

(No Model.)

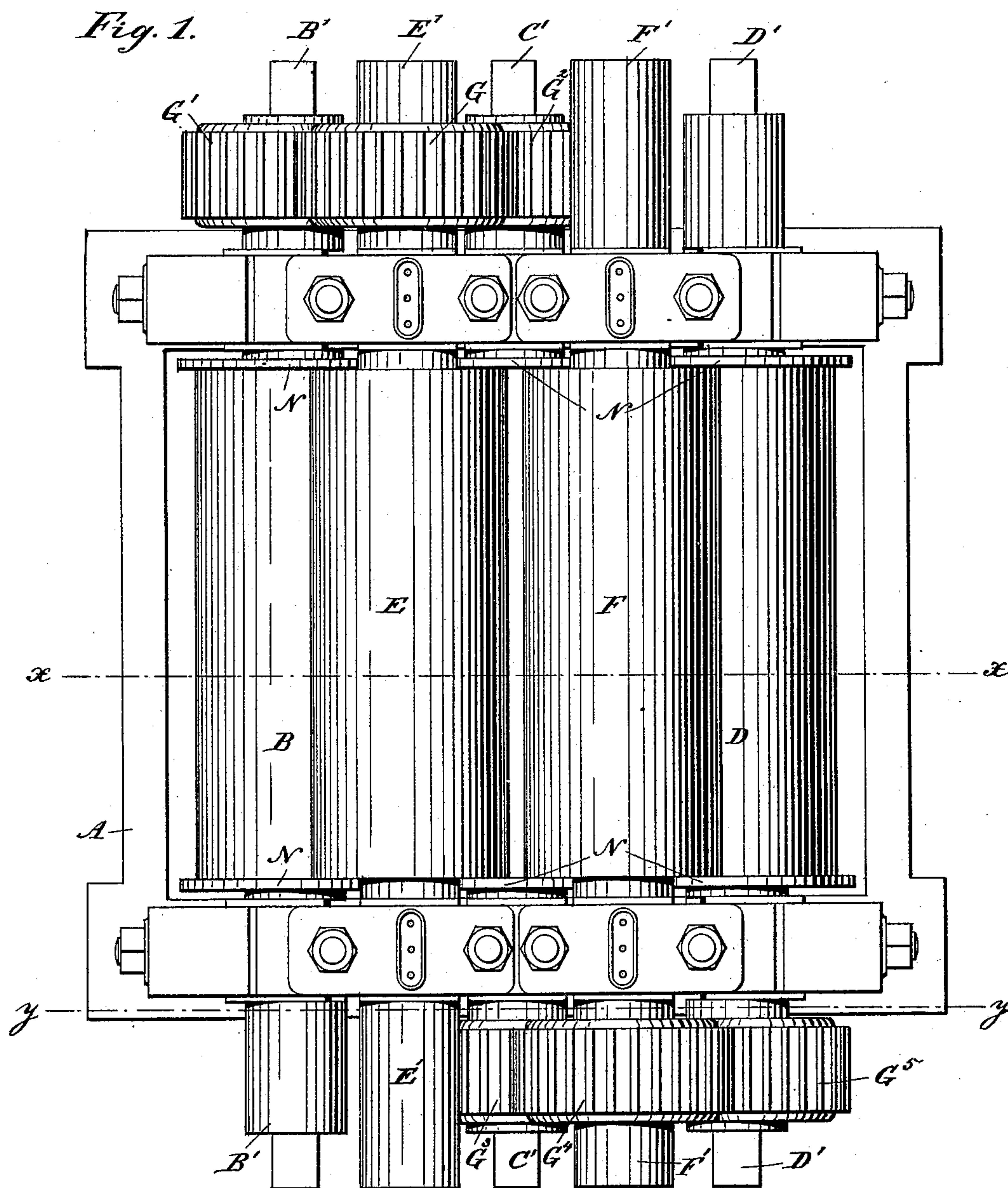
3 Sheets—Sheet 1.

C. HUGHES.

CANE MILL.

No. 395,832.

Patented Jan. 8, 1889.



WITNESSES:

D. C. Reusch.

C. Sedgwick

INVENTOR:

C. Hughes
BY *Munn & Co.*

ATTORNEYS.

(No Model.)

