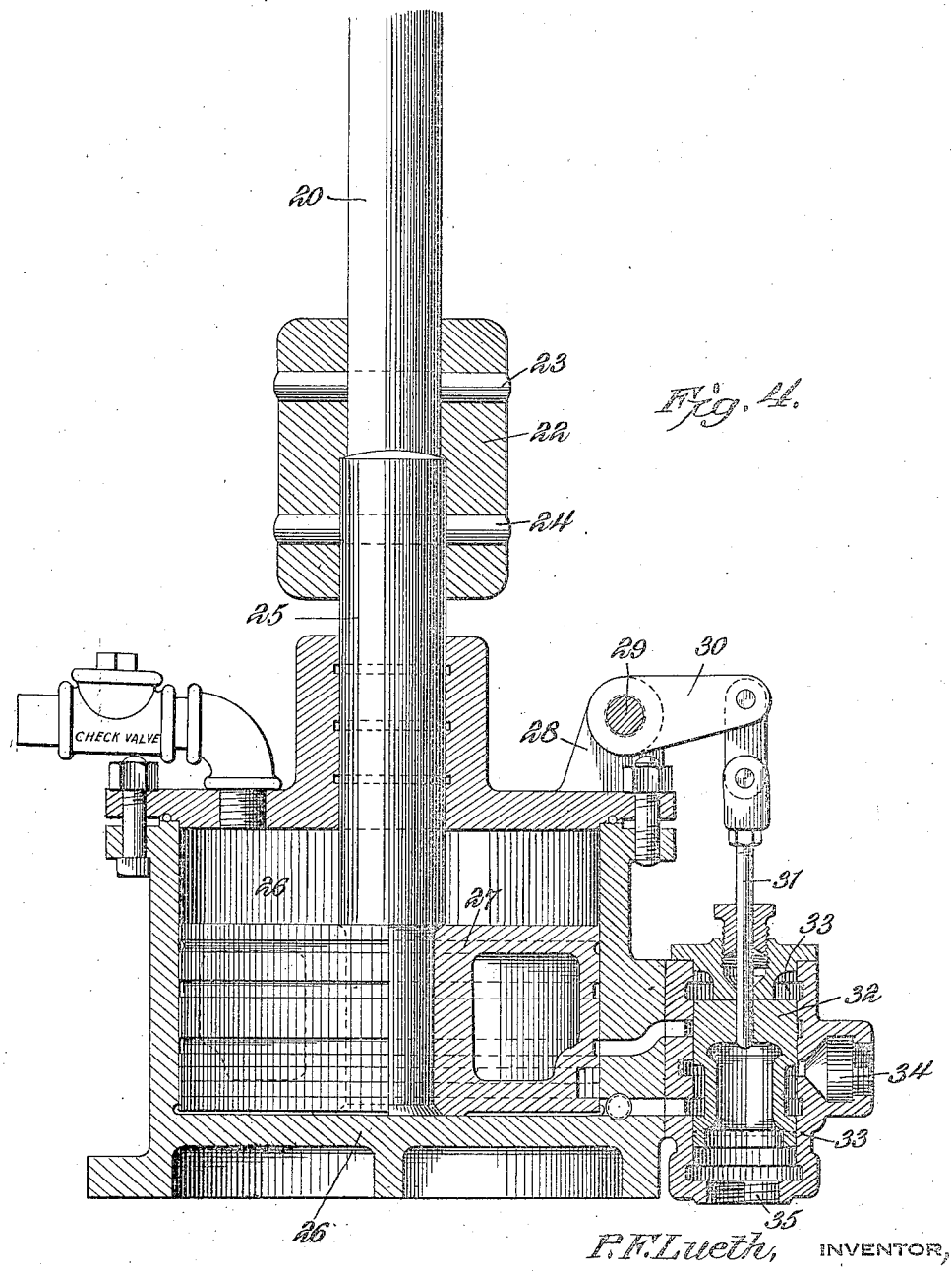


Fig. 4.

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UNITED STATES PATENT OFFICE.

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INDEPENDENT DIRECT-ACTING SKID LIFT.

Application filed August 9, 1920. Serial No. 402,397.

