

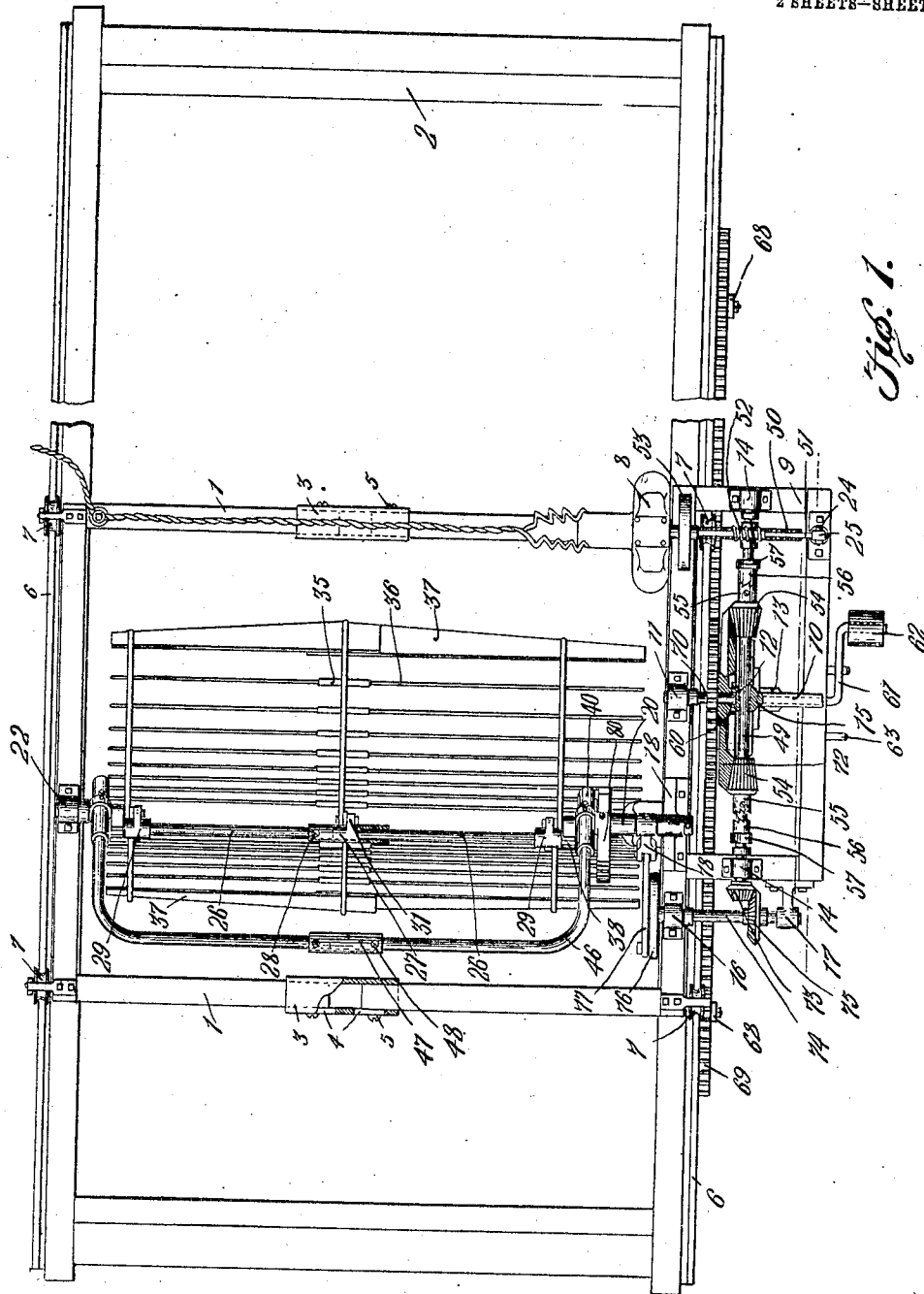
No. 852,114.

PATENTED APR. 30, 1907.

