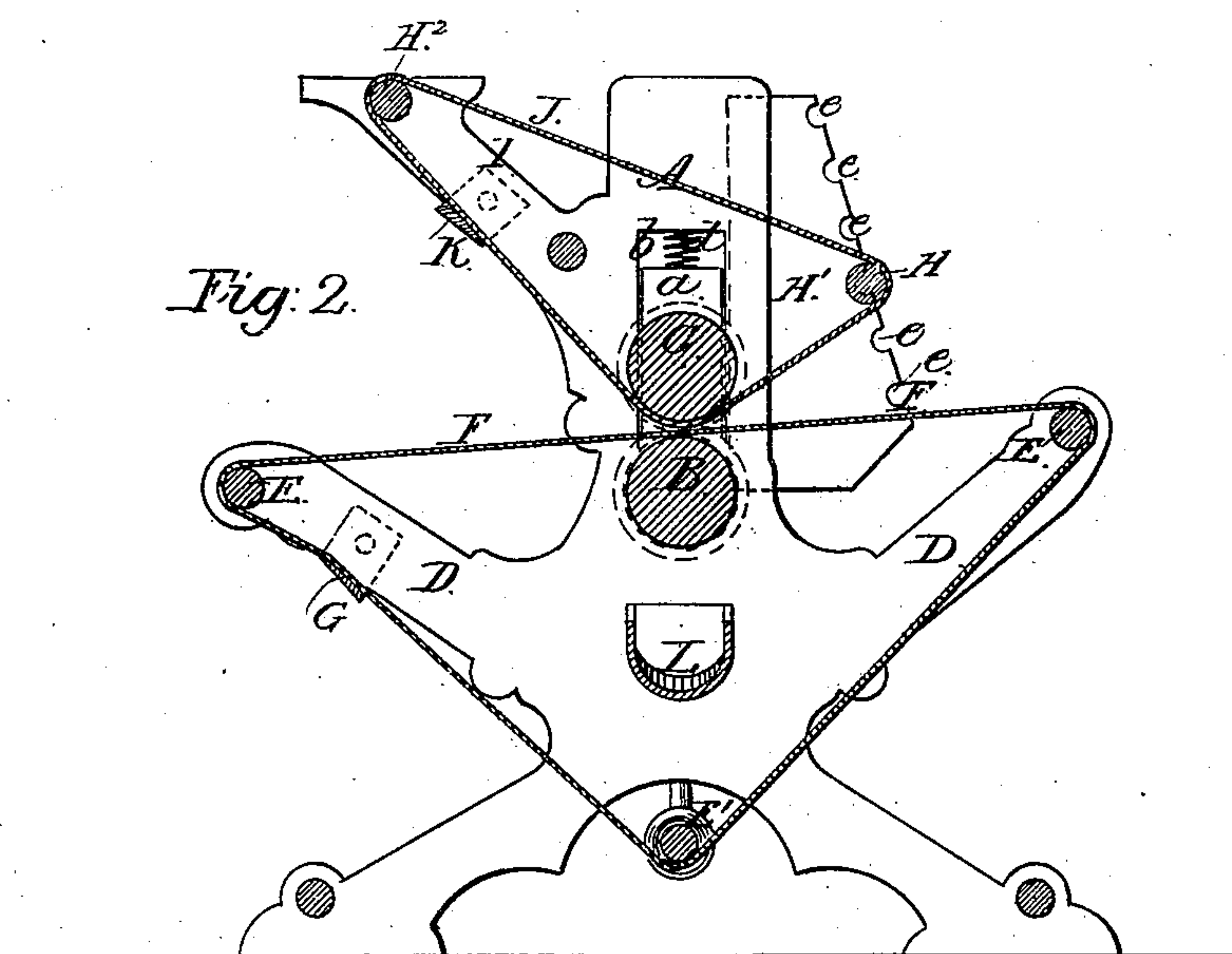
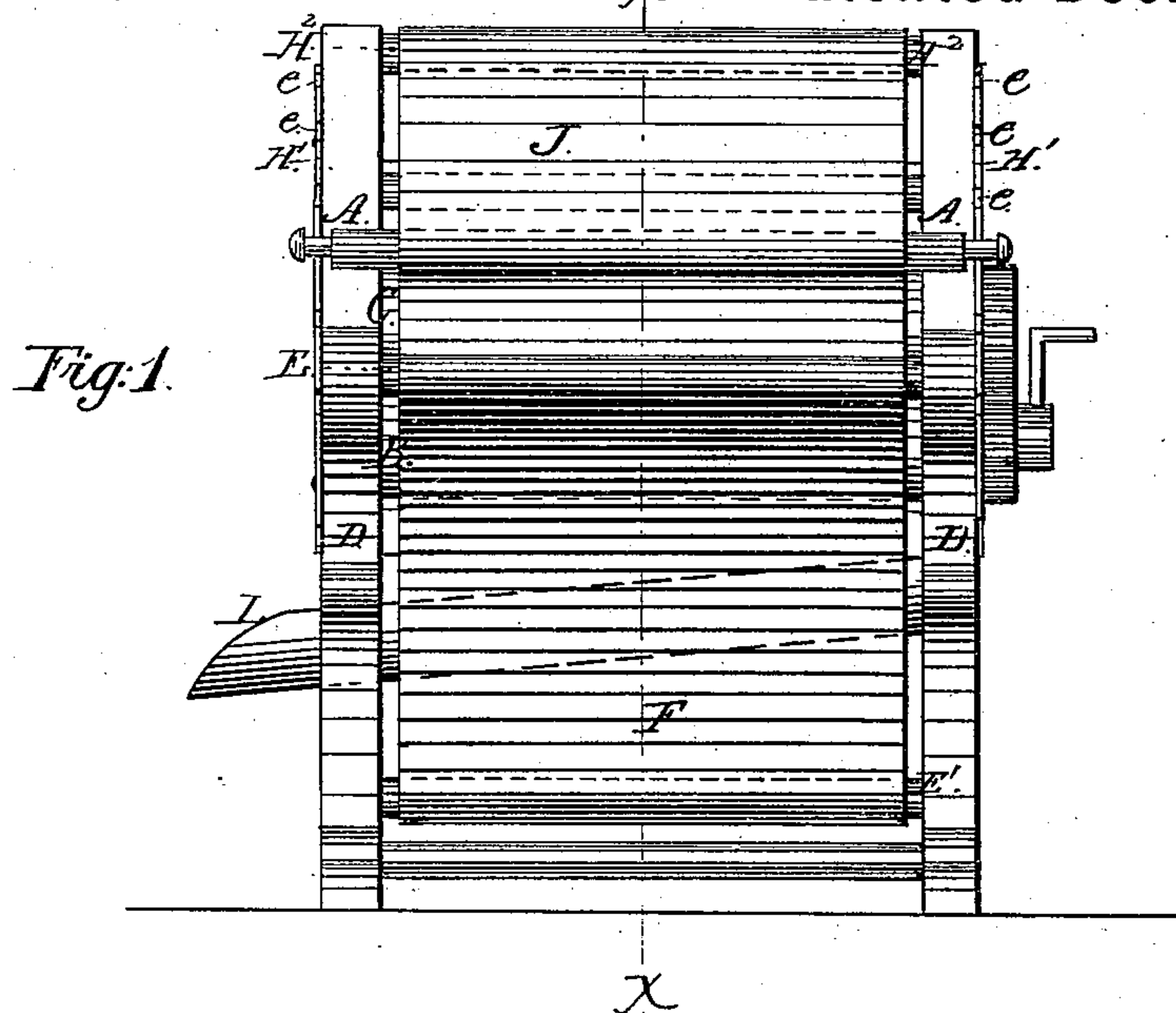


