(No Model.) 2 Sheets—Sheet 1.

S. C. MEYER.

MACHINE FOR REDUCING BAGASSE TO PULP TO EXTRACT THE SACCHARINE MATTER THEREFROM.

No. 313,510. Patented Mar. 10, 1885.

FIG 1

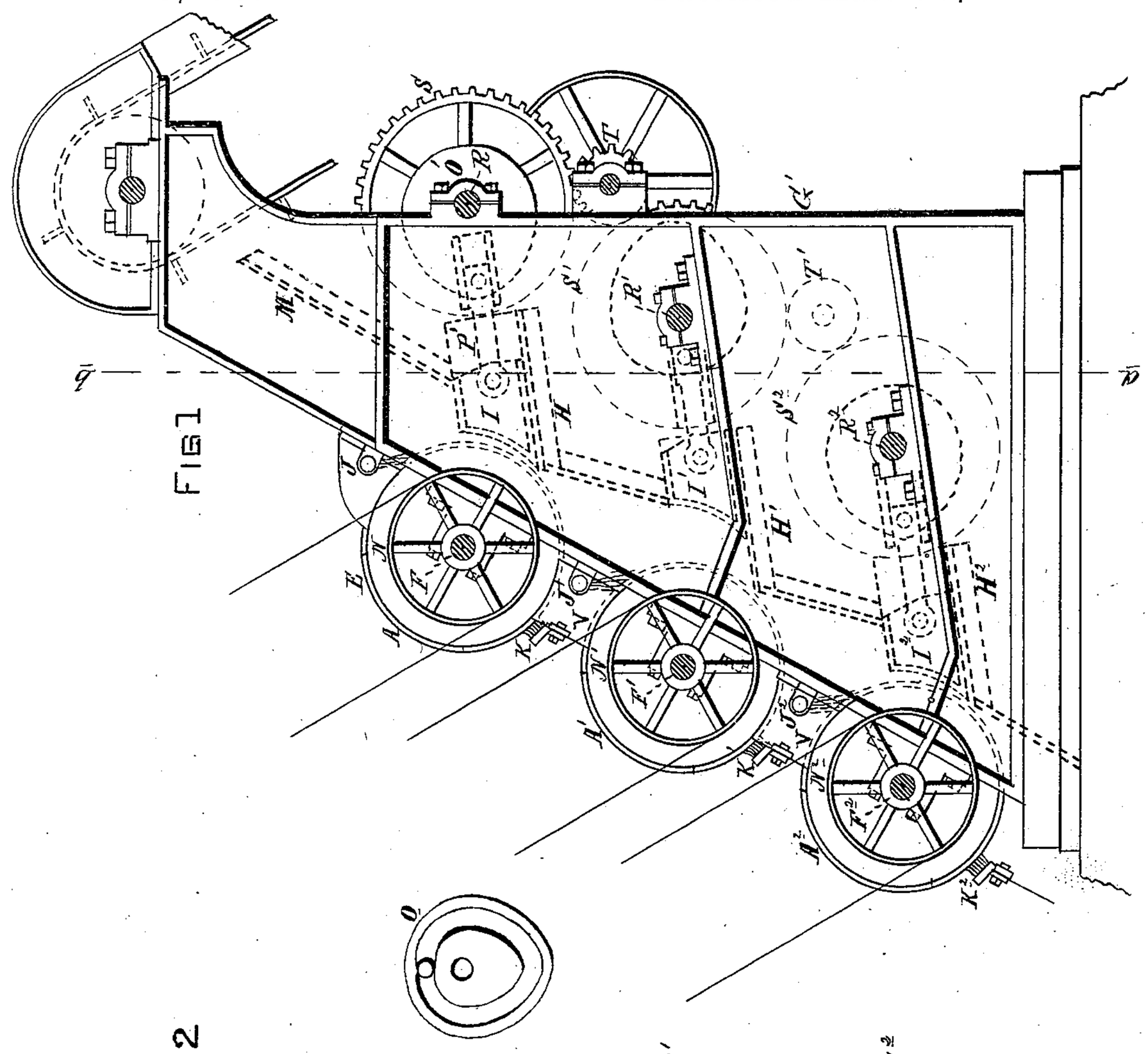
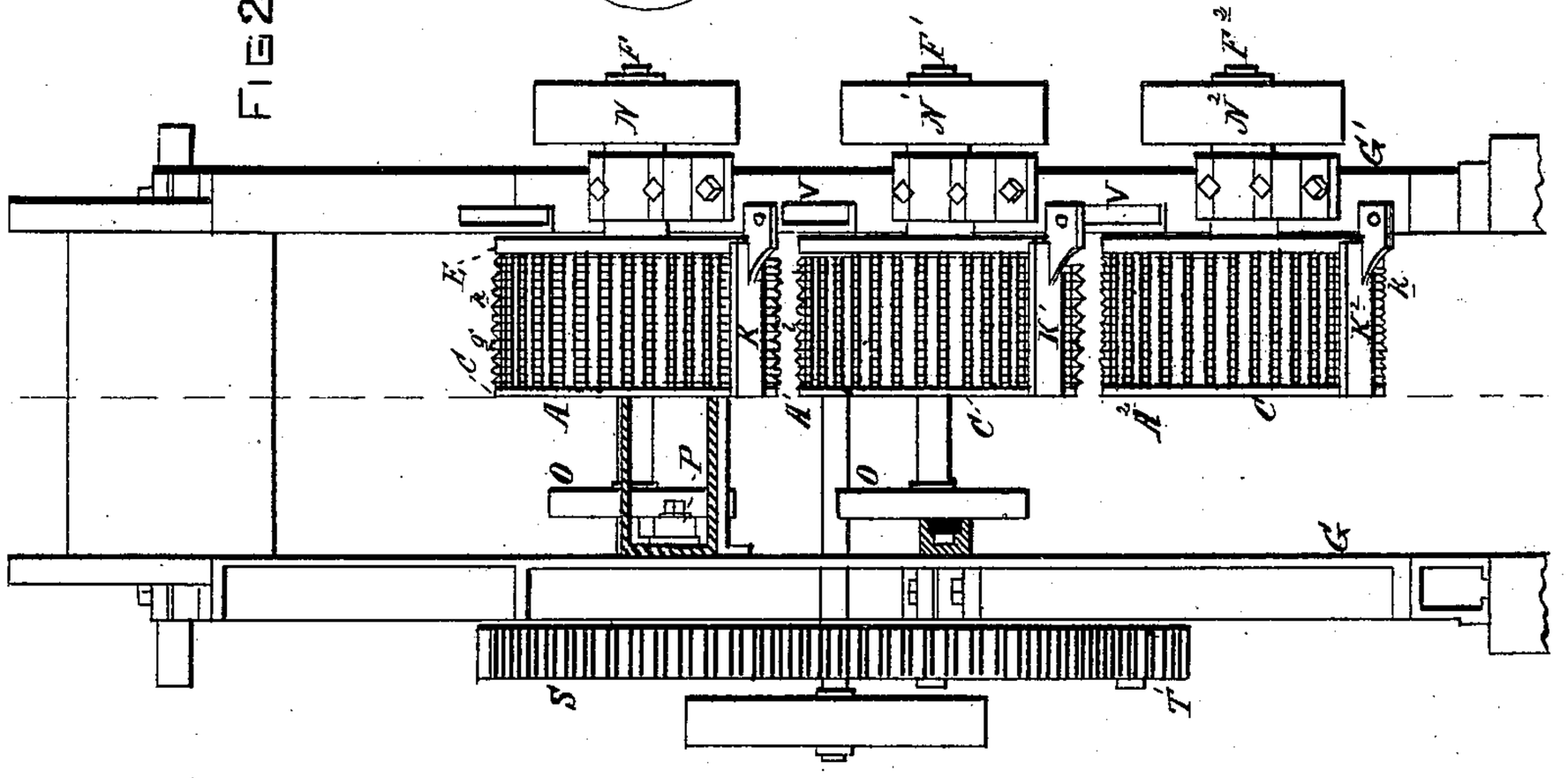


