

(No Model.)

2 Sheets—Sheet 1.

W. C. BURGE.
CHURN.

No. 564,270.

Patented July 21, 1896.

Fig. 1.

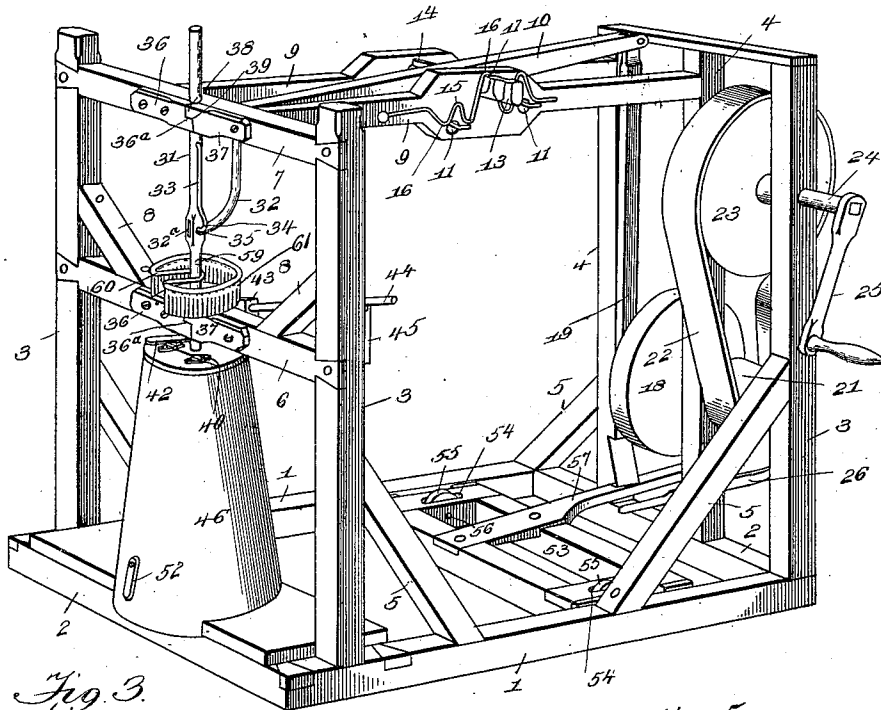


Fig. 3.

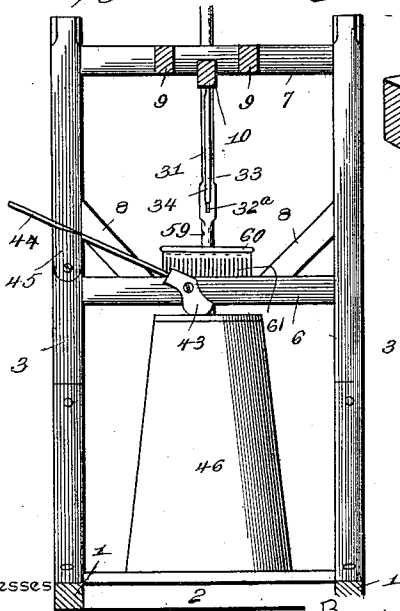


Fig. 5.

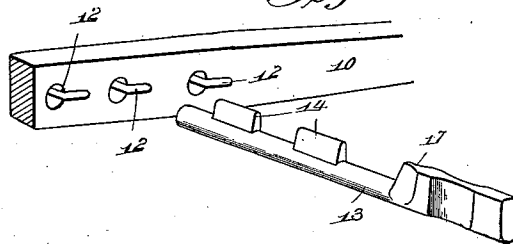
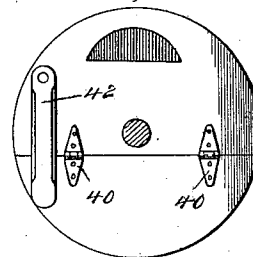


Fig. 6.



