

(No Model.)

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G. M. PETERSON, Dec'd.

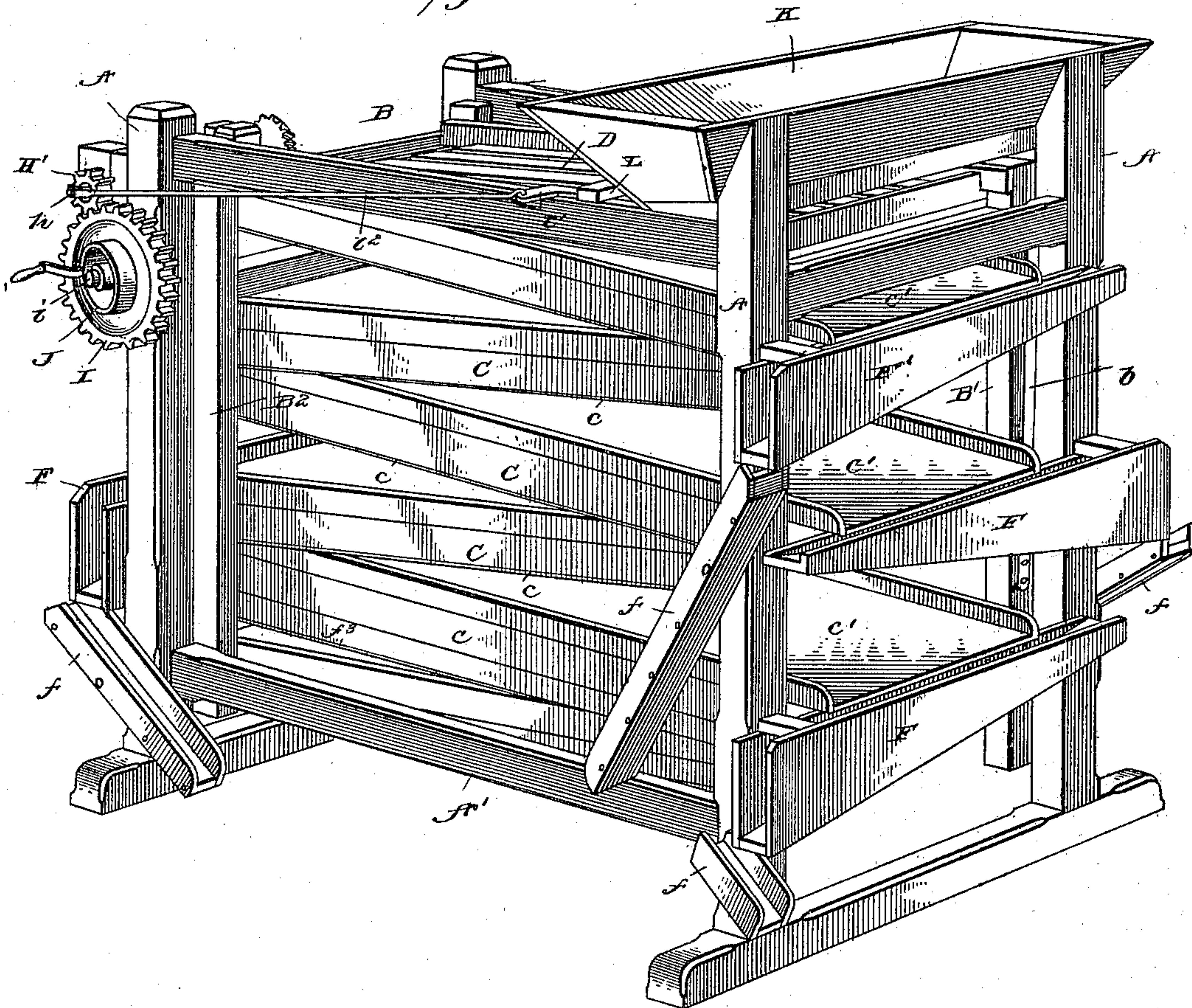
M. A. PETERSON, Administratrix.

PRUNE GRADER.

