

A. S. CHEEK.

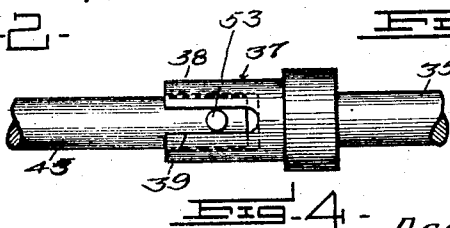
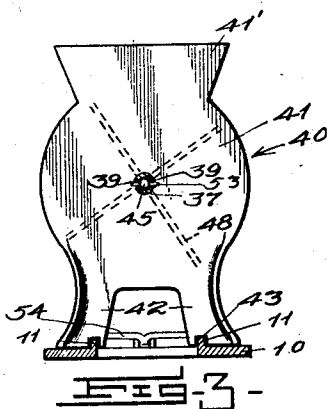
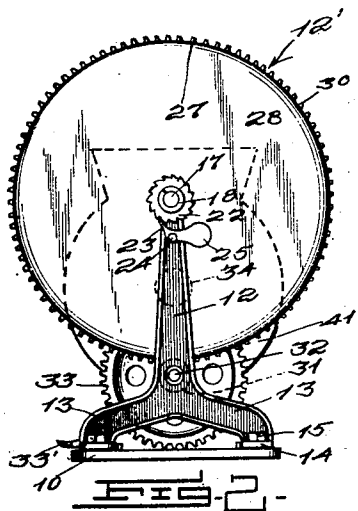
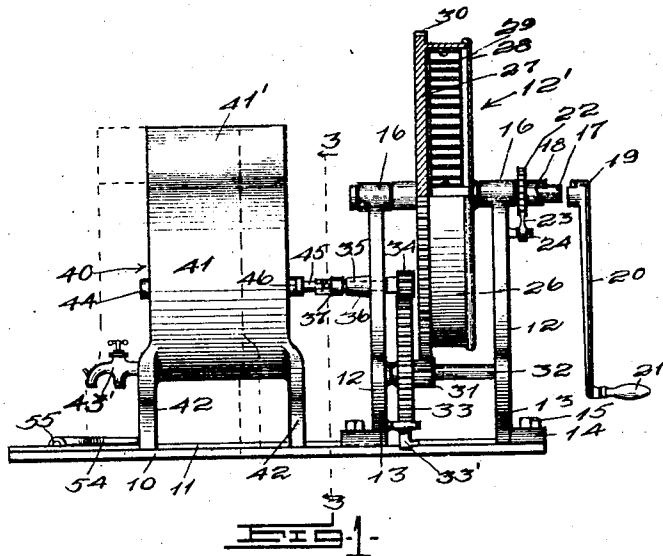
CONNECTING MEANS FOR DRIVING AND DRIVEN SHAFTS OF A SPRING MOTOR AND CHURN.

APPLICATION FILED FEB. 24, 1914.

Patented July 4, 1916.

2 SHEETS—SHEET 1

1,190,109.



Witnesses
[Signature]
[Signature]

