A. BARTLEMAY.

CIDER PRESS.

APPLICATION FILED OCT. 16, 1919.

1,398,252.

Patented Nov. 29, 1921.

3 SHEETS—SHEET 1.

Fig. 1.

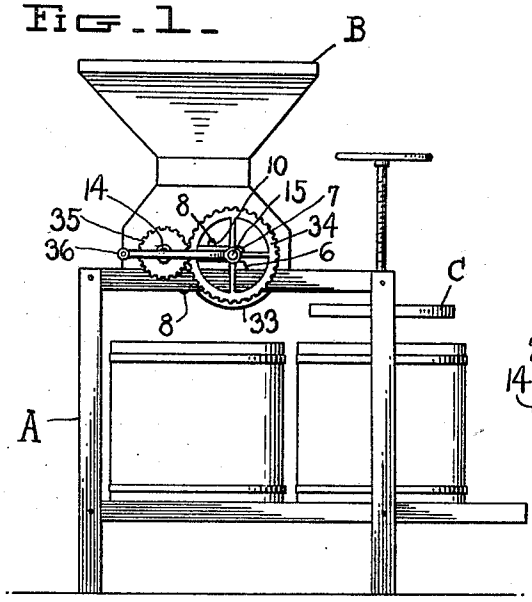


Fig. 6.

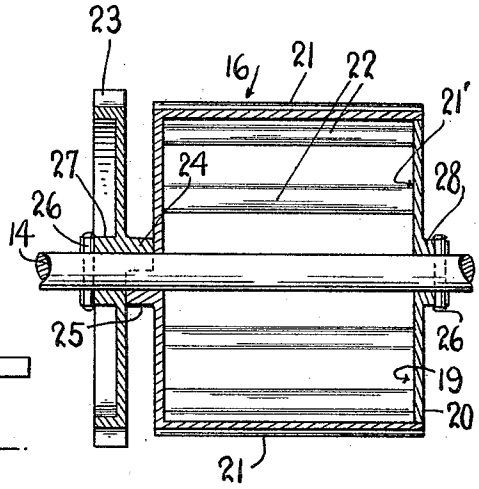


Fig. 7.

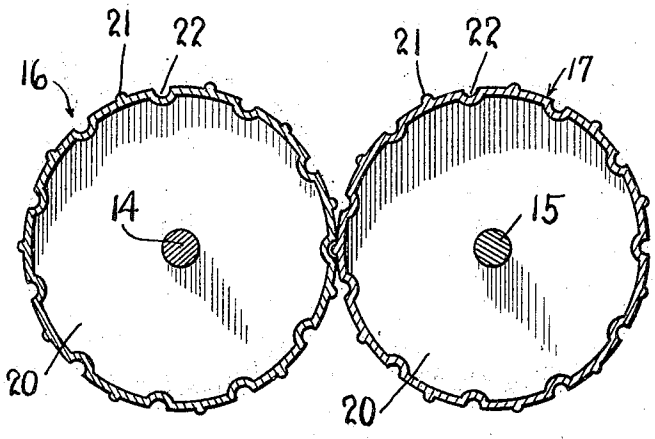
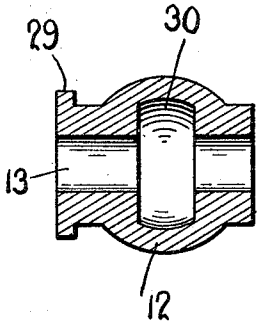


Fig. 8.



