No. 827,046. PATENTED JULY 24, 1906.

J. H. THERIEN.

CENTRIFUGAL CLOTHES WRINGER.

APPLICATION FILED JULY 14, 1900.

Fig. 1

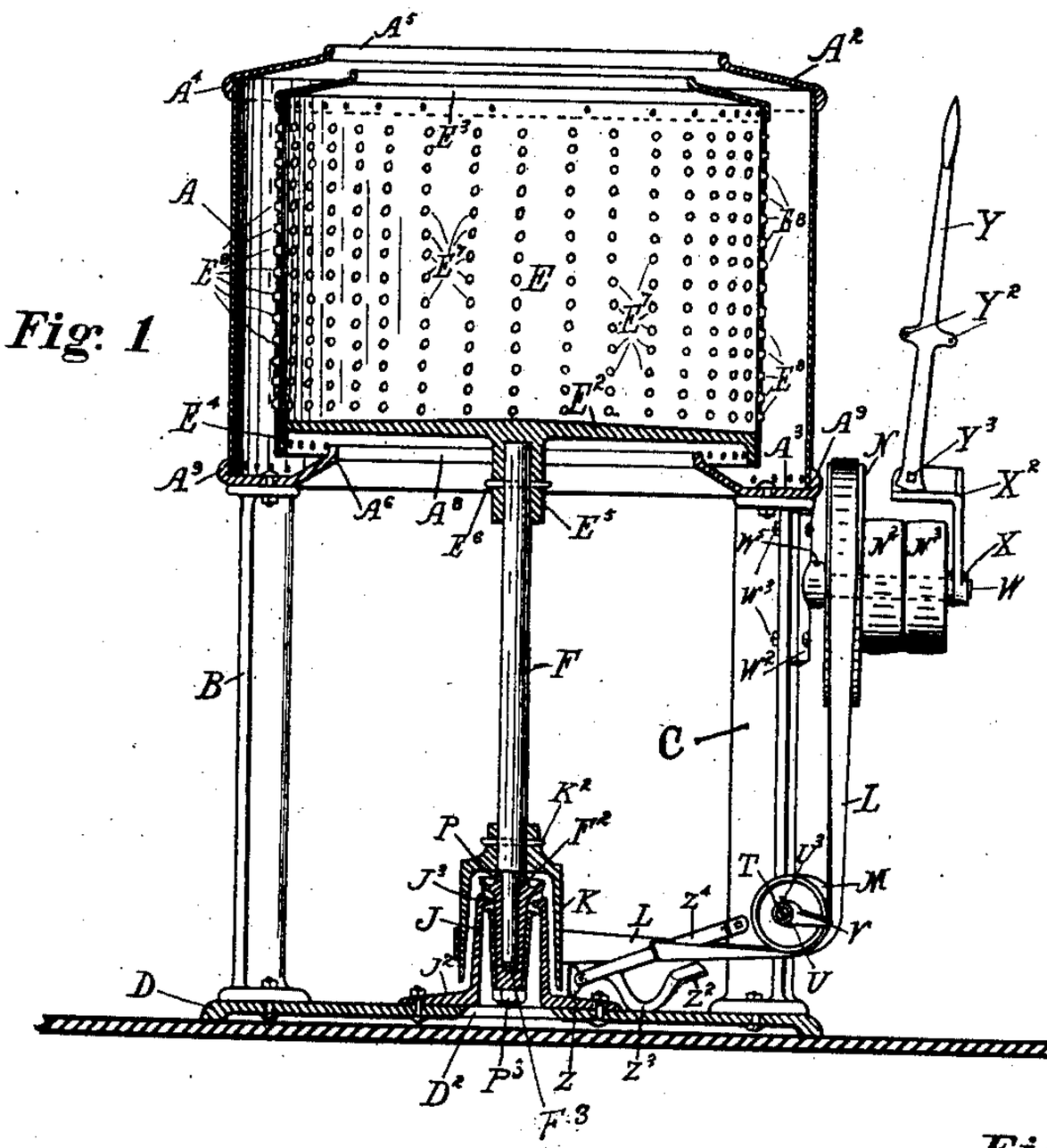


Fig. 4

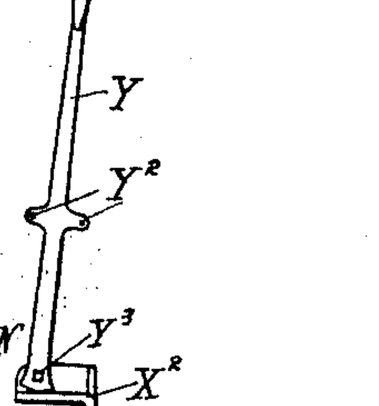


Fig. 3

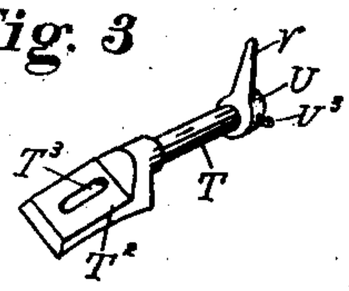
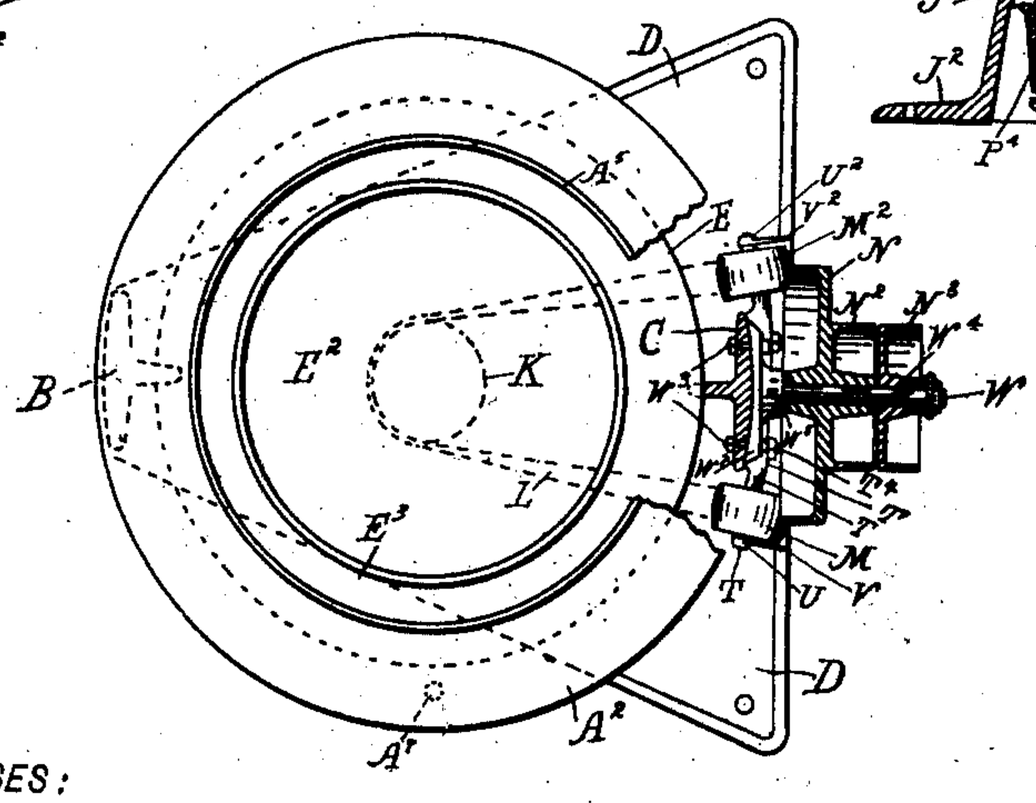


Fig. 2



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CENTRIFUGAL CLOTHES-WRINGER.

No. 827,046. Specification of Letters Patent. Patented July 24, 1906

Application filed July 14, 1900. Serial No. 23,568.

To all whom it may concern:

Be it known that I, JOSEPH H. THERIEN, a citizen of the United States of America, and a resident of the city and county of San Francisco, in the State of California, have invented a new and useful Centrifugal Clothes-Wringer, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to machines for extracting moisture from textile or other porous or spongy substances, and has for its object improvements in the construction and efficiency of machines of that class whereby an even working thereof is afforded, together with compactness, simplicity, and cheapness of manufacture of the same.

In the said drawings, Figure 1 is a sectional elevation. Fig. 2 is a partly broken and sectioned top view, and Figs. 3 and 4 are details.

This improved machine comprises an external vertically-disposed cylindrical casing A, which is supported at the proper elevation by means of standards B and C, bolted at their top ends to the bottom of the said casing and at their lower ends to a triangular metallic base D and arranged diametrically opposite each other on a line with the vertical wall of the casing, one, B, at or near the apex of the triangular base and the other, C, at the center of the opposite side, as seen in Fig. 2.

