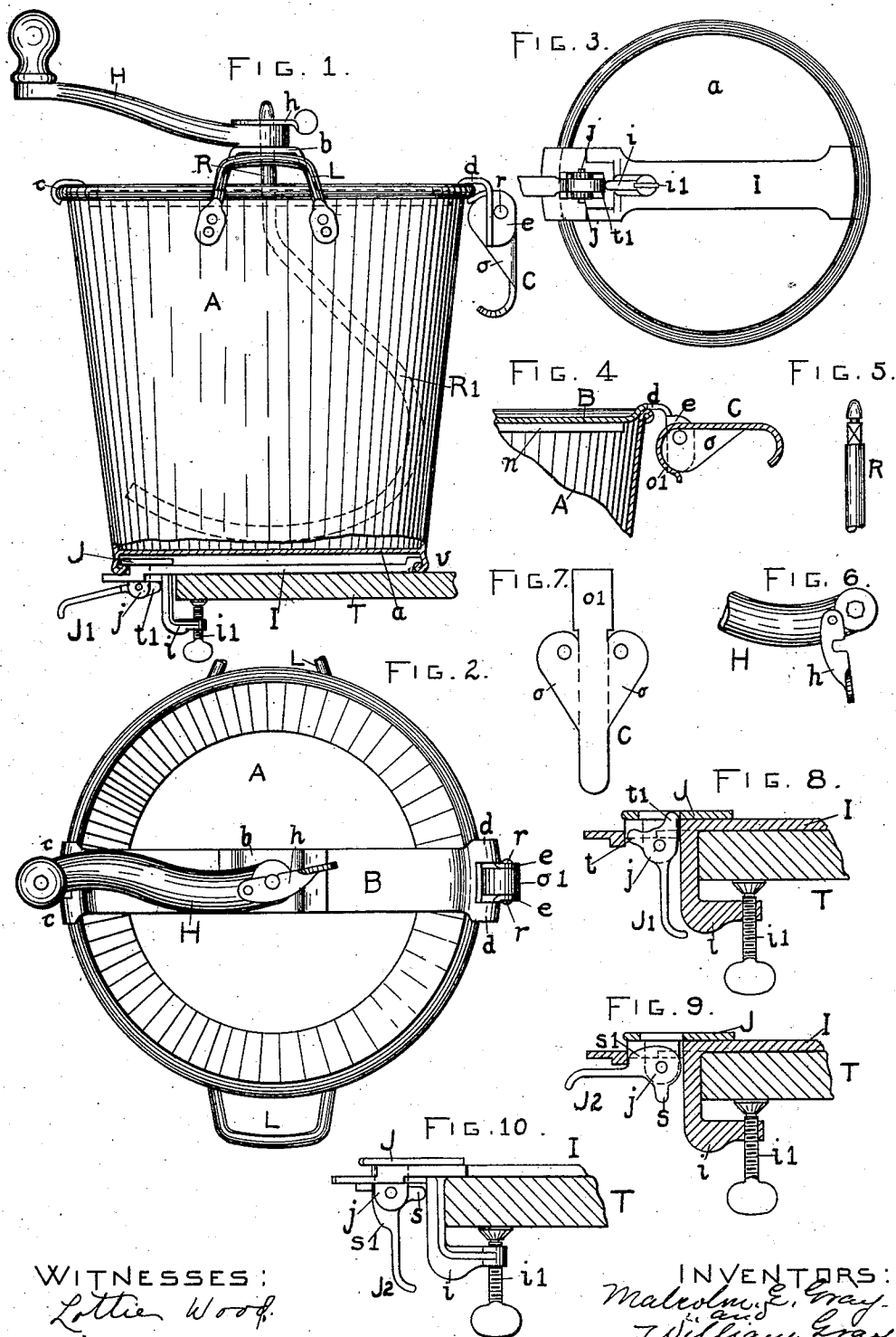


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W. & M. E. GRAY.
MIXING AND KNEADING MACHINE.

APPLICATION FILED SEPT. 28, 1906.



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UNITED STATES PATENT OFFICE.

