

(No Model.)

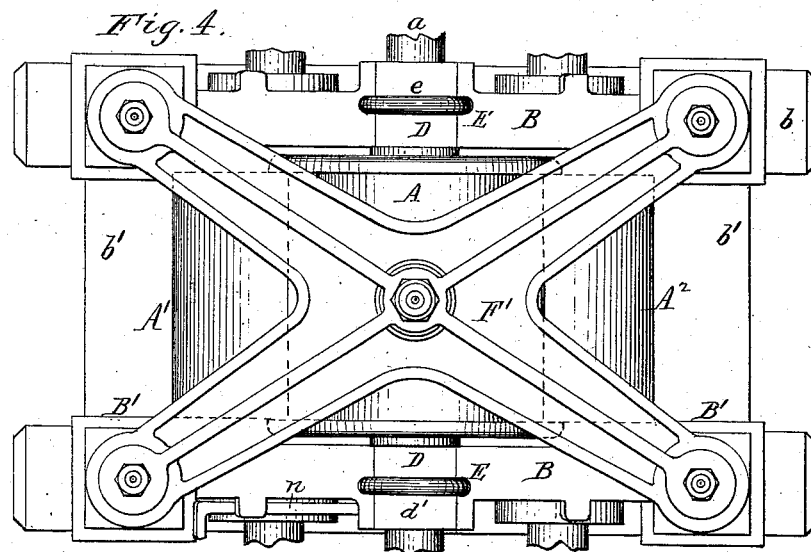
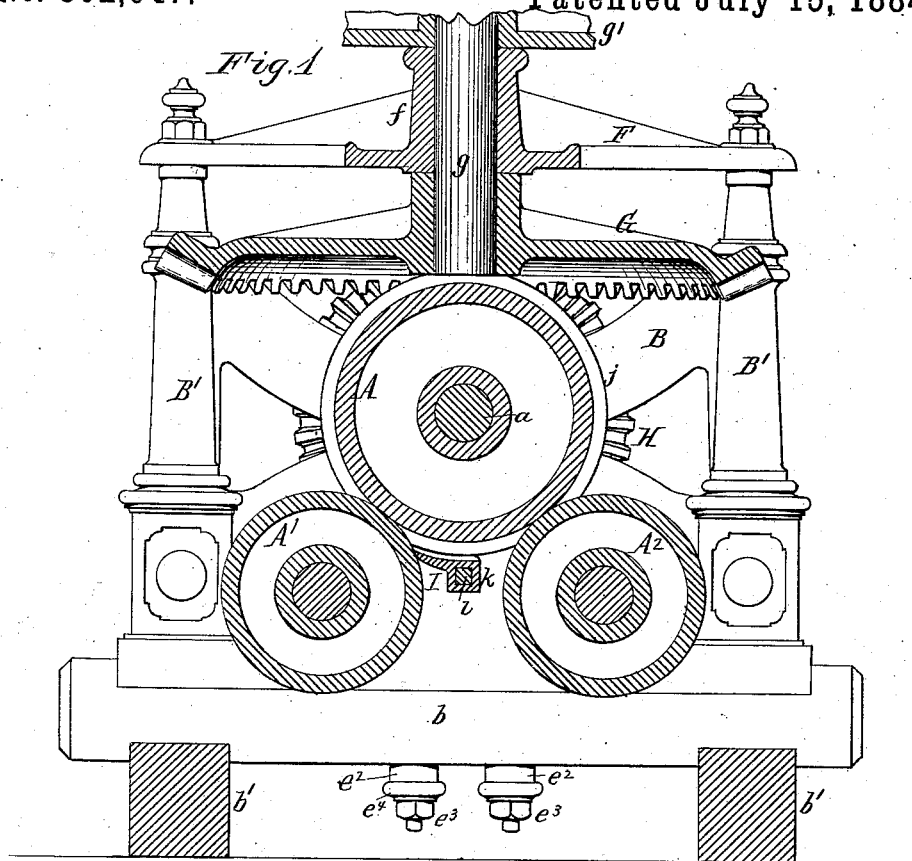
2 Sheets—Sheet 1.

H. B. STEVENS.

CANE MILL.

No. 302,047.

Patented July 15, 1884.



Geo. E. Cushman  
Theo. L. Popp. Witnesses.

