

W. A. SHEPARD.
COTTON PRESS.

No. 50,635.

Patented Oct. 24, 1865.

Fig. 1.

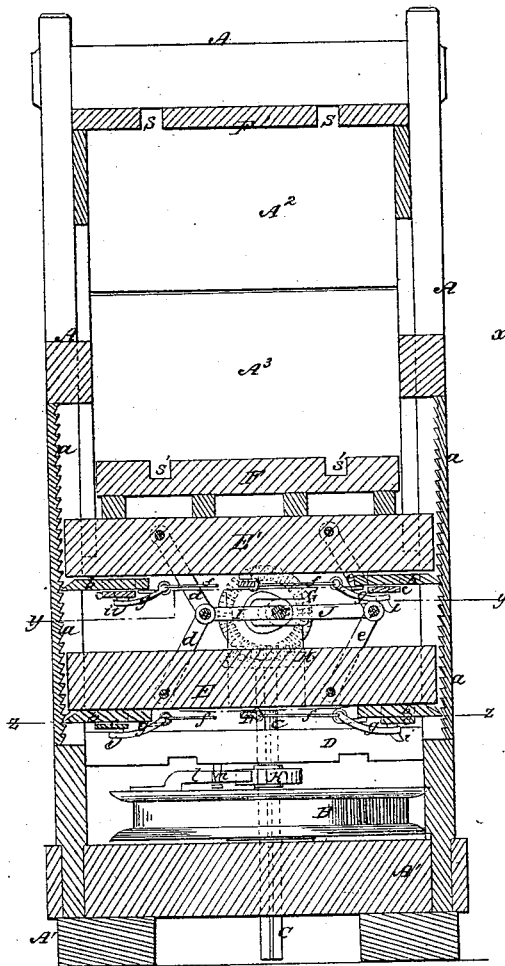


Fig. 2.

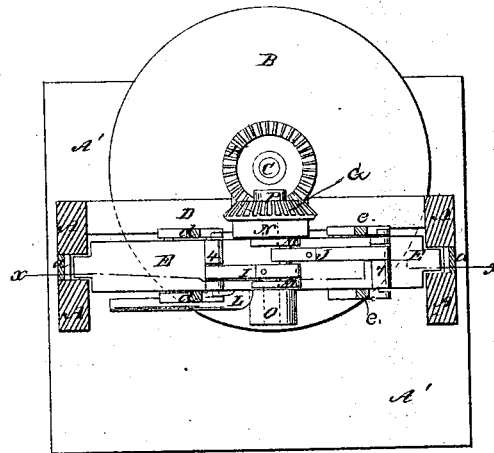
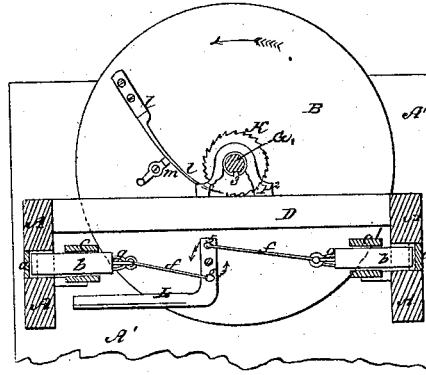


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM A. SHEPARD, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, ROYAL M. BASSETT, OF DERBY, AND H. G. SMITH, OF GOSHEN, CONN.

IMPROVED COTTON-PRESS.

Specification forming part of Letters Patent No. 50,635, dated October 24, 1865.

To all whom it may concern:

Be it known that I, WM. A. SHEPARD, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machinery for Pressing Cotton, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to certain improvements in machinery for pressing cotton, hay, &c., and has for its objects to obtain the greatest practicable amount of leverage with a system which is simple and durable in its mechanical construction, and in which the motive power is centrally and economically applied; and also to render the working of such machinery in practice rapid as well as effectual; and to these ends my invention consists in the employment, in combination with two "creeping" cross-beams, supported by ratchets and connected together by two or more pairs of links, of a centrally-located driving-crank and pitmen, or their equivalents, all as hereinafter more fully explained; and my invention further consists in the employment of a driving-wheel arranged to operate in a given position, in combination with a main shaft and system of levers and driving-crank arranged to move intermittently with the sliding or creeping beams, all as hereinafter more fully described.

