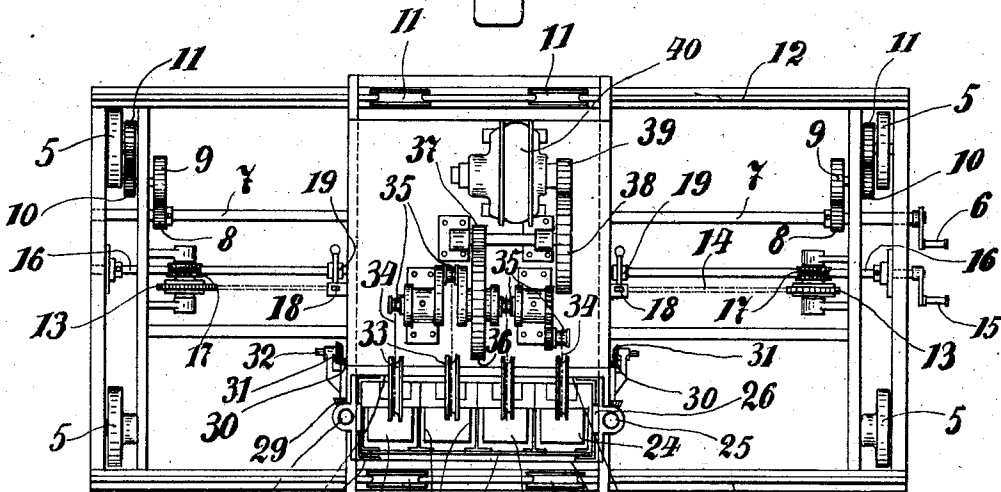
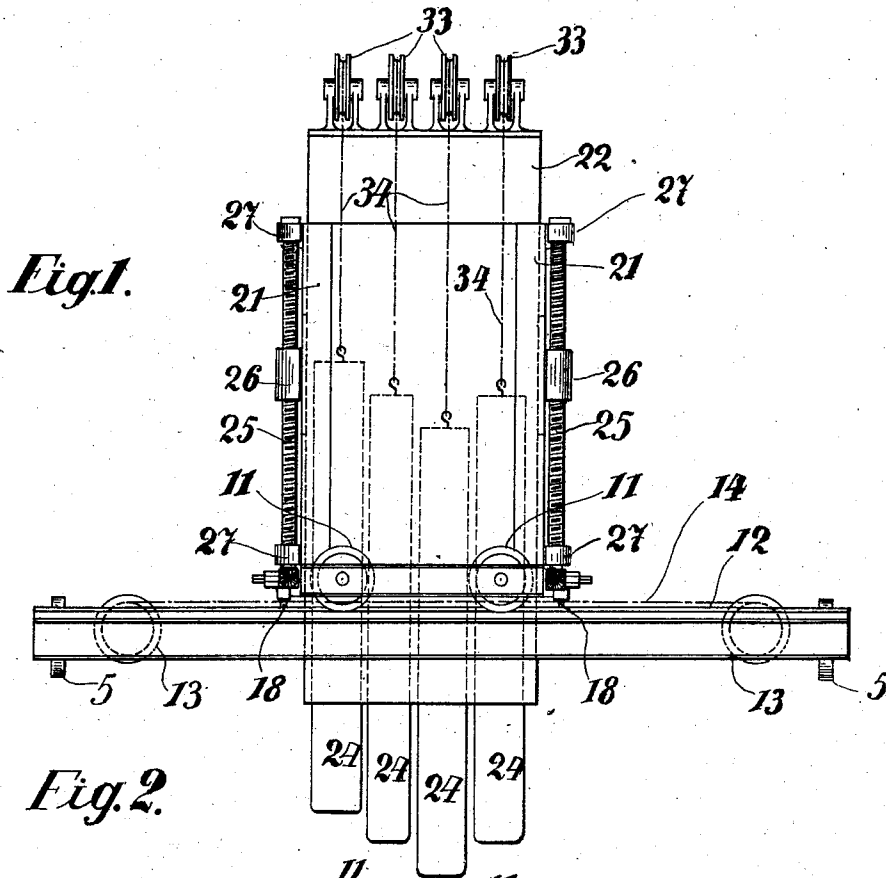


S. ANDRYCHEWICZ.
 APPARATUS FOR CRUSHING CABBAGE, GRAPES, AND THE LIKE.
 APPLICATION FILED AUG. 19, 1909.

992,632.

