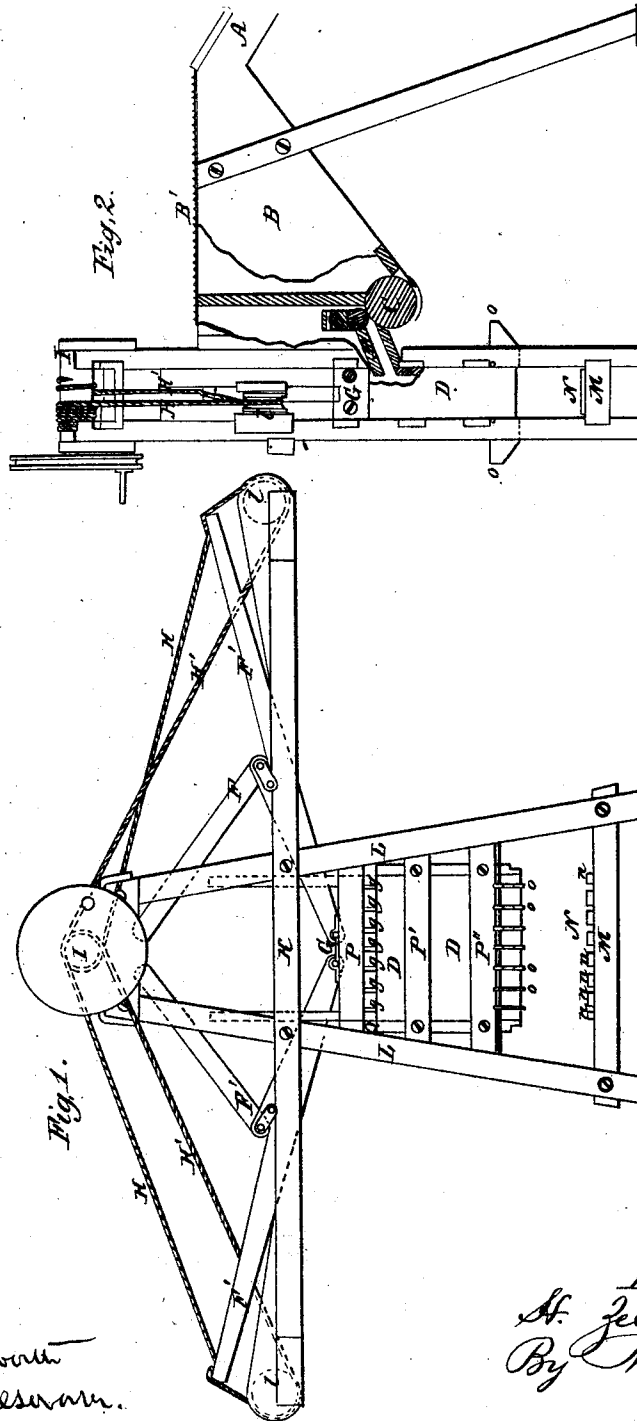


*H. Zellner,
Cotton Press.*

N^o 69887.

Patented Oct. 15, 1867.



Witnesses-

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United States Patent Office.

HENRY ZELLNER, OF COLUMBIA, TENNESSEE.

Letters Patent No. 69,887, dated October 15, 1867.

IMPROVED COTTON-PRESS AND FEEDER.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY ZELLNER, of Columbia, in the county of Maury, and State of Tennessee, have invented a new and combined Cotton-Press and Feeder; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a front elevation of my invention.

Figure 2 is a side elevation of the same, a portion of the wall being removed, to show the interior construction of the apparatus.

Similar letters of reference indicate corresponding parts in the two figures.

In this invention the ginned cotton is fed to the machine through a chute, in which it is cleaned from dust. It is then forced into the press under the follower, which presses it to the bottom of the tube, where it is held down by a novel device, while the follower returns for a second tube-full. This process is repeated till the bale is completed.

In order that others skilled in the art to which my invention appertains may be enabled to make and use the same, I will proceed to describe it in detail.

