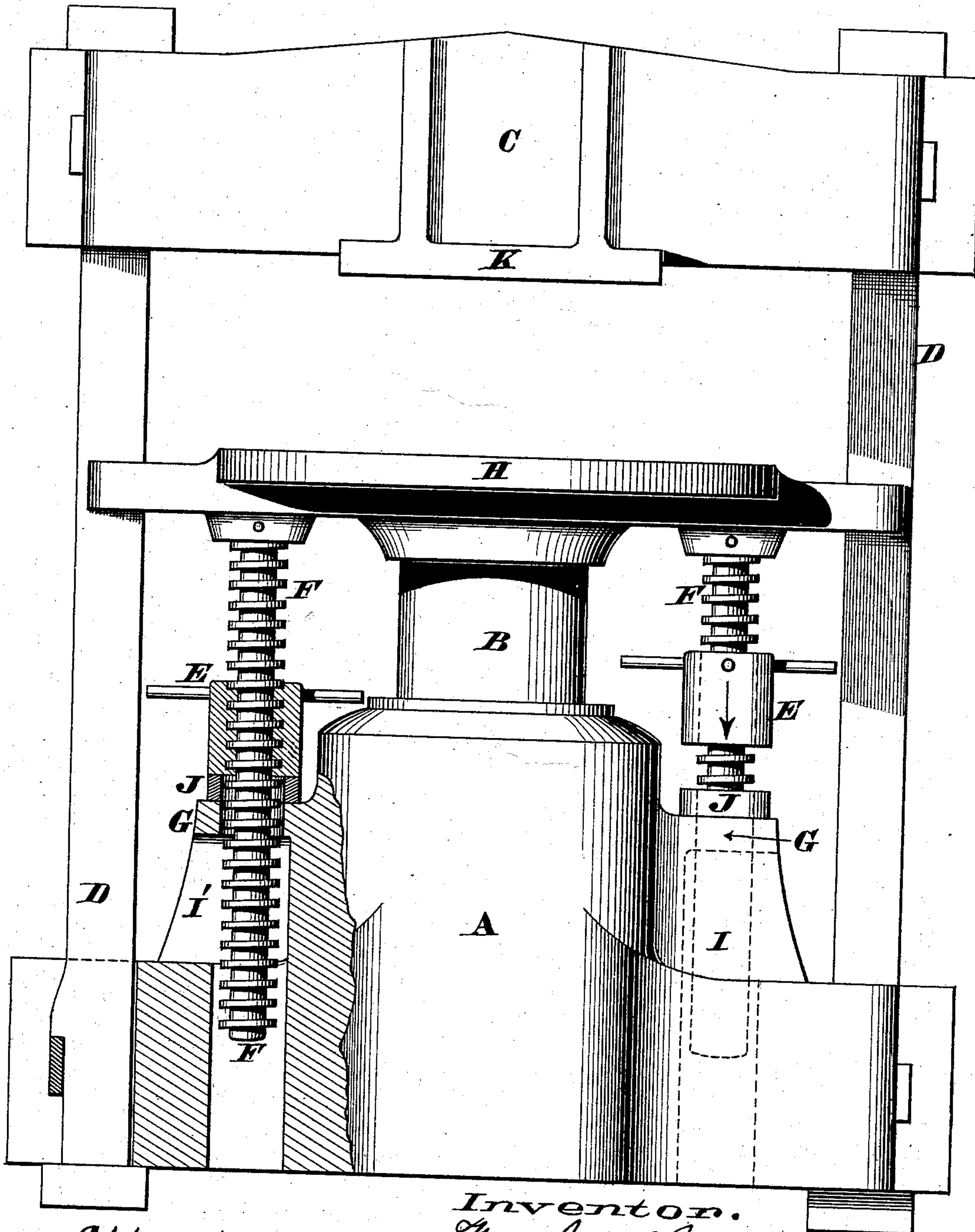


T. J. McGOWAN.
Hydrostatic-Press.

No. 214,574.

Patented April 22, 1879.



Attest.
Jm L. Knight.
Jno. Kelly.

Inventor.
Theo. J. McGowan

UNITED STATES PATENT OFFICE.

THEODORE J. MCGOWAN, OF CINCINNATI, OHIO.

IMPROVEMENT IN HYDROSTATIC PRESSES.

Specification forming part of Letters Patent No. 214,574, dated April 22, 1879; application filed January 17, 1879.

To all whom it may concern:

Be it known that I, THEODORE J. MCGOWAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new Improvement in Hydrostatic Presses; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, the figure being a front elevation of my improvement in hydrostatic presses.