FIG 2



WITNESSES -

Désiré Patin

Christopher Fallon

INVENTOR -

Simon C. Meyer.

By Isaac R. Oakford

His Attorney.

(No Model.) 2 Sheets—Sheet 2.

S. C. MEYER.

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FIG 4

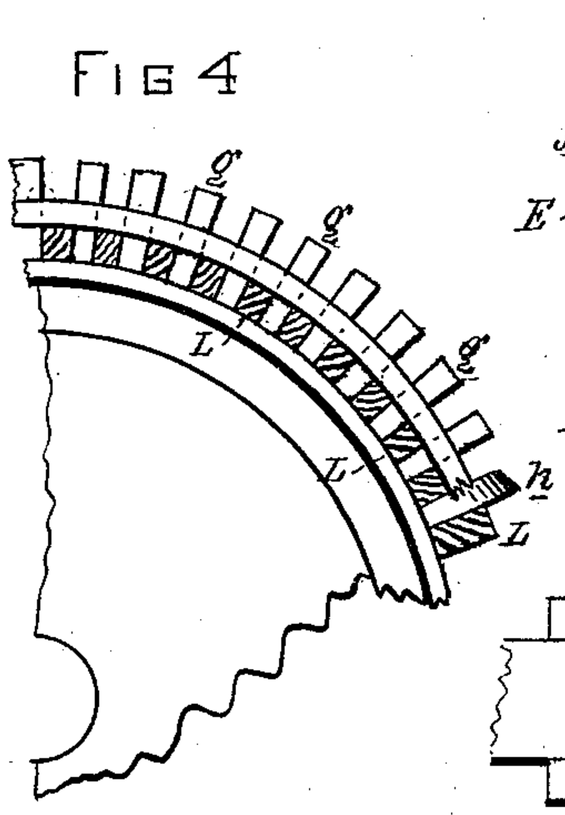

FIG 3

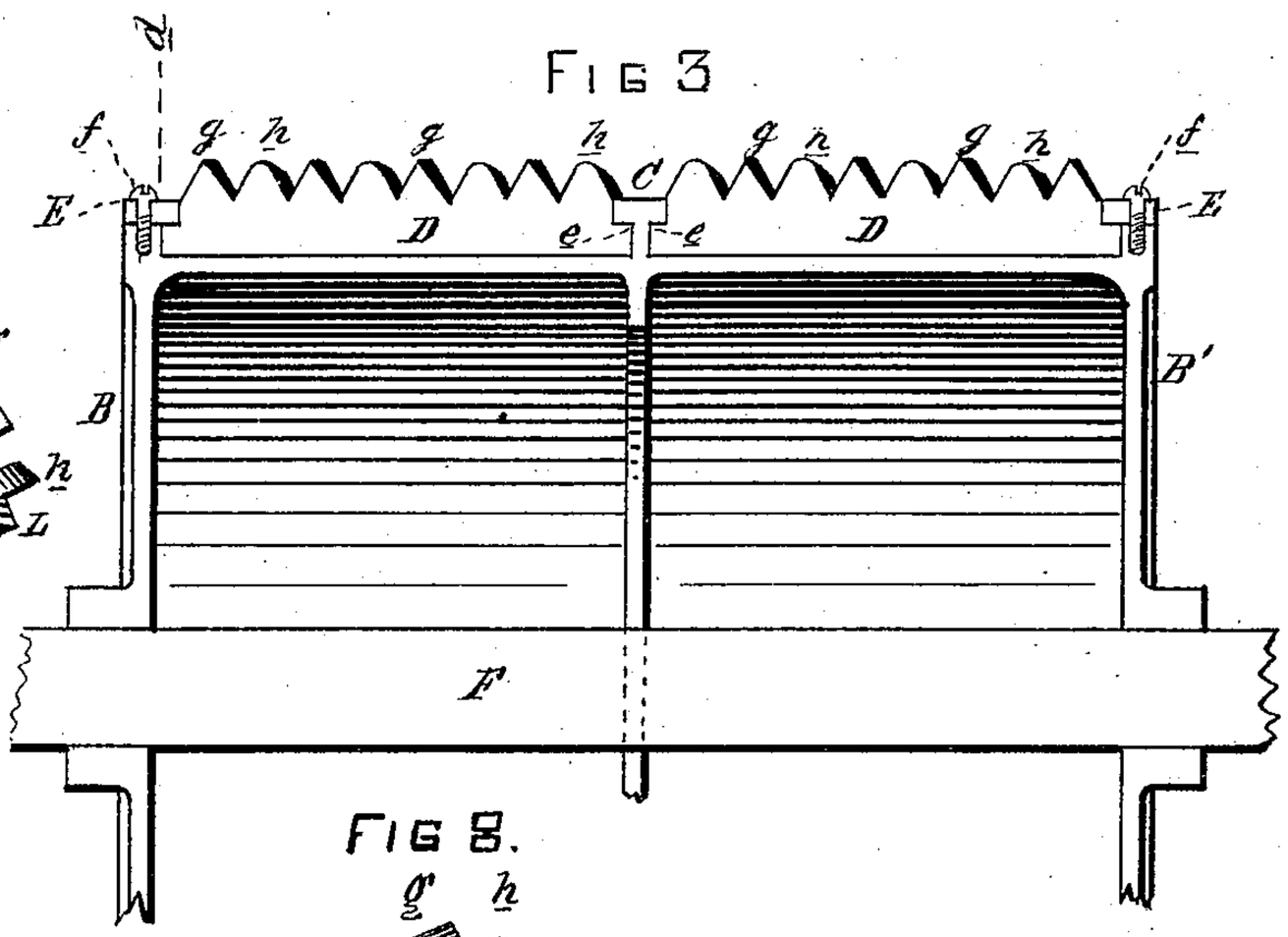

FIG 8.

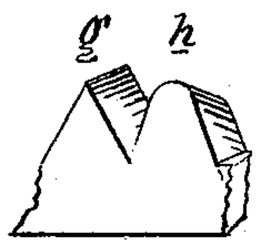

FIG 5

FIG 6

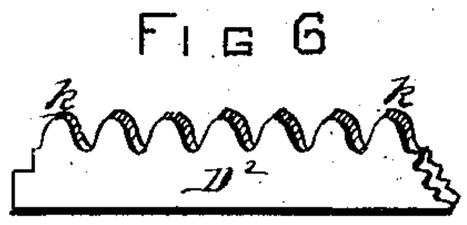

FIG 7

WITNESSES.

Désiré Patin

Christopher Fellon

INVENTOR.

Simon C. Meyer.

By Isaac R. Ackford

His Attorney

UNITED STATES PATENT OFFICE.

SIMON C. MEYER, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR REDUCING BAGASSE TO PULP TO EXTRACT THE SACCHARINE MATTER THEREFROM.

SPECIFICATION forming part of Letters Patent No. 313,510, dated March 10, 1885.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, SIMON C. MEYER, a citizen of Paris, France, residing in the city and county of Philadelphia, State of Pennsylvania, having invented a new and useful Improvement in Machines for Reducing Bagasse to Pulp to Extract the Saccharine Matter Therefrom, of which the following is a specification.

My invention has for its object the extraction of all the saccharine matter, or as large a percentage as possible, remaining in bagasse or crushed sugar-cane. To accomplish this I reduce the bagasse to a fine pulp or pomace, so as to break or open all the cells of the cane not otherwise affected by the cane-mill, to liberate the juice, and then submit the pulp to pressure to express the saccharine matter.

