(No Model.)

# J. A. BACHMAN.

## MACHINERY FOR PRESSING COTTON.

No. 451,846. Patented May 5, 1891.

Fig. 1.

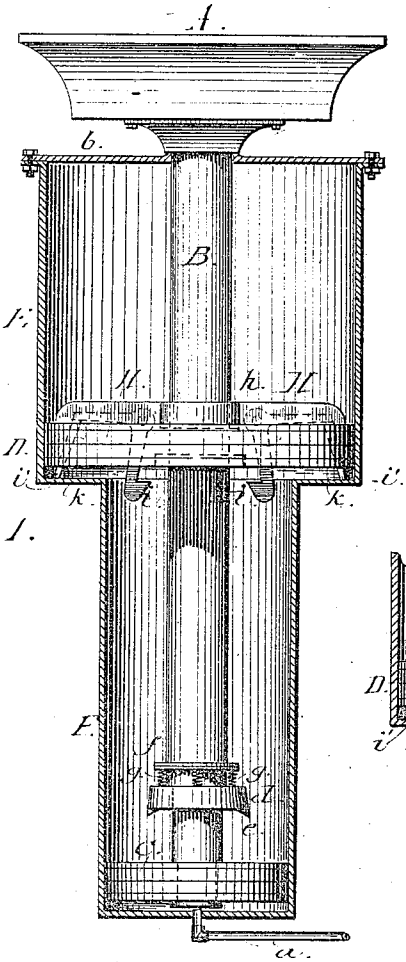
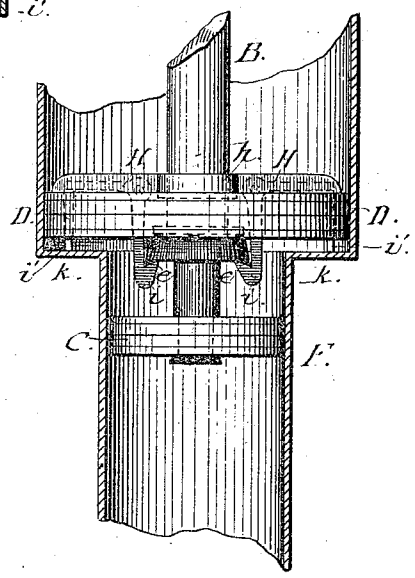



Fig. 2.




Witnesses:
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# UNITED STATES PATENT OFFICE.

JOSEPH A. BACHMAN, OF AUSTIN, TEXAS.

## MACHINERY FOR PRESSING COTTON

SPECIFICATION forming part of Letters Patent No. 451,846, dated May 5, 1891.

Application filed September 2, 1890. Serial No. 363,753. (No model.)

*To all whom it may concern:*

Be it known that I, J. A. BACHMAN, a citizen of the United States, residing at Austin, in the county of Travis and State of Texas, have invented certain new and useful Improvements in Machinery for Pressing Cotton; 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 appertains to make and use the same.

My present invention is an improvement in machinery for facilitating the pressing of cotton; and it relates particularly to mechanism in which cylinders and pistons are used, under the influence of fluid or liquid—such as steam, air, water, or gas under pressure—to operate the follower-block of a baling-press.

In my device I employ a compound cylinder—that is, a cylinder made up of two cylinders of different sizes or diameters, each having its own piston and both fixed about a single piston-rod.

The object of my invention is to produce a press of great and increasing power, economically arranged, that will press cotton quickly and well.

In the drawings illustrating my invention, Figure 1 is a vertical sectional view of the compound cylinder, with the pistons and follower-block shown in elevation. Fig. 2 is a similar view showing the pistons and follower-block up under pressure.

In the drawings similar reference-letters indicate like parts in all of the figures.

Referring to the drawings, A is the follower-block of the baling-press, attached to and forming a part of the piston-rod B, arranged to move vertically. The piston-rod B has fixed upon it two pistons—C a small one, and D a large one. The cylinder in which said pistons move is composed of parts E and F. The closed bottom of this cylinder has entering through it, to the space within, a pipe *a* to convey air, water, or whatever may be used as a medium in lifting the follower-block A. Through the upper head *b* of the compound cylinder passes the piston-rod B. Near the bottom of the piston-rod B is tightly secured a collar *d*, provided with a downwardly-projecting lip *e*, to engage the catch of a lever, hereinafter to be described, pivoted to the larger of the two pistons. A packing-ring *f* is fixed on the said piston-rod near the collar *d*, and between it and said collar are interposed spiral springs *g*. The large piston D encircles the piston-rod B with a tight joint, though they are not secured permanently together. Pivoted to the piston D, or hoods above them, are U-shaped levers H, provided with hooks or catches *i* and arms *i'*. The purpose of these levers and catches is to lock the piston D to the piston rod or shaft, so that the lifting influence exerted on the said piston may be communicated to the follower A through the piston-rod. The U-shaped levers and their hooks or catches are arranged within the piston D, and all joints incident to their arrangement are to be made tight by suitable packing.

In the operation of my press mechanism the steam, liquid, or fluid used as a medium for power enters the cylinder through pipe *a* below the piston *c*, exerts a pressure upon said piston, and forces it with the piston-rod and follower-block upward until the collar *d* reaches the larger piston D, the rod B passing freely through said piston D in its upward movement. The packing-ring *f* at this juncture rests in the recess of the said piston D, the springs *g* having been compressed by the weight of the same. As soon as a solid bearing is reached the piston D will be lifted upward in the continued movement of the piston-rod B. It is obvious that as soon as the piston C has passed into the larger part of the compound cylinder the force will be exerted upon the under surface of the larger piston D, thus greatly increasing the power at a period in the movement of the follower-block when the greatest pressure is required. After the stroke is complete and the follower-block is to be lowered the fluid, liquid, or steam is exhausted from the cylinder, through the pipe whence it came, (a proper valve to effect this return being provided,) and the said block, piston, and piston-rod gravitate to the points and positions whence they started.

The U-shaped levers H, when lifted with piston D by gravity, automatically take on to the lips of the collar *d* as soon as the larger piston begins to rise, and when said piston

returns again to its seat the arms *i'* bear upon the offset *k* of the cylinder E to release the catches *i* from the said collar *d*.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. The compound cylinder adapted for one steam or compressed-air supply, composed of two cylinders of different diameters united as one by an annular shoulder, in combination with the pistons of different sizes to suit said cylinder, the larger arranged to admit of a free movement of the piston-rod through it and the smaller fixed to said rod, and the piston-rod described, substantially as set forth.

2. In a mechanism for pressing cotton and analogous substances, the combination, with the follower-block, the piston-rod provided with collars and packing-rings described, and the two pistons, of the compound cylinder composed of two cylinders united as one by an annular plate or shoulder, as set forth.

3. The combination, with the cylinders of different diameters, as described, and the piston-rod and pistons, of the levers H, pivoted above the larger piston, the arms of which are adapted to bear on the horizontal wall or plate forming the junction of the two parts of the compound cylinder normally, and the inlet-pipe, as and for the purpose set forth.

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

JOSEPH A. BACHMAN.

Witnesses:

C. G. ELLIS,

W. P. ANDERSON.