(No Model.) 6 Sheets—Sheet 1.

E. SCHULZE.

SUGAR CANE SLICING MACHINE.

No. 457,221. Patented Aug. 4, 1891.

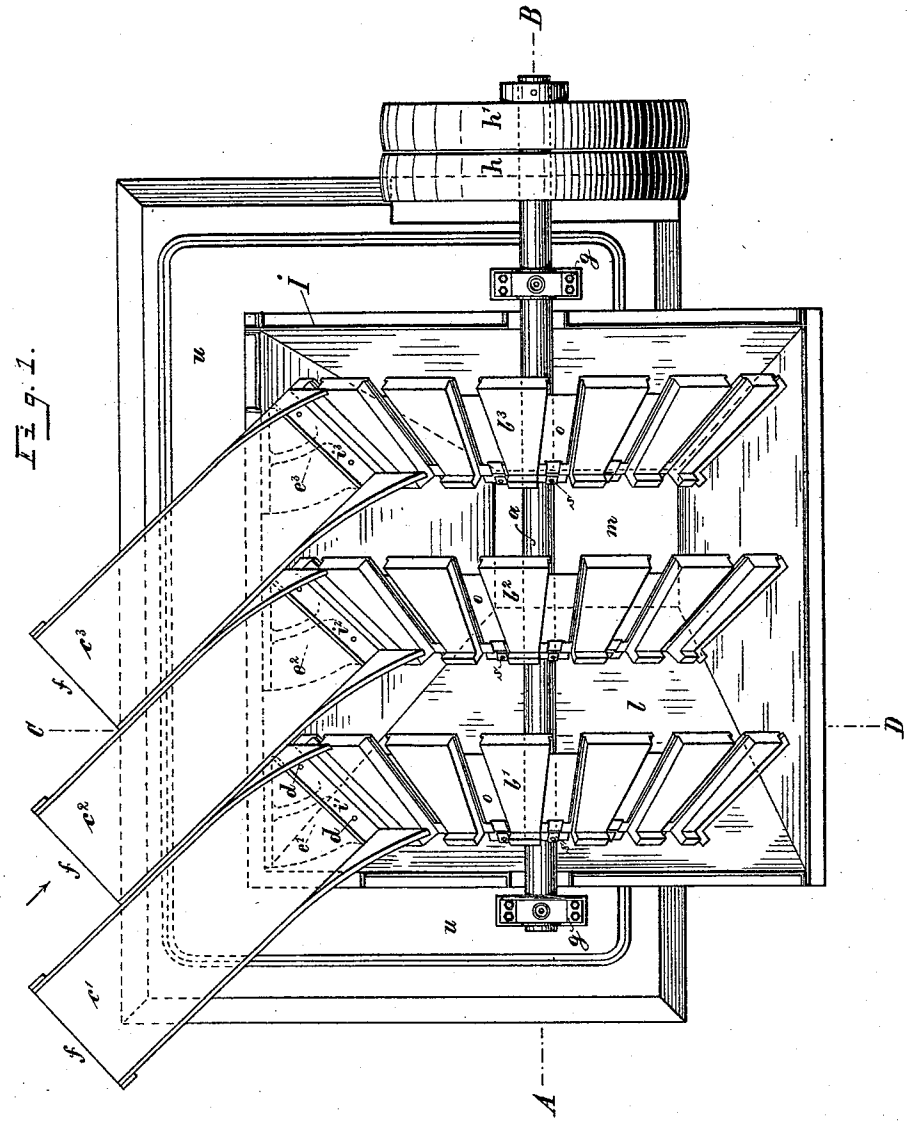


Fig. 1.

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J. G. Meyers Jr.

