

R. V. CRINE.
TOMATO SEEDING AND PULPING MACHINE.
APPLICATION FILED JUNE 10, 1912.

1,097,213.

Patented May 19, 1914.

3 SHEETS—SHEET 1.

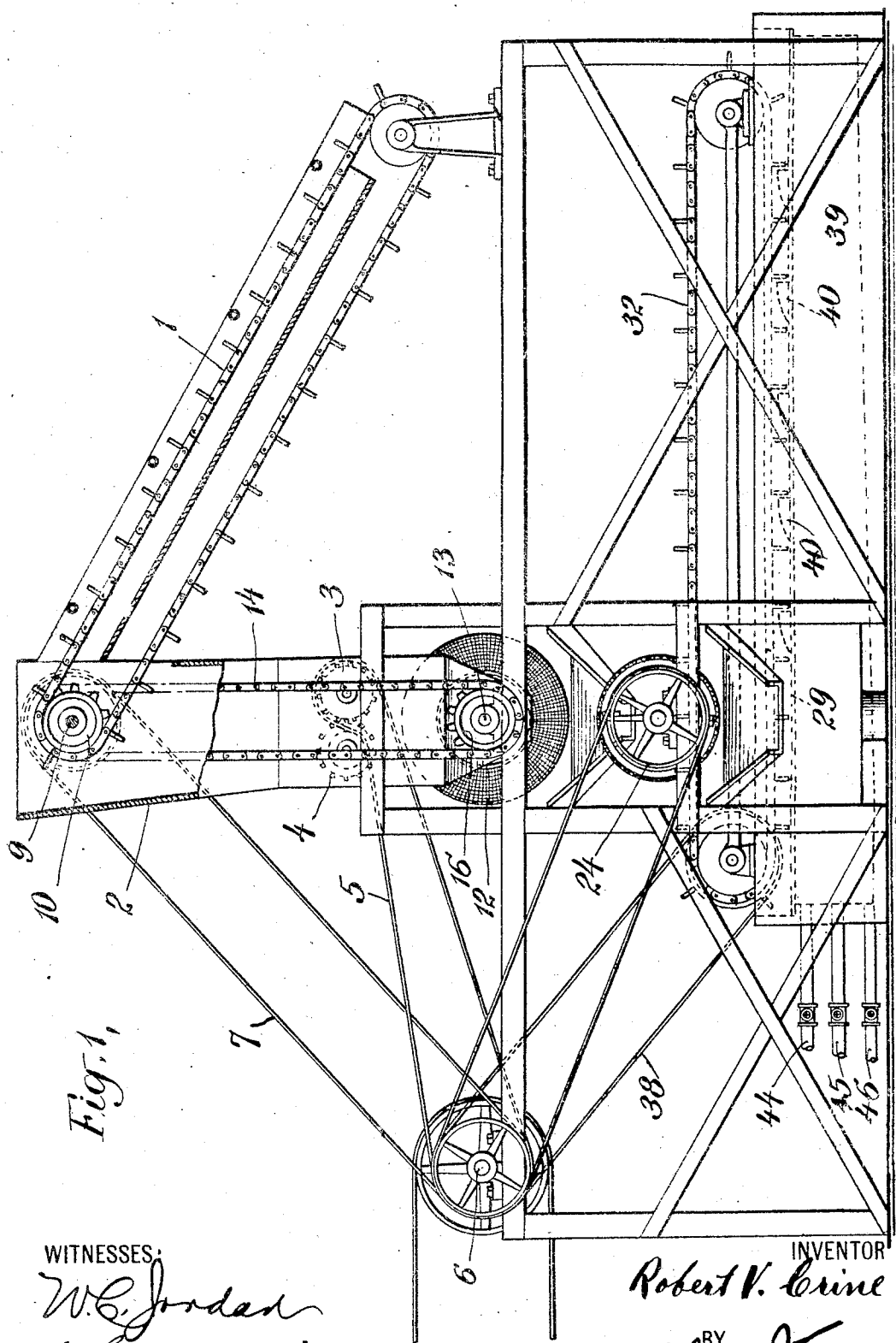


Fig. 1.

WITNESSES:

W. B. Jordan
J. F. Valentine

INVENTOR

Robert V. Crine

BY

Chas. J. Earle
ATTORNEY

R. V. CRINE.
TOMATO SEEDING AND PULPING MACHINE.
APPLICATION FILED JUNE 10, 1912.

Patented May 19, 1914.

3 SHEETS—SHEET 2.

1,097,213.

