

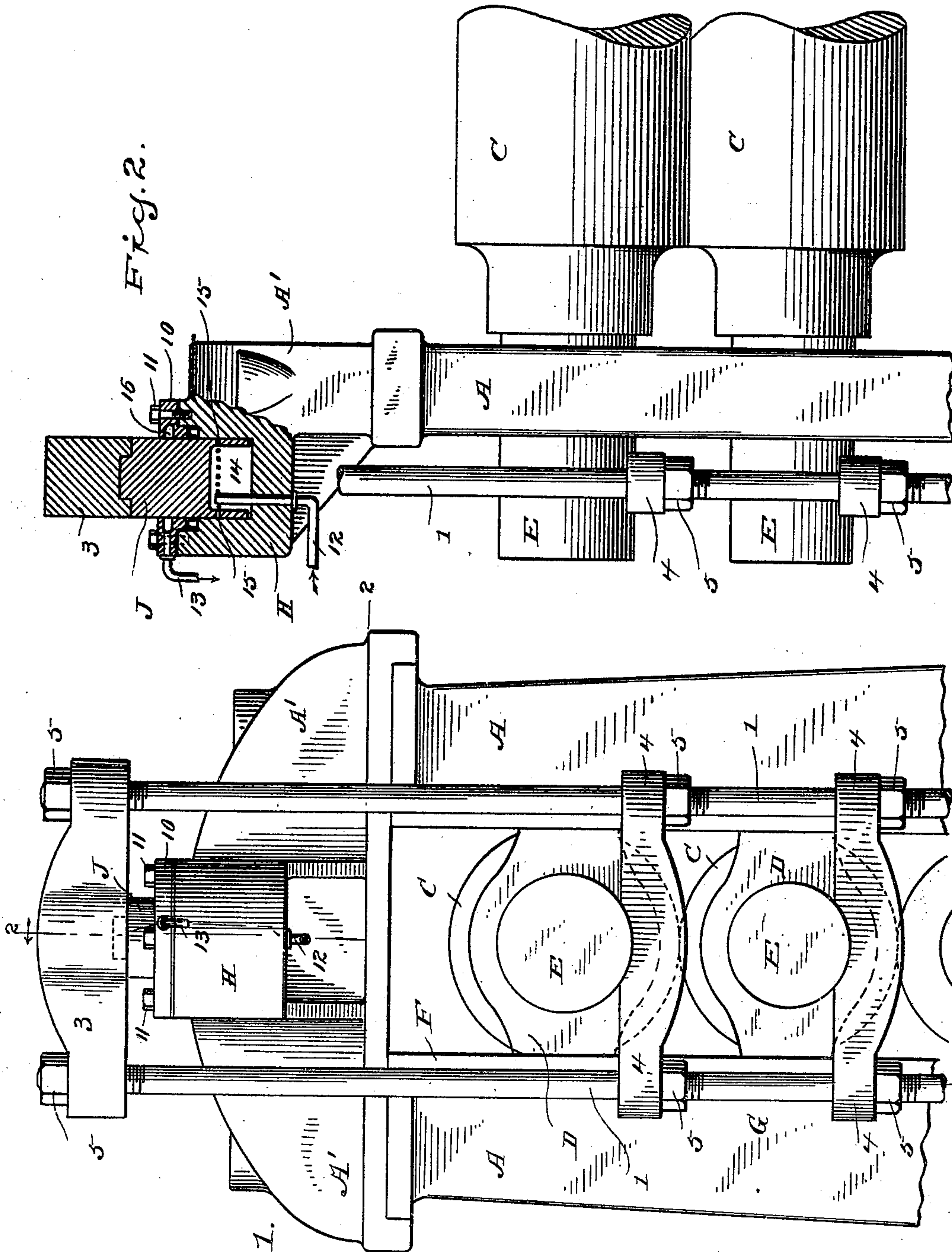
No. 639,915.

Patented Dec. 26, 1899.

M. J. WHITLOCK.
CALENDERING MACHINE.

(Application filed Sept. 5, 1899.)

(No Model.)



WITNESSES

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UNITED STATES PATENT OFFICE.

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CALENDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 639,915, dated December 26, 1899.

Application filed September 5, 1899. Serial No. 729,408. (No model.)

To all whom it may concern:

Be it known that I, MYRON J. WHITLOCK, a citizen of the United States, residing at Ansonia, county of New Haven, State of Connecticut, have invented a new and useful Calendering-Machine, of which the following is a specification.

My invention relates to the class of calendering-machines illustrated and described in my former Letters Patent, No. 619,107, dated February 7, 1899, and is a carrying forward and development of the invention therein set forth, my present invention having for its object the accomplishment of identically the same result by simple and relatively inexpensive means and in the merest fraction of the time required for raising or lowering the rolls or any number of them simultaneously in the machine set forth and described in my said former patent referred to. In my present machine, as in the former, a single operator standing at the base of the machine is enabled to raise both ends of any number of the rolls simultaneously and to lower them to operative position again in a matter of time amounting to a very few seconds—for example, five seconds for either raising or lowering the rolls.

With these ends in view my invention consists in the construction and combination of parts hereinafter specifically set forth and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a partial end elevation illustrating the application of my invention to a calendering-machine, and Fig. 2 is a corresponding partial front elevation, the essential elements of my present invention being shown in section on the line 2 2 in Fig. 1.

