(No Model.)

# C. R. HUDSON.

## GRINDING MILL.

No. 551,382. Patented Dec. 17, 1895.

Fig. 1.

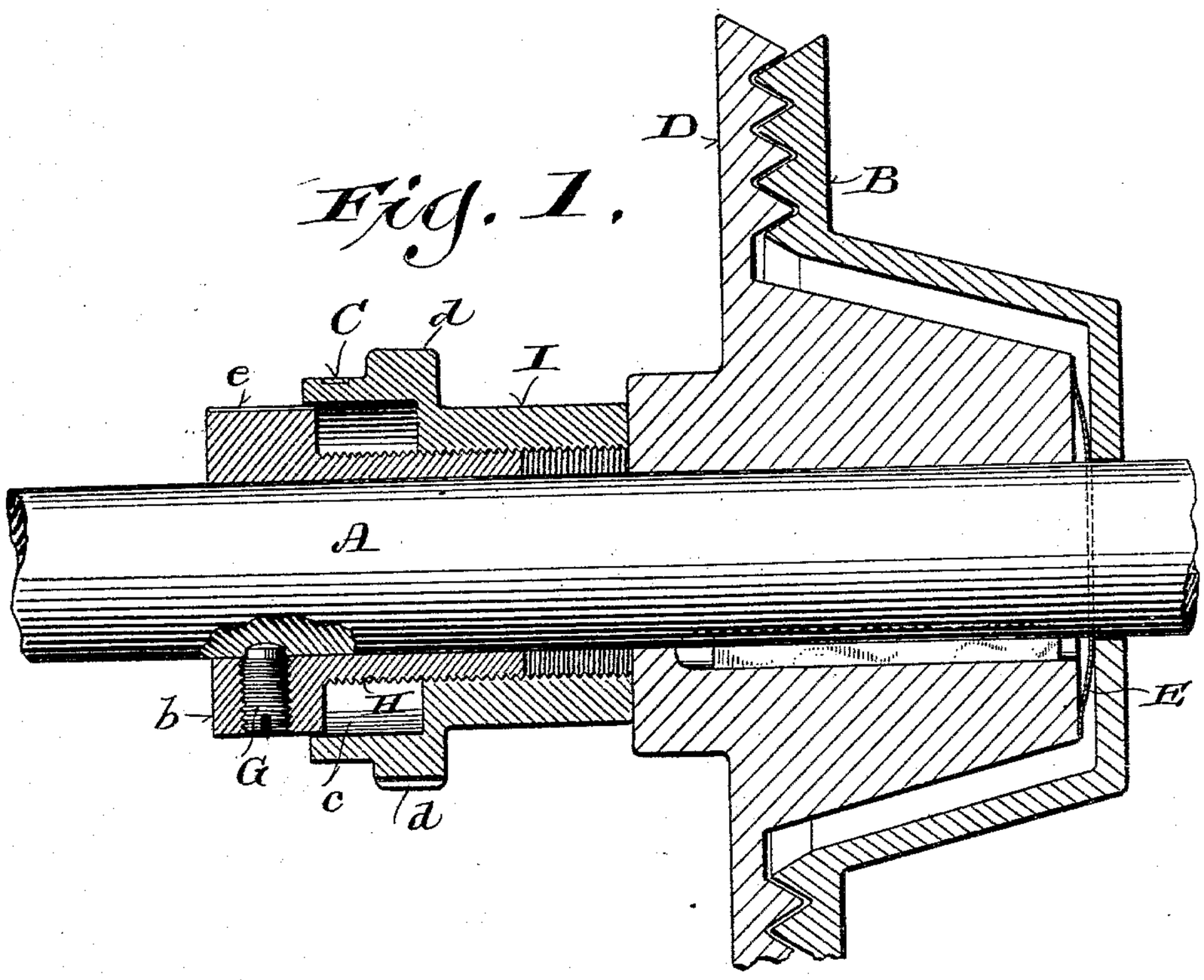



Fig. 2.