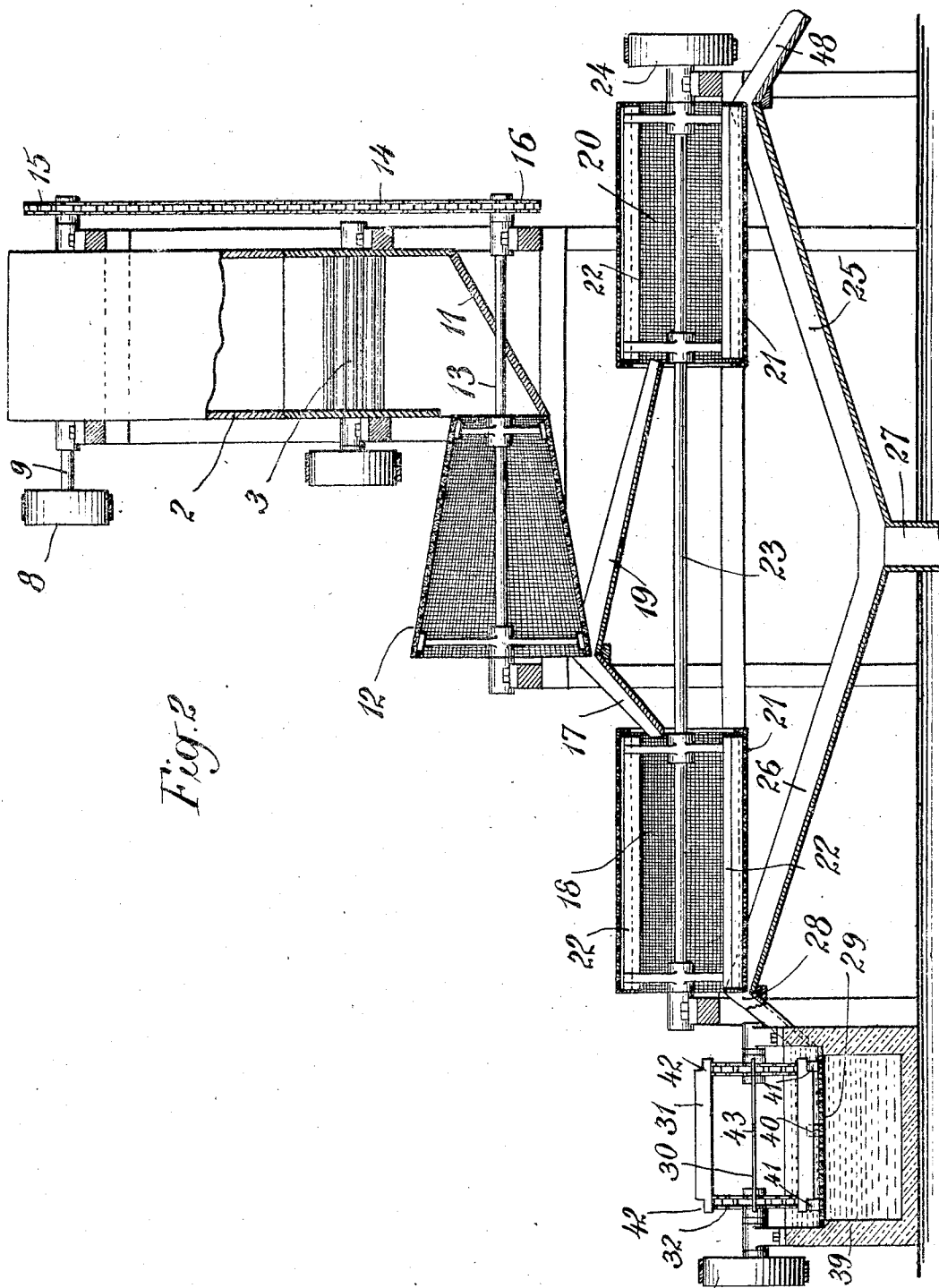


Fig. 2

WITNESSES:

W. C. Jordan
J. F. Valentini

INVENTOR

Robert V. Crine.

BY

Chas. J. Ewell.
ATTORNEY

R. V. CRINE.
TOMATO SEEDING AND PULPING MACHINE.
APPLICATION FILED JUNE 10, 1912.

1,097,213.

Patented May 19, 1914.

