

(Model.)

2 Sheets—Sheet 1.

W. W. THARP.
CHURN.

No. 466,636.

Patented Jan. 5, 1892.

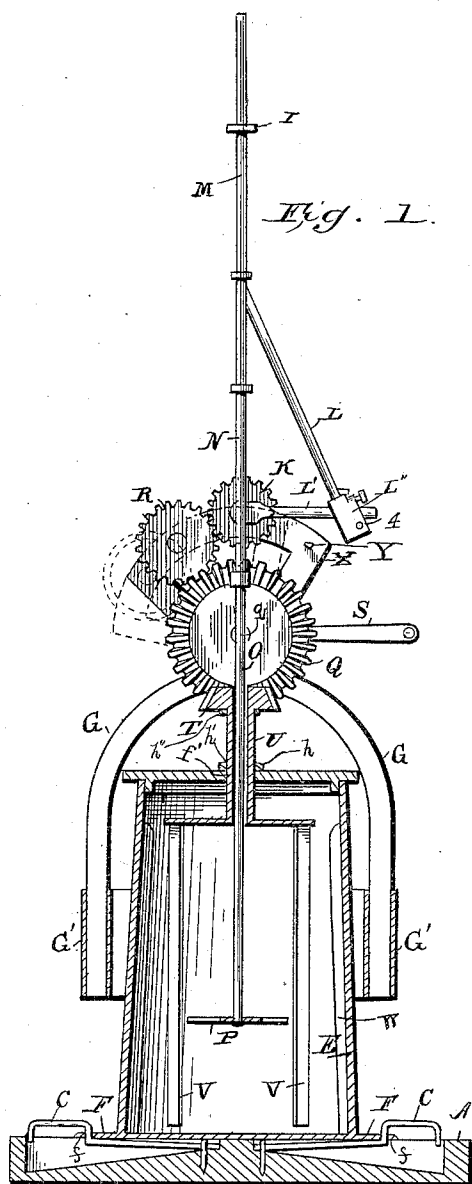


Fig. 1.

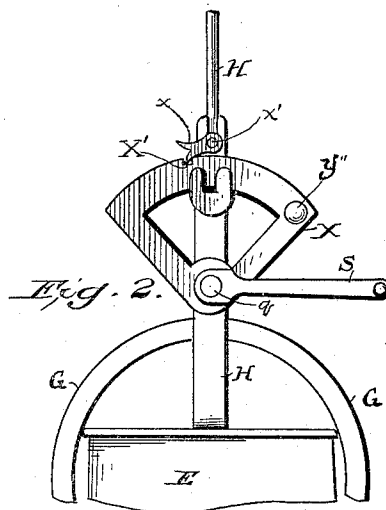


Fig. 2.

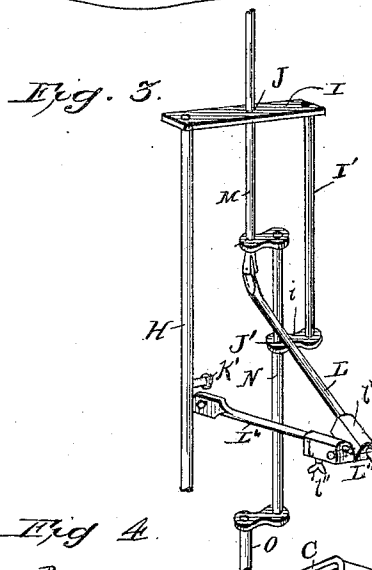


Fig. 3.

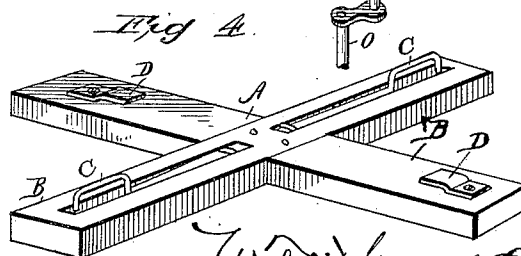


Fig. 4.

