No. 864,109. PATENTED AUG. 20, 1907.

J. SCHULTE.

BEET ROOT CUTTING MACHINE.

APPLICATION FILED JAN. 28, 1904.

4 SHEETS—SHEET 1.

Fig. 1

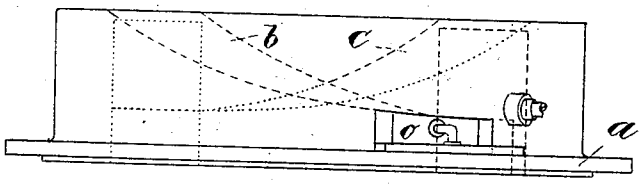
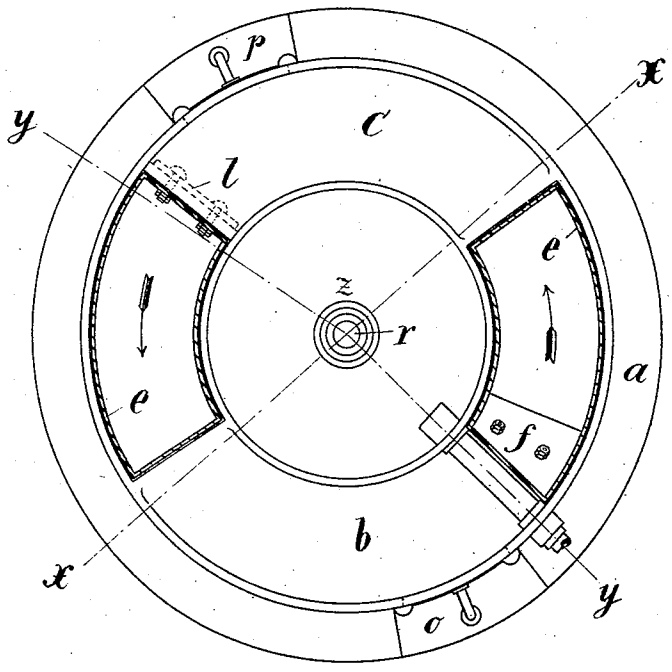


Fig. 2



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Fig. 3

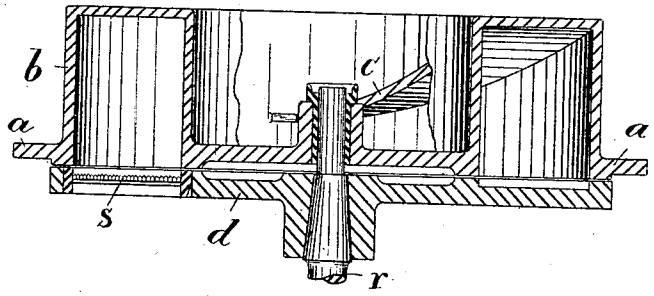


Fig. 4

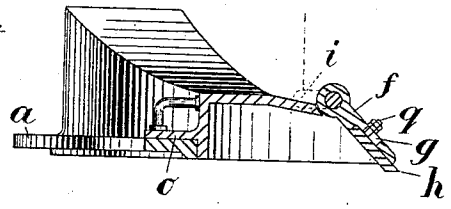
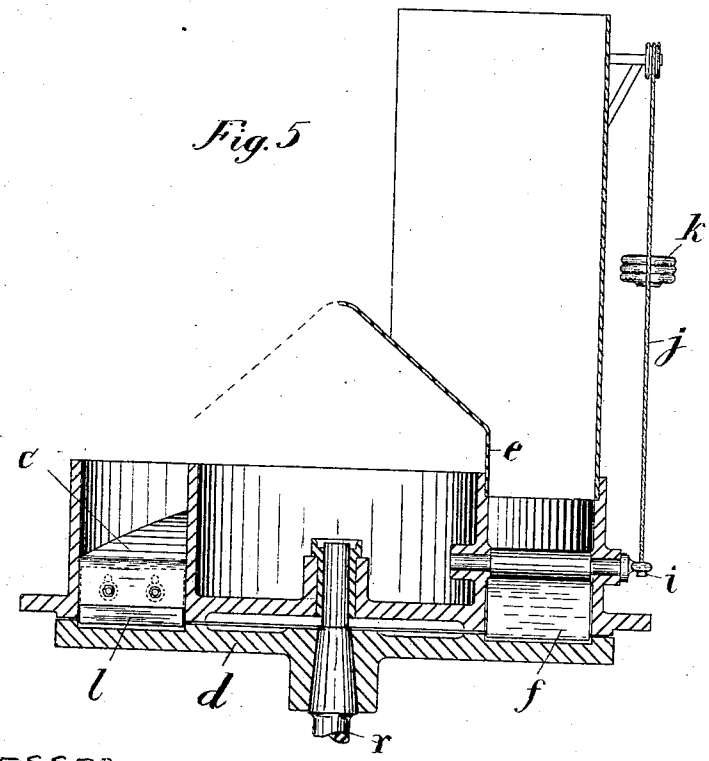


