No. 699,219. Patented May 6, 1902.

J. F. McDONALD.

APPLE CRUSHER FOR CIDER MILLS.

(Application filed Aug. 8, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

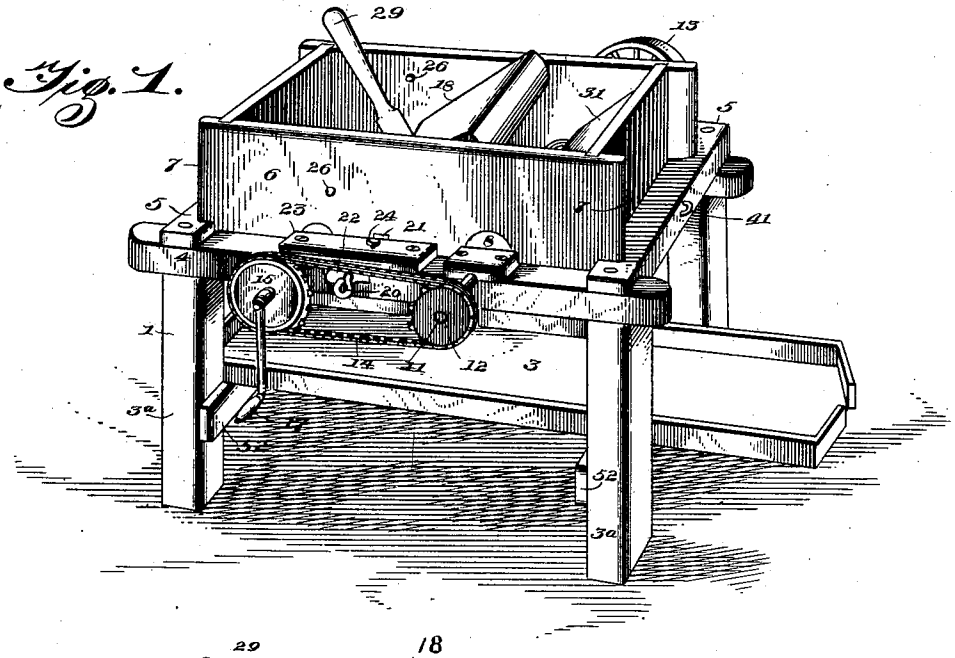
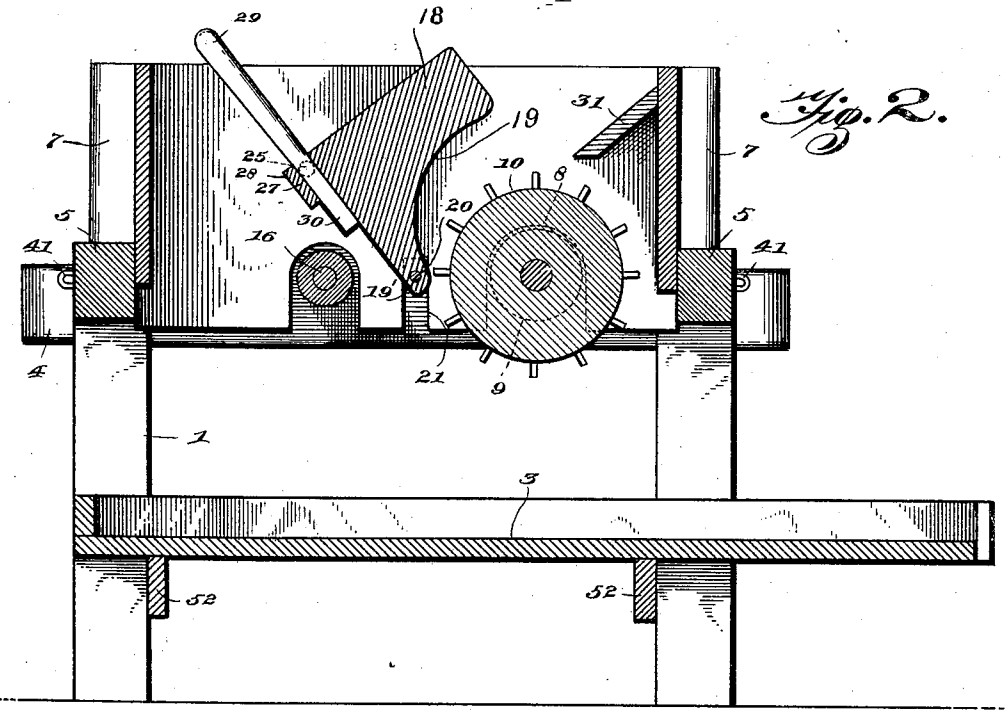


