

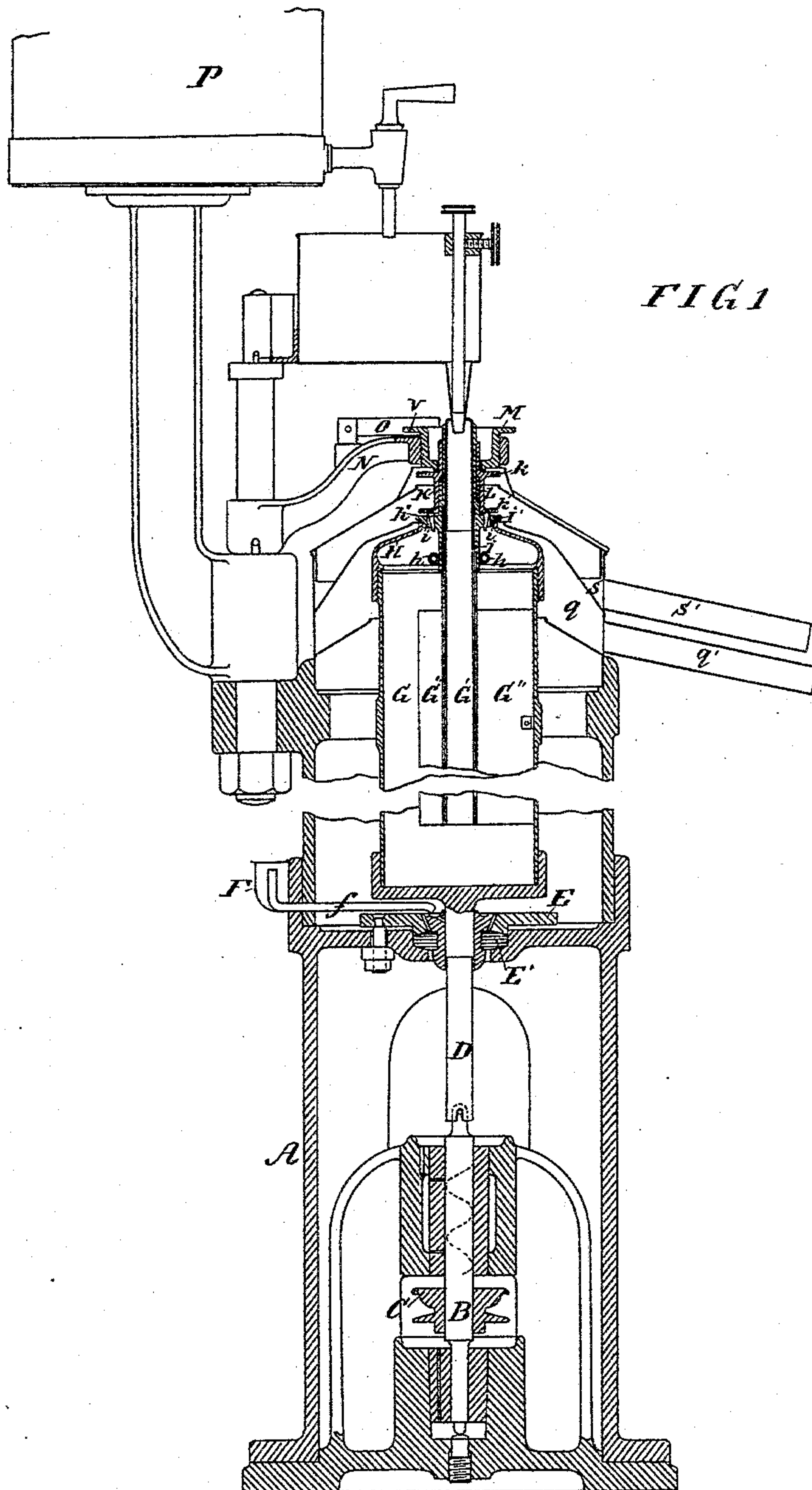
(No Model.)

3 Sheets—Sheet 1.

S. JÖNSSON.
CENTRIFUGAL CREAM SEPARATOR.

No. 414,644.

Patented Nov. 5, 1889.



Witnesses:

Lauritz Nielsen
Poul Petersen.

Inventor.

Sven Jönsson,
per Viggo Constantin Berthel
Attorney.

(No Model.)

