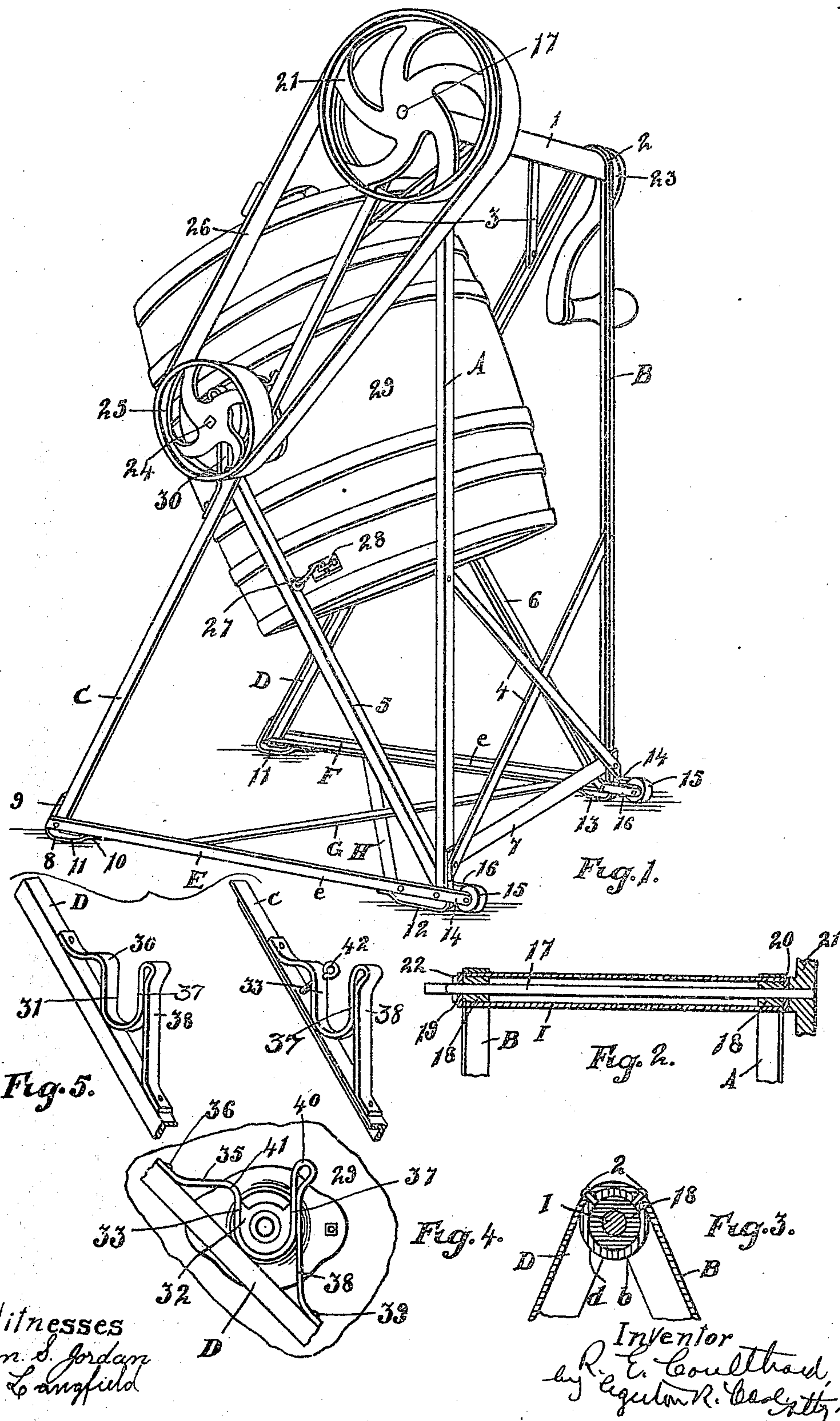


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CHURN.
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UNITED STATES PATENT OFFICE.

RICHARD ELLIOTT COULTHARD, OF ST. MARY'S, ONTARIO, CANADA.

CHURN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RICHARD ELLIOTT COULTHARD, a subject of the King of Great Britain, residing at St. Mary's, in the county of Perth and Province of Ontario, Canada, have invented certain new and useful Improvements in Churns, of which the following is a specification.