Inventor
Asa S. Cheek,
[Signature]
Attorneys

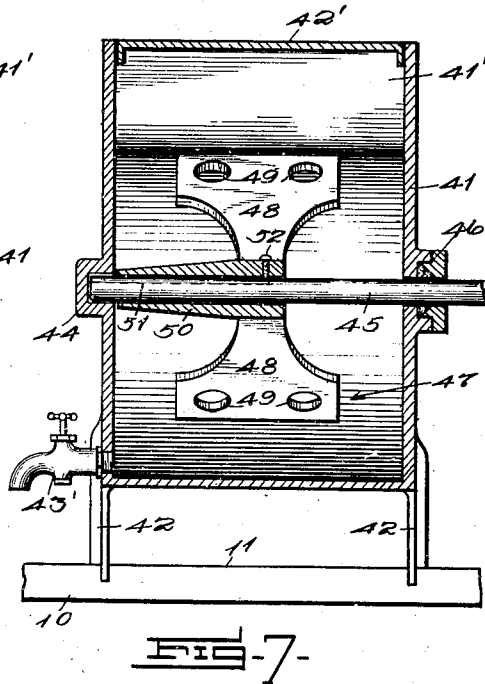
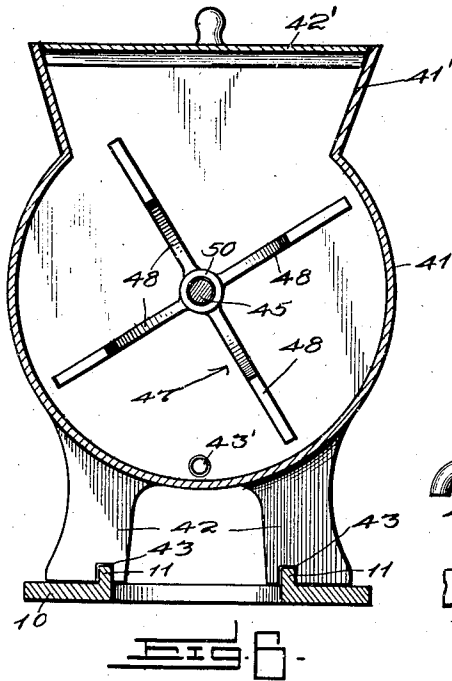
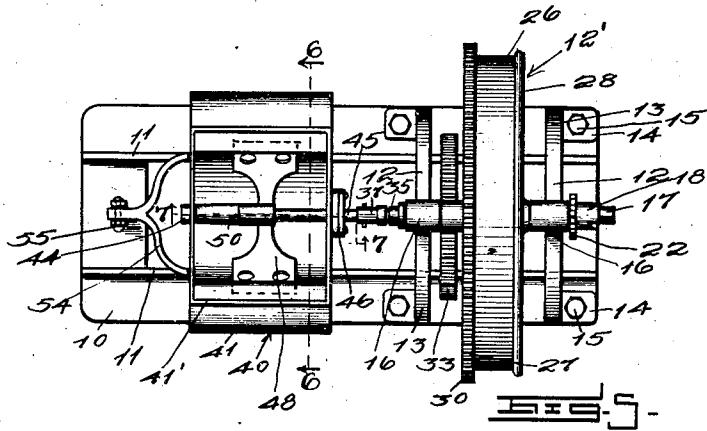
A. S. CHEEK.

CONNECTING MEANS FOR DRIVING AND DRIVEN SHAFTS OF A SPRING MOTOR AND CHURN.
APPLICATION FILED FEB. 24, 1914.

1,190,109.

Patented July 4, 1916.

2 SHEETS—SHEET 2.



Witnesses,
[Signature]
[Signature]

354

Inventor
Asa S. Cheek,
C. L. Parker,
Attorneys

UNITED STATES PATENT OFFICE.

ASA S. CHEEK, OF CHARLOTTE, NORTH CAROLINA.

CONNECTING MEANS FOR DRIVING AND DRIVEN SHAFTS OF A SPRING-MOTOR AND CHURN.

1,190,109.

Specification of Letters Patent.

Patented July 4, 1916.

Application filed February 24, 1914. Serial No. 820,555.

To all whom it may concern:

Be it known that I, ASA S. CHEEK, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful Improvements in Connecting Means for Driving and Driven Shafts of a Spring-Motor and Churn, of which the following is a specification.

My invention relates to means for detachably connecting driving and driven shafts, such as are embodied in a spring motor and churn driven thereby.

An important object of the invention is to provide means of the above mentioned character, which are simple in construction, inexpensive to manufacture, and convenient in use.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a side elevation of apparatus embodying my invention, Fig. 2 is an end elevation of the same, Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1, Fig. 4 is an enlarged detail elevation of a detachable coupling or clutch mechanism for connecting the driving element of the spring-motor and the dasher or beater of the churn, Fig. 5 is a plan view of the entire apparatus, Fig. 6 is a transverse sectional view taken on line 6—6 of Fig. 5, and, Fig. 7 is a longitudinal sectional view taken on line 7—7 of Fig. 5.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates a horizontally arranged base or support, provided upon its upper surface with upstanding spaced flanges or ribs 11, extending longitudinally thereof, as more clearly illustrated in Fig. 5.

