

No. 660,642.

Patented Oct. 30, 1900.

M. L. KEYES.
BURIAL CASE MACHINE.

(Application filed Dec. 1, 1899.)

(No Model.)

2 Sheets—Sheet 1.

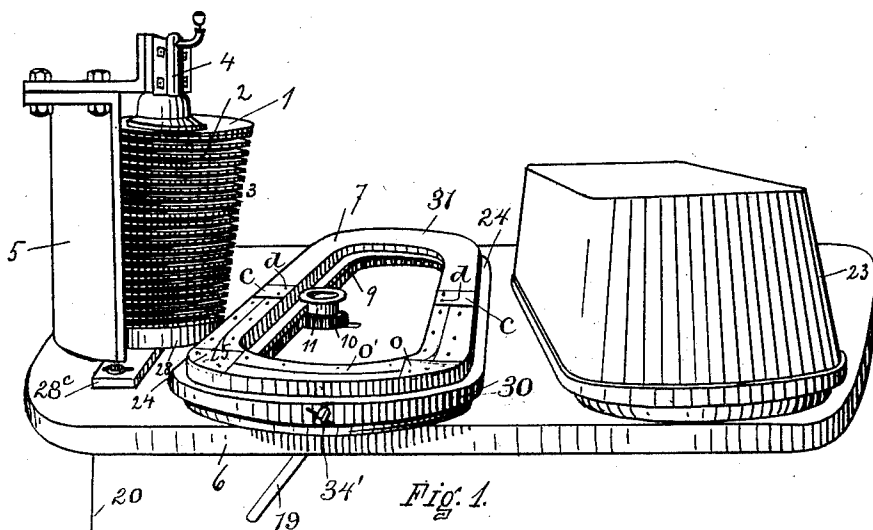


Fig. 1.

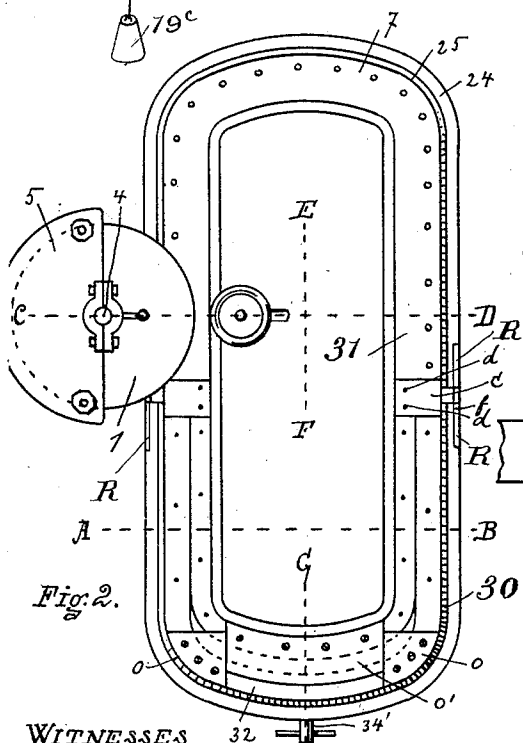


Fig. 2.

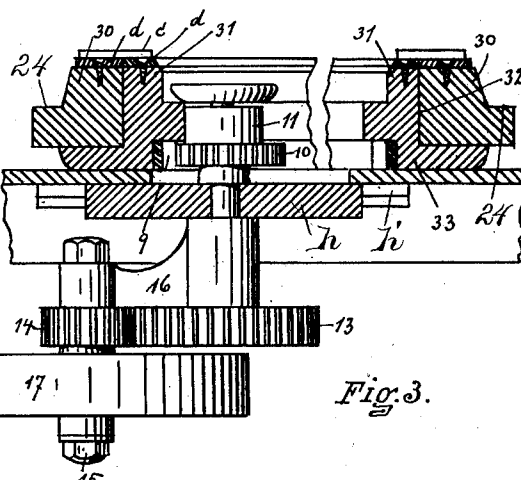


Fig. 3.