Witnesses

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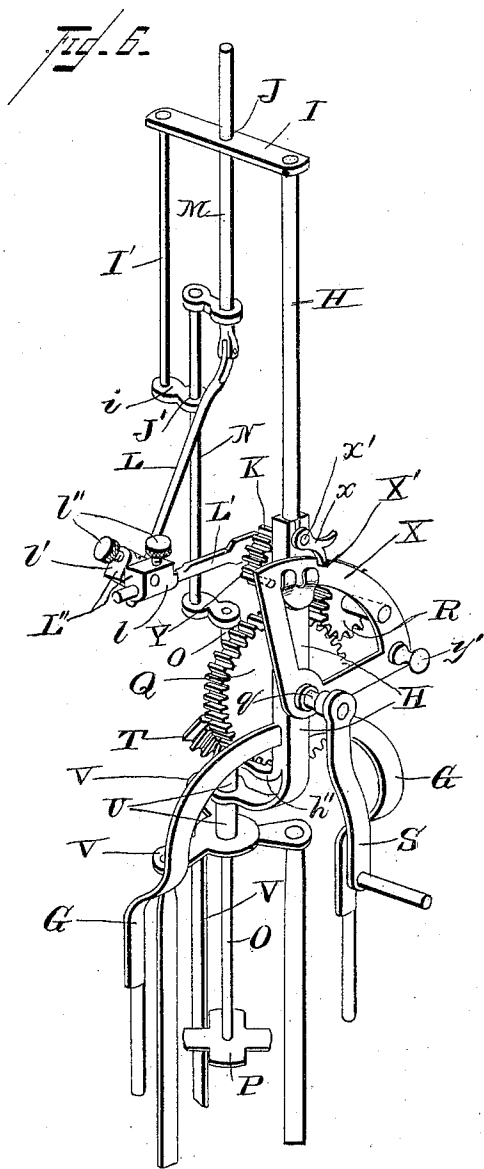
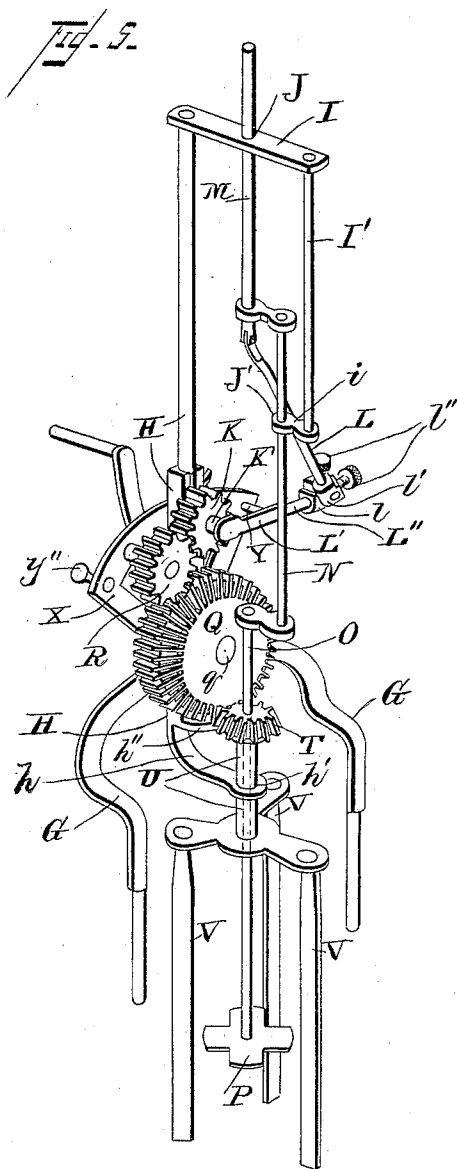
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM W. THARP, OF URBANA, MISSOURI.

CHURN.

SPECIFICATION forming part of Letters Patent No. 466,636, dated January 5, 1892.

Application filed March 21, 1890. Serial No. 344,726. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM W. THARP, a citizen of the United States, residing at Urbana, in the county of Dallas and State of Missouri, have invented certain new and useful Improvements in Churns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in churns, the object being to provide a means of thoroughly agitating the contents of the churn-body by means of rotating and reciprocating mechanism, which will be hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the churn complete, showing the body in section. Fig. 2 is a detail side view of part of the mechanism used in throwing the reciprocating dasher in or out of gear. Fig. 3 is a detail of the arm L' and the pitman L, the adjustable knuckle, and some of the contiguous parts. Fig. 4 is a perspective view of the base. Figs. 5 and 6 are perspective views of the agitating mechanism of the churn removed from the body, taken from opposite sides.

