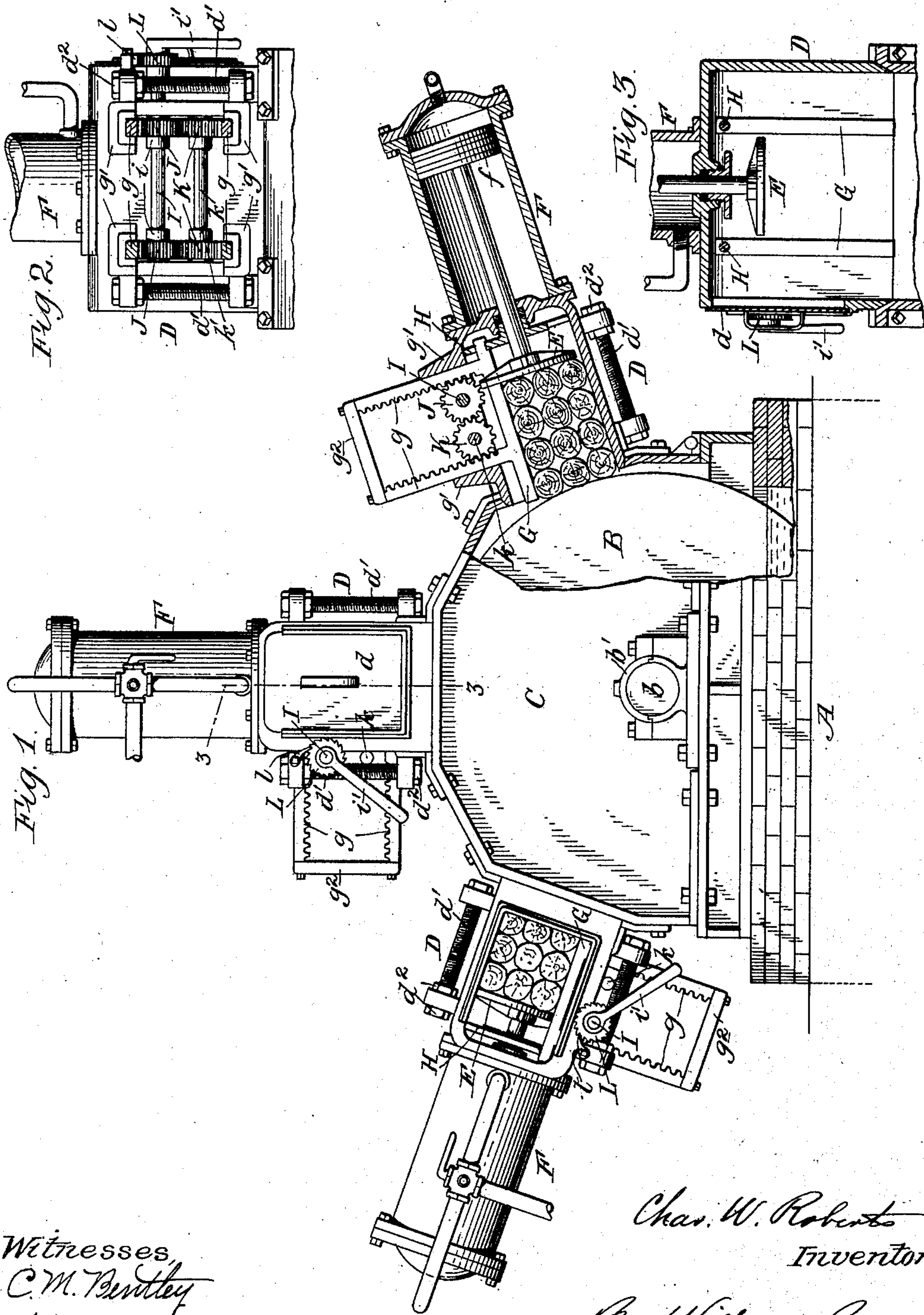


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C. W. ROBERTS.  
WOOD PULP MACHINE.  
APPLICATION FILED APR. 8, 1902.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

CHARLES W. ROBERTS, OF CARTHAGE, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ONTARIO GRINDER COMPANY, OF LOCKPORT, NEW YORK, A CORPORATION OF NEW YORK.

## WOOD-PULP MACHINE.

SPECIFICATION forming part of Letters Patent No. 719,695, dated February 3, 1903.

Application filed April 8, 1902. Serial No. 101,903. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. ROBERTS, a citizen of the United States, and a resident of Carthage, in the county of Jefferson and State of New York, have invented new and useful Improvements in Wood-Pulp Machines, of which the following is a specification.

