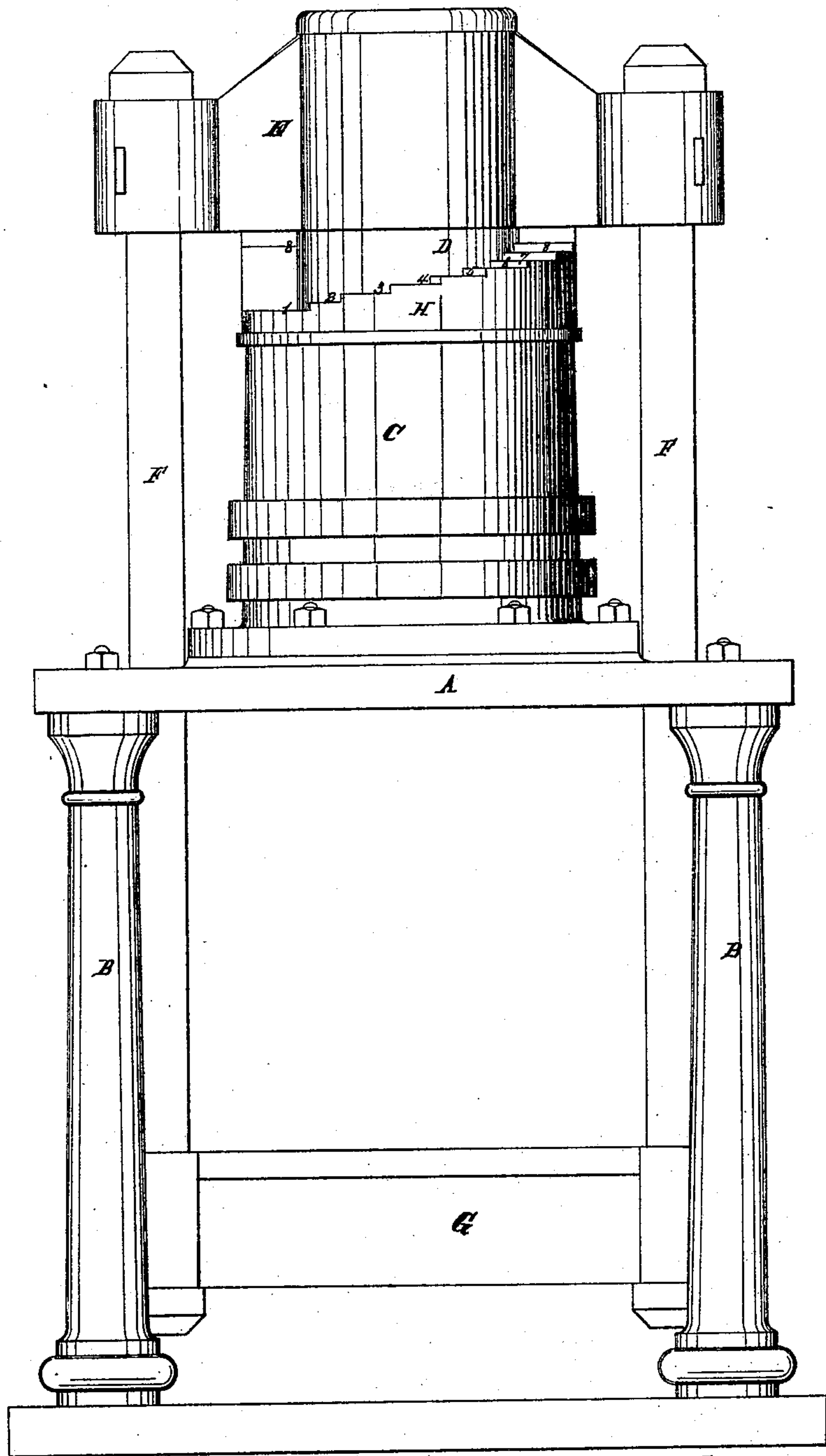


*Ettenger & Edmond,*

*Hydraulic Press.*

*N<sup>o</sup> 76,732.*

*Patented Apr 14, 1868*



*Witnesses*  
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# United States Patent Office.