Patented May 16, 1911.

4 SHEETS—SHEET 1.



Witnesses:
 A. W. Jellander.
 W. Parker Kemball.

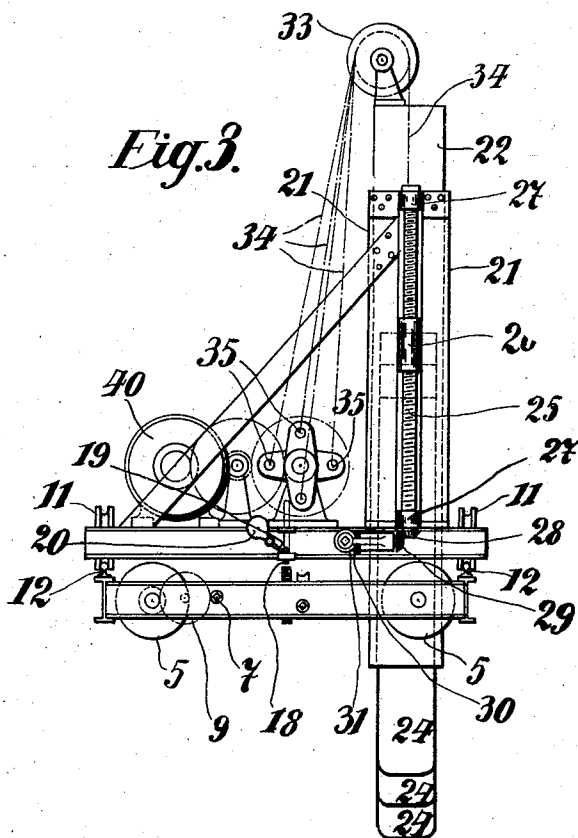
Inventor:
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4 SHEETS—SHEET 2.



Witnesses:
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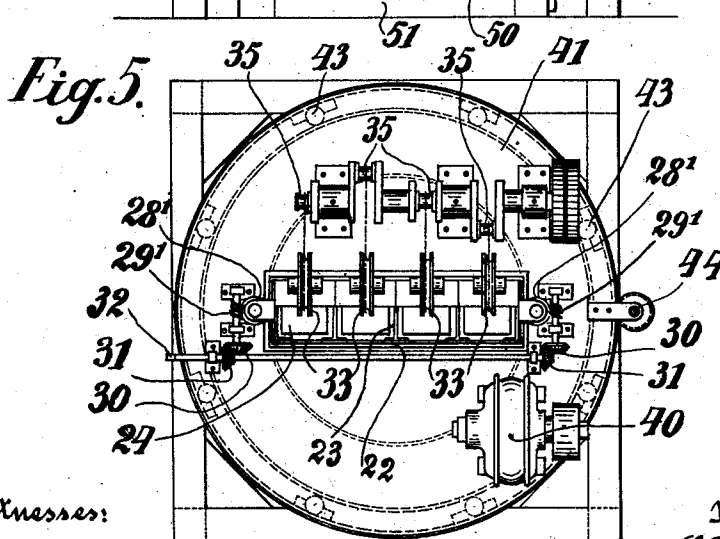
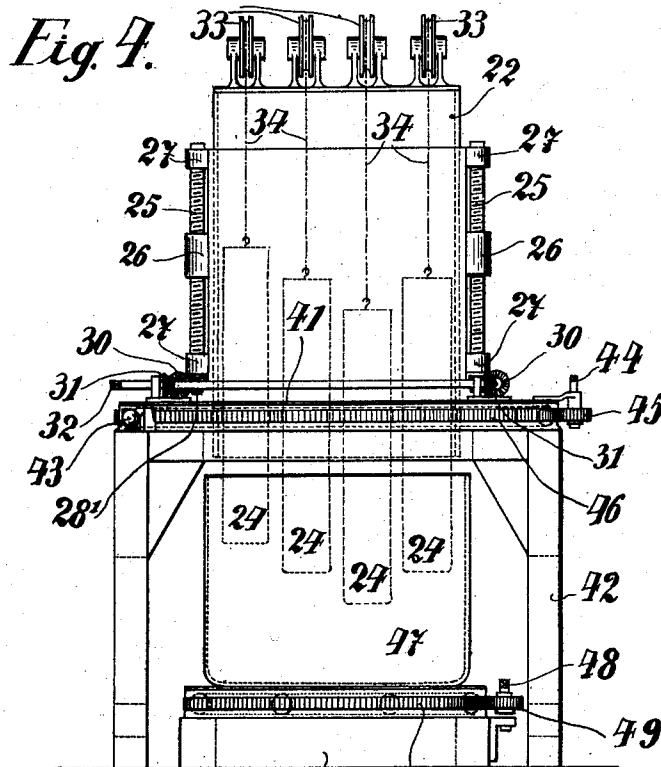
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4 SHEETS—SHEET 3.



