C. E. & W. M. CLARK & J. A. SPARKS.

DRYING AND AERATING MACHINE.

APPLICATION FILED JUNE 22, 1917.

1,278,593.

Patented Sept. 10, 1918.

3 SHEETS—SHEET 1.

Fig. 1.

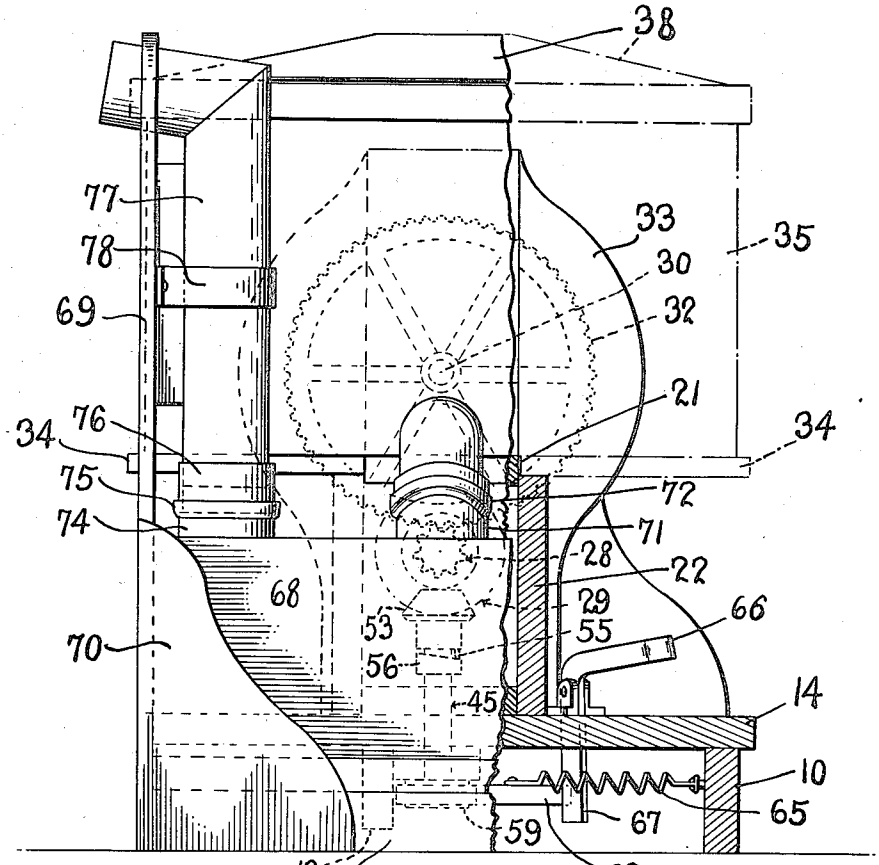
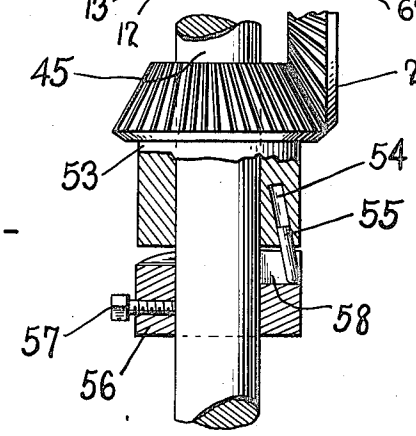


Fig. 5.



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3 SHEETS—SHEET 2.

FIG. 2.