Within the casing A is a perforated cylindrical basket or clothes-receiver E, similarly disposed and concentric with the said casing and adapted to revolve rapidly within it. This basket is supported upon a vertically-disposed shaft F, the upper end of which is made rigidly fast to the strong metallic bottom E^2 of the said basket. The lower end F^2 of this shaft is journaled within a vertically-disposed, yieldable, composite socket-bearing J, to be afterward described, and surrounding which is an inverted cup-like pulley K on the said lower end of the shaft. The pulley K is revolved, together with the shaft and basket thereto connected, by means of a belt L, which is passed around the said pulley, thence under two idlers M M^2, which are at the same horizontal elevation as the pulley, and thence in a vertical direction over a driving-pulley N, by means of which the power is applied to the machine.

By reverting to the casing A, Figs. 1 and 2, it will be noticed that an inwardly-projecting flange-like ring or hood A^2 is placed on the upper end of the said casing, and another inwardly-projecting trough-like or gutter-shaped annulus A^3 is riveted to the bottom thereof. The upper ring or hood inclines somewhat upwardly toward the center or radially. At the outer margin this hood bends downward, forming a vertically-disposed flange A^4, by means of which it is removably attached to the casing. The inner margin of the said hood is formed with an upwardly-projecting half-inch bead A^5. Between this bead and the outer margin the inclined face of the hood is made straight radially for facility in cleaning. The hood is removable, as said, so as to admit of the basket being taken out at will. The trough-shaped annulus above mentioned, which constitutes the bottom of the casing, has its inner margin A^6 bent up so as to form a gutter which is intended to receive the water thrown off from the wet clothes by the centrifugal force of the revolving basket E, and from which gutter the water passes out by a discharge-pipe located at A^7, Fig. 2. This inner margin is further bent up vertically at A^8 so as to almost touch the bottom E^2 of the basket and act as a barrier to prevent overflow of the water from the gutter. The outer circumference of this gutter is bent vertically upward so as to form a flange A^9 within which the lower end of the casing tightly fits and to which it is riveted. The hood and gutter not only perform the functions given above, but also impart strength and rigidity to the casing.

The perforated clothes receiver or basket E is provided at its upper end with a hood E^3 of identical form to that of the hood A^2 of the casing A. The hood E^3 is parallel with the hood A^2 and sufficiently below it to prevent possible contact in the revolution of the basket within the casing. The bottom E^2 of the said basket is an unbroken circular disk, but is slightly crowning or convex on its inner or upper surface. This bottom E^2 has its outer margin bent downward, forming a vertical flange E^4, by means of which it is firmly riveted to and within the lower end of the basket. Centrally from the lower surface of this bottom E^2 is a strong vertically and downwardly disposed tubular projection E^5, which is preferably made integral with the bottom E^2, or

else it may be made rigidly fast thereto by any suitable means. The function of this tubular projection E^5 is to form a strong fixture for securing the upper end of the vertical shaft F axially and otherwise rigid with the bottom E^2 of the basket E, which is done by means of a pin E^6, passing through both the said tube E^5 and shaft F. The perforations E^7 of the basket, unlike heretofore, are punched out, so as to be concave or funneled from within outwardly, leaving outwardly-projecting lips or barbs E^8 to add rigidity to the thin walls of the said basket. In this method of perforation I introduce a novel feature, which has also the important advantage of presenting a free curved funnel-shaped exit for the water, which is forced from the clothes or loaded basket by the centrifugal action before mentioned. The opening at the top of the basket within the hood is of sufficiently large diameter—say fourteen inches—to admit of convenient loading. The diameter of the basket is for ordinary work about twenty inches and that of the casing about twenty-four inches.

