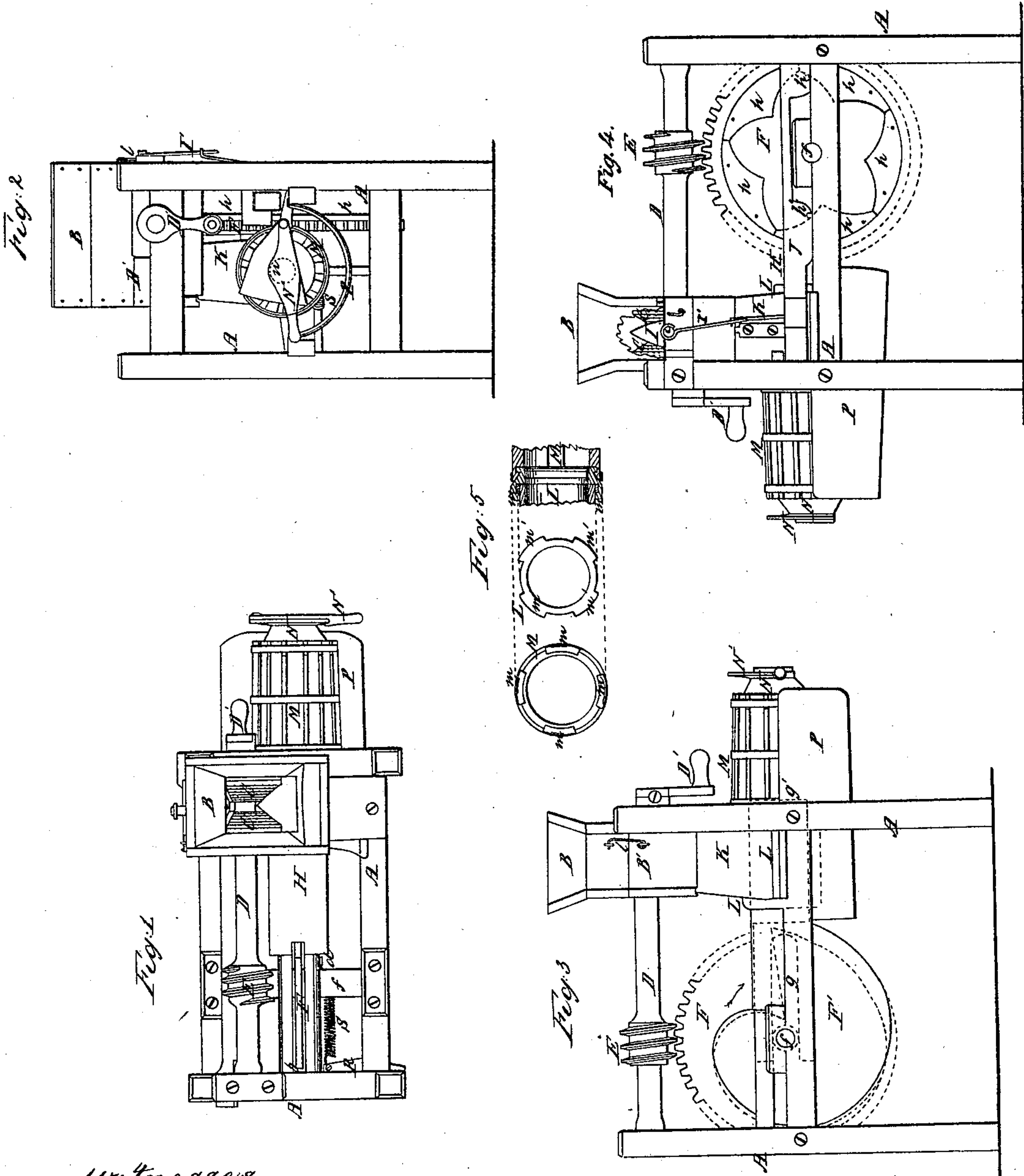


*S. G. Hurlbut,*

*Cider Press.*

*N<sup>o</sup> 44,096.*

*Patented Sep. 6, 1864.*



*Witnesses*  
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# UNITED STATES PATENT OFFICE.

SAMUEL G. HURLBUT, OF CLEVELAND, OHIO.

## IMPROVEMENT IN CIDER-MILLS.

Specification forming part of Letters Patent No. 44,096, dated September 6, 1864.

*To all whom it may concern:*

Be it known that I, S. G. HURLBUT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Cider-Mills; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of the mill. Fig. 2 is an end view. Fig. 3 is a view of one side. Fig. 4 is a view of the side opposite from Fig. 3. Fig. 5 is a detached section.

