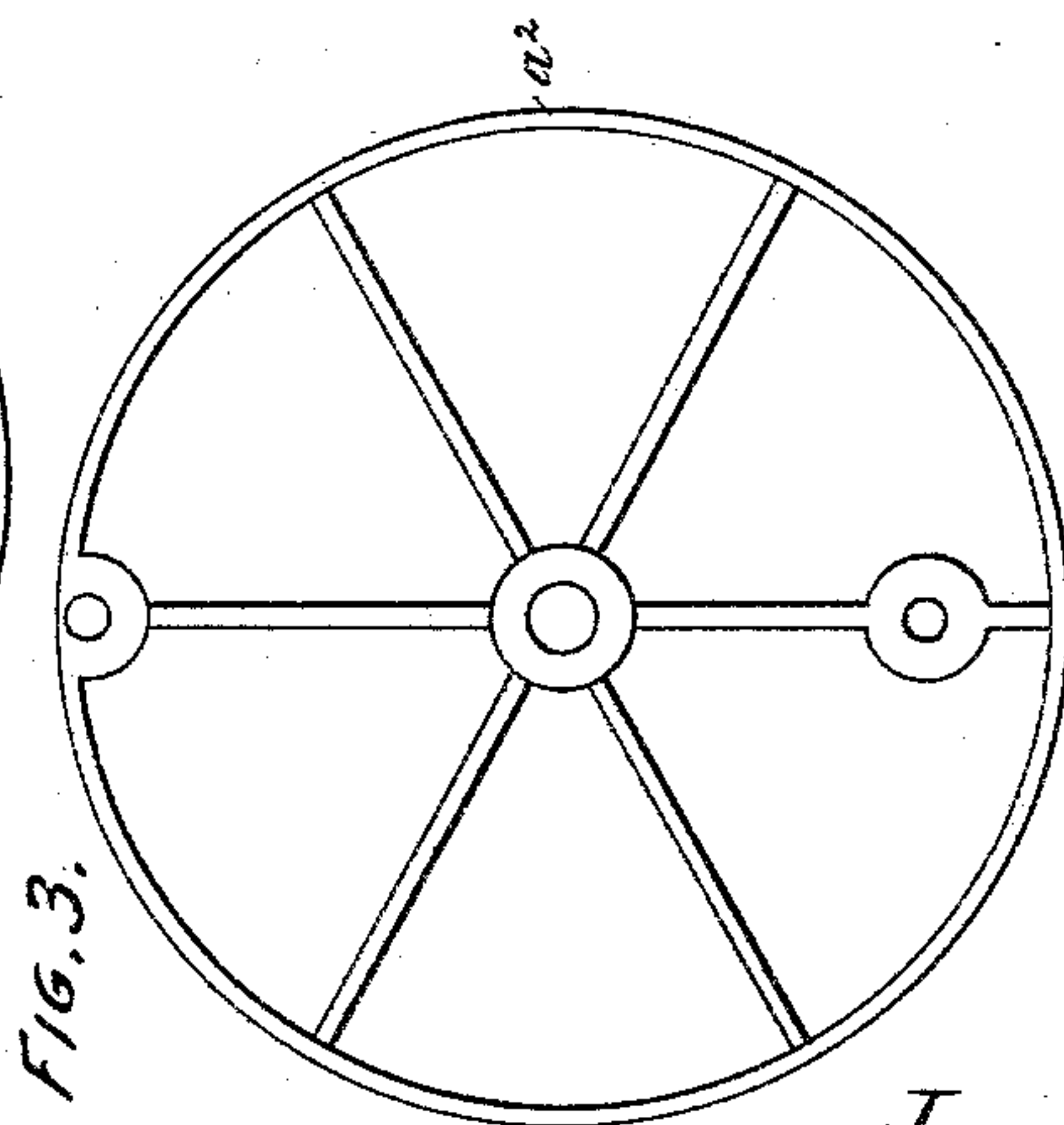
