

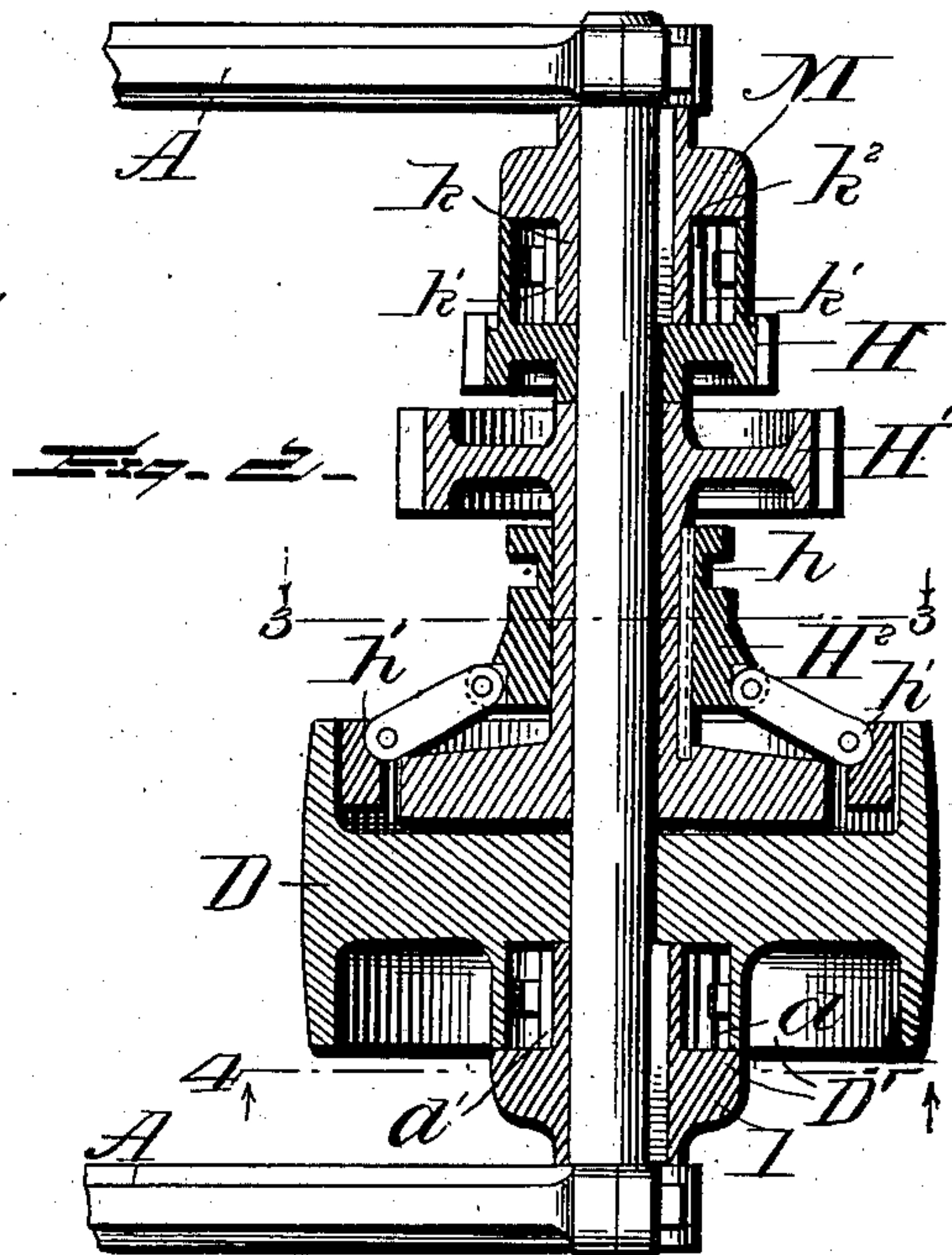