Referring to the several parts by their respective letters of designation, A designates the base, which may be one integral structure or composed of two intersecting bars or beams B B, secured together at their centers in any suitable or preferred way and provided on their upper sides alternately with the springs C and the hooks D. The churn-body E is provided at its lower end with the horizontal annular flange F, which is adapted to engage with the hooks D and the springs C, as shown. The annular flange F is provided with the diametrical notches f, adapted to be engaged by the springs C when the churn is placed in position upon the base, and by such means the churn-body is prevented from having a rotary movement upon the base. The churn-lid is preferably divided into two equal parts, each having on its inner face semicircular notches f', and it will be seen that when said notches register with each other a circular opening will be provided for the reception of the tubular shaft U. It will be understood

that the sections of the lid may be held in position by any preferred form of spring or other catch.

The standard H rests upon the top of the churn-lid and is provided at its lower end with the horizontal arm h, adapted to reach to the center of the top of the churn, and is provided with an aperture h', which serves as a guide or bearing for the tubular shaft U. The upper end of the standard H has secured thereto at right angles therewith the laterally-reaching arm I, and from said arm depends the vertically-disposed arm I'. The arm I is adapted to reach over the churn-body when in its operative position, and is provided with the opening J, in which reciprocates the shaft M, hereinafter referred to.

Upon the lower end of the arm I', I secure the inwardly-reaching horizontally-disposed guide i, having the aperture J' formed therein, as shown, within which reciprocates the section N of the dasher-shaft. The standard H is sustained in its vertical position by the lateral braces or arms G, attached to the standard at their upper ends and secured at their lower ends in sockets G', which are attached to the churn-body, as shown.

To the inner side of the standard H, I secure the pintle or axle K', and upon said axle I mount the pinion K. To the said pinion or axle K' thereof I secure in any suitable way the arm L', and it is by means of the pitman and arm and other parts hereinafter described that the reciprocating dasher is actuated. The free end of the arm L', which is preferably tubular in form, is pivotally connected to the pitman L by means of the knuckle L''. Said knuckle consists of the sleeves l and l', formed substantially as shown, and provided with longitudinal cores or openings, in which the free end of the arm L' and that of the pitman L are received—that is to say, the free end of the arm L' is received by the sleeve l, while the end of the pitman is entered in the sleeve l'. Each of the sleeves may be secured at any point upon the arm or pitman by means of set-screws l'', and as they are pivotally connected by any suitable form of bolt or rivet, substantially as shown, a free connection between the arm and pitman is thus effected. The upper end of the pitman L is pivotally connected to the lower

end of the upper section of the dasher-rod M. The dasher-rod consists of three sections M, N, and O, or one shaft may be so bent that the middle section N will stand slightly to one side of the center of the churn, permitting the function of the knuckle to be carried out.

By means of the adjustable knuckle above referred to it will be seen that the length of the stroke of the reciprocating shaft may be placed fully under the control of the operator.

To the lower end of the dasher-rod or to the lower section thereof (indicated at O) is attached the horizontally-disposed dasher-blade P, as shown. Below the pinion K, but not in mesh therewith, I mount upon the standard H the driving-pinion Q. The shaft *g*, upon which the same is mounted, extends through the standard to the outer side thereof and is provided with the usual form of crank-handle S, by means of which power is applied to operate the mechanism, as will be understood.

To the outer side of the standard H is pivotally secured the lower pointed end of the segmental bracket X, and upon one side of the inner face of said bracket is mounted the pinion R, adapted to mesh at all times with the drive-pinion Q. The drive-wheel Q is not only provided with peripheral cogs, but is also provided with the beveled gear, said beveled gear being adapted to mesh with the horizontally-disposed pinion T, secured on the upper end of the tubular rotary dasher-shaft U, which extends downward through the lid of the churn and has the dasher-arms V secured to its lower end. The beveled wheel T is sustained in its operative position by the arm *h''*, which is provided with an aperture through which passes the tubular shaft U, and said pinion is adapted to rest upon such arm. The arms V are adapted to move around the outer edge of the churn-body out of the way of the reciprocating dasher-blade P, and in order to more effectively provide for a greater agitation of the contents of the churn-body I secure at intervals to the inner sides of the churn the vertically-disposed ribs or brakes W. The mounting of the segmental bracket X will permit said bracket to be thrown in or out, and such movement will cause the pinion R to be connected to or disconnected from engagement with the pinion K, as may be desired. When the bracket is so placed in position that the pinion R will mesh with the pinion K, the dasher P will have a reciprocating motion, while the blades V will be simultaneously rotated. When the pinion R is out of engagement with the pinion K, the reciprocation will cease, but the rotating movement of the tubular shaft U, carrying the blades V, will continue. A notch X' is provided in the upper edge of the segmental bracket X at such a point that the dog *x* will engage in said notch as the pinions R and K are in mesh, and will also engage therewith when the said bracket is moved to the other side for the purpose of throwing said pinions