To enable those skilled in the art to make and use my invention, I will proceed to describe the construction and operation of one of my improved presses, referring by letters to the accompanying drawings, in which—

Figure 1 is a vertical section taken on a line, *x x*, seen at Fig. 2. Fig. 2 is a horizontal section taken at the line *y y*, of Fig. 1, and Fig. 3 is a horizontal section taken at the line *z z* of Fig. 1.

In the several figures the same parts are designated by the same letters of reference.

A represents the main frame-work, which may be supported by a suitable base, A', or be built in the barn or other house where the cotton or other material is to be baled, and in the upper portion of which is formed, in the usual manner, a bottomless case or box having doors A² A³ on one or both sides. The top F' of the said case or box is formed with grooves *s s* in

the usual way, to admit of the introduction of the bands or ropes which are to confine the material in a bale.

F is the moving platen or ascending presser, which has also grooves *s' s'*, and which is mounted on the cross-beam E'. Said cross-beam and its mate, E, are constructed and arranged to move intermittently in the same direction while performing the pressing operation by means of mechanism to be presently described.

B is the main driving-pulley, which is mounted loosely or to turn freely on the vertical shaft C. Said shaft is splined so as to move longitudinally through its bearings and through the driving-wheel K, while at the same time it is held by a key projecting from the wheel K into said spline from turning around in the wheel K. The shaft C works up and down and turns in a hole bored through base A', and also in suitable bearings in the cross-bar D, and in a stand, P², which projects from said beam D. (See Fig. 3.) On the upper end of the shaft C is keyed a bevel-gear, H, which meshes into and drives another bevel-gear, G, the latter being keyed on the end of a shaft, P, (see Fig. 2,) on which is formed the driving-crank M. This crank-shaft is supported and runs in two stands, N and O, which are secured to and project from the vertical sides of the creeping cross-beam E, and to the crank M of said shaft are connected (one end of each) two pitmen, I and J, which are also coupled at 4 and 7 (see Fig. 1) to two pivots or studs. To these studs are coupled (one end of each) the links *ee* and *dd*, which are also pivoted at 1 1 and 2 2 to the creeping beams E' and E, respectively, as clearly shown.

aa are two vertical ratchets, which are secured to the upright portion of the frame-work of the machine, and in which work four pawls or catch-bars, *bbbb*. These bars *b* are arranged to slide in straps or housings *c* on the under sides of beams E E', near their ends, and are held in the ratchets *aa* by means of springs *g*, as clearly shown; and said catch-bars *b* are provided with a connected mechanism, by means of which they are thrown and held out of the ratchets at the will of the operator or attendant, which I will explain. To each pair of catch-bars—that is, the two bars under each creeping cross-beam—are connected two wires

or small rods, *f f*, which are also connected to an angle-lever, *L*, (see Fig. 3,) which is pivoted at *x* to the lower side of the cross-beam, the ends of said wires or rods, *f f*, where they are coupled to said lever, passing through slots 5 6, as clearly shown in the drawings.

l is a spring-pawl secured to the upper surface or side of the main driving-pulley, *B*, and engaging with the toothed wheel *K*.

m is a turn-button to hold the spring-pawl in mesh or contact with the wheel *K*.

It will be understood that, as the pulley *B* is loose on shaft *C*, by throwing the spring-pawl *l* into the toothed wheel *K* the latter and pulley *B* are so clutched together that power applied to pulley *B* to turn it in one direction (as per red arrow, Fig. 3) will drive also said wheel *K*, and that, as the latter is keyed in the spline of shaft *C*, said shaft is thereby rotated in a given direction.

In connection with what has already been said, the following will suffice to give a complete knowledge of my improved press, both in its construction and operation.