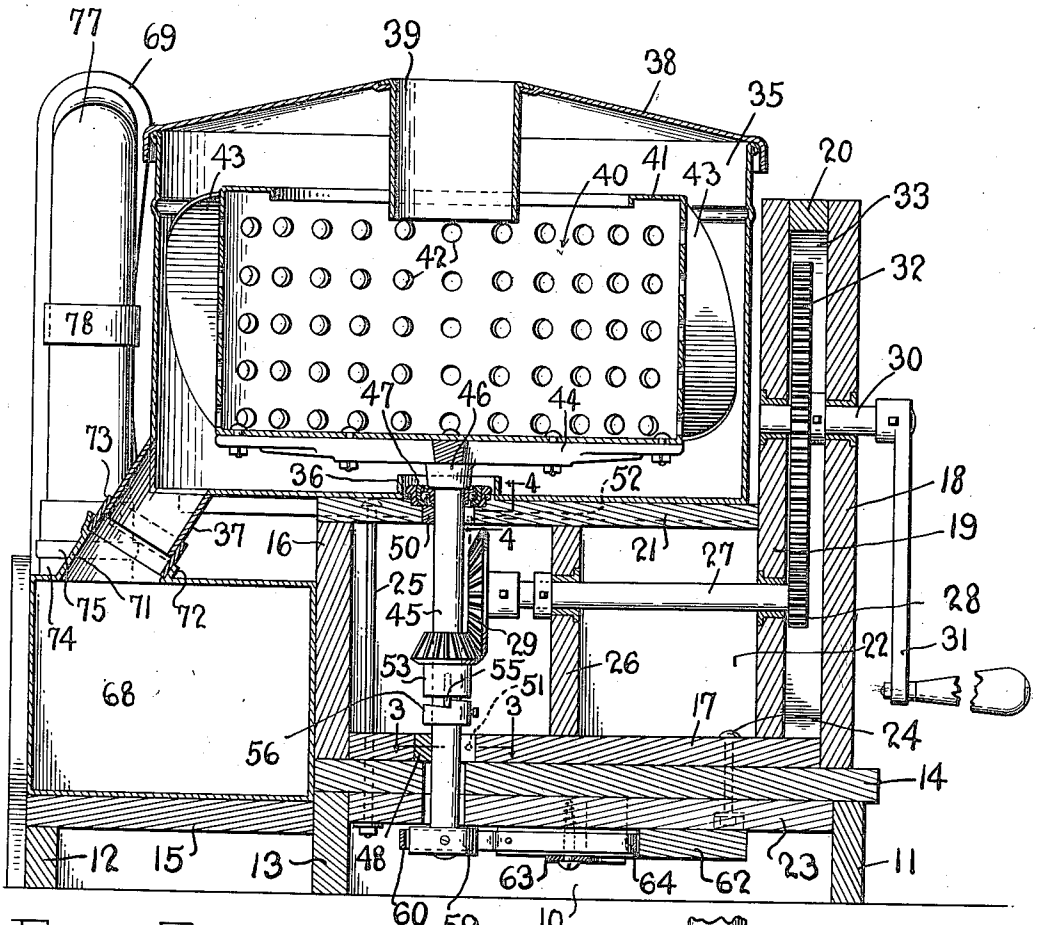


FIG. 3.

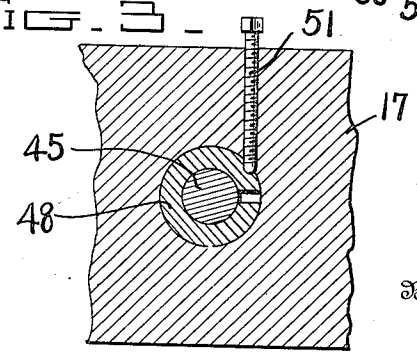
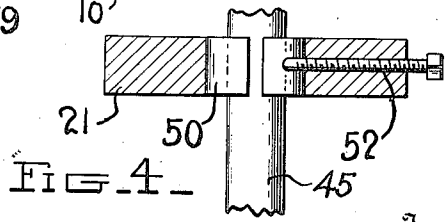


FIG. 4.



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3 SHEETS—SHEET 3.

Fig. 6.

