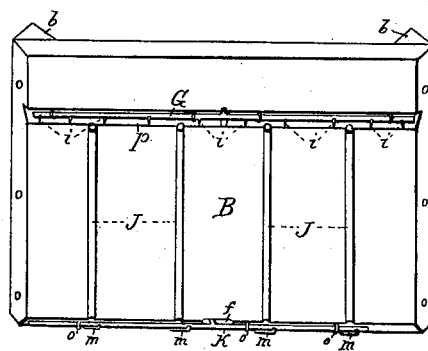
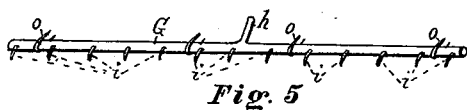
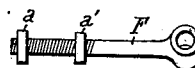
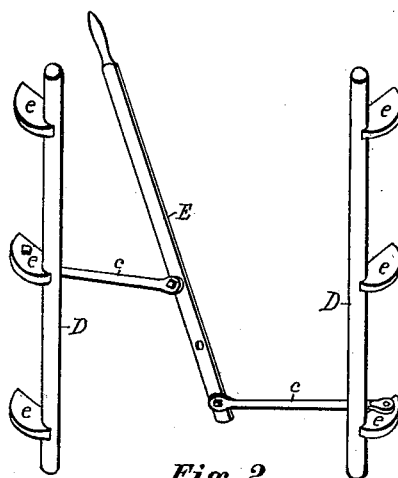
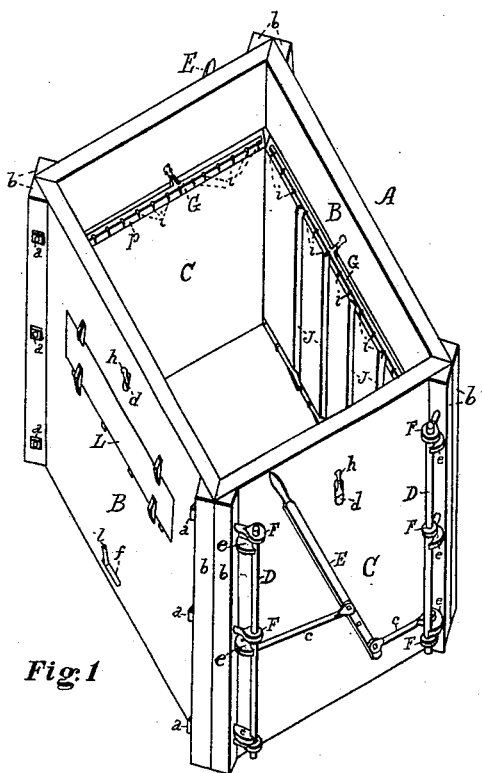


2 Sheets—Sheet 1.

Patented July 24, 1888.



A. J. Chapman
M. H. Handmel.

Char. E. Mitchell,
by F. W. J. Lander,
Atty.

(No Model.)

2 Sheets—Sheet 2.

C. E. MITCHELL.

BALING CRIB.

No. 386,649.

Patented July 24, 1888.

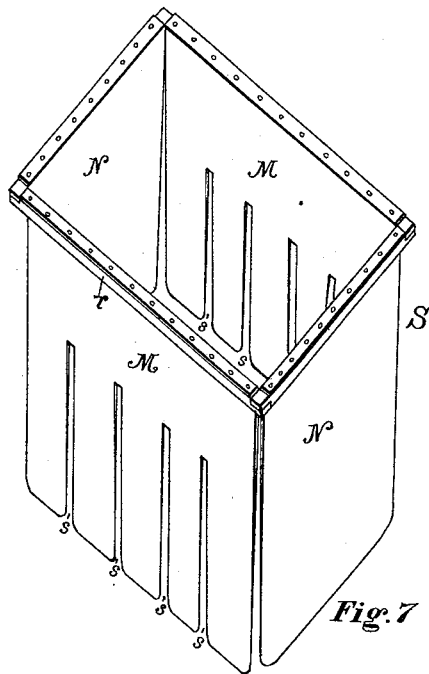


Fig. 7

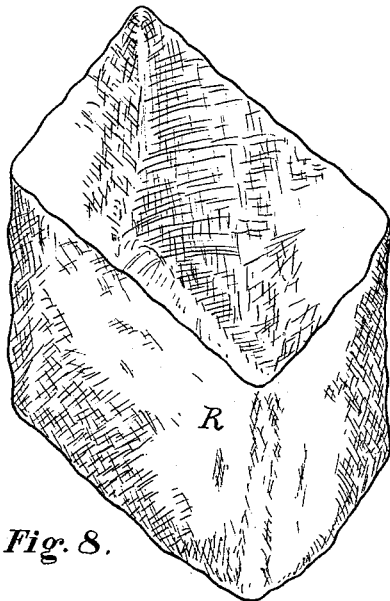


Fig. 8.