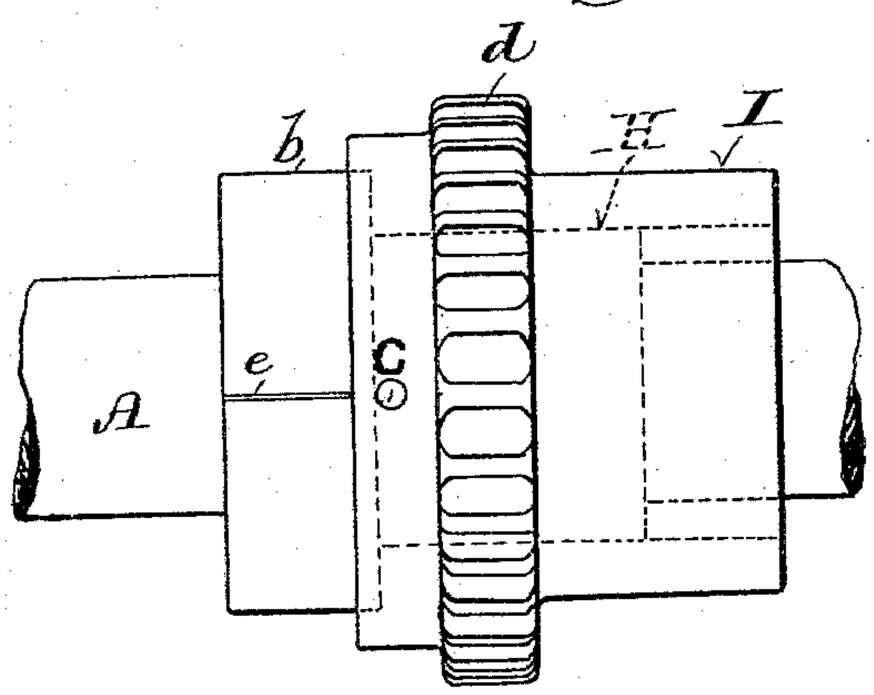
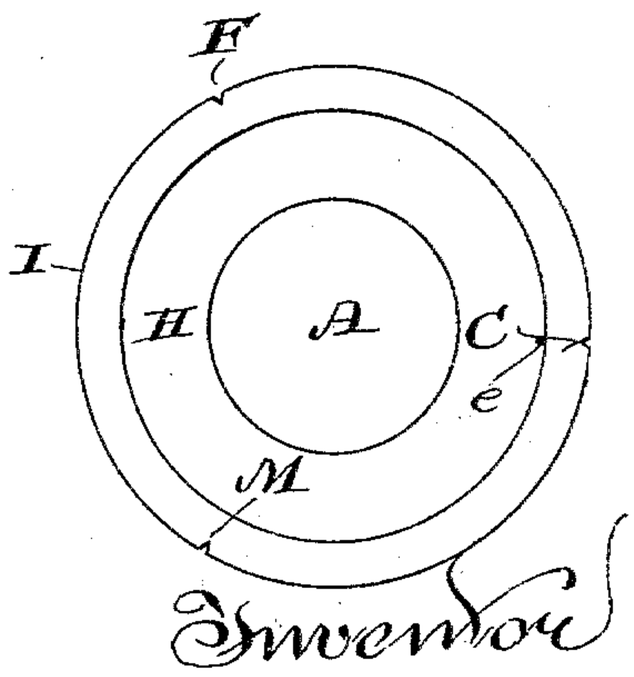



Fig. 3.

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# UNITED STATES PATENT OFFICE.

CHARLES RIPLEY HUDSON, OF WAUPACA, WISCONSIN.

## GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 551,382, dated December 17, 1895.

Application filed July 22, 1895. Serial No. 556,717. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES RIPLEY HUDSON, a citizen of the United States, and a resident of Waupaca, in the county of Waupaca and State of Wisconsin, have invented certain new and useful Improvements in Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to regulate grade without necessitating examination of product from coffee, spice, and various other mills, as well as to save end friction and to facilitate discharge of any hard foreign substance that may get between the mill-burs. Therefore said invention consists in certain peculiarities of construction and combination of parts hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a sectional view of a portion of a grinding-mill embodying my improvements; Fig. 2, an elevation of certain of the parts shown in the preceding figure, and Fig. 3 a diagram illustrating how the grade of the mill product may be mechanically determined.

Referring by letter to the drawings, A represents a shaft, B a stationary bur, and D another bur that is splined on the shaft so as to rotate therewith and be longitudinally adjustable thereon, the parts thus far described being common in the art to which my invention relates.

Interposed between the cone-hubs of the burs herein shown is a spring E that may be either spiral or flat, this spring being normally under compression and acting by its expansion to automatically separate said burs under the conditions hereinafter set forth.

By a set-screw G or other suitable means a collar H is made fast to the shaft A, and a sleeve I in screw-thread engagement with the collar opposes the hub of bur D at that end farthest from the spring E above specified. As a matter of preference the shaft-collar is shown as having its outer end in the form of a flange *b* thick enough to obtain good bearing for the set-screw G, and the sleeve that adjustably engages said collar is provided with a socket *c* corresponding to said flange. I also prefer to provide the sleeve with a milled flange *d* in order to facilitate its adjustment. The shaft-collar is provided with a mark *e*, and the adjustable sleeve is also provided with marks C M F at predetermined intervals.

In practice the parts are first assembled as shown in Fig. 1, with the mark C on the adjustable sleeve in register with the mark *e* on the shaft-collar, the spring E being compressed and the burs in close engagement. Now if the sleeve I be given one-third of a rotation, in the direction necessary to run it out on the shaft-collar, its mark F will register with the one *e* on said collar and the mill will be set to grind fine, the expansion of spring E having caused automatic movement of bur D longitudinally of the shaft. Another one-third rotation of the sleeve I in the direction aforesaid will bring mark M thereon into register with the shaft-collar mark *e*, thus setting the mill to grind medium, while the completion of the revolution will bring the sleeve-mark C again into register with said shaft-collar mark and thereby set the mill to grind coarse.

The above-described adjustments being predetermined and positive, examination of the product coming from the mill is not necessary to ascertain the grade that is being ground, and the adjusting mechanism being rotative with the mill-shaft I do away with end friction and consequent wear common to stationary devices employed for the same purpose. It is also to be observed that in case hard foreign substance enters between the burs the adjusting-sleeve may be quickly run out far enough to permit such separation of said burs as will allow said substance to pass without damage to the mill.

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

In a grinding-mill, the combination of a shaft and stationary bur, another bur splined on the shaft, an exteriorly screw-threaded collar fast on the shaft outward from the splined bur at a suitable distance, and a tapped sleeve engaging the collar to bear against the hub of said splined bur.

In testimony that I claim the foregoing I have hereunto set my hand, at Waupaca, in the county of Waupaca and State of Wisconsin, in the presence of two witnesses.

CHARLES RIPLEY HUDSON.

Witnesses:
W. Y. BENDIXEN,
ALFRED JOHNSON.