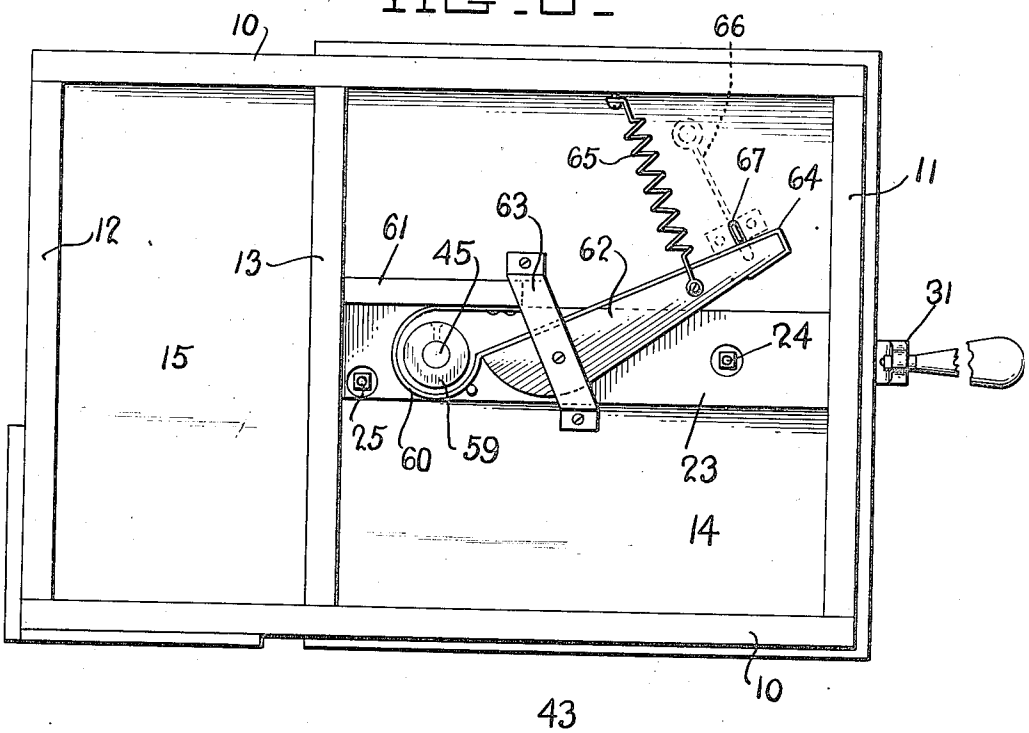
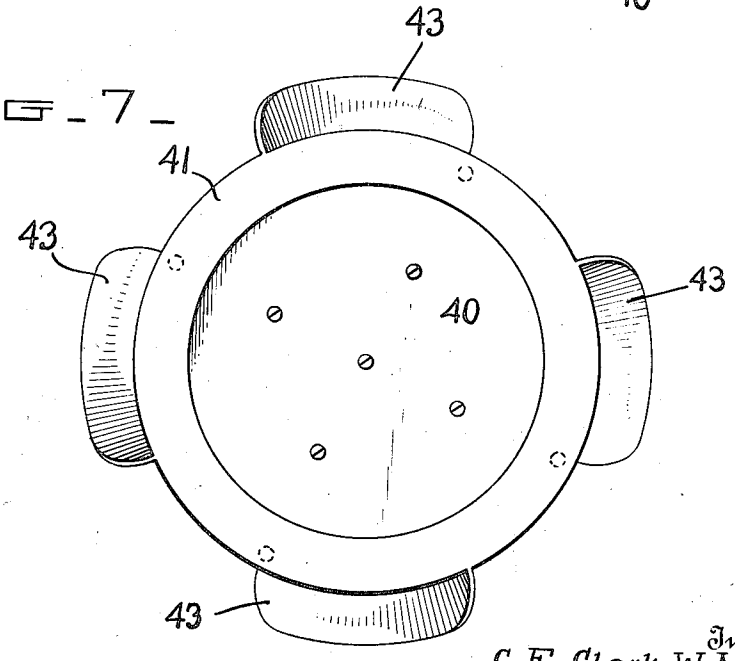


Fig. 7.



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UNITED STATES PATENT OFFICE.

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DRYING AND AERATING MACHINE.

1,278,593. Specification of Letters Patent. Patented Sept. 10, 1918.