My invention consists of a series of cylindrical rasps, mounted partially within an inclined chute, and provided with adjustable teeth or cutters of coarse and fine pitch, for the reduction of the bagasse in rapid succession to as fine a pulp as may be desired. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the the entire machine. Fig. 2 is a half-elevation and half-section on the line *a b* of Fig. 1. Fig. 3 is a longitudinal section through a portion of one of the cylindrical rasps. Fig. 4 is a transverse section on the line *c d* of Fig. 3. Figs. 5, 6, 7, and 8 are edge views of the teeth or cutters detached from the cylinders, showing the different form of teeth employed. The cylinders A, A′, and A² are each flanged at the ends, as shown at B B′, Fig. 3, and are provided with an annular rib, C, arranged to form two divisions around the circumference. On each side of the said rib an annular groove or channel, *e*, is formed for the reception of the inner ends of the toothed or cutter bars D, which are placed in a longitudinal direction on the circumference of the cylinder with their outer ends resting against the flanges B and B′.

E is a circular band, divided into as many segments as convenient for adjustment, placed over the ends of the toothed bars, and secured to the periphery of the flanges B and B′ by means of the screws *f f*. The said cylinders A, A′, and A² are mounted upon shafts F, F′, and F², which have their journals resting in bearings secured on the front part of the housings G and G′, as shown in Figs. 1 and 2. These housings also form the sides of the inclined chute, and are arranged the proper distance apart to accommodate the cylinders, which project partially within the chute to act upon the descending bagasse.