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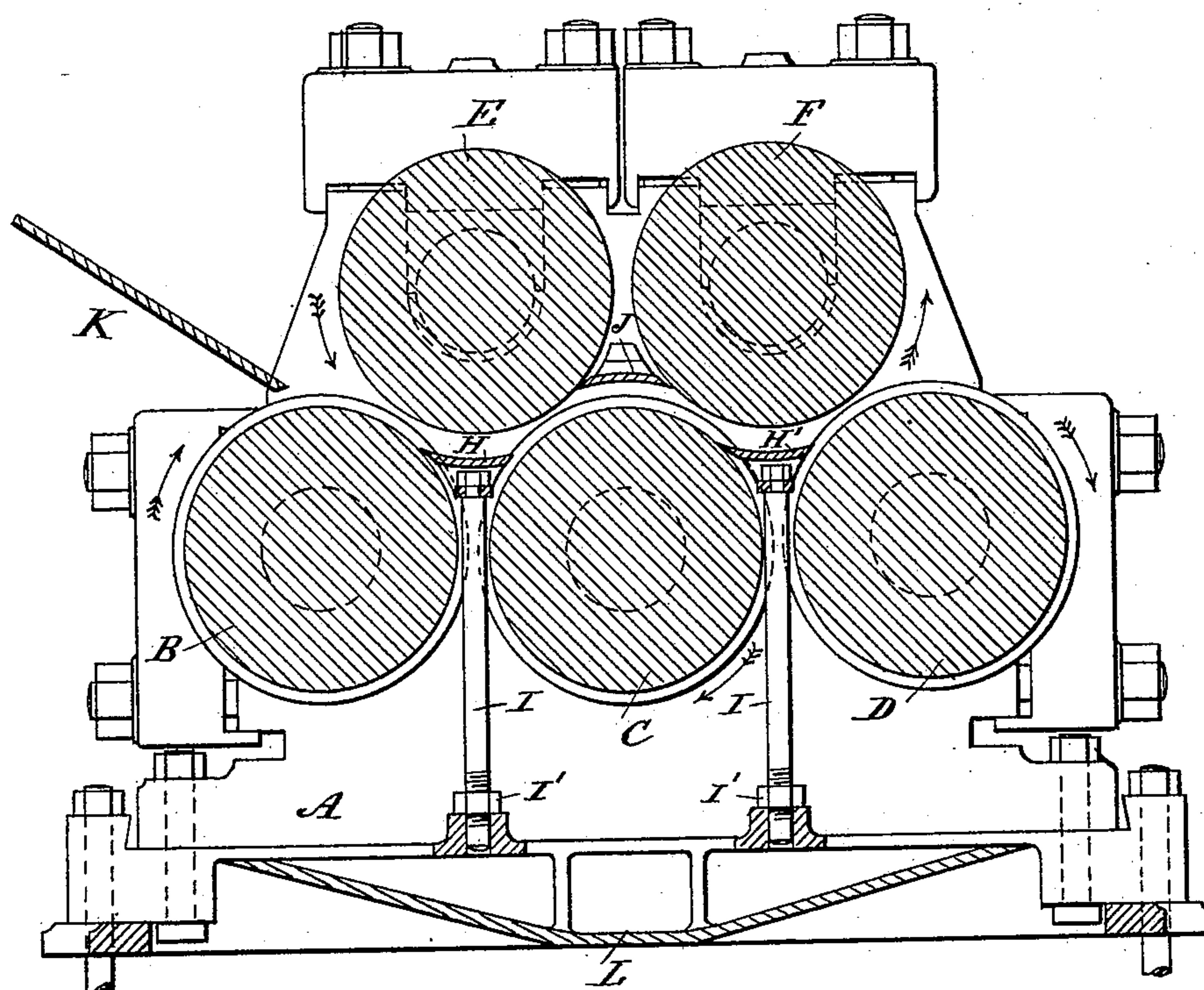
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Fig. 2.



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3 Sheets—Sheet 3.

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Fig. 3.