Inventor:
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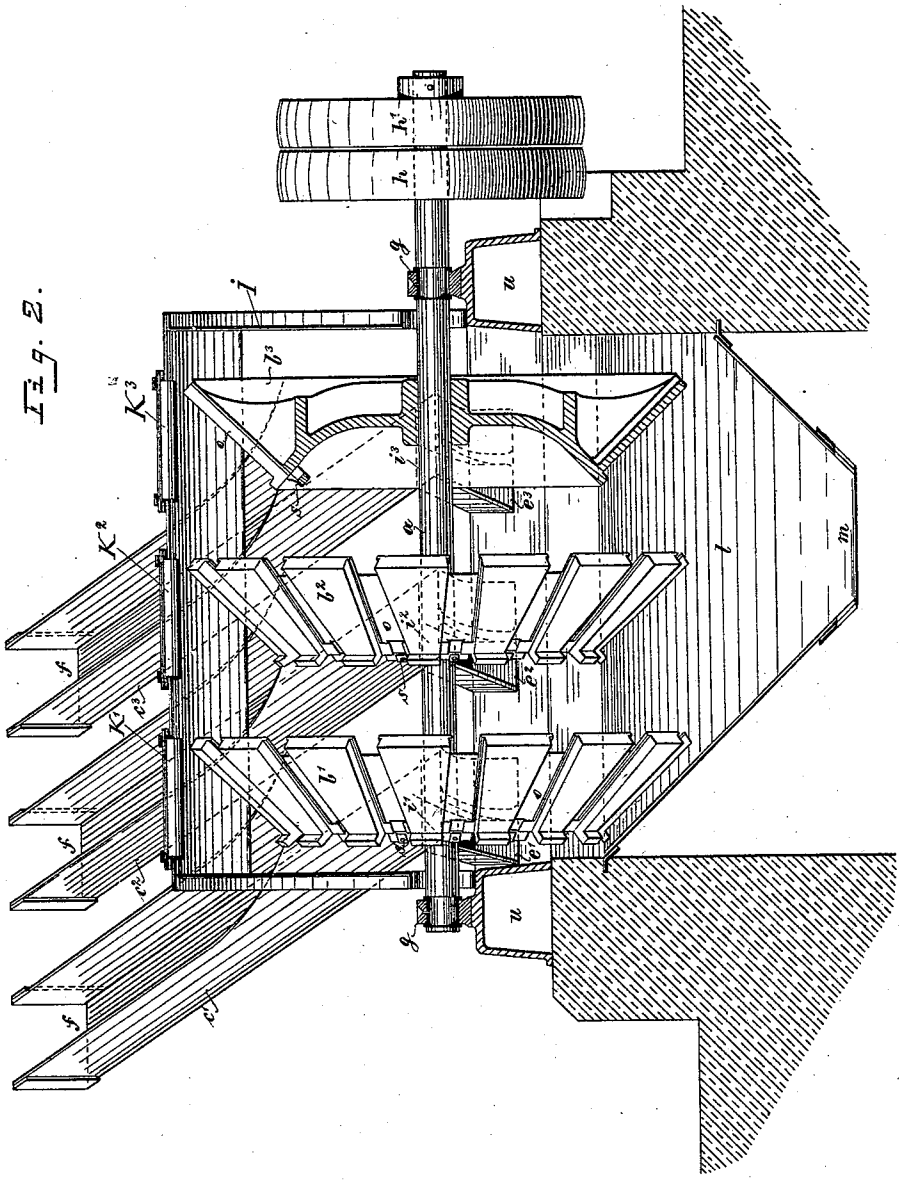
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Fig. 2.