The composite socket-bearing J comprises an exterior vertically-disposed tube with a horizontally-disposed flange J^2, by means of which this bearing is removably bolted fast to the base D, and a complex bearing-plug. This complex plug is made up of a tubular part P; an integral cup-like expansion P^2 of its upper end; a nut P^3, fitted and threaded to its lower end, which is closed; a sleeve P^4 surrounding the part P just above the nut P^3, and two elastic rings or thick washers P^5 P^6, preferably of india-rubber, placed upon the part P between the cup P^2 and the sleeve P^4. The lower end of the shaft F is journaled in the socket P^7 of the part P. The exterior tube J has an internal horizontally-disposed annular flange or bead J^3, situated sufficiently below the top of the said tube to admit of one of the elastic washers P^5 being placed on it in such a way that the said washer shall protrude slightly above the top of the tube. The bottom of the cup P^2 is held up by this washer, so as not to ride upon the top of the tube and so that the part P may be free to slightly yield or oscillate within the said tube. The second washer P^6 lies just below the bead J^3 and is held tightly in contact with it by means of the sleeve P^4 and nut P^3. To allow the oscillation of the part P, sufficient space is left between the sleeve and the inner circumference of the tube. The yieldability of the journaling part P is to provide a somewhat elastic bearing for the shaft F to permit a slight gyration or oscillation of the basket E in its revolution. Hence the function of the annular flange J^3 is to hold the plug-bearing elastically secure within the outer tube J by means of the two elastic washers P^5 P^6, which are forced tightly against it, one above and one below, by the compression of the nut P^3. The function of the cup P^2 is to hold oil for the socket P^7 and the lower end of the shaft therein. The oil to the journal of this shaft passes through an aperture P^8. To further lessen friction, I provide two double convex disks P^3, which are placed under the end F^2 of the shaft within the socket. To admit of the nut P^3 being reached by a wrench, it is made to protrude below the bottom of the composite socket-bearing J, and a corresponding aperture is provided in the base D, as at D^2, to receive the said nut.

The pulley K is made axially fast to the shaft F by a pin K^2. This pulley is hollow beneath, so as to cover and protect the upper part of the tube J and the journaling of the shaft F. There is sufficient space between the lower hollow portion of this pulley and the tube to admit of the aforesaid gyration of the basket E, which usually takes place in starting the machine and also occurs when the basket is not properly or evenly loaded. In practice the machine stops if the basket oscillates when running at full speed, thus affording a danger-signal. It is a known fact that injury to the contents of the basket usually takes place if the basket be not properly loaded. The safety effect or danger-signal here spoken of is partly due to the arrangement and shortness of belt that operates pulley K and is a novel feature in this invention.

The idlers M M^2 are so placed and disposed that the belt L passes around the pulley K about centrally opposite the lower washer P^6. This will cause the center of the belt to lie substantially in the same plane with the pivot-point on which the shaft F oscillates, with one-half of the belt on either side thereof, so that the edges of the belt will be subjected to the least possible strain when the periphery of the pulley K is thrown out of its true vertical position by the oscillation or wabbling of the upper end of the said shaft on account of the unbalanced condition of the basket E. It is intended that the rate of motion of this belt shall be such as to cause the basket to make about eighteen revolutions per second. In machines heretofore in use a much greater speed has been necessary. The belt, as above stated, is guided vertically from the driving-pulley N and horizontally from the driven pulley K by means of the idlers M M^2, which latter are mounted upon horizontally and laterally disposed adjustable journal-brackets. Each one of these brackets is composed of a journal T and a curved wing or flange T^2 and has a slot T^3 longitudinally disposed in the similarly-disposed wing T^2 to receive adjusting-bolts T^4, by which the said brackets are secured to the standard C, the said standard having a correspondingly-curved surface, as shown. This standard, as beforesaid, has its outer face disposed perpendicularly on a line with the outer face of the casing A and has the same

horizontal convexity as the circumference of the casing. The brackets, therefore, are made correspondingly concave longitudinally on their inner face, so that their lateral adjustment shall correspond with the curvature of the casing, and thereby allow the idlers to be moved in or out, as may be required to properly adjust and tighten the belt in relation to the driving-pulley N and driven pulley K. These idlers are held on the journals T against the wings T^2 by means of collars U U^2; U for M and U^2 for M^2. The collars U U^2 have lateral finger-like extensions V V^2, which are held at right angles to the direction of the belt when in motion by means of set-bolts U^3, Figs. 1 and 3, and whose function is to keep the belt from sliding off the idlers. The set-bolts U^3 also hold the collars U U^2 otherwise firm and secure on the journals T against the said idlers.

