

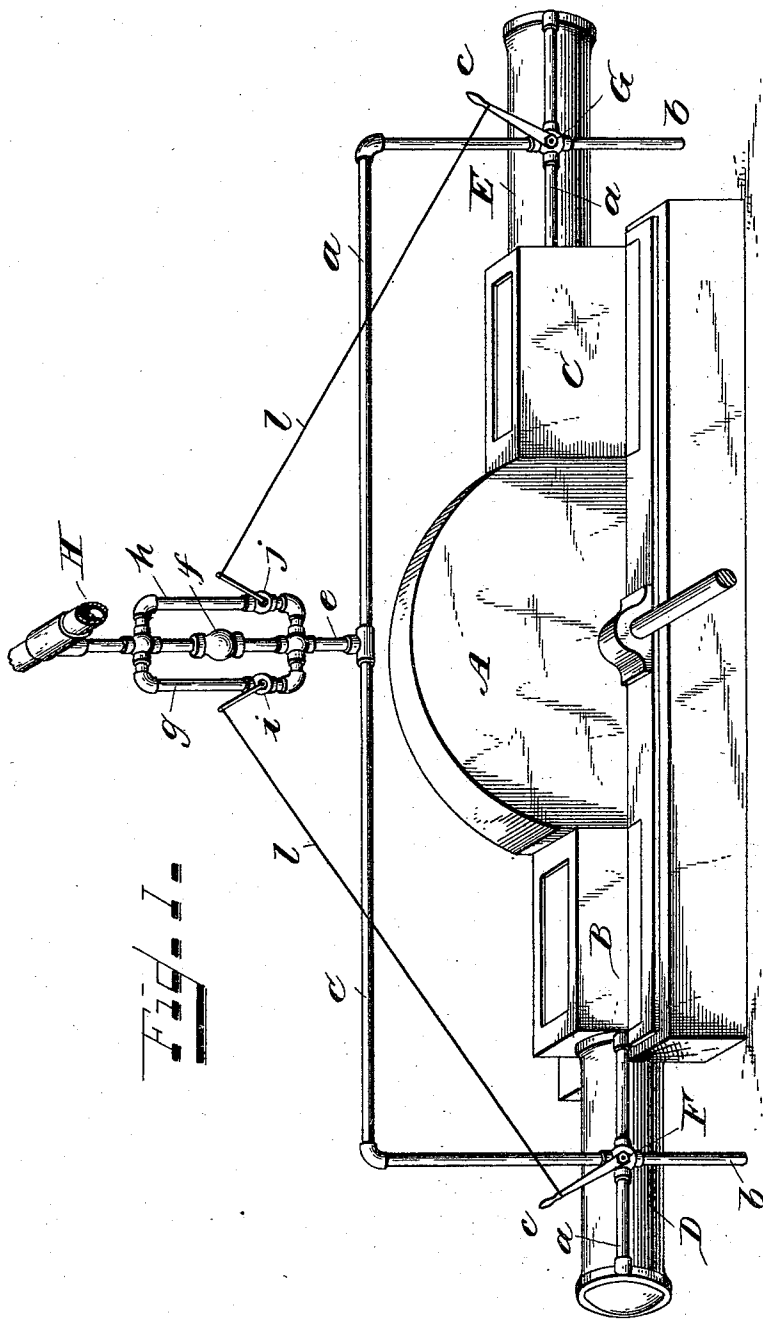
(No Model.)

2 Sheets—Sheet 1.

A. D. SCHAEFFER & C. H. DALE.
WOOD PULP GRINDER.

No. 572,572.

Patented Dec. 8, 1896.



Witnesses.
J. Thomson Cross
Bernard J. Hausfeld

Inventors.
Arthur D. Schaeffer
and Chas. H. Dale
by Chas. M. Beck
their Attorney.

