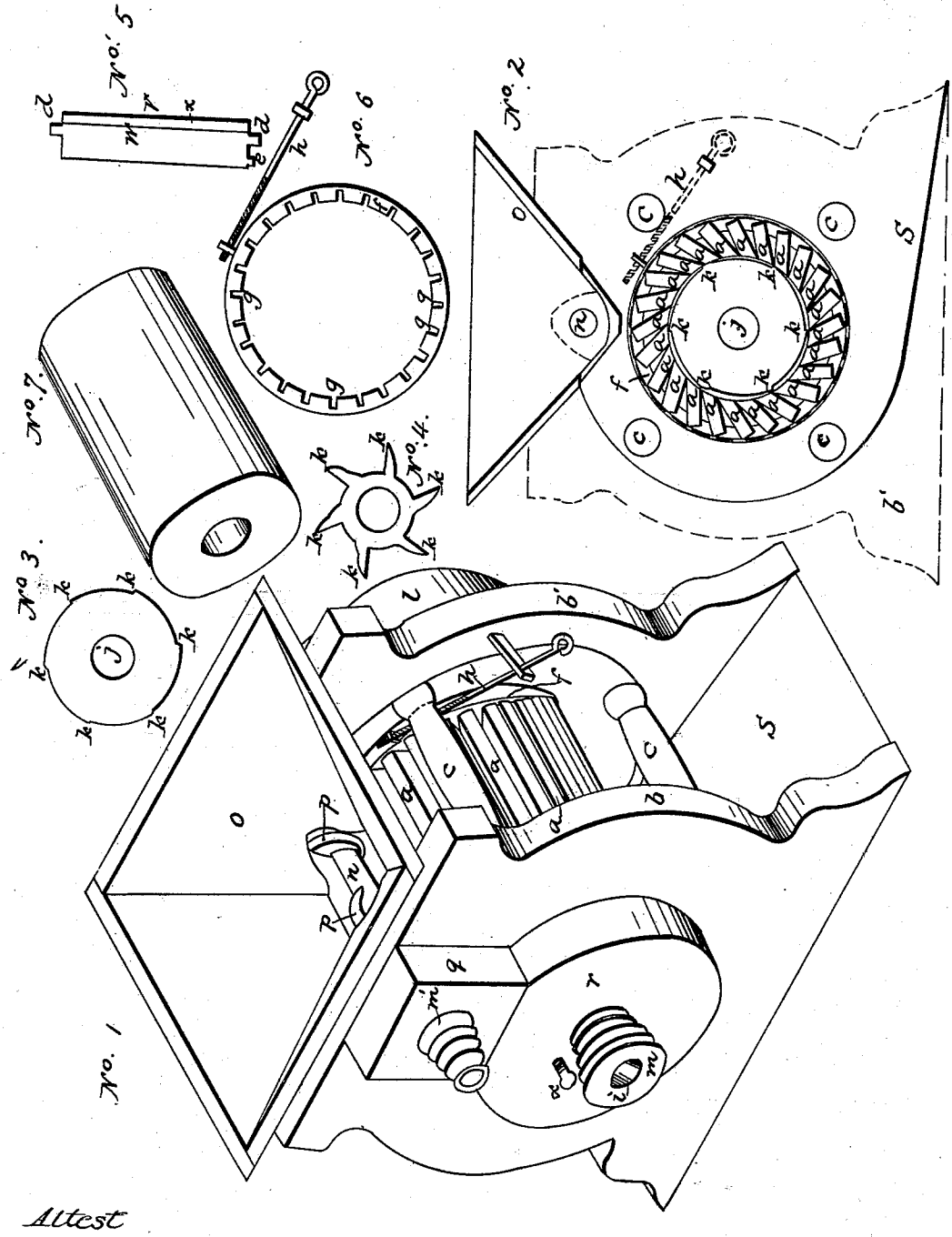
G. W. HOLMAN.

Grinding Mill.

No. 22,806. Patented Feb. 1, 1859.



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UNITED STATES PATENT OFFICE.

GEORGE W. HOLMAN, OF BELOIT, WISCONSIN.

MACHINE FOR MAKING MEAL AND FLOUR.

Specification of Letters Patent No. 22,806, dated February 1, 1859.