Witnesses:
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Inventor:
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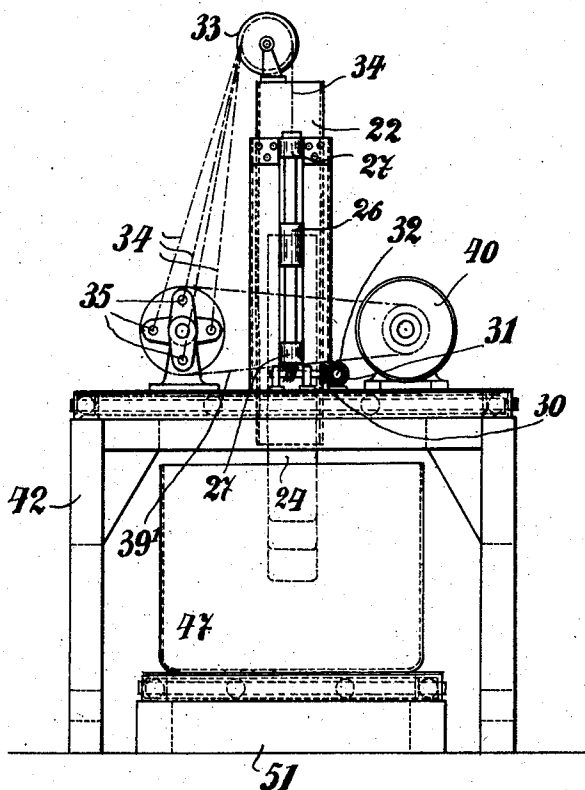
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4 SHEETS—SHEET 4.

Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

STEFAN ANDRYCHEWICZ, OF WARSAW, RUSSIA.

APPARATUS FOR CRUSHING CABBAGE, GRAPES, AND THE LIKE.

992,632.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed August 19, 1909. Serial No. 513,706.

To all whom it may concern:

Be it known that I, STEFAN ANDRYCHEWICZ, engineer, residing at Erywanska street 10, Warsaw, Poland, Russia, have invented certain new and useful Improvements in Apparatus for Crushing Cabbage, Grapes, and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the invention is an apparatus for crushing cabbage, grapes, &c., of the kind in which the parts which effect the crushing operation act by their own weight and not through impact or other external forces.

The apparatus is illustrated in the accompanying drawings in which—

Figure 1 is a front elevation of the apparatus, and Fig. 2 a plan thereof; Fig. 3 is a side view of Fig. 1 from the left; Fig. 4 is a front elevation of a modified construction. Fig. 5 a plan of the same. Fig. 6 a side view of Fig. 4 from the left.

As shown, the improved apparatus comprises a lower carriage supported by wheels 5, which run on rails arranged at the top of the receptacle, containing the material to be treated. The movement of the carriage along the rails may, for example, be effected by means of the crank 6 (Fig. 2) on a shaft 7 which latter is connected by gearing 8, 9, and 10, with a pair of wheels 5. On the said lower carriage an upper carriage is arranged on wheels 11 which can be moved along the rails 12, fixed on the lower carriage. The movement of the upper carriage is effected by a device to be described presently. Two sprocket wheels 13 over which runs a chain 14 are carried on the frame of the lower carriage. Motion is communicated to the chain 14 by a crank 15 keyed to the end of a shaft 16 mounted on the frame of the lower carriage. The said shaft is provided with two worms which actuate two worm wheels 17 mounted on the shafts of the wheels 13. The movement of the chain 14 is transmitted to the upper carriage by means of projections 18, which engage suitable links of the chains. The projections 18 may be disengaged from the chain and the latter held in position by hooks 19 which are provided with suitable counter-weights.