This invention relates to a wood-pulp-grinding machine of that well-known type wherein the logs or pieces of wood are piled in parallel arrangement and lengthwise in one or more pockets and presented sidewise to the peripheral face of a rotary grinding stone or wheel, against which the wood is continually pressed by a plunger so as to feed the wood to the stone as it is ground away. In such machines considerable power is required to drive the grinding stone or wheel, and it is necessary to fill the pockets in order to hold the wood firmly against the grinding-wheel. It is furthermore customary to use logs or pieces of wood in their original round or nearly round form to avoid waste in trimming or shaping the pieces, and to do this it is desirable to maintain the logs or pieces in the pocket, one directly over the other on a line radial to the grinding-stone, so as to prevent their wedging against the sides of the pocket and interfering with the proper feeding of the wood to the stone or wheel.

The object of the present invention is to provide the pocket of a pulp-grinding machine with simple means whereby a greater or less quantity of wood may be properly held in the pocket and fed to the grinding-stone without wedging or binding.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of a machine embodying the invention. Fig. 2 is a side elevation of one of the pockets. Fig. 3 is a section through one of the pockets on the line 3 3, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A represents the pulp-pit; B, the rotary grinding stone or wheel; C, the casing which incloses the pulp-pit and upper portion of the stone and supports the latter; D, the wood pockets or boxes which are supported by the casing C and project therefrom radi-

ally relative to the grinding-stone, and E the feed-plungers which are operated by pistons *f*, working in hydraulic cylinders F, secured to the wood-pockets. These parts are all common and may be of any desired suitable arrangement and construction.

In the construction shown in the drawings the stone is carried by a horizontal shaft *b*, which is journaled at its front and rear ends in suitable bearings *b'* on the casing C and is provided with suitable driving means. (Not shown.) Three wood pockets are shown; but one or more may be employed, as desired.

In Fig. 1 of the drawing one pocket is shown in elevation, the second in elevation with its door removed, and the third in section, and as the pockets are alike the following description of one is deemed sufficient. The pocket is in the form of a bottomless box, supported with its inner open end in an aperture in the casing C, and is provided with a front door-opening through which the wood is inserted into the pocket and which is shown to be covered by a sliding door *d*. The pocket, as usual, is made adjustable toward the stone for the purpose of advancing it as the stone wears away by ordinary means, such as the bolts *d'*, passing through lugs on the pocket and casing and provided with cooperating nuts *d''*. The pocket is provided at one side with a part or parts arranged to move toward and from the opposite side of the pocket, so as to decrease or increase the available wood-space in the pocket to suit the quantity of wood which it is desired the machine should operate upon. In the construction shown two adjustable bars or strips G are provided for this purpose arranged parallel with the sides of the pocket, one in front and one in rear of the plunger E. Each bar or strip is provided with a pair of rack-bars *g*, which project out through openings in the adjacent side of the pocket and are guided in ways or grooves formed in rigid brackets *g'*, projecting from the side of the pocket. The rack-bars are provided on their inner or opposing faces with rack-teeth and are preferably connected at their outer ends by a connecting-bar *g''*. H represents rods which extend



through the pockets from one side to the other thereof in front and in rear of the feed-plunger and pass through holes in the bars G, serving as guides and supports for the latter.

5 In the construction shown in the drawings the adjustable bars or strips are moved in and out by the following means: I represents an operating-shaft which is journaled in suitable bearings *i* on the side of the pocket  
10 and extends at its ends between the rack-bars *g*, being provided at its forward end with an operating lever, wheel, or other device *i'*. The shaft has fixed thereto a pair of gear-wheels J, which mesh with the teeth of  
15 the upper front and rear rack-bars *g*, and with a pair of gear-wheels K, which in turn mesh with the teeth of the lower front and rear rack-bars *g*. The gear-wheels K are mounted on a shaft *k*, journaled in suitable  
20 bearings *k'* on the side of the pocket. By turning the operating-shaft by means of the lever the intermeshing gear-wheels are turned in opposite directions, causing the rack-bars and the adjustable bars or strips G carried  
25 thereby to move in or out according to the direction of rotation of the operating-shaft. Suitable instrumentalities are provided for holding the adjustable bars or strips in the position to which they are adjusted. In the  
30 construction shown the holding means consists of a ratchet-wheel L, fixed to the front end of the operating-shaft, and a pawl *l*, pivoted to a suitable stationary part adjacent to the ratchet-wheel and engaging with the teeth  
35 thereof.