The numeral 12' designates a spring-motor as a whole, arranged near one end of the base or support 10, as shown. This spring-motor comprises a pair of upstanding arms or standards 12, provided at their lower ends with downwardly diverging legs 13, terminating in feet 14, arranged exteriorly of the ribs or flanges 11, and rigidly

secured to the base or support 10 by means of bolts 15, or the like, as shown. The standards or arms 12 are provided at their upper ends with bearings 16, through which is journaled a horizontal rotatable driving shaft 17, as shown. This shaft is provided at its outer end with a clutch-member 18, rigidly connected therewith, and adapted for detachable engagement with a co-acting tubular clutch-member 19, adapted to be inserted upon the outer end of the shaft 17. The clutch-member 19 is carried by a removable handle or crank 20, preferably provided at its outer end with a hand-grip 21. The handle 20 is employed to rotate the shaft 17 in one direction to wind up a main spring, to be described. Preferably formed integral with the clutch-member 18 is a ratchet wheel 22, adapted to be engaged by a pawl 23, pivoted as shown at 24. One end of this pawl is provided with a weight 25, which serves to hold the pawl in engagement with the ratchet wheel 22. The function of this pawl and ratchet wheel is to prevent the shaft 17 from rotating in a direction to unwind the spring.

Rotatably mounted upon the shaft 17 between the bearings 16 is a drum 26, one end of which is permanently closed by a head 27, and the opposite end of which is normally closed by a removable head 28, secured thereto by any suitable means. Arranged within the rotatable drum 26 is a coil spring 29, of suitable strength or stiffness and length, the outer end of this coil spring being connected with the periphery of the drum while its inner end is connected with the shaft 17, as shown. The drum 26 is provided with pinion or gear teeth 30, preferably at the periphery of the head 27, such gear teeth engaging a small gear or pinion 31, rotatably mounted upon a transverse shaft 32, which is arranged below the drum 26 and connected with the standards or arms 12. Rigidly connected with the small gear or pinion 31 for rotation therewith is a large gear or pinion 33, which may be held against rotation by a pivoted pawl 33', movable into and out of engagement therewith. The gear or pinion 33 engages and drives a small gear or pinion 34, as shown. The gear or pinion 34 is rigidly mounted upon a horizontal stub-shaft 35, extending longitudinally of the base or sup-

port 10, and journaled within a bearing 36. This stub-shaft has a coupling or clutch-element 37 (see Fig. 4), rigidly connected with its outer end. The clutch-member 37 includes a tubular portion 38 provided with oppositely arranged longitudinal slots 39, as shown. It is thus seen that the stub-shaft 35 is the driving element of the spring motor. Arranged near the opposite end of this base or support 10 is a churn 40 comprising a holding receptacle, body portion or supporting structure 41, which is preferably vertically arranged and extends transversely of the base or support 10. This receptacle 41 is provided at its upper end with an inlet hopper or spout 41', normally closed by a removable cover or lid 42'. Connected with the lower portion of the receptacle 41 is an outlet spigot 43', for the discharge of the milk or butter-milk. The receptacle 41 is provided at its opposite ends with depending feet or supports 42, slidably engaging the upper surface of the base or support 10 and provided with openings or grooves 43, to receive the ribs or flanges 11, as more clearly shown in Fig. 6. From this construction it will be obvious that the receptacle or body portion 41 of the churn is adapted to be bodily moved longitudinally of the base or support 10 toward and away from the spring-motor with the feet 42 slidably engaging the upper surface of the base or support 10, and properly guided thereon by the ribs or flanges 11, operating within the slots or openings 43. The receptacle 41 is provided upon one of its ends with an outwardly bulging cup-shaped bearing 44, for receiving one end of a rotatable driven or dasher-shaft or spindle 45, which is rotatably and removably mounted within a stuffing box 46, formed upon the opposite end of the receptacle.

The numeral 47 designates a rotatable dasher or beater, as a whole, preferably comprising blades 48, increasing in width outwardly and apertured, as shown at 49. These blades 48 are rigidly connected and preferably formed integral with a tubular hub 50, adapted to be removably mounted upon the shaft or spindle 45. The shaft 45 is provided with a longitudinally extending groove 5 passing through one end thereof, and adapted to receive a bolt 52, carried by the tubular hub 50. It is thus seen that the tubular hub 50 is removably mounted upon the shaft 45 and is splined thereto to rotate therewith, the longitudinal movement of the tubular hub in one direction being prevented by one end thereof engaging one end of the receptacle 41 and in the opposite direction by the bolt 52 engaging the end wall of the groove 51.

