

No. 63,567.

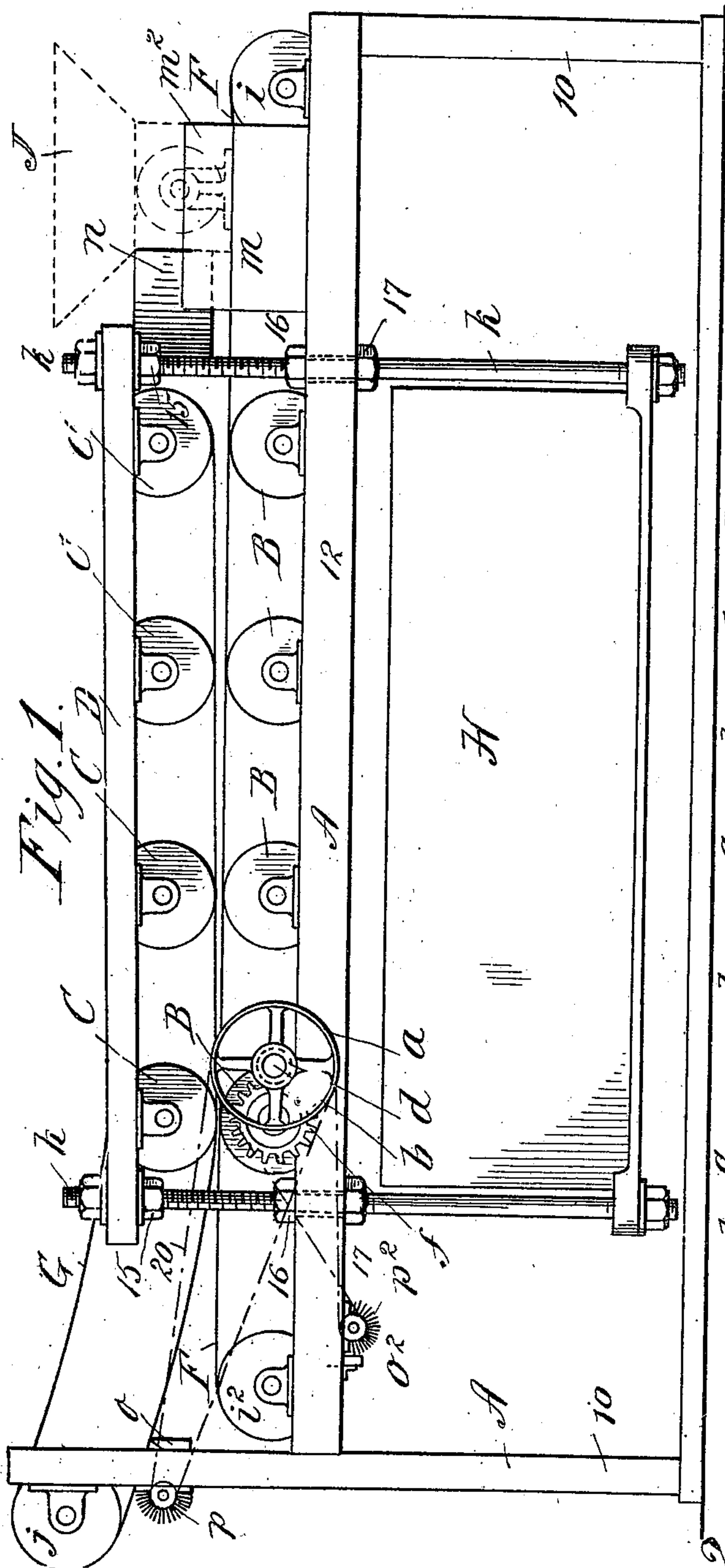
Patented Aug. 22, 1899.