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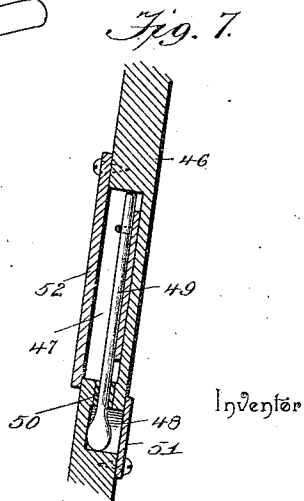
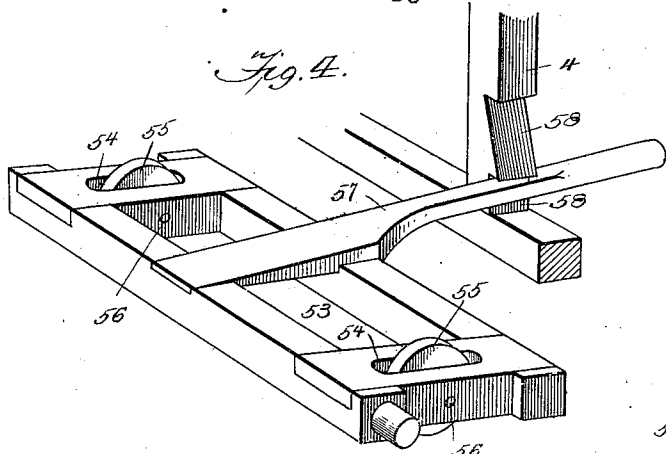
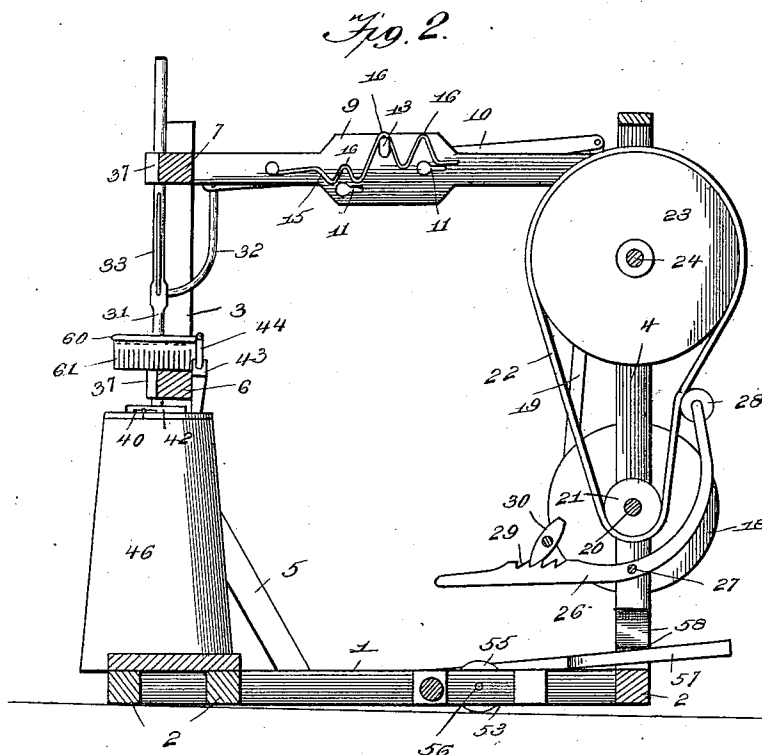
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2 Sheets—Sheet 2.

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No. 564,270.

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UNITED STATES PATENT OFFICE.

WILLIAM CARTER BURGE, OF BATEMAN, VIRGINIA.

CHURN.

SPECIFICATION forming part of Letters Patent No. 564,270, dated July 21, 1896.

Application filed April 22, 1895. Serial No. 546,751. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CARTER BURGE, a citizen of the United States, residing at Bateman, in the county of Patrick and State of Virginia, have invented a new and useful Churn, of which the following is a specification.

This invention relates to an improvement in that class of churns in which the dasher is reciprocated by means of a centrally-pivoted lever or walking-beam, crank-shaft, pitman, &c., and the object in view is to provide a simple and efficient mechanism for operating the dash-rod of the churn and to combine therewith novel means by which the length of stroke of the dash may be regulated to suit the amount of cream in the churn vessel.

Another object is to provide a detachable and self-clamping fly-brush adapted to be applied to and receive its motion from the reciprocating dash-rod.