Application filed June 22, 1917. Serial No. 176,449.

To all whom it may concern:

Be it known that we, CHARLES E. CLARK, WILLIAM M. CLARK, and JONAS A. SPARKS, citizens of the United States, residing at Elk City, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Drying and Aerating Machines, of which the following is a specification.

This invention relates to an improved drying and aerating machine and has as its primary object to provide a device adapted for quickly cleaning and drying clothes or other articles of fabric while at the same time the clothes will be thoroughly aerated to remove therefrom the odors of any cleaning fluids employed.

The invention has as a further object to provide a construction wherein a rotatable basket will be provided for receiving clothes and wherein the said basket will be equipped with a plurality of fan blades for setting up a circulation of fresh air through the device to thus effectually aerate the clothes placed in the basket.

The invention has as a still further object to provide a condenser through which the circulating air currents coming from the basket of the device will be directed so that the major portion of evaporated cleaning fluids will be deposited within the said condenser and retained therein for further use.

A further object of the invention is to provide an improved gravity controlled ratchet mechanism for rotating the basket.

And the invention has as a still further object to provide an improved brake mechanism for controlling the rotary movement of the basket.

Other and incidental objects will appear as the description proceeds and in the drawings wherein we have illustrated the preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views:

Figure 1 is an end elevation of our improved machine showing the arrangement of the condenser employed as well as the mounting of the lever for actuating the brake mechanism associated with the rotatable basket of the device,

Fig. 2 is a vertical sectional view more particularly illustrating the mounting of the basket,

Fig. 3 is a fragmentary sectional view taken on the line 3—3 of Fig. 2 and illustrating the adjustable journal employed for the lower extremity of the basket shaft,

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 2 and illustrating the adjustable journal employed adjacent the upper extremity of the basket shaft,

Fig. 5 is a fragmentary sectional view showing the ratchet for rotating the basket,

Fig. 6 is a bottom plan view illustrating the brake for the basket, and

Fig. 7 is a plan view showing the basket detached and particularly illustrating the fan blades carried thereby.

In carrying out the invention our improved machine is formed with a base including a platform having side sills 10, end sills 11 and 12 and a cross sill 13 arranged parallel to the end sills. Mounted upon the said sills is the floor 14 of the platform. A portion of this floor is offset at one extremity of the platform below the main portion of the floor as illustrated at 15. Arranged upon the floor above the cross sill 13 is the end board 16 of the gear housing. Seated upon the floor to extend from the lower extremity of this end board is a bottom board 17 at the outer extremity of which are arranged spaced upstanding posts 18 and 19 respectively joined at their upper extremities by a block 20. Extending from the post 19 and resting upon the upper edge of the board 16 is the top board 21 of the gear housing, this top board being arranged substantially parallel to the bottom board 17. Abutting the end board 16 and resting against the side edges of the top and bottom boards of the gear housing are side boards 22 for the said housing. The adjacent extremities of these side boards are rested against the side edges of the post 19 and either one or both of the said side boards may be detachably mounted in position so that access may be easily had to the interior of the gear housing. Extending beneath the floor 14 of the platform directly under the bottom board 17 of the gear housing is a cross strip 23. This strip abuts at its extremities against the end sill 11 and the cross sill 13. Securing one extremity of the strip is a bolt or other suitable fastening device 24 extending through the bottom board 17 of the gear housing and through the floor 14 of the platform while the oppo-

site extremity of the said strip is secured by a bolt or other suitable fastening device 25 extending through both the top and bottom boards of the gear housing and through the floor of the platform to engage the said strip.