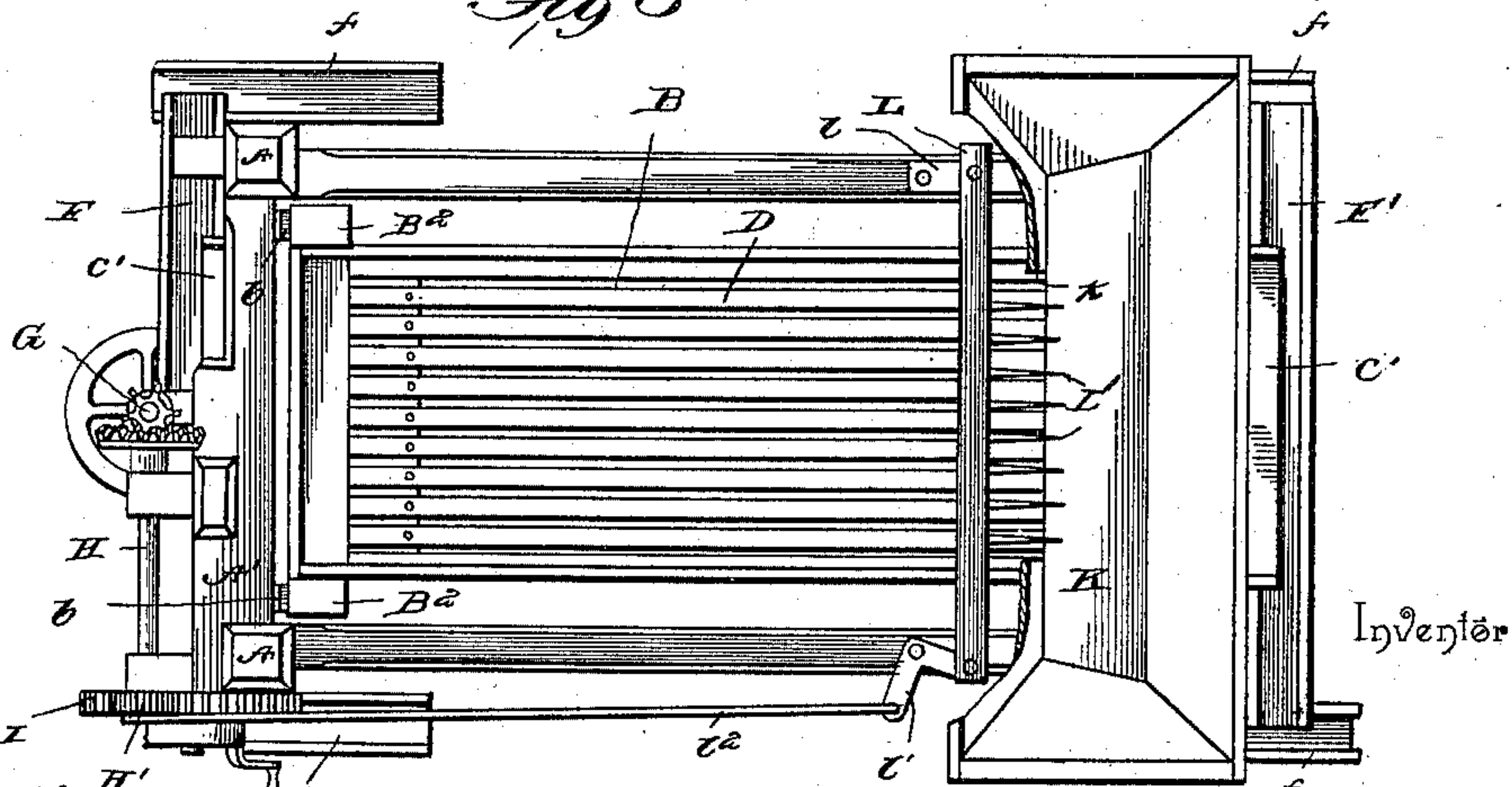
No. 585,695

Patented July 6, 1897.

*Fig. 1.*



*Fig. 3*



Witnesses

*John C. Shaw.*  
*R. M. Smith*

By his Attorneys, *George M. Peterson,*

*C. A. Snow & Co.*



(No Model.)