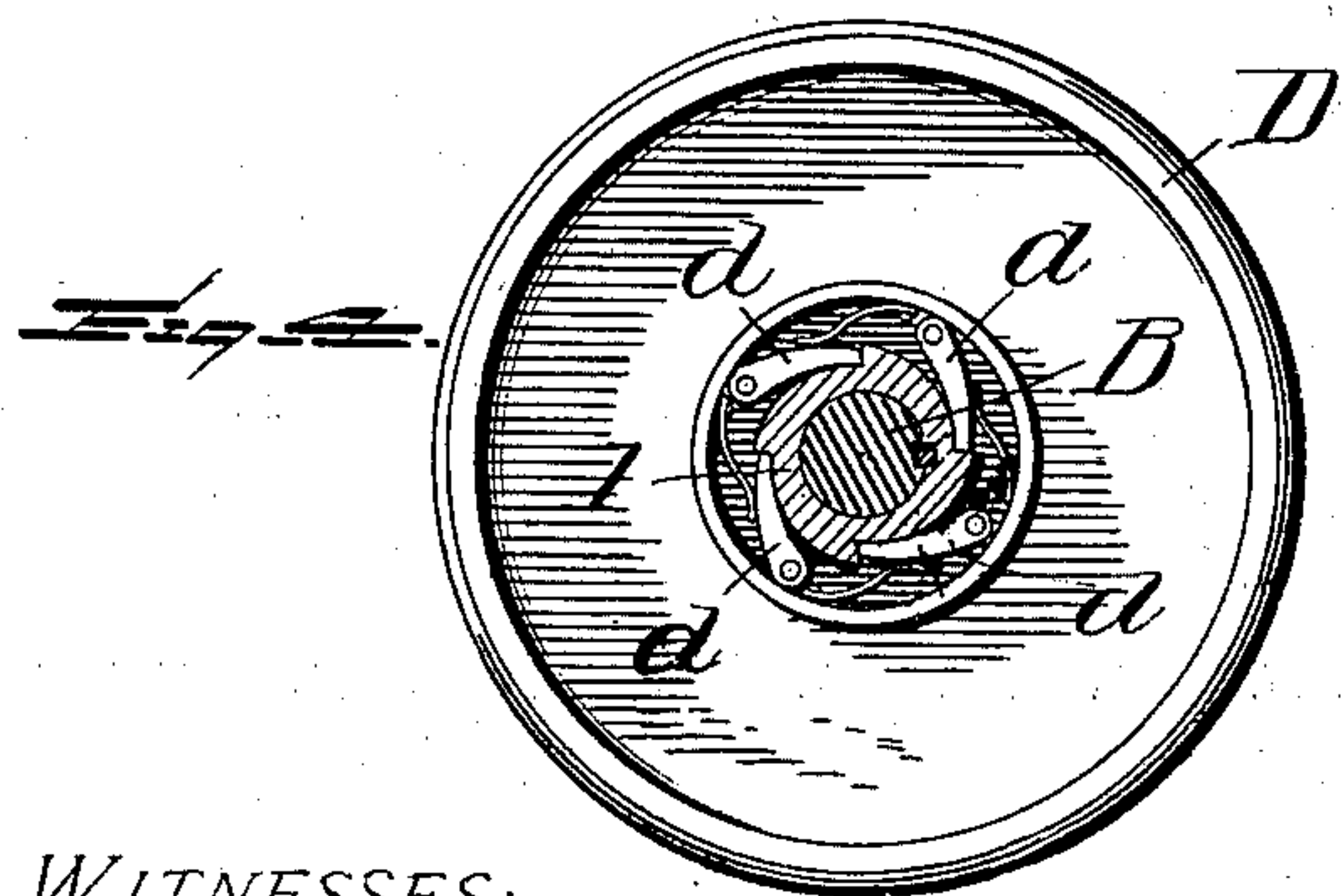