Arranged within the gear housing to extend between the top and bottom boards thereof is a block 26 and fixed upon this block as well as upon the post 19 are alined bearings in which is mounted a horizontal counter shaft 27. Arranged upon one end of this shaft between the posts 18 and 19 is a pinion 28 while the opposite extremity of the said shaft carries a bevel gear 29. Fitted through the upper extremities of the posts 18 and 19 are alined bearings in which is mounted a drive shaft 30 having a crank 31 connected to the outer extremity thereof. Fixed upon the drive shaft between the said posts is a gear wheel 32 meshing with the pinion 28 of the counter shaft 27. Accordingly, turning of the crank 31 will rotate the bevel gear 29. Connected to the opposite side edges of the posts 18 and 19 are, as particularly shown in Fig. 1, gear housing members 33 abutting at their lower extremities with the adjacent end edges of the side boards 22 of the main gear housing.

Connected to opposite side edges of the top board 21 of the gear housing are segmental floor boards 34 resting upon the upper edge of the end board 16 of the said housing. Mounted upon the said floor boards to seat against the said top board is a cylindrical casing 35 the bottom wall of which is provided with an axially arranged opening surrounded by an upstanding flange 36. This casing may be secured in position in any approved manner and leading from one side of the casing is a discharge spout 37. Closing the upper open end of the casing is a frusto-conical lid 38 and opening through the apex of this lid is an air intake pipe 39 which, when the lid is fitted upon the casing, projects into the said casing axially thereof.

Rotatably mounted within the casing is a cylindrical basket 40 of a diameter somewhat less than that of the casing. At its upper extremity the basket is provided with an overhanging flange 41 and formed through the cylindrical wall of the casing are a plurality of openings 42. Connected to the basket are a plurality of helically arranged blades 43. These blades are secured in any approved manner to the outer side of the circumferential wall of the basket and extend between the top and bottom edges thereof with the said blades inclining downwardly and extending circumferentially with respect to the basket.

Mounted upon the lower side of the basket is a spider 44 the arms of which are secured to the bottom wall of the basket by bolts or other suitable fastening devices. Extending from this spider axially of the basket is a supporting shaft 45 therefor. This shaft extends through the opening in the bottom wall of the casing surrounded by the flange 36 and projects through the gear housing of the base as well as through the floor 14 of the platform and the strip 23 secured beneath the said floor. Formed on the upper extremity of the said shaft is an annular collar 46 and set into the top board 21 of the gear housing within the flange 36 of the casing is a thrust bearing 47 of approved design. This bearing is arranged to coöperate with the collar 46 for rotatably supporting the basket. Embedded in the bottom board 17 of the gear casing is a split journal 48 shown in detail in Fig. 3 of the drawings and embedded in the top board 21 of the said casing is a similar split journal 50 shown in detail in Fig. 4. These journals rotatably receive the shaft 45 and threaded through the bottom board to cooperate with the journal 48 is a set screw 51 while a similar set screw 52 is threaded through the top board to coöperate with the journal 50. As will be readily understood, these set screws may be adjusted for tightening said journals about the shaft 45 and taking up wear upon the said journals as well as to counteract any lost motion or lateral play in the shaft.

Mounted upon the supporting shaft 45 for the basket and arranged within the gear housing of the base is a ratchet mechanism for rotating the basket. This ratchet mechanism includes, as particularly shown in Fig. 5, a bevel gear 53 loosely mounted upon the shaft 45 to coöperate with the bevel gear 29 of the counter shaft 27. Opening through the bottom edge of the said bevel gear is a vertically disposed socket 54 which is inclined downwardly and radially with respect to the axis of rotation of the said gear. Slidably fitted in this socket is a pin or pawl 55. Mounted upon the shaft 45 to coöperate with the said pin is a cam 56 fixed to the shaft by a screw or other suitable fastening device 57 and provided at the summit of its inclined face with a vertical shoulder 58. It will now be seen that when the crank 31 is properly operated, the bevel gear 53 will be rotated upon the shaft 45 when the pawl 55 will ride over the cam face of the cam 56 and, as shown in Fig. 5, gravitate to a position in front of the shoulder 58 of the said cam to engage therewith for rotating the shaft 45 and consequently rotating the basket within the casing 35. Then, when the crank is released, the cam 56 will retract the pawl 55 into the socket 54 of the bevel gear 53 as the said cam rotates with respect to the said bevel gear so that the basket 40 may thus continue to rotate independently of the crank. This provides a very simple and effective construction of ratchet mechanism

for rotating the basket and in this connection attention is directed to the fact that the operation of the said mechanism will be practically silent. Furthermore, attention is directed to the fact that since the pawl 55 is inclined radially with respect to the axis of rotation of the bevel gear 53, rotary movement of the said bevel gear will, by centrifugal action, tend to project the pawl out of the socket 54 to engage the shoulder of the cam 56. Any possibility of the sticking of the pawl will thus be overcome.