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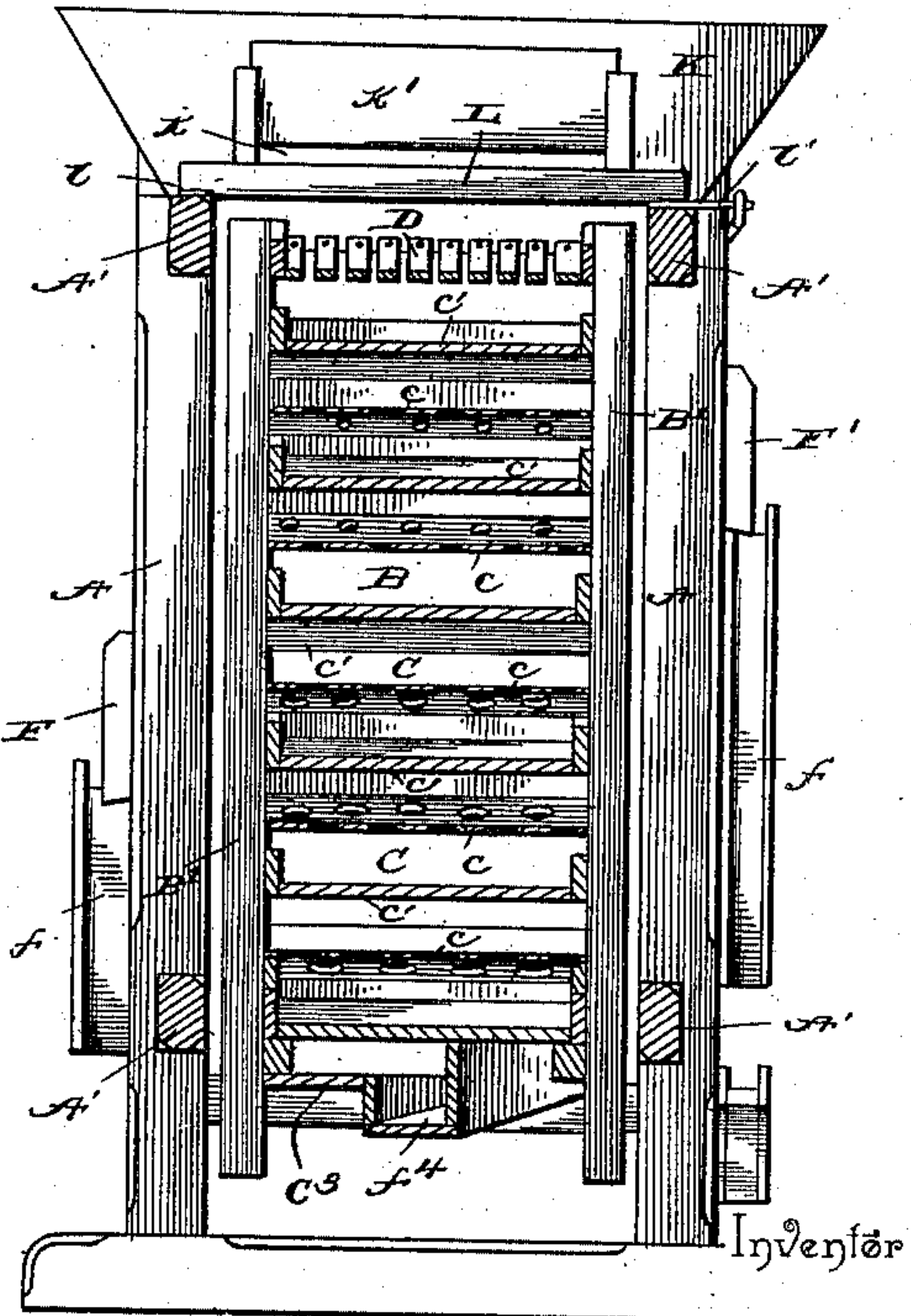