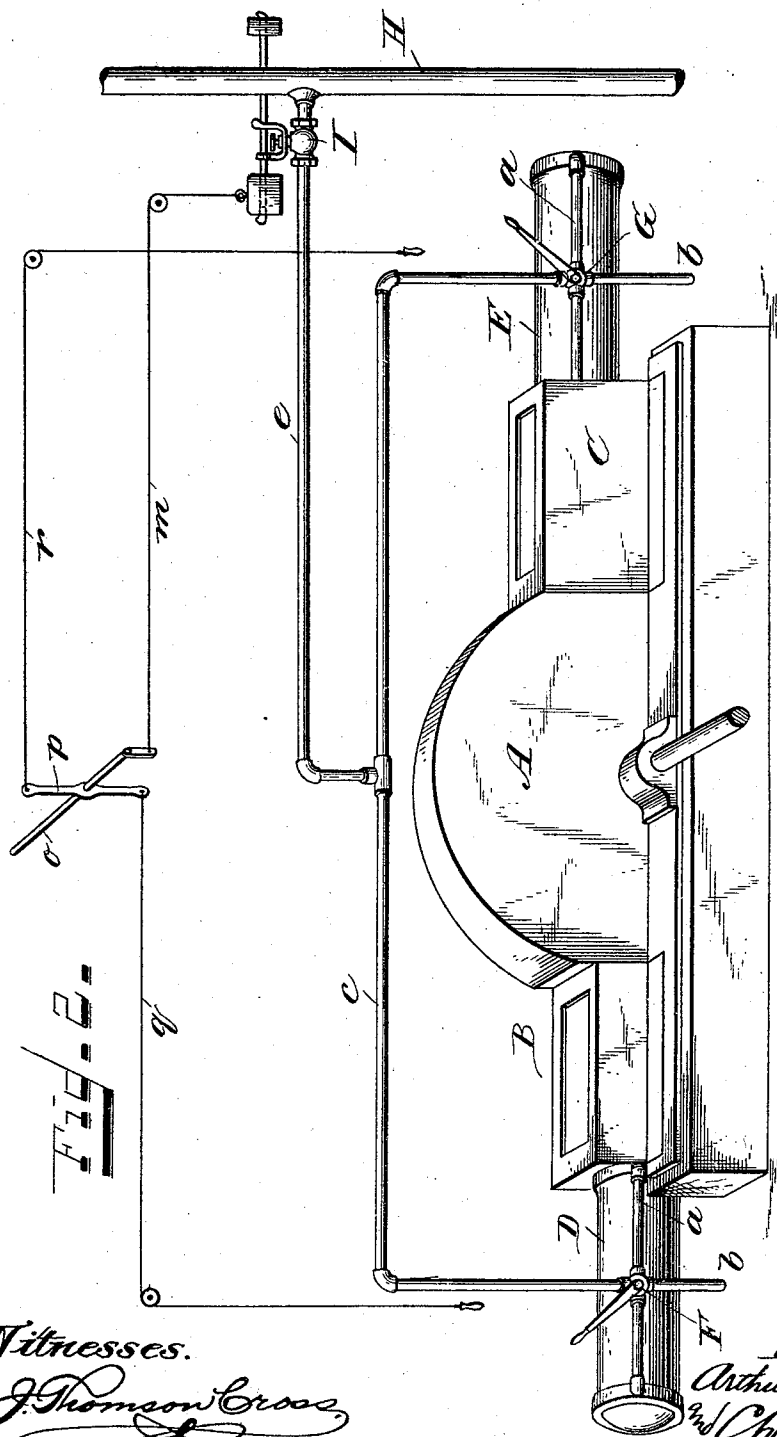
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UNITED STATES PATENT OFFICE.

ARTHUR D. SCHAEFFER AND CHARLES H. DALE, OF HARTFORD CITY,
INDIANA.

WOOD-PULP GRINDER.

SPECIFICATION forming part of Letters Patent No. 572,572, dated December 8, 1896.

Application filed June 17, 1895. Serial No. 553,157. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR D. SCHAEFFER and CHARLES H. DALE, citizens of the United States, residing at Hartford City, in the county of Blackford and State of Indiana, have invented certain new and useful Improvements in Wood-Pulp Grinders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to that class of wood-pulp grinders comprising, essentially, a grinding-stone suitably incased and provided with wood-receiving pockets carrying pressure-followers actuated by pistons inclosed in cylinders and usually under hydrostatic pressure from a common source of supply; and the purpose of our invention is to supply means whereby when the pressure is removed from one pocket, during the time of refilling the same, it will be doubled on the opposite pocket, so as to increase the capacity of the working pocket and make it nearly if not quite equal to that of both pockets when normally running, thereby preventing the loss of production, which would otherwise occur during the time of filling an emptied pocket.

The novelty of our invention will be hereinafter more fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective of so much of a wood-pulp grinder as is necessary to illustrate our invention. Fig. 2 is a corresponding view under a modified form of construction.

The same letters of reference are used to indicate identical parts in both figures.