WILLIAM GRAY AND MALCOLM E. GRAY, OF ROCHESTER, NEW YORK.

MIXING AND KNEADING MACHINE.

No. 876,633.

Specification of Letters Patent.

Patented Jan. 14, 1908.

Application filed September 28, 1906. Serial No. 336,571.

To all whom it may concern:

Be it known that we, WILLIAM GRAY and MALCOLM E. GRAY, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and Improved Mixing and Kneading Machine, of which the following is a specification—

The object of our invention is to provide a kneading and mixing machine of improved construction as to the following features:— We have found it desirable to secure the cross piece carrying the bearings for the kneading and mixing rod to the pan or pail by means of an improved connection adapted to engage the bead or roll at the top of the pail both on the inside and outside of the pail and to clamp the bead or roll at the top of the pail between two members engaging the outside and inside surface thereof. By means of this construction the cross piece is much more firmly held in place and that too without any tendency to spring the top of the pail or pan out of round which results from the usual clamping mechanisms resorted to for securing the cross piece.

In carrying out our invention, we make use of a cross head or cross piece having engaging members at each end thereof extending somewhat upwardly to permit of the main body of the cross piece lying entirely below the surface of and within the top of the pail. Upon one end of this cross piece we provide preferably two engaging members conformed to the circle of the top of the pail and adapted to slip over and engage the bead or roll at the top of the pail upon one side, and the main body portion of the cross head is adapted to lie within the top of the pail, as above noted, to prevent any springing action upon the pail tending to spring it out of round, and our clamping mechanism consists preferably in a cam formed up of sheet metal and pivotally suspended between ears formed on overhanging and projecting members carried by the other end of the cross piece.

For securing the pan or pail to the table or other suitable support, we make use of a metal plate having an arm depending therefrom and carrying a clamping screw, by means of which such plate may be removably secured to the table or support. We provide such plate, on one end with an engaging projection raised a slight distance above the table or support to engage over an inwardly turned bead or roll at the bottom of the pail,

and on the other end of this plate we provide a sliding element adapted to engage over this same roll or bead at the bottom of the pail, and this sliding plate we operate by means of a cam pivoted between ears carried by such sliding element and extending downwardly through the opening therefor in the plate, and on this cam we provide engaging surfaces for moving the sliding element to its operative or inoperative position. By means of this construction it is possible to secure the plate to the table or support where it may remain for any indefinite period of time and to secure the pan or pail to the table or to detach it therefrom requires only the movement of the operating cam lever without having to remove any fastening element from the pail or table.

The accompanying drawings illustrating our invention are as follows:—Figure 1 is a side view of our machine, Fig. 2 a top or plan view and Fig. 3 a view of the under side or bottom when removed from the shelf or table and with the clamping plate attached thereto. Fig. 4 is a sectional view of the clamping mechanism for securing the cross piece to the top of the pail or pan and shows the clamping cam in its inoperative position. Fig. 5 shows the upper end of the mixing and kneading rod. Fig. 6 shows a part of the crank handle H and the latch h thereon in its inoperative position. Fig. 7 shows the blank from which the cam C is bent up, while Fig. 8 shows in vertical central section a part of the shelf or table T and attached thereto a part of that form of our connecting clamp shown in Fig. 1 and with the operating cam in the position which it assumes after the element operated thereby has been moved to a position releasing the pail or pan. Fig. 9 shows in a view similar to Fig. 8 a modified arrangement of our clamping mechanism and with the part operated by the cam lever moved to a releasing position. Fig. 10 is a side view of the mechanism seen in Fig. 9 but with the element operated by the cam lever in the position which it assumes when engaging the bottom of the pail.

Referring to the drawings,—A represents the body of the pail or pan having the usual handle L attached thereto. a is the bottom of the pail shown partially in section in Fig. 1 and is, as usual in such receptacles, secured a short distance above the inwardly turned finishing roll or bead at the lower edge of the sides of the pail or pan.