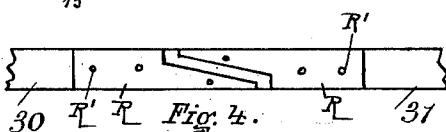


Fig. 4.

WITNESSES

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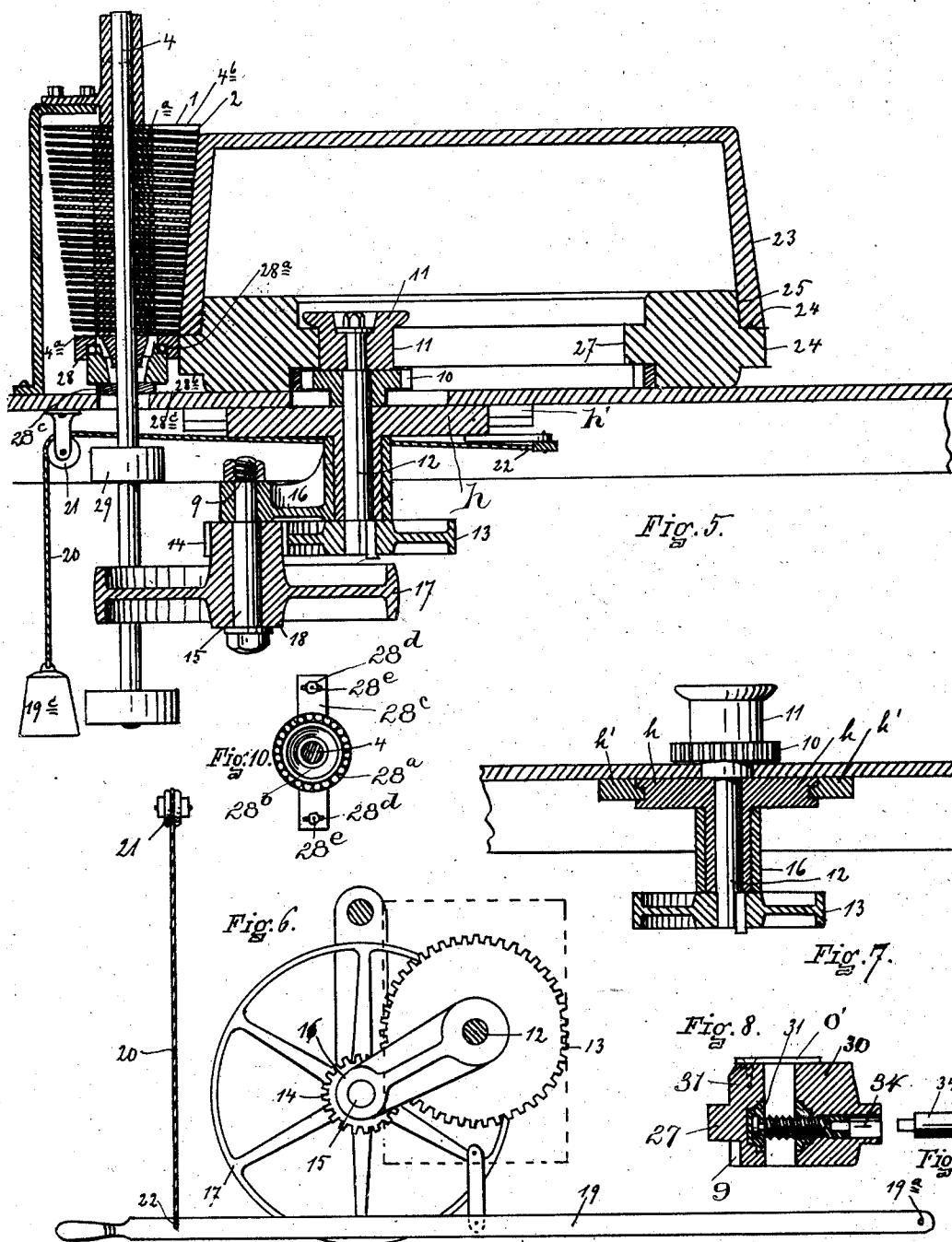
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WITNESSES

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UNITED STATES PATENT OFFICE.