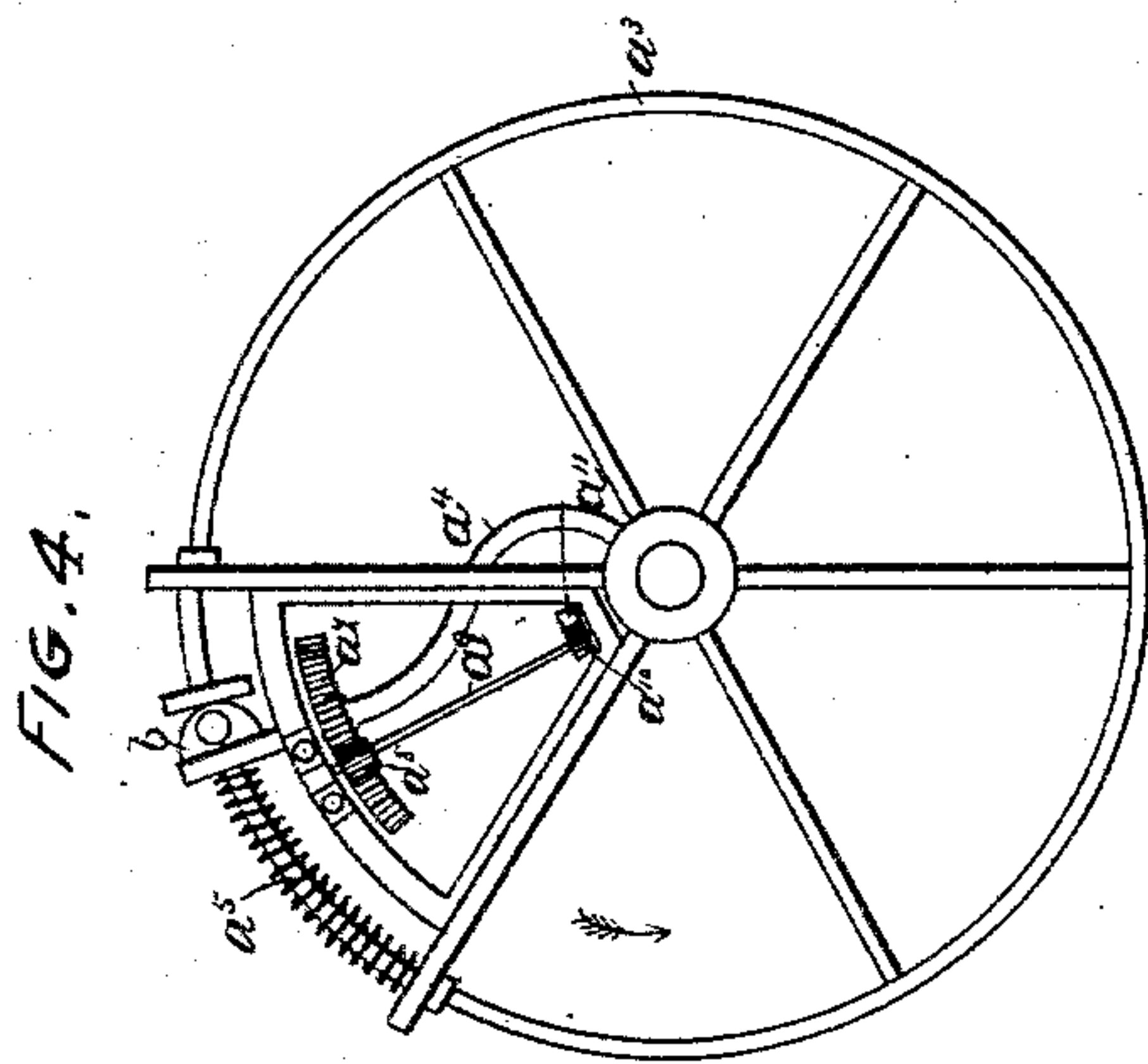