Detachably mounted upon the lower end of the shaft 45 of the basket is a friction disk or pulley 59. Partially surrounding this disk is a brake band 60 secured at one end, as particularly shown in Fig. 6 of the drawings, to a block 61 mounted beneath the floor 14 of the platform adjacent to the said disk. The opposite extremity of this brake band is connected to a lever 62 pivoted upon a hanger bracket 63 secured to the under side of the floor 14 of the platform to span the strip 23. The brake band 60 preferably extends the entire length of the inner edge of the said lever to provide a wear strip 64 therefor with the free end of the said strip bent around the outer extremity of the lever. Connected at one end to the free extremity of the lever is a spring 65 the opposite end of which is secured by a screw or other suitable fastening device to the adjacent sill 10 of the platform. As will be clear, this spring will normally act to pivot the lever 62 for expanding the brake band 60 away from the friction disk 59. Mounted upon the floor 14 of the platform above the free extremity of the lever 62 is a foot lever 66. This foot lever is pivotally mounted upon a suitable bracket secured to the said floor and is provided with an angularly disposed arm 67 projecting loosely through the floor of the platform in front of the free extremity of the lever 62 to engage the wear strip 63 thereof. Accordingly, by depressing the lever 64, the lever 62 will be moved to tighten the brake band 60 about the disk 59 for controlling the rotary movement of the basket 40 or stopping the basket entirely.

Removably fitted upon the offset portion 15 of the floor 14 of the platform is a preferably rectangular condenser and container 68 abutting at one extremity with an upstanding post or strip 69 connected to the said offset portion of the platform floor and held by a side board 70. This condenser is provided with an inclined intake pipe 71 having a flange 72 formed thereon for receiving, as particularly shown in Fig. 2 of the drawings, a sleeve 73 slidable upon the discharge spout 37 of the casing 35. The condenser is further provided with a discharge pipe 74 having a flange 75 formed thereon to receive a sleeve 76 slidable upon the lower end of a vent flue 77. This flue is supported by the post 69 and is connected thereto by a suitable clip 78 embracing the flue. At its upper end, the flue 77 is provided with a laterally directed terminal to which may be connected an extension of the flue preferably leading to some point exteriorly of the building in which the device is arranged.

In use, the clothes to be cleaned having been saturated with the proper cleaning fluids, are placed within the basket 40. The basket is then rotated by means of the crank 31 as previously described, when, by centrifugal action, the said cleaning fluids will be expelled from the clothes to flow through the openings 42 in the circumferential wall of the basket and be discharged into the casing 35. The flange 36 upon the bottom wall of the casing will prevent the fluids from flowing out through the opening receiving the shaft 45 of the basket so that the said fluids will thus be discharged through the spout 37 into the condenser 68 to be retained thereby. Upon the rotation of the basket the fan blades 43 will, as will now be clear, set up downwardly flowing currents of air within the casing 35 creating a suction therein drawing in fresh air through the pipe 39. This pipe is made of relatively large diameter so that a proportionately large volume of fresh air will be delivered by the said spout directly into the basket 40 against the clothes therein. Such fresh air delivered into the basket will then flow through the openings 42 therein and be discharged out through the pipe 37 of the casing into the condenser. Any currents of air within the casing striking the lid 38 will be directed downwardly thereby around the inner end of the intake pipe 39 to thus create a further suction at the inner extremity of the said pipe tending to draw in fresh air through the pipe. Consequently, as the basket is rotated the fan blades 43 will act to maintain a constant circulation of fresh air currents of relatively large volume through the casing with the said fresh air currents directed against the clothes being cleaned to thus thoroughly aerate the clothes and remove the odors of the cleaning fluids therefrom. The purpose of the blades 43 is now therefore apparent.