In the drawings, A represents the chute into which the cotton is received after passing through the gin, and which conducts it to the chamber B. The bottom of the chute may be made of parallel bars, or may be foraminated, to allow the escape of the dust. The cotton will be forced through the chute against the top of the chamber B with considerable violence, and I make this top B' of bars or a foraminated plate, to permit the further escape of the dust at this point. The cotton, comparatively freed from dust by this process, will drop to the bottom of the chamber B, and come in contact with two feed-rollers, C C', operated by the power that drives the gin, by which it will be driven into the vertical press-tube D, through the chute E. The feed-rollers C C' may be made with teeth or flutings, or smooth, as may be desired, and one may be operated by the motion of the other, by means of any of the devices hitherto employed for connecting the motion of parallel feed-rollers. The follower G, closely fitting the inside of the tube, is operated by the toggle-joint lever F. An arm, F', projects out from either elbow of this lever, having a cord or chain, II, attached to its extremity, and passing around the shaft I, one of the cords winding under and the other over the shaft, so that the revolutions of the shaft shall either wind or unwind both cords at the same time. A horizontal beam, K, is attached at its centre to the upright frame L L of the machine, and is provided with a pulley, ll, at each end. Another cord or chain, II', proceeds from the extremity of each of the arms F' F', passing over the pulleys ll, and being attached to the shaft I in the manner in which the other set of cords II H is attached to the cords II' II', extending outward from either side of the shaft I, one winds over and one under the shaft, so that while the shaft is revolving in one direction, the cords II H shall elevate the arms F' F', and depress the follower, and when the motion of the shaft is reversed, the cords II' II' shall depress the arms F' F', and raise the follower. The shaft I is operated by the power that drives the gin, applied either by means of the pulley I' or in any other way that may prove convenient and practicable. The motion of the shaft may be reversed by any of the known devices for reversing circular motion.

I described above the progress of the cotton till it entered the press-tube through the chute E. At this point the follow-block G is elevated so that the cotton is fed into the tube under it. When a sufficient amount has been forced into the tube, the action of the feed-rollers C C' is arrested, either by the operator or by a self-acting apparatus for the purpose, and the motion of the shaft I is reversed, causing the follower to descend through the tube D, forcing all the cotton in it to the bottom.

M represents the floor of the press upon which the bale is made up. It is provided with a raised bed, N, composed of parallel pieces n n n fastened across the floor directly under the tube D, upon which the bottom cloth of the bale-cover is spread before the operation is begun. The cotton is forced down through the tube upon this bottom-cloth, by the process above described, and is held there while the follow-block is returning for another charge by means of the hinged catches or pawls o o o. These pawls work in slots in the walls of the tube D around its lower extremity, and are so formed and hung that when free they project into the tube, but yield before the descending cotton and allow it to pass down, instantly resuming their position, however, when the

cotton has passed them, preventing its return up the tube. Notches or slots *g g g* are provided in the sides of the follow-block, in number and position corresponding to these pawls, into which the pawls will freely drop when the block reaches a position in the tube opposite to them. The pawls may be formed so as to drop into these notches by the force of their gravity, which is the construction shown in the drawings, or they may be provided with springs, which will force them into the notches. I do not intend to limit myself to the use of these pawls at the bottom of a vertical tube, but may use them at the top of such a tube in presses where the cotton is forced upward, or in horizontal tubes, where the press works in that manner. I claim their use in any form of tube placed in any position, and at any part of the tube. *P P' P''* are cross-beams, connecting parts of the frame *L L*. It will be observed that between the upper beam *P* and the top of the vertical tube *D* is a narrow space, *Q*. This is designed for the admission of the upper cloth of the bale as the follower is prepared to carry the last charge down the tube. The motion of the shaft *I* is usually reversed before the bottom of the follow-block has reached the top of the tube *D*, so that no cotton can escape through the space *Q*. But the last time that the follower is raised in making up a bale, the operator must allow it to rise slightly above the top of the tube, so that the upper bale-cloth can be inserted.

A press of this construction may be operated horizontally, as well as vertically, if it be desired to use a horizontal press.