The driving-pulley is composed of two parts N N^2, each integral with the other, so that both are forced to take up the same axial speed. N is of larger diameter than N^2 for the purpose of multiplying speed to the shaft F, whose pulley K is of lesser diameter than the pulley N for the same reason. N^2 receives the motion from a driving-belt (not shown) and actuates N. Another pulley N^3 of the same diameter as N^2 is placed in juxtaposition with N^2 on the same axle or journal, (to be next mentioned,) the pulley N^2 being the belt-receiving pulley when the machine is stopped. The said pulleys N N^2 N^3 are loose and revoluble on a stub-axle or journal W, which latter is made fast to the face of the standard C at a proper elevation by means of a flange W^2 (which is integral with the said journal) and bolts W^3. This journal W is placed so as to point radially and horizontally outward or away from the vertical shaft F and in such a way that the idler-journals T (which are also made fast horizontally to the same face of the standard C, but are tangent to a circle parallel with the circumference of the casing A) shall be disposed at an equal angle to and at the same distance from the said journal W, so as to be in the same relative position with reference to the shaft F on opposite sides of the standard C. The journal W is disposed centrally upon and at right angles to its integral flange W^2. It is provided on its upper side with a longitudinal groove W^4, Fig. 2, for the purpose of holding oil, which is supplied to it from an oil-hole W^5, Fig. 1. The pulleys N N^2 are held on their journal W by means of a collar X, which is keyed or bolted fast to the outer end of the said journal. This collar X has an upwardly-projecting extension X^2, by means of which a belt-shifter Y is held in the most convenient position for shifting the driving-belt from the pulley N^2 to the pulley N^3, or vice versa.

The machine is stopped or put in motion while the driving-belt is running by means of the shifter aforesaid, which comprises a lever Y, disposed more or less vertically, to which a pair of vertically-arranged belt-guides Y^2 is made fast, so as to be ready to impinge upon either side of the belt for shifting purposes by means of the said lever. This lever is hinged at its lower end to the extension X^2 of the collar X by means of a bolt Y^3.

For the purpose of quickly stopping the machine a foot-brake is provided to impinge against the pulley K, the same being arranged to bear on that face of the pulley which is remote from the side upon which the belt runs, so as to escape contact with the said belt. This brake consists of a leather-faced shoe Z, a pedal Z^2, and an interconnecting lever Z^3. This lever Z^3 bends to contact with the base D, which forms its fulcrum. The brake is held in proper alinement toward the pulley K by means of a straight rod or stay Z^4, which is pivoted at one end to the lever Z^3, just behind the shoe Z, and at its other end to an inwardly-projecting flange or rib C^2 of the standard C.

For greater stability the standards B C of the machine are made T-shaped in cross-section, and their central longitudinal ribs—that is to say, B^2 of B and C^2 of C—are disposed toward each other, which is centrally or in the direction of the shaft F. Especially does the rib C^2 of the standard C point centrally with reference to the plan and triangular base of the machine, so as to be out of the way of the flanges T^2 and W^2 and in order to provide a means for pivoting the brake-stay Z^4, just mentioned. Heretofore the bases of such machines have been circular or of other shape, which has proven to be inconvenient as compared with the trim curtailed out-of-the-way form of the triangular base D. This base is secured to the floor or foundation upon which the machine rests by means of three strong bolts. (Not shown.) By making the base D triangular and locating the standard C at the wide end thereof lateral vibration of the standard with its driving mechanism is prevented and there is absolutely no waste of floor-space. When it is taken into account that floor-space is always valuable and sometimes cannot be had at any price in a given location, it becomes plainly apparent that this formation of the base is of major importance. The peculiar shape of the base, it will be observed, further provides a sufficiently extended foundation at the foot of the standard to enable it properly to sustain the strain occasioned by the placing of the driving-pulley directly thereon by means of the stub-axle, which also saves room.

I claim—

1. In a machine of the character described, a cylindrical driven member, a support therefor comprising a base, an upright or standard secured to said base, one surface of said stand-

ard being curved concentrically with the driven member, and means for operating said driven member and comprising a shaft, a driving-belt for said shaft, a driving-pulley for said belt, an idler leading said belt, a journal for said idler having a flattened extension curved to correspond to the curved surface of the standard, and means for adjusting the curved extension on said standard.

2. In a machine of the character described, the combination with a supporting member having a curved face, of an adjustable pulley-bracket comprising a journal T, a slotted flattened wing T^2 integral with one end of said journal and constituting a longitudinal extension thereof, said wing having one of its surfaces curved to correspond with the curved face of the supporting member and adapted to overlie the same, and means engaging the slotted wing to secure the bracket in place.

3. In a machine of the character described, a driven member and means for operating the same, comprising a shaft, a driven pulley on said shaft, a driving-pulley, a belt passing around both said pulleys, idlers for said belt, journals for said idlers, guide-fingers V V^2 sleeved on the outer ends of said journals outside the idlers, and bolts for securing said guide-fingers in adjusted positions.

4. A machine of the character described, comprising a journal for pulleys, means for supporting the journal in position, a guide-finger V sleeved on the end of the journal, and a bolt for securing said guide-finger in adjusted positions.