A. ZINSSER.
Press Mechanism for Expressing Liquids from Fruits
and other Materials.

No. 235,114.

Patented Dec. 7, 1880.



Witnesses:
John C. Dunbridge.
Willy S. C. Schultz.

Inventor:
August Zinsser
by his attorney
Carl Bräuer

UNITED STATES PATENT OFFICE.

AUGUST ZINSSER, OF NEW YORK, N. Y.

PRESS MECHANISM FOR EXPRESSING LIQUIDS FROM FRUITS AND OTHER MATERIALS.

SPECIFICATION forming part of Letters Patent No. 235,114, dated December 7, 1880.

Application filed February 20, 1880.

To all whom it may concern:

Be it known that I, AUGUST ZINSSER, of New York, in the county and State of New York, have invented a Press Mechanism for Expressing Liquids from Fruits and other Materials, of which the following is a specification.

My invention relates to improvements in apparatus for squeezing or pressing juice, moisture, &c., out of ground, chopped, or crushed material, such as fruit, malt, or the like; and the invention consists in a press provided with pressing or squeezing rolls, which are inclosed in elongated endless absorbing-belts, as described hereinafter, so arranged that the material is pressed between the two belts where they cross or cover the upper and lower rolls, respectively. The lower belt will serve as an apron for conveying or feeding the material to the rolls and carrying it from them after being pressed, so that it can be delivered and deposited at any desired distance from the rolls.

The invention also consists in making the upper belt adjustable, so as to more or less utilize it as a feeding-belt.

In the accompanying drawings, Figure 1 is a front elevation of my improved press, and Fig. 2 is a vertical section of the same, taken on line *x x* of Fig. 1.