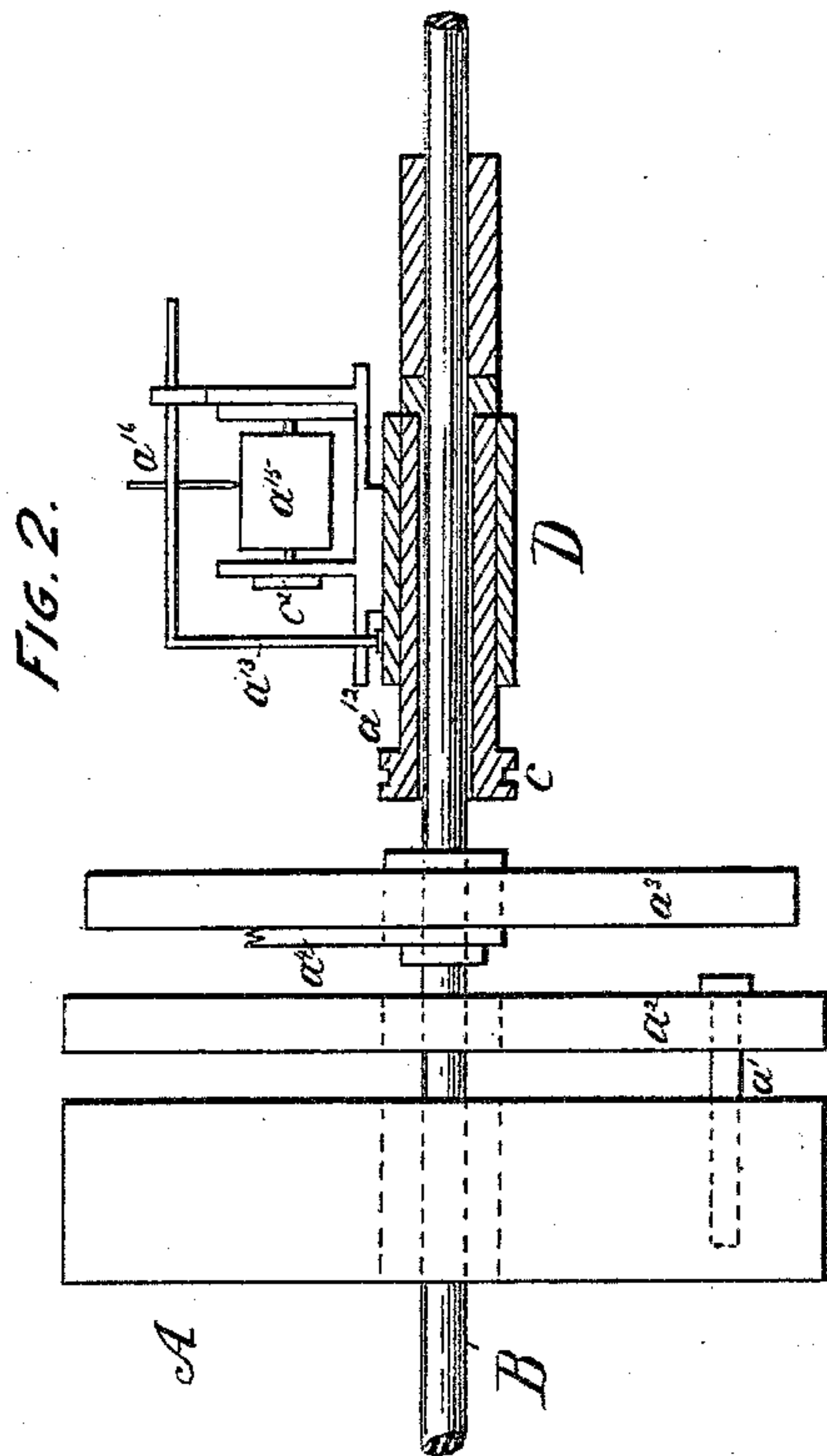