F. W. GOWAN.
AGITATOR.

APPLICATION FILED JUNE 20, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

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J. H. Smith

Frank W. Gowan, INVENTOR,

By

C. A. Snow & Co
ATTORNEYS

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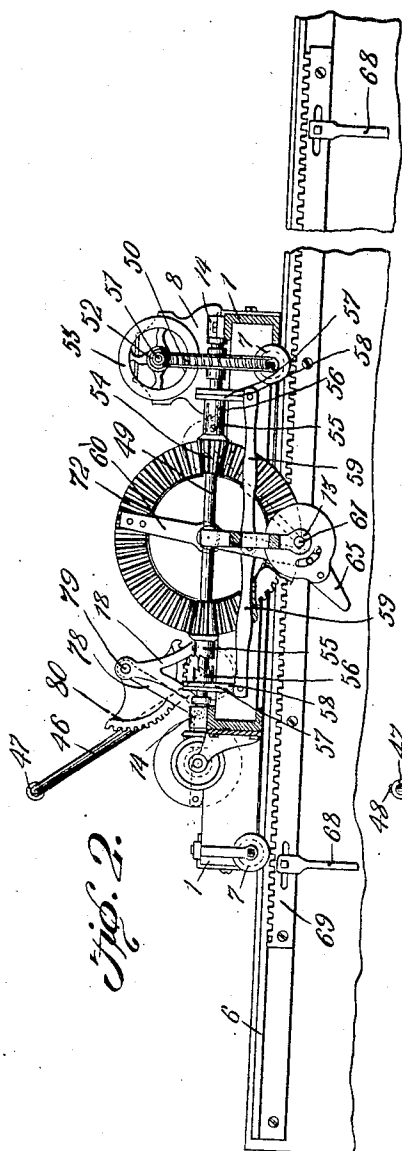


Fig. 2.

Fig. 6.

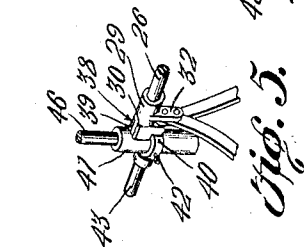


Fig. 5.

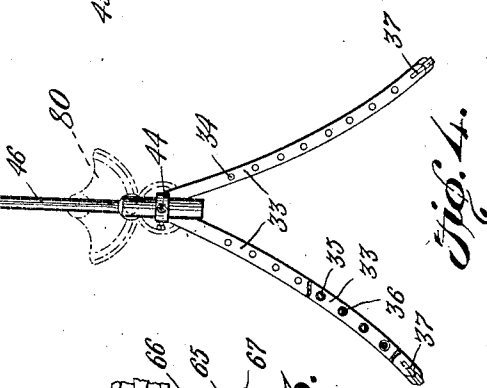


Fig. 4.

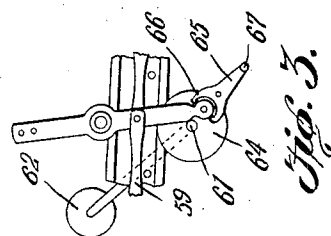


Fig. 3.

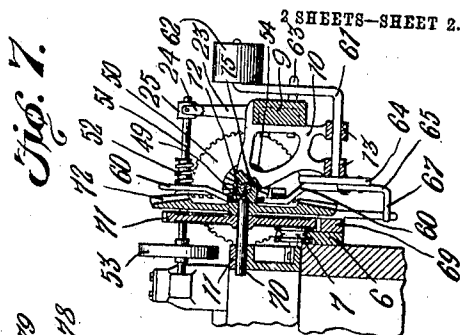


Fig. 7.

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FRANK W. GOWAN, OF SOMERSET, WISCONSIN.

AGITATOR.

No. 852,114.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed June 20, 1906. Serial No. 322,626.

To all whom it may concern:

Be it known that I, FRANK W. GOWAN, a citizen of the United States, residing at Somerset, in the county of St. Croix and State of Wisconsin, have invented a new and useful Agitator, of which the following is a specification.

This invention has relation to agitators and it consists in the novel construction and arrangement of its parts as hereafter shown and described.

The object of the invention is to provide an agitator especially adapted to be used for stirring curd while cooking or firming as heat is being applied to the same. The agitator may be used for other purposes.