The air currents entering the condenser 68 from the discharge spout 37 of the casing will be laden with the vaporized cleaning fluids and it will be seen that the flow of the said air currents will be somewhat retarded within the condenser. Consequently, a portion of the evaporated fluids will thus be deposited within the condenser. Moreover, the said air currents upon coming in contact with the cleaning fluids contained within the condenser will be acted upon to condense the evaporated fluids carried by the said air currents while fresh air entering through the

pipe 39 into the casing and thence into the condenser will have a tendency to chill the air currents within the condenser and thus act to further condense the evaporated fluids. The major portion of the cleaning fluids will thus be reclaimed within the condenser. However, to avoid the possibility of explosions, in any instance where highly volatile cleaning fluids are employed, the vent flue 77 is provided to finally carry off the air currents from the condenser. This arrangement will also prevent the fouling of the room or place where the device is being used. When desired the condenser may be removed by simply displacing the sleeves 73 and 76.

Having thus described the invention, what is claimed as new is:

1. A device of the character described including a casing provided in its bottom portion with a discharge opening, a basket rotatable within the casing and provided in the side wall thereof with a perforation, the basket being open at its upper end, an intake pipe extending from above the basket toward the upper open end thereof and opening through the casing, a circumferentially and downwardly inclined fan blade mounted upon the side wall of the basket to rotate therewith, and means for rotating the basket to cause the said blade to set up an inflowing current of air downwardly through said spout into the basket to be drawn through the perforation therein and expelled downwardly within the casing through the said discharge opening.

2. A device of the character described including a platform having a floor formed with a lowered offset portion, a supporting structure rising from the platform, a casing carried by the said supporting structure and provided in the bottom portion thereof with a discharge spout, the casing being closed at its upper end, a basket rotatable within the casing, an intake pipe depending into the casing above the basket and opening through the upper end of the casing, a closed condenser mounted upon the said lowered offset portion of the floor beneath the casing and connected with said discharge spout, a post rising from the platform at one end of the condenser, a vent flue for the condenser supported by the said post, and means for rotating the basket whereby to set up an inflowing current of air through the said intake pipe into the casing to be directed through the said spout into the said receptacle.

3. A device of the character described including a casing closed at its upper end, a closed vented condenser communicating with the bottom portion of the casing, a basket rotatable within the casing, an intake pipe opening through the closed upper end of the casing, and means for rotating the basket whereby to set up inflowing currents of air through the said pipe, through the casing and through the condenser for chilling vapors within the condenser and ventilating the condenser.

4. A device of the character described including a casing closed at its upper end, a closed condenser communicating with the bottom portion of the casing, a vent flue for the condenser, a basket rotatable within the casing, an intake pipe opening through the closed upper end of the casing, and means for rotating the basket whereby to set up inflowing currents of air through the said pipe, through the casing, through the condenser and through said vent flue for chilling vapors within the condenser and ventilating the condenser.

5. A device of the character described including a casing closed at its upper end, a closed vented receptacle connected with the bottom portion of the casing for receiving liquid therefrom, a basket rotatable within the casing, an intake pipe opening through the closed upper end of the casing, and means for rotating the basket whereby to set up inflowing currents of air through the said pipe, through the casing and through the said receptacle for chilling vapors within the receptacle and ventilating the receptacle.

6. A device of the character described including a casing closed at its upper end, a closed vented condenser connected with the bottom portion of the casing for receiving vapors therefrom, a basket rotatable within the casing, an intake pipe opening through the closed upper end of the casing, and means for rotating the basket whereby to set up inflowing currents of air through the said pipe, through the casing for expelling vapors therefrom into the condenser, and through the condenser for chilling such vapors within the condenser and ventilating the condenser.

In testimony whereof we affix our signatures.

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