The shaft or spindle 45 extends outwardly beyond the stuffing box 46 and is adapted to serve as a co-acting clutch-element to be in-

serted within the tubular clutch-element 38, such end of the shaft being provided with a transverse pin or bolt 53, adapted to enter the longitudinal grooves 39, as more clearly shown in Fig. 4. When the end of the shaft or spindle 45 is inserted in the tubular clutch-element 38 with the transverse pin 53 passing into the longitudinal slots 39, it is obvious that the shafts 35 and 45 are locked for rotation together.

The bodily movement of the receptacle 41 longitudinally of the base or support 10 away from the spring-motor, may be positively limited by a pivoted preferably Y-shaped latch 54, (see Fig. 5), which is pivoted to one end of the base or support 10, as shown at 55. The free ends of the arms of this latch are adapted to rest upon the ribs or flanges 11 and to engage the outer legs 42 of the receptacle 41, when the shafts 45 and 35 have been connected or coupled as hereinabove described.

The operation of the apparatus is as follows:—Assuming that the churn is arranged in its operative position upon the base or support 10, whereby the shafts 35 and 45 will be coupled or connected, the operator connects the clutch-element 19 with the clutch-element 18, whereby rotation of the handle 20 will rotate the shaft 17 for winding up the spring. The spring is retained wound up until the pawl 33' is moved to release the gear wheel, when the drum 26 rotates for unwinding the spring, such rotation being imparted to the shaft 35 through the medium of the intermediate train of gears. The shaft 35 rotates the shaft 45, whereby the dasher or beater 47 is rotated, to churn the cream.

When it is desired to remove the churn 41 from the base or support 10, whereby the former may be thoroughly cleaned or scalded, the latch 54 is swung out of engagement with the outer legs 42, whereby the receptacle 41 may be moved horizontally away from the spring-motor until the shafts 35 and 45 have been disconnected. Subsequently to this the receptacle 41 may be separated from the base or support 10 by a vertical movement of the receptacle with relation to the base. This having been done, the dasher or beater 47 may be removed from the receptacle 41, by moving the shaft or spindle 45 longitudinally out of the receptacle 41, such movement being possible by the fact that the tubular hub 50 is splined upon the shaft or spindle 45. The different parts of the apparatus may be just as readily assembled.

Particular attention is called to the fact that when the shafts 35 and 45 are connected or coupled, as hereinabove described, and the latch 54 swung to its operative position in engagement with the outer legs 42, it is impossible to remove the receptacle 41

from the base or support 10 either by a horizontal or vertical movement with relation thereto.

5 While my spring-motor has been shown in connection with a churn, with which it is particularly well adapted to cooperate, yet I do not wish to restrict the invention solely to this use, as the same may be used in driving different machinery.

10 It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the sub-
15 joined claim.

Having described my invention, I claim:

20 In apparatus of the character described, a substantially flat, horizontal base provided upon its upper side with longitudinal, up-
standing guide ribs; a substantially vertical standard rigidly connected with one end
25 of the base; a substantially horizontal drive shaft journaled through the stand-
ard and rotatable therein and held against perceptible longitudinal and lateral move-
ments; a supporting structure arranged
30 above the base and provided with pairs of depending, spaced feet having transverse

notches open at their bottoms for detach-
ably receiving the upstanding guide ribs; a
substantially horizontal driven shaft jour-
naled through the supporting structure with
one end adapted to be brought into align- 35
ment with the corresponding end of the
drive shaft; detachable clutch mechanism
rendered active by the movement of the
driven shaft into proximity to the drive
shaft to lock the same together for rotation 40
and to prevent perceptible vertical swinging
movement of the driven shaft prior to the
longitudinal movement thereof away from
the drive shaft; and a vertically swinging
forked latch pivoted to the upper side of the 45
base near the opposite end thereof and hav-
ing its free ends adapted to slidably engage
the adjacent pair of legs of the supporting
structure upon the downward movement of
the latch to effect the longitudinal move- 50
ment of the supporting structure toward
the active position and to lock the same in
such position.

In testimony whereof I affix my signa-
ture in presence of two witnesses.

ASA S. CHEEK.

Witnesses:

C. L. PARKER,
CALVIN T. MILANS.