

H. N. FISHER.
SPEED INDICATOR FOR CENTRIFUGAL MACHINES.
APPLICATION FILED DEC. 18, 1909.

1,025,259.

Patented May 7, 1912.

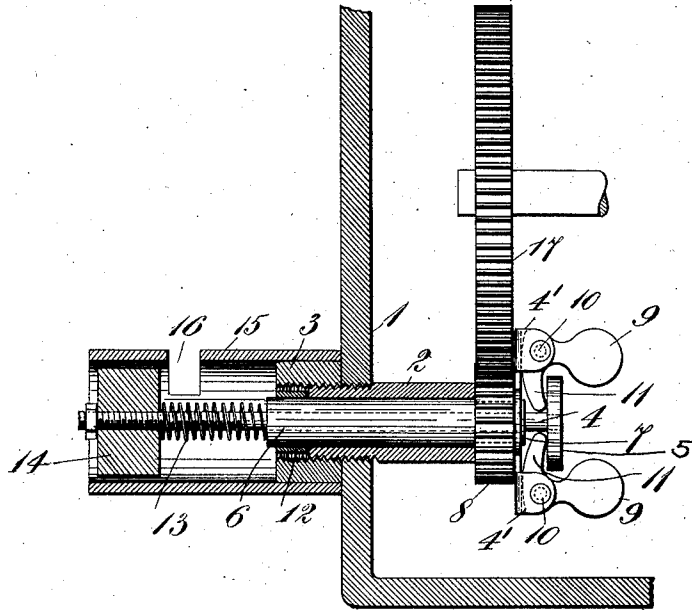


Fig. 1.

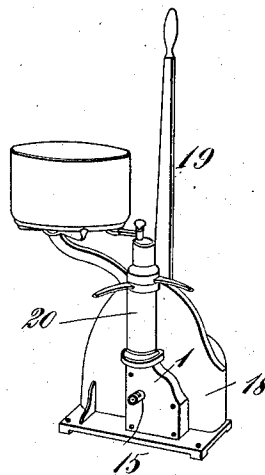


Fig. 2

WITNESSES
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UNITED STATES PATENT OFFICE.

HENRY N. FISHER, OF WALTHAM, MASSACHUSETTS.

SPEED-INDICATOR FOR CENTRIFUGAL MACHINES.

1,025,259.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed December 18, 1909. Serial No. 533,906.

To all whom it may concern:

Be it known that I, HENRY N. FISHER, a citizen of the United States, and a resident of Waltham, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Speed-Indicators for Centrifugal Machines, of which the following is a specification.

My invention relates to speed indicators for centrifugal machines and more especially for hand-operated centrifugal separators.

As is well understood, for the efficient separation of cream centrifugally, a certain minimum speed must be secured and maintained. Any reduction of this speed will result in only partial separation and any increase will result in unnecessary wear on the machine and, if the machine is of the hand-operated type, additional labor on the part of the operator.

In hand-operated centrifugal machines, it requires a certain amount of skill to maintain the minimum speed required for efficient separation and it is usual for the operator to endeavor with the aid of a time-piece to make a certain number of revolutions per minute of the operating crank in order to secure the desired speed. In a lever-operated machine it is still more difficult, and in fact practically impossible, to uniformly maintain the requisite speed for the reason, among other things, that the operator may vary the length of the lever stroke.

The object of my invention therefore is to provide a simple and reliable visual speed indicator whereby an ordinary unskilled operator may ascertain at a glance that his machine is running at the speed requisite for the efficient separation of the cream from the milk.

For the purpose of more fully disclosing my invention I have illustrated one embodiment thereof in the drawings which accompany and form a part of this specification, although it will be understood that various modifications may be made in the particular embodiment chosen without departing from the principle of my invention.

In the drawings Figure 1 is a section of my improved speed indicator showing one mode of attaching the same to a centrifugal machine and Fig. 2 is a perspective view of a hand-operated cream separator of the lever type provided with said speed indicator.

In the figures, 1 represents the outer wall of the separator into which the tube 2 is threaded and held in position by the lock-nut 3. 4 is a plunger provided with a head 5 and working in the sleeve 6. The flange 7 of said sleeve is secured to the pinion 8 and the brass collar 12 secured to the outer end of the sleeve bears against the outer end of the tube 2 thereby holding said sleeve against longitudinal movement in the tube. The centrifugally-operated levers 9 are pivoted at 10 to the brackets 4' which may be integral with the flange 7 so that said levers rotate with the pinion 8. The inner ends 11 of said levers bear against the head 5 of the plunger. The outer end of the plunger is provided with a target 14 which is made adjustable with respect thereto, preferably by threading the same on the plunger. A spring 13 is interposed between the target and the sleeve 6. A casing 15 arranged to normally conceal the target is driven over the lock-nut 3. The casing is provided with a slot 16 through which the target may be seen when the desired speed has been obtained. The gear 17 meshing with the pinion 8 is a part of the operating mechanism of the separator. 18 represents the separator frame which incloses the gear 17 and other mechanism whereby the bowl 20 is rotated. 19 is a hand-lever whereby the internal mechanism of the separator is operated.

The operation is as follows: When the gear 17 is put in motion by the operation of the gearing (not shown) to which it is connected and such motion is communicated to the pinion 8 and levers 9, the latter by centrifugal action tend to move around their pivots and thereby force the plunger through the casing. By suitably tensioning the spring 13 the levers will force the plunger through the casing when the desired speed has been attained, to such an extent that the target becomes visible through the slot. The operator then endeavors to maintain a uniform oscillation of the lever 19 or other operating means and increases or diminishes the speed of the machine in accordance with the position of the target. Should the target be carried through the casing so far to the right that it will disappear under the slot he will reduce the speed of the machine, and conversely should the target pass from under the slot to the left, he will know that the speed must be in-

creased. It has been found in practice to be very easy for even an unskilled operator to so proportion the length and number of strokes of the lever 19 as to keep the target under the slot, thereby insuring the proper speed of the machine.

I claim:

A visual centrifugally-operated speed indicator comprising a casing provided with a slot, a plunger in said casing, a target adjustably mounted on said plunger and normally concealed by said casing, a sleeve carrying said plunger, centrifugally-operating levers cooperating with said plunger and arranged to draw the same through said

casing and expose said target at said slot at a predetermined speed, a spring surrounding said plunger and interposed between said sleeve and target, whereby the tension of said spring may be varied by the adjustment of said target on said plunger, and means upon which said levers are mounted for rotation.

In testimony whereof, I have hereunto subscribed my name this 17th day of Dec. 1909.

HENRY N. FISHER.

Witnesses:

FREDERIC GEORGE McMULLEN,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."