My invention is in connection with improvements in churns, but relates more particularly to churn-frames and means supported thereby for operating the barrel, and the objects of my invention are, firstly, to provide a very strong, stiff, and yet light churn-frame, and one which can be readily tilted, and moved to wherever desired; and secondly, to provide a drive-gear for the barrel so that the same can be rotated at a speed in keeping with the amount of cream held thereby, and with the least possible exertion on the part of the operator.

A third object of my invention is to construct the churn-frame so that the barrel may be readily placed thereon and removed therefrom.

The construction of my invention will be hereinafter particularly described, and the parts I claim as new will be pointed out in the claims forming part of this specification.

Figure 1 is a perspective view of my improved churn-frame, and the operating-gear for the barrel. Fig. 2 is a longitudinal vertical section through the head of the churn-frame showing the preferred manner in which the drive-shaft is mounted. Fig. 3 is an enlarged vertical cross-section through one end of the head of the churn-frame, and the uprights associated with this end, showing details of construction. Fig. 4 is a detail view showing a side elevation of the bearing, and Fig. 5 is a perspective view of the preferred form of bearings I use.

In the drawings, like characters of reference indicate corresponding parts in each figure.

My churn-frame is mainly constructed of members made of angle-iron suitably braced by members made of band-iron.

A and B are the vertical uprights which are bent at their upper ends, and extended downward and outward so as to form the front members C and D. The vertical upright A and the front member C are secured at their lower ends to the horizontal member E, and the vertical upright B and the front member D are secured at their lower ends

to the horizontal member F, in the position shown.

G and H are braces secured to the horizontal members E and F.

As before mentioned, the vertical uprights and the front members are preferably formed integrally, and in order to secure the sleeve I to the said uprights and members, the flanges of the front member D and upright B, respectively, are cut away as shown at *a* and *b*, Fig. 3, thus permitting the said sleeve to be snugly fitted to the said uprights and members. By any suitable means, such as the bolts or rivets 2, the said sleeve is secured in place.

3 are a pair of braces extending from the front members C and D to the sleeve I.

4 are a pair of braces attached near the lower ends of the uprights A and B and secured at their upper ends to said uprights so as to brace them together.

5 and 6 are struts secured at their lower ends to the longitudinal members E and F respectively, and secured at their upper ends to the front members C and D respectively.

7 is a bar secured at each end to the vertical uprights A and B. This bar firmly supports the lower ends of the said vertical uprights in relationship to each other.

The corners of the churn-frame formed by the conjunction of the front members C and D with the horizontal members E and F are each supported by a knee 8 which is secured at its upper end 9 to its associated front member, and secured at its lower end 10 to its associated horizontal member. It will be noticed that these knees are bent to form a downward loop 11, which loops rests upon the floor and so supports the said horizontal members thereabove. Likewise at the point of juncture of the vertical uprights A and B with the horizontal members E and F, I provide knees 12 and 13 which are constructed substantially the same as the knees 8. As these sets of knees are of the same height, the members E and F will be held in a horizontal position.

In order to permit my churn-frame to be readily moved, I suitably mount in the same a pair of caster-wheels. According to the construction shown for mounting these caster-wheels in the frame, it will be seen that I extend the vertical flange *e* of the horizontal members E and F back beyond the vertical uprights A and B, as shown at 14, thus forming one of the members

between which the caster wheels 215 are mounted.

16 are plates suitably secured to the lower portion of the frame, for instance, to the vertical uprights and the horizontal members, and the said plates form the inner bearing members in which the said caster wheels are mounted. In order to shift the churn-frame, it is only necessary to tilt the same on the said caster-wheels, and move it in the desired direction, as will be understood. The bar 7 is used as a brace against which the foot is placed when it is desired to tilt the churn-frame in order to move it. The sleeve I held by the vertical uprights and front members forms what I call the head of the churn-frame, and it will be understood that in order to tilt the churn-frame it will be most convenient to grasp the same by the head at the same time the foot is placed against the bar 7.

Mounted in the sleeve I is the drive-shaft 17. This drive-shaft is held in bearings 18 mounted within the sleeve I.