To accomplish the objects above enumerated, the invention consists in certain features, novel combinations, and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a churn and its operating mechanism constructed in accordance with my improvements. Fig. 2 is a vertical longitudinal section taken near one side of the apparatus. Fig. 3 is a vertical transverse section through the machine. Fig. 4 is a detail perspective view of the hinged caster-frame, showing also a portion of the stationary frame and the means for adjusting and holding said caster-frame. Fig. 5 is a detail perspective view of the adjustable fulcrum-pin for the walking-beam, showing also a portion of the latter and the manner in which the same is perforated. Fig. 6 is a plan view of the removable churn top or cover. Fig. 7 is a vertical sectional view, taken through one wall of the churn-body, illustrating the manner in which the thermometer is applied thereto, and protected from injury.

Similar numerals of reference indicate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 1 indicate the longitudinal bars, and 2 2 the transverse con-

necting-bars, of an open rectangular base-frame.

3 3 indicate corner posts or standards extending upwardly from said base-frame and secured thereto in any usual or preferred manner. Similar posts or standards 4 4, arranged in parallel relation to each other and located intermediate the corners of the base-frame at one end thereof, are spaced a sufficient distance apart to receive between them a suitable fly-wheel, from which motion is imparted to the walking-beam through an interposed pitman, as will hereinafter appear.

The various posts or standards 3 and 4 are properly braced and strengthened by means of inclined braces 5, extending therefrom downwardly to and connected with the base-frame.

The corner-posts 3 at the front end of the churning apparatus are connected by horizontal cross-bars 6 and 7 and strengthened by means of inclined braces 8. An oppositely-disposed pair of horizontal bars 9 extend longitudinally of the machine between and are connected to the upper cross-bar 7 at one end and the parallel posts or standards 4 at their opposite ends, said bars 9 being spaced a sufficient distance apart to receive between them the walking-beam 10. The horizontal supporting-bars 9, between which the walking-beam is mounted, are provided with a series of horizontally-alined perforations 11, said perforations being in the form of keyhole-slots in one of said bars and simply round in the other oppositely-disposed bar. The walking-beam is also provided with a series of keyhole-perforations 12 and is pivotally mounted on a fulcrum-pin 13, provided with spacing-lugs 14, adapted to lie upon either side of the walking-beam and between said walking-beam and the parallel supporting-bars 9. By turning these spacing-lugs 14 upward it will be apparent that the walking-beam will be confined between said lugs and prevented from moving from side to side or coming in contact with the supporting-bars 9. When it is desired to remove the fulcrum-pin 13, it is given a quarter-turn to the right, when owing to the shape of the perforations 11 in the bar 9, through which said pin is inserted, and also the shape of the perforations in the walking-beam, the pin

may be easily removed and inserted in another hole in the side bar 9 and also in the walking-beam whereby the fulcrum-point of said walking-beam is changed, and its height also adjusted. In order to prevent the fulcrum-pin 13 from turning when in operative position, a wire frame 15 is pivoted to the outer face of the bar 9, through which the pin is inserted, said frame being bent to form several open loops 16, which are adapted to stride and engage a lip or shoulder 17 on the fulcrum-pin, as shown in the drawings. The wire frame 15 thus constitutes a pivoted catch or locking device for holding the fulcrum-pin against rotation and displacement.

At the rear end of the machine the walking-beam 10 is connected with a fly-wheel 18 by means of an interposed connecting rod or pitman 19, said fly-wheel being mounted on one end of a short transverse shaft 20, mounted in bearings in two of the vertical posts or standards 3 and 4, above referred to. Intermediate said standards 3 and 4 the shaft 20 is provided with a band-pulley 21, from which a band or belt 22 extends upwardly to and around a larger band-pulley 23, mounted upon a short transverse shaft 24, having its bearing in the posts or standards 3 and 4, and extending outwardly beyond the corner-post 3, where it is provided with a crank-handle 25, as shown. By means of this construction an even, smooth, and rapid motion is imparted to the walking-beam 10. The band or belt 22 may be tightened by means of a curved or elbow lever 26, pivoted, as shown, at 27 to the corner-post 3 or other convenient point, and carrying at one end an idle pulley or roller 28. At its opposite end said lever is provided with a series of notches 29, any one of which may be engaged by a pivoted pawl or dog 30, preferably secured to one of the inclined braces 5, as shown. By adjusting the pawl 30 to the desired notch in the lever 26, the belt 22 may be tightened in a manner that will be readily understood.