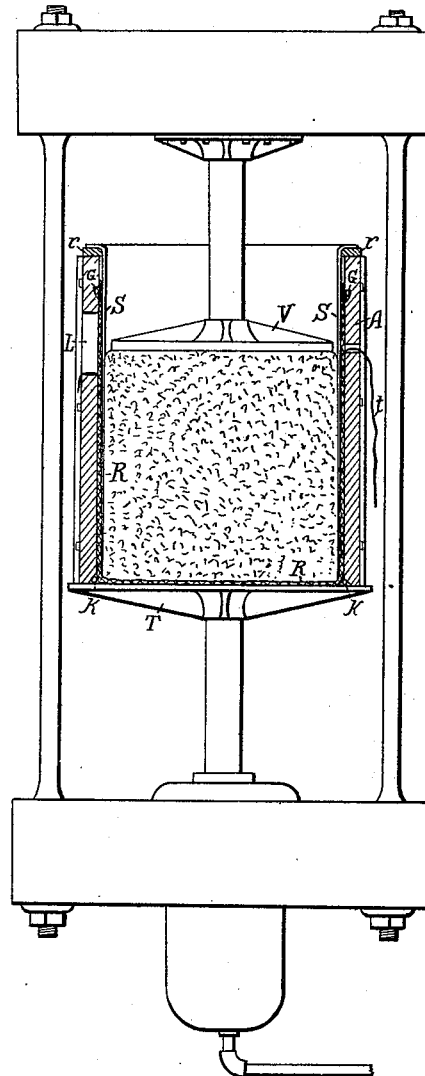


Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES E. MITCHELL, OF BANGOR, MAINE.

BALING-CRIB.

SPECIFICATION forming part of Letters Patent No. 386,649, dated July 24, 1888.

Application filed February 27, 1888. Serial No. 265,364. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. MITCHELL, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented a new and useful Baling-Crib; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved baling-crib for baling fine substances under pressure; and it consists of an improvement over Letters Patent No. 370,488, granted to me September 27, 1887. It is illustrated in the accompanying drawings in two sheets, in which—

Figure 1 represents an isometric view of my improved baling-crib. Fig. 2 is a perspective view of the locking and releasing device used on my improved crib. Fig. 3 shows a perspective view of an eyebolt with its securing-nuts. Fig. 4 is an interior elevation of one of the sides of my crib. Fig. 5 is a perspective view of the sack-holder used in my device. Fig. 6 is a perspective view of the bale-tie holder also used. Fig. 7 is an isometric view of the inside case forming part of my machine. Fig. 8 is a similar view of a sack forming part of my machine, into which the substances are pressed or baled. Fig. 9 represents an elevation of a hydraulic press, with a sectional view of my improved crib and its attachments, showing a bale under pressure.

Similar letters of reference refer to correspondingly like parts throughout the several figures.

The object of my invention is to furnish an improved crib for baling purposes, by the means of which fine substances may be speedily reduced in bulk and baled in sacks for mercantile purposes.

I accomplish my object by providing a crib, A, having expansible sides or means whereby the said crib can be immediately opened an equal distance on all sides to facilitate a quick discharge of its contents.

My improved crib shown in Fig. 1 of the drawings is composed of four sides or parts, which may be constructed from either wood or metal; but as wood is the cheaper material and considerably lighter than metal, I consider it preferable, and, as the construction is prac-

tically the same in either case, I will proceed to describe my invention as manufactured with wooden sides. I therefore make the sides B B and ends C C from hard-wood planks, about two and one-half inches thick, cut to the desired length and miter their ends at an angle of forty-five degrees. Triangular-shaped battens *b*, of a length equal to the height of the crib, are firmly secured to ends of each part. The parts B B and C C are now put together, making a bottomless box, and the battens *b* serve as stiffening-bars at the outside corners, to strengthen the crib and prevent the same from splitting when under pressure.