To all whom it may concern:

Be it known that I, PAUL F. LUETH, a citizen of the United States, residing at Everett, in the county of Snohomish and State of Washington, have invented a new and useful Independent Direct-Acting Skid Lift, of which the following is a specification.

This invention relates to means for raising skids used in connection with log turners.

The principal objects of the invention are to provide a skid lift which is entirely independent of the log turner and which is direct acting, or in other words, which has the power means connected directly with the skid.

Other objects of the invention will be made clear as the description is proceeded with.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing in the drawings, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Fig. 1 is a perspective view of the invention as applied to a log turning mechanism, parts not essential to the understanding of the invention being omitted.

Fig. 2 is a transverse cross-sectional view of the same with distant parts omitted.

Fig. 3 is a detail perspective of one of the skid bars and its connections with the skid timber and the lifting rod.

Fig. 4 is a cross-section on an enlarged scale showing the construction of the cylinder, valve chamber, and valve forming a part of the means for lifting each skid bar.

The numeral 9 denotes the skid timbers which help to form the log deck of a log turning machine. A frame 10 comprising timbers parallel and at right angles to the skid timbers supports the various parts of the log turning machine in operative relation. A plurality of bearings 11 are mounted on the frame 10 for a rock shaft 12 which carries one or more log loading arms 13. The rock shaft 12 is turned in its bearings by means of the rocking engine cylinder 14 connected with the rock shaft in any desirable way. The rock shaft also carries a log turning hook 15 actuated by the steam cylinder 16. All the parts so far described are common to log turning machines and form no part of the present invention.

A plurality of skid bars 17 are pivotally mounted at one end upon hinged brackets 18 secured to the various skid timbers 9. The free ends of the skid bars 17 rest within socket castings 19 which are slidable vertically through guide castings 21. Each socket casting 19 is secured to the upper end of the lift rod 20 and has a socket to receive said rod and a slot at the opposite side to receive the skid bar.

As best seen from Fig. 4, each lift rod 20 is secured by means of a pin 23 to a cross-head 22, which cross-head is in turn secured by means of a pin 24 to a piston rod 25. A steam cylinder 26 of great capacity receives a piston 27 secured to the lower end of the piston rod 25. The piston 27 has a very short stroke within the cylinder as Fig. 4 indicates. In the top head of each cylinder a pipe tap is provided and an elbow fits into the same. A check valve is united to the elbow so that on the up-stroke of the piston the valve is closed, while on the down-stroke the air is admitted to the top of the piston, preventing a vacuum within the cylinder. Mounted upon the upper end of each cylinder 26 is a bracket 28 providing a bearing for a valve control rod 29. The rod 29 is common to all the cylinders and is provided for the purpose of simultaneously actuating the valves of the cylinders. The control rod 29 carries a plurality of rocker arms 30 provided at the brackets 28, which rocker arms are connected with the valve stem 31 operating a valve 32 in the valve chamber 33. A live steam port 34 and an exhaust port 35 are provided for the valve chamber 33. Suitable ports are also provided connecting the valve chamber with the steam cylinder, but the specific valve, piston and valve chamber form no part of the present invention.

All the cylinders 26 are mounted upon a timber 38 running the length of the log turning machine but below the same. The lift rods 20 work in vertical lines from the steam cylinders and the pistons which oper-

ate said lift rods also operate vertically. A live steam line 36 is connected with each port 34 and an exhaust line 37 with each port 35. The valve control rod 29 is continued beyond the machine and connected with the sawyer's foot pedal (not shown).

Log turners, as usually built, have cams keyed onto a shaft on which are supported the front ends of a steel bar for raising the skids. By the turning motion imparted to these cams, when the log turner arms are raised the front ends of the skid bars would raise simultaneously with the turner arm. This method of raising the skids was not successful for the reason that the skids were either in the up or down position at the wrong time in the operation. For this reason it is essential in the successful operation of log turners to provide some device for raising the skids absolutely independently of any of the log turner operations. The demand for such a skid lift has resulted in the development of numerous mechanisms more or less expensive and cumbersome to build, install and maintain.

