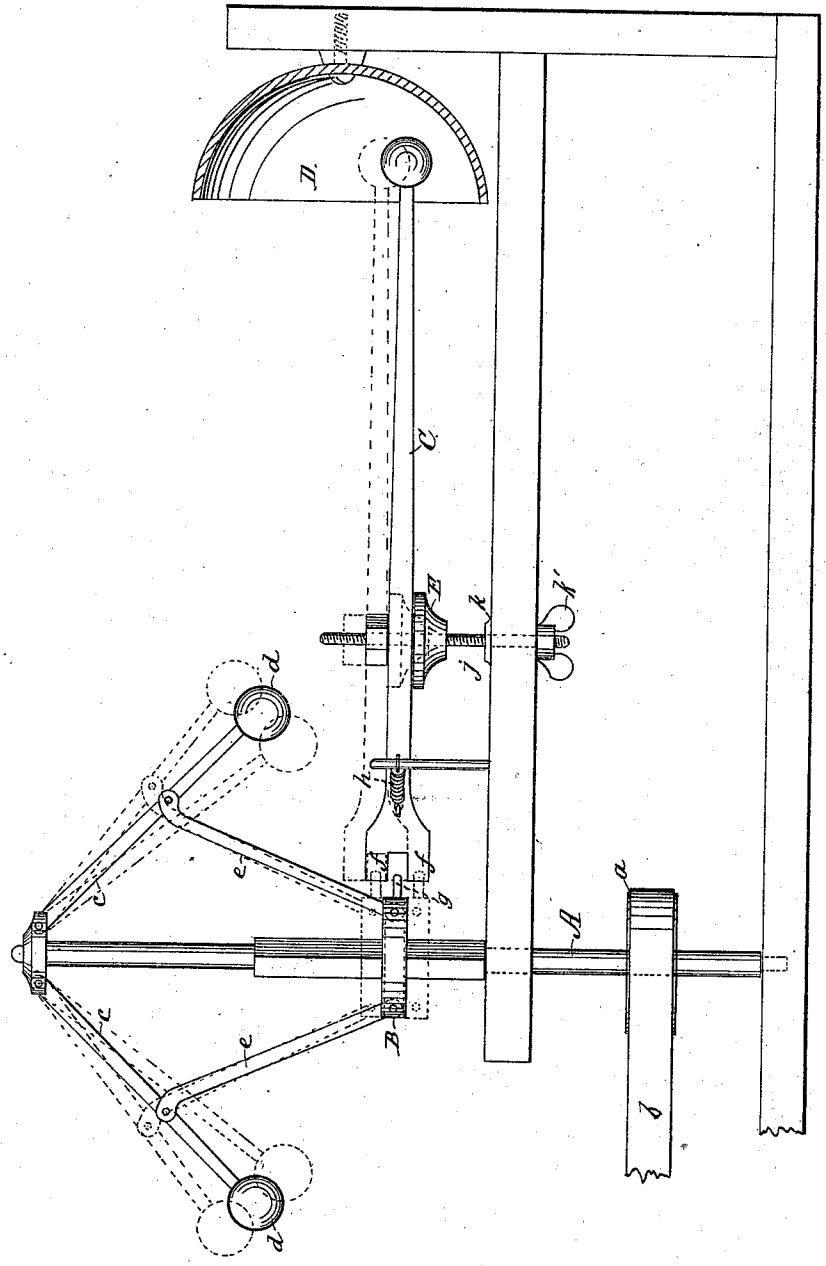
W. H. HOTTEL.

Alarm Attachment for Grist-Mills.

No. 225,136. Patented Mar. 2, 1880.



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WILLIAM H. HOTTEL, OF WOODSTOCK, VIRGINIA.

ALARM ATTACHMENT FOR GRIST-MILLS.

SPECIFICATION forming part of Letters Patent No. 225,136, dated March 2, 1880.
Application filed October 4, 1879.

To all whom it may concern:

Be it known that I, WILLIAM H. HOTTEL, of Woodstock, in the county of Shenandoah and State of Virginia, have invented a new and Improved Alarm Attachment for Grist-Mills and other Machinery; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a side elevation.