B. J. FOWLER.
CIDER PRESS.

(Application filed May 6, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
W. A. Campbell.
C. F. Clarke

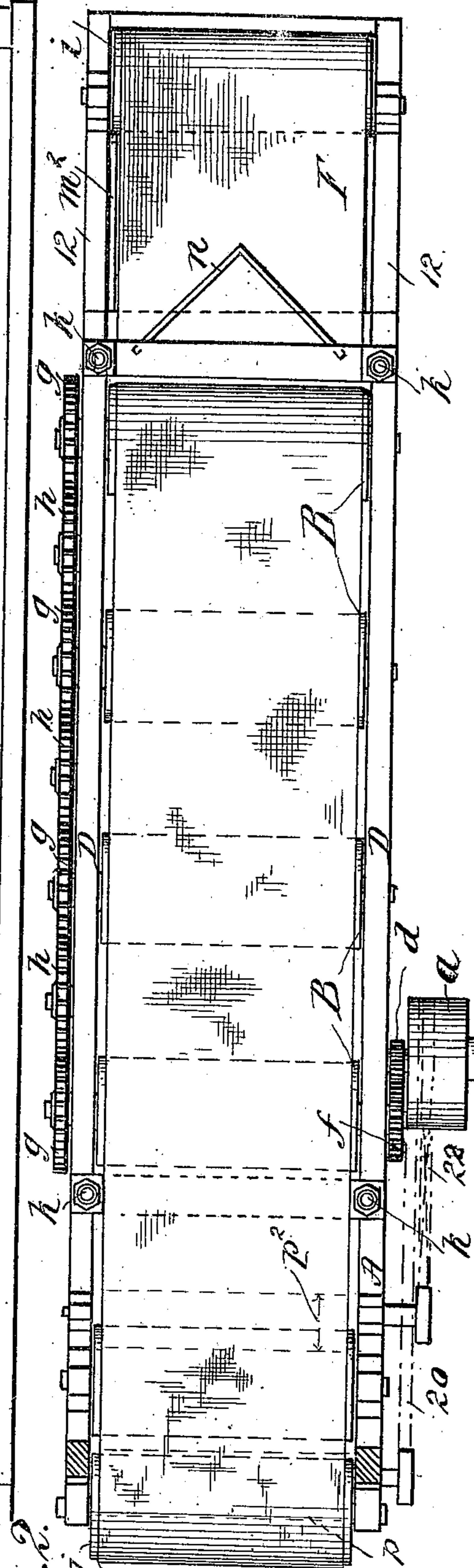


Fig. 2.
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No. 631,567.

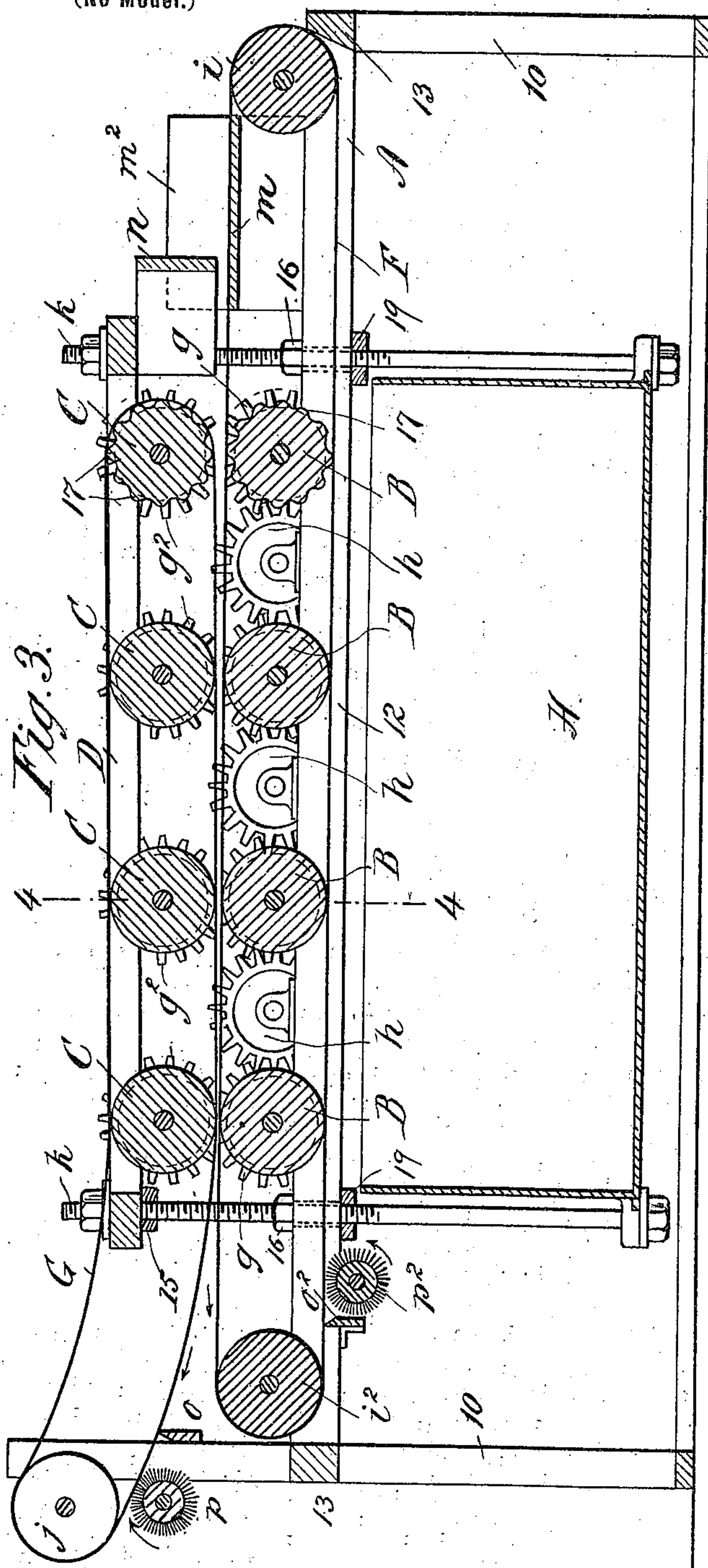
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2 Sheets—Sheet 2.



