

No. 617,486.

Patented Jan. 10, 1899.

B. HOLT.  
GRAIN SEPARATOR.

(Application filed June 2, 1898.)

(No Model.)

Fig. 1.

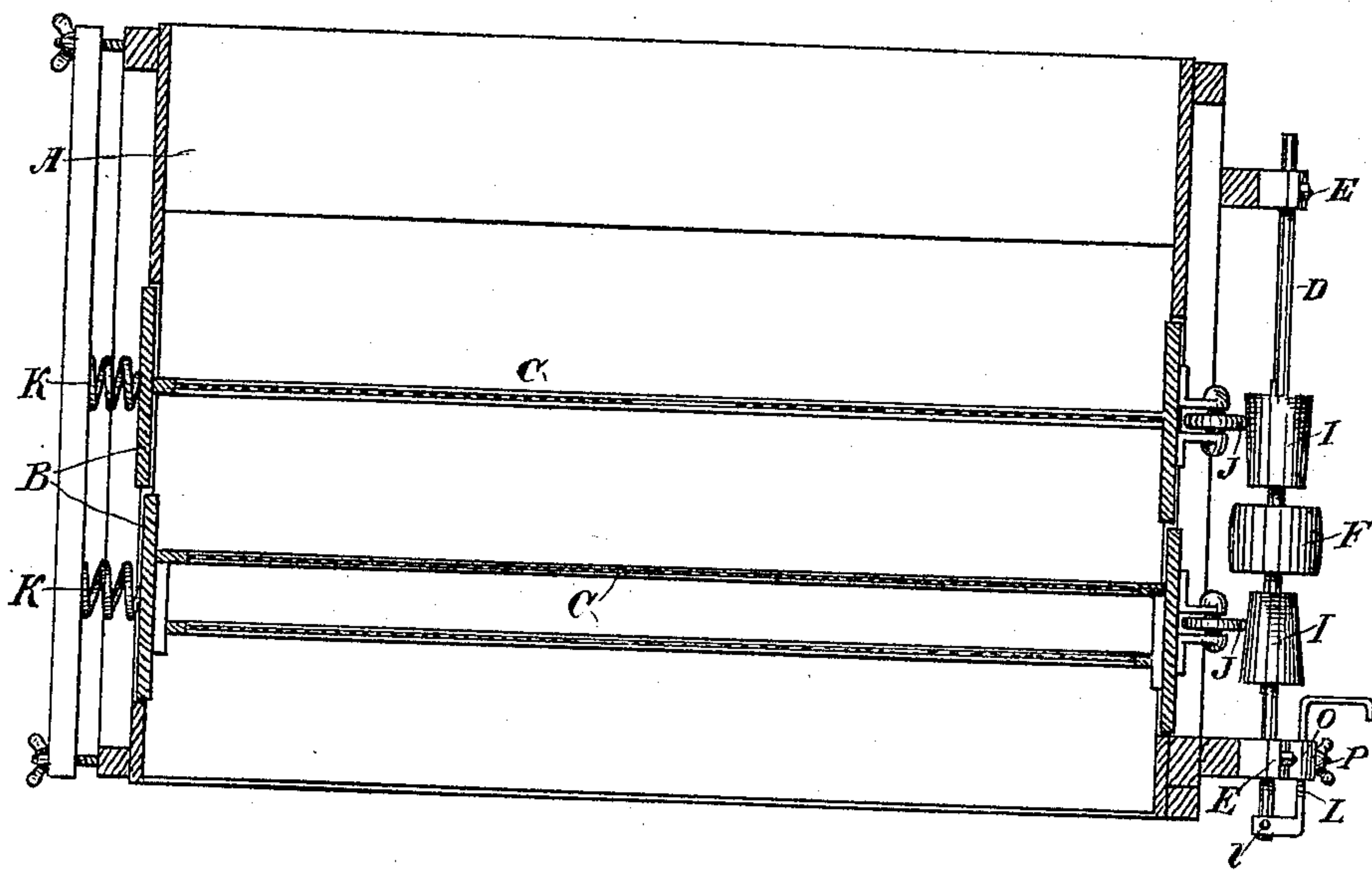


Fig. 2.