The devices which effect the crushing of the material are arranged on the upper car-

riage. An outer guide consisting of four angle iron uprights 21 is rigidly fixed on the upper carriage. Within the said guide a second inner guide 22 is placed which is of box shape but open at top and bottom, and divided by I-irons 23 into several vertical passages. The latter form guides for the weights 24, which can move freely up and down within them. The desired height of guide 22 is attained by means of screws 25 attached to the outer casing and nuts 26 fixed to the inner guide. The screws 25 which are adapted to turn in bearings 27 and have bevel wheels 28 keyed to their lower ends (Fig. 3) are rotated by means of a crank on the shaft 32 through gearing 29, 30, 31 (Fig. 2). According to the direction in which the said crank is turned the inner guide 22 for the weights 24 will be raised or lowered. Pulleys 33 are attached with suitable brackets to the top portion of the inner guide 22. The cords 34 running over these pulleys are fixed at one end to the weights 24 while the other ends are connected to cranks 35 on a shaft receiving motion from an electro-motor 40 through the gearing 36, 37, 38, 39. The electro-motor 40 is mounted on a platform on the upper carriage. Any other kind of motor might be employed instead of an electro-motor, or manually actuated devices might be used.

The *modus operandi* of the apparatus is as follows: As the two carriages of the apparatus are adapted to move in directions perpendicular to each other it follows that the weights may be brought to any desired place within the receptacle for the material to be acted upon. After this is done, the motor or a crank on the shaft of the wheel 39 is brought into operation, causing the crank shaft 35 to rotate, whereby the weights, connected by cords to the said crank shaft, come alternately into contact with the material. Hereby the crushing is effected exclusively by the pressure of the weights 24, the process corresponding in principle to that of treading the grapes, &c., with the feet. By altering the position of both carriages as already mentioned, the crushing may be performed at various points within the receptacle and by raising the inner guide 22 with the pulleys 33 it is possible to accomplish the crushing operations in several layers; i. e. a certain amount of material in the receptacle is treated, after which a further quantity is

introduced and the treatment proceeded with.

It is to be observed that by raising the inner casing 22 through a certain distance a , the weights 24 are simultaneously raised through a distance $2a$. The weights must be made to suit the material to be treated.

The apparatus might of course also be suspended in the manner of a traveling crane, instead of being mounted on carriages as illustrated.

Figs. 4, 5, 6 show a modified type of construction, which differs from that described above, by having the crushing devices mounted on a rotatable plate 41 arranged on the staging 42. Bearing balls 43 are provided between the plate 41 and the annular portion of the staging 42 to reduce the friction. The circular plate 41 with the mechanism mounted thereon, can be rotated for example by means of a crank handle on the spindle 44 of the pinion 45 which gears with the toothed rim 46 of the plate 41. A cylindrical receptacle 47 which may be rotated for example by a crank-handle on the spindle 48 is placed below the said plate but in the same center line. The spindle 48 carries a pinion 49 which gears with a toothed rim attached to the receptacle. 51 is the stationary support of the receptacle 47. The *modus operandi* of the apparatus is as follows:—After the material is placed in the receptacle 47 the motor is started and the plate 41 or the receptacle 47 rotated. By rotating the plate 41 (or the receptacle 47) the material will be crushed over its entire surface, as the weights 24 are disposed along the entire diameter of the receptacle. The guide 22 and the weights 24 are raised and lowered by means of a crank placed on the shaft 32, transmit-

ting motion through gearing 31, 30 to the worms 29', which latter gears with worm wheels 28' keyed to the lower end of the screws 25. The rotation of the crank shaft is effected by the belt drive 39'.

Claims:

1. In an apparatus for crushing cabbage, grapes and the like, a carriage movably supported, means for moving said carriage, an upper carriage, means for moving said upper carriage, and means for crushing the material mounted on said upper carriage, said carriages being mounted to move in directions perpendicular to each other and one of said carriages mounted for rotation.

2. In an apparatus for crushing cabbage, grapes and the like, upper and lower carriages mounted to move in directions perpendicular to each other one of said carriages being mounted for rotation in a horizontal plane, weights, guides therefor, means for raising and lowering said guides, and means for causing the weights to come alternately into contact with the material.

3. In an apparatus for crushing cabbage, grapes, etc., upper and lower carriages, means for operating the same, one of said carriages being mounted for rotation in a horizontal plane screws mounted in bearings, a crank and connections for actuating said screws, weights, an inner guide therefor adapted to be raised and lowered by said crank and connections, cords connected with said weights, a motor, and a shaft operated thereby and connected with said cords.

In testimony whereof, I affix my signature, in presence of two witnesses.

STEFAN ANDRYCHEWICZ.

Witnesses:

STANISLAUS POSKOSZ,
FRANCIS TREMBICK.