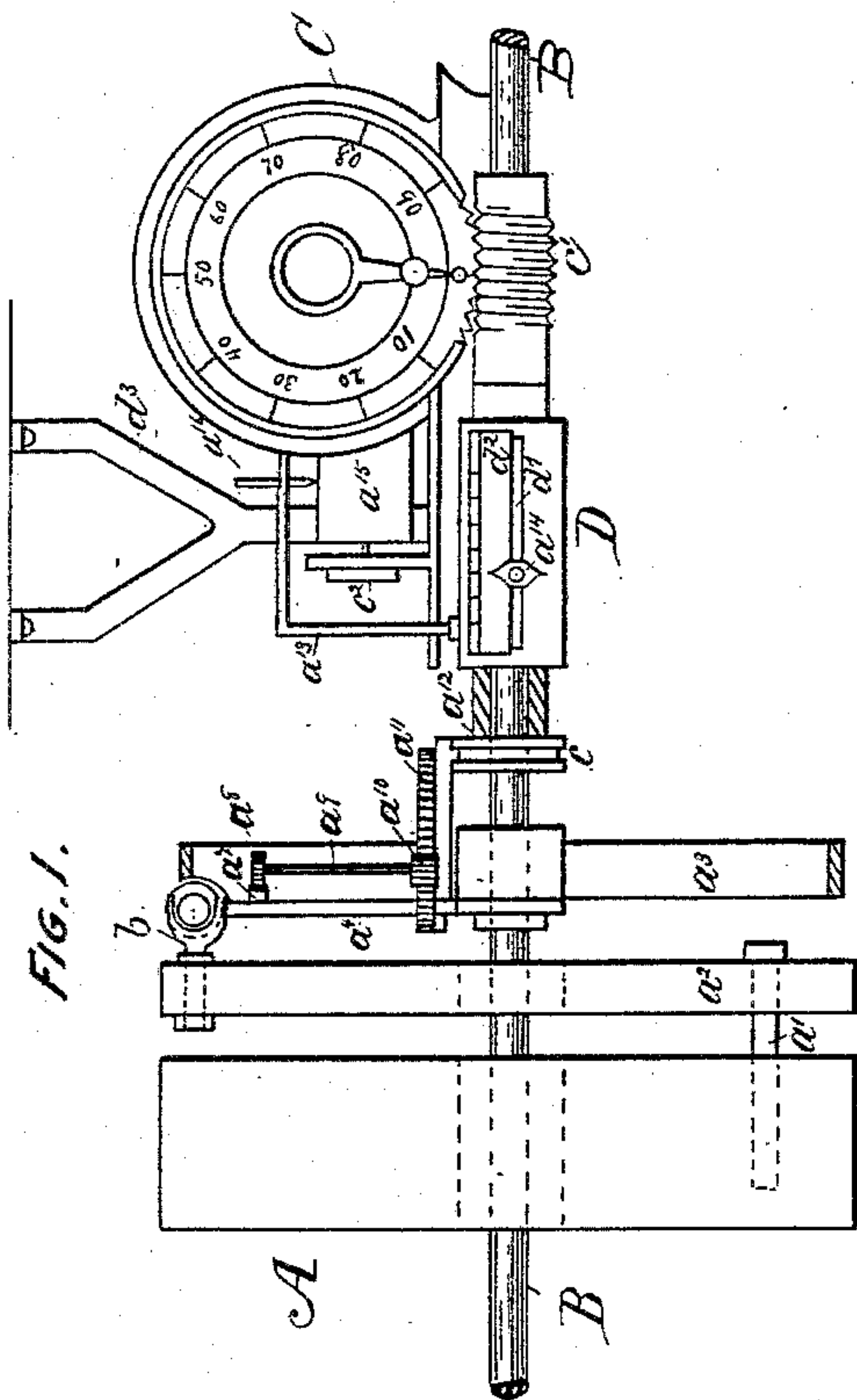