WITNESSES:

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Fig. 5.

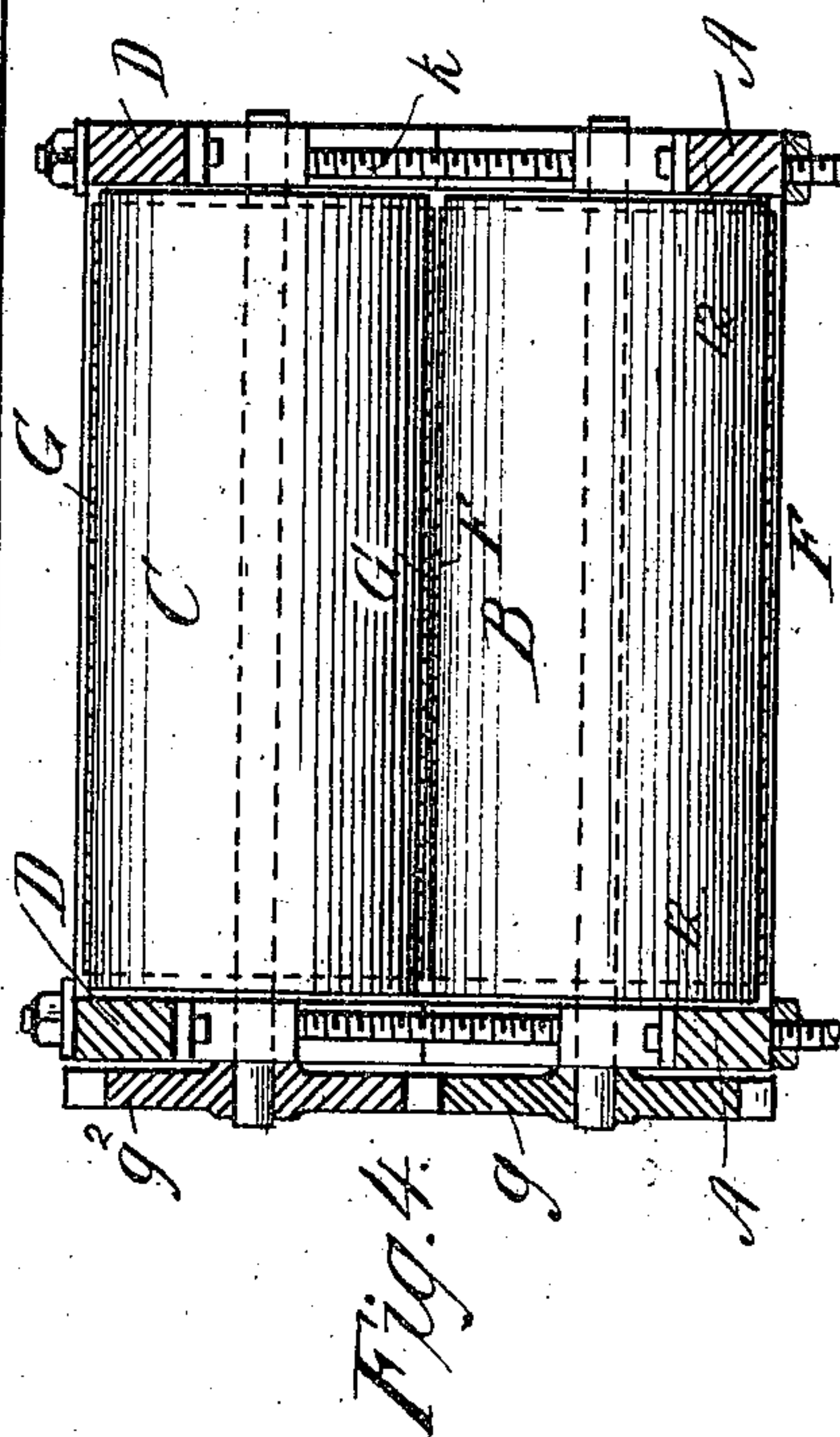
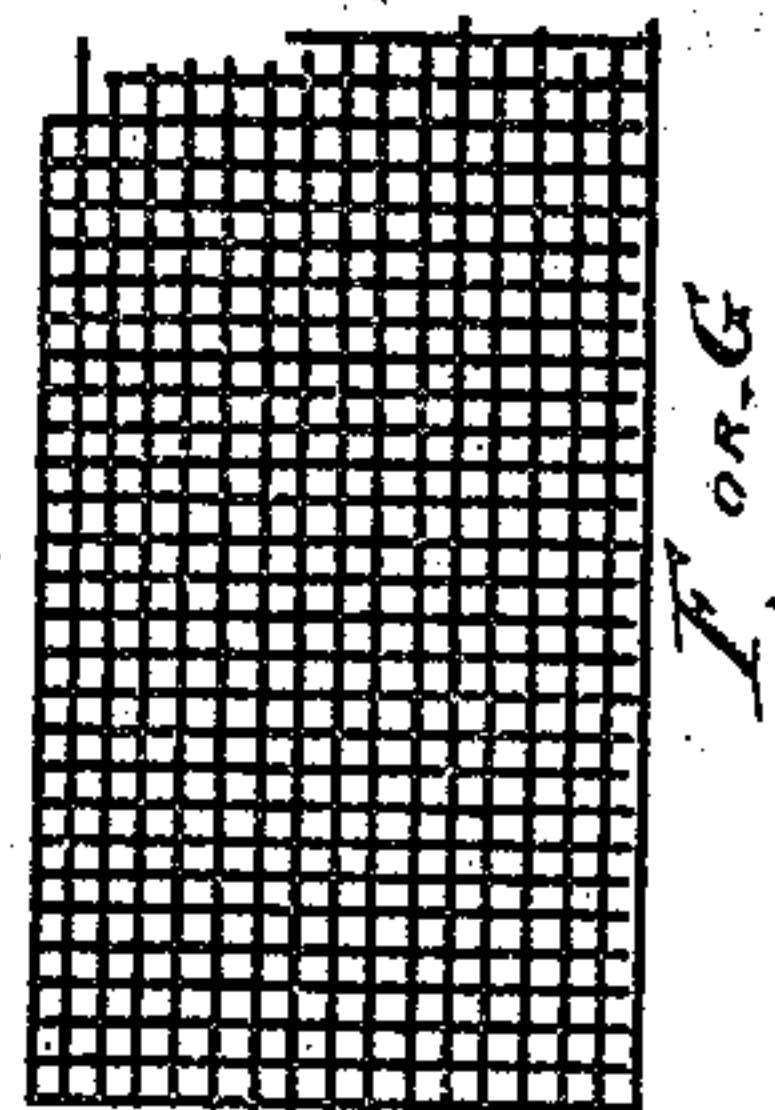


Fig. 4.

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UNITED STATES PATENT OFFICE.

BYRON J. FOWLER, OF WESTFIELD, MASSACHUSETTS.

CIDER-PRESS.

SPECIFICATION forming part of Letters Patent No. 631,567, dated August 22, 1899.

Application filed May 6, 1899. Serial No. 715,884. (No model.)

