2 Sheets--Sheet 1.

J. KAISER.

Mills.

No. 166,466. Patented Aug. 10, 1875.

FIG 3

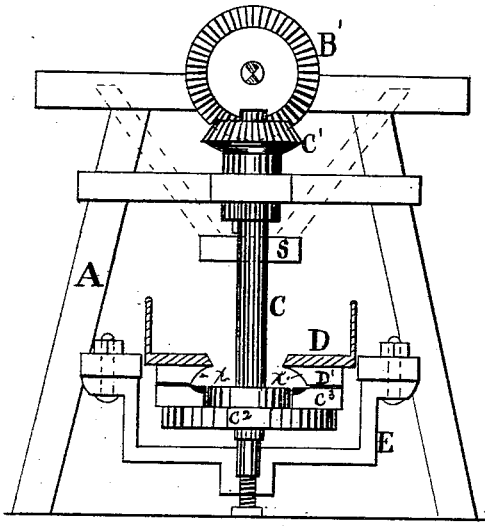


FIG 1

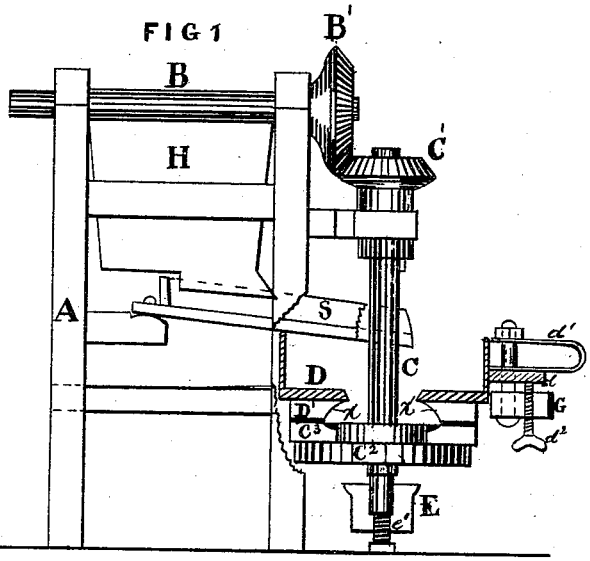


FIG 2

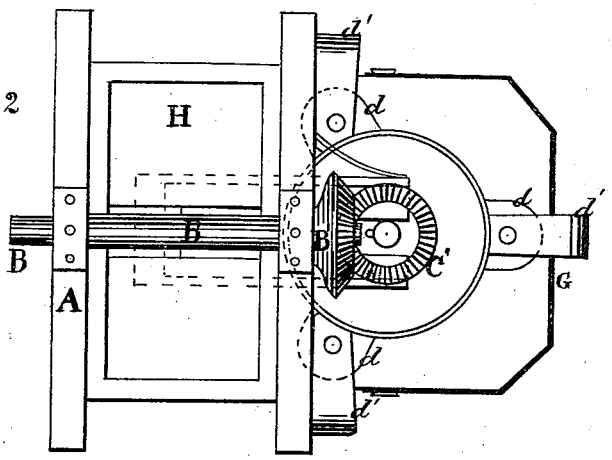
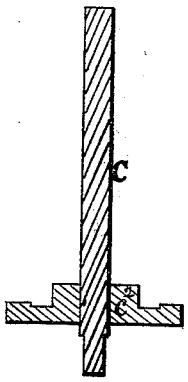