19 and 20 are washers mounted on the drive-shaft 17 and against their associated ends of the sleeve I. The drive-pulley 21 is keyed to one end of the shaft 17.

22 is a split pin or other means passing through the shaft 17 and operating adjacent the washer 19. By means of this split pin it will be understood that the shaft 17 and its associated parts are retained in place.

23 is any suitable handle by means of which the shaft 17 is turned.

I may use any make of barrel with my churn-frame, as will be understood. The barrel illustrated is provided with the usual trunnions. On one of the trunnions 24 is secured the driven pulley 25. The belt 26 of course transmits motion from the drive-pulley 21 to the said driven pulley. The driven pulley is of course of a smaller diameter than the drive-pulley, thus enabling me to get the desired number of rotations of the barrel to one turn of the crank or handle 23.

The churn-frame may be provided with any suitable hook 27 which engages with an eye 28 carried by the barrel 29. The means just described or any other suitable means is used to hold the barrel in the desired position when it is not operated.

I may use any suitable construction for mounting the trunnions of the barrel in the churn-frame, but prefer to use the bearing-brackets for that purpose to be now described. The bearing-brackets 30 are formed to provide pockets 31 in which rest the blocks 32 in which have bearing the trunnions of the barrel. The pockets 31 are formed with vertical sides 33 and 37. The vertical side 33 is formed integrally with an extension 35 which is secured at 36 to the top flange of one of the front members. The

vertical side 37 is extended above the vertical side 33, and it is integrally formed with the leg 38 which is secured at 39 to the top flange of one of the said front members. The formation of the vertical side 37 and the leg 38 form the loop 40. The top of this loop is curved, as shown, and as the corner 41 between the extension 35 and the side 33 is rounded, it will be understood that the said bearing-brackets are constructed so that the blocks 32 may be readily placed into and removed from, the pockets 31.

42 is a threaded rod which extends through the vertical upright 33 of one of the said brackets and threads through the top flange of one of the said front members. The head of this threaded rod performs the function of a key so as to lock the block of the driven pulley 25 down in its pocket so as to prevent the trunnion 24 from being displaced.

I desire not to be limited in the construction of my invention beyond the requirements of the prior art and the terms of my claims.

What I claim as my invention is:

1. A churn-frame comprising vertical uprights; front members associated therewith and extending at a downward outward angle therefrom; horizontal members to which the lower ends of the said vertical members and the said front members are secured; struts supported by said horizontal members and connected with said front members; a sleeve connecting the upper ends of said horizontal members and said front members together; a shaft mounted in said sleeve; a drive-wheel mounted on one end of said shaft; bearing-brackets carried by said front members, and suitable braces for said frame.

2. The combination with a churn-frame comprising vertical uprights; front members associated therewith and extending at a downward outward inclined angle therefrom; horizontal members to which the lower ends of the said vertical members and the said front members are secured; struts supported by said horizontal members and connected with said front members; a member connecting the lower ends of said vertical members together; a sleeve connecting the upper ends of the said horizontal members and the front member together; a shaft mounted in said sleeve; a drive pulley mounted on one end of said shaft, and bearing-brackets carried by said front members, of a barrel; the trunnions therefor mounted in said bearing-brackets; a driven pulley mounted on one of said trunnions, and a belt extending between said driven pulley and said drive pulley.

3. A churn-frame comprising vertical uprights; front members associated therewith and extending at a downward outward angle therefrom; horizontal members to which the lower ends of the said vertical members

and the said front members are secured;
struts supported by said horizontal members
and connected with said front members; a
member connecting the lower ends of said
5 vertical members together; a member con-
necting the upper ends of the said horizon-
tal members and the front members to-
gether; suitable braces for the said frame;
rigid knees secured to the frame where the
10 said vertical members and the said front
members are supported by the said horizon-
tal members, and each provided with a loop

which rests upon the floor, and casters
mounted in the said frame near the rear ends
of the said horizontal members and designed 15
to be held above the floor by the said knees
when the churn is in use.

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

RICHARD ELLIOTT COULTHARD.

Witnesses:

MARY LOUISA WHITE,
JOHN HYLAND.