To all whom it may concern:

Be it known that I, BYRON J. FOWLER, a citizen of the United States of America, and a resident of Westfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Cider-Mills, of which the following is a full, clear, and exact description.

The object of this invention is to provide a cider-mill which is of inexpensive, simple, and cheap construction and having the capability of efficient use at comparatively small power for making cider from pomace or ground, crushed, or grated apples or from a pomace of other fruit.

The invention consists in the construction and combinations of parts, all substantially as hereinafter described, and set forth in the claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side elevation of the said invention. Fig. 2 is a plan view of the same. Fig. 3 is a central longitudinal vertical section; and Fig. 4 is a vertical cross-section taken on the line 4 4, Fig. 3. Fig. 5 is a plan view of a portion of the open-work fabric from which the pair of endless aprons comprised in the mill are composed.

In the drawings, A represents the supporting-framework of the machine, the same consisting of suitable end legs or standards 10 10, horizontal longitudinal beams or members 12 12, and end cross-beams 13 13, although obviously this framing may be of any construction having fitness to the purpose.

B B B B are a series of lower squeezer-rolls horizontally and transversely mounted in suitable journals therefor at an upper part of the framing A, and C C C C are a series of upper squeezer-rolls arranged over the rolls B, they being journaled in suitable bearings therefor in the upper horizontal roll-carrying frame D, which is adjustable within comparatively slight limits toward and from the main frame. The roll at the lower left, Fig. 1, has driving motion imparted thereto from the driving-pulley *a*, which is mounted on a short counter-shaft *b*, that is provided with a pinion *d*, which meshes into the gear-wheel *f* on the end of the aforementioned roll B. Each lower roll has at its rear end a spur gear-

wheel *g*, *h h h* being intermediates, so that all of the lower rolls will be rotated uniformly in the same direction. Each upper roll C has at its rear end a gear-wheel *g*², which meshes into the adjacent gear-wheel of a corresponding lower roll.

F represents a lower apron, and G represents an upper apron. The lower apron, which is endless, runs around the support-rolls *i* and *i*² therefor at the opposite ends of the machine, the upper and lower courses of this apron moving, respectively above and closely over the tops of the squeezer-rolls B and below such rolls. The upper apron G, which is also endless, runs around the support-roll *j* at an upper left-hand end portion of the machine, and the upper and lower courses thereof encircle around the upper set of squeezer-rolls C C.

The upper movable frame D is supported adjustably above the main frame A by the posts *k*, which are screw-threaded at their extremities, extending above the side beams 12 of the frame A, and having the nuts 15, threading on the posts *k*, directly supporting the upper frame. As specifically shown and preferably constructed, the posts *k k* penetrate loosely and vertically the top side beams of the main frame A and depend therebelow and are sustained by the nuts 16, which screw-engage the threaded portions of the posts adjacent the top of the beams 12. Said posts sustain between them the vat or tank for the reception of the juice expressed from the pomace by the rolls C B.

The rolls C B at the left are in practice by reason of the adjustment of the upper frame D practically in contact or at least so close as to bring the adjacent courses of the two aprons in contact where they pass between the said upper and lower left-hand rolls; but slight though gradually widening spaces are left between the other pairs of rolls proceeding toward the right-hand end of the machine and as indicated in a somewhat exaggerated manner in Figs. 1 and 3 of the drawings.

Adjacent and below the upper course of the lower apron F and adjacent the support roll *i* is a table or horizontal bench-like part of the machine, (indicated at *m*,) onto which the pomace is introduced in any suitable way.

In practice a grinding or grating machine will be located in somewhat the position indicated by the dotted line at J, Fig. 1, so that the pomace may be supplied continuously and directly onto the apron at that portion thereof which is over the said table *m*, and which latter supports the weight of the pomace on the apron and prevents the undue sagging of the latter at this part of the machine. The table *m* preferably has the cheek-pieces or upstanding side ribs just outside the edges of the apron F.

n represents a large V or plow shaped spreader, the same being supported at the right-hand end of the upper frame and having its position below and convergent to the rightward thereof, the lower edge of this spreader being somewhat above the top of the lower apron.

The first pair of squeezer-rolls C and B at the right are preferably provided with ribs or lags, as shown at 17 in Fig. 3.