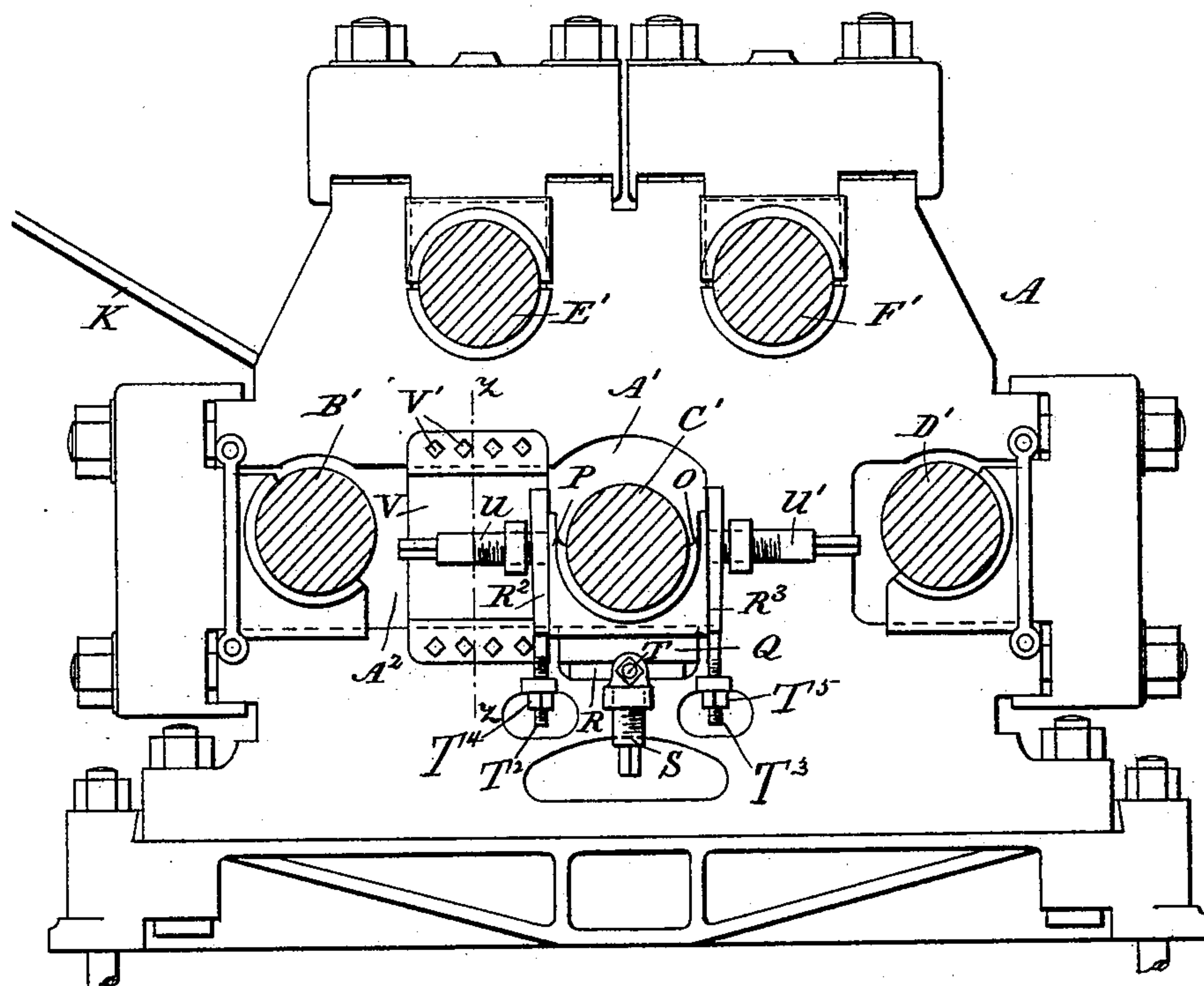


Fig. 4.