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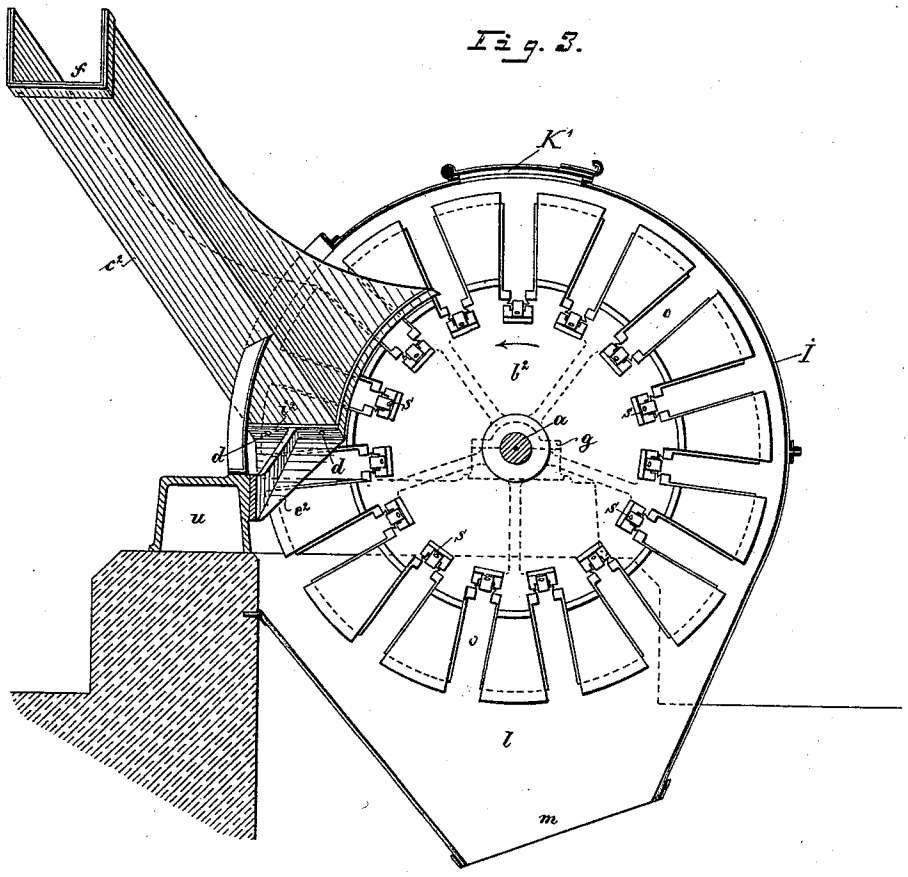
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SUGAR CANE SLICING MACHINE.

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Fig. 3.



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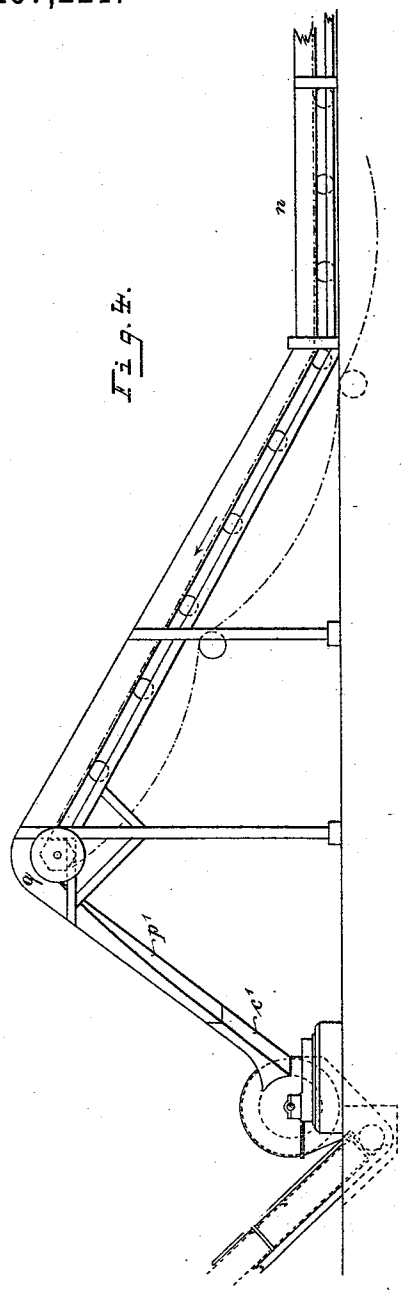


Fig. 4.

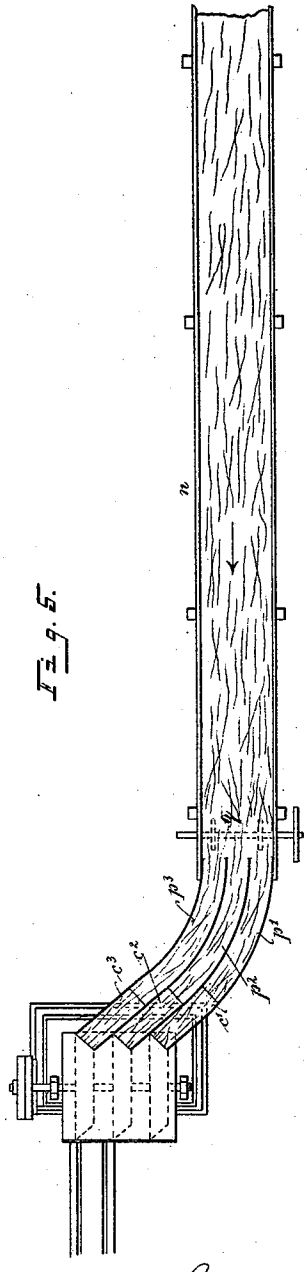


Fig. 5.