The forward end of the walking-beam 10 is connected with the dasher-rod 31 by means of a curved link 32, pivoted to said walking-beam at one end, the opposite end of said link being perforated and adapted to enter a slot 32^a in the dasher-rod, where it is engaged by a spring-arm 33, attached to the dasher-rod at one end and hooked, as indicated at 34, at its free end, said hook entering a perforation 35 in the dasher-rod and engaging the perforation in the lower end of said link. By this means the dasher-rod 31 may be disconnected from the walking-beam when desired. The dasher-rod 31 reciprocates vertically in grooves in the front faces of the cross-bars 6 and 7 and is held in place by means of stationary blocks 36, grooved at their inner ends adjacent to the dasher-rod, so as to partially embrace said rod, and also notched or cut away to form horizontal shoulders 36^a. Hinged buttons 37, mounted on horizontal pivots, are arranged on the opposite side of the dasher-rod

and secured to the front faces of the cross-bars 6 and 7, said buttons being also grooved at their inner ends adjacent to the dasher-rod and also provided with overlapping lips 38, partially embracing the dasher-rod and notched or cut away to form horizontal shoulders 39, which coöperate with the shoulders 36^a for holding the pivoted buttons in their proper position. After having disconnected the dasher-rod from the walking-beam by lifting the inner ends of the pivoted buttons 37, the dasher-rod, together with the churn-body, may be removed from the frame of the machine. The dasher-rod may be provided at its lower end with a dasher of any preferred form or construction.

The top or cover of the churn-body is made in two sections, which are hinged together, as indicated at 40, whereby one section of the cover may be lifted for the purpose of observing the condition of the milk in the churn-body when desired. To prevent the lifting of either of the sections while the churn is in operation, a pivoted button 42 is secured to one of said sections and extends over and bears upon the other section, thereby making it impossible to lift either section without lifting the other. The top of the churn-body is held in place by means of a pivoted cam-block 43, preferably pivoted to the inner face of the cross-bar 6 and bearing at its lower curved end against the upper face of the churn top or cover. An operating rod or arm 44, rigidly connected with said cam-block 43, extends laterally therefrom and is adapted to be engaged near its outer end by a stop or lug 45, attached to the corner-post 3. When the arm or lever 44 is engaged by the stop 45, the cam-block 43 bears firmly upon the top or cover of the churn and prevents accidental displacement of the latter. When it is desired to remove the top or cover of the churn, the arm or lever 44 is disengaged from the stop 45 and allowed to fall, thereby throwing the cam-block out of engagement with said top or cover.

The body of the churn 46 is provided in its outer face with a vertically-extending socket or recess 47, and in its inner wall with a small socket or recess 48, in vertical line with and underlying the socket 47. A thermometer 49 is disposed in said sockets in such manner that the graduated plate will occupy the socket 47 and the bulb which contains the mercury will lie in the socket 48. The vertical tube through which the mercury rises passes through a small vertical perforation between the sockets 47 and 48, and a tight joint is made therein by disposing a piece of rubber tubing or similar packing material around the thermometer-tube and within said vertical perforation, as shown at 50. The inner socket or recess 48 is covered by a button 51, when it is desired to scald the churn, to prevent the hot water from coming in contact with the bulb of the thermometer, and the outer socket 47 may be covered by means of

a button 52 for protecting the thermometer from injury when not in use. By mounting a thermometer in the body of a churn, as above described, the temperature of the milk will be indicated at all times, and the milk or cream will be prevented from leaking by means of the rubber packing 50. It will be apparent that cork or cement or other filler may be used in place of the rubber packing described. The body of the churn may be made from wood or metal or any other preferred material, and it may be observed at this point also that the framework of the machine may be made of wood or metal or any desired or preferred material, and where made of metal it may be either wrought or cast.