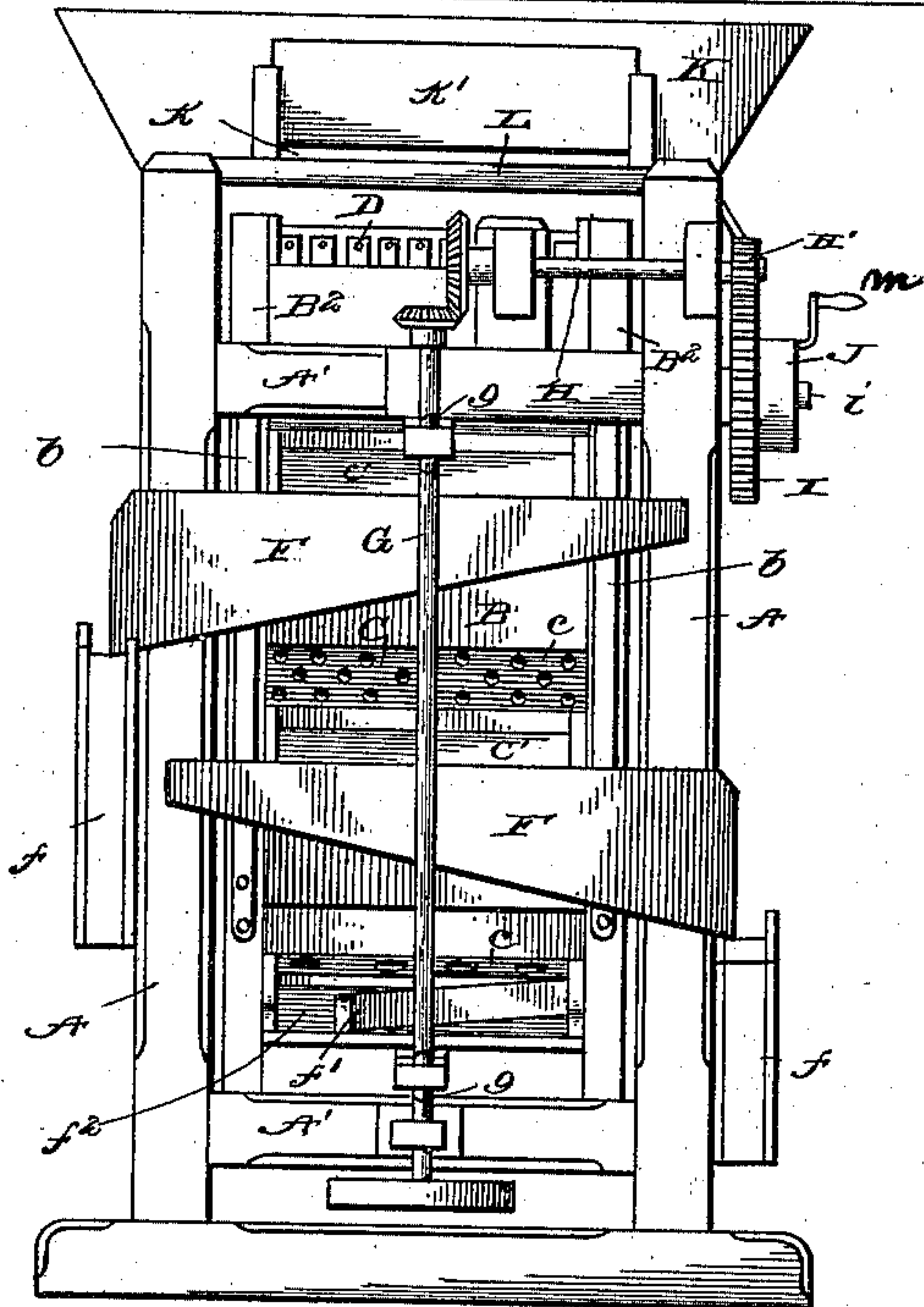
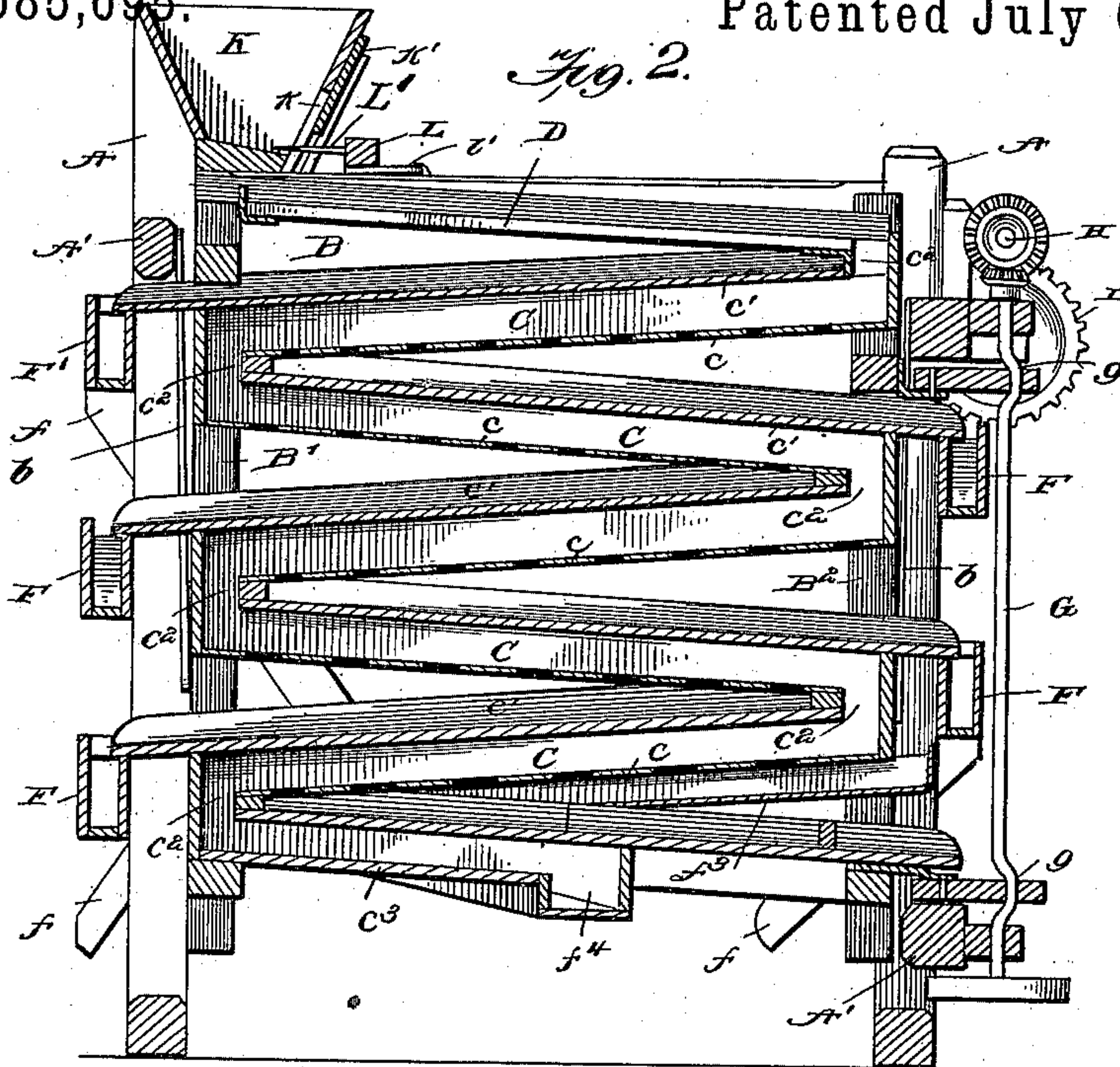
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*Chas. Snow & Co.*