Fig. 5



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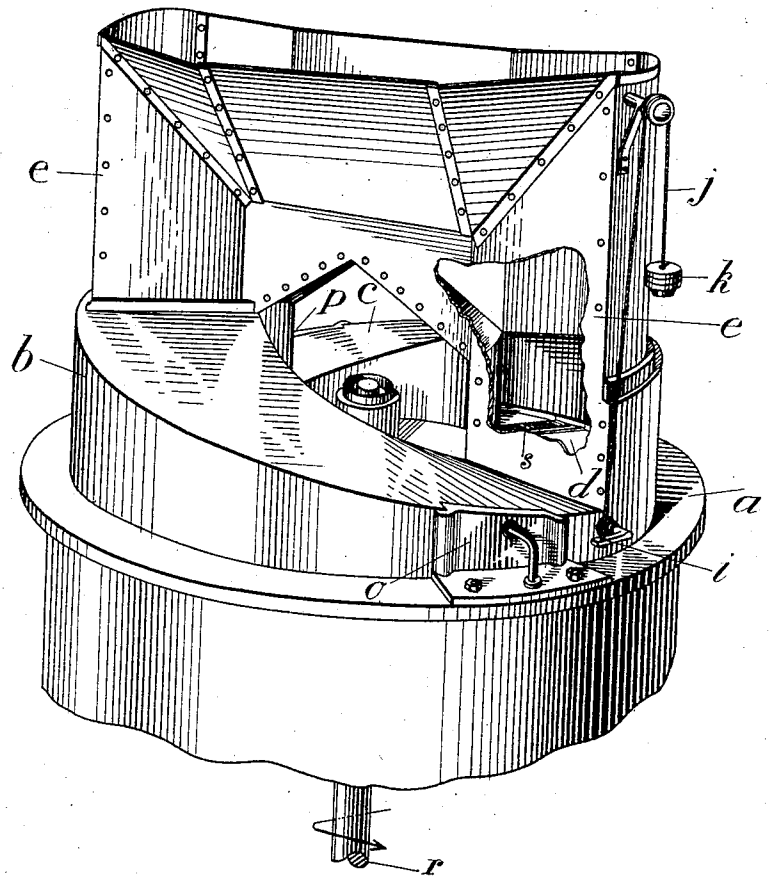
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4 SHEETS—SHEET 3.