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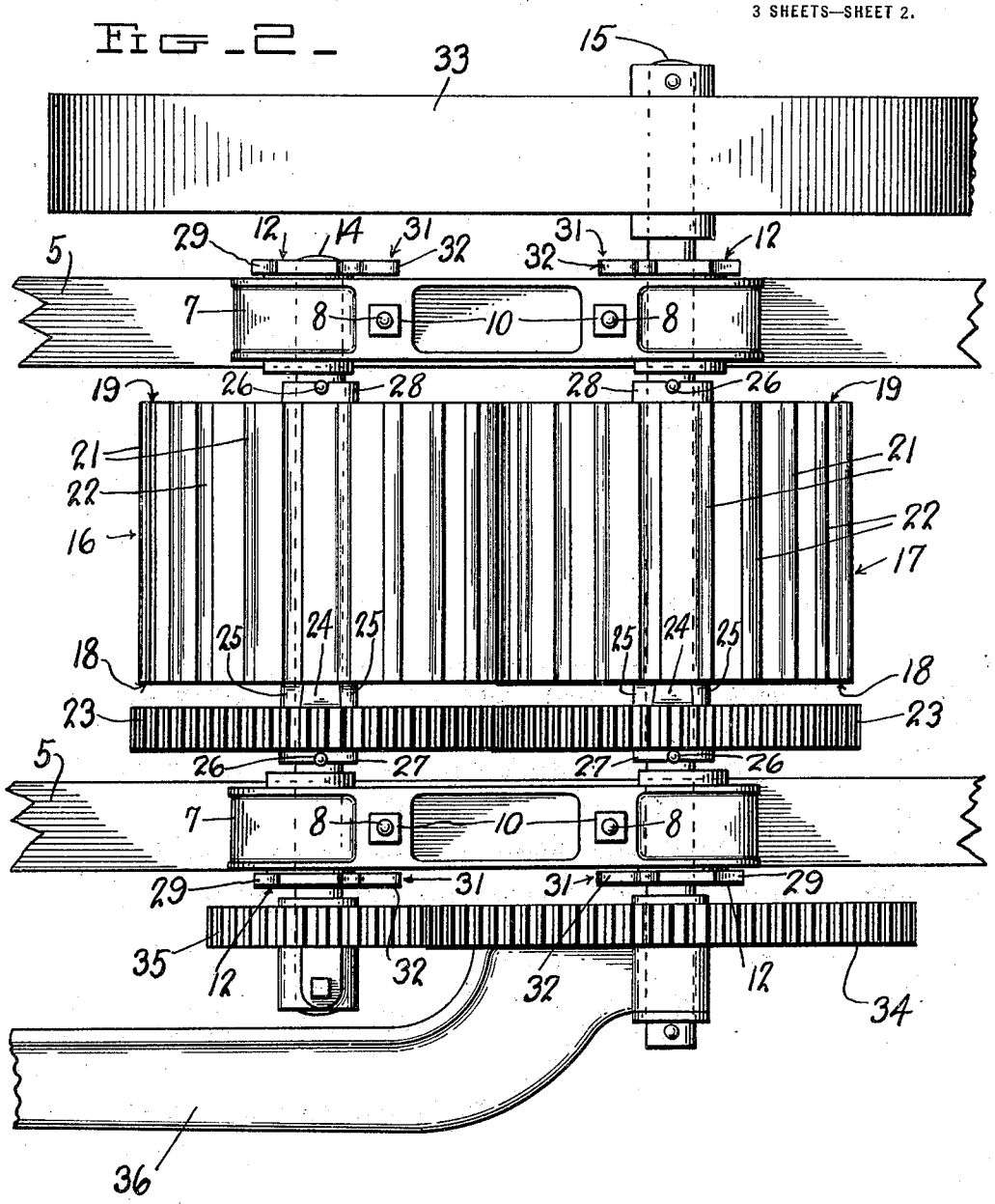
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3 SHEETS—SHEET 2.

Fig. 2.



