

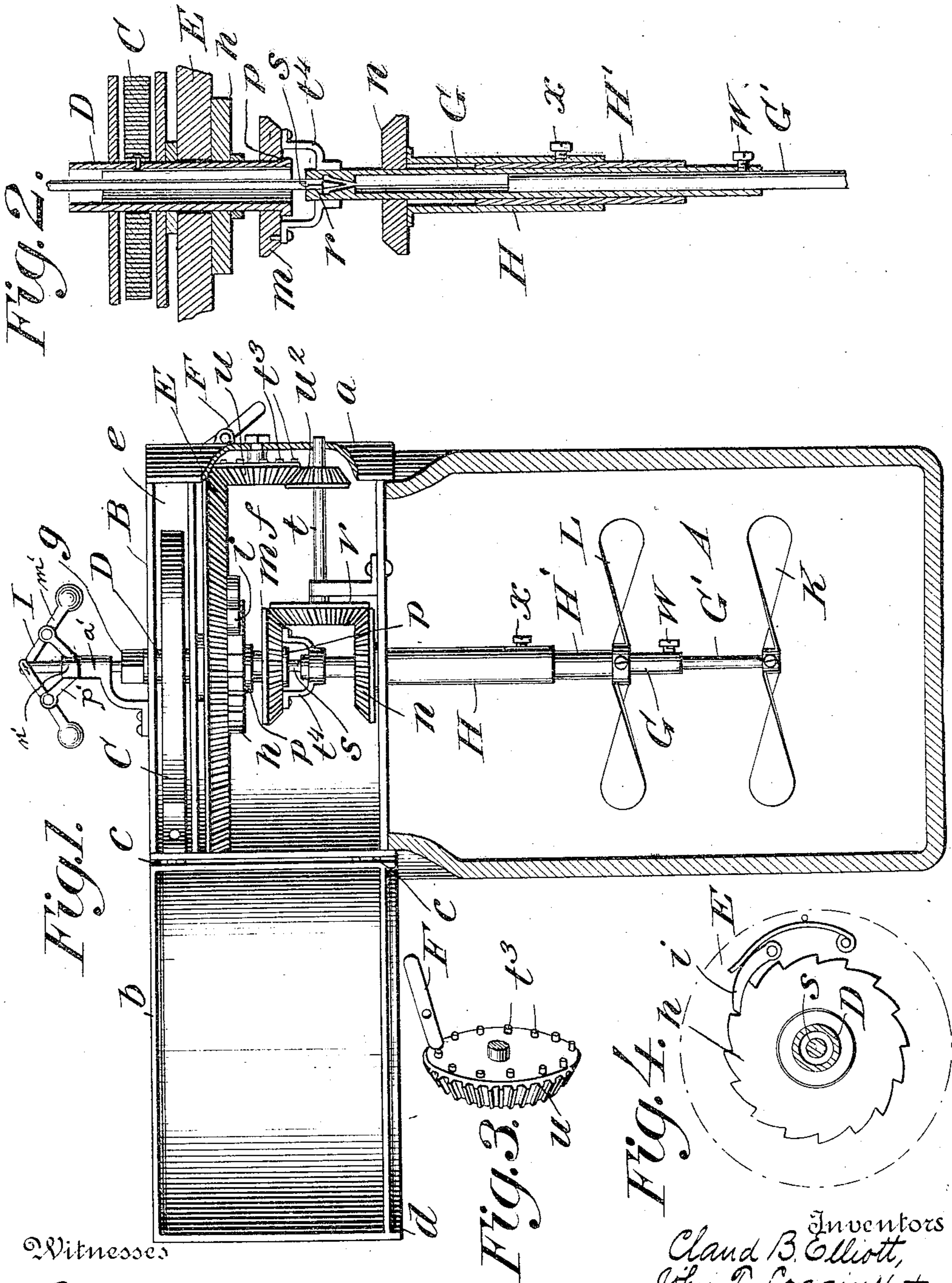
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SPRING MOTOR APPARATUS.

APPLICATION FILED MAR. 2, 1907.



Witnesses

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Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

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HEMPSTEAD, TEXAS.

SPRING-MOTOR APPARATUS.

No. 855,506.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed March 2, 1907 Serial No. 360,171.

To all whom it may concern:

Be it known that we, CLAUD B. ELLIOTT and JOHN T. LOGGINS and WILLIAM B. STRAUGHAN, citizens of the United States, residing at Hempstead, in the county of Waller and State of Texas, have invented new and useful Improvements in Spring-Motor Apparatus, of which the following is a specification.