By the invention described the size of the wood-space of the pocket can be regulated so as to hold any desired quantity of wood within the range of the pocket, and after the logs or  
40 pieces of wood have been placed in the pocket they may be crowded over against one side of the pocket, so as to be held in the described arrangement one above the other and prevented from moving in the pocket and from  
45 wedging or binding. With a machine having an adjustable pocket of this construction a user can by contracting the pocket employ a machine of large capacity for a smaller capacity than its maximum and with an expenditure of power corresponding with the  
50 smaller capacity when the available power is temporarily insufficient to operate the machine at its full capacity or when less pulp is to be produced, and he can when the necessary power is available or when more pulp is to be produced operate the machine at a  
55 greater or at its full capacity by again enlarging the pocket. Thus a single machine can be used to operate upon different quantities of wood, as found necessary or expedient.

60 Various other forms of movable parts for regulating the capacity of the pocket and operating means therefor may be employed without departing from the scope of the present invention.

I claim as my invention—

1. The combination of a pulp-grinding de-

vice, a pocket for the wood provided with means for varying the size of the available wood-space of the pocket independently of an  
70 adjustment of the pocket toward or from the grinding device, and means for holding the wood against the pulp-grinding device, substantially as set forth.

2. The combination of a pulp-grinding device, a pocket for the wood having a fixed side, means opposite to said fixed side and movable toward and from the same to vary the size of the available wood-space of the pocket, and means for holding the wood  
80 against the pulp-grinding device, substantially as set forth.

3. The combination of a pulp-grinding device, a pocket for the wood, means for holding the wood against the pulp-grinding device, and means at one side of said pocket and movable toward the opposite side of said pocket to contract the available wood-space of the pocket, substantially as set forth.

4. The combination of a rotary pulp-grinding device, a pocket for the wood arranged radially relative to said pulp-grinding device, means movable radially toward said grinding device to hold the wood against said grinding device, and means for contracting the available wood-holding space of said pocket in a direction substantially at right angles to the direction of movement of said holding means, substantially as set forth.

5. The combination of a pulp-grinding device, a pocket for the wood, means for holding the wood against the pulp-grinding device, and parts at one side of said pocket on opposite sides of said holding means and movable toward the opposite side of said pocket, substantially as set forth.

6. The combination of a pulp-grinding device, a pocket for the wood, means for holding the wood against the pulp-grinding device, means at one side of said pocket and movable toward the opposite side of said pocket to contract the available wood-space of the pocket, and operating means for said movable means, substantially as set forth.

7. The combination of a pulp-grinding device, a pocket for the wood, means for holding the wood against the pulp-grinding device, means at one side of said pocket and movable toward the opposite side of said pocket to contract the available wood-space of the pocket, operating means for said movable means, and means for holding said movable means in adjusted positions, substantially as set forth.

8. The combination of a pulp-grinding device, a pocket for the wood, a plunger for holding the wood against said pulp-grinding device, bars at one side of said pocket and at opposite sides of said plunger, and means for moving said bars toward the opposite side of said pocket, substantially as set forth.

9. The combination of a pulp-grinding device, a pocket for the wood, a plunger for holding the wood against said pulp-grinding device, bars at one side of said pocket and at



opposite sides of said plunger, means for moving said bars toward the opposite side of said pocket, and means for holding said bars in adjusted position, substantially as set forth.

10. The combination of a pulp-grinding device, a pocket for the wood, a plunger for holding the wood against said pulp-grinding device, movable bars at one side of said pocket and at opposite sides of said plunger, a rack-bar secured to each of said movable bars, and operating-gears meshing with said rack-bars, substantially as set forth.

11. The combination of a pulp-grinding device, a pocket for the wood, a plunger for holding the wood against said pulp-grinding device, movable bars at one side of said pocket and at opposite sides of said plunger, a pair of rack-bars secured to each of said movable bars, and intermeshing gear-wheels meshing with the rack-bars of each movable bar, substantially as set forth.

12. The combination of a pulp-grinding device, a pocket for the wood, a plunger for holding the wood against said pulp-grinding device, movable bars at one side of said pocket and at opposite sides of said plunger, a pair of rack-bars secured to each of said movable bars and projecting outwardly from said pocket, an operating-shaft, a pair of gear-wheels secured to said shaft and meshing with one of the rack-bars of each of said movable bars, and a pair of gear-wheels meshing with said first-mentioned gear-wheels and with the other rack-bars, and means for holding said operating-shaft, substantially as set forth.

Witness my hand this 26th day of March, 1902.

CHARLES W. ROBERTS.

Witnesses:

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F. W. ROBERTS.