A short distance from the top of the crib and extending entirely around the inside is a triangular-shaped groove, *p*, containing bag-holders G, fastened sufficiently within its depth to offer no obstruction from the inner face of the crib. These bag-holders (shown in Fig. 5) are round metal rods studded with pointed fingers or spurs *i* at equal distances from each other projecting along a median line. A handle, *h*, by which the rod is operated, projects from the side opposite the spurs. Staples *o* firmly secure the bag-holders G in the grooves *p*, and short transverse slots *d*, cut through the sides and ends, allow the handles *h* to extend through and be operated from the outside of the crib. The fingers or spurs *i* of the bag-holders G are slightly curved downward and extend to the outer lower edge of the triangular-shaped grooves *p*.

To secure a bag inside of the crib A by the bag-holders, the handles *h* are depressed to the bottom of the slots *d*, projecting the spurs *i* at a right angle to the inner face of the crib. A bag can now be stuck on the projecting spurs, and by raising the handles *h* the spurs are pressed against the lower surface of the slots *p*, firmly holding the bag at this place. The two sides B B have transverse grooves J running across their inner faces from the bag-holders to the bottom, and a hole is bored through the sides at the upper extremity of these grooves, through which the ends of the bale-ties pass during the operation of baling, as will be hereinafter described.

Tie-holders K, consisting of a metal rod having right-angular-shaped hooks *m* projecting from one side and a handle, *l*, from its opposite side, are situated at the bottom of

the sides B B, and they are held in place by staples *o*, driven firmly into the lower edge of the crib, which is beveled at this place for the purpose of receiving the tie-holders. The handles *l* extend through short longitudinal slots *f*, and are operated from the outside of the crib. The hooks *m* are so situated as to come directly under the bale-tie grooves J, and they are used to hold the ties from slipping out of the grooves at this place.

One side B is provided with an aperture, L, which is a longitudinal opening about five or six inches wide, extending almost to the battens *b* at each end, and it is situated just below the bag-holders. This aperture is the opening through which the bales are tied up, and when under pressure a cover tightly fitting the pocket is held in place by turn-buttons or other similar means.

The sides and ends composing my improved crib are held together by a locking device that I will now proceed to describe.

Passing through the corners and battens *b* at each corner of the crib, at an angle of forty-five degrees with the plane of the sides, are eyebolts F, made somewhat longer than the width of the two battens at this place. In the crib here described I use three eyebolts at each corner, though their number may be increased or diminished, according to the height or size of the crib used. These eyebolts pass through the battens from the ends toward the sides, and are secured by the nuts *a* on their respective ends. Turning in each series of eyebolts at the ends of the crib are vertical shafts D, provided with projecting cams *e*. These cams are placed as near the eyebolts as possible on the length of the shaft, and are so set that when their ends are turned against the battens *b* they tightly close the corners of the crib.

Levers E, extending to the top of the crib, are pivoted to each end of the crib by a bolt passing through a hole drilled a short distance from their lower ends. Connecting-rods *c c*, pivoted to the levers E E each side of their pivotal connections with the ends of the crib, have their opposite ends pivoted to the cams *e e* on opposite shafts D—that is, the upper connecting-rod *c* on each side of the crib is bolted to the middle cam and the lever E on one side, and the lower connecting-rod is bolted to the lower end of the lever and the lower cam on the opposite side.

It can be readily seen that by drawing the levers E toward the right the cams are released from the corners and the crib opened an equal amount on all sides to the full extent of the eyebolts F, and by drawing the levers in the opposite direction the crib is easily and quickly closed. A check-nut, *a'*, (shown in Fig. 3,) is situated on each eyebolt F at the end of each side of the crib, where it passes through the same, and it serves to prevent the bolt from slipping in the sides when opening and closing the crib.

In connection with my expansible crib A, I

have provided an improved inside case (shown in Fig. 7) to be used in the operation of baling. This case consists of four thin metallic plates, M M N N, made of such proportions as to just fit inside the crib A when closed, and they are preferably made from slightly-tapered metal, though common plates will answer the purpose. The sides M M contain vertical slots *s*, extending from the bottom upward a distance equal to the length of the grooves J in the sides of the crib. The upper edges of each plate composing the inside case are bent at a right angle over a bar, *r* and *r'*, to which they are secured by screws or other means. The bars *r* and *r'* are halved at the corners, though not necessarily confined to each other, and in baling they rest upon the upper edges of the crib. All the lower corners of the plates M and N are rounded, even those at the slots *s*.