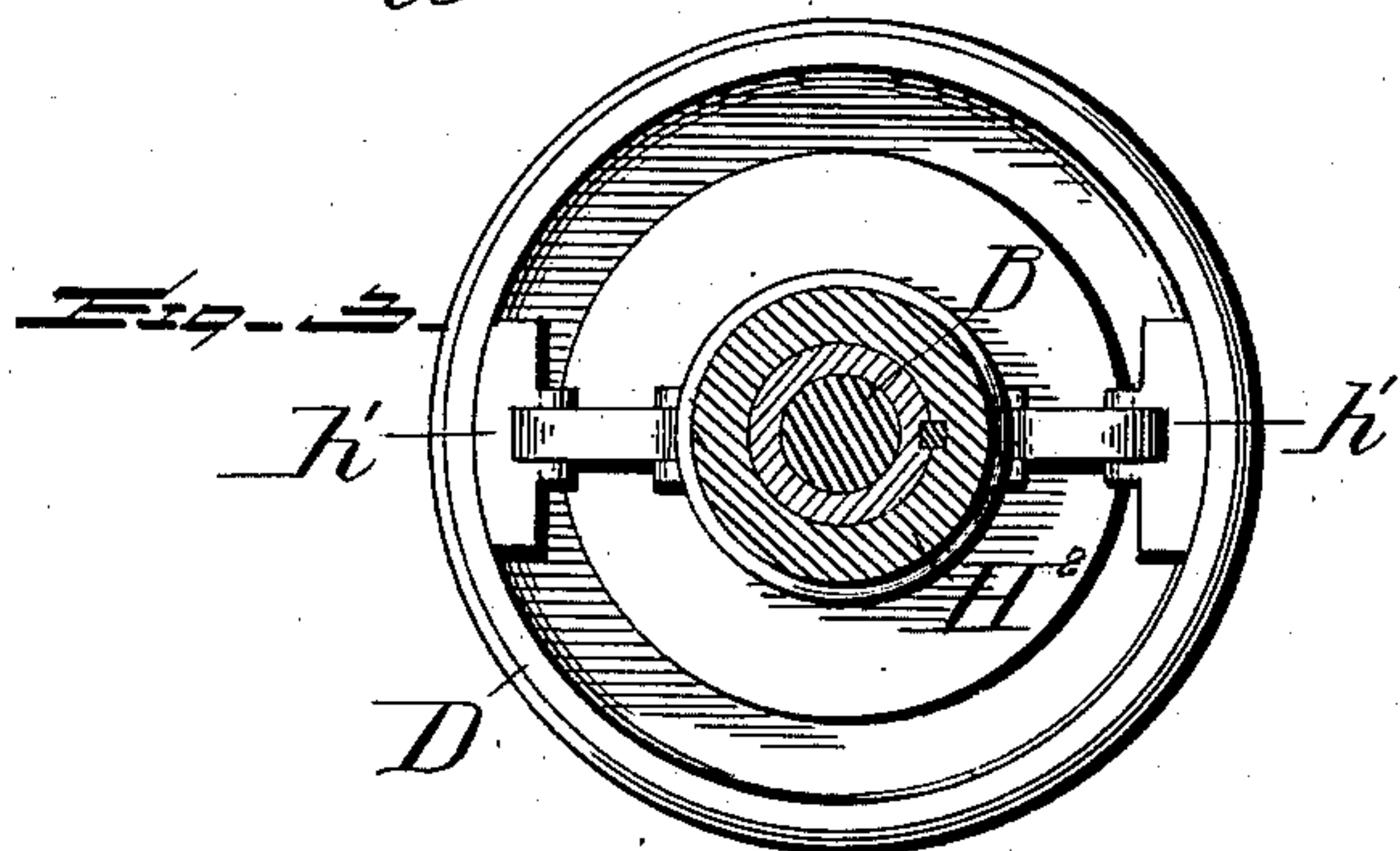