MARTIN L. KEYES, OF CARTHAGE, NEW YORK, ASSIGNOR TO FRANKLIN E. ROBINSON, OF SAME PLACE.

BURIAL-CASE MACHINE.

SPECIFICATION forming part of Letters Patent No. 660,642, dated October 30, 1900.

Application filed December 1, 1899. Serial No. 738,822. (No model.)

To all whom it may concern:

Be it known that I, MARTIN L. KEYES, a citizen of the United States of America, and a resident of Carthage, Jefferson county, New York, have invented certain new and useful Improvements in Burial-Case Machines, of which the following is a specification.

My invention relates to a machine to be used in the manufacture of burial-cases where the cases are formed from wood or wood-pulp; and it consists in the mechanism hereinafter pointed out and claimed.

The object of my invention is to provide a machine for commercially manufacturing burial-cases from wood or wood-pulp by machinery, which I accomplish by the mechanism hereinafter more fully described and claimed.

In the drawings, Figure 1 illustrates a perspective view of my rotating cutter or smoother and the finished product. Fig. 2 represents a plan view of the cutter and adjustable former. Fig. 3 is a cross-section on line A B of Fig. 2. Fig. 4 represents a side of the guide or flange on the former, broken lines indicating parts removed, the section illustrating the means for adjusting the former. Fig. 5 is a cross-section on line C D of Fig. 2. Fig. 6 is a plan view of driving-gear and other parts of the machine. Fig. 7 is a section on line E F of Fig. 2. Fig. 8 is a section on line G H of Fig. 2. Fig. 9 illustrates the key for operating the adjustment. Fig. 10 is the adjusting-plate for adjusting the rotary cutter.

In the drawings similar reference characters refer to corresponding parts in the various views.

In manufacturing burial-cases from wood-pulp trouble is encountered in handling the cases as they come from the hydraulic press where they are formed into shape. I do not, however, wish to limit myself to the use of this machine solely in the manufacture of burial-cases from wood-pulp, as it can be used on burial-cases manufactured from wood or other fibrous material.

In the drawings, 1 represents the inverted conical-shaped rotary cutter, driven by power. Cutter 1 consists of a series of independent circular cutters forming cutter-blades 2 with

cutting edges 3. The independent cutter-blades are mounted on a driving-shaft, each independent cutter being clamped or splined to the shaft by well-known means, and in this instance they are shown in the form of an inverted cone for operating upon the incline surface of the burial-case.

4 is the driving-shaft, on which and to which the rotary cutters are mounted and rigidly held. The series of cutters having cutting edges are in the shape of an inverted cone in this instance, each cutter being spaced on the shaft by a washer and the cutting edge of each rotary cutter, including the cutter itself, is set on an angle to the line of the shaft, the incline being shown at 4^a , Fig. 5, and the washer at the top is on an incline 4^b , so that the rotation of each cutter will swing each cutter the distance of the space between the cutters. Partially surrounding the rotary cutters is hood 5, into which the dust is thrown and it may be extracted or taken out by ordinary suction or air-blast. These parts are mounted on frame or table 6. An adjustable former 7 is mounted on the frame or table and is provided with central opening 8, on the inner surface of which I provide continuous endless rack 9, which meshes with and is driven by spur-gear 10. Above the spur-gear 10 I provide guiding-collar 11, gear 10 being splined to shaft 12, also carrying guiding-collar 11, loosely mounted on the shaft. Splined to the bottom of shaft 12 I mount gear 13, which meshes into gear 14, mounted on shaft 15, supported in collar 16, surrounding shaft 12, power being applied to driving-pulley 17, which runs on shaft 15. Gear 14 is either a part of or mounted on hub 18, which rotates on shaft 15. Sleeve 16 (illustrated in Figs. 3, 5, 6, and 7) is mounted loosely on shaft 12, so that the same may swing on the shaft as a fulcrum, and gear 13 is splined to shaft 12 for imparting power through the shaft to spur-gear 10, splined thereto for rotating the same. The vertical shaft 12 is horizontally movable toward and from the cutter-shaft to permit movement of the rotating former to and from the cutters. To this end the table 6 is formed with an elongated slot or opening in the vertical plane, including the shafts 12 and 4, through which