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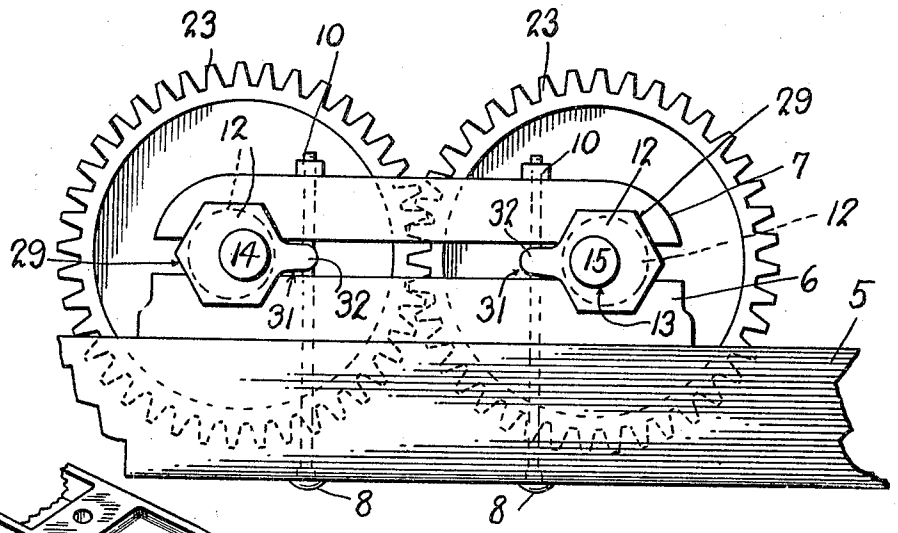
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3 SHEETS—SHEET 3.

FIG. 3.



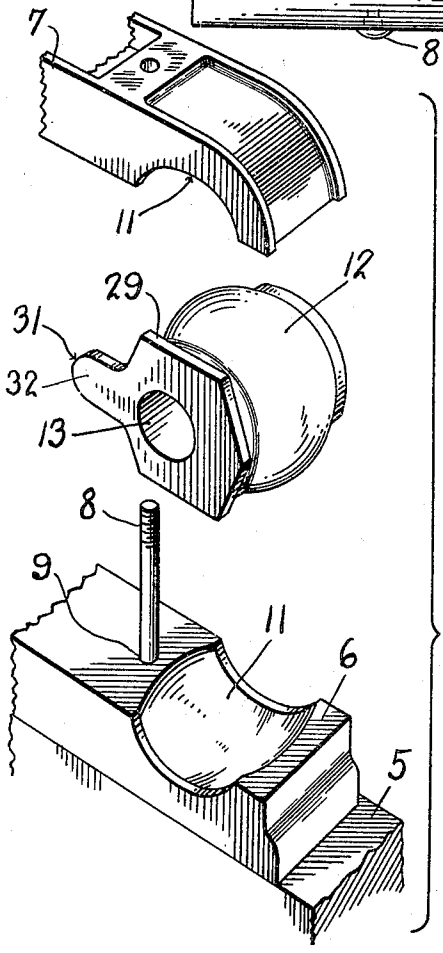


FIG. 4.

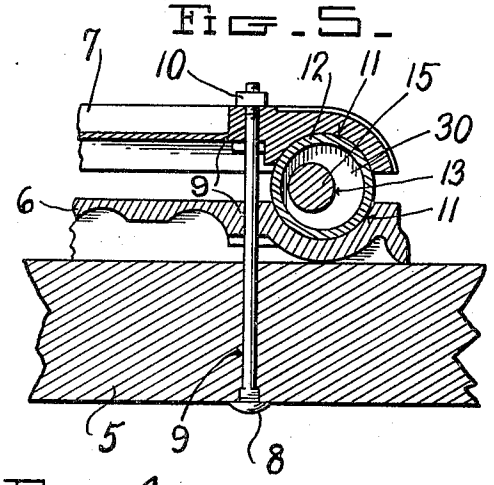


FIG. 5.

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UNITED STATES PATENT OFFICE.

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CIDER-PRESS.

1,398,252. Specification of Letters Patent. **Patented Nov. 29, 1921.**

Application filed October 16, 1919. Serial No. 331,227.

To all whom it may concern:

Be it known that I, ARLIE BARTLEMAY, a citizen of the United States, residing at Bluffton, in the county of Wells and State of Indiana, have invented certain new and useful Improvements in Cider-Presses, of which the following is a specification.

The present invention pertains to cider presses and it contemplates the provision of a cider press that is simple and inexpensive in construction, reliable, well adapted to withstand the usage to which cider presses are ordinarily subjected, and calculated to use in efficiently crushing the fruit and any other ingredients necessary in producing the desired results.