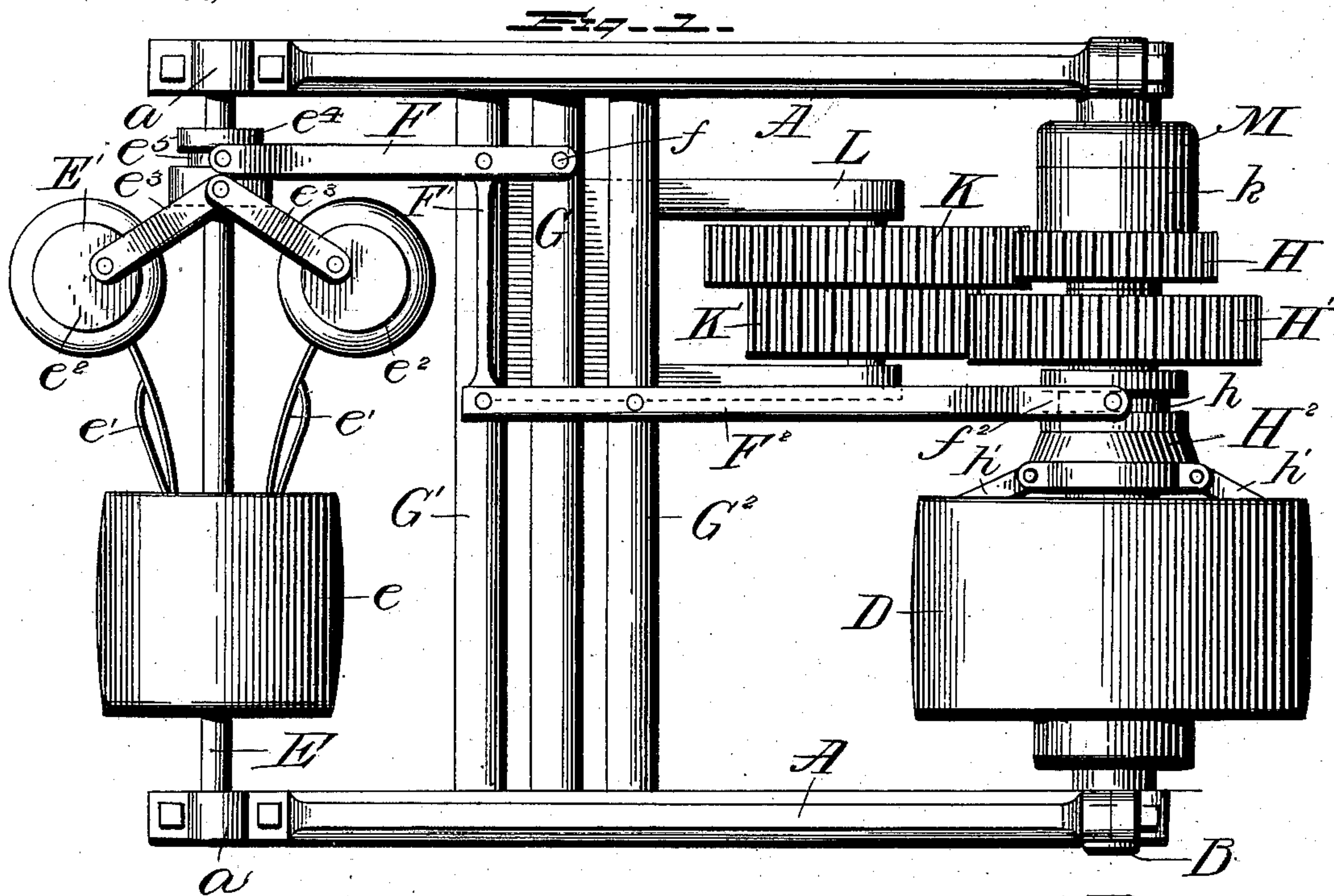
No. 654,933.