Fig. 2.



Witnesses
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Fig. 6.

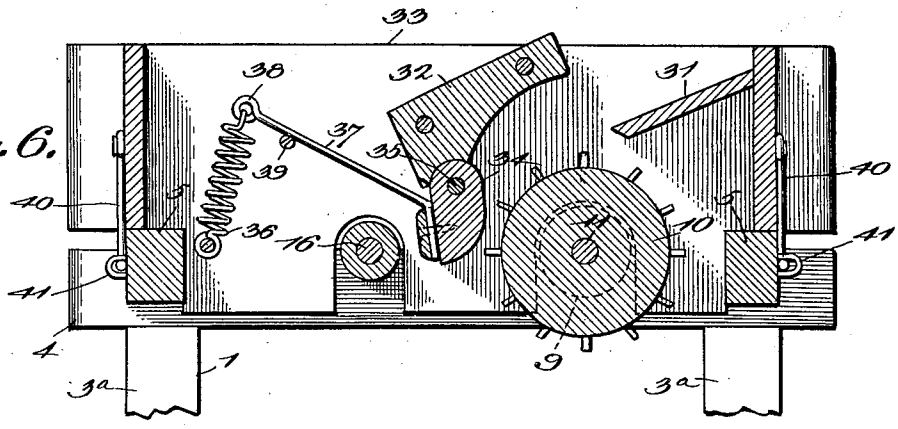


Fig. 3.

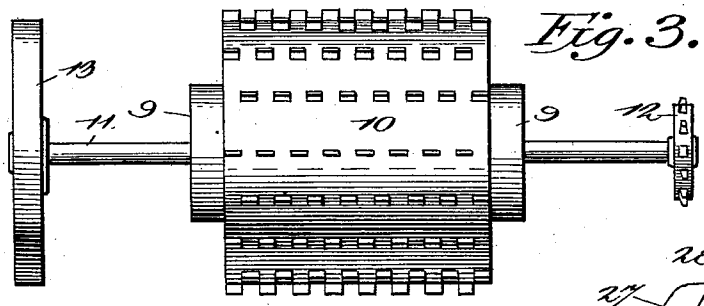
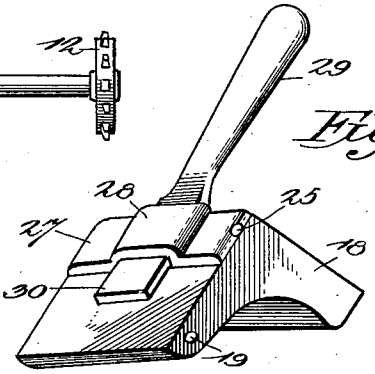


Fig. 5.



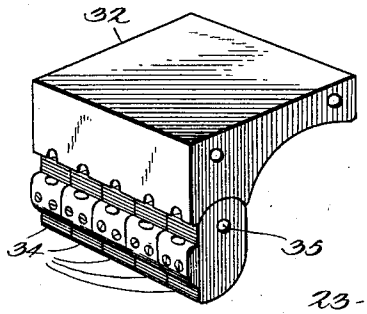


Fig. 7.