The present invention provides a skid lift which has many advantages over the skid lifts as previously devised. In the first place, it has simplicity of operation; then the first cost is lower, as well as the cost of installation and of maintenance. All of the skids bear on the under side of the logs and carry equally their proportion of the entire load. The mechanism has a quicker and more direct action than other skid lifts, and is accessible if adjustments or repairs are to be made. The improvement can be installed in less space than other skid lifts. The front ends of the skids are so anchored as to prevent any tipping or lopping over sidewise, thereby reducing the efficiency of the same. If the cylinders become slightly disalined, the machine will work efficiently since the piston rods are connected by means of the cross-heads to the lift rods. The skid lift does not impose any additional shock or strain on the log turner shaft or parts, since the skid is absolutely independent of the log turner, being in fact a separate machine. The action of the power is applied direct to the skids and no part of the power is lost doing unnecessary work.

The present skid lift is the only one which I know of that can be successfully installed in connection with deck rolls with double cutting band mills. Because of the flexibility of the fluid operating in the cylinders, the action of the present skid lift is such that pressure is exerted equally along the bottoms of irregularly shaped logs as well as on flat sawed surfaces by each of the skid bars employed. The present device is equally as simple to install with a log turner, with which is also operated a steam nigger having vertical cylinders.

While three skid bars have been shown in the illustrated embodiment of the invention, the number of skids may vary from two to five as required by the capacity of the log turner. Therefore, it is essential that the cylinders be of sufficient size and strength so that two cylinders are ample to raise the largest log that the turner can handle.

What is claimed is:

1. In combination with a log turning machine, a skid lifting device mounted and operating independently thereof comprising a skid bar pivotally mounted at one end, a member for supporting the free end of the bar but mechanically disconnected from the bar, a vertical lift rod disposed directly beneath the member and directly connected thereto, and a fluid pressure operated piston directly connected with the lift rod, whereby the full force derived from the fluid pressure is exerted in the line of the vertical lift rod to lift the bar.

2. In combination with a log turning machine, a skid lifting device mounted and operating independently thereof comprising a skid bar pivotally mounted at one end, a member for supporting the free end of the bar but mechanically disconnected from the bar, a vertical lift rod disposed directly beneath the member and directly connected thereto, a guide casting fixed on a support and receiving said member to guide the member and hence the lift rod, and a fluid pressure operated piston directly connected with the lift rod, whereby the full force derived from the fluid pressure is exerted in the line of the vertical lift rod to lift the bar.

3. A skid lift for use in connection with but independently of log turning machines, comprising a plurality of supporting members for the free ends of the skid bars, a vertically reciprocable lifting rod directly connected with each supporting member at one end, a power actuated piston directly connected with the other end of each lifting rod, and means whereby all the skid bars are lifted simultaneously.

4. A skid lift for use in connection with but independently of log turning machines, comprising a plurality of lifting rods operable in vertical lines, each rod being coupled to a cross-head in turn coupled to a piston rod, a piston at the lower end of the piston rod and operating in a cylinder, fluid pressure means for raising and lowering the piston, and means directly connected to the upper end of each lifting rod to support the corresponding skid bar.

5. A skid lift for use in connection with but independently of log turning machines, comprising a plurality of lifting rods operable in vertical lines, each rod being directly connected with a power-actuated piston at one end and with a skid bar connection

means at the other end, said skid bar connection comprising a socket casting mounted on the upper end of a lifting rod and having a slot for receiving the free end of a skid bar.

6. A skid lift for use in connection with but independently of log turning machines, comprising a plurality of lifting rods operable in vertical lines, each rod being coupled to a cross-head in turn coupled to a piston rod, a piston at the lower end of the piston rod and operating in a cylinder, fluid pressure means for raising and lowering the piston, and a socket casting mounted on the upper end of each lifting rod and having a slot for receiving the free end of the corresponding skid bar.

7. A skid lift for use in connection with but independently of log turning machines, comprising a plurality of lifting rods operable in vertical lines, each rod being coupled to a cross-head in turn coupled to a piston rod, a piston at the lower end of the piston rod and operating in a cylinder, fluid pressure means for raising and lowering the piston, means directly connected to the upper end of each lifting rod to support the corresponding skid bar whereby the bar may swing freely through an arc, and means for simultaneously admitting fluid pressure into the cylinders whereby all the skid bars are actuated together.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

PAUL F. LUETH.