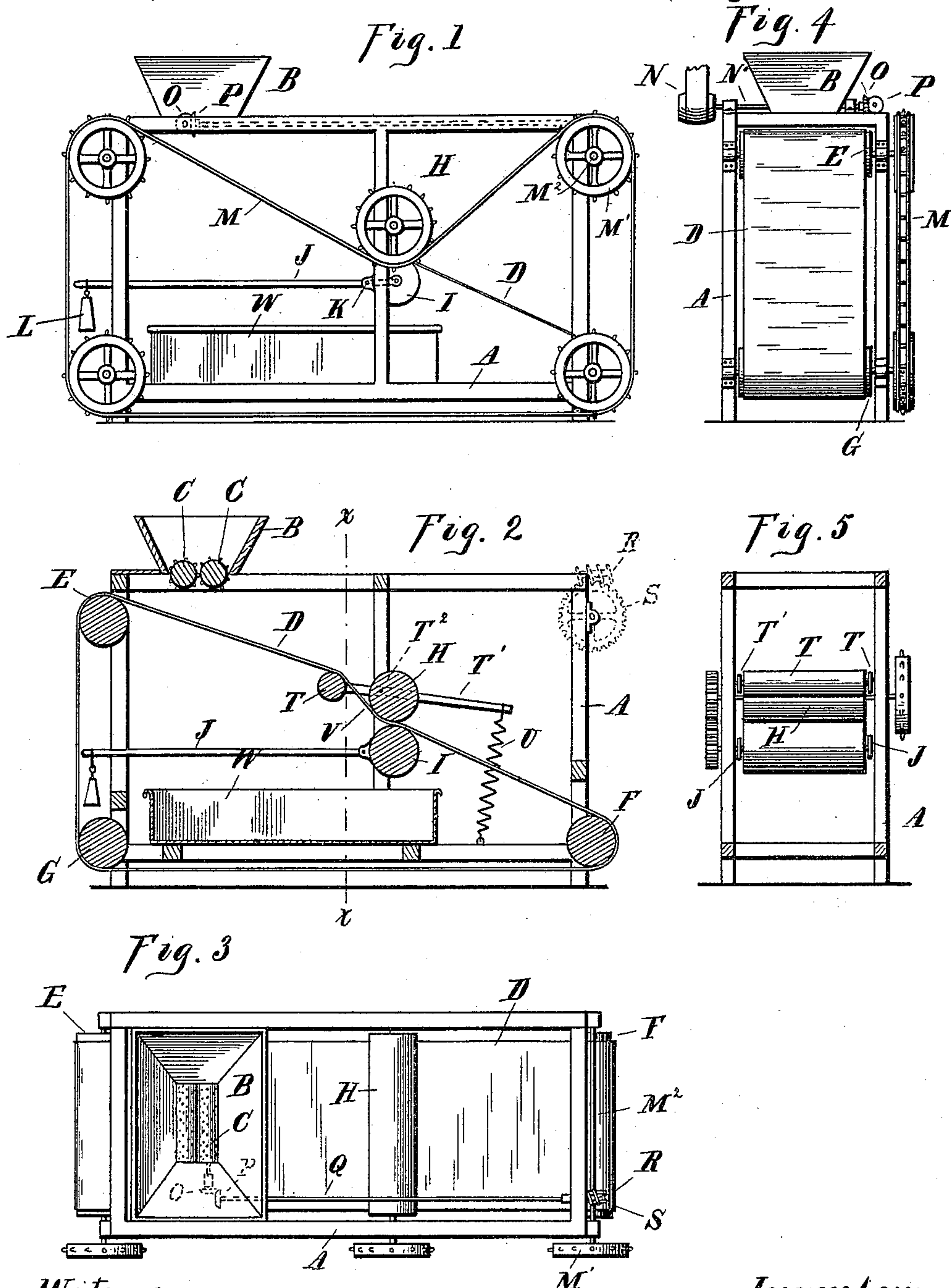


(No Model.)

H. H. CHAPMAN.
CIDER MILL.

No. 458,015.

Patented Aug. 18, 1891.



Witnesses.

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UNITED STATES PATENT OFFICE.

HIRAM H. CHAPMAN, OF ROCKWOOD, MICHIGAN.