3 SHEETS—SHEET 3.

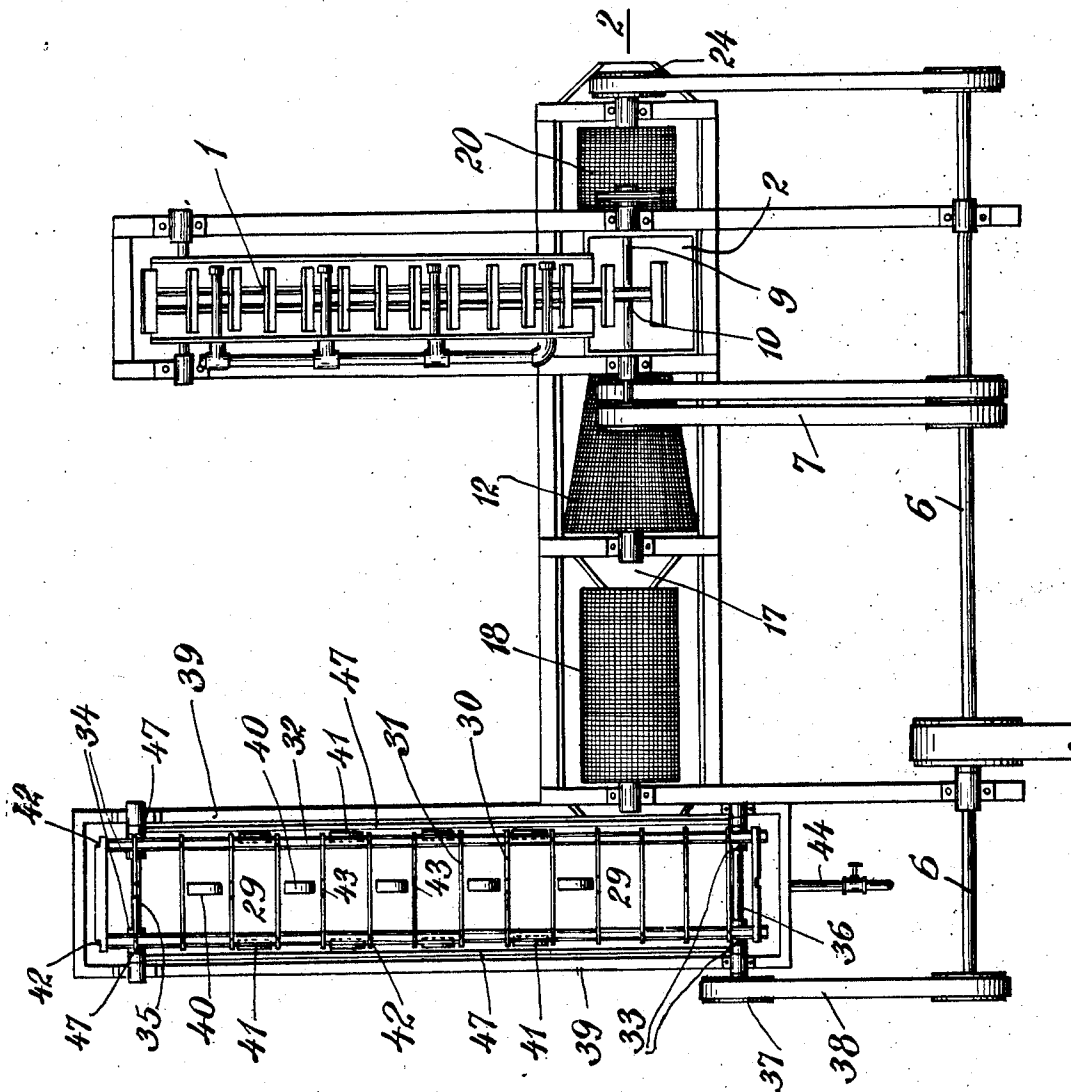


Fig. 3,

2

WITNESSES:

W. E. Jordan
J. F. Valentine

INVENTOR

Robert V. Crine

BY

Chas. J. Earl,
ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT V. CRINE, OF MORGANVILLE, NEW JERSEY.

TOMATO SEEDING AND PULPING MACHINE.

1,097,213.

Specification of Letters Patent.

Patented May 19, 1914.

Application filed June 10, 1912. Serial No. 702,651.

To all whom it may concern:

Be it known that I, ROBERT V. CRINE, a citizen of the United States of America, and resident of the town of Morganville, county of Monmouth, State of New Jersey, have invented certain new and useful Improvements in Tomato Seeding and Pulping Machines, of which the following is a specification.

My invention relates to improvements in the method for separating the seeds from tomatoes, and for recovering the pulp therefrom, and in the apparatus for carrying out my said method.