Over the foraminated cover *B'* a funnel-shaped flue may be provided, which will conduct away the cotton-dust, and thus obviate one great inconvenience in the use of cotton-presses and gins in buildings. It will be observed that my toggle-joint lever exerts its greatest power just where it is most needed, as the follower is approaching the bottom of the tube where the compressed cotton offers the greatest resistance. At the upper part of the tube it gives the follow-block less power but greater velocity. Springs *S S* may be provided in connection with either of the rollers *C C'*, to allow them to adjust themselves to any unusual pressure of the material feeding between them. It will be observed that these rollers seize the cotton and draw it from the chamber *B*, forcing it with great power into the press, thus operating to clear the chamber *B* as well as to feed the press. Mechanism can easily be attached which will stop the motion of the rollers *C C'*, and renew it again at exactly the proper point, without the intervention of the assistant workman; but as two workmen must always be employed about any cotton-gin, who will have plenty of leisure to attend to changing the motion of the rollers and of the shaft *I*, I have not deemed it necessary to show such mechanism in this application. I would suggest, however, that as the follower reaches the end of its upward motion, a pin projecting from it or its operating levers could be made to throw into gear a set of cog-wheels or a belt, communicating motion to the feed-rollers; and as it started to descend again, a similar device could operate to throw the cog-wheels or belt out of gear, so as to prevent the cotton from being fed above the follow-block. Such devices for starting and arresting motion are common in other machines, and I desire to be at liberty to attach any of them to my cotton-press, if I should wish to do so, for the purpose indicated. The chamber *B* that receives the cotton from the gin is to be of sufficient size to receive and hold all the cotton ginned, while the follow-block is ascending and descending. The cotton will be fed into this chamber from the gin slowly, in comparison with the speed of its delivery through the feed-rollers into the press. Its capacity and the speed of all the parts are to be so adjusted that it shall be nearly filled during the descent and ascent of the follow-block, and shall be emptied with great speed, while the follow-block is stationary for a moment at the upper part of the tube *D*.

But little power will be required to work this machine, and it can be derived from the engine which works the gin without interfering at all with the operation of the latter.

The tube *D* may be made exceedingly short in my improved press, and the whole apparatus be thus rendered light and portable, and be adapted for use in buildings that would not admit the old press with its high tube. The device of the pawls, above explained, enables me to dispense altogether with the great length which it was necessary to give the tube in the old presses, in order to prevent the return of the cotton after the ascending follow-block. My press, it will be seen, accomplishes in a simple and effectual manner what was endeavored to be but never was accomplished in the old press by the long tube, and gives us a simple, neat, and compact machine, instead of the clumsy and inconvenient apparatus hitherto employed. When the press is employed for compressing substances having a long fibre, such as hay, &c., which may be done at any time by simply removing the foraminated cover *B'*, and feeding through the top of the chamber *B*, a blade having a sharp cutting lower edge may be attached to or fixed so as to be operated by a pin upon the side of the follow-block next to the chamber *B*, and arranged so that at every descent of the follow-block it will sever the fibres at the mouth of the chute *E*.

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

1. I claim the triangular chamber *B*, situated between the chute *A* and the press, arranged as and for the purpose above described.
2. I claim the arrangement of the foraminated cover *B'*, in connection with the chamber *B* and chute *A*, in a hay or cotton-press, substantially as and for the purpose described.
3. I claim the combination of the shaft *I*, cords or chains *H H'*, and toggle-joint lever *F*, with the pulleys *l l*, working at the end of the fixed beam *K*, substantially as and for the purpose specified.
4. I claim the use of the pawls *o o o*, substantially as and for the purpose described.
5. I claim the arrangement of the chute *A*, chamber *B*, rollers *C C'*, lever *F*, block *G*, tube *D*, and pawls *o o o*, substantially as and for the purpose set forth.

To the above specification of my improvement I have signed my hand this 2d day of July, 1867.

HENRY ZELNER.

Witnesses:

CHAS. A. PETTIT,
SCLOD C. KEMON.