Fig. 6



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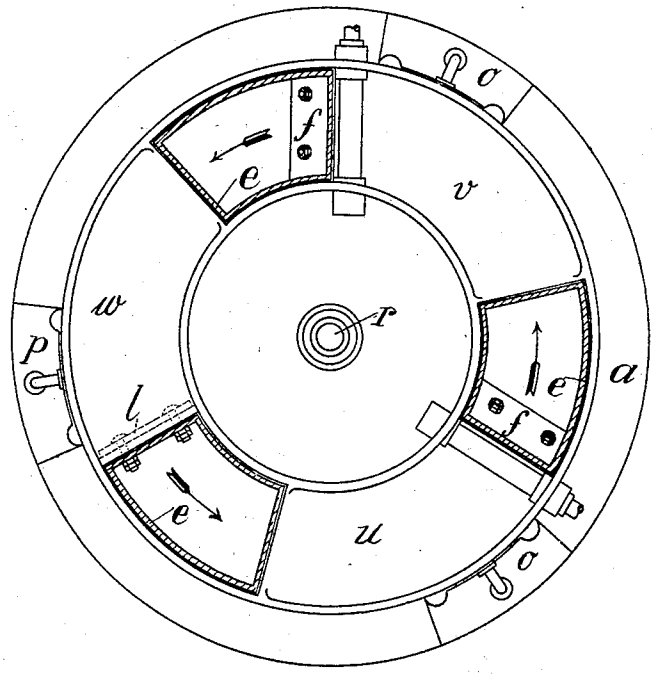
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4 SHEETS—SHEET 4.

Fig. 1



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UNITED STATES PATENT OFFICE.

JULIUS SCHULTE, OF HAGEN, WESTPHALIA, GERMANY, ASSIGNOR TO H. PUTSCH & CO. OF HAGEN, GERMANY.

BEET-ROOT-CUTTING MACHINE.

No. 864,109. Specification of Letters Patent. Patented Aug. 20, 1907.

Application filed January 28, 1904. Serial No. 191,043.

To all whom it may concern:

Be it known that I, JULIUS SCHULTE, work-master, a subject of the Emperor of Germany, residing at Hagen, Westphalia, in the Empire of Germany, (whose full postal address is 8ª Frankfurterstrasse, Hagen aforesaid,) have invented certain new and useful Improvements in Beet-Root-Cutting Machines, of which the following is a specification.

This invention relates to such beetroot-cutting machines as are provided with wedge-shaped pressure-channels on their cover-disks.

According to the present invention, two or more pressure-channels are arranged symmetrically on the cover-disk in such a way that the knife-disk or cutting-disk is symmetrically loaded. By this means, on the one hand, an exceedingly smooth working of the knife-disk is assured, with the avoidance of the unequal wearing away of the shaft bearing of the knife-disk, and on the other hand, simultaneously with an increased efficiency, the production of well-formed and smoothly cut pieces is also assured.

For the purpose of intercepting in the machine stones or other foreign bodies, at a definite part of the machine one pressure-channel is at its rear end closed by a rigid detaining plate, well known for such purposes, while in the case of the remaining pressure-channels, the top or roof of the channel ends in a weighted flap-valve, likewise well-known, so that also in these channels a sufficient pressure is exerted on the beetroot up to the flap-valve, but stones or other foreign bodies move through these pressure-channels by lifting up the flap-valve and can arrive at the place of delivery fixed by the rigid intercepting wall.

A cutting-machine with two channels arranged according to the present invention is represented in the accompanying drawings.

In the drawings: Figure 1 is a side elevation of the cover-disk of the machine. Fig. 2 is a plan of the same. Fig. 3 is a section on the line *x*—*x* of Fig. 2. Fig. 4 shows the arrangement of the movable flap-valve in the channel shown partially in section. Fig. 5 shows the arrangement of the flap-valve and of the rigid intercepting plate by means of a section on the line *y*—*z*—*y* of Fig. 2. Fig. 6 is a perspective view showing the upper part of the slicing-machine according to Fig. 5. Fig. 7 is a plan view showing a modification with three symmetrically lying press-channels.

The cover-disk *a* of the beetroot-cutting machine contains two pressure-channels *b* and *c*, which are arranged in such a way that both their entrances and exits are diametrically opposite one another. The channels *b* and *c* running in the form of a circular arc around the cover-disk from one feeding hopper to the next, have at their entrance openings a suitable height, and are below completely open to the knife-disk *d*. The height of the channels diminishes from the entrance to the other end in such a way that the roof or top at the exit end, is only at a short distance above the knife-disk *d* or above the upper edge of the knife *s*, Fig. 3, arranged on said disk.

In the space on the cover-disk *a* remaining free between the exit opening of the one and the entrance opening of the other channel, the suitably constructed hoppers *e*, Figs. 2 and 5, are arranged. The exit-opening of the channel *b* is maintained stopped by the flap-valve *f*, Figs. 2, 4, and 5, which is pivotally mounted.

