

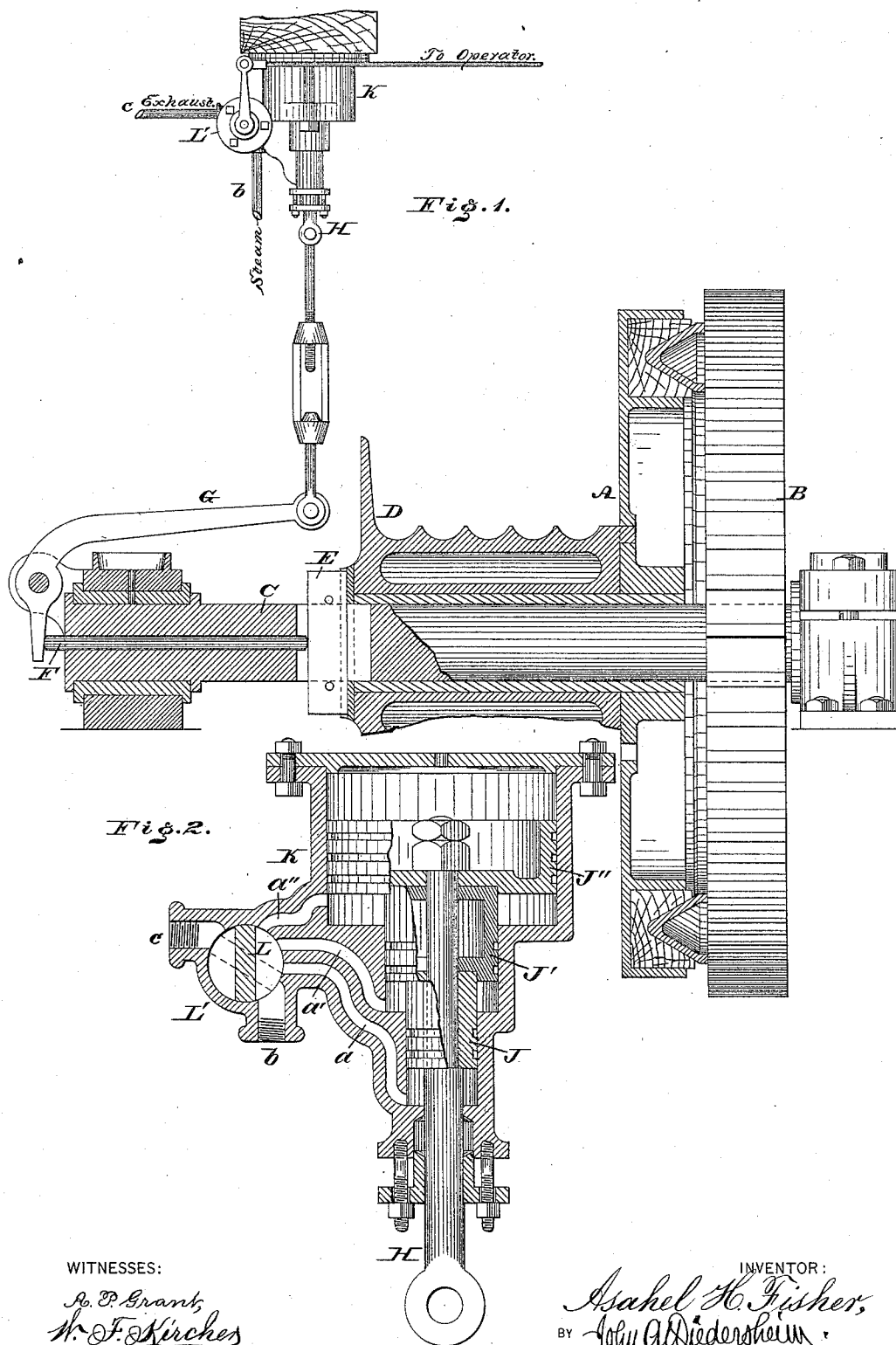
(No Model.)

A. H. FISHER.

FRICION COMPRESSOR FOR DREDGING MACHINES, &c.