Patented July 31, 1900.

A. APPELGATE.
GOVERNOR FOR STACKER BLOWERS.

(Application filed May 3, 1900.)

(No Model.)



WITNESSES:

L. C. Hills.
Jas. W. Milane

INVENTOR

Alva Appelgate,
BY *Wm B Stevens & Co*

Attorney.

UNITED STATES PATENT OFFICE.

ALVA APPELGATE, OF GREEN MOUNTAIN, IOWA.

GOVERNOR FOR STACKER-BLOWERS.

SPECIFICATION forming part of Letters Patent No. 654,933, dated July 31, 1900.

Application filed May 3, 1900. Serial No. 15,333. (No model.)

To all whom it may concern:

Be it known that I, ALVA APPELGATE, a citizen of the United States, residing at Green Mountain, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Governors for Stacker-Blowers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a new and novel mechanism designed to automatically regulate the speed of a fan or blower as ordinarily used in connection with a pneumatic straw-stacker or analogous machines.

Heretofore in stackers of the character mentioned it has been difficult to prevent the fan from becoming clogged by reason of the accumulation of straw or the like around the same in the fan-casing at the time the machine is being started or slowed down and before the fan itself has attained a speed sufficient to force the straw therefrom. This disadvantage frequently necessitated the clearing of the fan-box or premature stopping of the machine.

The primary object of the present invention is the provision of mechanism whereby the fan at the starting or slowing up of the operation is caused to rotate through the medium of intermediate mechanism relatively faster than the pulley through which the power is transmitted and in the provision of additional mechanism whereby such intermediate mechanism may be automatically thrown out of operation when the fan has reached a certain velocity, so that the fan will be caused to rotate at the same speed as the power-transmitting pulley.

In the accompanying drawings an embodiment of the invention is delineated for the mere sake of illustration, and when the same is hereinafter referred to like letters of reference will designate corresponding parts in the several views.

Figure 1 is a plan view of a construction

embodying the invention. Fig. 2 is a horizontal sectional view of a portion of Fig. 1. Fig. 3 is a cross-sectional view on the line 3 3 of Fig. 2, and Fig. 4 is a similar view on the line 4 4 of the same figure.

Referring more specifically to the drawings, A designates a suitable frame, upon which the fan-governing mechanism hereinafter described is supported, such frame being suitably attached to the side of a stacker, as shown in Fig. 5; in such position that it may be operated by a belt running from a cylinder-shaft or other portion of the main machinery on the stacker.

B is a horizontally-disposed shaft mounted in suitable boxings at opposite sides of the framework A and having an elongated portion extending outwardly from one end and carrying a fan C of any suitable or preferred construction, which is located and operated in the stacker-body in the usual manner. Upon this shaft is loosely mounted a pulley D, which I will term the "power-transmitting" pulley. This pulley is designed to impart motion to the shaft B through the medium of a clutch D', the pawls or dogs *d* of said clutch being carried on the side of said pulley and the ratchet or toothed portion *d'* of the same being keyed to the shaft in a casing *l* and adapted at all times to turn with said shaft.

At the end of the framework opposite that in which the pulley C is mounted is rotatably mounted in similar boxings *a* the governor-shaft E, upon which is mounted the governor E', comprising a pulley *e*, spring-arms *e'*, balls *e''*, connecting-links *e'''*, and the sliding sleeve *e''''*. The pulley of the governor is adapted to contact with and be operated by the same belt that operates the pulley D, Fig. 5. The sleeve *e''''* is provided with a peripheral groove *e''''''*, which is engaged by the end of a lever F, pivoted at *f* to the brace-rod G. At a point intermediate its ends the lever F carries a pivoted link F', which link in turn is pivoted at its opposite end to a second lever F'', which is pivotally secured to the brace-rod G² and extends rearwardly and is formed into the bifurcated portion *f''*. This bifurcated portion of the link F'' engages a peripheral groove *h* in a clutch-carrying sleeve H²,

loosely engaging the shaft B and keyed to the gear H', which is also loose upon the shaft B. From opposite points on the clutch-sleeve project pivoted clutch-shoes h' , adapted to
 5 contact when in operative position with the inner surface of the rim of the pulley D, so as to cause the gear H' to turn therewith when desired. To the side of the gear H' is a relatively-smaller gear H, loosely mounted on the
 10 shaft B and capable of rotation independently of the gear H. Located forwardly of the gears H and H' are gears K K', secured together and adapted to turn simultaneously. The gears K K' are adapted to mesh, respectively, with the gears H H', the gear K being
 15 relatively larger than the gear K'. These gears are suspended in the proper position by the bracket L, which is in turn bolted or otherwise secured to the brace-rods G' and
 20 G². The gear H' has formed integral therewith a cup k , carrying pawls or dogs k' , similar to those carried by the pulley D, adapted to engage the ratchet or teeth k^2 , carried by the cup or disk M, keyed to the shaft B in a
 25 manner similar to the casing l , before referred to.

