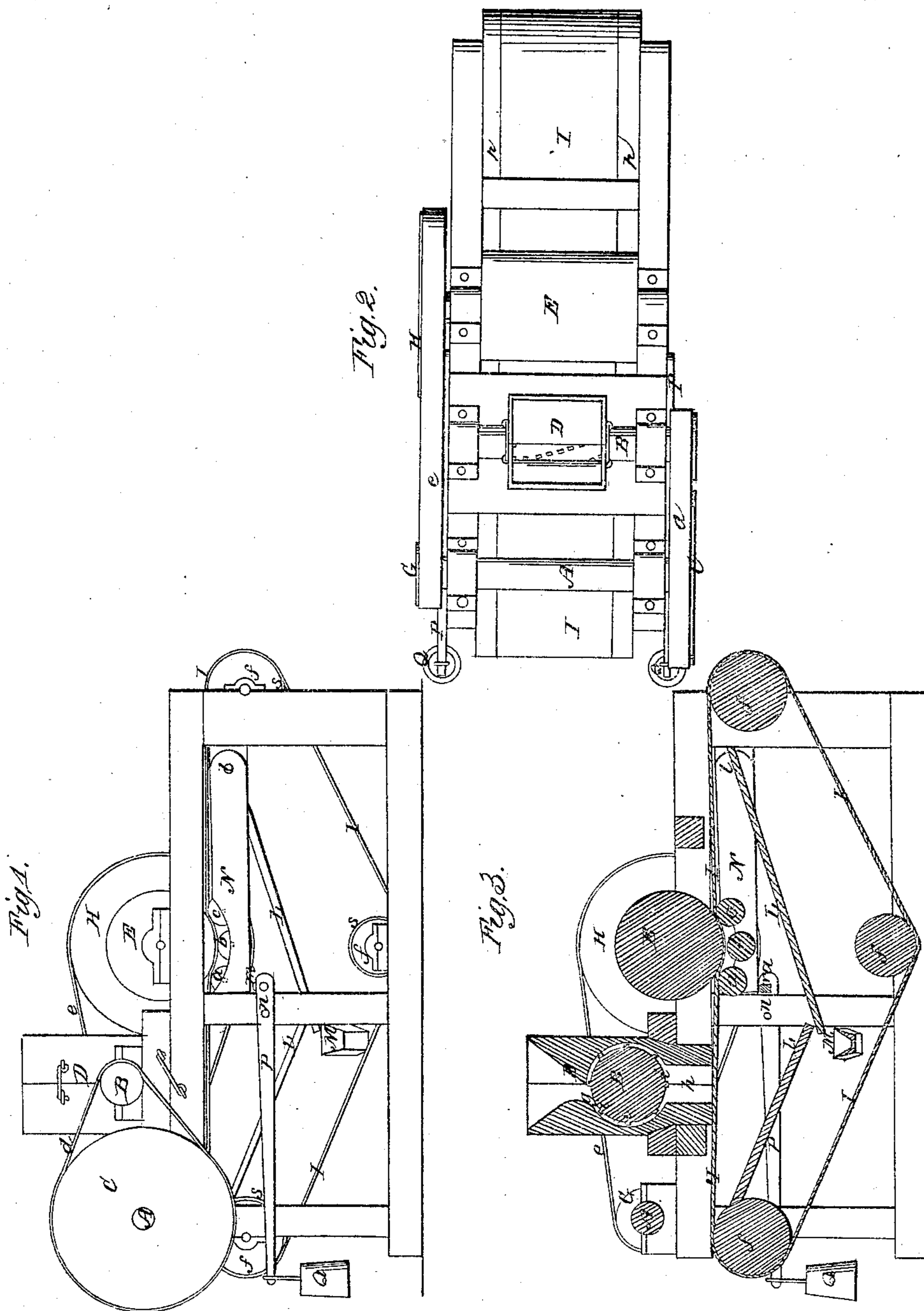


H. ABBOTT. CIDER MILL.

No. 16,261.

Patented Dec. 23, 1856.



UNITED STATES PATENT OFFICE.

HARRY ABBOTT, OF HURON, NEW YORK.

CIDER-MILL.

Specification of Letters Patent No. 16,261, dated December 23, 1856.

