

May 20, 1958

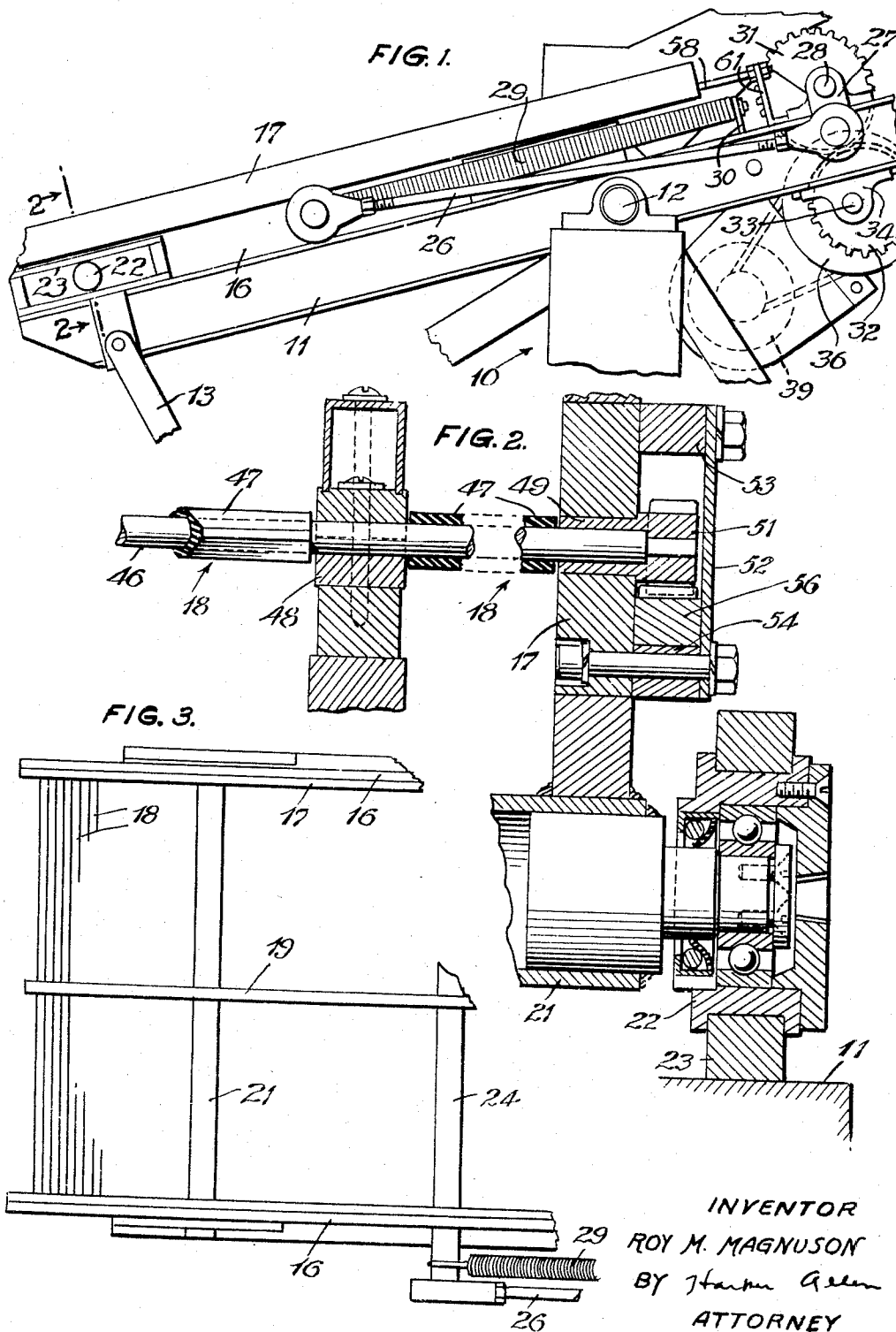
R. M. MAGNUSON

2,835,295

STEMMING APPARATUS

Filed April 6, 1954

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 4.