The arrows in Fig. 3 indicate the course of travel of the aprons.

o and *o*² represent scraper-bars suitably supported for impingement transversely and edgewise against the under courses of the two aprons, and in addition thereto are the rotary brushes *p* and *p*², driven by belts 20 and 22 from the driving-pulley *a*, the direction of rotation of the brushes being the reverse of the travel of the aprons on which they operate.

The aprons are formed of an open-mesh fabric, the mesh thereof being indicated in Fig. 5, and such fabric may be advantageously formed of openly-woven strands of jute or hemp or other fibrous material or of wire.

The pomace being introduced upon the rightwardly-protruding upper course of the lower apron F is carried leftward by the latter, subject to the action of the spreader, whereby it is distributed sufficiently even upon the apron, and is thence carried between and to the squeezing action of the several pairs of upper and lower rolls, the juice being expressed by the rolls, and falls therebelow through the open-work apron into the vat. The pomace which may adhere to the apron is, as to the greater portion thereof, scraped therefrom by the action of the scrapers *o* and *o*², and the apron is furthermore cleared of the pomace remnants by the brushes.

The weight of the vat and the cider therein constitutes in a simple and effective way the means for holding the upper rolls with the required considerable pressure down to the limits of their separation from the lower rolls as regulated by the adjustment of the nuts 15 or 16—one or both. After the upper rolls and the upper movable frame have been adjusted in their proper separation the nuts 19, applied on the screw-posts *k* under the beams 12 of the frame, will insure that the rolls are not further separated during the passage of the pomace therethrough and by the spreading action of the latter even should the weight of the vat and its contents be in-

sufficient to hold the rolls in the suitable proximity.

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

1. In a cider-mill, in combination, the upper and lower pairs of squeezer-rolls, and the upper and lower frames in which they are sustained, the upper frame being adjustably movable relatively to the lower frame, the aprons F and G running around the respective series of said rolls, said apron F being sustained and having an end portion thereof extending endwise beyond the squeezer-rolls, the spreader *n* of V shape located above and projecting horizontally over said extended portion of the apron, and supported by said upper frame, and means for rotating the rolls and causing the traveling movements to said apron.

2. In a cider-mill in combination, the upper and lower pairs of squeezer-rolls, the upper frame D in which the upper series of said rolls are mounted, and which is vertically adjustably movable, means for limiting said frame, whereby the upper rolls may be approached as desired more or less nearly to the lower rolls and the vat below both series of both rolls, supported by said upper frame, substantially as and for the purposes set forth.

3. In a cider-mill, the combination with the main frame A having the series of squeezer-rolls B B journaled thereon, the vertical posts or rods *k k* having their upper end portions screw-threaded and extended vertically through perforations therefor in members of the main frame, the nuts or abutments 16 provided on said posts next above the main frame, the movable frame D mounted on the upper ends of said posts, the upper series of squeezer-rolls journaled in said upper frame, the endless aprons F and G arranged substantially as described, means for imparting rotary motions to the rolls, and traveling movements to the aprons, and the vat or juice-receiving receptacle supported by the depending lower portions of said posts *k*, below the squeezer-rolls and exerting by the weight thereof, a downward pressure upon said upper frame and the upper series of rolls carried thereby.

4. In a cider-mill of the character described, the main frame A comprising the opposite side rails 12, 12, the vertical posts or rods *k k*, the upper portions of which are screw-threaded and which extend loosely through or play relatively to said side rails or beams 12, the nut 16 threading on said posts *k* and bearing on the tops of the said beams 12, the nuts 15 engaged on said posts near their upper ends and the upper roll-supporting frame D engaged with the tops of said posts and sustained by said nuts 15, and the vat H supported at the lower ends of the said posts, substantially as and for the purposes set forth.

5. In a cider-mill in combination, the series of upper squeezer-rolls C and a correspond-

ing series of lower squeezer-rolls B, the roll *i* endwise beyond the lower series, the apron G arranged to run around the upper series, the apron F arranged to run around the lower series, and the roll *i*, the table *m* beneath the upper course of the said apron F between said roll *i* and the first pair of squeezer-rolls, and the V-shaped spreader M supported above the said table *m* and the portion of the apron

which runs thereover, substantially as described.

Signed by me, at Springfield, Massachusetts,
this 2d day of May, 1899.

BYRON J. FOWLER.

Witnesses:

WM. S. BELLOWS,
M. A. CAMPBELL.