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SUGAR CANE SLICING MACHINE.

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Fig. 6.

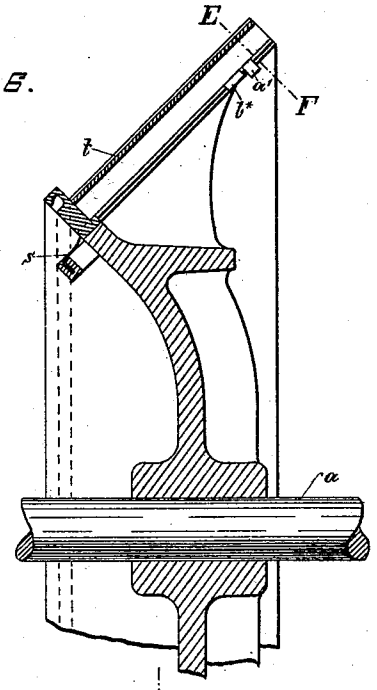


Fig. 7.

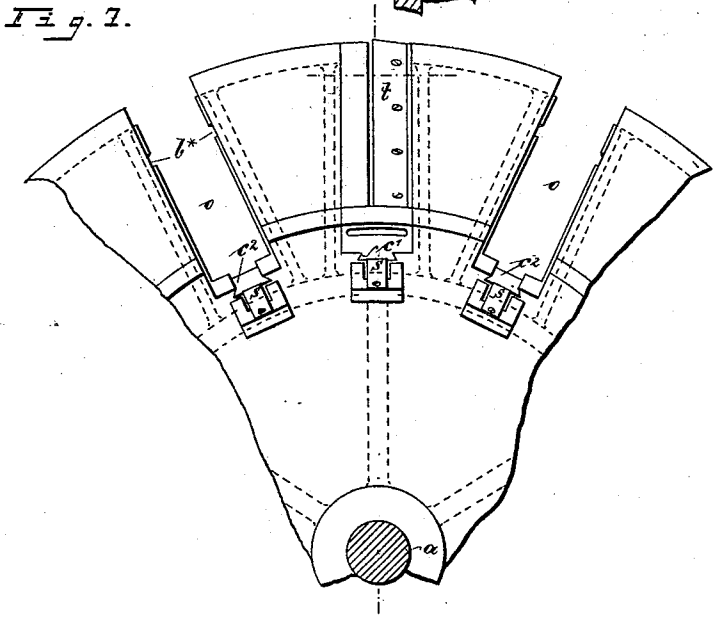
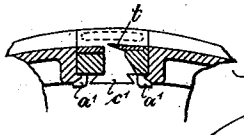


Fig. 8.