The invention consists primarily of a frame which is adapted to reciprocate over a vat containing the curd. Suitably journaled in said frame is a dasher which enters the vat and is provided with two wings which are set at an angle to each other. As the dasher is reciprocated, it is also swung upon its axis and the wings are consequently moved up and down through the material in the vat. Thus the entire body of material located in the vat is thoroughly worked including such material as may be at the ends of the vat or in the corners of the same. The curd is evenly distributed and is worked vertically in the vat and longitudinally of the same. The dasher operating mechanism and frame reciprocating mechanism is also located upon the frame and is operatively connected with the parts in order to produce the movements as intimated.

In the accompanying drawings:—Figure 1 is a top plan view of an agitator. Fig. 2 is a side elevation of the upper portion of the same with parts in section. Fig. 3 is an elevation of a lever mechanism used in the agitator. Fig. 4 is an end elevation of the dasher with parts broken away. Fig. 5 is a perspective view of one of the pivots of the dasher and adjacent parts. Fig. 6 is an edge elevation of the dasher actuating mechanism. Fig. 7 is a transverse sectional view of one side of the upper portion of the agitator.

This agitator is adapted to be used on a vat of ordinary construction in which the material is contained. Such vats are usually oblong in horizontal section and they vary in width. Consequently the agitator is made adjustable in order to be applied to vats of different width.

Frame. The frame consists of the U-shaped members 1, 1 the intermediate portions of which are adapted to pass over the longitudinal edges of the vat 2 while the ends extend across the said vat, the ends of one member approximately meeting the ends of the opposite member substantially at the middle of the vat. The ends of the said members 1, 1 fit into the sleeves 3, 3 and the said sleeves are provided with the elongated openings 4 which receive the set screws 5, 5 carried by the ends of the members 1. It will thus be seen that by manipulating the set screws 5 that the opposite members 1, 1 may be moved laterally with relation to each other and through the sleeves 3 secured to each other at such proper relation as to comply with the width of an ordinary vat 2. The track rails 6, 6 are secured to the outer sides of the vat 2. The outer sides of the intermediate portions of the members 1 are provided with suitably journaled wheels 7, 7 which run upon the track rails 6, 6. Thus the frame is supported upon the vat. The motor 8 is located upon one of the frame members 1 and is electrically connected with a suitable generator (not shown). The yoke 9 is attached or extends from the outer side of the intermediate portion of the frame member 1 upon which the motor 8 is located. Said yoke is provided with the bracket 10 which is located substantially midway between the ends of the yoke 9 and extends toward the vat.

The bearing 11 is located upon the intermediate portion of one of the frame members 1. The bearing 12 is located upon the bracket 10 and is opposite the said bearing 11. The bearings 13, 13 are located in alignment at the lower edge of the member 10. The ends of the yoke 9 are provided with the aligned bearings 14, 14 and the inner end of the bracket 10 is provided with the transversely extending bearing 15 which is in alignment with the bearings 14, 14. The bearing 16 is located to one side of the center of the intermediate portion of the frame member 1 and bearing 17 is located at the end of the yoke 9 and is in alignment with the bearing 16. The post 18 is located upon the intermediate portion of the frame member 1 between the bearings 11 and 16. The bracket 19 is attached to the said intermediate portion and is located opposite the said post 18. The said bracket is provided with a

bearing 20 which is in alinement with the bearing of post 18 and the said bracket is also provided with a bearing 21 which is located below the bearing 20.

5 All of the bearings above described are located upon or connected with parts attached to one of the frame members 1. The intermediate portion of the opposite frame member 1 is provided with a bearing 22 which is
10 in alinement with the bearing 21 of bracket 19. The outer side of the yoke 9 is provided with the post 23 the upper end of which is bifurcated as at 24 and the bearing 25 is pivoted between said bifurcations. The said
15 bearing 25 is adapted to maintain alinement with the center of the core of motor 8.

Dasher. The dasher consists of the alined shaft members 26, 26. The inner ends of said members fit within the collar 27 and are
20 held in place therein by means of the set screws 28. The outer ends of said shaft members 26 enter the collars 29. Said collars 29 are provided with the squared shoulders 30. It will thus be seen that the said
25 shaft members 26 may be adjusted longitudinally with relation to each other and secured in proper position by means of the set screws 28 carried by intermediate collar 27. The collars 27 and 29 are provided with the depending lugs 31 and 32.

