(No Model.)

M. J. ALTHOUSE.

GRINDING MILL.

No. 385,035. Patented June 26, 1888.

Fig. 1.

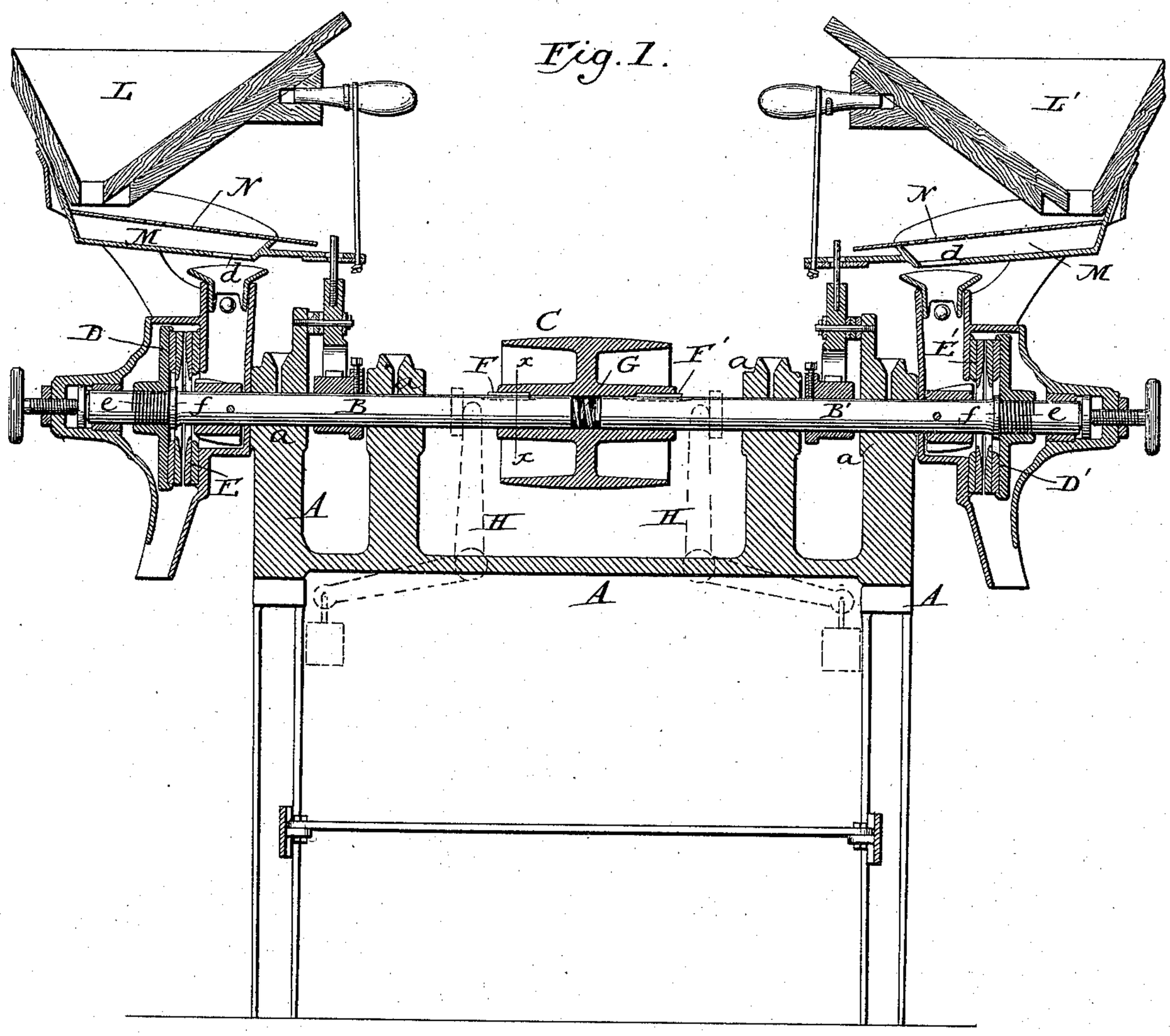


Fig. 2.

ON LINE X—X

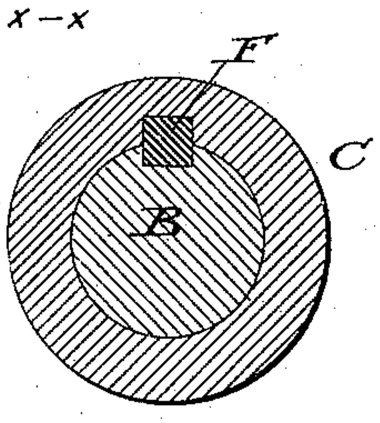
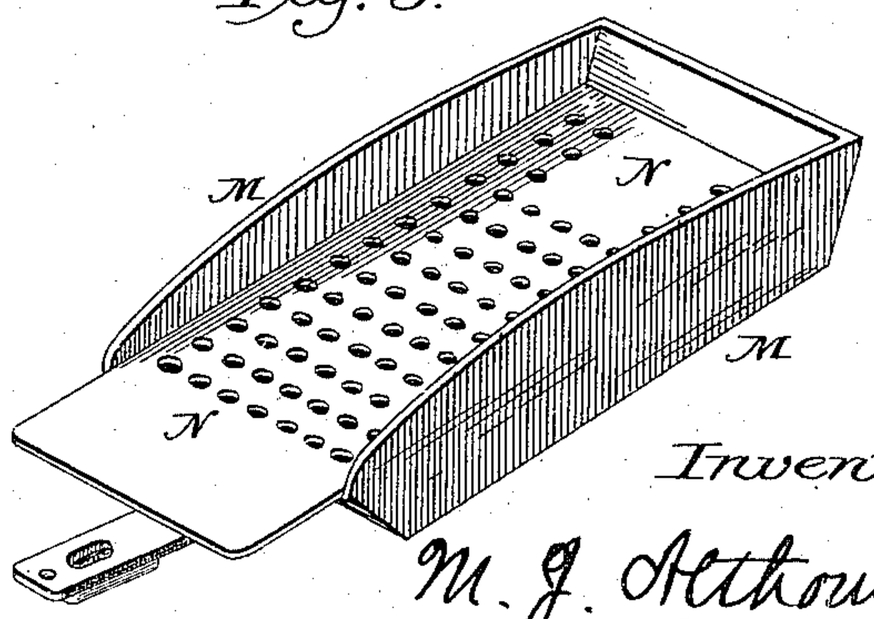