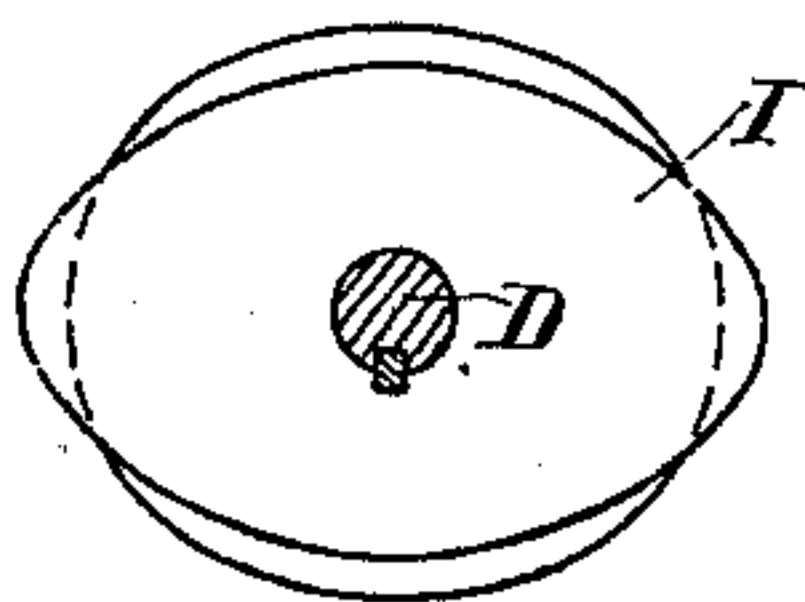
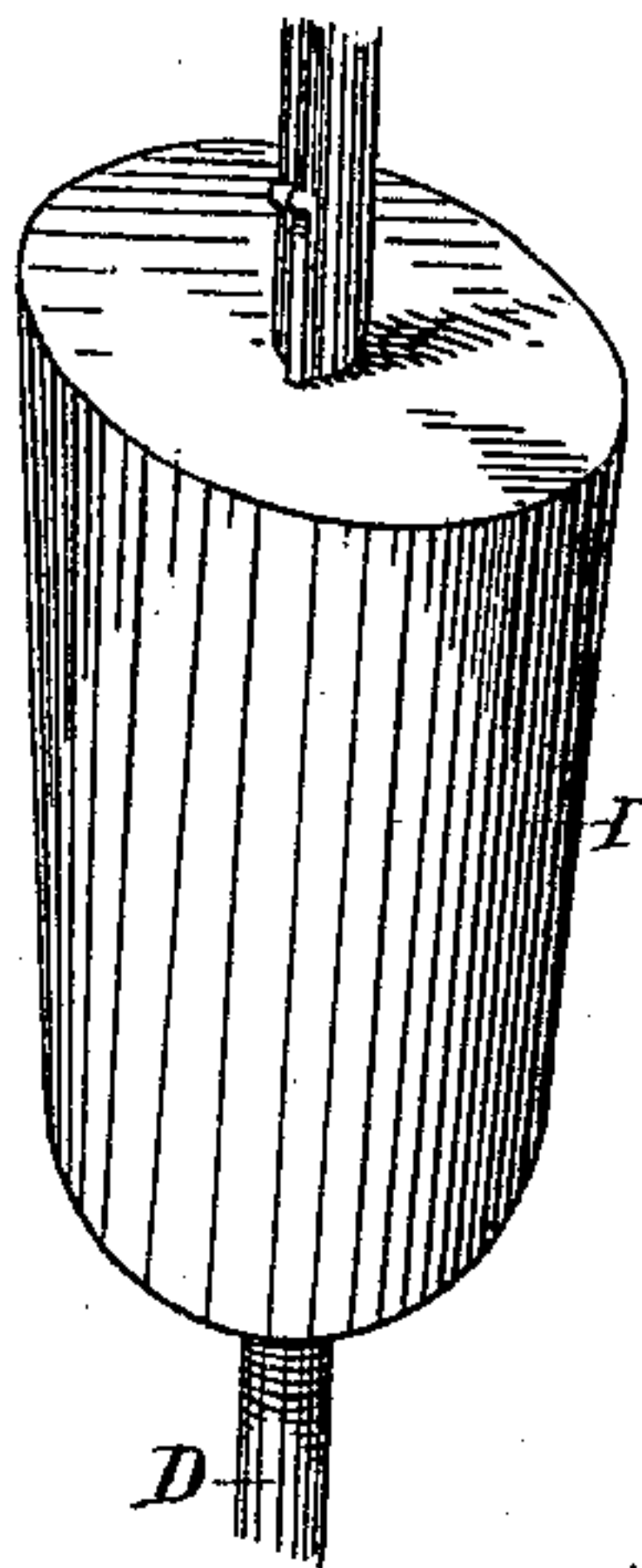


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 617,486, dated January 10, 1899.

Application filed June 2, 1898. Serial No. 682,331. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN HOLT, a citizen of the United States, residing at Stockton, county of San Joaquin, State of California, have invented an Improvement in Grain-Separators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is especially designed for adjusting and regulating the shaking or oscillating motion which is given to the "shoes," so called, in apparatus which is designed for cleaning grain, and it is especially designed for use upon that class of cleaners which are employed upon harvesting-machines and supplemental to the separators, so that grain which has been separated from the great portion of the straw and chaff is afterward transmitted directly to these cleaners, where the work is completed.