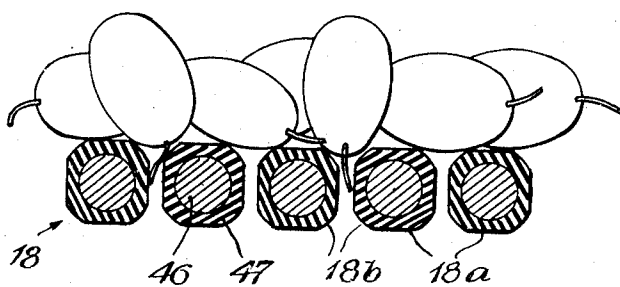


FIG. 5.

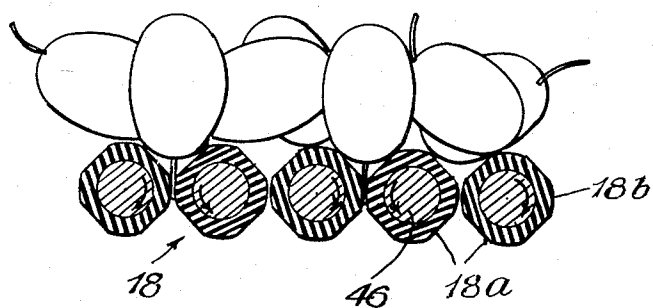
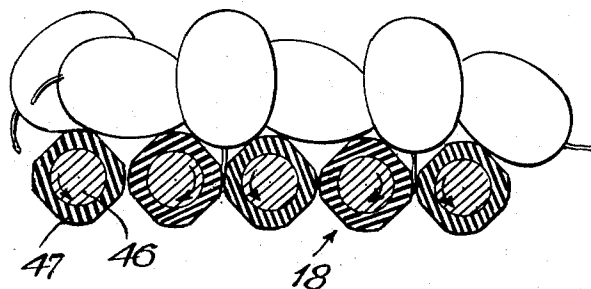


FIG. 6.



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1

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STEMMING APPARATUS

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Application April 6, 1954, Serial No. 421,266

3 Claims. (Cl. 146—55)

This invention relates to stemming apparatus and methods for fruit and vegetable articles, such as grapes, for example. The invention provides a stemming apparatus which will work effectively on articles with both long and short stems, such as commonly found in grapes, and is concerned more particularly with the provision of an improved stemming roll construction which facilitates an optimum stemming condition for this type of article.

The above and other objects of the invention will be apparent from the following description of a preferred embodiment of the invention, as illustrated in the accompanying drawings, in which:

Figure 1 is a fragmentary side elevational view of a stemmer embodying the invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a fragmentary plan view of the apparatus.

Figure 4 is an enlarged schematic view showing the stemming rolls in relation to the articles being stemmed.

Figure 5 is a view similar to Figure 4 showing a different stage of the stemming operation.

Figure 6 is a view similar to Figures 4 and 5 illustrating another condition of the stemming rolls.

Referring to Figures 1 to 3, the grape stemmer includes a rectangular supporting frame 11 pivotally mounted on a suitable base by trunnions 12 adjacent one end and at the other end by a pair of adjustably mounted links 13. The grape stemmer also includes a bed of stemming rolls including a frame structure 16 slidably mounted on the supporting frame side bars 17 in which a series of parallel rubber covered stemming rolls 18 are journaled. A center bearing strip 19 is provided for the rolls 18, as later described in detail. The frame structure 16 of the stemming bed is carried by four flanged rollers 22, engaging in respective box tracks 23 on the supporting frame 11 to provide for back and forth movement with respect thereto, being shown in a central position in Figure 1. As seen in Figure 2, each roller 22 is journaled in a conventional bearing at the end of an associated cross frame piece or pipe 21.

The frame structure 16 also carries a transverse member in the form of a pipe 24 which is connected, at its ends by respective connecting rods 26, with depending crank arms 27 that are carried at the respective ends of a transverse drive shaft 28 which is supported by the frame 11. A pair of opposite springs 29 also extend between the transverse member 24 of the frame structure 16 and respective ears 30 on the supporting frame 11. These springs 29 are extended upon downward movement of the bed of stemming rolls, i. e., to the left in Figure 1, so as to assist in the upward movement and aid in maintaining an even load on the drive. The drive for the shaft 28 comprises a pair of eccentric or elliptical-type gears 31 and 32 and the lower gear 32 is carried on a shaft 33 suitably mounted in a bearing block 34 on the supporting frame 11. The shaft 33 also carries a suit-

2

able drive pulley 36 (Figure 1) which is driven from a suitable electric drive motor 39.