Fig. 3.



Attest.

Sidney P. Hollingsworth

H. R. Kennedy.

Inventor.

M. J. Althouse.

By his atty.

P. T. Dodge.

UNITED STATES PATENT OFFICE.

MILO J. ALTHOUSE, OF WAUPUN, WISCONSIN.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 385,035, dated June 26, 1888.

Application filed April 26, 1887. Serial No. 236,193. (No model.)

To all whom it may concern:

Be it known that I, MILO J. ALTHOUSE, of Waupun, in the county of Fond du Lac and State of Wisconsin, have invented certain Improvements in Grinding-Mills, of which the following is a specification.

My invention relates more particularly to that class of disk-mills commonly known as "double grinders," in which a single shaft carries at opposite ends rotary disks arranged to co-operate with opposing disks suitably fixed in position.

The aims of the invention are more particularly to provide a simple means for maintaining the separation of the co-operating disks when the supply of material is exhausted.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section through the main portion of a grinding-mill having my improvements embodied therein. Fig. 2 is a cross-section of the same on the line *x x*. Fig. 3 is a view of one of the feed-spouts.

Referring to the drawings, A represents the frame of the mill, which may be of any ordinary form and construction, provided with bearings *a a*, giving support to the horizontal shaft B B′, which is extended therethrough from one side of the machine to the other. This shaft is provided at its middle with a driving-pulley, C, and at its opposite ends with the two vertical disks D D′, which co-operate in the ordinary manner with the stationary disks E E′, fixed to the frame, and loosely encircle the ends of the shaft, as usual.

In applying my improvement I divide the shaft B B′ transversely at its middle within the driving-pulley, and insert between its two ends the spiral spring G, by which the two sections are urged apart in an endwise direction in order to separate the rotary disks D D′ from the opposing disks E E′.

In order that both sections of the shaft may receive a positive rotation from the driving-pulley, I connect them thereto by longitudinal keys F F′, seated in slots in the shaft and pulley, as shown in Fig. 2, the arrangement being such that the shaft-sections may slide freely in a longitudinal direction in relation to the pulley and to each other. If desired, one end of the shaft may be keyed or otherwise fastened rigidly to the driving-pulley; but this arrangement is objectionable, for the reason that the pulley would then partake of the longitudinal movement of the shaft.

In place of the keys represented in the drawings, any other equivalent sliding connection familiar to the skilled mechanic may be substituted.

While I prefer to employ the spiral spring as the most simple means of spreading the parts of the shaft, I may substitute as equivalents therefor weighted levers, as shown by the dotted lines H H, their upper ends being arranged to act against collars on the shaft.

In practice it frequently occurs that nails, fragments of stone, and other coarse refractory matters will find their way into the mill, and that they will either choke the throat and prevent the proper feeding action or, passing between the grinding-surfaces, will mutilate the same. To remedy this difficulty I propose to provide the feed-spout, commonly known as the "shaker," with a perforated sheet or screen of peculiar construction, which will permit the passage of the grain therethrough, but intercept the coarse matters and deliver them from the mill.

L L′ represent the main hoppers, mounted on top of the mill and delivering into the shakers or feed-spouts M, through which the material is delivered to the grinding devices. The shakers M may be supported and operated as in my application No. 204,841, filed on the 11th day of June, 1886, or in any other known manner. Each shaker is provided in its top with a perforated sheet or screen, N, upon which the material is delivered from the main hopper, and through which the grain may pass to the lower surface of the conductor, on which it flows downward until it reaches the bottom opening, *d*, through which it passes to the grinding-disks. The screening-surface is extended beyond the end of the shaker or otherwise extended, so that the coarse matters which are delivered from and retained by the surface will be carried over and delivered from the machine, and the upper end of the screen is made without perforations, the better to distribute the grain falling thereon.

As shown in the drawings, the upper end of the screen-plate—the portion lying beneath the mouth of the hopper—is left solid or imperfo-

rate, so that it serves to receive the impact of the falling grain and to spread or distribute the same before it reaches the perforated surface. In this way the danger of the screen being choked by matters descending directly and forcibly into its openings is avoided.

Having thus described my invention, what I claim is—

1. In a double grinding-mill, and in combination with the divided shaft provided with grinding-disks at its ends, the driving-pulley having the sliding connection with one or both parts of the shaft, and the spring or its described equivalent acting to urge the two portions of the shaft apart.

2. In a double grinding-mill, the transversely-divided shaft, the intermediate spring, and the driving-pulley encircling the ends of both shaft-connections and coupled thereto by a sliding connection, substantially as described.

In testimony whereof I hereunto set my hand, this 15th day of March, 1887, in the presence of two attesting witnesses.

MILO J. ALTHOUSE.

Witnesses:
I. E. BRINKERHOFF,
R. L. OLIVER.