The dasher proper consists of two leaves of similar construction and a description of one will answer for the other. The said leaves are secured to the lugs 31 and 32 and extend
35 at an angle to each other. Each leaf consists of the bars 33 which are provided with the alined perforations 34. The sleeves 35 are retained in the perforations 34 of the intermediate bar 33. The rods 36 pass
40 through the perforations 34 of the outer bars 33 and at their inner ends enter the sleeves 35. The strips 37 are located in suitable perforations provided at the ends of the bars 33, said strips overlapping each other in the perforations of the intermediate bar 33. It will
45 thus be seen that by means of the sleeves 35 and the overlapping ends of the strip 37 that as the shaft members 26, 26 are adjusted laterally, that the sections of bars 36 and strips
50 37 are correspondingly adjusted.

The socket members 38 are provided with squared recesses 39 which receive the squared shoulders 30 of the sleeves 29. Said sockets 38 are provided with the lugs 40 which receive
55 between them the enlarged ends 41. One of each set of lugs 40 is provided with a set screw 42 which passes through the lug and is adapted to engage the enlarged end 41. It will thus be seen that the said socket members
60 38 may be adjusted along the enlarged ends 41. One of the enlarged ends 41 is provided with a pin 43 which enters and rocks in the bearing 22. The opposite enlarged end 41 is provided with a pin 44 which enters and
65 rocks in the bearing 21. The gear-wheel 45

is located on the pin 44. The intermediate bail portions 46 are attached at their downwardly extending ends to the enlarged ends 41. The upper ends of said bail portions 46
70 extend toward each other and are located in the sleeve 47 and are secured therein by means of the set screws 48. By reason of the sleeve 47 and the set screws 48 the said bail members 48 may be adjusted laterally with
75 relation to each other at the same time that the shaft members 26 are so adjusted. The object of providing means for laterally adjusting the parts is to accommodate the dasher to the width of the vat. By providing means for vertically adjusting the
80 dasher members with relation to the supporting pins, the said dasher may accommodate the depth of the vat. It is also obvious that the shaft members 26 and their attachments may be lifted out of the sockets 38 and re-
85 moved from the vat without disturbing other parts of the device. This is desirable when the contents of the vat are to be removed.

Operating mechanism. The shaft 49 is journaled in the bearings 14, 14 and 15. The
90 gear wheel 50 is fixed to the said shaft. The motor shaft 51 is journaled at its outer end in the bearing 25. The worm gear 52 is located at an intermediate portion of the said shaft 51. The fly-wheel 53 is located upon the
95 said shaft 51. The gear wheel 50 meshes with the worm gear 52. The beveled gear wheels 54 are loosely mounted upon the shaft 49. Said gear wheels 54 are provided with the clutch collars 55. The clutch members
100 56 are feathered upon the shaft 49 and are adapted to be slipped in order to engage and disengage the clutch collars 55. When one clutch member 56 is in engagement with its clutch collar 55, the other member 56 is out
105 of engagement with its clutch collar and vice versa. The non-rotating rings 57 are located upon the clutch members 56. Said rings 57 are provided with the lugs 58. The outer ends of the links 59 are pivotally at-
110 tached to the lugs 58. The inner ends of said links 59 are pivoted to the rocker 60. Said rocker 60 is pivoted upon the exterior of the bearing 12. The crank arm 61 is journaled in the bearings 13, 13 and to the outer
115 crank end of said arm 61 is fixed the weight 62. The pins 63 are located on the outer side of the yoke 9 in the path of the crank end of the shaft 61 and are adapted to limit the rocking or swinging movement of the said
120 shaft. The disk 64 is fixed to the inner end of the shaft 61. The dog 65 is pivoted to the disk 64 and is provided with the bifurcated end 66. The lower end of the rocker 60 is located between the bifurcations 66 of the
125 dog 65. The lower end of the dog is bent at an angle 67. The stops 68, 68 are adjustably attached to the side of the track rail 6 or to the side of the vat 2 and are located in the path of the bend 67. The gear bar 69 is
130

fixed to the side of the track 6 and extends parallel with the same. The shaft 70 is journaled in the bearings 11 and 12. The gear-wheel 71 is fixed to the shaft 70 and meshes with the gear of bar 69. The bevel gear wheel 72 is also fixed to the shaft 70 and is adapted to be in mesh with either of the gear-wheels 54, 54 on the shaft 49.