When the churn is in operation, the base-frame rests upon the ground or floor; but for the purpose of moving the machine from place to place a supplemental hinged frame 53 is mounted within the open rectangular base-frame between the longitudinal bars 1 thereof. This frame is composed of side and end bars, as shown, and is also slotted in its end bars, as indicated at 54, to receive an oppositely-disposed pair of rollers or caster-wheels 55, mounted on short transverse shafts 56. The frame 53 is hinged at its front side near the center of the base-frame, and is provided with a rearwardly-extending arm 57, which is adapted to be engaged with one of several notches 58 at the lower end of one of the vertical posts or standards 4. When the machine is in operation, the arm 57 rests in the upper notch; but when it is desired to move the churn-frame said arm 57 is depressed until it engages the lower notch 58, when the lower edges of the caster wheels or rollers 55 will be projected beneath the lower face of the base-frame of the machine, whereupon the whole apparatus may now be trundled from place to place.

By the construction above described a simple, durable, and efficient mechanism is provided for operating a churn-dasher, and it will be apparent that by changing the position of the fulcrum-pin in the manner described the stroke of the dasher may be varied to conform to the amount of milk or cream contained in the body of the churn. By placing the fulcrum-pin in the hole shown at the right hand in Fig. 1 a long stroke is imparted to the dasher from top to bottom of the churn-body for accommodating a churn that is well filled. By moving said fulcrum-pin to the left-hand hole a short stroke is given to the dasher, extending from about the center of the body of the churn to the bottom thereof, and by moving the fulcrum-pin to the center hole a half-length stroke is given to the dasher, said stroke extending from about the center of the churn-body to the top thereof.

The dasher-rod 31 is provided at suitable points with notches 59 for the reception of a fly-brush, consisting of a piece of spring-wire 60, bent into open horseshoe form, as shown, which has secured thereto a pendent piece of

textile material, which is fringed at its lower end, as indicated at 61. This device is sprung over the dasher-rod and caused to engage the notches 59, and when said rod reciprocates the fly-brush will be carried thereby and serve to prevent the collecting of flies around the top or cover of the churn-body. A series of notches 59 in the dasher-rod provide for the vertical adjustment of the fly-brush on the rod for accommodating said brush to the different lengths of strokes of the dasher-rod.

When it is desired to remove the churn-body from the machine, the fly-brush is first removed from the dasher-rod, the pivoted buttons 37 are then lifted at their inner ends, after which the cam-block 43 is moved out of engagement with the churn top or cover. The spring-arm 33 and its hooked end 34 are then moved out of engagement with the lower end of the link at the front end of the walking-beam, when the churn-body and the dasher-rod are both left free, and may be entirely removed from the machine, in a manner that will be readily understood.

It will be apparent that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a churn, the frame thereof comprising elevated parallel bars, in combination with a walking-beam mounted between said bars and connected with the churn-dasher rod and also provided with a series of key-hole-slots at varying heights, an adjustable fulcrum-pin provided with spacing lugs or wings and adapted to be passed through one of several sets of horizontally-alining key-hole-slots in the parallel bars of the machine-frame for adjusting the height and throw of the walking-beam, and a pivoted locking-arm provided with several crimps or bends arranged at different intervals and in different planes corresponding and in proximal relation to the keyhole-slots in said parallel bars and adapted to partially surround and embrace the flattened shank of the fulcrum-pin, substantially as and for the purpose described.

2. In a churn, a reciprocating dasher-rod having formed therein a series of notches, in combination with a fly-brush comprising a substantially open circular spring-frame of wire deflected inwardly at one point to form a U-shaped clip portion adapting the said frame to be sprung over the dasher-rod and to be engaged with the desired notches therein, substantially as described.

3. In a churn, the combination with the dasher-rod, of a walking-beam fulcrumed intermediate its ends, means connected therewith for changing the length of stroke of that end of the walking-beam to which the dasher-rod is attached, and a fly-brush comprising a

supporting-frame constructed of wire and
fashioned in such manner as to partially em-
brace and engage the dasher-rod, whereby
the said brush and its frame are capable of
5 being adjusted longitudinally of such rod,
substantially as and for the purpose described.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
the presence of two witnesses.

WILLIAM CARTER BURGE.

Witnesses:

RICHARD TOMAS WALLER,
ROBERT EDGAR TURNER.