CIDER-MILL.

SPECIFICATION forming part of Letters Patent No. 458,015, dated August 18, 1891.

Application filed December 18, 1890. Serial No. 375,149. (No model.)

To all whom it may concern:

Be it known that I, HIRAM H. CHAPMAN, a citizen of the United States, residing at Rockwood, in the county of Monroe and State of Michigan, have invented certain new and useful Improvements in Cider-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in cider-mills; and the invention consists in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my improved mill. Fig. 2 is a vertical longitudinal central section thereof. Fig. 3 is a top plan view thereof. Fig. 4 is an end elevation. Fig. 5 is a vertical cross-section on line *x x* in Fig. 2.

A is a suitable supporting-frame, at the top of which, on one side of the middle, is formed a suitable receiving-hopper B. Below this hopper are the corrugated or toothed crushing-rolls C, journaled upon suitable shafts having bearings in suitable boxes on the frame.

D is an endless belt passing diagonally through the frame of the machine, being supported at the upper end upon the roll E and at the lower end upon the roll F, a third roll G being suitably placed to carry the belt in its horizontal path beneath the frame of the machine, so as to leave the interior thereof entirely free from obstacles.

H is a roll journaled in stationary bearings centrally of the frame of the machine above the diagonal portion of the belt D, and immediately below this roll H is the roll I, journaled at the inner ends of the levers J, which are pivoted at K, and provided at their outer ends with the counter-weights L, acting to press the roll I tightly against the under side of the roll H, with the feed-apron D between.

The shafts upon which the rolls E F and G H are journaled are provided at their outer ends with suitable sprocket-wheels, over which a sprocket-chain M passes, and also over a sprocket-wheel M' upon the shaft M'', giving motion to all the rolls to drive the feed-apron D and the roll H.

N is a drive-pulley, to which motion is communicated from any suitable source of power, this pulley being secured upon the shaft N', to which is secured one of the rolls C. This shaft is provided at its opposite end with the beveled gear-pinion O, meshing with the beveled gear-wheel P upon the shaft Q, which extends to the rear end of the machine, and is provided with a worm R, which meshes with a worm-gear wheel S upon the shaft M'', by means of which motion is transmitted to the sprocket-chain M.

T is an idler-roll journaled in the ends of the frame T', which is pivoted at T''. This roll is arranged to bear against the under side of the diagonal portion of the feed-apron D immediately in front of the rolls H and I, and is pressed against the feed-apron by the tension of a spring U. The action of this roll is to form the abruptly-inclined portion V in the feed-apron immediately in front of the rolls H and I.

The parts being thus constructed, their operation is as follows: The apples being fed into the hopper will be crushed and broken between the rolls C falling upon the diagonal portion of the feed-apron D, which being under motion will carry the material between the rolls H and I, suitable receiving pans or tanks W being provided beneath the feed-apron to catch the juice. Now a device thus constructed will work with a certain amount of satisfaction; but it has been found that if sufficient pressure is brought to bear upon the roll I to press out all of the juice from the apples the material will be crowded back upon the feed-apron instead of passing through the rolls, and thereby clog up the machine. To overcome this difficulty I have placed the idler-roll T immediately in front of the rollers H and I, forming the sharply-inclined portion V previously described, down which the material must pass to reach the rolls H and I. This inclined portion is so steep that the material cannot be crowded back. Therefore it will be fed through the rolls, with the result that it will be almost entirely free from juice.

What I claim as my invention is—

In a cider-mill, the combination, with the frame having a hopper thereon, of an endless feed-apron extending diagonally across the in-

terior of the frame and around the bottom
and one end thereof, rollers on which the
apron rests, a stationary crushing-roller above
the apron near the center of the frame, an ad-
5 justable roller below the apron directly be-
neath the crushing-roller, levers in which the
adjustable roller is journaled, weights on the
ends of the levers, and a spring-controlled
idler-roller beneath the apron for increasing

the pitch of the same adjacent to the crush- ro
ing-roll, substantially as described.

In testimony whereof I affix my signature in
presence of two witnesses.

HIRAM H. CHAPMAN.

Witnesses:

WM. MILLIMAN, Jr.,
IRVING T. WOOD.