To all whom it may concern:

Be it known that I, MAMIE M. MONTGOMERY, a citizen of the United States, residing at Gowensville, in the county of Greenville and 5 State of South Carolina, have invented certain new and useful Improvements in Churns, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to an improved churn, in which the dasher-shaft is automatically actuated in such a manner as to impart to it an oscillatory rotary movement, the rapidity of which movement is automatically controlled and regulated, and also in which the structural parts are separable and capable of being closely packed for shipment.

The invention will first be described in connection with the accompanying drawings, and then pointed out in the claim.

Figure 1 is a front elevation, partly in section, of the churn. Fig. 2 is a side elevation of the dasher-operating mechanism carried by the cap-plate. Fig. 3 is a plan view of the same. Fig. 4 is a vertical cross-section on the line 2-2, Fig. 1.

The structural parts of my churn (the churn being of the knock-down variety) consist of a base-plate A, on which the cream-receptacle B is set; four standards C, removable secured in the respective corners of the base-plate; and a cap-plate D, supported by the standards, this cap-plate carrying the dasher-operating mechanism, which I will now describe.

E is the main shaft, vertically journaled in two bearings 1 and 2 on the upper and lower sides, respectively, of the cap-plate, and spanning at right angles to each other a large circular opening 3 in said plate. The upper end of this shaft is squared for the reception of a socket-wrench, and below this squared portion is a ratchet 4, rigidly secured to the shaft. On the lower end of said shaft is a thimble 5, provided with a set-screw 6, for preventing upward movement of the shaft.

F is the main gear-wheel, loosely mounted on the main shaft immediately below the ratchet 4, and provided on its lower side with a hub 7, which rests on the upper shaft-bearing 1. This wheel carries a pawl 8, pivoted thereto, and normally held in engagement with the ratchet 4 by a spiral spring 9.

The opening 3 in the cap-plate is divided centrally by a horizontal plate 10, and in said opening, on each side of this plate, is located one of two coil-springs G, the outer end of each of which is secured to one of two vertical pins 11 secured at the sides of the opening, while the inner end of each spring is secured to the main shaft. The opening in the cap-plate is preferably covered by a shield 12, in two parts.

In one inner of the cap-plate is mounted a shaft H, which carries at its upper end a pinion I, sleeved thereon and secured by a setscrew 13, said pinion engaging with the main wheel. Below said pinion is a gear-wheel J, sleeved on shaft H and secured thereto by a setscrew 14. A pawl j, pivoted to the cap-plate, is adapted to engage with the wheel J, serving, when desired, to stop the mechanism. Gear-wheel J meshes with another pinion K, sleeved on shaft L, and held in place by a setscrew 15, said shaft being mounted in the cap-plate, and supported at its upper end by a bracket 16. On the lower end of said shaft L is sleeved a gear-crank-wheel M, rigidly fixed to the shaft by a setscrew 17.

To this wheel M is pivoted one end of a pitman N, the other end of which is pivoted to a crank-arm O, rigidly secured to a short independent spindle P, supported by a bracket 18, secured to the under side of the cap-plate, and held in said bracket by a collar 19. On the lower end of this spindle is sleeved a dasher-socket Q, secured thereon by a setscrew 20; this socket being adapted to receive the squared upper end of the dasher-shaft R, which is secured therein by a thumb-screw 21, the lower end of this shaft being rounded and seated in a depression in the bottom of the receptacle B. The shaft R is provided with angular blades r; and below the lower blade there is a wire disk d, loosely mounted on the shaft, and held thereon by a nut 22, this disk being for the purpose of raising the butter from the receptacle.

S is the governor-shaft, mounted in one end of the cap-plate, carrying near its lower end a fixed pinion T, in gear with the crank-wheel M, the lower end of the shaft being steadied by a bracket 23 secured to the cap-plate. Secured to the upper side of the cap-plate is another bracket 24, of thin spring metal, through which the governor-shaft passes, there being...
a shoulder 25 on the shaft slightly below
the normal position of the upper end of the
bracket. On the shaft and resting on the
bracket is a washer 26. On the upper end of the
shaft S is adjustably secured a governor U,
which consists of two sleeved disks V and W,
with the latter of which are pivotally con-
nected the lower ends of two links w, the up-
per ends of which are pivotally connected to
two ball-carrying arms v, pivoted to the upper
sleeved disk V.

The operation of my churn will be obvious
from the description and drawings; but it may
be well to remark that when the main shaft
is turned sufficiently to wind the springs, and
the pawl j is thrown out of engagement with
the wheel J, the main shaft will be put in rev-
olution, and, by reason of the pawl 8 being
in engagement with the fixed ratchet 4, the
main wheel will likewise be put in motion,
thereby, through the intermediate gearing,
turning the crank-wheel, and thus operating
the crank-arm in a manner to impart oscilla-
tory rotary motion to the dasher, this motion
being deemed superior to the full revolution
of the dasher, in that the tendency of the
cream to flow in one direction is thereby con-
stantly interrupted, resulting in more readily
separating the oily globules from the other
parts of the cream. The speed of rotation is
controlled and regulated by the governor, for,
as the speed of revolution of the shaft in-
creases, the governor-arms are thrown up-
ward by centrifugal force, thereby causing
the lower disk W of the governor to bear, with
more or less pressure, on the bracket 24,
which in turn likewise bears on the shoulder
25 of the governor-shaft, thereby retarding
the revolution of said shaft, and, through the
intermediate mechanism, also the revolution
of the main shaft.

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

In a churn of the class described, the com-
bination, with a base-plate, standards remov-
ably secured therein, a cream-receptacle on
the base-plate, a dasher therein, and a re-
moveable cap-plate supported by said stand-
ardS, of a main shaft extending through the
cap-plate, spring mechanism located within
the cap-plate and adapted to impart rotary
motion to said shaft, a main gear-wheel
mounted on the main shaft above the cap-
plate and adapted to revolve therewith in one
direction only, a governor for regulating the
speed of revolution of the main wheel, a shaft
extending through the cap-plate and carrying
a pinion on its upper end and a crank-wheel on
its lower end, said crank-wheel engaging with
a pinion on the governor-shaft, a short shaft
mounted in the upper side of the cap-plate
and carrying a pinion and a gear-wheel, which
respectively engage with the main wheel and
the pinion on the crank-wheel shaft, a stop-
pawl adapted to engage with one of the gear-
wheelS, an independent spindle journaled be-
neath the cap-plate and provided with a
 crank-arm and a socket, the latter adapted to
receive one end of a dasher-shaft, and a pit-
man connecting the crank-wheel and crank-
arm.

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

MAMIE M. MONTGOMERY.

Witnesses:

T. T. BALLINGER,

J. B. COX.