Like letters of reference denote like parts in the different views.

My improvement relates to a cider-mill so constructed and arranged that the apples are crushed and conveyed from the hopper in which they are ground into the hoop where the pomace is pressed and discharged by one continuous operation.

A represents the frame that supports the different parts of the mill.

B is the hopper; and B' is a case below the hopper, in which are arranged the crushing-rollers C C on the shaft D. On one end of this shaft is the crank D', that operates the mill.

E is a screw on the shaft D, that works in the cogs of the wheel F, by means of which the wheel is revolved. This wheel is secured to its shaft *f*, that has its bearings in the sides of the frame.

F is a cam on the shaft *f*, that turns with the shaft, moving in a slot, *b*, Fig. 1, in an extended end of the follower H. This end is also forked, so as to span the shaft *f*, indicated by the dotted lines *g* in Fig. 3.

S is a spiral spring, attached to an arm, R, secured to the frame and to the follower, that draws the follower back when released from the action of the cam. On the other side of the cog-wheel, and secured to it, are cams *h*, that give a reciprocating movement to a slide, J, arranged on the frame, by the action of the cams on pins projecting from the inside of the slide J, (indicated by the dotted lines *h'* in Fig. 4.) The movement of this slide operates a vibrating arm, I, in the case B', between the rollers, by means of the lever I', secured to the shaft *i* of the arm and to the end of the slide, which is

represented in Figs. 2 and 4. The object of the arm I moving back and forth between the rollers is to agitate the fruit and press it upon the roughened surface of the rollers.

The case B', extending down, forms a charger, K, into which the pomace falls from the rollers. This charger terminates in a cylinder, L, in which the follower H moves, and to the front end of the cylinder is connected the hoop M by a coupling joint or clutch (represented in Fig. 5) which can readily be detached, the hoop being put on the end of the cylinder, as indicated by the dotted lines, and turned so as to interlock the clutches *m* of the hoop and *m'* of the cylinder, forming a close firm joint. The front end of the hoop terminates in a contractor, N, in which the pomace is finally pressed into a smaller space, and from which it is removed by means of the gate N' through the opening indicated by the dotted line *n* in Fig. 2.

In describing the practical operation of this mill, all the parts being in the relative position shown in the figures, when the fruit is thrown into the hopper, by turning the crank it is crushed between the rollers and falls into the charger K and into the cylinder in front of the follower; and while the pomace is being thus prepared the revolution of the shaft D turns the wheel F by means of the gearing, as described, which is vibrating the arm I between the rollers, and moving the cam F' round in the direction of the arrow in Fig. 3 in the forked end of the follower, which moves the follower up into the cylinder L, pushing the pomace from the cylinder into the hoop. While the follower is in the cylinder, filling up the space, the pomace falls into the charger above the follower; and when the follower has moved into the cylinder and hoop the desired distance, as indicated by the dotted lines *g* and *g'*, the cam F' passes off the follower, and the spiral spring S, which has been extended, being released, goes back, drawing the follower with it, when the pomace in the charger falls into the cylinder. The follower is again moved gradually forward, and so on. The hoop being filled with pomace, every forward movement of the follower expresses the juice, which issues out between the staves of the hoop into the trough P below, where it is conveyed into a vessel for receiving it. The

pomace in the end of the hoop, as it is pressed into the contractor (the space being so much less) increases the pressure on it, more effectually pressing out the juice before it is finally removed from the hoop, and this pressure can be adjusted by raising or lowering the gate over the opening in the end of the contractor.

The hopper B can be removed from the mill for any purpose, being kept in place by a hook, *l*, on each side.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The arrangement of the cams *h*, slide J, lever *I'*, in combination with the vibrating arm I and crushing-rollers C, as and for the purpose set forth.

2. The arrangement of the cam F, follower H, spring S, screw E, and gear F, in combination with the cylinder L, charger K, and hoop

M, when operating conjointly as and for the purpose set forth.

3. The combined charger K and cylinder L, when arranged in connection with the grinding or crushing apparatus, in combination with the clutch, Fig. 5, hoop M, contractor N, and grate N', when operating conjointly as and for the purpose described.

4. Preparing and conveying the pomace from the crushing-rollers into the hoop, then pressing the same, and discharging it through the contractor and gate by one continuous operation by the joint action of the rollers C, follower H, cylinder L, hoop M, contractor N, and gate N', when arranged and combined substantially as specified.

SAMUEL G. HURLBUT.

Witnesses:

W. H. BURRIDGE,  
I. T. CORBIN.