the shaft 12 passes and in which it is laterally movable. The shaft 12 is mounted in and usually carried by a sliding plate or journal-box *h*, (see Figs. 3, 5, and 7,) confined in and supported by guideways *h'* on the under side of the table 6 to permit movement of the shaft 12 and its attached parts toward and from the cutter-head. The pinion 10 and the idler-retaining guide-roll 11 are yieldingly held to the former, and the former is thereby yieldingly held to the thrust or bearing band 28, with the case carried by the former yieldingly pressed to the cutters by suitable mechanism. For instance, I show horizontally-swinging lever 19 beneath the table 6 and at one end fulcrumed thereto at 19^a and at its opposite end at 22, having a suitable weight 19^b attached thereto by cord 20, passing over pulley 21. The lever is pivotally attached to the sliding box *h*, carrying the shaft 12, by a link, so that the weight constantly tends to draw the lever toward the shaft 4 and through the medium of said link connection constantly tends to push the sliding box *h* in the same direction. By means of the handle end of the lever the box *h* and shaft 12 can be moved back from the shaft 4 and its parts and permit release of the former and the insertion or removal of a case.

It will be noticed that gear 13 can be swung with collar 16 through the operation of the mechanism already described and is held in position so as to bring the former and the work carried on the former into contact with the rotary cutter by means of the weight holding the parts in contact.

By applying power to drive-pulley 17 spur-gear 10 is rotated in contact with rack 9 in opening 8 of the former, and by this operation when the burial-case 23 is placed in the inverted position on former 7, its inverted top resting on rabbeted surface 24 on the outer side of former 25, the external surface of the case is presented to the rotary cutting action of the cutters, bringing its external surface into smooth and uniform shape. The case when in position is best illustrated in Fig. 5, showing the cutter in contact with the wall of the body portion of the case. In this instance, as before mentioned, the cutters consist of a series of saws with cutting edges, the saws being supported by a washer between each separate saw and set diagonal to the center of the saw-shaft, so that each saw will cut completely the space between the saws. The series of washers are designated by *a* and are placed between each saw, so that by the whipping action of the saws in their rotary motion each saw travels the space between it and the adjacent saw through the operation of locating the saws on an incline to the center line of the shaft. Other forms of finishing or smoothing heads may be used in the machine instead of the particular form of saw-head shown without departing from the spirit and scope of my invention.

The smooth face of collar 11 runs on the

inside of opening 8 in the former against projecting surface 27 for the purpose of steadying the spur-gear and the movement of the former. The former 7, which is located on the table or frame, has the outer rabbeted surface 24, forming a continuous track or projecting bearing-surface, which is held to and runs in contact with band 28 below the rotary cutter. (Best illustrated in Fig. 5.) This runs on ball-bearings 28^a, Fig. 5, the balls being interposed between the angle of 28 and support 28^b, held to the frame by support 28^c, Figs. 1, 5, and 10. The external surface of rotary band 28 runs in contact with the vertical face of the rabbeted surface 24 and acts as a guide for the former. The rotary cutter-shaft 4 is made adjustable at the bottom through the operation of adjustable plate or support 28^c, resting on the table 6 and which can be swung and fastened through the operation of slots 28^d in each end of plate 28^c through the operation of bolts and nuts 28^e. By this operation the cutting edges of the rotary cutter can be made adjustable for regulating the depth of the cut made on the case. The block 28^b rests on the plate 28^c, and the shaft 4 passes down through said parts and through the table 6, which is slotted to permit the adjustment of said shaft toward and from the former. Power is applied to the rotary cutter through the operation of pulley 29 on shaft 4 for imparting rotary motion to the cutters.