out of engagement with each other if the free end of said dog is swung over on its pivot *x'*. In either position of said bracket the action of said dog will be such as to effectively hold the same in an adjusted position.

In operation the standard, with the mechanism attached thereto, is placed so that its lower end *h* will rest upon the lid of the churn and the braces G will enter into the sockets G'. The halves of the lid are placed around the tubular shaft U, within which reciprocates the section O of the dasher. The segmental bracket is moved into such position that the pinion R, carried thereon, will be thrown into engagement with the pinion K, and when so connected the arm L' will, through the connecting knuckle and pitman, cause a reciprocation of the dasher, while the beveled wheel T will be simultaneously rotated by its engagement with the beveled gear upon the drive-wheel Q. After the contents of the churn has been sufficiently agitated, and it is desired to concentrate or "gather" the globules of butter into a mass, the pinion R is thrown out of engagement with the pinion K, when the reciprocating movement of the dasher-blade P ceases, and by slowly turning the crank S the blades V gently act upon the contents, and the desired result is produced. Upon one end of the curved upper side of the segmental bracket I secure to the outer side the handle Y'', by which said bracket is moved in either direction upon its pivot, formed by the shaft *g*, while upon the inner face of the curved section of the segmental bracket (upon the opposite end to that occupied by the handle Y'') is secured the inwardly-reaching pin or lug Y, the object of said pin being to engage between the teeth of the gear-wheel K, and thus hold said wheel against rotation when out of mesh with the pinion R. In placing the churn-body upon the base one of the springs C is depressed and the flange of the churn-body is engaged under the hooks D, when said body is rotated until the springs C register with the notches *f*, provided in said flange, and the churn will thus be effectively held on the base.

It will be seen from the construction I have set forth that I am able to impart a reciprocating movement to the dasher P simultaneously with the rotating movement of the tubular shaft U, carrying the blades V, and such counter movement will most thoroughly agitate the contents of the churn-body.

It will be observed that in my churn the several parts are compactly arranged, and that the mechanism thereof can be easily and quickly adjusted to impart two directly-opposite motions to the cream or to give it a single rotary motion. The churn-body will be held securely on the base by the springs and hooks and can be readily removed by depressing one of the springs and sliding the churn-body to one side over the depressed spring. The parts within the churn-body can

be readily removed and separated to facilitate the cleaning process, and the general construction is strong and durable.

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

1. The combination, in a churn, of the standard H, provided with the lateral arm I, having the opening J, the vertical arm I', and the lateral arm i, having the opening J', the axle K', mounted in the standard H and having the pinion K, the section of rod M, forming a part of the dasher-rod, the section O, having a dasher at its lower end, the sectional dasher-rod passing through the openings J and J', the rod L, pivoted to the lower end of the section M of the dasher-rod, the rod L', connected at one end to the axle K', and the knuckle L², comprising the sleeves l l', secured upon the

approaching ends of said rods L L', substantially as specified. 20

2. The combination of the standard, the reciprocating dasher-rod having a dasher at its lower end, the axle K', mounted in the standard and having the pinion K, the rotary tubular dasher-rod having the pinion at its upper end, the pitman and crank-arm connecting the axle K' with the dasher-rod M, the driving-wheel Q, and the segmental bracket X, pivoted on the standard concentrically with the driving-wheel and having the pivoted end pinion R, substantially as set forth. 25 30

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. THARP.

Witnesses:

JOHN A. WOODFORD,
WILLIAM B. COON.