Our invention pertains to spring motor apparatus, and will be fully understood from the following description and claims when the same are read in connection with the accompanying drawings, forming part of this specification, in which:

Figure 1 is a view partly in elevation and partly in vertical section, illustrating the apparatus constituting the preferred embodiment of our invention as properly positioned relative to a receptacle in which the material to be worked is placed. Fig. 2 is a detail vertical section taken diametrically through the apparatus. Fig. 3 is a detail view, on an enlarged scale, illustrating the arrangement of the controlling device of the motor or apparatus, relative to the part with which it cooperates. Fig. 4 is a similar view showing the manner in which we prefer to effect connection between the arbor through the medium of which the driving spring is wound and the major gear of the apparatus.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is a receptacle which is open at its upper end and is designed to contain the cream or other substance to be worked through the medium of our novel apparatus. The said receptacle A forms no part of our invention and it may therefore be of any suitable description.

B is the casing of our improved apparatus which is preferably formed of metal, though it may be formed of any material consonant with the purpose of our invention. The said casing comprises a section *a* which describes more than half of a circle, and a segmental door section *b* hinged at *c* to the section *a*; and it is provided with a skirt flange *d* designed to rest over the upper end of the receptacle A, and is also provided with an upper chamber *e* and a lower and comparatively large chamber *f*.

Arranged in the upper chamber *e* of casing

B and connected to the casing is a coiled spring C, and extending through the said coiled spring C and connected thereto is a tubular spring-winding arbor D which is journaled in the lower and upper walls of the chamber *e* and has its upper end squared as indicated by *g* for the application of a wrench or lever which we have deemed it unnecessary to illustrate. The lower portion of the said arbor D extends loosely through the center of a large miter gear E, and is connected with the said gear E through the medium of a ratchet wheel *h* on arbor D and one or more pawls *i* on gear E, as clearly shown in Fig. 4. By virtue of this provision, it will be apparent that when the arbor D is turned to wind or place under compression the spring C, the said arbor is free to turn independent of the wheel E and the parts, presently described, that are driven through the medium of said wheel; also, that when the spring C is compressed or under tension, and the wheel or gear E is released in the manner hereinafter set forth, the wheel or gear E will be rotated by the spring C through the medium of the arbor D and the connection between said arbor and the wheel or gear E.

F is the controlling device of the apparatus. The said controlling device F is connected with and carried by the section *a* of casing B, and is movable by hand into and out of engagement with lugs *t*³ on a miter gear *u*, presently described. Thus it will be seen that when the spring C is under tension it may be retained in such state by leaving the device F in the position illustrated, while when it is desired to utilize the expansion of the spring to drive the dasher shafts, presently described, such end may be accomplished by simply drawing the device F out of the path of the said lugs *t*³.

G is a tubular dasher shaft arranged in the casing section *a* and having its upper end connected through a yoke *t*⁴ with a miter gear *m* loosely mounted above a collar *p* on the lower end of arbor D, and H is a vertical and tubular dasher shaft which receives the shaft G and is journaled in the lower wall of the casing section *a* and is provided immediately above said wall with a miter gear *n*. In the upper end of dasher-shaft G is a small angular socket *r*. This latter is for the engagement of the lower angular end of the shaft *s* of a rotary balance device I, the office of