In Fig. 1, A represents the stone-casing, of the usual or any suitable construction, provided on its opposite sides with pockets B C, containing followers actuated by pistons in the cylinders D E, all of which may be of the usual or any suitable construction. The cylinders D E are provided with the usual cocks F G, for admitting pressure through branches a to either end of the cylinders and for permitting escape through the waste-pipes b. Supply-pipes c d are connected with the cocks F G and receive the pressure from a supply-pipe H through pipe e, having in it a reduc-

ing-valve f, with by-passes g h on both sides thereof and containing cocks i j. The handles of the cocks F i G j are connected by link-rods k l, respectively.

Assuming that the valve f reduces the pressure in the pipe c d one-half of that in the pipe H, that the cocks i j are closed and the cocks F G open to force the followers toward the stone, and that both pockets are in action and grinding and a pressure, say, of one hundred pounds to the square inch is being exerted on each follower we will suppose that one of the pockets, B, for instance, becomes emptied. The moment it is so emptied the attendant throws the handle of the cock F to reverse the piston and to cut off the pressure from the pipe c. This action of the cock F opens the cock i, and full pressure from pipe H passes around the by-pass g to the pipe d without going through the reducing-valve f and is exerted on the follower of the piston E, thereby doubling the pressure upon the same during the time that the pocket B is being refilled. In the same way when the pocket C is emptied the movement of the cock E in cutting off pressure from the pipe d opens the cock j, and full pressure goes through by-pass h and pipe c to the follower of the pocket B, as will be readily understood. In this simple but efficient manner we are enabled to exert double pressure upon a working pocket while the opposite pocket is being refilled, and thereby prevent any reduction in the capacity of the machine, as will be readily understood.

In Fig. 2 we have shown in the place of the reducing-valve f and by-passes g h a weighted or spring-controlled reducing-valve I in the supply-pipe e and have connected it by a cord m with a crank-arm n of the rock-shaft o, having a cross-piece p, from which guided cords q r extend and hang within convenient reach of the attendant at each of the pockets, so that should the pocket B become emptied the attendant, by drawing upon the cord q and hooking it down in any convenient manner, would open the valve I and put full pressure upon the follower of the cylinder E. In like manner by drawing upon the cord r when the pocket C was emptied the valve I

would be again opened to put full pressure upon the cylinder D, and upon releasing either of the cords *q* or *r* the weight or spring would restore the parts and partly close the valve to reduce the pressure to normal when both pockets were working.

Having thus fully described our invention, we claim—

1. The combination in a wood-pulp grinder, of suitable grinding-stones, wood-pockets in proximity thereto, pressure-cylinders coöperating with said pockets, a pressure-supply pipe for said cylinders, a reducing-valve for said supply-pipe, and means to increase the pressure upon the active pockets when any one of the series of pockets is rendered inactive.

2. In a wood-pulp grinder, the combination with the grinding-stone, of wood-pockets, pressure-cylinders coöperating with said pockets, a pressure-supply pipe for said cylinders, a reducing-valve to control the pressure from said pipe, and means for automatically increasing the pressure upon the active pockets when pressure is cut off from any pocket in the series.

3. In a wood-pulp grinder, the combination with the grinding-stone, of wood-pockets, pressure-cylinders coöperating with said pockets, a pressure-supply pipe for said cylinders, a reducing-valve in said pressure-supply pipe, by-passes from said pressure-supply pipe around said reducing-valve to the pressure-cylinders, and means for bringing into operation any one of said by-passes to increase the pressure on the active pockets

when any one of the series of pockets is rendered inoperative.

4. In a wood-pulp grinder, the combination of the grinding-stone, of wood-pockets located in proximity thereto, pressure-cylinders in said wood-pockets, a pressure-supply pipe for said cylinders, a reducing-valve in said pressure-supply pipe, by-passes from said pressure-supply pipe around said reducing-valve to the said pressure-cylinders, cut-off valves for said pressure-cylinders, and means for automatically bringing into operation said by-pass pipes, to increase the pressure on the active pockets when any one of the series of pockets is rendered inoperative.

5. In a wood-pulp grinder, the combination with the grinding-stone, of wood-pockets located in proximity thereto, pressure-cylinders for said pockets, a pressure-supply pipe for said cylinders, a reducing-valve between said pressure-supply pipe and said pressure-cylinders, by-passes from said pressure-supply pipe around said reducing-valve, cocks in said by-passes, cut-off valves for said pressure-cylinders, and connections between said cut-off valves and said by-pass cocks, whereby when a cut-off valve is closed to render inoperative any one of the series of pockets a by-pass cock will be opened to increase the pressure on the active pockets.

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Witnesses:

FINLEY GEIGER,
ISAAC BLACK.