No. 285,883.

Patented Oct. 2, 1883.



WITNESSES:

A. P. Grant,
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INVENTOR:

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UNITED STATES PATENT OFFICE.

ASAHEL H. FISHER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO WILLIAM C. TURNER, OF SAME PLACE.

FRICTION-COMPRESSOR FOR DREDGING-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 285,883, dated October 2, 1883.

Application filed June 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, ASAHEL H. FISHER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Friction-Compressors for Dredging-Machines, Hoisting-Machines, &c., which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a partial side view and partial vertical section of a friction-compressor for dredging-machines embodying my invention. Fig. 2 is a vertical section of a detached portion thereof, enlarged.

Similar letters of reference indicate corresponding parts in the two figures.

My invention consists in providing the friction-compressor for a dredging or hoisting machine, &c., with means, substantially as hereinafter set forth, whereby the friction required may be adjusted relatively to the work to be performed.

Referring to the drawings, A represents a friction-wheel, which is adapted to engage with the gear-wheel B, to which power is applied in any desired manner, the shaft C of said wheels being suitably mounted on a dredging-machine, boat, or other proper locality, the description of the invention being hereinafter limited to a dredging-machine.

D represents a drum for the rope or chain of the dredging-machine, the same being fitted on the shaft C, and having in contact with its hub a key, E, which is passed through a slot in said shaft, it being noticed that the drum is connected with the friction-wheel A, and is adapted to slide therewith on the shaft C.

Through the shaft C, in the longitudinal direction thereof, at the end opposite to the wheel B, is passed a sliding rod, F, which bears against the key E, and has in contact with it a lever, G, the latter being connected with the stem H of a series of pistons, J J' J'', of different areas, the casing or cylinder K being correspondingly shaped and suitably supported, said cylinder having in its steam-chest a series of ports, *a a' a''*, so disposed that there is one port for each piston. L represents the valve for said ports, the chamber

L' whereof is cast with or secured to the steam-chest, and has a steam-nozzle, *b*, and exhaust-pipe *c*.

In dredging-machines, when the loaded bucket or dipper is to be hoisted, the slack chain wound on the drum, or there are other manipulations requiring the operation of said drum, different degrees of friction of the wheels A B are desirable; hence for light work the small piston J, for heavy work all of the pistons J J' J'', and for intermediate work the pistons J J' will receive the impact of steam, so that there may be gradations of the friction of the wheel A with the wheel B, and economy in the use of the steam.

It will be seen that when heavy work is required the valve L is turned as shown full in the drawings, whereby the several ports *a a' a''* are in communication with the steam-supply, and steam is directed against all of the pistons simultaneously, whereby, by means of the drum D and parts intermediate of the same and the stem H, the combined power of the pistons is exerted on the wheel A, the latter thus being forcibly held in contact or clutched with the gear or driving wheel B.

It is evident that the valve L may be turned to permit steam to enter the port *a* alone, so that steam may be directed only against the piston J for creating a moderate degree of friction between the wheels A and B for light work, and for somewhat heavier work both parts *a a'* may be placed in communication with the steam-supply, so that power of the steam is exerted simultaneously on the two pistons J J'.

The valve L may be turned so as to cut off the entire supply of steam, thus relieving the wheel A and permitting the same to slip on the wheel B, and by proper operation of said valve the exhaust-pipe *c* may be placed in communication with some or all of the ports, as required.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a friction-compressor, a cylinder provided with pistons of different areas, whereby the degree of friction may be adjusted, substantially as described.

2. In a friction-compressor, a friction-wheel, in combination with a cylinder having a series of pistons of different areas and devices intermediate of said wheel, and the stem of
5 said pistons for imparting the motion and power of the pistons to said wheel, substantially as and for the purpose set forth.

3. A friction-wheel, in combination with a cylinder having a series of pistons of differ-

ent areas, a series of ports and a valve, and 10 devices intermediate of said wheel and the stem of the pistons for imparting the motions and power of the pistons to said wheel, substantially as and for the purpose set forth.

ASAHEL H. FISHER.

Witnesses:

F. A. CHURCHMAN,
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