Among other features, the invention comprehends the provision of a device of the above stated character, wherein is employed a series of crushing rollers so constructed as to not only perform the crushing operation of the fruit in a pulp state, but which, owing to the provision of end plates inserted in the ends thereof, has a decided advantage over the ordinary type of crusher, inasmuch as it may be manufactured without the use of a dry sand core.

Another object of the invention resides in the employment of novel means for mounting the crushing rollers on the side sills of a suitable support to facilitate an adjustment of the rollers in a longitudinal direction with respect to the sills, whereby predetermined quantities of material to be crushed may pass therebetween without interfering with the operation of the press.

A still further object of the invention is the provision of a novel construction of bearings in which the shaft of each crushing roller is journaled whereby the bearings are rendered self-alining.

A further object of the invention pertains to gears adapted to coöperate or interlock with the crushing rollers in such a manner as to cause the tooth of the gear to be in alinement with the rib of the roller and the space on the gear to be, at all times, in line with the space on the roller.

Besides these objects, the invention further contemplates the provision of bearings provided with indicating means whereby the operator may be enabled to determine the degree of adjustment of each of the rollers with respect to one another.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claim.

Preceding a detailed description of the invention, reference is made to the accompanying drawings of which:

Figure 1 is a side view of a cider press with the elements of this invention mounted thereof;

Fig. 2 is an enlarged plan view of a portion of the cider press showing the elements of this invention in operative position;

Fig. 3 is an enlarged side view of a portion of the cider press with certain elements eliminated to better illustrate the adjustable bearings and gears of the crushing rollers;

Fig. 4 is a detail perspective view of the elements comprising the adjustable bearings, said elements being in juxtaposition;

Fig. 5 is a detail sectional view of one of the adjustable bearings and its support;

Fig. 6 is a longitudinal sectional view of one of the crushing rollers and gear carried thereby;

Fig. 7 is a cross sectional view of the crushing rollers;

Fig. 8 is a longitudinal sectional view of one of the bearings.

Referring more particularly to the accompanying drawings, in which like characters of reference refer to corresponding parts in the several views and wherein is illustrated one embodiment of the invention, and in order that a clear understanding of the invention may be had, I have illustrated, for the sake of clearness, the well known conventional parts of a cider press, consisting of a supporting frame A, hopper B, and plunger C.

The supporting frame A, embodies spaced parallel longitudinally arranged sills 5 having supported thereon a lower bearing box 6 and an upper bearing box 7. These bearing boxes are secured to the sills through the medium of a bolt 8 passing upwardly through suitable openings 9 provided in the sills, and each of such bearing boxes, and

threadedly mounted on the free end of each of said bolts, is a nut 10 for adjustably connecting the boxes with one another. In the confronting faces of each box, at a point adjacent the free end thereof, is formed a substantially semi-spherical recess 11, to accommodate the seating therein of spherical bearings 12. Owing to the specific construction or configuration of the bearings and the recesses formed in the bearing boxes, allows the bearings to be rotatably journaled in the recesses, consequently facilitating the eccentric bores 13, of each bearing to be alined with one another at all times. Journaled for rotary movement in the eccentric bores or openings of each bearing, is a pair of spaced parallel shafts 14 and 15, disposed transversely of the sills 5. Fixedly mounted on each of the shafts is a hollow crushing roller or drum, denoted by the characters 16 and 17, each having a closed end 18 and an open end 19. The open end 19 is closed through the provision of a disk-shaped plate 20 adapted to be inserted in the open end and snugly engaged with the inner periphery of the rollers or drums. In order that the fruit deposited into the hopper B may be thoroughly and efficiently crushed, I provide on the entire outer periphery of each of the crushing rollers, or drums, 16 and 17 respectively, a series of alternately arranged ribs and grooves, denoted by the characters 21 and 22, respectively. The ends of the grooves opening out into the open end of the cylinders terminate short thereof as at 21′ to serve as abutments for the end plates or disks 20. It being obvious, during the crushing operation of the contents of the hopper, necessarily that the rib of one roller, at all times mesh with the groove of the adjacent crushing roller, a toothed gear 23 is mounted on each of the shafts at a point inwardly of one of the sills 5, and in spaced relation with the closed end of each of the crushing rollers. In other words, to properly set the crushing rollers for the purpose intended, the teeth of the gears are arranged in alinement with the rib of each roller and the spaces between the gear teeth being disposed in alinement with the grooves of the crushing rollers. When the gears are so set with relation to the rollers, an interlocking action of the same with respect to one another is caused by the employment of the laterally extending spaced lugs 24 integrally formed on the hub of each gear meshing with similarly formed lugs 25 projecting laterally from the closed end 20 of the crushing rollers. After this operation, pins or keys 26 are inserted through each of the shafts in abutting contact with collars 27 of the gears and collars 28 formed on the end plates 20. It is desirous at this point to state that these pins or keys serve to retain the gears, crushing rollers and end plates of the latter against accidental displacement or movement. Further, in the foregoing description, I have referred to the crushing rollers being hollow, and by such construction the manufacture of the same is accomplished without the use of a dry sand core.