The burial-cases after they come from the hydraulic press are suitably dried in ovens before being operated on by this machine, and it is important to have adjusting mechanism in the form to accommodate different sizes of burial-cases and to compensate for the shrinkage which may be in burial-cases of the same size, it being important that former 7 should fit the opening in the case while it is being operated upon by the cutter. For accomplishing this adjustment I construct a portion of the former in two parts 30 and 31, Fig. 3, the two parts being arranged to engage and run in contact with each other on plain surfaces 32 and 33, Fig. 3, so that the parts may be independently moved in the direction of the length of the former, which is accomplished by screw 34, Fig. 8. The former can thus be increased or diminished in external length without varying its width by the longitudinal sliding movement of the U-shaped section 30 on the continuous body 31 of the former. The section 30 is seated in the exterior reduced or rabbeted portion 32 33 of the former, as before described, and the screw 34 passes inwardly through the end of the sliding section 30 and through a nut held therein and at its inner end is loosely confined to the end of the body of the former. The rotation of the screw in one direction reduces the exterior length of the former by sliding section 30 inwardly on the main section 31 or body of the former, while opposite rotation of the screw increases the external

length of the former by forcing said sliding section outwardly, so that the former can be expanded within a burial-case located thereon to firmly clamp the case thereto. The screw can be rotated by detachable key 34'. The sliding section 30 is held down to its seat on the former-body by suitable means, such as plates secured to body 31 and projecting over section 30. The plate *o*' is secured on the top edge of the former-body 31 and projects over the top face of the end of the sliding section 30 between the two plates *o o*, secured to said sliding section. The plates *o o* slide along the end edges of the plate *o*' during the adjustment of the sliding section and form guides holding the same against lateral displacement. Plates *c c* are secured by screws *d* to the side portions of the former-body and project over the inner ends of the sliding section to hold the same down in place. As the sliding section 30 carries a portion of the bearing face or track of the former, it is desirable to provide means to break joints at the junctions between the portions of said track carried by the former-body 31 and sliding section 30, and thereby maintain the practically unbroken bearing surface or track 24, traveling against the roll or band 28, and hence avoid such lateral play or movement of the former during its rotation as would vary the depth of cut in the case by the cutting-head. Plates *R R*, with their ends overlapping or breaking joints, are secured at *R'* to the tracks of the former-body 31 and sliding section 30 (see Fig. 4) to accomplish said before-mentioned purpose and form guides for the roll 28 over the breaks in the track between the ends of the sliding section 30 and the body of the former.

Changes in details of construction will readily suggest themselves to one skilled in the art without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination, a table, a vertically-disposed rotary smoothing-head above said table, a bearing-surface at the lower end of said head, a rotary extensible sectional former on the table bearing against and traveling in engagement with said surface, provided with adjusting means whereby the former can be expanded within a burial-case and thereby lock the same thereto, a drive-shaft geared to said former for rotating the same, a movable carrier for said drive-shaft, whereby the former is normally held to said bearing-surface, and said shaft can be moved to permit lateral movement of said former from said surface, substantially as described.

2. In combination, a support, a shaft, a cutter-head on the shaft, a rotary bearing-surface concentric with the shaft and arranged at an end of said head, a rotary former traveling on said support, said former provided with a sliding section having adjusting means, whereby the former is rendered longitudinally

adjustable, driving means for said former and mechanism holding the former laterally against said bearing-surface, substantially as described.

3. In combination, a table, a vertical shaft provided with a smoothing-head above the table, a bearing-surface between the table and lower end of said head, a rotary extensible former horizontally movable on said table and having an open center with a continuous internal rack and provided with adjusting means, a vertical drive-shaft extending into said open center and provided with a gear in mesh with said rack, and mechanism normally pressing the former to said bearing-surface and permitting lateral movement of the former therefrom, substantially as described.

4. In combination, a support, a shaft provided with a rotary smoothing-head, a rotary extensible former adapted to be extended within a burial-case and movable laterally toward and from the axial line of said head radially thereof, means limiting the lateral movement of said former toward said axial line, said former provided with a continuous internal rack, a driving-gear in mesh with said rack, and means pressing said gear to said former and toward and radially of the axial line of said head, substantially as described.

