

T. J. Kindleberger.

Cider Mill.

N^o 41,514.

Patented Feb. 9, 1864.

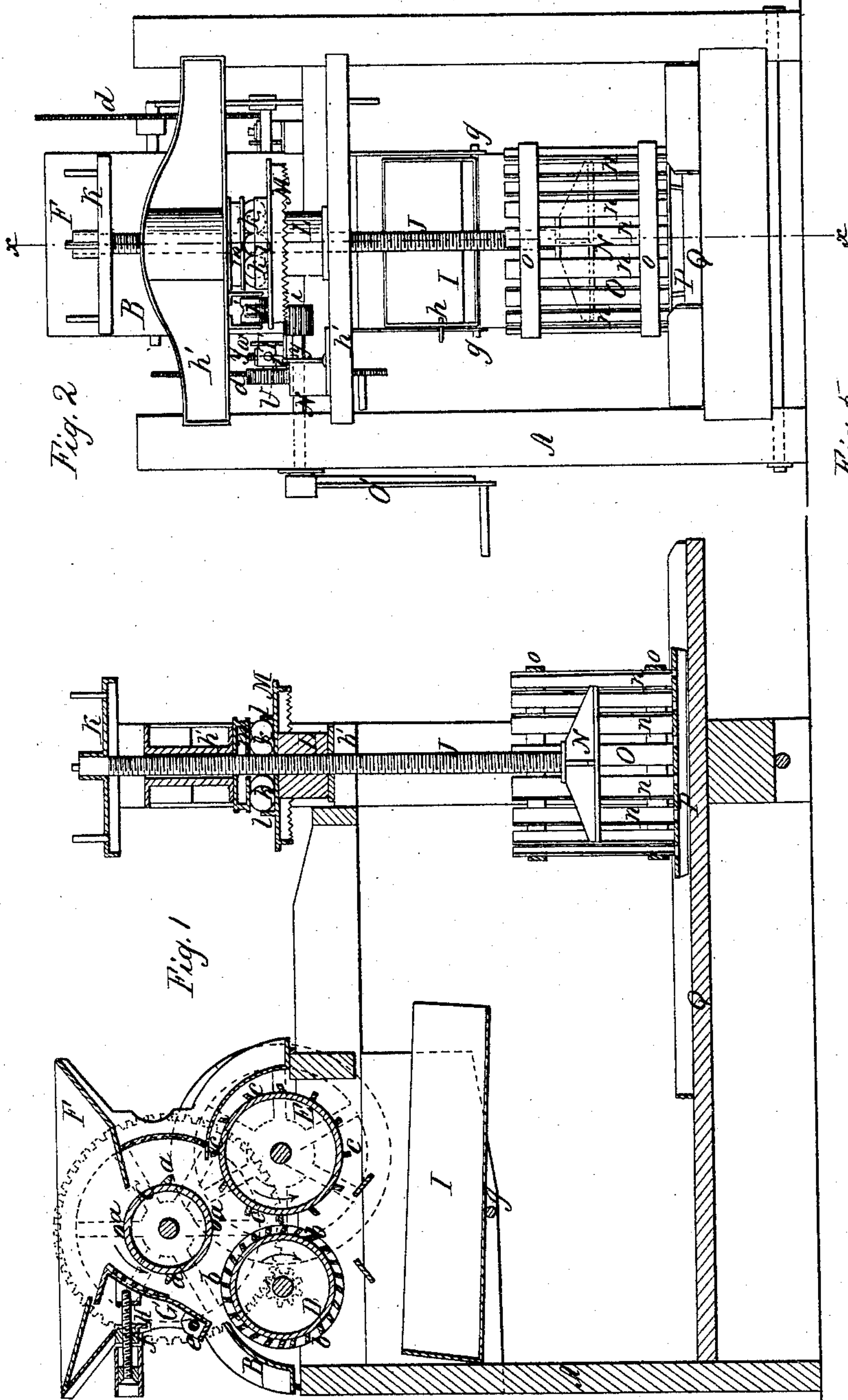


Fig. 1

Fig. 2

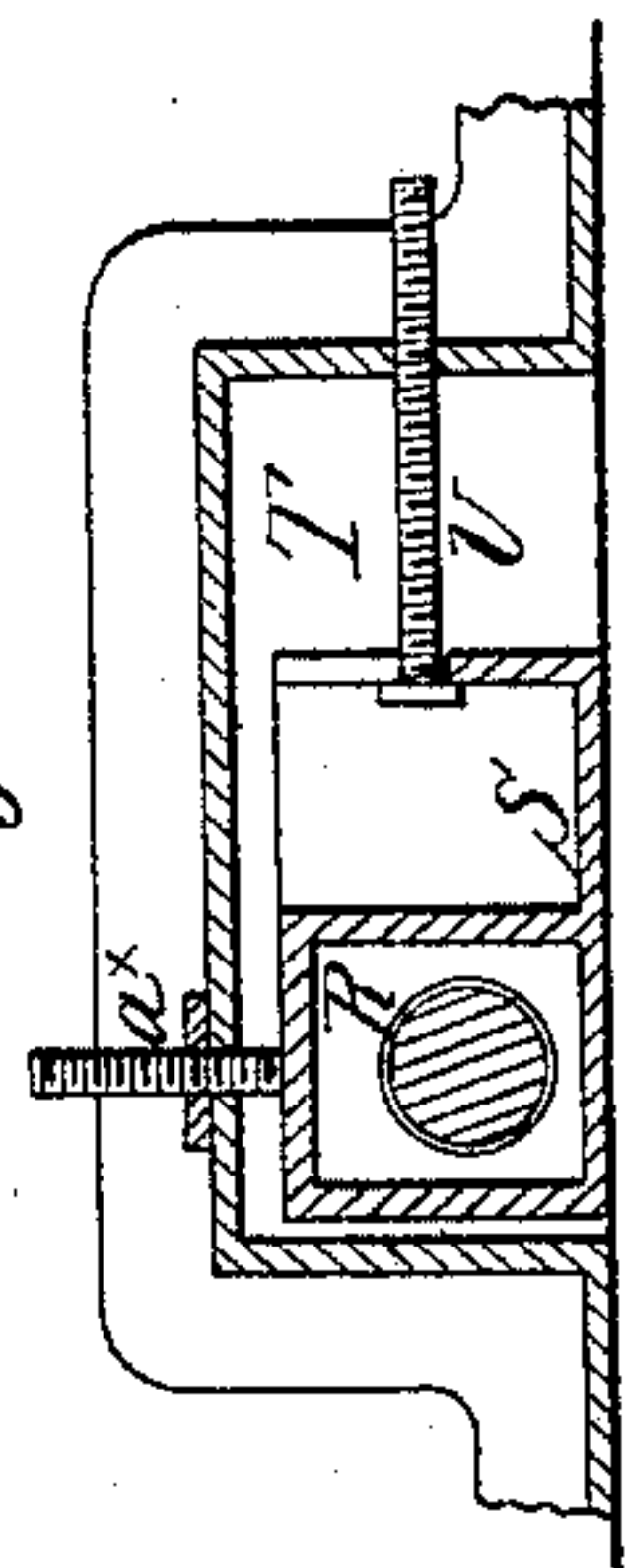


Fig. 3

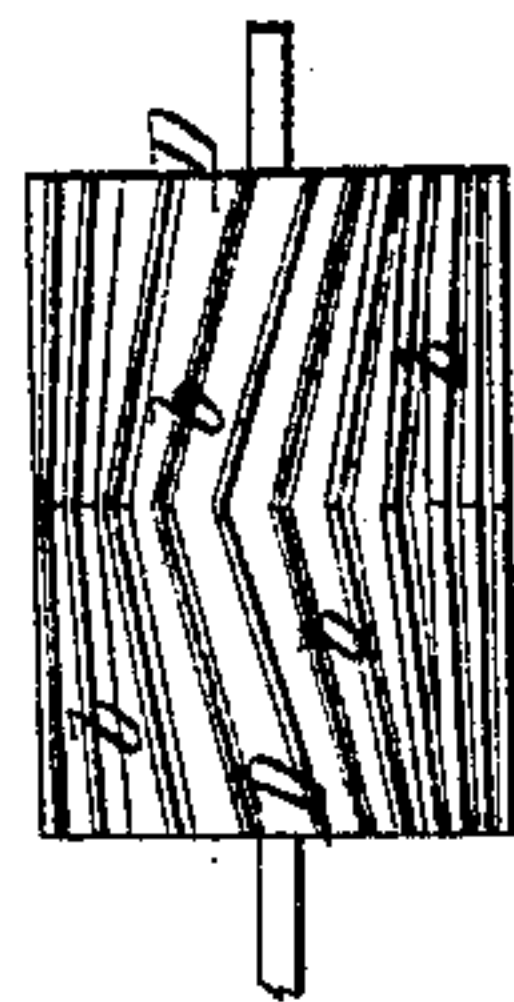
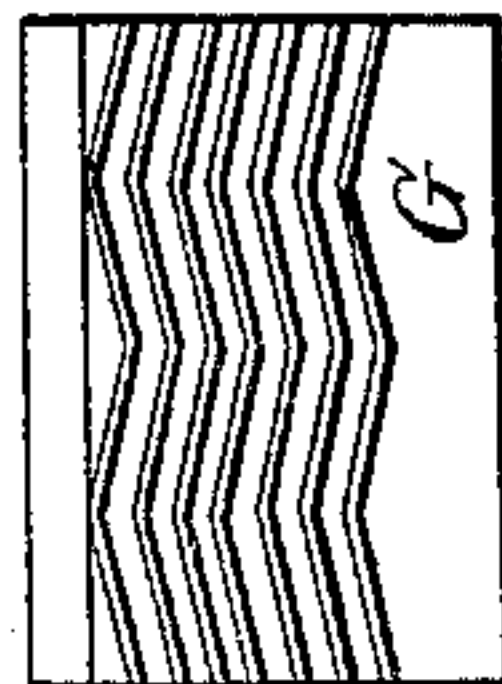


Fig. 4



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Witnesses
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UNITED STATES PATENT OFFICE,

TOBIAS J. KINDLEBERGER, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN CIDER-MILLS.

Specification forming part of Letters Patent No. 41,514, dated February 9, 1864.

To all whom it may concern:

Be it known that I, T. J. KINDLEBERGER, Springfield, in the county of Clark and State of Ohio, have invented a new and Improved Cider-Mill; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *xx*, Fig. 2; Fig. 2, a front view of the same; Fig. 3, a detached face view of the pressure-plate pertaining to the same; Fig. 4, a detached view of one of the rollers pertaining to the same; Fig. 5, a detached longitudinal vertical section of one of the bearings of a roller pertaining to the same.

