(No Model.)

W. HETHERINGTON.

APPARATUS FOR BALANCING PULLEYS.

No. 251,439. Patented Dec. 27, 1881.

Fig. 1

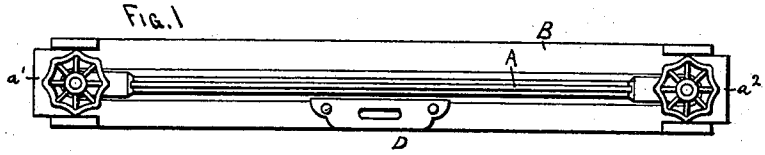


Fig. 2

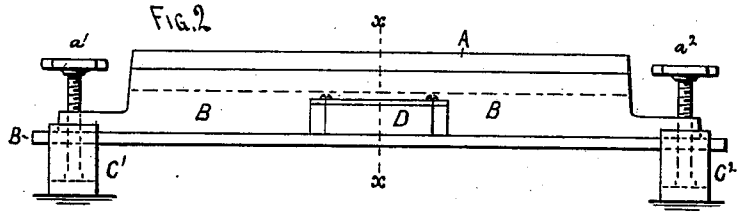


Fig. 3

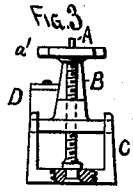


Fig. 4

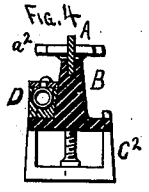
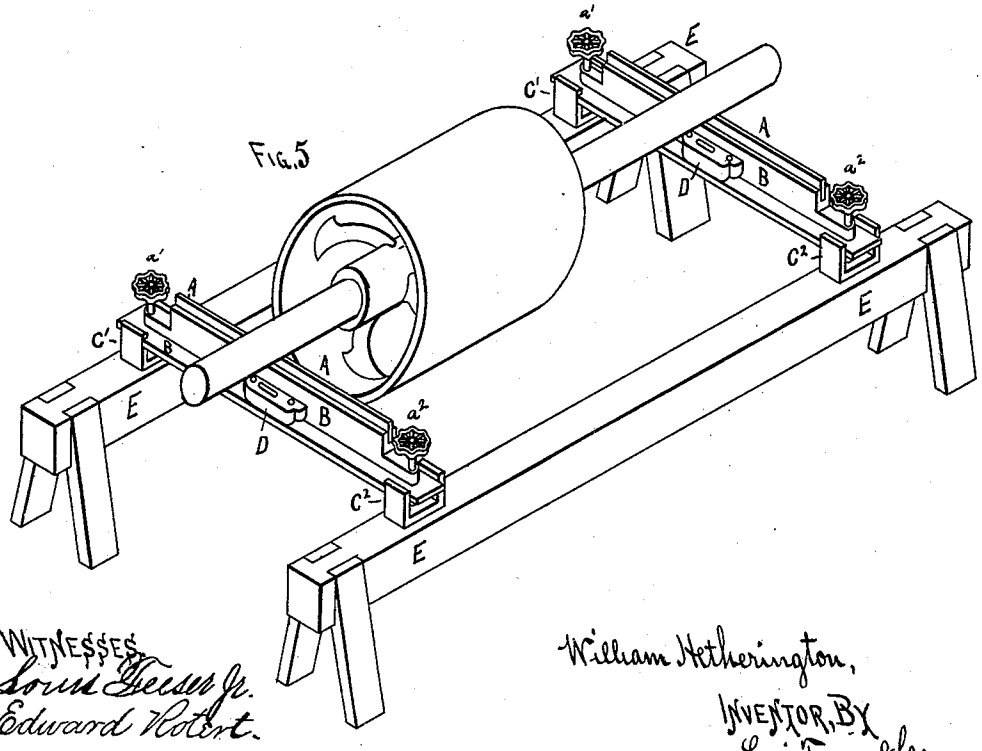


Fig. 5



Witnesses,
Louis Feeser Jr.
Edward Rotert.

William Hetherington,
Inventor, By
Louis Feeser & Co.
Atty's.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM HETHERINGTON, OF ST. CLOUD, MINNESOTA, ASSIGNOR OF ONE-HALF TO HENRY LUNKENHEIMER, OF SAME PLACE.

APPARATUS FOR BALANCING PULLEYS.

SPECIFICATION forming part of Letters Patent No. 251,439, dated December 27, 1881.

Application filed August 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HETHERINGTON, a citizen of the United States, and a resident of St. Cloud, in the county of Stearns and State of Minnesota, have invented certain new and useful Improvements in Instruments for Leveling and Balancing Pulleys, &c., of which the following is a specification.

This invention relates to instruments for ascertaining the level and balance of pulleys, cutter-heads, thrashing-machine cylinders, saw-arbors, &c.; and it consists in a set of steel bars, adapted to be adjusted to a perfectly level position, across which the article to be leveled and balanced is placed to determine its equilibrium, as hereinafter set forth. I attain these objects by the use of the mechanism illustrated by the accompanying drawings, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is an end elevation. Fig. 4 is a cross-sectional view on the line *x x* of Fig. 2. Fig. 5 is a perspective view of a pair of the instruments, with a shaft and pulley shown arranged thereon.

In rotary planing-machine cutter-heads, thrashing-machine cylinders, turning-lathe spindles, saw-arbors, pulleys, and similar high-speeded machinery it is very essential that they should be in perfect balance to enable them to run true, and to easily and quickly determine when such machinery is in balance is the object of my invention, which consists in a steel bar, A, set in a cast-iron block, B, which is adapted to be adjusted at the ends by set-screws a' a^2 in stationary guides C' C^2. A small spirit-level, D, is secured to the side of the block B, with its air-bubble in perfect accord with the upper surface of the steel bar A, so that when the bubble is in the center the operator will know that the steel bar is perfectly level.

In using this invention two of the instruments are placed parallel with each other upon horses or blocks E, (see Fig. 5,) as nearly the same height as possible, and the set-screws a' a^2 adjusted until the spirit-bubbles indicate that the bars A are perfectly level. The shaft supporting the pulley, cutter-head, or other article it is desired to balance is then placed across the bars, and if it is not perfectly balanced the heavy side will cause the shaft to revolve until the heavy side is downward. Then weights may be added to the light side, or portions cut out from the heavy side until the shaft will remain stationary upon the bars at all points of its circumference, when the operator will know that it is perfectly balanced.

This is a very convenient and perfect operating instrument, and may be made in any desired form or of any desired material or size.

What I claim as new is—

1. In a leveling-instrument, a block provided with a steel bar having an unbroken top surface, in combination with a spirit-level located to one side of the bar, and means for vertically adjusting the bar, as set forth.

2. The combination and arrangement of the bar A, block B, guides C' C^2, and set-screws a' a^2, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM HETHERINGTON.

Witnesses:

JAS. R. BENNETT, Jr.,

J. B. ROSENBERGER.