One of the objects of my invention is to provide a machine of this class which shall be simple and efficient in construction and operation and by means of which the bulk of the seeds may be recovered from the tomatoes ready for drying and packing, and by means of which the pulp and juice of the tomatoes are recovered separated from the seeds and from the skins, in good condition to be used for food products.

Heretofore it has been the practice to crush the tomatoes, permit the crushed tomatoes to ferment and partially decompose and allow the seeds to settle from the partially fermented and decomposed crushed tomatoes, and when it was desired to recover the pulp and juices it was the practice to throw away the skins and seeds. By means of my improved machine it is possible to recover both the pulp and juice to be used for food products; and also the seeds.

My invention consists in tearing or partially crushing the tomatoes to liberate or free the softer pulp parts containing the seeds from the harder pulp parts and the skins, in separating the softer pulp parts and the seeds from the harder pulp parts and the skins, and then separating the seeds from the softer pulp parts, and separating the skins from the harder pulp parts, and finally reuniting the softer pulp parts from which the seeds have been separated with the harder pulp parts from which the skins have been separated, and in providing means for tearing or crushing the tomatoes, which consists preferably of a pair of parallel rolls, from which the crushed tomatoes are delivered to a mechanism for separating the softer parts of the pulp which contain the bulk of the seeds, from the harder parts of the pulp and the skins, to which a small portion of the seeds,

usually about ten per cent. will adhere; in providing means for conducting the softer pulp parts and seeds to a separating device in which the seeds are entirely separated from the pulp and juice; in providing another similar separating device adapted to receive the harder parts of the pulp and the skins and such seeds as are contained therein, in which separating device the skins and seeds are completely separated from the pulp, the pulp and juices being conveyed to and reunited with the pulp and juices from the other separating device, from which the seeds have been separated, and the skins and smaller portion of seeds being conveyed to a third separating device where the seeds are separated from the skins. I am thus enabled to recover substantially all of the seeds and substantially all of the pulp and juice of the tomato completely separated from the skins and separated from each other.

My invention consists further in other novel features to be hereinafter more fully pointed out and described.

In the drawings accompanying and forming part of this specification, Figure 1 is a side elevation of the preferred form of my invention. Fig. 2 is a section on line 2-2 of Fig. 3, and Fig. 3 is a plan.

Numeral 1 represents a conveyer of any approved construction adapted to convey the tomatoes up to and deliver them into the top of the chute or hopper 2, near the bottom of which are the crushing rolls 3, 4 driven by the belt 5 from the driving shaft 6. The conveyer 1 is driven by the belt 7 from a pulley on the driving shaft 6 which passes over the pulley 8 on the shaft 9, upon which the conveyer sprockets 10 are secured. The bottom 11 of the chute 2 is inclined and adapted to deliver the crushed tomatoes to the revolving perforated screen 12. This screen is of conical form and is mounted on the shaft 13 driven by the sprocket chain 14, passing over the sprocket wheel 15 on the shaft 9 and the sprocket wheel 16 on the shaft 13. The perforations in the screen 12 are of such size as to permit the softer parts of the pulp and the seeds contained in these parts to pass through them and, of course, so much of the juice as is liberated by the crushing operation, while the harder parts of the pulp and the skins which adhere to them pass out of the larger end of the conical screen 12 down the chute 17 to the

separating device 18. The softer pulp parts which pass through the perforations of the screen 12 pass down the trough or chute 19 to the separating device 20. The separating devices 18 and 20 are constructed alike and each consists of a cylindrical perforated screen 21 and a set of revolving blades 22 secured to the shaft 23 on the end of which is a pulley 24 belted to a pulley on the driving shaft 6. The perforations of the screens 21 are of such size as to prevent the passage of seeds therethrough and to permit the juice and pulp to be pressed through by the revolving blades 22. Beneath the screens 21 are the chutes 25 and 26 which lead the pulp and juices to the common pipe or conduit 27. In the separating device 18 the seeds and skins are separated from the pulp, which passes through the screen 21 and the seeds and skins pass out the end of the separating device down the chute 28 to the screen 29. Mounted above the screen 29 are a series of blades 30, 31, attached to the endless chains 32 and passing over the sprocket wheels 33 and 34, mounted on the shafts 35 and 36 respectively. The shaft 36 has a pulley 37 secured to its end and is driven by the belt 38 from the driving shaft 6. The screen 29 is supported in a vat or trough 39 in which water is maintained to about cover the blades 30. Along the center line of the screen 29 I arrange a series of inclined blocks 40 spaced about two feet apart, and along each side of the screen 29 I arrange another series of similarly inclined blocks 41 spaced about the same distance apart longitudinally but alternating with the blocks 40 as shown. And the blades 31 are provided with notches 42 at their ends so that they pass by the blocks 41 without being raised thereby but there being no notches in the center of the blades 31 these blades are raised by the central blocks 40. Similarly the blades 30 which alternate with the blades 31 are provided with central notches 43 which permit them to pass the central blocks 40 without being raised thereby, but the blades 30 are raised by the blocks 41 at the sides of the bath or trough. By means of this construction, it will be seen that as the blades traverse at a uniform rate over the screen 29, the seeds and skins carried by each blade will be carried a certain distance and then the blade will be raised by one of the blocks 40 or 41 which will permit the blade to pass over the seeds and skins which will remain at rest until the succeeding blade passes, which will take them along another step and then be lifted over the succeeding block and so on. By means of this construction the seeds and skins are given an intermittent motion and time is given for the seeds, which are heavier than water and heavier than the skins, to settle upon the screen and pass through the