On the inner side of the flap-valve *f* a special plate *h* is adjustably arranged in a well-known manner by means of screws *q* in slots *g*, Fig. 4, so that the under edge of the valve can be set at a greater or less distance from the level of the knife-disk according to the application of the cutting-knives for coarser or finer division.

On one of the two pivots, by means of which the flap-valve *f* is pivotally mounted, is fixed an arm *i*. A weight *k* suspended by a rope *j* operates on this in a well-known manner, in such a way that the valve *f*, Fig. 5, closes the exit opening of the channel *b*.

The roof or top of the second channel *c* is, at its exit end, brought perpendicularly downwards to a certain depth (see Fig. 5) and is provided with an intercepting plate *l*, such as is well known, and is adjustable by means of screws in slots. The plate *l* is set in such a way, that only such a small opening remains between its under edge and the upper edge of the knife, that the last portions of the beetroot resulting from the cutting operation are not able to pass through under the intercepting plate *l* but are completely cut up.

At the ends of the channels *b* and *c*, doors *o* and *p*, with handles, are provided in the outer side wall. The knife-disk *d* is mounted in any suitable manner on the shaft *r* which is adapted to be driven.

The beetroot introduced into the hoppers *e* enter the channels *b* and *c* through the entrance openings and are pushed forward into these by the rotating knife-disk *d*. By being thus pushed forward, the beetroot is, in a well-known manner, on account of the wedge-shaped form of the channels, pressed together and also simultaneously against the knife disk *d* or the knives on the latter, in such a way that it cannot move, and consequently quite independently of the feeding of the hoppers *e*, exceptionally perfect and full-shaped pieces in an increased measure are obtained under all circumstances.

In consequence of the so-to-say symmetrical arrangement of the two pressure-channels an equal pressure is continually brought to bear on the cutting-disk at places lying diagonally opposite one another, so that consequently no sort of disturbance of the equilibrium of the cuuting-disk can occur. By these means the efficiency of the machine is materially increased, that is to say, the perfection and equality of the cut pieces is augmented, and moreover all unequal wearing away of the bearings of the knife-disk shaft *r* is obviated. In the case of a cutting-disk of greater diameter, instead of the two mentioned pressure-channels, three channels *u*, *v*, *w*, Fig. 7, can be arranged symmetrically in an analogous manner, whereby a greater out-put corresponding to the greater diameter of the cutting-disk is obtained. In the case of three pressure-channels each is displaced 120° from the others, so that the cutting-disk is loaded in such a manner, that a force acting exclusively axially is brought to bear on its shaft.

By the provision of the one pressure-channel with a fixed intercepting plate, and of the other channel with a revoluble flap-valve, which allows the passage through of the foreign bodies introduced with the beetroot into the hopper, the foreign bodies are found at a definite part of the machine, namely in front of the fixed plate *l*, and can be quickly removed through the door *p*.

The door *o* provided on the channel *b* serves for the changing of the knives of the cutting-disk *d*.

What I claim is:—

1. In a beet root cutting machine, the combination with a driving shaft, a cutting disk on the same, knives mounted on said cutting disk and a cover disk, of a plurality of vertical feeding hoppers *c* symmetrically arranged on the cover disk *a* and wedge shaped pressure channels running in the form of a circular arc around the cover disk from one feeding hopper to the next.

2. In a beet root cutting machine, the combination with a driving shaft, a cutting disk on the same, knives mounted on said cutting disk and a cover disk of a plurality of vertical feeding hoppers *c* symmetrically arranged on the cover disk, wedge shaped pressure channels running in the form of a circular arc around the cover disk, from one feeding hopper to the next, a fixed intercepting plate *l* at the exit end of one of said pressure channels, a door *p* in said channel in proximity to said plate, and a yielding flap valve *f* at the exit end of each of the other pressure channels.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JULIUS SCHULTE.

Witnesses:
OTTO KÖNIG,
J. A. RITTERSHAUS.