B is the cross piece or cross head arranged to extend across the top of the pail and with the main body portion thereof occupying a plane somewhat below the top edge of the pail or pan in such a way as to receive any thrust exerted in clamping the cross head B upon the pail, and to stiffen the cross head B flanges *n* are formed thereon, as indicated in Fig. 4. The left hand end of the cross piece B may preferably be widened out and it is also bifurcated as indicated in Fig. 2, and it has formed thereon the hooks *c* adapted to be forced over the roll at the top of the pail or pan, closely fitting the same. At the center of this cross piece B is secured the inverted U-shaped member *b* in order that there may be formed therein and in the plate B bearings, spaced a short distance apart, for the mixing rod R, which is revolvably supported in such holes therefor in the member *b* and the plate B, such holes being alined with the axis of the pail or pan A. This rod R, as indicated in Fig. 5, has a groove cut in its extreme upper end and beneath that a squared-up portion adapted to fit in the square hole therefor in the handle H. Upon this handle H there is secured a latch *h* having a slot formed therein adapted to engage the groove in the upper end of the rod R in such a way as to removably secure such rod R within the handle H. The lower end of the rod R is bent to the conformation indicated at R' in dotted lines in Fig. 1 and comprises the rotating mixing or kneading rod or bar.

The right hand end of the cross piece B is bifurcated, and, as indicated in Figs. 2 and 4, a portion of the metal in the space between the hooks *d* formed on such plate is bent outwardly at right angles with the plane of the vertical portion of each of the hooks *d* to form integrally therewith an ear *e* and through suitable holes in these ears *e* therefor the rivet *r* is inserted and secured, upon which is pivotally supported the cam C. This cam C is formed up from a sheet of metal struck up to the conformation indicated in Fig. 7, with the members *o* thereof bent on the dotted lines shown in Fig. 7 so as to form the side pieces of the cam and support the clamping surface *o'* which is bent around and over the members *o*, the result being the entire cam C formed up as indicated in Figs. 1, 2 and 4. This cam is shown in Fig. 4 in its inoperative position and in Figs. 1 and 2 in its operative position, where it serves to clamp the roll or bead at the top of the pail against the abutting right hand end of the main body portion of the cross head B.

In securing the cross piece B to the top of the pail, the hooks *c* at the left hand end thereof are first sprung over and into engagement with the roll or bead at the top of the pail and then the plate B is forced downwardly within the roll at the top of the pail

where it occupies a position somewhat below the top surface thereof; during this operation the cam C is held in the position indicated in Fig. 4 and thereafter the cam C is forced downwardly to the position indicated in Figs. 1 and 2, firmly clamping the cross piece B in position, and that too without operating to spring the top of the pail out of round, as the length of the horizontal or main body portion of the cross piece B is such as to just permit of its being forced into the top of the pail without springing the same out of round. The mixing and kneading rod R is inserted in position from the under side of the plate B before such plate B is secured upon the pail or pan A. This rod R is held in its operative position in the cross piece B and the handle H by means of the latch *h* operating in the manner clearly indicated in the drawings.

Referring to Figs. 1 and 8, our mechanism for securing the pail A to the table T comprises the plate I with the bracket *i* extending downwardly and under such shelf or table T and threaded to receive the clamping screw *i'* operating in the usual way to secure the plate I to the table or shelf. The right hand end of this plate I is bent upwardly over the inwardly turned bead or roll *v*, as seen at the bottom of the pail or bucket in Fig. 1 and the length of this plate I is such that when the sliding element J is moved outwardly to the left, as seen in the drawings, to its operative position, such element J will engage similarly over the roll or bead *v* at the opposite side of the lower end of the pail. Through the left hand end of the plate I there is formed an opening to receive the ears *j* carried by the element J and between which there is pivotally supported the cam lever J'. This cam lever J' carries the cams *t* and *t'*, the projection *t'* arranged, when the parts are in the positions indicated in Fig. 1, to engage against the upper end of the arm *i* in such a way as to force the element J outwardly and to the left and with the left hand end thereof in engagement with and over the inwardly turned bead or roll *v* formed at the bottom of the pail or bucket A. When this lever J' is moved to the position indicated in Fig. 8, the projection *t* engages against the plate I at the outer end of the slot therein and thereby forces the sliding element J to the right so as to permit the removal of the pail A from the table, when desired.