Such being the relation and construction of the several parts, the operation might be stated as follows: When the machine is run-
 30 ning at the desired normal speed—that is, when the fan is revolving to such a degree as to clear itself and its casing of any straw coming in contact therewith—the governor-pulley will be rotated by the operating-belt and the
 35 balls of the governor will be thrown by centrifugal force outwardly or inwardly, according to the location of the governor-frame, carrying its sleeve in a corresponding direction. The lever F will be similarly operated
 40 at its end, carrying with it the link F' and causing the bifurcated end of the lever F² to be operated in an opposite direction and the clutch-sleeve shifted to release the clutch-shoes from engagement with the pulley D.
 45 The rotation of the pulley D will be converted to the shaft B by reason of the pawls and ratchets to the side of the pulley and the fan rotated at a speed equal to that of the rotation of the pulley. Should, however, for any
 50 reason the machine slow down or be started up, as the case may be, the governor, balls, and sleeve will be in an elevated position and the levers F F² occupy a position just the opposite to that just described, and the clutch-shoes will be forced into engagement with
 55 the pulley D and be turned therewith. This turning of the clutch will rotate the gear H', and through the train of gears before described a rotary motion will be imparted to the gear H about equal to twice the speed of the pulley, (or more, as may be desired in different machines,) and through the pawl and ratchet to the side of the gear H a similar rotation will be imparted to the fan-shaft B,
 60 and likewise to the fan. The fan will thus

be rotated at a speed much greater than that of the operating-pulley and sufficient pneumatic force created thereby to at all times keep itself and its box clear of any straw or other material which would ordinarily ac-
 70 cumulate and clog or interfere with the operation of the fan in its initial or slow-down movement.

While I have shown in the accompanying drawings and described certain means for accomplishing the ends desired, it is to be understood that my invention is broad in its nature and that many details in the operation and construction of the individual parts may be made without departing from the nature
 80 and spirit of the invention. It will also be appreciated that although the invention herein has been described as used in connection with a stacker fan-shaft it is also adaptable to a large number of other applications where-
 85 in similar results to those herein pointed out are desired to be attained.

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

1. In combination with a driven instrumentality and means for normally actuating the same, governing mechanism adapted to impart a movement to said driven instrumentality relatively faster than the movement of
 95 the normal actuating means in its initial or slow-down operation.
2. In combination with a shaft and means for normally rotating the same, a governing mechanism adapted to be thrown into and out
 100 of engagement with said operating means to increase the rotation of the shaft when said operating means is in its initial movement, or slows down, substantially as described.
3. In combination with a shaft and means
 105 for normally rotating the same comprising a pulley and rotating means therefor, a clutch mechanism between the shaft and the pulley, and means for maintaining a uniform speed of the shaft comprising a governor, and gear-
 110 ing operated by said governor in engagement with the shaft for imparting a rotation to the shaft relatively faster than that of the pulley in the initial or slow-down movement of the machine, substantially as described.
4. In combination with a shaft and means
 115 for normally rotating the same, comprising a pulley and rotating means therefor, a clutch between the pulley and shaft, and governing means comprising a governor, levers con-
 120 nected to said governor, a speed-increasing gear and a clutch operated by the end of one of the levers to impart motion from the operating-pulley to the gearing, and a clutch between the gearing and the shaft, substan-
 125 tially as described.
5. In combination with a shaft and means for normally rotating the same, comprising a pulley and rotating means therefor, clutches
 130 at opposite points on the shaft, and govern-

ing mechanism intermediate the clutches on
the shaft and loosely mounted thereon com-
prising speed-increasing gearing and means
for transmitting motion from the operating*
5 pulley to the speed-increasing gearing, and
through one of the clutches to the shaft, sub-
stantially as described.

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

ALVA APPELGATE.

Witnesses:

R. P. KEPLER;
D. A. BUCHAN;