H. B. Stevens Inventor:  
By Wilhelm Bonner  
Attorneys.

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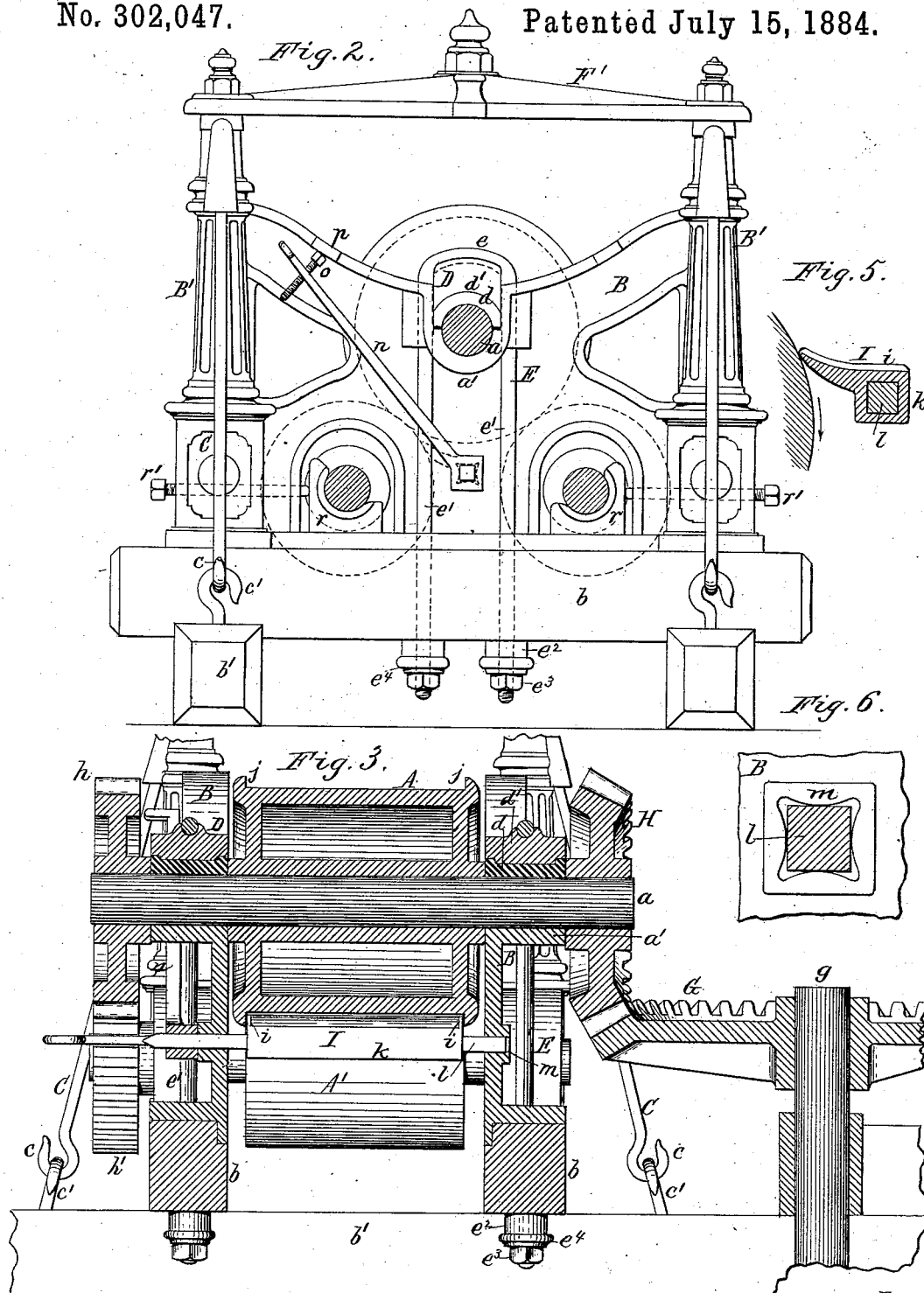
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Inventor:  
A. B. Stevens,  
By Wilhelm & Bonnier  
Attorneys.

# UNITED STATES PATENT OFFICE.

HENRY B. STEVENS, OF BUFFALO, NEW YORK, ASSIGNOR TO GEORGE L. SQUIER, OF SAME PLACE.

## CANE-MILL.

SPECIFICATION forming part of Letters Patent No. 302,047, dated July 15, 1884.

Application filed June 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY B. STEVENS, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Cane-Mills, of which the following is a specification.

This invention relates to certain improvements in that class of cane-mills which are composed of three horizontal rollers arranged triangularly, and has for its object to improve the construction of the turn-plate which is located between the rollers.

My invention consists to that end of the improvements, which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a sectional elevation of a mill provided with my improvements. Fig. 2 is a side elevation of the same mill with a modified construction of the driving mechanism. Fig. 3 is a sectional elevation at right angles to Fig. 2. Fig. 4 is a top plan view of the mill represented in Figs. 2 and 3. Fig. 5 is a sectional view, on an enlarged scale, of the scraper or turn-plate. Fig. 6 is an enlarged sectional view of one of the bearings of the shaft of the turn-plate.