H, H′, and H², Fig. 1, are inclined platforms, secured across the intervening space between the sides of the chute and in the rear of each cylinder, arranged to support the plungers I, I′, and I², which press the material toward the cylinders.

The teeth on the bars D of the cylinder A, Figs. 3 and 4, are of two different shapes. The teeth *g*, viewed from the front or cutting edge, present a double-inclined or wedge shape, while the cutting-edges of the alternate teeth *h* are curved or rounded off at the apex and recede toward the back part, presenting a cutting-edge somewhat in the form of a parabola. As this cylinder has the heaviest part of the work to perform, the teeth are necessarily made larger and stronger, so as to effectually cut through and mangle the bagasse.

The teeth *i* on the bars D′ of the cylinder A′, Fig. 5, are of uniform shape and size, being of a double incline or wedge-shape, and the teeth *k* on the cylinder A² are composed of curved or waved lines presenting a cutting-edge semicircular in form. These two cylinders will reduce the bagasse to a fine pulp; but if a still finer pulp is desired, the machine may be arranged to receive an additional cylinder or cylinders provided with fine saw-teeth, as shown in Fig. 7.

The toothed bars are arranged on the cylinders in two divisions, as above stated, and are by this means readily adjusted, the circular band E being so divided into segments as to be readily removed and applied when it becomes necessary to remove one or more of the bars for repairs. The bars are also placed at intervals around the cylinders, with blocks of wood L, Fig. 4, fitted in the intervening spaces, to hold them longitudinally in position.

J, J′, and J², Fig. 1, are nozzles for introducing jets of water into the mass of pulp for the purpose of retaining the same in a semi-fluid state, so as to be more readily worked.

Brushes K, K′, and K², Figs. 1 and 2, with their ends secured to side projections, V V, are arranged across the housings in front of and in contact with the teeth of each cylinder, for the purpose of removing any particles of pulp which might adhere to the teeth and interfere with their proper action. The bagasse to be acted upon is received at the upper part of the chute from an endless apron or cane-carrier, and falls upon the inclined plate M, and in passing downward is acted upon by the first cylinder, which reduces it to threads or filaments before it passes to the second cylinder, where it is reduced to a finer degree, and then on to the third cylinder, where it is reduced still finer and the rasping process completed, from whence the pulp passes to a suitable receptacle or directly into the press.

The entire machine is placed near the cane-mill, and the bagasse is submitted to the rasping process just as it comes from the mill; but it may be necessary to reduce it to short pieces before it passes into the machine, and for this purpose I propose to use a circular saw or revolving cutter to cut the bagasse into short sections.

The axles of the cylinders A, A′, and A² are provided with pulleys N, N′, and N², which receive motion communicated by belts from shafting and pulleys driven by the engine of the cane-mill or independent power.

The plungers I, I′, and I², Figs. 1 and 2, which are reciprocated upon the inclined platforms H, H′, and H², to carry the bagasse or pulp toward the rasping-cylinders, are operated by means of grooved heart-shaped cams *o* *o′* and pivoted levers P P′. The said cams are placed in pairs upon shafts R, R′, and R², and receive motion from spur-wheels S, S′, and S² and pinions T T′.

I do not wish to limit myself to the exact construction of the machine as described, as it is obvious that many changes may be made without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine or apparatus for reducing bagasse to a fine pulp or pomace, the combination of the cylinders A, A′, and A², toothed bars D, D′, and D², wooden block L, and segmental bands E, substantially as shown and described.

2. The combination of the cylinders A, A′, and A², provided with the flanges B B′, rib C, and teeth *g*, *h*, *i*, and *k*, substantially as and for the purpose shown and described.

3. The combination of the cylinders A, A′, and A², housings G and G′, inclined platforms H, H′, and H², plungers I, I′, and I², water-jets J, J′, and J², and brushes K, K′, and K², substantially as and for the purpose shown and described.

4. The combination of the cylinders A, A′, and A², shafts F, F′, and F², pulleys N, N′, and N², housings G and G′, plungers I, I′, and I², shafts R, R′, and R², heart-cams O O′, levers P P′, spur-wheels S, S′, and S², and pinions T T′, substantially as shown and described.

SIMON C. MEYER.

Witnesses:
CHRISTOPHER FALLON,
ISAAC R. OAKFORD.