Similar letters of reference indicate corresponding parts in the several figures.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing, which may be constructed in any proper manner to support the working parts of the device. On this framing A, at one end of it, there is secured a case or box, B, which contains three rollers, C D E, the upper one, C, being directly over the center of the space between the two lower ones, D E, the axes of which are in the same horizontal plane, as shown clearly in Fig. 1. The upper roller, C, has its periphery provided with longitudinal and parallel ribs *a*, which extend its whole length. The roller D is provided at its periphery with oblique ribs *b*, which are inclined or beveled from the center of said roller outward, as shown clearly in Fig. 4. The roller E is provided with straight parallel ribs *c*. The ribs of all these rollers project from the peripheries of the latter in a slightly-oblique position, as will be seen by referring to Fig. 1. These rollers do not rotate with the same speed. The roller C is the slowest, and the roller E the quickest, the latter making four and one-half ($4\frac{1}{2}$) revolutions to one revolution of the roller D, and the roller C makes one-fourth ($\frac{1}{4}$) of a revolution to one revolution of the roller D. These rollers have motion communicated to them from the axis or shaft of the roller D through the medium of gearing *d*, of such relative dimensions as to insure the different speed specified of the several rollers.

On the upper part of the case or box B there is placed a hopper, F, and within the upper part of the case or box B there is secured a toothed or corrugated plate, G. This plate extends the whole width of the case or box B, and it is attached at its lower end to the case or box by a hinge or joint, *e*, as shown in Fig. 1. To the back of the plate G a screw, H, is connected, said screw passing through a nut, *f*, and also through the case or box B, so that it may be turned to adjust the plate G nearer to or farther from the roller C, as may be required. This will be fully understood by referring to Fig. 1. The face or corrugated side of the plate G has its ridges or projections in zigzag form, as shown in Fig. 3.