3 Sheets—Sheet 2.

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CENTRIFUGAL CREAM SEPARATOR.

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FIG 2

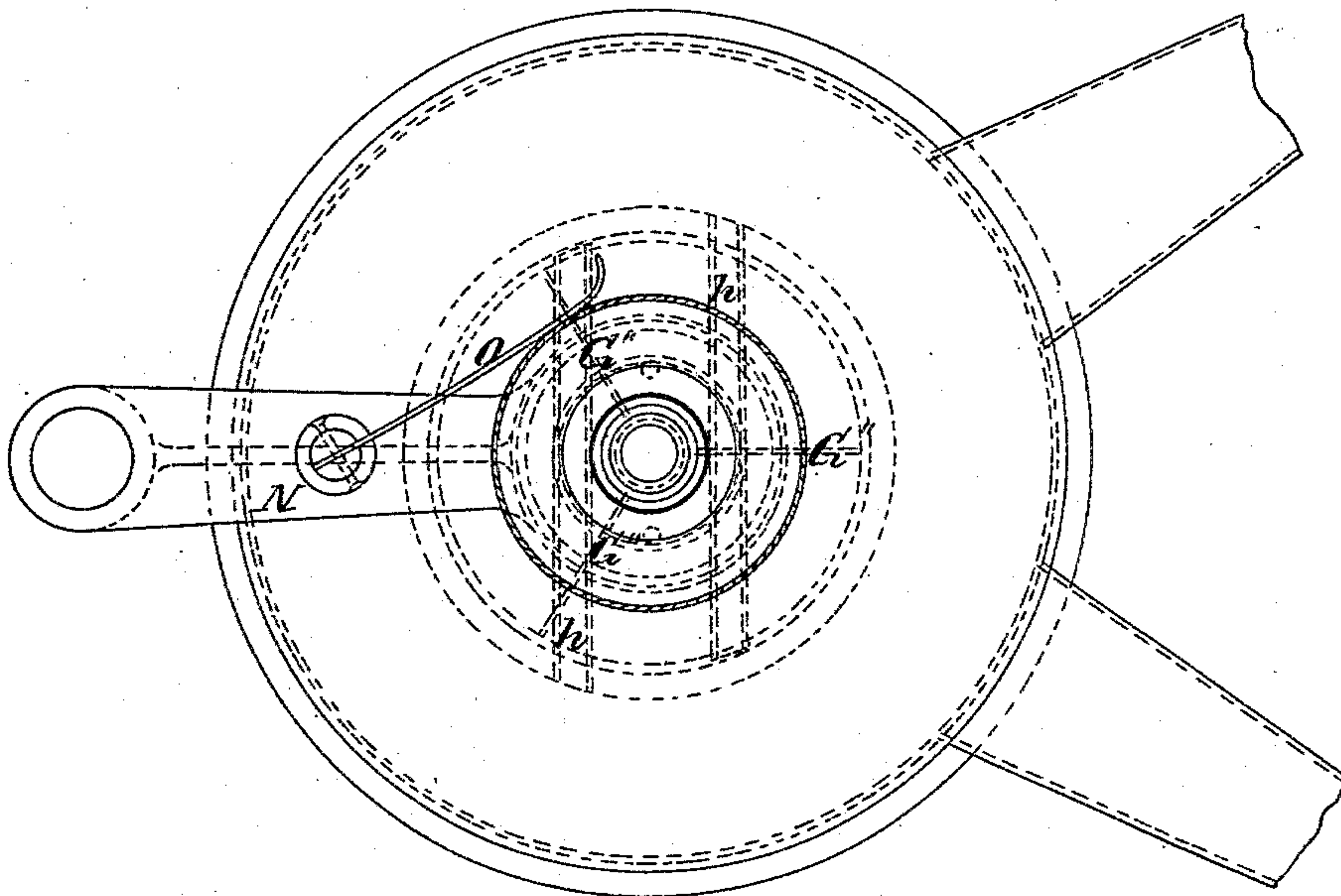
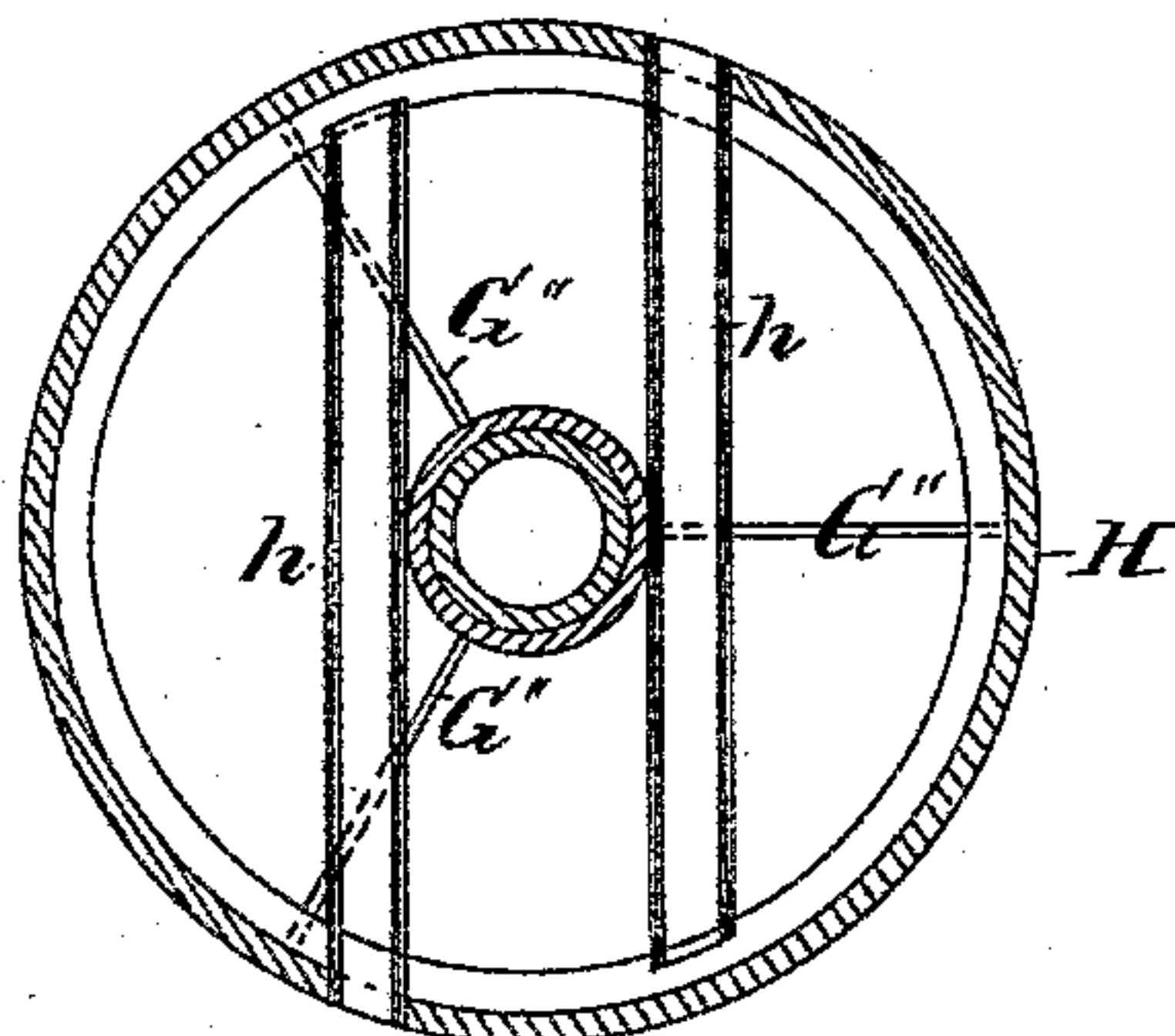