To all whom it may concern:

Be it known that I, HARRY ABBOTT, of Huron, in the county of Wayne and State of New York, have invented a new and Improved Cider-Mill; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, Figure 1 being a side elevation of the mill; Fig. 2, a top view thereof, and Fig. 3 a longitudinal section of the same.

Like letters designate corresponding parts in all the figures.

My improved mill is of that kind, by which the apples are ground and pressed in one continuous operation. For this purpose, I employ a grinding or grating apparatus, into which the apples are first placed, and from which an endless cloth belt conveys the pomace, first, between pressing rollers peculiarly arranged, so as to express the largest possible per cent. of the juice, and thence delivers the pressed pomace at one end of the machine, while the cider is strained through said belt as soon as expressed, and is then conducted by suitable spouts into a receiving vessel. The whole is arranged in any convenient frame.

The grinding apparatus consists of a hopper and concave D, which may be conveniently formed out of two blocks of wood, and then united as represented; and of a cylinder B, rotating within said concave. This concave should entirely surround the cylinder, except spaces of sufficient width to admit the apples from the hopper, and to discharge the pomace below; and the cylinder should nearly fill said concave, there being only short teeth *i, i*, arranged spirally around its surface and turning almost in contact with the concave, which has no teeth or projections. At the bottom of the hopper, where the cylinder first seizes the apples, the concave should have a wedging form and descending a little on the side of the cylinder, (as shown at *g*, Fig. 3,) in order that the apples may be rapidly fed in and ground. The cylinder B, is driven by a band *d*, which communicates motion from the pulley C, on the driving shaft A. This shaft may be immediately connected with a horse-power, or any other motor.

The pomace is discharged from the grinding apparatus through the orifice *h*, upon the endless belt I, which passes around roll-

ers *f, f, f*, substantially as represented, so that its upper portion shall be horizontal. Near the center of the machine it passes below a large pressing roller E, which is driven by a band *e*, extending from a pulley G, on the driving shaft, to a pulley H, on the shaft of said roller. Below this large roller, are arranged three small counter rollers, *a, b, c*, which are arranged upon vibratory bearings N, N, in the arc of a circle concentric with the large roller, when the peripheries of the small rollers are in close contact with the endless belt, and no pomace is upon said belt. The middle roller *b*, should be nearly under the center of the large roller; so that the first roller *a*, may press against the belt, as it descends beneath the large roller, whereby the pomace will be more readily drawn between the rollers, but that the last roller *c*, may press against the belt, as it ascends, in order to cause the juice to flow back from the dry pomace.

The vibratory bearings N, N, are pivoted at *l, l*, at a considerable distance to the rear of the pressing rollers; by which arrangement as the small rollers are forced away from the large rollers, by the intervening pomace, the distance of the first roller *a*, will increase faster than that of the next roller *b*, and that of said middle roller, faster than that of the last roller *c*. This arrangement is exactly what is described; for the pomace becomes compressed into a smaller space by passing over each roller in order, and therefore each succeeding roller should offer a narrower space in order to compress it still more forcibly. The leverage of the last roller *c*, is also thereby made greater than of the preceding ones, so that the desired increase of compressing force is secured to the successive rollers. Levers P, P, are mounted on pivots *n, n*, so that their short arms shall bear against the vibratory ends of the bearings N, N, at *m, m*; and to their long arms are attached weights Q, Q, or their equivalents, so that any desired amount of pressure may be applied.

The endless belt I, is moved by the friction of the revolving roller E. It is made of any coarse cloth suitable for a strainer as well as conveyer; and in order that it may retain its proper shape and tension, it is edged with bands *p, p*, (Fig. 2,) of leather or other firm, unyielding material. The portions of the rollers over which these edge bands pass, may be of different diameter

from the remaining portions, so as to suit the difference in thickness between the middle of the belt and its edges.

5 The cider, as soon as expressed and strained through the endless belt, falls upon suitable dripping boards L, L, by which it is conveyed to a spout M, to be conducted into the receiving vessel or vat.

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

The arrangement of the small pressing rollers in the arc of a circle, upon vibratory

arms to which the pressing power is applied, substantially in the manner and for the purposes as herein set forth.

15 In witness that the above is a true description of my improved cider mill, I hereunto set my hand this 28th day of June, 1856.

HARRY ABBOTT.

Witnesses:

J. S. BROWN,
ALBERT PEASE.