The object of my invention is to provide a practical device for giving notice to the miller or attendant of the machinery of any irregularities in speed incident to the running of said machinery. In milling operations irregularities are liable to occur from the choking of the burrs, the absence of grain in the stock-hopper, the heating of the spindle at foot or collar, and various other circumstances. Prior to the adoption of improved mill machinery the noise of the burrs was chiefly relied upon in ascertaining the condition of the mill; but the commingled noises incident to the adoption of improved machinery, such as middlings-purifiers, bran-dusters, scourers, steamers, grain-separators, &c., render it impossible to hear the action of the burrs at any considerable distance.

My invention is designed to give a distinct alarm for indicating the irregularity of speed, whether in a mill or other class of machinery, which alarm may be heard at any part of the mill, or which, by the aid of a telephone, may be heard at an office, residence, or other point remote from the machinery.

My invention is an improvement upon an alarm for this purpose patented January 14, 1862, by E. Clark, in which an ordinary ball-governor is connected to the mill-spindle so as to be rotated thereby, and the rising-and-falling collar or cross-head of the governor is made, when rising above a given point or falling below such point, to strike against a spring-lever, whose other end carries a hammer and strikes a bell to sound an alarm, which indicates any increase or decrease in the speed of the burrs arising from irregular condition. This general construction secured the desired effect for one given speed; but as it is necessary to run machinery sometimes continuously slow or continuously fast, some provision for adjusting the alarm device to this change without the incessant ringing of the bells is practically necessary.

In accomplishing this result, my invention consists in combining with the rising-and-falling collar or cross-head a ringing-lever mounted on an adjustable fulcrum, so that the fulcrum of the lever may be raised when the machinery is to run continuously at a faster rate of speed than its normal adjustment provides for, and so that the fulcrum may be lowered when the machinery is to run continuously at a slower rate.

In the drawing, A represents a spindle having a pulley, *a*, which, by means of a belt, *b*, is connected with the spindle of the running burr or other running portion of the machinery. Upon the upper portion of the spindle A is fixed a cap, to which are jointed the arms *c c*, carrying governor-balls *d d*. To these arms *c* are also jointed the links *e e*, which at their lower ends are jointed to a collar, B, which rotates with the governor, and rises and falls as the balls rise and fall from an increase or diminution of the speed.

C is the ringing-lever, which is mounted upon a fulcrum near its middle, and is constructed at its end next to the governor with a forked end *f f*, having a slot between. The normal position of this lever upon its fulcrum is such that when the machinery is running at its usual speed the collar B is on a level with the end of the lever C, and a stud or tappet, *g*, on the collar will pass through the slot between the forks *f f* of the lever, and the latter is not disturbed. When, however, the collar rises or falls, from the irregular running of the machinery, as shown in dotted lines, the tappet *g*, in rising above or falling below the slot between the forks *f f*, strikes one or the other of said forks and deflects the lever against the tension of a spring, *h*, which latter, after the tappet has passed, throws the lever in the opposite direction and causes the hammer at the outer end to strike the bell D, sounding an alarm thereon as long as the speed varies from the normal. Now, as it is sometimes required to run the machinery continuously at a high rate of speed or continuously at a low rate of speed, in such case the alarm mechanism would have

to be disconnected or thrown out to avoid the incessant ringing of the bell, in which event the attachment would be of no use. To provide for this change in the speed, I mount the lever C upon an adjustable fulcrum, E, which is raised or lowered by a screw-rod, *j*, passing through a suitable frame-work and held between clamping-nuts *k k'*. This provision, it will be seen, allows the slot in the end of the lever to be adjusted to the level of any rate of speed which is to be constantly maintained.

By means of the invention herein described it will be seen that, as applied to a mill, the following irregularities are corrected: If the feed becomes choked so that there is no grain in the stock-hopper, the speed is increased and the alarm is immediately sounded; if the burr becomes choked with too much grain or middlings, the speed of the mill is reduced and the alarm is sounded; if the collar or foot of the spindle becomes heated, the expansion of the spindle causes the raising of the burr, thus increasing the speed by reducing friction between the burrs, which increase of speed is indicated by the alarm.

Having thus described my invention, what I claim as new is—

An alarm attachment for indicating irregularity in the speed of machinery, consisting of a governor having a rising-and-falling collar or cross-head with projecting tappet, combined with a bell-ringing lever mounted upon a vertically-adjustable fulcrum, substantially as and for the purpose described.

WILLIAM HENRY HOTTEL.

Witnesses:

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