The bed of rolls is constructed for back and forth rotative or oscillating movement of each roll about its axis with adjacent rolls moving oppositely so that each valley between a pair of adjacent rolls is alternately stemming or non-stemming depending upon the direction of rotation of the rolls. As seen in Figure 2, each roll 18 includes a transverse shaft 46 having a pair of rubber coverings 47 thereon at either side of a center split support bushing 48 for the shaft 46. At one end each shaft 46 is supported in a flanged bushing 49 and carries a pinion 51. The other end of each shaft 46 is carried by a conventional bushing. One alternate series of rolls 18 have the gears 51 at one side of the machine disposed within a housing provided by a cover plate 52 extending between top and bottom frame strips 53 and 54 which are secured to the side bar 17. Similarly, the other alternate series of rolls 18 are supported in eccentrically flanged bushings at the opposite side of the machine and carry gears 51 at such opposite side.

From the above description, it will be apparent that one of the alternate sets of rolls 18 have their pinions 51 at one side of the machine while the other of the alternate sets of rolls 18 have their pinions 51 at the opposite side of the machine.

In order to produce opposite reverse rotation of adjacent stemming rolls 18, a rack 56 is mounted beneath the gears 51 adjacent the strip 54 on one side of the machine, and at the opposite side of the machine a similar rack 56 is mounted above the gears 51 in contact with the frame strip 53. The racks 56 are connected at their rearward ends by respective rods 58, one of which is seen in Figure 1, to respective upstanding brackets 61 at the respective sides of the supporting frame 11. Thus as the roll bed 16 moves back and forth to either side of the central position thereof, as shown in Figure 2, the stationary racks 56 engage their respective sets of gears 51 so that adjacent rolls are rotated in opposite direction. Referring to Figure 5, for example, one direction of the series of rolls 18 is indicated, while Figure 6 shows the opposite direction of rotation of the same series of rolls. Thus, each valley between a pair of adjacent rolls 18 is alternately stemming or non-stemming, once during each reciprocation of the roll bed each valley is a stemming valley and applies a stemming effect to any grapes carried therein. Thus, irrespective of the valley in which a grape may be positioned, if its stem is in a position to be engaged by a pair of rolls 18 it will be stripped from the grape. Also, by virtue of the alternate reverse rotations of each of the rolls 18, an effective agitating action of the grapes is provided so that the length of the machine, for a given capacity, required to insure substantially complete stemming can be reduced.

The apparatus described above is of the type described and claimed in my copending application Serial No. 157,549, filed April 22, 1950, for Olive Stemming Apparatus, now Patent No. 2,707,982.

Referring further to Figures 4, 5 and 6, the rolls 18 are of special construction and include alternate flats and cylindrical circumferential portions, each of the flat portions 18a as shown occupying approximately 45 degrees included angle of the circumference. The cylindrical portions 18b all having the same radius, are of a diameter to engage each other and the stem of an article projecting therebetween as shown for example in Figure 5, in the usual fashion in the stemming rolls. The flat portions 18a as shown in Figure 4 provide a clearance space between the rolls whereby a longer stem of an article can be projected through the rolls. Such stems are then,

3

upon rotation of the rolls engaged by the cylindrical portions 18b and pulled from the articles.

In accordance with my improved method of manufacture of stemming apparatus embodying the invention, the stemming rolls 18 are first constructed with the rubber coverings 47 of full cylindrical or round form and the machine is assembled as shown in the drawings. After assembly, and with the rolls held stationary, the rubber coverings 47 have flat surfaces 18a formed thereon by applying a flattening effect thereto so that all of one series of flats 18a are formed at the same time and in the proper timed relation. Then the rolls 18 are rotated through 90 degrees, and a second series of flat surfaces are formed thereon, this operation continuing until the desired number of flats are formed. In a preferred manner of forming the flats, a conventional floor sanding machine may be used over the entire bed of rolls or a desired portion thereof to machine the flat surfaces.