My invention consists in a novel means for regulating the amount of shake given to the shoes which carry the screens of the cleaner, so that the amount of shake can be varied to accommodate itself to the speed at which the machine is traveling or at which the grain is supplied to the cleaner.

Referring to the accompanying drawings, Figure 1 is a vertical section through my device. Fig. 2 is a plan view of one of the tapering rollers. Fig. 3 is a perspective view of the same.

A is the outer case.

B are the shoes within which the screens C are supported. These screens being of any suitable or ordinary construction need not be further described at this point.

In order to produce the shaking motion, either side or endwise, as may be preferred, various devices, consisting of short cranks, cams, or eccentrics, have been employed; but these are not ordinarily adjustable, so as to change the throw or shake of the screens. In my invention I have shown a vertical shaft D, journaled in boxes E upon the side of the casing, and this shaft has upon it a pulley F, so that a belt passing around this pulley and around the pulley mounted upon the fan-shaft or some other convenient driving-shaft of the machine will act to rotate the shaft D. Upon this shaft D are fixed the peculiarly-shaped tapering rollers I. These rollers are

essentially or approximately cylindrical at one end and are gradually flattened into an elliptical form toward the other end, with the major axis of greater diameter than the minor or transverse axis. The shaft D passes longitudinally through these rollers, which are keyed or otherwise fixed to it and partake of its rotation.

J J are rollers journaled upon the sides of the shoes B which carry the screens, and the peripheries of these rollers are retained in contact with the irregularly-shaped rollers I by means of springs K, mounted so as to bear against the opposite sides of the shoes B. It will be seen that when the rollers I are moved up to a point which brings the approximately cylindrical portion of them opposite to the rollers J very little movement will be given to the shoes carrying the screens; but as the rollers are moved in an opposite direction to bring the increasing eccentricity of the rollers opposite to the said rollers J the movement of the latter is increased, and this movement may be further increased by moving the rollers I until the upper and most oval portion is brought into line with the rollers J.

The rollers I are set with the eccentricity of their upper ends at right angles with each other, so that the shoes are oscillated in opposite directions and the apparatus is balanced against a too excessive shaking motion.

In order to move the shaft D and its rollers I, I have shown an arm L, connected with the shaft D, as shown at l, and this arm is slidable through a guide-arm O, having also a suitable bend or handle by which it can be easily moved.

P is a set-screw by which the arm is fixed and locked at any desired point. It is only necessary for the operator to loosen this set-screw and slide the shaft D, with its rollers I; either up or down, as may be found necessary, to decrease or increase the shake of the shoe.

When the machine is moving downhill at an increased rate of speed, it will be necessary to decrease the amount of shake in order to preserve the relative motion of the shoes and to properly clean the increased quantity of grain which is brought to the machine. When moving uphill, the reverse operation takes place and more shake and motion are given to the shoes.



It will be obvious that this machine, although here described as being an attachment to a traveling harvester, may be equally well employed upon any stationary thresher and  
5 cleaner or independent cleaner, the object being in any case to regulate the throw or shake of the shoes to the varying amount of grain material which is being fed to the machine.

10 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a grain-cleaner of shoes in which cleaning-screens are mounted,  
15 said shoes being supported so as to permit of a horizontally-oscillating movement, anti-frictional rollers or surfaces fixed to the shoes, and rollers mounted upon a rotary shaft and contacting with the surfaces, said rollers being  
20 made essentially cylindrical at one end and oval at the opposite end with a gradually progressive change in the surface from one end to the other, and means for moving the rollers so as to bring any portion of their  
25 length to act upon the cleaning-shoes.

2. In a cleaner-shake of the character described, rollers mounted upon a shaft, said rollers having one end approximately cylin-

dricial and the surface gradually changing to an oval at the opposite end, rollers or anti- 30 frictional surfaces fixed to the cleaner-shoes against which the eccentrically-formed rollers contact, and mechanism whereby the said rollers may be moved to bring any portion of their surfaces to act upon the shoes and thus 35 increase or diminish the amount of shake produced thereby.

3. In a grain-cleaner shake of the character described, shoes carrying cleaning-screens having antifrictional rollers or surfaces fixed 40 upon one side and returning-springs at the opposite side, a vertical shaft having mounted upon and turnable with it, rollers made approximately cylindrical at one end, and gradually 45 changing to an oval at the opposite end, and means for moving the shaft and rollers so that they contact with the rollers of the cleaner-shoes at different points on their surfaces and thus increase or decrease the throw 50 of the shoes.

In witness whereof I have hereunto set my hand.

BENJAMIN HOLT.

Witnesses:

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