In the lower part of the case or box B there is suspended on a shaft, *g*, a spout, I, which is retained in proper position by a pin or catch, *h*, arranged in any proper manner.

The operation of this grinding or crushing apparatus is as follows: The power is applied to the axis or shaft of the roller D, and the several rollers C D E rotate in the direction indicated by the arrows in Fig. 1. The apples are first crushed between the roller C and the plate G, the proper space between said plate and the roller C being obtained by adjusting the plate G through the medium of the screw H and nut *f*. The crushed or broken apples then pass down between the two lower rollers, D E, and are grated, rasped, or ground to a proper degree of fineness, and thence drop into the spout I. The grating or rasping action of the rollers D E is due to the difference in the speed of the two rollers, and also to the oblique form of the ribs *b* on roller D and the straight ribs *c* on the roller E. By this means the apples are reduced to a proper degree of fineness very expeditiously and in a thorough and perfect manner.

J represents a screw, which passes through cross-bars *h'* in the framing A, and has a hand-wheel, K, on its upper end. This screw J has a nut, L, upon it, which is below the upper cross-bar, *h'*. The nut L has a gear-wheel, M, attached to it, into which a pinion, *i*, on a shaft, N, gears, said shaft having a crank, O', on its outer end, and upon the upper surface of the wheel M, directly over the pinion, *i*, a friction-roller, *j*, bears, as shown clearly in Fig. 2. At the center of the wheel M, and directly over the nut L, there are placed a series of balls, *k*,

which are inclosed by an annular concentric flange, *l*, and these balls bear against a circular plate, *m*, at the under side of the upper cross-bar, *h'*. To the lower end of the screw *J* there is attached a circular plunger, *N*, which works in a curb, *O*, constructed of vertical slots *n*, retained in position at a suitable distance apart by hoops *o*. This curb *O* rests upon a carriage or slide, *P*, placed on a horizontal bed-piece, *Q*, in the lower part of the framing *A*. This screw and plunger, in connection with the curb, form the press, and its operation is as follows: The pomace or ground apples is discharged from the spout *I* into the curb *O* by shoving back the carriage or slide *P* until the curb is directly under the spout, and then tilting the latter so that its contents will be discharged into the curb. The curb *O* is then shoved back underneath the plunger *N* of the screw *J*, and the latter turned either by power applied to the hand-wheel *K* or to the shaft *N*. The juice is expressed from the pomace by the forcing down of the plunger *N*, and is discharged from one end of the bed-piece *Q*. In cases where a continual pressure is required, a weight may be attached to the crank *O'*, when the power is taken from the screw. The balls *k* reduce friction and render the operation of the screw *J* comparatively easy.

The bearings *R* (see Fig. 5) of the roller *E* of the grinding apparatus are attached to slides *S*, fitted in boxes *T* on the framing *A*. The slides *S* have each a screw, *V*, connected to

them, and these screws pass through the boxes *T*. By turning the screws *V* the slides *S* may be adjusted in the boxes *T*, so as to bring the roller *E* nearer to or farther from the rollers *D* and *C*, the degree of adjustability being limited by the length of the teeth of the gearing, which communicate motion from *D* to *E*. The slides *S* are prevented from casually moving by means of set-screws *a*^x, which pass vertically through the tops of the boxes and bear upon the bearings *R*.

I would remark that both of the lower rollers may be provided with oblique ribs, if desired. The upper rollers, however, should have straight ribs.

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

1. The manner of arranging the bearings *R* of the roller *E*—to wit, by having the same in slides *S*, fitted in boxes *T*, adjusted through the medium of screws *V*, and retained in position by set-screws *a*^x, all arranged substantially as set forth.

2. The screw *J*, provided with the nut *L*, having the wheel *M* attached, in combination with the pinion *i* on the crank-shaft *N*, and the anti-friction balls *k*, all arranged to operate substantially as and for the purpose specified.

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Witnesses:

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