The invention relates to a new and improved means of positively locking a hydrostatic press in any desired position after the bale or package has been fully compressed, by which the substance under pressure may be held in just the shape wished for a sufficient length of time to become fixed and firm. There has always been more or less difficulty in accomplishing this, because, if the water-pressure is left on for any length of time, the water, being elastic, contracts slightly, and the piston and platen are lowered; also, owing to the fact that there is always more or less waste of water by leakage, which reduces the pressure.

My lock is so arranged that when a pressure is reached at which it is desired the substance should continue for any length of time the piston and platen are positively locked in position, so as to remain fixed whether the water remains in the press or not.

The nature of my invention consists in arranging on either side of the piston, and parallel with it, two or more strong screws, the upper ends of which depend from the lower side of the platen, and their lower ends adapted to move freely within suitable chambers made in the sides of the press. Upon these screws are capstan-nuts, which are carried up as the screws move up with the platen and piston under pressure. When a sufficient pressure is secured these nuts are run down on the screws until they rest tightly against the collars or shoulders of the frame, when they hold the follower securely and exactly in place for any length of time, even if all the pressure is removed below the piston.

In the accompanying drawing, A represents the cylinder of an ordinary hydrostatic press, and B the piston, to the upper end of which is attached the platen or follower H. F F

represent the screws, whose upper ends depend from the lower side of the platen, and whose lower ends pass freely through the washers J J and the bearings or shoulders G G, engaging only with the capstan-nuts E E. D D are the uprights of the frame, and C C the upper portion or beam of the frame. I I' are vertical flanges or plates, one on the front and the other on the rear, united at the top by the shoulders G G.

Operation: As the pressure is applied the piston B is forced upward, and any substance between the platen H and the plate K on the beam C is compressed, the piston B carrying in its upward motion the screws F F and the nuts E E. When the substance has been sufficiently compressed, if it is wished to retain it for a time in that shape, the capstan-nuts E E are run down on the screws F F until they press tightly against the washers J J and shoulders G G, when they will hold the platen H immovably for any length of time, even if all the pressure on the piston is withdrawn.

In order to release the substance from the pressure it is only necessary to run the nuts up on the screws.

I am aware that the same end has been attempted to be secured by means of notches, wedges, and various other devices.

I am also aware that the same end has been attempted to be secured by providing the piston itself with screw-threads and a large nut, which, when run down on the piston, rested on the cylinder and held the piston in place, as shown in the patent of Ryne, May 19, 1863.

Over a press made in that way my invention possesses the following advantages: The piston being made necessarily of cast-iron, when constructed with screw-threads, these, by exposure to the water, crumble and break under pressure, when they cannot be repaired, (being cast-iron,) but a new and costly piston must be substituted, even if the thread breaks for only a few inches, while in my invention the screws are made of wrought-iron, and are small and strong, and easily replaced or repaired in case of breakage, and, as two or more of them are used, should one give way the others will hold the follower until the broken one is repaired or replaced.

Again, when a piston with screw-threads is

used it is necessary that the cylinder in which it works should be bored perfectly true throughout its entire length, while with a smooth piston the cylinder need be true only a short distance from the top. As the expense of boring such large masses of iron is very great this is a great advantage for a smooth cylinder; second, in a piston with screw-threads working in a cylinder bored true throughout its entire length it is necessary to use washers or packing on the bottom of the piston, which move up and down with it, and if there are any flaws in the iron forming the sides of the cylinder through which water can pass more or less force is thus lost, while with the smooth cylinder the washers may be arranged in the sides of the cylinder near the top, and flaws in the walls of the cylinder do not affect the force in any way whatever.

I am also well aware of and entirely disclaim the method of providing a retainer-bolt whose lower end is attached to a plate above the platen, and the upper end passing through the top of the press, with a lever and swivel-joint on the top of the bolt. This differs from my invention in that, by fastening the retaining-bolt upon the top of the upper beam of the press, this beam, which it is always diffi-

cult to make sufficiently strong, is weakened and subjected to a downward pressure and strain, and is likely to give way, while in my press the bolts are all below the platen, and it is held in place by pressure from below, and no expensive frame is necessary above. This device is also sometimes impracticable on account of space, it being necessary to have sufficient room above the top of the frame of the press for the bolts to extend almost their entire length—as, for instance, when a very small package is in the press—while with my press no space beyond the limits of the press is needed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hydrostatic press, the platen H, provided with two or more depending screws with appropriate nuts arranged to rest on bearings G G, as and for the purpose described.

2. The platen H, in combination with the depending screws F F, capstan-nuts E E, and washers J J.

THEO. J. MCGOWAN.

Witnesses:

WM. L. WRIGHT,

JNO. KELLY.