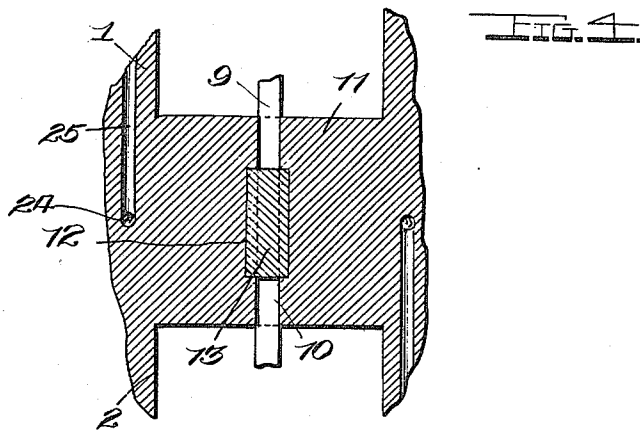
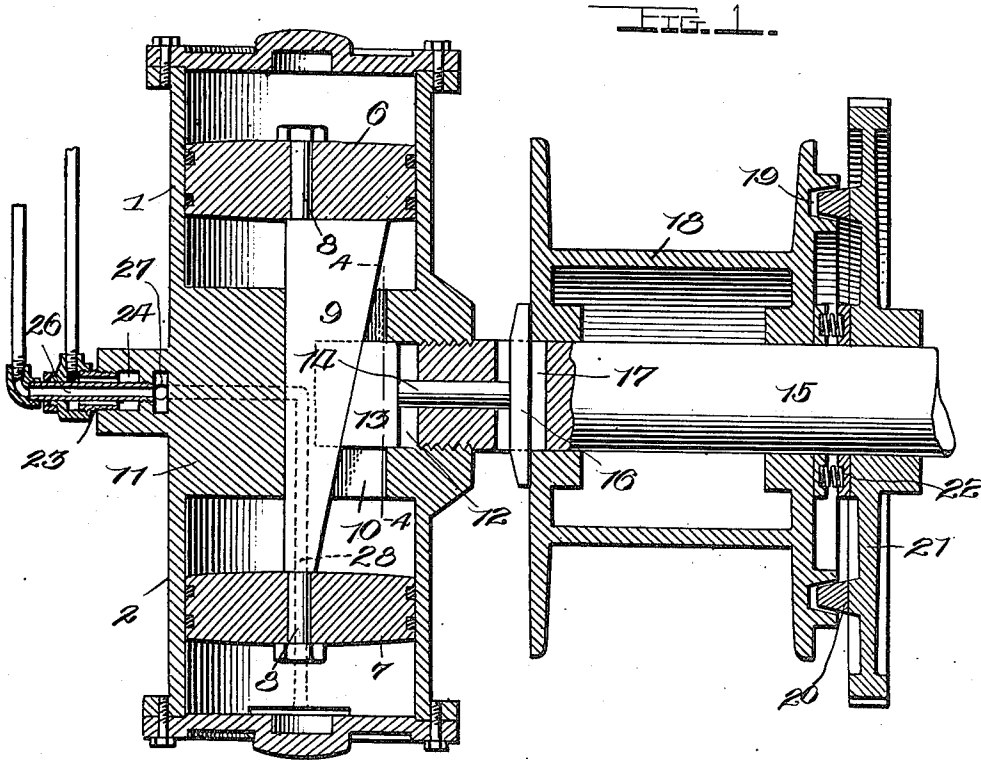


F. C. MOTT.
 FLUID ACTUATED CLUTCH.
 APPLICATION FILED FEB. 24, 1912.

1,045,315.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.



Witnesses

Chas. L. Griesbauer.
 A. B. Norton.

By

Watson E. Coleman.