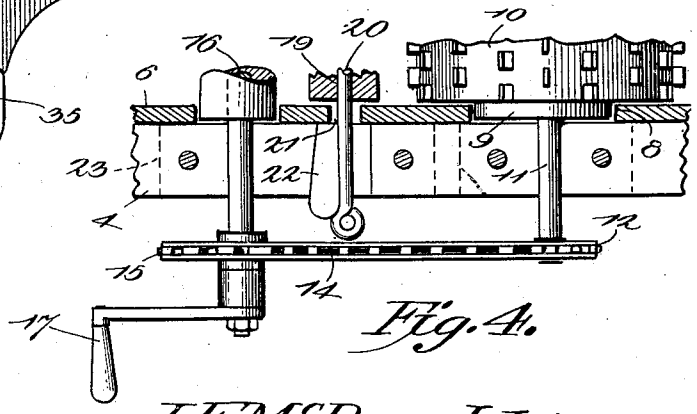


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN F. McDONALD, OF CARTHAGE, NORTH CAROLINA.

APPLE-CRUSHER FOR CIDER-MILLS.

SPECIFICATION forming part of Letters Patent No. 699,219, dated May 6, 1902.

Application filed August 8, 1900. Serial No. 26,306. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. McDONALD, a citizen of the United States, residing at Carthage, in the county of Moore and State of North Carolina, have invented a new and useful Apple-Crusher for Cider-Mills, of which the following is a specification.

The invention relates to improvements in apple-crushers for cider-mills.

The object of the present invention is to improve the construction of apple-crushers for cider-mills and to provide a simple and comparatively inexpensive one adapted for operating on various kinds of fruit, grapes, and the like.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of an apple-crusher constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail view of the grinding-cylinder and its shaft. Fig. 4 is a detail sectional view taken horizontally of one side of the apple-crusher and illustrating the arrangement of the gearing for operating the grinding-roll and the means for holding the hopper on the frame. Fig. 5 is a detail perspective view of the concave presser and the handle for oscillating the same toward the grinding-cylinder. Fig. 6 is a longitudinal sectional view showing another form of hopper and presser, the same being adapted for operating on peaches, cherries, and the like having large seeds. Fig. 7 is a detail perspective view of the concave presser shown in Fig. 6.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a hopper-supporting frame having a trough 3 and provided with corner-posts 3^a, which are connected at their upper ends by side and end bars 4 and 5, arranged at right angles to each other, as clearly shown in Fig. 1 of the accompanying drawings. The rectangular top portion of the frame 1 supports a hopper 6 of oblong form composed of sides and ends, the terminals 7 of the sides being extended beyond the ends and resting upon the upper faces of the end bars 5. The lower portions of the sides of the hopper are recessed to provide the projecting upper end portions 7. The sides of the hopper are provided with curved recesses 8, receiving annular extensions 9 of a grinding-cylinder 10, arranged within the front portion of the hopper and provided with blades or teeth for engaging the material operated on. The grinding-cylinder is mounted on a transverse shaft 11, provided at one end with a pinion 12 and having a pulley 13 at its other end. The pinion 12 is adapted to receive a sprocket-chain 14, which extends rearward to a sprocket-wheel 15 of a transverse shaft 16, and the latter is provided with a crank-handle 17 for enabling the grinding-cylinder to be operated by hand; but the pulley 13 is adapted to receive a belt, so that the grinding-cylinder may be operated by any suitable power.

The material is fed to the grinding-cylinder by a concave presser or apron 18, located in rear of the grinding-cylinder and provided with a concave face and having upper and lower rear faces arranged at right angles to each other. The bottom of the concave presser is provided with a transverse perforation 19 for the reception of a transverse rod 20, which extends through vertical slots 21 of the sides of the hopper, and its terminals are secured within openings of the side bars 4 of the hopper-supporting frame by wedges 22, whereby the rod is held against accidental displacement. The side bars 4 are provided at their upper faces with blocks 23, arranged over the openings for the transverse rod and provided with threaded apertures for the reception of clamping-screws 24, which engage the wedges to hold the same against accidental displacement. The concave presser is provided above the transverse aperture 19 with an upper perforation 25, located adjacent to the angle formed by the rear faces of the said presser and adapted to register with perforations 26 of the sides of the hopper 6 for the reception of a transverse rod for locking the presser or apron rigidly in position. A block or piece 27 is secured to the back of a presser or apron and is provided with an offset portion 28, forming an opening for the reception of a handle 29, adapted to be operated to move the presser or apron toward the grinding-cylinder for

feeding the material. When making cider, the concave presser is fixed, as before explained, to the sides of the hopper; but when operating on grapes the handle is used and the presser or apron is arranged to swing on the lower transverse rod 20. The handle is provided at its lower end with a shank 30, which fits in the opening of the presser. The opening for the handle may be formed by the offset portion of the block or piece 27; but an opening or socket may be made directly in the body of the presser, if desired.