A denotes the frames or housings, one only being shown in the drawings, which may be of any ordinary or preferred construction. The rolls, any number of which may be used, are designated by C, the necks of the rolls by E, and the bearings for the necks by D. The frames or housings are provided with ways F, in which the bearings are adapted to move vertically, the special shape of the bearings not being of the essence of the invention.

At each end of the machine, on the outer

side of the frame or housing, is a carrier G, one only being shown in the drawings. These carriers consist of threaded rods 1, connected at the top by a yoke 3 and below yoke 3 by other yokes 4, which rest upon nuts 5 on the threaded rods. The upper ends of these rods pass through the top yoke and are secured by nuts 5.

The parts above enumerated may or may not be identical with the corresponding parts in my said former patent referred to.

H denotes a hydraulic cylinder which may be cast integral with the housing or the cap of the housing, which is designated specifically by A', or may be cast separate and rigidly secured to either of said parts.

J denotes a hydraulic plunger which is adapted to move in cylinder H and acts directly upon the top yoke 3.

10 denotes a packing-ring through which the plunger passes and which is secured to the cylinder by screws 11.

12 denotes the induction-pipe, and 13 the eduction-pipe. I have shown the induction-pipe as extending through the bottom of the hydraulic cylinder and upward a short distance above the bottom. This is in order to insure that when the cylinder has once been filled with liquid—water, oil, or any other suitable liquid may be used—a certain amount will remain in the cylinder, so that entire refilling of the cylinder each time the rolls are raised is avoided. The eduction-pipe I have shown as connected to the packing-ring, the inner side of said ring being provided with a circular groove 16, with which the eduction-pipe connects and the special purpose of which will presently be fully explained.

14 denotes a recess in the bottom of the plunger, which is made of slightly-greater depth than the height of the induction-pipe above the bottom of the cylinder.

15 denotes openings through the wall of recess 14, any number of which may be provided and which are adapted to register with circular groove 16 in the packing-ring when the plunger has been raised to the predetermined height and permit the fluid within the cylinder to pass through openings 15 and circular groove 16 and out through the eduction-pipe.

It will of course be understood that mech-

anism such as I have just described is provided at each end of the machine—that is, the frame or housing at each end of the machine is provided with a hydraulic cylinder and plunger and with induction and eduction pipes. The induction-pipes both lead to a suitable accumulator or pump, it being wholly immaterial which, so far as the principle of my invention is concerned. I have therefore deemed it sufficient for the purposes of this specification to show an induction-pipe and to state that in use duplicate induction-pipes are connected to an accumulator or pump of any ordinary or preferred construction.

The operation is as follows: Any number of yokes 4 may be used, depending, of course, upon the special use of the machine, each of said yokes being supported at each end by a nut 5 on the threaded rod. Where it is likely to be required to raise one, two, or any number of rolls simultaneously, yokes would be placed under the necks of each roll, each yoke resting upon nuts 5. Suppose that it was desired to raise the first two rolls from the top simultaneously. The operator would set the yokes 4 close up under both necks of the second roll and then lock the yokes in position by turning up the nuts on the threaded rods until they supported the yokes. The operator would then, by turning on the pressure either from an accumulator or pump, raise the plungers in the cylinders, carrying with them the carriers G and raising the rolls to the desired height. If the upper roll only is to be raised, yokes 4 are set up under the necks of the upper roll only. Where two, three, or any number of the rolls are to be raised in a group, a yoke 4 is set up under the necks of the lowest roll in the group it is desired to raise, although, if preferred, yokes may be set up under the necks of each roll it is desired to raise, so as to avoid placing the enormous weight of two or more rolls upon a single pair of necks and yokes.

It will be obvious that the rolls may be raised much or little, as may be required, by simply shutting off the pressure in the cylinders when

the rolls have been raised far enough, the pressure retaining the rolls at the position to which they have been raised. The rolls are lowered again to the operative position by simply relieving the pressure in the cylinders. The maximum height to which the rolls can be raised is determined by the relative position of openings 15 in the walls of the recesses in the plungers and the circular grooves 16, which communicate with the eduction-pipes. These openings act as a safety-valve and relieve the pressure when the rolls are at their extreme height. In use the cylinders do not become empty, as the fluid-level therein cannot fall below the tops of the induction-pipes.

Having thus described my invention, I claim—

1. In a machine of the character described, the combination with a series of rolls and a carrier for the rolls at each end of the machine, of hydraulic cylinders, induction-pipes entering said cylinders and extending above the bottom thereof, plungers adapted to act upon the carriers and having recesses 14 and openings 15 through the walls of said recesses, packing-rings through which the plungers pass and which are provided with circular grooves with which the openings register when the plungers are raised and eduction-pipes leading from the grooves in the rings.

2. The combination with the housings, the rolls and hydraulic cylinders, upon the housings, of hydraulic plungers each having a recess 14 and openings 15, induction-pipes extending above the bottoms of the cylinders and lying within the recesses, packing-rings through which the plungers pass and which are each provided with a circular groove and eduction-pipes which communicate with the grooves.

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

MYRON J. WHITLOCK.

Witnesses:

CHARLES F. BLISS,
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