(No Model.)

E. NIXON.
POWER INDICATOR.

No. 401,199.

Patented Apr. 9, 1889.



—Witnesses.—

John Elliott
G. Colliott

—Inventor.—
Emory Nixon

per William Gill
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UNITED STATES PATENT OFFICE.

EMERY NIXON, OF TORONTO, ONTARIO, CANADA.

POWER-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 401,199, dated April 9, 1889.

Application filed June 15, 1888. Serial No. 277,247. (No model.)

To all whom it may concern:

Be it known that I, EMERY NIXON, machinist, a citizen of the United States, and a resident of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Power-Indicators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to such indicators as are used for ascertaining the power that is required to drive any one machine or number of machines in a factory which are driven from the same shaft, by the actual practical measurement thereof.

Referring to the accompanying drawings, Figure 1 is a front view of the indicator. Fig. 2 is also a front view thereof, partly in section, showing more clearly the construction of some of the principal and novel parts thereof. Fig. 3 is a detached side view of the intermediate pulley, a^2 . Fig. 4 is a detached side view of the chief operating-pulley a^3 .

Similar letters of reference indicate similar or corresponding parts.

A represents the first driven pulley, and is loose on the shaft B, and a screw bolt or driver, a' , secured in an arm of the intermediate pulley, a^2 , passes through and between two arms of the said pulley A, and when the driving-arm of pulley A comes up and presses on the outer end of the aforesaid screw bolt or driver a' it will turn the pulley a^2 . The said pulley a^2 is also loose on the shaft B and provided with a fork-ended bolt or driver, b , secured in the circumference of said pulley a^2 and passes through and behind the outer end of an arm, a^4 . The said arm a^4 is journaled on the hub of the pulley a^3 , and its outer end resting behind the rear end of a compression-spring, a^5 , secured also on the circumference of the pulley a^3 , and which pulley a^3 , being rigidly secured on the shaft B when a sufficient force is developed on the spring a^5 , will move round and will turn the shaft B, and when the resisting force of shaft B, with machines in motion, is developed on the spring a^5 the vibrations or back and forward motions of the arm a^4 from the spring a^5 will be indicated correctly in pounds upon the rim of the pulley A by a pointer and scale operated by certain mechanism which I will now describe. The

operating-pulley a^3 being rigidly secured on the shaft B and provided, as aforesaid, with a journaled arm, a^4 , and with a compression-spring, a^5 , on its outer circumference, the resisting force of the machines in motion is readily obtained by these and the following parts.

On the journaled arm a^4 on pulley a^3 , and near to the outer end of said arm, a rack, a^7 , is secured, which moves back and forward with the arm and spring and turns a pinion, a^8 , and spindle a^9 , journaled at the upper end in a box secured to a frame fitted and secured between two of the arms of the pulley, and the foot of the spindle is also journaled in a socket in the under part of the same frame. There is also a lower pinion on this spindle, and numbered a^{10} , which operates the sliding rack with tongue a^{11} , which rack and tongue operates, by means of the groove C, the sliding thimble a^{12} , the sliding frame a^{13} , and sliding pointer a^{14} .

In the frame a^{13} there is a pencil, a^{16} , which moves on the surface of a slow-moving cylinder, a^{15} , and delineates readable diagrams thereon. The cylinder a^{15} is turned by a watchman's clock, c^2 , making one turn in twelve hours, and is wound up by hand.

A counter, C, for taking the number of the revolutions is secured to the indicator and driven by a screw, c' , placed on the running shaft B.

The spring a^5 is tested from time to time by means of a Prony friction-brake contiguous to the indicator. A stationary thimble, D, with a groove, d' , and a scale, d^2 , is secured to the stationary bracket d^3 , the graduations on which scale d^2 having been made in accordance with the number of pounds pressure on the friction-brake.

Having thus described my invention, I claim—

1. A power-indicator composed of three pulleys of about equal diameter, the first pulley, A, being the driven pulley from the factory-pulley and being loose on the shaft B, and the second pulley, a^2 , having two driving-bolts, one of them, a' , projecting sidewise and between two arms of the first pulley, from which it receives its motion, the other bolt, b , projecting from the other side, and going behind the outer end of an arm, a^4 , journaled on the hub of the third pulley, a^3 , the outer end of said arm bearing upon the rear end of a compression-

spring, a^5 , secured on the circumference of the third pulley, which is rigidly secured on the shaft B, the vibrations of which compression-spring are utilized to operate a rack, a^7 , pinion a^8 , spindle a^9 , lower pinion, a^{10} , and rack with tongue a^{11} , which racks and pinions aforesaid operate a pointer, a^{14} , denoting upon a graduated scale the pressure in pounds on the surface of the first driven pulley, substantially
10 as shown and described.

2. In a power-indicator composed of three pulleys of about equal diameter, the pulleys

A and a^2 , loose on the shaft B, the pulley a^3 , rigidly secured on the said shaft, the driving-bolts a' and b in pulley a^2 , the arm a^4 , jour- 15
naled in the hub of pulley a^3 , and compression-spring a^5 , secured on the circumference of pulley a^3 , the rack a^7 , pinion a^8 , spindle a^9 , lower pinion, a^{10} , and rack with tongue a^{11} , all combined and operating as set forth.

EMERY NIXON.

Witnesses:

R. A. MONTGOMERY,
HENRY E. REDMAN.