5. In combination, a table, a vertically-disposed rotary smoothing-head above the same, a rotary extensible former on said table and movable horizontally radially of the axial line of said head, means limiting the movement of the former toward said axial line, said former provided with a rack, a vertical drive-shaft provided with a gear meshing with the rack and rotating the former and a roll bearing against the former, a laterally-movable carrier for said drive-shaft provided with means yieldingly holding the carrier in one direction to press said former toward the axial line of said head, and manually-operated means for moving the carrier in the opposite direction and relieving the pressure on the former to permit lateral movement thereof away from said head, substantially as described.

6. In combination, a horizontal table, a vertical shaft, the vertically-disposed cutter-head rigid on the shaft, and above the table and composed of the independent spaced disks laterally-movable and rotating extensible former arranged horizontally on the table and provided with means yieldingly holding the same toward said shaft, and means for rotating said former, said former constructed and adapted to fit and clamp in the open top of a reversed burial-case, and thereby present the sides thereof extending upwardly therefrom to the action of the cutter-head, substantially as described.

7. In combination, a support, a vertically-disposed rotary smoothing-head arranged above the table and provided with a carrying and drive shaft, a horizontally-movable and rotary expansible former resting on said sup-

port and provided with a surrounding seat or rabbeted portion to receive the surrounding edge of a burial-case locked to the former by expanding the same within the case, means
 5 pressing the former and case carried thereby toward the smoothing-head, a bearing-surface engaging the former to limit the movement of the case toward the head, and driving means for rotating the former and case,
 10 substantially as described.

8. In combination, a horizontal table, a laterally-adjustable rotary vertical shaft extending above the table, a horizontally-adjustable plate through which said shaft passes, a block
 15 on the plate and concentric with the shaft, a rotary ring concentric with the shaft, the smoothing-head rigid with the shaft above said ring, and extensible means traveling against said ring and adapted to be expanded
 20 and locked within and carry and rotate a burial-case against said head, substantially as described.

9. In combination, a support, a smoothing-head, a rotary former having an internal rack,
 25 an extensible carrier adapted to be expanded and locked within a burial-case and movable toward and from the axial line of said smoothing-head, means yieldingly pressing the carrier toward said axial line, a hand-lever
 30 connected therewith for moving the carrier in the opposite direction, a vertical rotary shaft carried by said carrier and provided with a gear meshing with said rack to rotate the former, whereby the former is
 35 pressed toward said axial line, substantially as described.

10. In combination, a support, a rotary smoothing-head, a rotary bearing-surface at one end of the head, a rotary and laterally-movable extensible former provided with means for clamping a burial-case thereon,
 40 said former having an exterior bearing-track traveling in engagement with said rotary bearing-surface, and an internal rack, a rotary laterally-movable shaft extending into the former opposite said head and provided
 45 with a gear meshing with the rack and with

a bearing-surface traveling against the inner face of the former beside the rack, and means for moving said shaft laterally to press the
 50 former to said rotary bearing-surface, and to permit movement of the shaft and former in the opposite direction, substantially as described.

11. In a machine of the character described,
 55 the laterally-movable rotary former, driving-gearing for rotating the same, means for moving the same laterally, said former provided with a sliding section and adjusting mechanism whereby the former can be expanded
 60 within a burial-casket, substantially as described.

12. In a machine of the character described, the combination of a support, a rotary former, driving-gearing therefor, said former provided
 65 with an exterior seat to receive the edge around the open end of a burial-casket, and the sliding section seated in the body portion of the former, and movable on said body portion to increase and diminish the
 70 external dimensions of the former, a screw for adjusting the sliding section, and plates projecting over and holding the sliding section to its seat, substantially as described.

13. In a machine of the character described,
 75 a table, a rotary and laterally-movable former thereon having a central opening with an internal rack and bearing-surface parallel therewith, a sliding box supported by the table, a shaft, carried by said box and provided with
 80 a gear meshing with said rack, an idler-roll loose on the shaft and engaging said surface and having a projecting head extending over the same, a swinging arm on said shaft, a drive-shaft mounted in the free end of said
 85 arm and geared to said first-mentioned shaft and means for moving said box, substantially as described.

Signed by me at Carthage, New York, this 24th day of November, 1899.

MARTIN L. KEYES.

Witnesses:

C. HERBERT WILSON,
 PHEBE A. TANNER.