The numeral 29 denotes a hexagonal head formed on the outer extremity of each of the bearings, and upon the bearings assuming an active position, disposes these heads exteriorly of the sills 5, for convenience of the operator to apply a wrench or similar tool thereto, when it is desired to impart rotation to the bearings. By so doing, the eccentric bores of the bearings may readily and accurately be alined with one another. Further, due to the fact that the shafts are eccentrically journaled in the bearings, upon subjecting the bearings to a partial rotation by the application of a suitable tool on the hexagonal head, an adjustment or spacing of the crushing rollers with relation to one another may be accomplished solely depending upon the quantity of material desired to be fed between the ribs and grooves of the crushing rollers. As better shown in Fig. 7 of the drawing, the grooves of the rollers are of sufficient depth to receive, the ribs of the adjacent roller as well as the fruit to be crushed, consequently permitting of a free rotation of the crushing rollers at all times. These bearings are further provided with an interior annular grease chamber 30.

From observation of Fig. 1, of the drawing, it will be appreciated, owing to the fact that the crushing rollers are concealed in the lower end of the hopper, that necessarily the operator must be enlightened as to whether or not the crushing rollers are in proper mesh with one another previous to the starting of the press. To this end, use is made of an indicator 31, provided on and integral with the hexagonal head of each of the bearings and embody a projection 32 extending laterally beyond the head of the bearings. Owing to the construction of the indicator, such may be utilized, if desired, as grips, for assisting in imparting to the bearing rotary movement.

Mounted on one of the extreme outer ends of the shaft 15, is a fly wheel 33, while on the opposite end of this shaft is a loosely mounted gear 34, the latter adapted to mesh with the pinion 35, keyed to the outer extremity of the shaft 14, and through the employment of such elements movement is imparted to the press. Also supported on one end of the shaft 15 is a crank arm 36, said crank arm preferably being secured to said gear 34 for rotating the same. With the aforesaid power transmitting means of the crushing rollers disposed as heretofore set forth, it is manifest that said crushing rollers are permitted to travel at a greater speed than said gear 34 and through the instru-

mentality of this embodiment, the efficiency of the crushing action of the rollers is maintained, as the tendency of large sizes of fruit to retard the speed of the rollers will be entirely eliminated.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of construction and method of operation will readily be apparent to those skilled in the art to which the invention relates, and while I have described the principles of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as are within the scope of the appended claim.

Having thus described the invention, what I claim as new is:—

In apparatus of the character described, a crushing and pressing element comprising a body mounted for rotation, said body being of general cylindrical configuration and having longitudinally disposed ribs standing out radially beyond its general periphery and having longitudinally disposed grooves located in its peripheral portion, the ribs being spaced at equal distances apart, the grooves being spaced at equal distances apart, the spaces between the ribs being equal in transverse dimension to the corresponding dimension of the spaces between the grooves, the transverse dimensions of the ribs being less than the transverse dimensions of the grooves, the ribs being located midway between the grooves and spaced from the adjacent edges thereof whereby arcuate sections of the peripheral portion of the body are interposed between the adjacent edges of the ribs and grooves.

In testimony whereof I affix my signature.

ARLIE BARTLEMAY.