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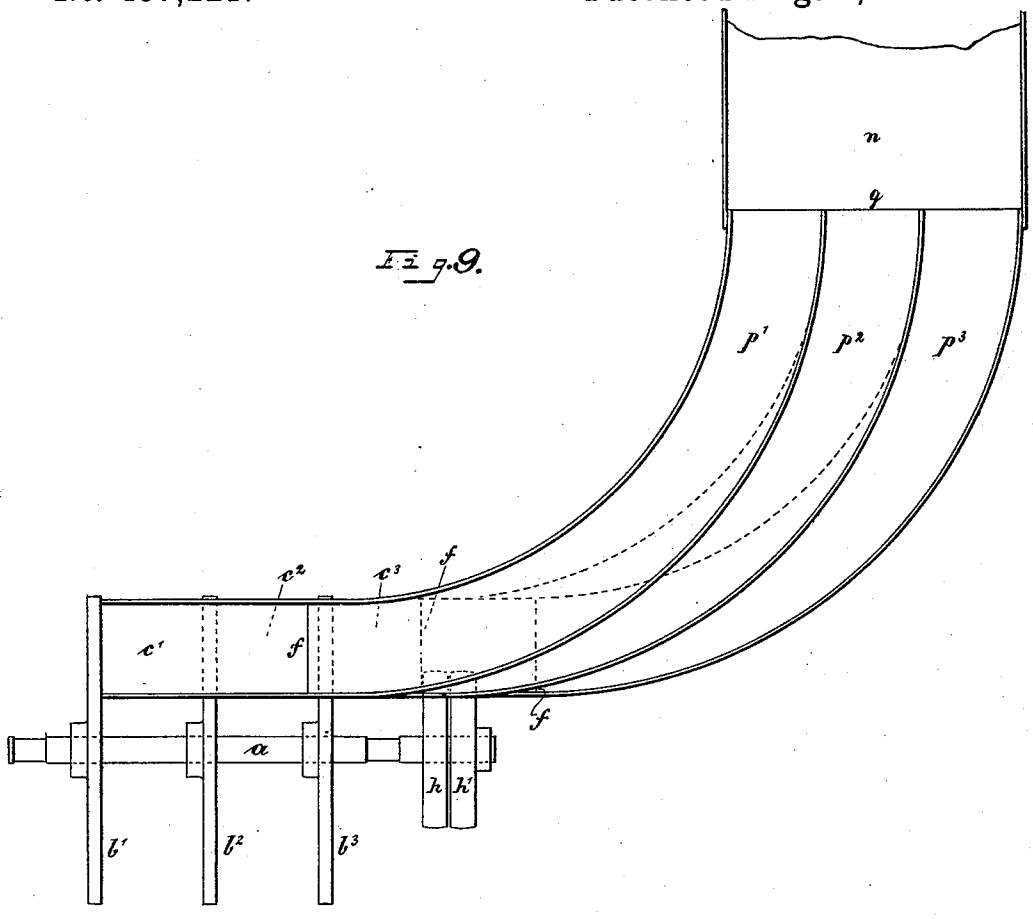
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SUGAR CANE SLICING MACHINE.

No. 457,221. Patented Aug. 4, 1891.

Fig. 9.



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UNITED STATES PATENT OFFICE.

ERNST SCHULZE, OF SANGERHAUSEN, GERMANY, ASSIGNOR OF ONE-HALF TO THE SANGERHÄUSER ACTIEN-MASCHINEN-FABRIK AND EISENGIESSEREI, VORMALS HORNUNG & RABE, OF SAME PLACE.

SUGAR-CANE-SLICING MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,221, dated August 4, 1891.

Application filed December 11, 1890. Serial No. 374,365. (No model.)

To all whom it may concern:

Be it known that I, ERNST SCHULZE, of the city of Sangerhausen, in the Kingdom of Prussia and German Empire, have invented a certain new and useful Improvement in Sugar-Cane-Slicing Machines, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to machines for slicing or cutting saccharine material, and is more especially designed for sugar-cane which is to be subsequently treated by the diffusion process.

The invention consists in the combination, with a slicing-machine having a series of cutter-disks mounted on a single shaft, of a single cane-conveyer, a multiple of feeding-hoppers, and inclined chutes of laterally-arched construction, the upper ends of which coincide with each other and with the end of the cane-conveyer on a rectilinear horizontal line, as hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a plan of the machine. Fig. 2 is a vertical section on the line A B, and Fig. 3 likewise a section on the line C D of Fig. 1. Figs. 4 and 5 are diagrams of the plant, the former being a lateral view of the cutting or slicing machine in connection with a common cane-conveyer, the latter figure being a plan view of the same arrangement. Figs. 6, 7, and 8 illustrate the arrangement of the cutter-disk with a cutter-box inserted therein, all drawn to an enlarged scale, Fig. 6 being a vertical transverse section, Fig. 7 a front view, and Fig. 8 a detail shown in section on the line E F of Fig. 6. Fig. 9 is a diagram showing a modified form of the slicing-machine as seen from above, with straight instead of conical cutter-disks and the corresponding number of feeding-hoppers arranged in different positions.