FIG 4



Witnesses

Robt. James
William Gill

Inventor

Jacob Kaiser

2 Sheets--Sheet 2.

J. KAISER.

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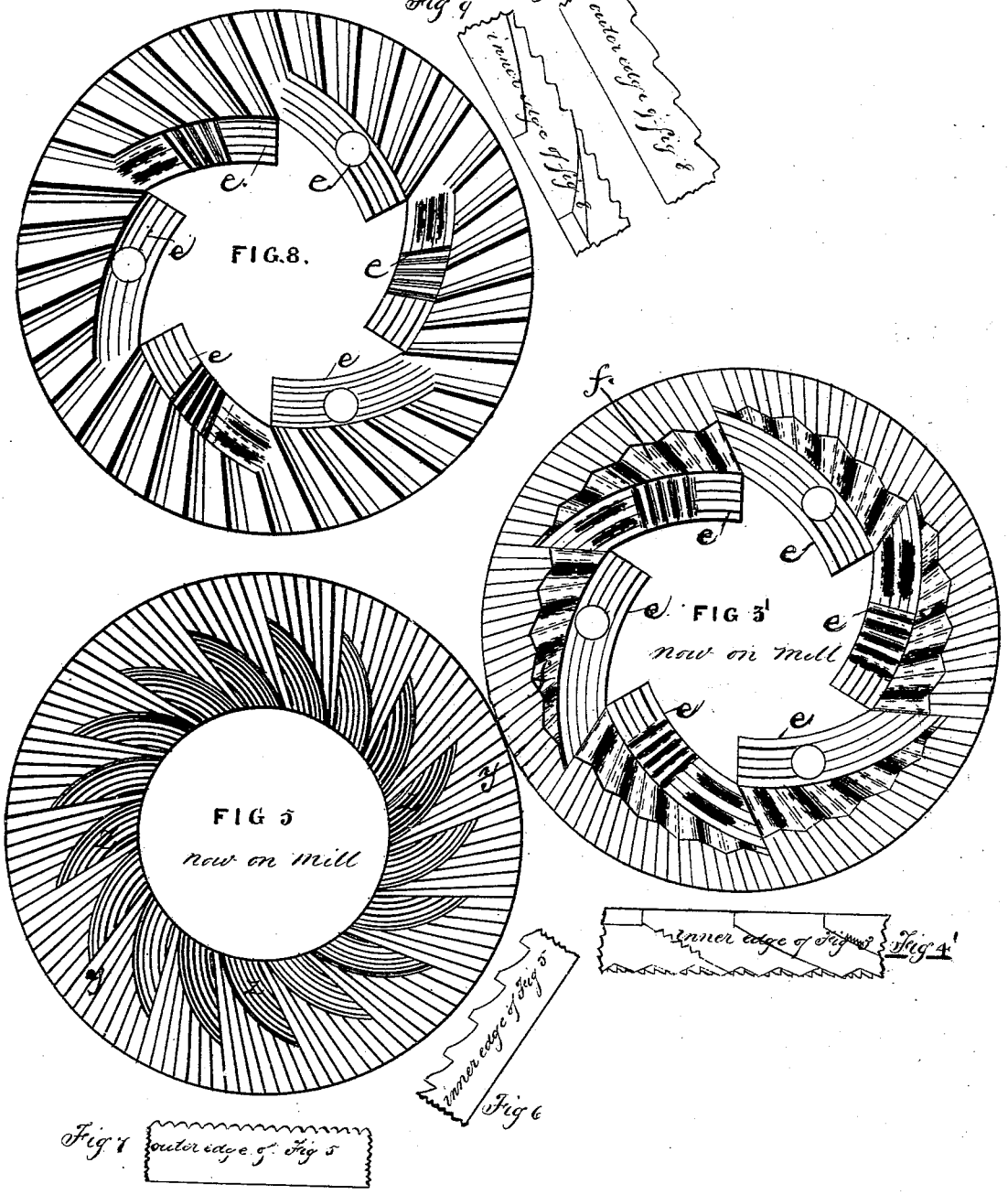

Witnesses

Robt. James

William Gill

Inventor

Jacob Kaiser

UNITED STATES PATENT OFFICE.

JACOB KAISER, OF YORK TOWNSHIP, YORK COUNTY, CANADA.

IMPROVEMENT IN MILLS.

Specification forming part of Letters Patent No. **166,466**, dated August 10, 1875; application filed September 30, 1874.

To all whom it may concern:

Be it known that I, JACOB KAISER, of the township of York, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Grain or Corn Crushing and Spice Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, whereby others, being skilled in the art, might make and use the same, reference being had to the accompanying drawings, and to this specification.

My invention relates to a class of machines for which I obtained a patent in Canada in 1873, which machines move at a considerable speed. The grinding parts may be of chilled cast-iron, or of malleable cast-iron, or of steel. The character of the mill partakes somewhat of that of a flour-mill, but having, instead of stones for grinding, metal disks, and these disks are furnished with a peculiar dress upon their grinding-surfaces, as hereinafter more fully described.

The frame or body of the mill may be of iron or other suitable material. The machinery consists of the following parts: First, of a horizontal axle with a pulley, for receiving motion from some other pulley of any ordinary motive power. It is also furnished with a handle, and can be driven by manual labor when necessary. On the inner end of this horizontal shaft is a bevel-wheel. Second, of an upright shaft or spindle with a bevel-pinion on the upper end, which meshes into the aforesaid bevel-wheel, and near to the lower end is a circular disk, truly turned on its upper face, on which is fastened the lower grinding-disk. Third, the upper disk, which remains stationary, is fastened to the under side of a concave cylinder, in which the grain falls on its way to the grinding-disks or grinders. Fourth, a bracket with step for foot of upright spindle, with a screw for regulating the distance of the grinding-surfaces. Fifth, a hopper for receiving the grain; and, sixth, a shoe for conveying the same to the aforesaid grinders.