Like letters of reference refer to like parts in the several figures.

A represents the upper or driving roller; A', the feed-roller, and A<sup>2</sup> the discharge or bagasse roller.

B B are the side frames, supported upon sills b b, which in turn rest upon cross-sills b' b'.

B' B' are columns formed at both ends of each side frame, and connected with the cross-sills b' by diagonal brace-rods C, which are secured with their upper ends to the upper portion of the columns. The lower ends of the rods C are provided with hooks c, which engage with hooks c' secured to the cross-sills.

a represents the shaft of the driving-roller A, and a' a' the lower stationary portions of the bearings which support the shaft a.

D represents the upper movable portion of the bearing, composed of brasses d and a cap-piece, d'. The upper portion, D, of each bearing is held down by a bent rod, E, which rests with its bent portion e upon the cap d', and extends with its lower ends through the side

frames and sills, b, and is provided below the sills with rubber springs e<sup>2</sup> and screw-nuts and washers e<sup>3</sup> e<sup>4</sup>.

F is a bridge-tree connecting the upper ends of the four columns B'.

f is a long vertical bearing, formed centrally in the bridge-tree F. G is the driving-wheel secured to the shaft g, and g' the sweep-cap.

H is the bevel-wheel, secured to one end of the shaft a, and engaging with the crown-wheel G. h is a spur-wheel secured to the opposite end of the shaft a, and engaging with spur-wheels h' on the shaft of the feed and discharge rollers A' A<sup>2</sup>, so as to drive these rollers from the top roller.

In these roller-mills having their rollers arranged triangularly there exists a liability of the cane choking in the triangular space between the rollers, and turn-plates or scrapers have been employed to conduct the cane from the feed to the delivery roller. These turn-plates or scrapers are liable to break under the great strain to which they are subjected, and it is very difficult to adjust them to the varying adjustments of the rollers. In my improved mill the turn-plate is so constructed as to avoid these difficulties.

I represents the turn-plate, which is constructed with a sharp edge fitted accurately to the feed-roller at a short distance below the point of contact between the feed-roller and the top roller. The turn-plate extends backwardly from its edge eccentrically with the top roller, so that the space between the plate and the periphery of the top roller increases gradually from the edge to the heel of the turn-plate.

i i are ribs or flanges, formed along both sides of the turn-plate I on its upper side, and projecting between the flanges j of the top roller, A, to prevent the cane from running off from the ends of the rollers as the top roller rises and falls in adjusting itself.

k represents a heavy square boss or enlargement formed on the under side of the turn-plate, and l represents a square shaft, which passes through a corresponding opening in the enlargement k. The shaft l rests in openings m, formed in the side frames, B, and each bounded by four convex sides, as represented

in Fig. 6, having the necessary play to permit the square shaft to rock in said openings in adjusting the turn-plate. The shaft *l* and enlargement *k* materially increase the strength of the turn-plate.

*n* is a hand-lever, secured to the outer end of the shaft *l*, for adjusting the turn-plate; and *o* is a set-screw passing through the lever *n*, and bearing against a boss, *p*, on the side frame, *B*, for securing the lever *n* in position when the turn-plate has been adjusted. The outer end of the shaft *l* extends beyond the gear-wheels *h'*, and has the form of a handle, to facilitate the withdrawing of the shaft. Upon drawing the shaft out of the turn-plate *I* and seats *m* in the side frames, *B*, the turn-plate is released and drops down between the rollers *A' A''*. The shaft *l* is arranged equidistant from the rollers *A' A''*, and the turn plate can therefore be readily reversed, so that either of said rollers can be used as the feed or discharge roller, as may be most convenient.

*r* represents the adjustable bearings, in which the journals of the lower rollers, *A' A''*, are

supported; and *r'* represents the set-screws, whereby these bearings are adjusted toward or from the top roller, *A*.

I claim as my invention—

1. In a cane-mill, the combination of a turn-plate having at its heel an enlargement provided with a square opening, and a square removable shaft, substantially as set forth.

2. The combination, with the turn-plate and its square shaft, of supports provided with openings having four convex sides, by which the square shaft is supported and permitted to adjust itself in adjusting the turn-plate, substantially as set forth.

3. The combination, with the main frame, feed-roller, and driving-roller, of a turn-plate, having at its heel an enlargement provided with a square opening, a square shaft, *l*, a hand-lever, *n*, secured to said shaft, and a set-screw, *o*, substantially as set forth.

H. B. STEVENS.

Witnesses:

JNO. J. BONNER,  
CHAS. F. GEYER.