Referring to Figs. 9 and 10, in that modification of our clamping device therein shown, the clamping lever J² carries two cam surfaces *s*¹ and *s*, the surface *s*¹ operating, by engaging the plate I at the left hand end of the slot therein, to force the sliding element J to the right and to its innermost or inoperative position and when this same lever J² is moved to the position indicated in Fig. 10, the cam surface *s*, engaging the left hand side

of the arm *i*, forces such element J to the left to its operative position.

In using our mixer, the clamping plate I is first attached to the table in the manner indicated and then the element J is moved to its innermost or inoperative position and the pail or bucket A is then inserted thereover and the clamping lever such as at J¹ or J² is operated to force the element J outwardly and to the left so as to engage over the roll *v* at the bottom of the pail and firmly hold the bucket or pail in place. The handle H is detached from the rod R¹ and such rod R¹ is inserted upwardly through the bearings therefor in the plate B and the element *b* secured thereto. The handle H is then inserted in place and the latch *h* moved to hold such handle H and rod R¹ together in the position indicated in Figs. 1 and 2. The plate B is then inserted over the top of the pail or bucket A with the cam C in the position indicated in Fig. 4 and then the cam C is moved to the locking position indicated in Fig. 1, locking the parts together.

The operation of our mixing and kneading machine, being in other respects not already herein above described substantially the same as other machines of this class, it is believed that no further description of such operation is necessary herein.

We desire to call attention to the fact that our clamping mechanism for securing the pan or pail A to the table may be clamped to the table and left there indefinitely although capable of being removed therefrom and when such clamping mechanism is secured to the table it is only necessary to operate a single cam lever to secure the pail or bucket to the table or remove it therefrom.

What we claim is:—

1. In a mixing and kneading machine; at each of two approximately opposite points at the lower edge of the pail or pan an inwardly turned projection; a plate adapted to be removably secured to a suitable support and adapted to engage with one end over the projection on one side of the pail or pan; a member mounted on the other end of such plate, movable relatively thereto and adapted in its operative position to engage over the projection on the other side of the pail or pan and means for operating such member and for locking the same in such operative position.

2. In a mixing and kneading machine; at each of two approximately opposite points at the lower edge of the pail or pan an inwardly turned projection; a plate adapted to be secured to a suitable support and adapted to engage with one end over the projection on one side of the pail or pan; a member mounted on the other end of such plate, movable relatively thereto and adapted in its operative position to engage over the

projection on the other side of the pail or pan and means for operating such member and for locking the same in such operative position.

3. In a mixing and kneading machine; an inwardly turned finishing roll at the lower edge of the pail or pan; a plate adapted to be removably secured to a suitable support and adapted to engage with one end over the finishing roll on one side of the pail or pan; a member mounted on the other end of such plate, movable relatively thereto and adapted in its operative position to engage over the finishing roll on the other side of the pail or pan and means for operating such member and for locking the same in such operative position.

4. In a mixing and kneading machine; an inwardly turned finishing roll at the lower edge of the pail or pan; a plate adapted to be secured to a suitable support and adapted to engage with one end over the finishing roll on one side of the pail or pan; a member mounted on the other end of such plate movable relatively thereto and adapted in its operative position to engage over the finishing roll on the other side of the pail or pan and means for operating such member and for locking the same in such operative position.

5. In a mixing and kneading machine; an inwardly turned projection on the side wall of the pail or pan at each of two approximately opposite points and below the bottom; a plate adapted to be removably secured to a suitable support and adapted to engage with one end over the projection on one side of the pail or pan; a member mounted on the other end of such plate, movable relatively thereto and adapted in its operative position to engage over the projection on the other side of the pail or pan and means for operating such member and for locking the same in such operative position.

6. In a mixing and kneading machine; an inwardly turned projection on the side wall of the pail or pan at each of two approximately opposite points and below the bottom; a plate adapted to be secured to a suitable support and adapted to engage with one end over the projection on one side of the pail or pan; a member mounted on the other end of such plate, movable relatively thereto and adapted in its operative position to engage over the projection on the other side of the pail or pan and means for operating such member and for locking the same in such operative position.

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