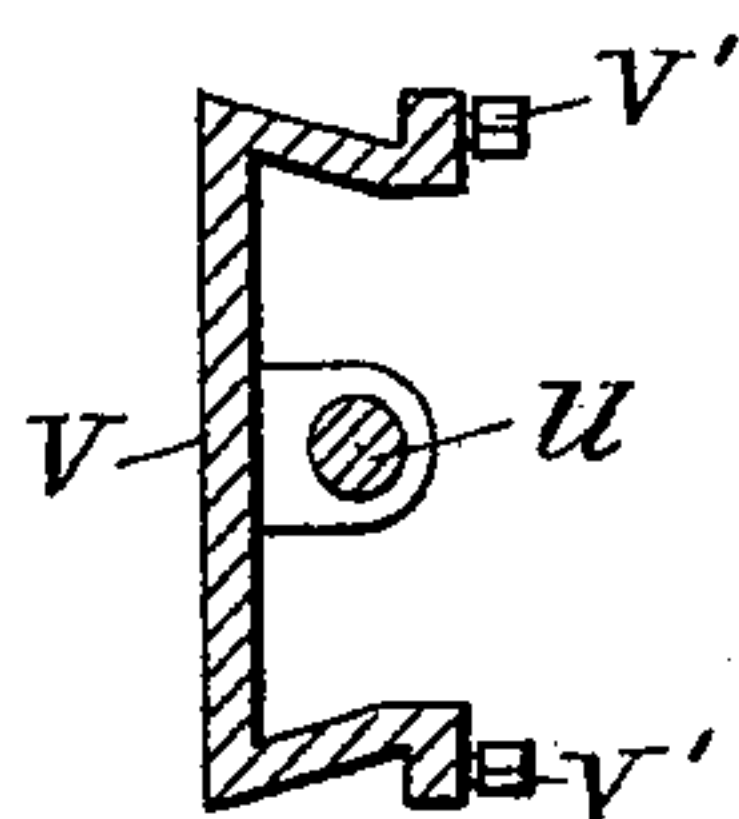
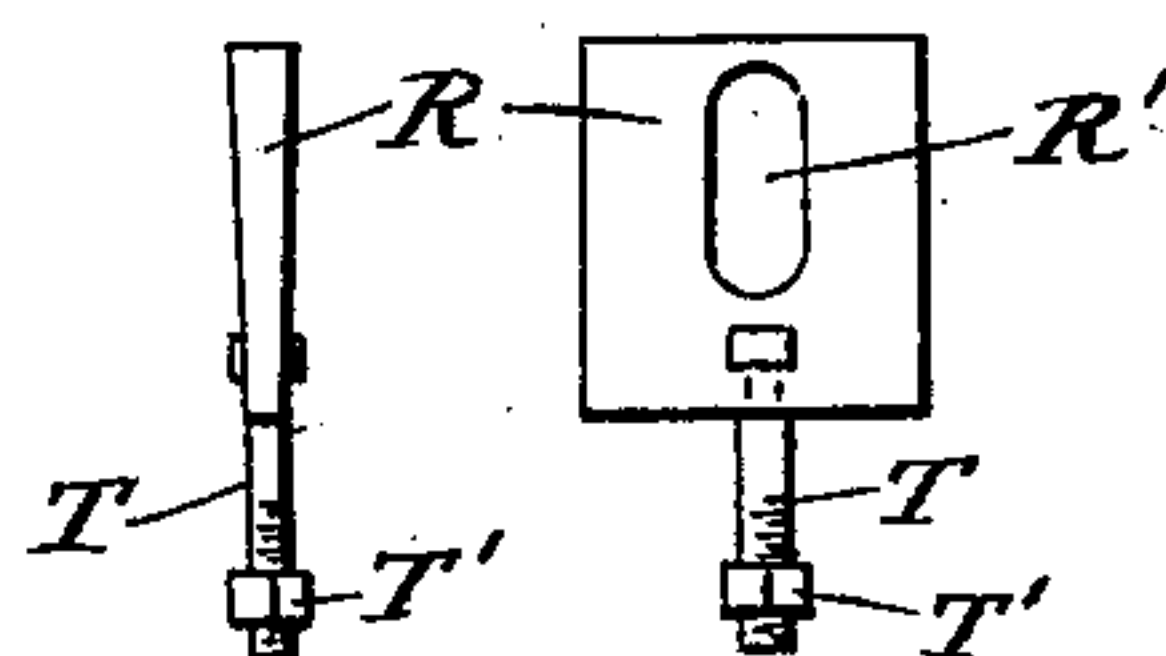


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES HUGHES, OF MATANZAS, CUBA.

CANE-MILL.

SPECIFICATION forming part of Letters Patent No. 395,832, dated January 8, 1889.

Application filed September 22, 1887. Serial No. 250,411. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HUGHES, of Matanzas, Cuba, have invented a new and Improved Cane-Mill, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved mill for crushing sugar-cane, so as to extract all the juice, and at the same time furnish a dry bagasse.

The invention consists in certain parts and details and combinations, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improvement. Fig. 2 is a sectional side elevation of the same on the line *xx* of Fig. 1. Fig. 3 is a sectional side elevation of my improvement on the line *yy* of Fig. 1. Fig. 4 is a vertical cross-section of part of my improvement on the line *zz* of Fig. 5, and Fig. 5 is a detail view of part of the adjustable bearing.

