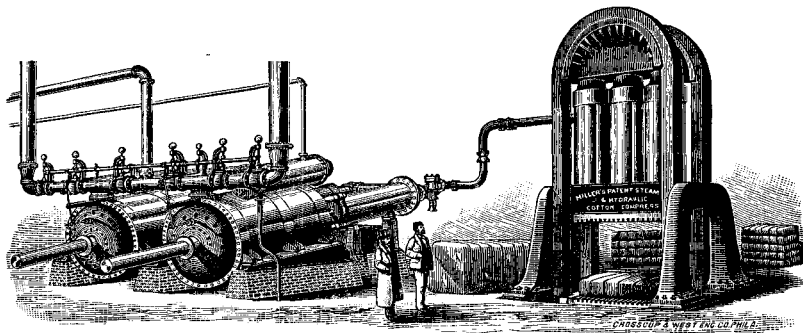


Hydraulic Cotton-compress.—The constant increase in the production of loose materials, such as hay, cotton, etc., at a distance from the centres of their consumption, has led to the construction of special apparatus for compressing them into packages which can be more easily handled, more cheaply transported and stored, and be sold at more remunerative prices than if shipped in bulk. Several presses that have been invented in recent years are rendering efficient service to agriculture and the industries. This is especially evidenced in the baling of cotton (whose production in 1888 reached the large number of 6,935,082 bales), for which purpose the hydraulic press is eminently adapted. Figure 6 exhibits a powerful hydraulic cotton-compress operated by steam. This machine consists of a cast bed-piece with housings which support the press-head or upper platen, on which rests the hydraulic cylinders. There are three cylinders, each $26\frac{1}{8}$ inches in diameter, with their rams or pistons working upward. These rams raise a cross-head to which is attached strong steel links carrying the table or lower platen. The water, on being forced into the hydraulic cylinders of the press, raises the ram-heads, which in turn raise the cross-head and lower platen, on which is placed the cotton-bale, and compresses it to the required density against the press-head. To operate the press there is provided a high- and a low-pressure steam-engine cylinder; to each cylinder there is attached a hydraulic ram, both rams being connected with the press cylinders by means of a pipe for transmitting the water. The low-pressure steam-cylinder has a diameter of 73 inches and a stroke of 10 feet; the high-pressure cylinder has a diameter of 73 inches with a stroke of 11 feet, and uses steam at 125 pounds per square inch. The high-pressure ram has a diameter of $13\frac{1}{8}$ inches, and the low-pressure ram has a diameter of $29\frac{1}{4}$ inches. The initial pressure is given the bale by the ram of the low-pressure engine; the high-pressure engine ram is then brought into action, by which the pressing of the bale is completed, with a total pressure on the bale of 3000 tons. There is thus obtained a power sufficient to permit of furnishing in a compact form a bale of 500 pounds and of a density of 50 pounds to the cubic foot. The capacity of the machine is one hundred bales per hour.



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6. Steam and hydraulic cotton-compress (Miller & Bierce, Philadelphia).