5. A machine of the character described, comprising a journal for pulleys, means for supporting the journal in position comprising a flattened slotted extension at one end of the journal, a bolt and nut associated with the extension for securing the same to a supporting member, a guide-finger sleeved on the journal, and a bolt for securing said guide-finger in adjusted positions.

6. A machine of the character described having an adjustable supporting-bracket for pulleys comprising a journal T, a flattened wing T^2 provided with a slot in line with the journal, said wing being disposed longitudinally of the journal and integral with one end thereof, and a bolt and nut associated with the slotted wing to secure the same to a supporting member.

7. In a machine of the character described, a base having one end extended laterally, standards rising from the base, one of which is located at said extended portion, a casing secured to the top of said standards, a rotary member journaled between the standards with its upper end within the casing and carrying a basket, a drive-pulley and idlers mounted on the standard at the extended end of the base, and a driving-belt over the pulley, the idlers, and the rotary member.

8. In a machine of the character described, a triangular base, standards rising therefrom, one of which is located substantially midway of the base of the triangle, a casing secured to the top of the standards, a rotary member journaled between the standards with its upper end within the casing and carrying a basket, a drive-pulley and idlers mounted on the standard rising from the base of the triangle, the pulley centrally of the standard and the idlers on opposite sides thereof, and a driving-belt over the pulley, the idlers, and the rotary member.

9. In a machine of the character described, a base, standards rising therefrom, a casing on top of the standards, a rotary member journaled between the standards with its upper end within the casing and carrying a basket, a stub-axle projecting radially from one of the standards, idlers mounted on this standard below the axle, a drive-pulley on the axle, and a driving-belt over the pulley, the idlers, and the rotary member.

10. In a machine of the character described, a base, standards rising therefrom, the outer face of one of which is curved, a cylindrical casing on top of the standard, the periphery of which has substantially the same curvature as said face, a rotary member journaled between said standards with its upper end within the casing and carrying a cylindrical basket, a drive-pulley and idlers mounted on the curved standard, the idlers being adjustable relatively to the curved surface thereof, and a driving-belt over the pulley, the idlers, and the rotary member.

11. In a machine of the character described, a base, standards rising therefrom, the outer face of one of which is curved, a cylindrical casing on top of the standards, the periphery of which has substantially the same curvature as said face, a rotary member journaled between said standards with its upper end within the casing and carrying a cylindrical basket, journals projecting from the standard having a curved face, one of which is radial and the other two of which are tangential to said curved face and adjustable, a pulley on the radial journal and an idler on each of the other journals, and a driving-belt over the pulley, the idlers, and the rotary member.

12. In a machine of the character described, a base, standards rising therefrom, the outer face of one of which is curved, a cylindrical casing on top of the standards, the periphery of which has substantially the same curvature as said face, a rotary member journaled between said standards with its upper end within the casing and carrying a cylindrical basket, three journals projecting from said curved face, one of which extends radially and the other two of which extend laterally,

said two journals being at opposite sides of the curved standard and adjustable in a circle corresponding with the periphery of the casing, a pulley on the radial journal and an idler on each of the other two journals, and a driving-belt over the pulley, the idlers, and the rotary member.

13. In a machine of the character described, a base, standards rising therefrom, the outer face of one of which is curved, a cylindrical casing on top of the standards, the periphery of which has substantially the same curvature as said face, a rotary member journaled between said standards with its upper end within the casing and carrying a cylindrical basket, three journals projecting from said curved face, one of which is fixed and extends radially from the upper end of the standard and the other two of which extend in opposite directions from the lower end of the standard and are adjustable in a circle corresponding with the periphery of the casing, two pulleys loosely mounted on the radial journal one of which is provided with an enlarged driving portion, an idler on each of the other journals, and a driving-belt over said enlarged portion, the idlers, and the rotary member.

14. In a machine of the character described, a base, standards rising therefrom, a casing on top of the standards, a journal-bearing below the center of the casing, a vertical shaft journaled in said bearing and pivotally mounted therein, a cylindrical basket on top of the shaft within the casing, a hollow pulley on the lower end of the shaft and overhanging said journal-bearing, a drive-pulley and two idlers mounted on one of said standards, the idlers being laterally adjustable and lying in substantially the same horizontal plane with the pulley on the shaft, and a driving-belt over said pulley and over the idler, the belt passing around the pulley on the shaft about centrally with the pivotal point thereof.

Signed by me at San Francisco, California, this 9th day of July, 1900.

J. H. THERIEN. [L. S.]

Witnesses:

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