a, Figs. 1, 2, and 3, indicates a horizontal shaft, on which may be mounted any multiple of conical cutter-disks—that is to say, two or more—three of them b' b^2 b^3 being used with the machine illustrated in the drawings, said cutter-disks being arranged so that the feeding-hoppers c' c^2 c^3, of which there must be one for each disk, will, when viewed from above, appear as lying the one immediately alongside of the other, without either overlapping or leaving any intermdiate space between each other, as shown in Figs. 1 and 5. The cutter-disks are formed near their outer conical portion with a suitable number of cut-away openings *o*, Figs. 1, 2, 3, 6, and 7, for inserting the cutter-boxes *t*, the latter being secured therein in the usual manner, a spring *s*, Figs. 6 and 7, retaining them while being fastened and preventing them from slipping out. The said openings may be either open toward the periphery of the cutter-disks, as shown in Figs. 1, 2, 3, 6, and 7, or they may be closed, the arrangement of a cutter-box within one of the openings *o* being shown on an enlarged scale in Figs. 6 to 8. The projections a' a' prevent the cutter-boxes *t* inserted into the cutter-disks from flying out at the top, the said projections being so arranged as to engage with the suitable beveled edges of the cutting-disk from below in a manner similar to that of the dovetailed projection c', fitting in the opening c^2, after the cutter-boxes have been inserted from above and slightly pressed toward the periphery of the disk, the openings b^* thereby serving the purpose of freely admitting the projections a' while the cutter-box is being inserted. The feeding-hoppers for the sugar-cane are inclined toward an imaginary horizontal plane passing through the center of the cutter-disks. They are all of the same size and shape and run parallel to each other, their position being such as to cause the sugar-cane to automatically slide from their highest point *f* down to the outer conical portion of the cutter-disks. At the lower end of the feeding-hoppers nearest to the cutter-disks the intermediate space between the lower edges of the said feeding-hoppers and the said cutter-disks may be adjusted so as to become larger or smaller by means of adjustable counter-pieces i' i^2 i^3 in the same manner as in the usual kind of slicing or cutting machines having horizontal cutter-disks.

d d designate screws for securing the counter-pieces on the cast-iron seats e' e^2 e^3.

g g indicate bearings in which the shaft a rotates, and h h' a fast and a loose pulley, respectively, for imparting movement to the machine in a manner well known. The shaft a being rotated in the direction of the arrow shown in Fig. 3, the blades of the cutter-box inserted in the cutter-disks will slice or cut off the lower ends of such of the pieces of sugar-cane within the feeding-hoppers as come into contact with the cutter-disks. The cutter-disks are surrounded by a metal casing I, preferably of wrought-iron, preventing the parings or slices from being thrown out, the casing being provided with openings K' K^2 K^3, having lids for allowing access to the interior of the machine so as to exchange the cutter-boxes.

u illustrates an iron bed-plate upon which the machine rests. The parings of sugar-cane drop into a hopper l, provided below the cutter-disks and having a lower opening m, below which a suitable conveyer may be arranged to convey the cut-up cane to the diffusing apparatus.

In Figs. 4 and 5 the slicing-machine is shown in combination with a cane-conveyer n, the feeding-hoppers c' c^2 c^3 being here in an arched way elongated by means of obliquely-arranged chutes p' p^2 p^3, extending in the same angle as that formed by the feeding-hoppers with regard to a horizontal plane in such a manner that the upper edges of the chutes will form a horizontal continuation of the cane-conveyer at the point q, where the cane is discharged by the said cane-conveyer, the latter moving in the direction indicated by the arrow, the chutes and feeding-hoppers thus forming a continuation of the feed-conduit to be passed by the sugar-cane on its way to the slicing-machine. The breadth of the cane-conveyer is equal to the breadth of each hopper multiplied with the total number of hoppers of the machine.

It is obvious that instead of being of conical shape, as in Figs. 1 to 3, the cutter-disks may also be formed with straight surfaces, as shown in diagram in Fig. 9. In this arrangement the lower ends of the feeding-hoppers c' c^2 c^3 are arranged one directly above the other.

The connection between the feeding-hoppers and the cane-conveyer n is here formed in the same manner as in the case of conical cutter-disks by means of laterally-arched chutes p' p^2 p^3.

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

In a slicing-machine for sugar-cane and the like, having a multiple of cutter-disks mounted on a single common shaft, the combination, with a single cane-conveyer, of a multiple of feeding-hoppers and inclined chutes of laterally-arched construction, the upper ends of which coincide with each other and with the end of the cane-conveyer on a rectilinear horizontal line, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNST SCHULZE.

Witnesses:
ROBERT R. SCHMIDT,
PAUL KLINTNER.