same and settle in the water beneath the screen. At the end of the vat 39 I provide a series of outlet pipes 44, 45, 46, of varying heights so that the water may be drained off or, as it were, decanted, leaving the seeds at the bottom of the vat, after which they are removed by means of a shovel or in any other convenient way. In order to facilitate the removal of the seeds, the screen 29 is made removable and the shaft 35 is journaled in the frame 47, which frame is pivoted on the shaft 36 so that the frame and sprocket chains and blades attached thereto may be lifted and the screen withdrawn preparatory to removing the seeds from the vat.

It is found that the seeds deteriorate if allowed to remain wet after the tomatoes have been crushed; even when they are allowed to stand in water for some time to settle there is some deterioration and when they are permitted to remain in the tomato juices which ferment and decompose very rapidly, the deterioration of the seeds is more marked. By means of my improved apparatus I am enabled to recover substantially 90 per cent. of the seeds at the chute 48, where they are delivered from the separating device 20, in a very short interval of time after the tomatoes are crushed and in a substantially clean condition ready for immediate drying, and the remaining 10 per cent. of the seeds which pass through the screen 29 may be recovered from the vat in much less time than is usually taken where the seeds are allowed to settle from the fermented and decomposed crushed tomatoes. At the same time I am enabled to recover all of the edible part of the tomato unimpaired by the process of removing the seeds.

Having thus described my invention, what I claim is:

1. In a tomato seeding machine the combination with means for crushing the tomatoes, of means for separating the crushed tomatoes into two parts, one consisting of the softer pulp parts and the bulk of the seeds, the other consisting of the skins and the more solid pulp parts, means for separating the skins and seeds from said more solid pulp parts and means for separating the seeds from the skins which were contained in said more solid pulp parts.

2. In a tomato seeding machine the combination with means for crushing the tomatoes, of means for separating the crushed tomatoes into two parts, one consisting of the softer pulp parts and the bulk of the seeds, the other consisting of the skins and the more solid pulp parts, means for separating the skins and seeds from said more solid pulp parts, means for separating the seeds from the softer pulp parts, means for separating the seeds from the skins which were contained in said more solid pulp parts,

and means for reuniting said softer pulp parts from which the seeds have been separated, with the solid pulp parts from which the skins and seeds have been separated.

5 3. The herein described method for separating seeds from tomatoes and for recovering the pulp therefrom which consists in first breaking or partially crushing the tomatoes to liberate or free the softer pulp
10 parts containing the seeds from the harder pulp parts and the skins, separating the softer pulp parts and the seeds from the harder pulp parts and the skins, and then concurrently separating the seeds from the
15 softer pulp parts and separating the skins from the harder pulp parts, and finally reuniting the softer pulp parts from which the seeds have been separated with the harder pulp parts from which the skins have been
20 separated.

4. The herein described method of recov-

ering the seeds and pulp of tomatoes separately which consists in first breaking or partially crushing the tomatoes, then passing the broken or partially crushed tomatoes through a screen which permits the passage of the softer pulp parts and bulk of the seeds therethrough and prevents the passage of the harder pulp parts and the skins attached to them, then separating by means
25 of a screen the seeds from the softer pulp parts, and concurrently separating by means of a screen the skins from the harder pulp parts, and then reuniting the thus separated
30 softer pulp parts and harder pulp parts. 35

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

ROBERT V. CRINE.

Witnesses:

FLORENCE J. WALSH,
JOHN F. VALENTINE.