Referring to the drawings, A A represent the housings of the press. B represents the lower roll, held in stationary bearings. C represents the upper roll, held in vertically-adjustable bearings *a*, which are placed in mortises *b* in the housings, above the bearings of the lower roll. The bearings *a* are held down by springs *d*, interposed between them and that part of the housings immediately above, which forms the upper end of the mortises. The springs *d* press the bearings *a* down, so that the upper roll, C, will be close to the lower roll, but at the same time they allow the bearings to rise slightly, when a mass of material is fed to the press, and, by allowing the upper roll to adjust itself to the quantity of material, prevent choking.

On both sides of the housings arms D D project outward and upward, and support on suit-

able gudgeons, and at about the level of the lower roll, B, rollers E E, and underneath the housings, in suitable bearings, is a third roller, E'.

F represents an endless felt belt. This belt F is stretched around the rollers E E E' and over the lower pressing-roll, B, the arrangement being such that the endless belt between rollers E E forms a flat surface at about the same level as the pressing-face of the lower roll, B, as clearly shown in Fig. 2, whereby the said belt at this portion is adapted to serve as an apron for feeding the material to be pressed to the rolls, and then carrying it away from them.

To the arms D D on the discharge side of the press a metal scraper, G, is or may be attached so that its edge bears against the outside of the endless belt F, whereby any material that may adhere to the belt will be scraped off and the belt kept clean.

H is a roller, which has its gudgeons supported in plates H' H', which project from the housings on the side from which the material is fed to the rolls. The position of the roller H can be readily changed with relation to the housings and to the roll C, the plates H' being notched or slotted to permit such adjustment. From the discharge side of the housings arms I project, which support on suitable gudgeons a roller or rollers, H².

J is an endless felt absorbing-belt, similar to the belt F, which is passed under the upper roller, C, and over the rollers H H². The belt J, where it passes under the roller C, is held in contact with the belt F by the downward pressure of the roller C. By adapting the roller H to be changed in its position the angle of the front of the belt J to the roller C and the belt F can be changed, and the space between the front of belt J and belt F thereby increased and diminished at pleasure. The object of this arrangement is to make a variable feeding-space between the two belts, and also, in case a large quantity of material is fed to the rolls, the upper belt, J, will assist in pressing it to the shape of a wedge, and thereby it will be fed between the rolls gradually, and it will not be pushed back on the feeding-belt,

as would be the case were it fed to the rolls directly and without first being pressed to a tapering form.

To the arms I may be attached a scraper, K, the edge whereof bears against the outside of the belt J and scrapes off any material that may adhere to it.

The rollers B C are geared together by toothed wheels, so as to rotate at the same speed, and when they are in operation the frictional contact of the belts with each other or with the material passing through the rolls causes the belts F J to move around their respective supporting-rollers.

In the lower part of the housings, under the lower roll, B, is a gutter, L, which receives and carries off the juice, water, &c., that passes through the belt F and drops from the same and from the roll B.

The operation of the press is as follows: Power being applied to the rolls B C, they are rotated, and the belts F J are caused to revolve. The material to be pressed—say, for example, crushed fruit—is spread on the top of the belt F at the front of the press, and the belt carries it through the rolls, by which it is pressed or squeezed, and the juice passes through the belt and runs from the roll B to the gutter L, from whence it flows into a suitable receptacle.

The belts F J should be sufficiently long for the moisture to dry out while they are making one revolution; but if this cannot be done conveniently fans, blowers, and other artificial means may be employed to dry the belts by evaporating from them the moisture they absorb during their revolution around the supporting-rollers, so that a normally dry surface will at all times be presented to the pressing-faces of the rolls B C.

The ends of the rollers B C may be provided with flanges or gutters to prevent the juice from running off the ends and wasting.

In practice the upper belt, J, may be dispensed with, and the lower belt, F, and the two rolls may be used alone.

I do not wish to confine myself to the use of scrapers for cleaning off the belts, as brushes and other devices may be employed for the purpose; neither do I wish to confine myself to the use of a fixed bearing for the supporting-roller H², as I may arrange this roller H² to be adjusted similar to roller H.

I am aware that presses having endless aprons placed over the pressure-rollers are not new; but they necessitated the use of receiving chutes or conduits under the entire upper part of the lower apron.

By using an apron of absorbing material and bringing it always to a normal degree of dryness, as stated, I cause the juice to be passed through it directly over the lower roller, to drip thence into the trough, and do not require guides, side boards, or chutes to direct the juice into the trough. I thus obtain a more simple apparatus, purer (because less oxidized) juice, and am able to redry the apron in one revolution, which could not be done if it were a dripping-apron from roller B to roller E.

I claim—

1. The combination, with the pressure and guide rolls of a press for expressing liquids from fruits and other materials, of endless felt aprons capable of absorbing the juice, thereby dispensing with the usual side boards or chutes, all substantially as set forth.

2. In combination with the belt J, the adjustable supporting-roller H, to adapt the belt J to be placed at different angles to the belt F, substantially as described.

AUGUST ZINSSER.

Witnesses:

WILTON C. DONN,
TOMPSON B. MOSHER.