# UNITED STATES PATENT OFFICE.

GEORGE M. PETERSON, OF SALEM, OREGON; MARTHA A. PETERSON  
ADMINISTRATRIX OF SAID GEORGE M. PETERSON, DECEASED.

## PRUNE-GRADER.

SPECIFICATION forming part of Letters Patent No. 585,695, dated July 6, 1897.

Application filed February 11, 1895. Serial No. 537,969. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. PETERSON, a citizen of the United States, residing at Salem, in the county of Marion and State of Oregon, have invented a new and useful Prune-Grader, of which the following is a specification.

My invention relates to an improvement in graders or separators, and more particularly to that class of machines which are employed for assorting or separating fruit, grain, or other products into different grades and piles preparatory to and in proper condition for crating and shipping.

My invention, it will be apparent from the following description, while applicable to machines for separating and grading various articles among the marketable products, is especially adapted for cleaning and grading prunes which have been previously dried.

My invention consists in the novel construction and arrangement of parts hereinafter specifically described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of a grading-machine embracing my improvements. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is a plan view of the same, showing the slatted apron and hopper, the latter being partly broken away to show the agitator finger-bar and the means for actuating the latter. Fig. 4 is an end elevation of the machine, showing the mechanism for actuating the vibratory screen-frame and the location and arrangement of the inclined chutes and conveyers for delivering the assorted prunes to various points about the machine. Fig. 5 is a vertical transverse section through the machine, showing the relative arrangement of the several perforate and imperforate screens, slatted apron, &c.

A A represent the vertical and A' A' the horizontal timbers of the stationary frame of my grader or separator. Within this stationary frame is placed the vibratory separator B, composed of two rectangular end frames B' B<sup>2</sup>, which are connected by the inclined aprons hereinafter described. This separator-frame as a whole is swung within the stationary frame A A' and is suspended, prefer-

ably, by means of thin flat steel strips or spring-metal straps *b*, which are attached one end to the stationary frame and the opposite end to the separator-frame. Four of these straps are employed, one at or near each corner of the separator, as shown, though additional straps may be used, if required.

C C indicate the grader or separator sections, of which any preferred number may be employed, according to the number of grades or sizes into which it may be desired to separate the prunes. Each of these sections C has two aprons, one of which, *c*, is perforated to form a sieve, through which the prunes of a certain size may pass, and the other, *c'*, immediately above it, is imperforate, for a purpose that will appear. These separator-sections are arranged in zigzag form, or in such manner that the alternate sections are substantially parallel and meet the intermediate section at each end of the latter. The perforated aprons of these sections are graded—that is to say, each apron is provided with different-sized openings, those in the upper section being the smallest and those in the lower section the largest. The perforations in the intermediate sections vary in size, gradually increasing in diameter and decreasing in number as they approach the bottom section. Each one of these perforate aprons or screens *c* is terminated at a point or edge *c*<sup>2</sup>, and the prunes that have traveled over the entire length of the apron without passing through its perforations fall over said edge upon the next perforate apron and thus through the entire series. The prunes which fall through the openings in the aprons *c* drop upon the imperforate aprons *c'* and travel thereon until they reach and fall into suitable chutes provided for that purpose.

Next above the upper separator-section C is a slatted apron D, composed of a number of parallel strips of wood or other suitable material, lying in close proximity to each other. This slatted apron is secured to and moves with the vibratory separator-frame B B' B<sup>2</sup>, and directly underlies the machine-hopper K, the office of said slatted apron being to separate all foreign matter—such as stems, seed, and other refuse—from the fruit. Such foreign matter falls through between



the slats and onto the upper imperforate apron  $c'$ , whence it is carried down said apron and passes into a discharge chute.

$F F'$  indicate inclined chutes secured to the stationary frame at various points adapted to receive the graded or assorted prunes as they fall from the projecting and overhanging ends of the imperforate aprons. These chutes are equal in number to the number of separator-sections and are inclined, some toward one side of the machine and some toward the other, in order that the graded prunes may be conveyed to different points, where crates or boxes may be placed to receive the same. The chute  $F'$ , located beneath the overhanging end of the upper imperforate apron  $c'$ , receives the refuse matter in the same manner and conveys it to a point where it may be gotten rid of. Supplemental chutes  $f f'$  may be employed at various points in connection with the main chutes  $F F'$  for facilitating the discharge of the assorted fruit, &c., at convenient points.

Upon the lower imperforate apron  $c'$  instead of employing the ordinary chute  $F$  it may be found desirable to use a butt-board or deflector, consisting of a strip or narrow board  $f'$ , extending obliquely across the upper face of the apron to form a mouth  $f^2$  from which the prunes are discharged into a receptacle placed beneath. A plate or apron  $f^3$  is placed beneath the perforate apron overlying this deflector for the purpose of conveying the prunes to a point where they will be acted upon by said deflector.

Should there be prunes of such size that they will not pass through the lower apron, which has the largest perforations, they must travel along said apron and pass from the end thereof, falling upon an inclined bottom plate or apron  $c^3$ , which need extend only about half the length the separator, where it may terminate in an inclined trough or chute  $f^4$ , by which the prunes are conveyed to the desired point.