In the accompanying drawings the same letters of reference indicate the same parts in all the views, and also in this specification.

Figure 1 is a side view of my mill, shown partly in section for the better illustration of some of the parts, of which A is the frame; B, the horizontal shaft; B′, the bevel-wheel. C is the upright spindle; C^1, the bevel-pinion, and, when properly constructed, the hub of which forms the upper journal of the spindle, there being a feather sunk in the same which slides up or down a groove in the eye of the pinion, to admit of the raising or lowering of the spindle without the pinion C^1 being moved out of its working depth in bevel-wheel B′. C^2 shows the turned disk; C^3, the lower grinder; D, the concave cylinder, into the cavity of which the grain falls from the shoe S. D′ is the upper grinder, which is fastened to the under side of cylinder D, the central opening in this cylinder coinciding in position with that in the receiver D, and flaring inwardly, as seen at *x*, Figs. 1 and 3, to aid in receiving and distributing the material to be ground. On the cylinder are three equidistant snugs, *d*, for the purpose of applying three-fold over springs *d′*, one on each snug *d*, for the securing and adjusting of the upper grinder D′, being, as aforesaid, fastened on the under side of cylinder D. There are also three counter-screws, d^2, which act on the under side of the snugs *d*, which react on the downward pressure of the springs d^1, and secure the cylinder D with the upper grinder D′ in a suitable position, the strain upon one or more of the springs d^1 increasing when any obstruction from a foreign substance, getting into the grinders, causes the said springs d^1 to yield and allow such substance to pass through without doing any material damage to the grinding-surfaces. E is a bracket for supporting the spindle *c*, with adjusting-screw *e′* for raising or lowering the spindle and regulating the grinding position of the lower grinder C^2. G is a curb to prevent the meal being thrown out from the mill, which, as it strikes the curb, falls down inside of the same. H is a hopper, in which the grain is first placed; S, a shoe, into which it falls, and is shaken forward until it falls inside of the cylinder D.

Fig. 2 is a plan, and Fig. 3 a front elevation, for the better illustration of the machinery. Fig. 4 is a sectional elevation of spindle C, with disk C^2, formed with a hub,

and with recess to simplify the fitting of the grinder C^3 on the same. In Fig. 5 the furrows *y* are straight but not radial, and they are cut part way by a series of groups of arched grooves, *z*, each of a series meeting one of the furrows, and cutting the remainder, as shown. In Fig. 3′ the furrows are substantially as in Fig. 5, but the slopes *e* cut into the circular portion of the center, and are supplemented by other grooves, *f*, between their outer edge and the furrows. The slopes *e* are some of them cross-cut. In Fig. 8 the grooves *f* are omitted.

Sheet 2, Fig. 3′, is a plan of the grinder D′, its dress, and slopes *e e*. Fig. 4 is a portion, as seen from its inner edge. Fig. 6 is a portion of this grinder, (No. 5,) looking on the outer edge of the same. Fig. 7 is also a portion looking from inner edge. Fig. 8 is a plan of upper grinder, slightly modified, showing its particular dress thereon, and slopes *e e*, &c. Fig. 9 is a portion of the same, looking from the inside edge. Fig. 10 is also a portion of the same, looking from outer edge.

It will now be seen that, by turning the shaft B, it will revolve the upright spindle C, as also the grinder C^3. If grain or corn or spices be placed in the hopper H, it will fall into the shoe S, and thence into the cavity of the cylinder D, and will slide down the slopes *e e* onto the face of the lower grinder C^3, and from the dress thereon, together with that of the upper grinder D′, it will issue at the circumference of the grinders in the character of meal, the fineness of which will depend upon the speed and the adjustment of the grinders C^2 and D′.

Having thus described my invention, I claim—

1. The combination, with the upper horizontal stationary metal grinder D′, of the receiving-cylinder D, fixed upon its upper surface, the central opening in each coinciding, and the grinder flaring inwardly from its upper surface, all as shown and described.

2. The upper metallic grinder, (shown in Fig. 3′,) having the slopes *e e* thereon cut into the circular portion of the center, and the supplemental grooves *f* between their outer grooves and the furrows, the slopes *e* being, some of them, cross-cut, in combination with the lower metallic grinder, (shown in Fig. 5,) having the groups of arched grooves *z* cutting the straight but non-radial furrows *y*.

JACOB KAISER.

Witnesses:
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WILLIAM GILL.