FIG 4



Witnesses:

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(No Model.)

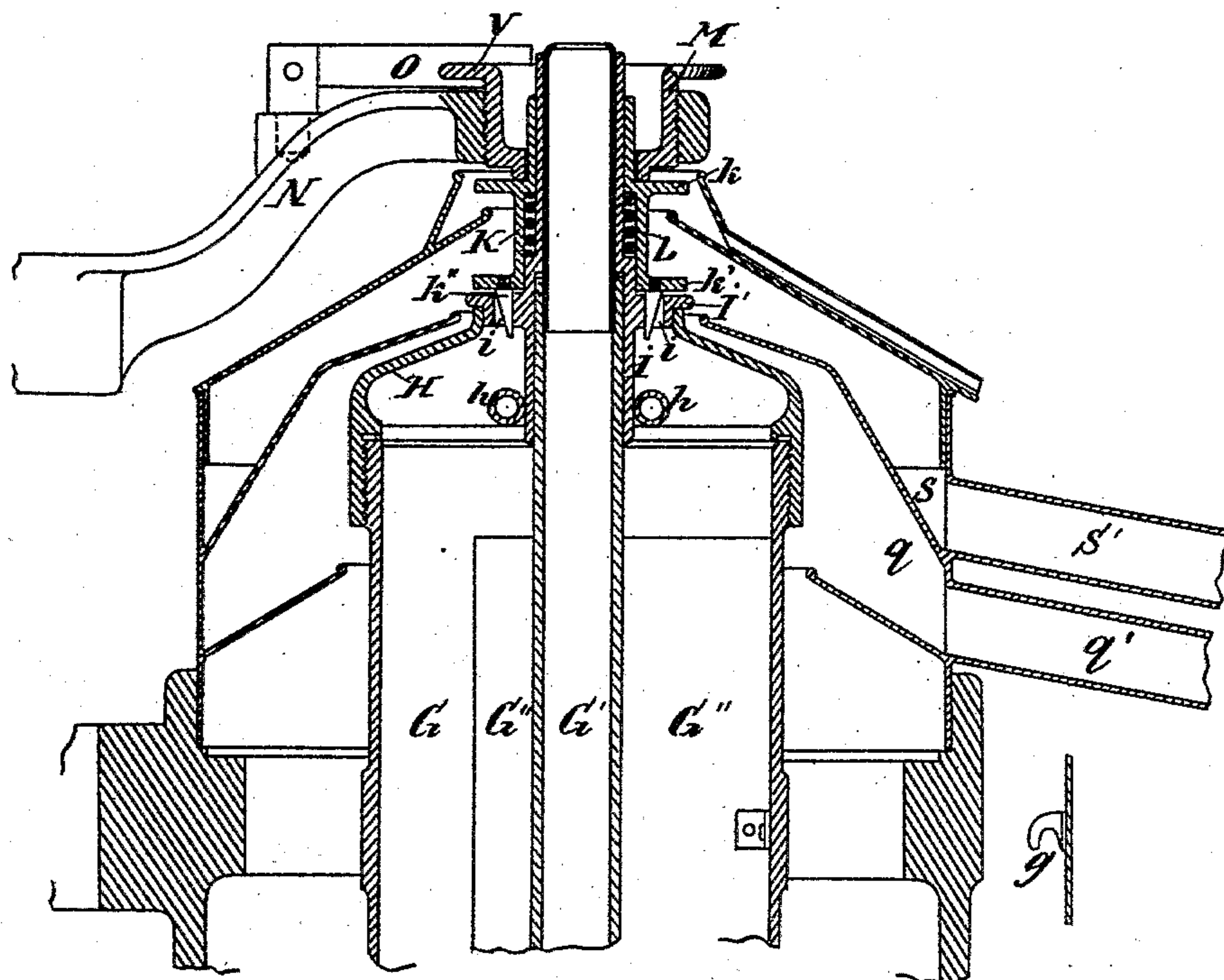
3 Sheets—Sheet 3.

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FIG 3



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UNITED STATES PATENT OFFICE.

SVEN JÖNSSON, OF COPENHAGEN, DENMARK.

CENTRIFUGAL CREAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 414,644, dated November 5, 1889.

Application filed September 6, 1888. Serial No. 284,769. (No model.)

To all whom it may concern:

Be it known that I, SVEN JÖNSSON, a subject of the King of Denmark, residing at Copenhagen, in the Kingdom of Denmark, have invented certain new and useful Improvements in Centrifugal Cream-Separators Capable of being Regulated while in Motion, of which the following is a specification.

The invention relates to a centrifugal cream-separating machine arranged so that the outflow of cream can be regulated during the working of the separator, whereby the useful effect of the separator becomes a maximum.

On the annexed sheet of drawings, Figure 1 shows the improved separator in vertical section. Fig. 2 is a plan of the same. Fig. 3 is a vertical section, on a larger scale, of the upper portion of the separator. Fig. 4 shows a horizontal section through the drum and skim-milk pipes *h*.

The improved centrifugal separator is supported upon a standard A, in the lower part of which is situated a shaft B, with belt-pulley C, to which power is transmitted from any convenient source.