On a suitably-constructed frame, A, are mounted to rotate the five rollers B, C, D, E, and F, of which the first three are located alongside each other in a horizontal plane, while the other two are placed above and between said rollers B C and C D, respectively, as is plainly shown in Fig. 2. The shaft E', carrying the roller E, is connected by suitable means with mechanisms for imparting motion to the mill. Said shaft E' is also provided on its opposite end with a gear-wheel, G, which meshes into the gear-wheels G' and G², secured, respectively, to one end of the shafts B' and C' of the rollers B and C. The other end of the shaft C' carries a gear-wheel, G³, which meshes into a gear-wheel, G⁴, secured on the shaft F' of the roller F, and said gear-wheel G⁴ meshes into a gear-wheel, G⁵, fastened on the shaft D' of the roller D.

It will be seen that when a rotary motion is imparted to the shaft E' or to any of the other shafts, then the rollers B, C, D, E, and F are rotated simultaneously in the directions indicated by the arrows in Fig. 2.

H H' are the turn-plates for the lower rollers, and I I are their screw-rods, provided with nuts I' I' for adjusting them.

J is the turn-plate for the upper rollers.

Each of the lower rollers, B, C, and D, is provided at each end with an annular flange, N, to prevent the cane from leaving the roller sidewise.

The shafts B' and D' of the rollers B and D are mounted in sidewise-adjustable boxes of any approved construction. The shaft C' of the roller C, however, is mounted in bearings O, which are adjustable sidewise and laterally, so as to regulate the relative distances between the several rollers with great accuracy. Each adjustable bearing O of the roller C consists of the box P, resting on a bottom plate, Q, supported on a wedge-shaped plate, R. (Illustrated in Fig. 7.) This wedge-shaped plate R rests in the bottom of the slot A', formed in the frame A for the reception of said bearing O, and said plate R is provided with a transverse groove, R', through which are adapted to pass the upper ends of the set screw or screws S, screwing in the frame A and against the bottom of the plate Q.

The set-screws S serve to raise or lower the box P to any desired position, after which the wedge-shaped plate R is adjusted so as to fit between the said bottom plate, Q, and the bottom of the opening A', whereby said box P is held in position and supported by said plate R, thus relieving the set-screws S from all pressure. In fact the set-screws can be removed after the plate R has been adjusted as described.

The adjustment of the plate R takes place by means of a bolt, T, connected loosely by its head with said plate R and passing through a lug or ear on the frame A, and being screw-threaded on its outer end, on which a nut, T', screws against the said lug on the frame A. It will be seen that when the said nut T' is turned the bolt T slides horizontally inward or outward, carrying the plate R along until it rests tightly between the plate Q (adjusted by the set-screws S) and the bottom of the groove A', as above described.

Wedge-shaped plates R² and R³ similar to the plates R are placed on the sides of each box P, and are vertically adjustable by their respective bolts T² T³ and nuts T⁴ T⁵, so as to take up all sidewise pressure after the set-screws U and U' have adjusted the box P sidewise. The plates R² and R³ each re t

with one side against the sides of the box P, and the other sides are held, respectively, against the frame A and the dovetail frame V, sliding in a correspondingly-shaped slot, A², formed in the frame A. Said dovetail frame V is secured to the frame A by suitable means, preferably, however, by set-screws V', as shown in the drawings. The frame V carries the set-screw U and permits of removing the central roller, C, without disturbing the rollers D, E, and F. The roller B, however, has to be removed previous to the removal of the central roller, C. Instead of the special construction set forth above for adjusting the central roller, C, vertically and sidewise, I may employ other suitable means to accomplish the same result.

Below the rollers B, C, and D is placed a pan or other suitable receptacle, L, for the reception of the juice pressed out of the cane by the rollers.

The operation will be fully understood from the foregoing, and need not be further described.

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

1. The combination, with the frame and the

upper rolls, of the three lower rolls, the boxes P, receiving the journals of the middle lower roller, longitudinally-slotted wedges adjustable in the direction of the length of the roll under said boxes, vertically-adjustable set-screws having bearings on the frame and passing up through said slots for adjusting the boxes vertically, vertically-adjustable slotted wedges at both sides of said boxes, and transverse set-screws having bearings on the frame and extending through said wedges into contact with the vertical sides of the boxes, substantially as set forth.

2. The combination of the frame A, having the horizontal open-ended slots A', the central lower roller having boxes P, supported in the slots at their closed ends, the wedge-shape plates V, closing said slots beyond the roll, the roll B, journaled in the said slots beyond the plates V, the roll D, journaled in the frame in line with the rolls B C, the bottom and side wedges, and adjusting and set screws U U', the set-screws V' being carried by the plates V, substantially as set forth.

CHARLES HUGHES.

Witnesses:

THEO. G. HOSTER,
C. SEDGWICK.