Attorney

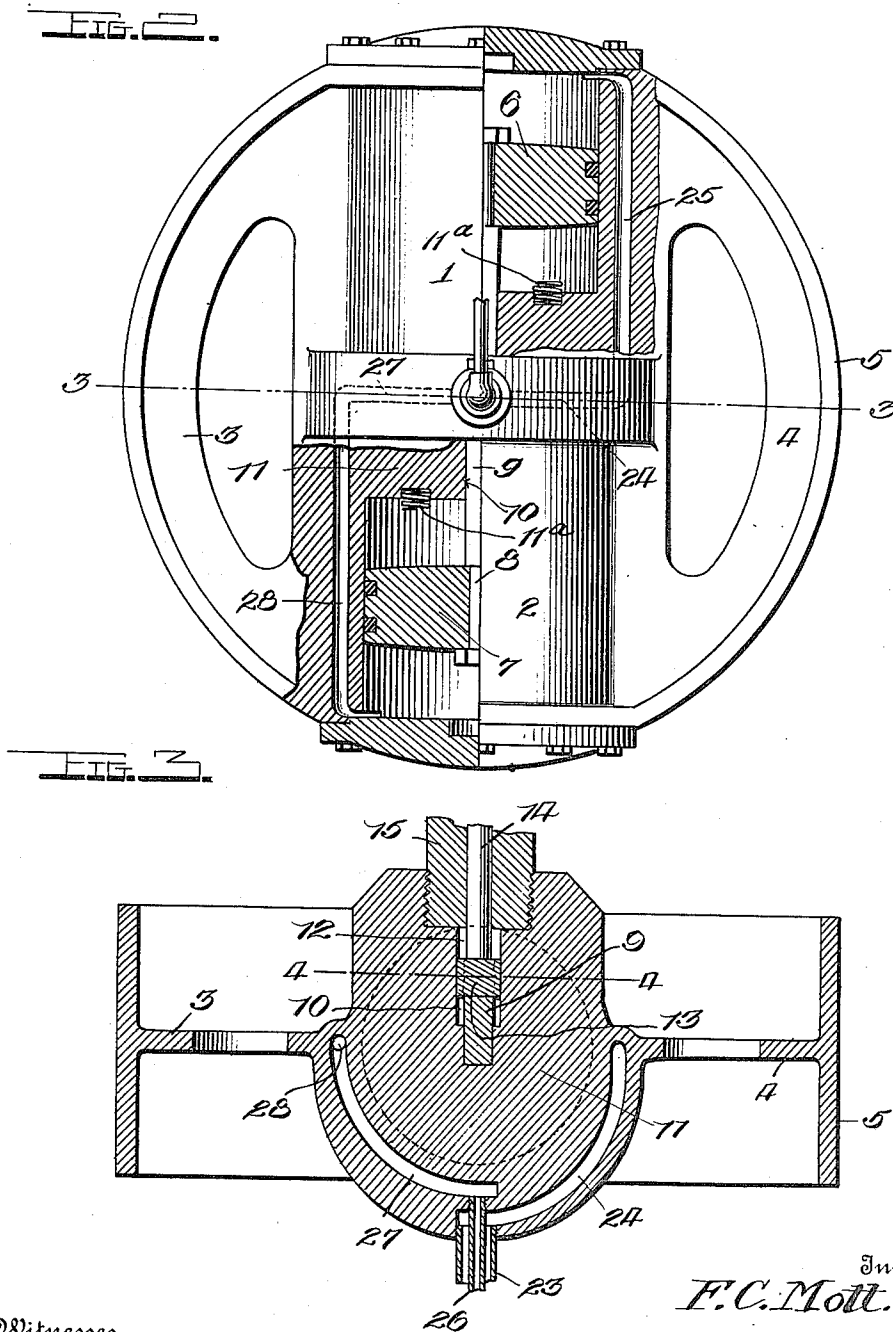
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UNITED STATES PATENT OFFICE.

FRED C. MOTT, OF SATSOP, WASHINGTON.

FLUID-ACTUATED CLUTCH.

1,045,315.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed February 24, 1912. Serial No. 679,698.

To all whom it may concern:

Be it known that I, FRED C. MOTT, a citizen of the United States, residing at Satsop, in the county of Chehalis and State of Washington, have invented certain new and useful Improvements in Fluid-Actuated Clutches, of which the following is a specification, reference being had to the accompanying drawings.

This invention comprehends certain new and useful improvements in clutches of the fluid actuated type and the invention has for its primary object a simple, durable and efficient construction of mechanism of this character which will be found useful and desirable in connection with friction driven machinery such as pile drivers, logging engines and the like.

The invention also has for its object an improved construction of clutch operating mechanism which may be easily applied to the shaft of a logging engine, pile driver or similar machine, whereby, by manipulating suitable valves or cocks, the drum of the friction driven machine may be instantly moved from an inoperative to an operative position by a peculiar and useful arrangement and construction of parts, the fluid medium being preferably steam, although other fluid may be used if found desirable. And the invention also aims to generally improve this class of devices and to render them more useful and commercially desirable.

With these and other objects in view, as will more fully appear as the description proceeds, the invention consists essentially in a casing adapted to be secured to the shaft of a friction driven machine, said casing embodying separate and distinct cylinders with pistons in both cylinders, the pistons being connected together by a wedge which is adapted, in the movement of the pistons in one direction, to act against a wedge block held in the casing, said block in turn being moved laterally, whereby through the interposition of suitable elements hereinafter specified, the drum of the friction driven machine will be moved over and clutched to the shaft upon which it is mounted, the movement of the pistons in the opposite direction permitting the clutch of the drum and its driving part to be disengaged, as for instance, through the instrumentality of a releasing spring. And the invention also consists in certain con-

structions, arrangements and combinations as I shall hereinafter more fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing in which,

Figure 1 is a longitudinal sectional view of a fluid actuated clutch operating device embodying the principles of my invention. Fig. 2 is a side elevation thereof, partly in section. Fig. 3 is a transverse sectional view, the section being taken on the line 3—3, of Fig. 2, and, Fig. 4 is a fragmentary sectional view taken on the lines 4—4, of Figs. 1 and 3.

Corresponding and like parts are referred to in the following description and designated in the accompanying drawings by like reference characters.