Suppose the parts to be in the relative positions seen in the drawings, to press a bale of cotton or other material the following operations would be performed: The cotton being placed in the case or box of the press, and the doors *A*² *A*³ having been closed and fastened, and the bands for securing the bale having been laid in the grooves *s s* in the usual manner, the motive power is applied to the main driving-pulley *B* and it caused to rotate in the direction indicated by the arrow at Fig. 3. By the rotation of said pulley the toothed wheel *K* is rotated, and it in turn rotates the shaft *C*, from which, through the medium of the bevel-gears *G H*, motion is imparted to the crank-shaft *P*, (*M*.) By the revolutions of the said crank *M* the pitmen *I J* are caused to draw toward and force from the former alternately the pivots or studs 4 7, and thereby alternately place the links *e e* and *d d* in straight lines and at angles, as seen at Fig. 1. Now, supposing the parts to stand in the relative position seen at Fig. 1, and it will be understood that by the next quarter-revolution of the crank *M* the bars or links *e e* and *d d* will be brought (each pair) into a straight line, and since they assume a straight line and the beam *E* is prevented from moving downward, the beam *E'* is forced upward by the toggle-joint action of said levers or links *e e* and *d d*. By the next quarter-revolution of said crank *M* the toggles or links *e e* and *d d* are again placed at angles, drawing the pivots or pins 2 2 nearer to the points 1 1, and since the beam *E'* is now held (by its catches *b b*) up so that the points 1 1 cannot descend to accommodate the changed position of the links, the beam *E* is drawn upward. At the next quarter-revolution the beam *E* serves as a fulcrum on fixture to aid in effecting the forcing up of beam *E'*, and so on, the beams *E'* and *E* are respectively and alternately pushed and pulled upward by the action of the

toggle-joints on two pairs of links, *e e* and *d d*, causing the platen *F* to ascend with an intermittent (but nearly continuous) motion.

It will be seen that since the driving crank-shaft, pitmen, toggles, &c., are all connected to the beams *E E'*, these working parts, with the gearing, must all move up and down with said beams, and to admit of this and still have the main driving-pulley and point of applying the motive power retain the same position, the main shaft *C* is splined or grooved longitudinally, as before described, and so arranged as that it will ascend freely with the working parts and at the same time receive and impart motion with perfect facility. After the platen has been forced up as far as necessary or desired, the doors *A*² *A*³ may be opened, the bale of cotton bound and removed from the press. Then, to put the machine instantly in its former condition, ready to press another bale, the pawl *l* is thrown out of engagement with the toothed wheel *K*, which allows the main pulley to run loose, and the operator, taking hold of the angle-levers *L L*, pulls them round on their fulcrums *x* in the direction indicated by the arrows at Fig. 3, and throws or draws, by means of wires *f*, the four bolts *b* out of the ratchets *A A*, and the creeping beams, platen, and working mechanism are allowed to descend to the lower part of the frame of the press, ready to repeat the operation of pressing another bale.

It will be seen that by the employment of the spring-pawl *l* and the retaining turn-button *m* the operator can easily, while the machine is running, disconnect the main pulley *B* from the main shaft *C* and quickly adjust the platen and levers, &c., ready for another bale, and that, simply turning the button *m* the whole mechanism is again put into operation.

It will be understood that in lieu of the crank *M* an eccentric or a cam might be employed, and that the number, arrangement, and location of the toggles or levers may be varied without changing the mode of operation of the machine, and it will also be understood that the driving mechanism may be varied without departing from the spirit of my invention.

It will be seen that by the application of the power about at the middle of the machine, and in the manner described, the whole apparatus is rendered simple and effective.

It will be understood that by the use of the creeping beams *E E'* in combination with the toggle joints or levers, as described, an almost infinite amount of leverage is attained and the power most economically employed.

Of course, the details of construction and proportions of the machine may be varied at the will of the constructor to suit the circumstances under which it is to be employed.

Having fully explained the construction and operation of my improved machine, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the toggle-joints or

levers *e e* and *d d*, or their equivalents, with the creeping or alternately-moving beams *E E'* and a driving-crank or its equivalent, the whole arranged to operate in the manner substantially as described.

2. The employment, in combination with the driving-gears and mechanism for moving the beams *E E'*, of sliding-shaft *C* and permanently-located driving-pulley *B*, as and for the purposes set forth.

3. The employment, in combination with the beams, ratchets, and bolts, of levers *L*, so arranged and connected with said bolts as to enable the operator to quickly drop the moving parts, as described.

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Witnesses:

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