The transverse shaft 16 extends entirely across the frame 1, and the sides of the hopper are provided with recesses to clear the said transverse shaft 16. The hopper is provided at its front with an inclined board 31, extending downward and rearward from the front wall of the hopper to a point above the grinding-cylinder, and it is adapted to direct the material to the center of the grinding-cylinder, or rather to a point above the center of the same.

When the crusher is employed for operating on peaches, cherries, and the like material having large seeds, a presser 32 is used, and it is arranged within a hopper 33, the hopper 6 being readily detachable to permit the hopper 33 to be placed in position. The body portion of the concave presser or apron 32 is constructed substantially the same as the concave presser or apron of the hopper 6, and it is provided at its bottom with a series of hinged sections 34, connected to the body portion of the presser or apron by a transverse pintle 35 and held yieldingly in position for directing the material against the grinding-cylinder by coiled springs 36. Each section 34 is provided with a rearwardly-extending rod or arm 37, arranged at an inclination, as clearly shown in Fig. 6 of the accompanying drawings, and provided at its upper end with an eye 38, with which the coiled spring 36 is connected. The rods or arms 37 are supported by a transverse rod 39, forming a stop, and when a seed is carried between the grinding-cylinder and the lower portion of the presser or apron the sections are adapted to swing rearward and permit the seeds to pass downward without injuring the parts or breaking the teeth of the cylinder. When the sections are swung rearward, the rods or stems 37 are carried upward from the stop 39 and the springs are distended, and as soon as the pressure is removed the springs return the sections to their normal position. The hopper 33 is constructed substantially the same as the hopper 6, and it is secured upon the hopper-supporting frame by hooks 40, carried by the ends of the hopper and engaging staples 41 of the end bars 5, as clearly illustrated in Fig. 6 of the accompanying drawings. A suitable receptacle is placed beneath the hopper upon the trough to receive the material. The mill can also be conveniently employed for threshing peas, and when so used the grinding-cylinder and the presser or apron will be provided with teeth formed by substantially U-shaped staples. The presser or apron is constructed of wood, and the grinding-cylinder preferably consists of a wooden body having steel blades embedded in it. By employing a construction of this kind the metal blades in the operation of the mill do not come in contact with any metal parts only the wooden presser or apron, and consequently there is no metallic flavor imparted to the cider or other products of the mill. The body portion of the presser or apron 32 is provided with upper and lower transverse perforations and is secured to the sides of the hopper 33 by transverse rods.

Instead of constructing the grinding-cylinder as illustrated in the accompanying drawings the wooden body may be provided with a series of bars for operating on the material.

The grinding-cylinder, the pulley, and the sprocket-wheel may be keyed or otherwise secured to the shafts, and I desire it to be understood that changes in the form, proportion, size, and minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What I claim is—

1. In a device of the class described, the combination of a frame, having openings, a hopper, a grinding-cylinder, a presser or apron having a transverse perforation, a rod extending through the perforation of the presser or apron and having its ends arranged in the openings of the sides of the frame, and wedges also arranged in the said openings and engaging the ends of the rod and holding the latter against longitudinal movement, substantially as described.

2. In a device of the class described, the combination of a frame having openings, a hopper, a grinding-cylinder, a presser or apron, a rod extending through the presser or apron and arranged in the said openings, a wedge mounted in one of the openings and engaging the rod, and means for locking the wedge in place, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN F. McDONALD.

Witnesses:
I. H. McDONALD,
J. W. WILLIAMSON.