Upon one end of the machine, mounted in bearings secured to the stationary frame, is a vertical rotary shaft  $G$ , formed or provided with one or two or more double cranks, (indicated at  $g g$ .) From these cranks pitmen or connecting-links extend to convenient points on the separator-frame, to which they are pivoted. Reciprocating motion is thus imparted to the separator.

$H$  is a horizontal shaft upon the inner end of which is keyed a bevel-gear meshing with a bevel-gear on the crank-shaft  $G$ . Upon its opposite end the shaft  $H$  has secured to it a spur gear or pinion  $H'$ , which meshes with and is driven by a larger gear-wheel  $I$ , mounted on a stub-shaft  $i$  on the stationary frame. A band-pulley  $J$ , secured upon the hub of the gear-wheel  $I$ , receives power from a belt in the usual manner and power is thus imparted to the various operative parts of the machine.

$K$  indicates the hopper of the machine, pro-

vided with a rectangular opening  $k$  through its inner inclined wall for the passage of the prunes to the separator. The size of the opening  $k$  is regulated by means of a sliding gate  $k'$ , thus providing for an increased or diminished feed of the prunes to the separator.

$L$  is an oscillating bar from which a number of straight fingers  $L'$  project to a point within the hopper near its bottom for the purpose of agitating the contents of the hopper and facilitating the discharge of the same onto the slatted apron  $D$ . The oscillating bar  $L$  is pivoted at one end to a link  $l$ , pivoted to the stationary frame, and at its other end to an elbow-lever  $l'$ , also pivoted to said frame. A link or connecting-rod  $l^2$  extends from said elbow-lever to a crank-pin  $h$  on the face of the spur-gear  $H'$ , motion thus being imparted to the oscillating finger-bar  $L$ .

Owing to the manner in which the agitator-bar is mounted, it will be seen that said bar oscillates and that the fingers move in a curved path. The fingers, in addition to their lateral movement, thus have also a slight longitudinal movement, whereby they are advanced into and withdrawn partially from the bottom of the hopper, and in this way a more thorough agitation of the contents of the hopper is effected.

The prunes being placed in the hopper  $K$ , the oscillating fingers facilitate their discharge upon the slatted apron  $D$ , through which foreign matters—such as stems, seed, skins, dirt, &c.—pass to and fall upon the upper imperforate apron  $c'$ , from which they travel into the chute  $F'$  and are discharged. The prunes pass along the slatted apron  $D$  and from the end thereof drop upon the perforate apron  $c$ . The smaller prunes pass through the small perforations in this upper plate and the rest travel on and fall upon the next inclined perforate apron, through which prunes the next in size fall, and so on to the last apron. The prunes are thus graded or assorted and are carried by means of the various imperforate aprons and inclined chutes and supplemental chutes and troughs to the desired points.

Where the machine is of such reduced size that it may be driven by hand, a suitable crank  $m$  may be secured to the face of the band-pulley  $I$  for that purpose.

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

In a grading-machine of the class described, the combination of a stationary main frame, an upright longitudinally-vibrating separator-frame suspended within the main frame, a stationary hopper mounted transversely on the stationary main frame on one top corner thereof and provided in its inner side with a longitudinal discharge-opening, a pair of oppositely-located swinging links pivotally mounted respectively on opposite top sides of the stationary main frame, one of said links being a bell-crank, a longitudinally-



movable bar arranged transversely and horizontally above the main and vibrating frames, and pivotally connected at its opposite ends respectively to the oppositely-located swinging links, said bar carrying a plurality of straight fingers working in the longitudinal discharge-opening of the hopper, whereby the slight oscillatory movement of the bar will provide for an alternate longitudinal thrust and retraction of the fingers, and the longitudinal reciprocatory movement of said bar will provide for the separate sidewise or hori-

zontal lateral vibration of the fingers in the longitudinal opening in which they work, and a suitable operating connection with the bell-crank link to oscillate the same on its axis, substantially as set forth. 15

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE M. PETERSON.

Witnesses:

WALTER NELSEN,  
ENOS PRESNALL.