My invention includes a casing which may be of any desired construction and which embodies separate and distinct cylinders 1 and 2 disposed in longitudinal alinement with each other, said cylinders being preferably connected and reinforced by webs 3 and 4 that are encircled by an integral cylindrical rim 5.

A piston 6 is mounted to reciprocate in the cylinder 1 and a corresponding piston 7 is mounted in the cylinder 2. These pistons 6 and 7 are, respectively, connected to the ends 8 of a connecting rod, the intermediate portion of which is constituted by a wedge 9 mounted for longitudinal movement in an opening 10 which is formed in the division wall 11 which separates one cylinder from the other. The division wall 11 is also formed with a side opening 12 which intersects the opening 10 and which is designed to receive the wedge block 13, the oblique face of which is opposed to the oblique face of the intermediate wedge-shaped portion 9 of the piston connecting member, said wedge faces being designed to contact with each other. The outer face of the wedge block 13 is adapted to bear against the inner end of a pin 14, said pin projecting into the adjoining end of the drum shaft 15 and movable longitudinally therein against a key 16 which is mounted for longitudinal movement in a slot 17 extending transversely through the shaft, the ends of the key 16 bearing against the adjoining face of the drum 18 which is mounted loose on the shaft. The opposite face

of the drum 18 is formed with an annular groove 19, preferably wedge-shape in cross section, said groove being designed to receive a tapered annular clutch ring 20 which is secured to one side of a gear wheel 21 secured on the shaft 15.

From as much of the description as has preceded, in connection with the accompanying drawings, it will be understood that when the pistons 6 and 7 are moved in one direction, that is, downwardly, as viewed in Fig. 1, the engagement of the wedge 9 with the wedge block 13 will cause the latter to move outwardly in its opening 12 and to press against the pin 14, which latter, by engaging the key 16, will cause said key to move the drum 18 to the right so as to effect the secure engagement of the clutch members 19 and 20 and thereby clutch the drum to the gear 20 and to the shaft 15. Upon the moving of the pistons 6 and 7 in the opposite direction, the springs 22 that are interposed between the gear wheel 21 and the drum 18, will be permitted to act so as to disengage the clutch members from each other and thereby release the drum from the shaft.

In order to effect the movements of the pistons 6 and 7, the casing is formed at one side with an inlet opening 23 which leads into a passage 24, the inner end of said passage 24 communicating with a passage 25 extending through the web 4 to the outer end of the cylinder 1. Within the opening 23, is a pipe or tube 26 which leads into a passage 27 extending around the casing and thence downwardly, as at 28, into the outer or lower end of the cylinder 2. It will thus be understood that by manipulating suitable valves or controlling cocks (the same being omitted from the illustration as they, in themselves, form no part of my present invention), the steam or other fluid may be admitted into either of the cylinders 1 or 2 and permitted to exhaust from the other, thereby effecting the movement of the pistons in one direction or the reverse so as to carry out the operation hereinafter specified. Preferably, I provide buffer springs 11^a at the bottom of the cylinders, as best illustrated in Fig. 2.

It is to be understood that while I have shown my invention as applied to a particular form of friction driven drum and driving device therefor and to a particular form of clutch mechanism, the invention is not limited thereto, as the parts just named are selected for the purpose of illustration only. It will also be understood that the invention is not limited to the construction, arrangement or proportions of the parts shown, as various changes may be made without de-

parting from the scope of the invention, as defined in the appended claims.

What I claim is:—

1. A device of the character described, including longitudinally alined cylinders, pistons mounted in the respective cylinders, a wedge-shaped connection between said pistons, a laterally movable block mounted in the casing and adapted to be moved outwardly therein by the engagement of the wedge-shaped connection, and means for conducting fluid to said pistons.

2. A device of the character described, including separate cylinders having an opening establishing communication between them, pistons in the respective cylinders, a wedge-shaped connection movable in said opening and secured to the respective pistons, the casing being formed with a lateral opening communicating with the first named opening, a block mounted in the lateral opening and adapted to be engaged by the wedge-shaped piston connection, and means for conducting fluid to said pistons.

3. A device of the character described, including longitudinally alined cylinders with a division wall between them, said division wall being formed with an opening establishing communication between the cylinders and also with a lateral opening, pistons mounted in the respective cylinders, means for conducting motive fluid to said pistons, a block mounted in the lateral opening of the division wall, a pin against which the outer face of said block is adapted to bear, a support for said pin, and a wedge-shaped connection between said pistons movable in the first named opening in the division wall and bearing against said block.

4. A device of the character described, including cylinders arranged in longitudinal alinement with each other with a division wall between, said cylinders having web connections and the division wall being formed with an opening establishing communication between the cylinders and also with a lateral opening, pistons mounted in the respective cylinders, a block mounted in the lateral opening of the division wall, and a wedge-shaped connection between said pistons movable in the first named opening in the division wall, the cylinders being formed with distinct fluid inlet and outlet passages leading to the outer ends of the cylinders for the purpose specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRED C. MOTT.

Witnesses:

J. L. NICHOLSON,
M. P. GLANCY.