WILLIAM ETTINGER AND HORACE P. EDMOND, OF RICHMOND, VIRGINIA.

*Letters Patent No. 76,732, dated April 14, 1868.*

## IMPROVEMENT IN HYDRAULIC PRESSES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM ETTINGER and HORACE P. EDMOND, of Richmond, in the county of Henrico, and State of Virginia, have invented a new and improved Hydraulic Press; and we 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, in which a press illustrating our invention is represented in elevation.

Our improved hydraulic press is intended chiefly for pressing tobacco, but is applicable also to other uses.

It consists essentially of a cylinder mounted upon an elevated platform, and a frame, the head of which rests upon the top of the piston, while the bottom of the frame, which receives the material to be pressed, is suspended beneath the bottom of the cylinder, and is drawn up towards it in the act of pressing, as will be hereinafter more fully described.

We employ, also, a retaining-device, consisting of an annulus, interposed between the tops of the cylinder and the upper cross-beam of the frame, and formed with a double series of steps, to engage beneath the ends of the head-piece, so that, by turning the said annulus around, the frame may be supported at any height.

In the drawings, A represents a platform, supported on legs or columns, B B. C represents the press-cylinder, and D a piston, projecting above the open upper end of the said cylinder. E is the press-head, resting on the top of the piston D. F F are wrought-iron rods, connecting the head, E, and the bottom, G, of the press-frame. H represents the retainer, which consists of a graduated annulus, set concentrically on top of the cylinder, between it and the press-head, E, and surrounding the piston D. This annulus is formed with two series of steps, 1 2 3 4 5, &c., extending around opposite portions of its upper surface, so that, by turning the said annulus, more or less steps of corresponding height will be placed beneath the respective ends of the head-piece E, to retain the entire frame at any height to which it may have been raised.

The pipes from the force-pump will be introduced at or near the lower end of the cylinder in the usual manner, and do not require specific description.

The pipes will, in practice, be arranged to conduct water from a single pump to two or more pistons, with a stop-cock controlling the inlet to each, so that the power may be applied to either of the presses at will, in regular succession, or otherwise, the graduated annulus, E, of each press being set up at each operation to retain the pressure.

When the operation is completed, and it is desired to "break up," or to release the compressed material, one or two strokes of the pump will release the retainer H, which is then turned back, and the cock being then opened, to permit the escape of the water, the frame will descend by its own gravity.

The weight of the moving frame does not offer any considerable or appreciable resistance to the enormous force exerted by a hydraulic press, and by our invention we utilize this weight to retract the piston, for "breaking up the press," when the operation is completed.

A great practical difficulty with hydraulic presses, as most commonly constructed, is the liability of the cast-iron cylinder, under the immense outward pressure, to break at the lower end, where the bottom joins the sides.

This difficulty is entirely removed by the present arrangement, the external support of the bottom of the cylinder being equal to the internal pressure.

Another great advantage is, that the press-box is brought on to a level with the floor of the mill or factory, so that the material to be pressed need not be elevated to introduce it.

By arranging our press so that the material is introduced into the lower part of the frame, we entirely avoid the necessity of sinking any part of the press in the ground, or erecting a platform to give access to the press-box.

Having thus described our invention, the following is what we claim as new therein, and desire to secure by Letters Patent:

1. The placing of the cylinder of the hydraulic press immediately under the head-piece or cross-beam of the frame of the press, the head-piece or cross-beam resting directly on the piston.
2. The retainer H, formed with two sets of horizontal steps, 1 2 3 4, and sustained and operated substantially as and for the purpose set forth.

WM. ETTINGER,  
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Witnesses:

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