which is to render even the motion of the dasher shafts. The rod or shaft *s* is removable from the angular socket *r* and the tubular arbor *D*, and hence it will be seen that
 5 when it is desired to wind the spring *C* through the medium of the arbor *D* in the manner before described, the balance device as a whole may be removed from the apparatus so as not to interfere with the said operation.
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The rotary balance device is preferably made up of arms *m'* weighted at their outer ends and connected at their inner ends to the shaft *s*, and a collar *n'* resting on a fixed bearing *a'* and having arms *p'* connected to the arms *m'*.
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Motion is transmitted from the gear *E* to the miter gears *m* and *n* through the medium of a shaft *t* journaled in the casing section *a*, the before mentioned miter gear *u* intermeshed with the gear *E*, a miter gear *u'* fixed on shaft *t* and intermeshed with gear *u*, and a miter gear *v* fixed on the shaft *t* and intermeshed with the gears *m* and *n*. From this
 20 it follows that when the gear *E* is in motion the dasher shaft *G* will be rotated in one direction and the dasher shaft *H* will be rotated in the opposite direction.
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Telescopically arranged in the shaft *G* and adjustably fixed thereto by a set screw *W* or other suitable means is an adjustable shaft *G'* on which are fixed two (more or less) suitable blades *K*, while telescopically arranged in the dasher shaft *H* is an adjustable
 30 tubular shaft *H'* equipped with two (more or less) suitable blades *L*. The adjustable shaft *H'* loosely receives the lower portion of the dasher shaft *G* and is adjustably fixed to the dasher shaft *H* through the medium of a set screw *x* or other suitable means. By
 35 virtue of the provision of the adjustable or extensible shafts *G'* and *H'* it will be apparent that the blades *K* and *L* may be positioned at various distances below the casing *B* according to the depth of the particular receptacle *A* in connection with which our novel apparatus is employed.
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In the practical use of our apparatus, the receptacle *A* is charged with cream or other substance to be worked, and the blades *K* and *L* are arranged in the substance and the casing *B* is arranged or mounted on the upper end of the receptacle. Then when the spring
 50 *C* is wound or placed under tension and the gear *u* is released by manipulation of the controlling device *F*, it will be seen that the gears *E* and *u* will be rotated by the spring through the arbor *D* and the connection shown in
 55 Fig. 4, and that motion will be transmitted from the gear *E* to the dasher shaft *G* and the dasher shaft *H*, and that said shafts and their blades will be rapidly rotated in opposite directions. To stop the operation of
 60 the apparatus it is simply necessary to throw

the controlling device *F* back into engagement with the gear *u*.

Inasmuch as our novel apparatus is simply mounted on the upper end of the receptacle *A*, it will be understood that subsequent to
 70 the completion of a churning or other operation, the apparatus may be conveniently lifted away from the receptacle, and the receptacle may then be conveniently discharged of its contents. It will also be understood that when the apparatus is removed from the receptacle the dasher shafts and the blades may be expeditiously and easily freed of any butter or other substance that may have collected thereon.
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The construction herein described constitutes the preferred embodiment of our invention, but it is obvious that in practice such changes in the form, construction and relative arrangement of parts may be made as
 80 fairly fall within the scope of our invention as defined in the appended claims. For instance the bearing *a'* provided on the upper side of the casing section *a* is not essential, and may be omitted without affecting our invention. Said bearing is provided merely to receive the upper portion of the shaft *s* with a view of holding said shaft against lateral deflection.
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Having described our invention, what we claim and desire to secure by Letters-Patent, is:
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1. In an apparatus for the purpose described, the combination of a casing, a spring arranged in the casing and connected therewith, a central vertical, tubular arbor journaled in the casing and extending through and connected with the spring, a shaft journaled in the casing and arranged below and in vertical alinement with the arbor and having an angular socket in its upper end, a miter gear loosely mounted on the arbor and fixedly connected with the said shaft, a tubular shaft loosely surrounding the latter shaft and journaled in the casing and having a miter gear at its upper end, a large miter gear loosely mounted on the arbor, a pawl and ratchet connection intermediate the arbor and said large miter gear, a miter gear arranged between and intermeshed with the miter gears on the shafts and connected through interposed gearing with the large miter gear, a rotary balance device having a rod or shaft extending down through the tubular arbor and terminating in an angular end disposed in the angular socket of the first mentioned shaft, and means mounted in the casing and arranged to be moved into and out of engagement with one of the gears to control rotation of the first mentioned shaft.
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2. In an apparatus for the purpose described, the combination of a casing, a spring arranged in the casing and connected therewith, a central vertical, tubular arbor journaled in the casing and extending through
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and connected with the spring, a shaft jour-
naled in the casing and arranged below and
in vertical alinement with the arbor and hav-
ing an angular socket in its upper end, a mi-
5 ter gear loosely mounted on the arbor and
fixedly connected with the said shaft, a tulu-
lar shaft loosely surrounding the latter shaft
and journaled in the casing and having a
miter gear at its upper end, a large miter gear
10 loosely mounted on the arbor, a pawl and
ratchet connection intermediate the arbor
and said large miter gear, a miter gear ar-
ranged between and intermeshed with the
miter gears on the shafts and having a shaft,
15 gears intermeshed with each other and con-
necting the said shaft and the large miter
gear; one of the said gears being provided

with a circular series of lateral lugs, a con-
trolling lever fulcrumed in the casing and
movable into and out of the path of the said 20
lugs, and a rotary balance device having a
rod or shaft extending down through the tu-
bular arbor and terminating in an angular
end disposed in the angular socket of the first
mentioned shaft. 25

In testimony whereof we have hereunto set
our hands in presence of two subscribing wit-
nesses.

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WILLIAM B. STRAUGHAN.

Witnesses:

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T. B. GABLE.