The mechanism so far described is adapted to propel the agitator back and forth over the vat. As the shaft 51 of the motor 8 rotates, the worm gear 52 meshing with the gear wheel 50 rotates the shaft 49, one of the clutch members 56 being in engagement with one clutch collar 55, the adjacent bevel gear wheel 54 is turning oppositely with the shaft while the opposite gear wheel 54 is turning upon the shaft 49 but in the opposite direction. The gear wheel 54 that is turning with the shaft 49 rotates the bevel gear wheel 72, shaft 70 and gear wheel 71 in one direction, the gear wheel 71 being in mesh with the gear of the bar 69 and said bar being stationary, the agitator moves toward one end of the vat 2 until the bend 67 strikes the stop 68. When this occurs, the said bend 67 is moved longitudinally and through the dog 65, the disk 64 describes a partial rotation. The shaft 61 being attached to the said disk also describes such a rotation and the weight 62 is elevated and when the crank end of the shaft 61 assumes a vertical position, the weight 62 is carried over said vertical line and by gravity falls until the end of the shaft 61 strikes the lug 63 located on the side of the yoke 9, it being understood that the lug 63 is located opposite to the said lug from which the said crank end of the shaft 61 is removed. In the meantime the bifurcations 66 of the dog 65 carry the lower end of the rocker 60 around and consequently the links 59 are moved longitudinally and through the rings 57, the clutch members 56 are moved along the shaft 49 and the gear wheel 54 which has heretofore been rotating with said shaft is released and the opposite gear wheel 54 is fixed to the shaft and caused to rotate with the same. Thus the rotary movement of the bevel gear wheel 72 is reversed and the bevel gear wheel 71 moves back over the gear rack 69 in the opposite direction. When the opposite end of the gear rack 69 is reached, the operation above described is repeated and thus the agitator is caused to automatically reciprocate back and forth over the edge of the vat. The dasher leaves being submerged in the contents of the vat, the said contents are worked longitudinally of the vat.

The bevel gear wheel 73 is fixed to the end of the shaft 49. The shaft 74 is journaled in the bearings 16 and 17. The bevel gear wheel 75 is fixed to the shaft 74 and meshes with the bevel gear wheel 73. The disk 76

is fixed to the end of the shaft 74. The link 77 is pivoted at one end to the said disk 76 and is pivotally attached at its other end to the lower end of the rocker arm 78. Said rocker arm is fixed to the rocker shaft 79 which in turn is journaled in the bearing 20 and post bearing 18. The gear segment 80 is fixed to the shaft 79 and meshes with the gear wheel 45. It will thus be seen that as the shaft 49 rotates, the shaft 74 through gear wheels 73 and 75 is rotated as is also its attached disk 76. The link 77 moves longitudinally and rocks the lower end of the arm 78 which in turn rocks the shaft 79. The gear segment 80 is gyrated back and forth which in turn partially rotates the gear wheel 45 with which it is in mesh. The pins 44 and 43 are correspondingly turned in the bearings 21 and 22 and the dasher is given a rocking movement at the same time that it is reciprocated back and forth in the vat.

The rocking movement above described as being imparted to the dasher causes the movement thereof to move up and down through the liquid contained within the vat and consequently said liquid is worked vertically at the same time that it is being worked horizontally.

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

1. An agitator adapted to be applied to a vat comprising a frame, means for adjusting said frame transversely of the vat, a prime mover mounted upon the frame, and a dasher carried by the frame.
2. An agitator adapted to be applied to a vat comprising a frame, a prime mover located upon the frame and actuating the same, a dasher attached to the frame, and means for adjusting said dasher transversely of the vat.
3. An agitator adapted to be applied to a vat, a frame having means for reciprocating the same over a vat, a dasher attached to the frame and adapted to swing in the vat and having leaves pitched at an angle to each other, said leaves having horizontal rods and means for adjusting said rods longitudinally.
4. An agitator adapted to be applied to a vat consisting of a frame having means adapted to reciprocate the same over the vat, a dasher attached to the frame and adapted to enter the vat, dasher wings adapted to be vertically adjusted within the vat, and means for adjusting the dasher frame and wings transversely.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses:

FRANK W. GOWAN.

Witnesses:

FRED L. HANSEN,
BEN LAVARRE.