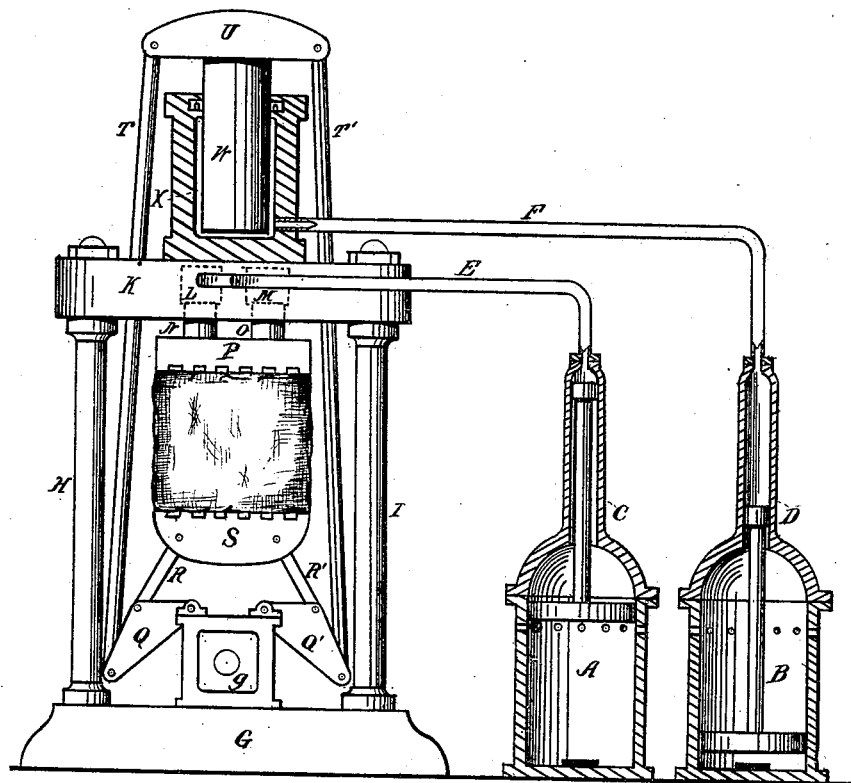


S. HUGHES.

HYDRAULIC COTTON PRESS.

No. 179,197.

Patented June 27, 1876.



WITNESSES  
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By

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# UNITED STATES PATENT OFFICE.

SAMUEL HUGHES, OF CHARLESTON, SOUTH CAROLINA.

## IMPROVEMENT IN HYDRAULIC COTTON-PRESSES.

Specification forming part of Letters Patent No. 179,197, dated June 27, 1876; application filed October 28, 1875.

*To all whom it may concern :*

Be it known that I, SAMUEL HUGHES, of Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful Improvements in Hydraulic Cotton-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to hydraulic cotton-presses; and consists in the combination, in a lever power-press, of a hydraulic-actuated plunger or piston for applying a part of the pressure to the platen, through the medium of rods and levers, and one or more hydraulic-actuated pistons or plungers for applying a part of the pressure to the platen directly.

Referring to the drawings, wherein is represented a vertical elevation, partly in section, of the machine complete, A B are two steam-cylinders provided with the usual working apparatus of pistons, valves, &c., which form no part of my invention, and may be of any desired formation. These steam-cylinders operate the plungers, working, respectively, in the hydraulic cylinders C D, which latter connect, by means of pipes E F, each with the hydraulic-ram apparatus, operating, respectively, the upper and lower platens. If desired, however, the steam-cylinders A B and water-cylinders C D may be replaced by a steam-engine and set of pumps, old style.

The construction of the press is immaterial to the issue of my invention, the accompanying drawing presenting a base, G, upon which are reared two columns, H I, connected at upper extremities by cross-piece K. Within this cross-piece K are the hydraulic chambers L M communicating with the hydraulic cylinder C by pipe E.

In the chambers L M work the water-rams N O, and are rigidly united with the upper platen P, which latter they operate. On the base G is a suitable standard, g, to which is attached the toggle-levers Q Q', jointed with the arms R R', the latter supporting the lower platen S.

The toggles Q Q' are operated by the rods T T, pivoted at the upper extremities to the cross-head U secured to the top of the ram

W, the latter working in the hydraulic chamber X, which is supported on the cross-piece K, and communicating by pipe F with hydraulic cylinder D.

The operation of the foregoing is at once apparent: The material to be compressed being introduced between the platens of the press, steam being admitted into the steam-cylinder B, causes the piston in said cylinder to move forward, and the plunger or piston in the hydraulic cylinder D to force the fluid through pipe F into the hydraulic chamber X, thereby raising the ram W, which carries the cross-head U, the latter, by means of toggles and arms, operating the lower platen S. After this initial pressure is exerted, the final compression is accomplished by the steam-cylinder A in like manner working the plunger or piston in hydraulic cylinder C, which forces the fluid through pipe E into hydraulic chambers L M, thereby operating the rams N O, and through them the upper platen P.

It is evident that the two rams N O and chamber L M may be supplemented by additional rams and chambers, or that one chamber and ram may be taken away entirely, or any agreeable arrangement therein may be made. The same may be said of the upper hydraulic apparatus W X. Thus, also, the upper platen may be worked so as to impart the initial compression, and the lower platen so as to impart the final compression, the construction of parts and elements as before described not limiting my invention, since they may be constructed and united in any desired way; but

What I do claim as new, and desire to secure by Letters Patent, is—

In combination with the lever power-press P Q R S T U, cylinders L, M, and X, and pistons N O W, constructed and arranged as described, the two steam-cylinders A B with water-cylinders C D, constructed and arranged as described, to give the initial and final pressure to the platens P S of the press, for the purposes specified.

In testimony that I claim the foregoing I have hereunto set my hand.

SAMUEL HUGHES.

Witnesses:

HORACE BOLGER,  
W. B. WAX.