To all whom it may concern:

Be it known that I, GEORGE W. HOLMAN, of the city of Beloit and county of Rock, in the State of Wisconsin, have invented a new and useful Improvement on Machines for Making Meal and Flour; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the machine thus improved, reference being had to the annexed drawings, making a part of this specification, in which—

Figure No. 1 is an isometrical drawing, Fig. 2 a transverse section; Fig. 3 a transverse section of the core, in the middle; Fig. 4 a transverse section of the core, at the end; Fig. 5 a side view of one of the knives; Fig. 6 a plan of the band by which the knives are adjusted with the tangent screw, moving the same; Fig. 7 an isometrical drawing of a wheel, composed of lead and emery, or of stone, to be used in sharpening the knives.

The heads *b b′* are held in position by the posts *c c*. The knives *a a* are supported by gudgeons *d d* resting in sockets in the heads *b*, *b′*. The band *f* passes around at one end of the knives, outside of the gudgeons *d d* lying in a depression in the head *b′*.

The pivots *e* fit into the slots *g g* of the band *f*. The knives are thus all connected together by the band. The band is moved by the tangent screw *h*. By moving the band, the knives are all turned upon their gudgeons. In Fig. 5, *t* is the face of the knife, which is slightly concave, *v* is the front or cutting edge of the face, and *w* the back edge of the face. By moving the band in one direction the front edges of the faces of the knives are thrown in toward the axis of the arbor *i* and the back edges of the faces out from the axis, by which motion apertures are formed between the several knives, all of equal dimensions; the back edge of the face of one knife gaging the thickness of the shaving cut by the front edge of the face of the one next to it.

By moving the band in the opposite direction these apertures are closed, and the faces unite to form a smooth concave surface. This surface differs from the interior surface of a hollow cylinder by being made somewhat smaller at the head *b′* than at the head *b*, for convenience in sharpening the knives, as will be explained hereafter.

The core (Figs. 3 and 4) is attached to the arbor *i* and projects about ¼ of an inch outside of the heads *b b′*. The threads *k k* of the core diminish from each end, to the center of the core, as shown in the drawings and each thread passes one third around the core, in passing from the end to the center.

The machine is set in motion by a band passing around the pulley *l*, which is attached to the arbor *i*. Motion is communicated from the arbor *i* to the arbor *n* by a band connecting the cone pulleys *m* and *m′*. The grain is placed in the hopper *o*, and being drawn each way by the threads *p p* of the arbor *n*, drops through apertures in the blocks *q* and *r* upon the ends of the core (Fig. 4). Thence the threads *k k* draw it toward the center and press it against the edges of the knives which cut it (fine or coarse, according to the openings between them, given by the tangent screw *h*,) and allows it to pass out between them, whence it falls upon, and slides down the apron *s*.

The knives *a a* are of cast steel. The apron *s*, is of sheet iron. The tangent screw *h* is of wrought iron. The hopper *o* is of wood. The band connecting the cone pulleys *m* and *m′*, is of leather. All other parts of the machine are formed of cast iron.

Fig. 7 is a wheel composed of lead and emery, or of stone. It is somewhat smaller at one end than at the other, as is the space which is surrounded by the faces of the knives *a a*. To grind the knives the block *r* and the cone pulley *m*, are removed from the head *b* of the machine, the core is drawn off from the arbor *i* and the emery wheel is put on in its place, a slot in the wheel slipping over a stay pin on the arbor. The block *r* is then replaced and the wheel is pressed into close contact with the knives by turning up the thumb screw *x*. As the knives are worn away, the conical emery wheel is pressed farther in, by the thumb screw *x*, till they are sufficiently sharpened. I also contemplate the application of knives uniformly adjustable, in a manner substantially the same as that set forth, to the cutting of wood.

I do not claim adjustable knives for the purpose of grinding grain, or screws for feeding grain to grinding surfaces in mill, or cone pulleys, or tangent screws, or emery wheel for sharpening knives: but

I do claim—

1. The placing a series of knives, supported by gudgeons, in a circle, or part of a circle, so that the thickness of the shaving cut by the edge of one knife shall be gaged by the back of the knife next to it, as and for the purpose specified.

2. And I also claim the placing a series of knives supported by gudgeons so that the rankness of set of all them may be uniformly graduated by one operation, and so that their faces may be thrown back into one uniform surface for grinding or sharpening, substantially as set forth.

3. I also claim the band *f f* at the end of the knives, constructed and operating substantially as described.

4. I also claim the arrangement of the reversed screw threads on the arbor *u*, and the reversed screw threads on the core, for the purpose of moving grain in opposite directions at the same time, as combined with the other parts of my machine, substantially as set forth above.

GEORGE W. HOLMAN.

Witnesses:

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CHAS. A. WILBUR.