In the operation of the apparatus, the articles, such as grapes, to be stemmed are fed preferably in a continuous stream onto the stemming rolls in a direction extending transversely of the axis of the rolls. By virtue of the back and forth movement of the bed of rolls, the grapes are subjected to an intermittent progressing and agitating effect or movement so that they progress over the rolls and are shifted about to arrive at a position in which the stem is presented to a stemming valley. The agitation effect of the alternate flat and round portions of the rolls aids materially in shifting the articles, such as grapes or olives, to insure entering of the stem in a stemming opening, and this agitation effect is enhanced by the change of effective radius of each roll as it rotates. In the case of both long and short stems, the gap provided by the flats 18a of the rolls provides for easy entrance, particularly in the case of long stems, and the subsequent pulling action of the cylindrical peripheral portions of the rolls pulls the stems from the grapes. Because the rotation of the rolls is intermittently reversed, each valley intermittently presents the stemming effect to any articles lying therein.

While I have shown and described a preferred embodiment of the invention, it will be understood that the invention is capable of variation and modification from the form shown, so that its scope should be limited only by the scope of the claims appended hereto.

I claim:

1. Apparatus for stemming articles such as grapes, comprising a bed of parallel adjacent stemming rolls, the diameters of said rolls being comparable to the diameters of the articles being stemmed, means mounting said bed for back and forth movement in a direction parallel to the desired path of movement of the articles and transverse to the length of said rolls, and means for effecting rotative movement of said rolls with adjacent rolls moving in opposite directions, each of said rolls having at least one flat surface presented in timed relation to a similar flat surface of an adjacent roll to provide a stem receiving

4

space between rolls when said flats are opposite and parallel during rotative movement of said rolls, said stem receiving space being too narrow to receive the articles being stemmed so that said rolls cannot grip and damage said articles.

2. Apparatus for stemming articles such as grapes, comprising a bed of parallel adjacent stemming rolls, the diameters of said rolls being comparable to the diameters of the articles being stemmed, means mounting said bed for back and forth movement in a direction parallel to the desired path of movement of the articles and transverse to the length of said rolls, and means for effecting rotative movement of said rolls with adjacent rolls moving in opposite directions, each of said rolls having a periphery defined by alternate portions of full diameter and less than full diameter respectively, said rolls being positioned to provide mating of similar portions thereof during rotative movement of said rolls, adjacent ones of said rolls providing a stem receiving space therebetween during said rotative movement, said stem receiving space being too narrow to receive the articles being stemmed so that said rolls cannot grip and damage said articles.

3. Apparatus for stemming articles such as grapes, comprising a pair of parallel adjacent stemming rolls, the diameters of said rolls being comparable to the diameters of the articles being stemmed, and means for effecting rotative movement of said rolls with adjacent surface intermittently reversed in their direction so that a portion of the time the rolls reject articles and a portion of the time the rolls engage and pull stems from the articles, each of said rolls having a periphery defined by alternate portions of full diameter and less than full diameters respectively, said rolls being positioned to provide mating of similar portions thereof during rotative movement of said rolls, adjacent ones of said rolls providing a stem receiving space therebetween during said rotative movement, said stem receiving space being too narrow to receive the articles being stemmed so that said rolls cannot grip and damage said articles.

References Cited in the file of this patent

UNITED STATES PATENTS

45	883,708	Fontana	Apr. 7, 1908
	1,635,569	Ayars	July 12, 1927
	1,670,225	Zylstra	May 15, 1928
	2,048,470	Sanborn	July 21, 1936
	2,075,448	Lundquist et al.	Mar. 30, 1937
50	2,479,961	Paul	Aug. 23, 1949
	2,527,182	Gaddie	Oct. 24, 1950
	2,574,044	Lapeyre et al.	Nov. 6, 1951
	2,601,055	Rahal	June 17, 1952

FOREIGN PATENTS

55	1,004,348	France	Nov. 28, 1951
	1,062,991	France	Dec. 9, 1953