The operation of baling fine substances with my invention is as follows: The crib A, having its corners tightly closed, is placed upon a platform and ropes or bale-ties inserted in the grooves J, their ends passing through holes at the upper extremity of these grooves to the outside of the crib. The ropes or ties are held in the grooves at the bottom of the crib by being slipped under the hooks *m* on the tie-holders K. A sack, R, (shown in Fig. 8,) made to the size of the interior of the crib, is placed inside the latter and held in a vertical position by being transfixed upon the spurs *i* of the bag-holders G, as hereinbefore described. The inside case, S, is now slipped inside the sack R, the bars *r* and *r'* resting on the top of the crib. After filling this inside case with whatever substance is to be baled the whole is placed upon the platen T of a press of most any kind, and power applied until the substance is compressed as much as desired. The spurs *i* of the bag-holders G hold the bag or sack in such a manner or at such an angle with the inner face of the crib that when any downward strain draws upon the said bag it is immediately released without receiving any injury whatever. The cover of the aperture L is now removed and the compressed material tied up while under pressure by inserting the ends *t* of the bale-ties through grooves made in the follower V of the press and uniting the two ends at one side of the crib through the opening or aperture L. I will here state that the vertical slots *s* in the sides M of the inside case, S, coincide with the vertical grooves, J, cut to receive the bale-ties in the inner face of the crib A. This construction allows the bale to be tied up while in the press before the removal of the inside case, and also permits the inner case, S, to be withdrawn.

In using my machine the crib A is generally filled and operated upon a platform equal in height to the top of the platen T of the press when in its lowest position, and an opening is made in this platform through which the bale is discharged or disengaged from the crib after pressure. This last operation is as follows: After the bale has been tied up, the platen T with

the crib is lowered, releasing the pressure. The crib is then run out of the press and placed directly over the opening in the platform before mentioned. Now, upon operating the levers

5 E actuating the cams and cam-shafts—that is, releasing the cams *e* at each corner of the crib—the latter is made to open or expand an equal distance on all sides and the weight of the compressed bale is sufficient to disengage it
10 from the inside case and crib, and it then descends by gravitation through the opening in the platform, entirely freeing itself. A piece of burlap is now stretched and sewed over the uncovered top of the bale, and the compressed
15 material is then entirely inclosed and ready for transportation.

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

20 1. An expansible baling-crib consisting of the sides B B and ends C C, connected by eyebolts running through their corners, the cam-shafts passing through the eyes of the corner-bolts, and means for releasing the cams, whereby
25 the crib is equally opened or enlarged, substantially as shown and described.

2. The combination of a baling-crib with the bag-holders consisting of a metallic rod pivoted to the inside of the crib, having pointed
30 spurs projecting from one side, and a handle from the opposite side extending through the crib, by which the holder is operated from the outside of the crib, substantially as shown and described.

35 3. The combination of a baling-crib with the bale-tie holders consisting of a metallic rod having right-angle hooks for holding the ties projecting from one side, and a handle by which the holder is operated projecting from
40 the opposite side, substantially as shown and described.

4. An improved baling-crib having four sides, two of which are provided with vertical grooves and one having a pocket, said sides
45 being connected at their corners by eyebolts passing therethrough, and cam-shafts pivoted

in said bolts, and means by which the cams are released for expanding the crib, substantially as shown and described.

5. The locking device for expansible cribs, 50 consisting of the shafts D, having cams *e* firmly secured thereto, the connecting-rods *c*, and the reciprocating lever E, for the purpose described, and substantially as shown.

6. An improved expansible baling-crib con- 55 sisting of the sides B B, having vertical grooves J, the bale-tie holders K, having the hooks *m* and operating-handle *l*, the bag-holders G, with spurs *i* and operating-handle *h*, and an aperture, L, the ends C C having also bag-holders 60 G, with their holding-spurs *i* and handle *h*, the sides and ends provided with the vertical battens *b*, and connected at their corners by the eyebolts F, and the locking device consisting of the vertical shafts D, having projecting cams 65 *e*, the reciprocating levers E, and their connecting-rods *c*, substantially as shown, and for the purpose described.

7. An inside case for baling fine substances, consisting of four metallic plates having their 70 tops bent at right angles and secured to longitudinal bars at the top of the crib, and having two of the said plates provided with vertical slots extending from the bottom upward, substantially as shown, and for the purpose de- 75 scribed.

8. The combination of an expansible crib, having its sides connected at the corners by eyebolts containing vertical cam-shafts operated by reciprocating levers and connecting- 80 rods, with a sack and an inside case consisting of metallic plates bent at right angles at their top and secured to bars resting on the top of the crib, two of said plates provided with vertical slots extending from their lower edges 85 upward, substantially as described, and for the purpose shown.

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Witnesses:

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A. J. CHAPMAN.