Upon the end of the shaft B there rests the shaft D of the centrifugal separator, which is forced to assume the rotary movement by means of a horizontal pin on the one shaft which engages in a slot in the other. The shaft of the separator rests in a bearing E, which is rendered yielding by means of an inserted rubber ring E', and which is lubricated by a pipe *f* from an oil-vessel F. The shaft at its upper end carries a disk to which is riveted the cylindrical drum G. Contrary to the usual practice in constructing cream-separators, this drum is made of small diameter, whereby the manufacture of the same is facilitated and a better product is obtained from the machine. There is also the great advantage that the cream leaves the separator without froth, as the milk practically fills the whole space of the separator-drum, so that there is almost no air in the same. Moreover, by this means there is only the slightest possible resistance of the air against the outer wall of the cylinder during rotation, and consequently the smallest possible consumption of power in proportion to useful work.

The drum is provided internally with a tube G' and with three vanes or wings G'', which at their free edge are held by means of a projection fixed to the wall of the drum and a hook *g* riveted to the vane, so that the tube, together with the vanes, can be readily disconnected and taken out. By this means the separator can be easily cleaned, as it is quite smooth inside when the inner filling-pipe and the vanes have been removed.

The drum G is closed at its top by the screw-cut cover H, which, when the machine has to be cleaned, can be screwed off, whereby the drum can be divided into two parts G and H. In this cover are inserted two parallel outlet-pipes *h* for the skim-milk. These pipes, which are placed, as shown in Figs. 1, 2, 3, and 4, at the sides of the tube G', lead from inside the wall of the cover H across the broad part of the drum and through the wall to the receiving-vessel *g*.

The cover H is provided at the top with a central opening in which is affixed a pipe I, (provided with a flange I',) which pipe extends above the upper end of the pipe G'. The improved separator is thus quite closed, in contradistinction to other constructions heretofore employed.

Two or more vertical holes *i* are formed in the flange I'.

Around the pipe I is placed another pipe K, which is provided with an upper flange *k* and a lower flange *k'*. As many conical pegs *k''* are screwed into the lower flange *k'* as there are holes *i* in the flange I', each peg corresponding to its hole. A spiral spring L, which is inserted between the pipes I and K, has a constant tendency to raise the latter. This tendency is counteracted by a nut M, which presses against the upper flange *k* and is screwed into a projecting-arm N, carried by the standard and surrounds the pipe K. The nut M, Figs. 1 and 3, is provided at the top with a fluted flange *v*, against which bears a rough spring O, so that the nut is prevented from rotating with the tube. The milk which is to be centrifugally treated is led from a containing-vessel P to the drum G through the pipe G'. After treatment in the separator the milk passes out through the pipes *h*, extending through the cover H, and is col-

lected in a receiving-vessel *g*, whence it flows through the pipe *g'*. The separated cream passes out through the openings *i* under the flange *k'* into the receiving-vessel *S*, which is provided with the outlet-pipe *S'*. The quantity of the outflowing cream can be regulated, even during the operation of the machine, by screwing the nut *M*, whereby the conical pegs *k''* on the flange *k'* are raised out of the holes *i* or are depressed to a greater depth in the same, so that the passage is widened or contracted. Of course the separator may be arranged in such a manner that the discharge is effected below, instead of at the top, as shown.

The centrifugal machine described above, which intends the separation of cream from milk, differs in all essential points from the centrifugal machine for which I have applied for Letters Patent by application Serial No. 280,234, filed July 17, 1888, only a part of the arrangement for the milk-inlet and the regulation of same being identical in both applications, and such part is not claimed in this application.

Having thus described my invention, I claim—

1. In a centrifugal cream-separator, the combination of the arm *N*, carrying spring *O* and the nut *M*, having a roughened flange, with the casing *K*, provided with conical pegs *k''*, the spring *L*, the revolving drum, and the flange *I'*, having holes *i*, substantially as set forth.

2. In a centrifugal cream-separator, the combination of the drum *G*, the cover *H*, secured thereto, the supply-pipe *G'*, the vanes *G''*, pipes *h*, flange *I'*, having holes *i*, casing *K*, provided with regulating-pegs *k''*, and means for operating said casing, substantially as set forth.

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

SVEN JÖNSSON.

Witnesses:

IONE PETERSEN,
ALFRED JENSEN.