May 15, 1945. A. M. LOBDELL 2,376,260

CRANBERRY PICKING MACHINE

Filed May 1, 1943

Fig. 1.

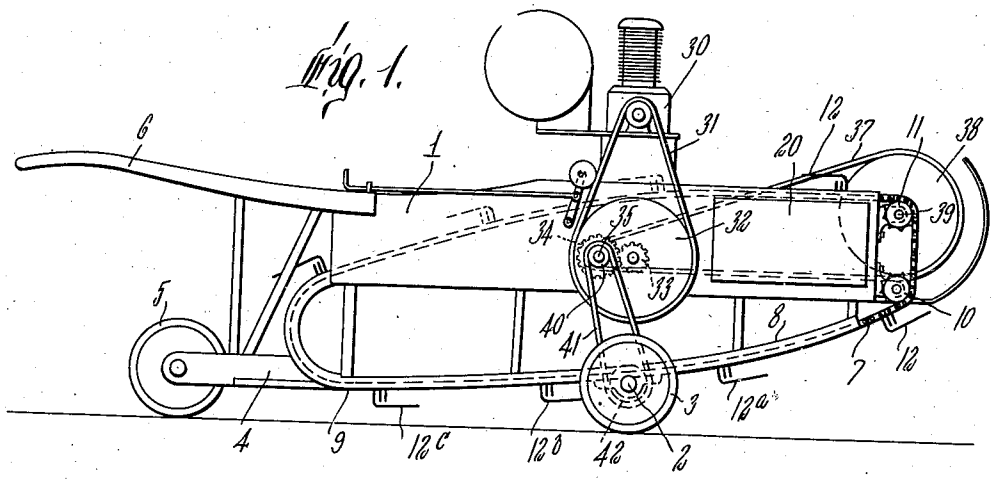
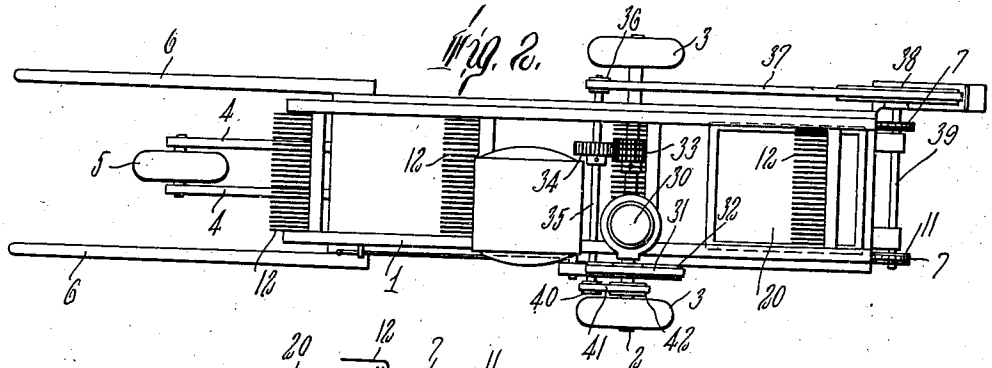


Fig. 2.



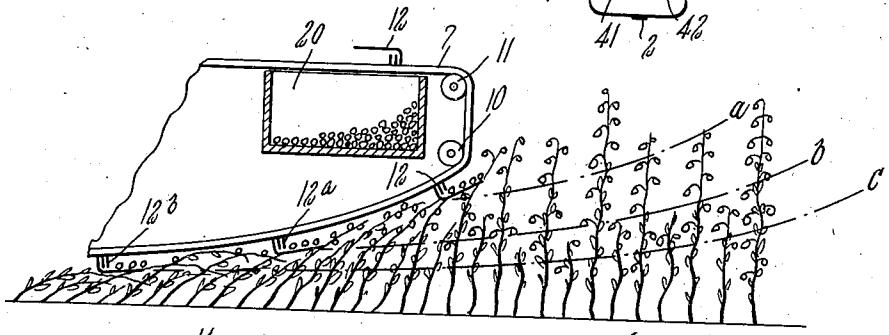


Fig. 3.

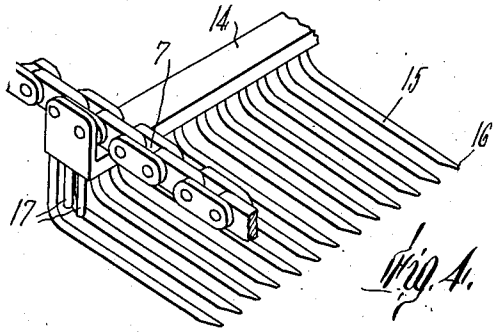


Fig. 4.

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CRANBERRY PICKING MACHINE

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Application May 1, 1943, Serial No. 485,311

4 Claims. (Cl. 56—330)

This invention relates to a machine which operates to pick cranberries according to an improved method.

Cranberries have wiry, tough bushes, which in the bog are closely matted together and which bear berries rather closely along the stems for about two inches from the ground to their tops. Because of these habits of growth, it is difficult to pick the berries clean and yet avoid pulling up or otherwise damaging the bushes.

Toothed scoops or combs are commonly employed for hand picking, but, as considerable force is required to push such a scoop into and through the bushes, such work is laborious.

In accordance with the present invention, the picking is done with tined scoops or combs, but, in order to prevent damage to the bushes from breakage or from being pulled up, a scoop is first presented to the top portion of the bushes and pulled therethrough. This removes the berries near to the tops of the bushes and combs out their upper end portions. A scoop is then inserted deeper into the mass of bushes and pulled therethough, thus removing berries from a zone lower and deeper than that from which the first berries were picked, combing out the bushes in the lower zone up to and through the upper zone of the bushes, from which the berries were previously picked and which was combed out when the next first picking action was performed. During the next succeeding action, the berries in a still lower zone are picked and the bushes combed out. The total height of the bushes may thus be divided into as many zones as desired, three or four usually being found ample.

By dividing the combing out of the berries to progressively deeper zones, the pull on the bushes is kept below a point which might pull up or seriously damage them, the power required is reduced, and the amount of foreign matter such as leaves, twigs, etc. removed with the berries, and the difficulty of separating the berries therefrom is very greatly reduced.

The accompanying drawing illustrates a machine designed to pick the berries in accordance with the method hereinbefore described.

In this drawing,

Figure 1 is a side elevation of the machine.

Figure 2 is a top plan view of the same.

Figure 3 is a somewhat diagrammatic fragmentary view showing the manner in which the pickers operate.

Figure 4 is a fragmentary perspective view of one of the pickers.

Referring to the drawing, at 1 is indicated a support which is mounted slightly forwardly of its center of length on an axle 2 provided with spaced wheels 3. This support is shown as provided with a pair of rearwardly extending frame members 4 between which is journaled a third supporting wheel 5. In order to facilitate guiding of the machine by the operator, the upper portion of the support may be provided with a pair of rearwardly extending handles 6 between which the operator may walk, and by which he may guide the forward progress of the machine during a picking operation. Only a minor portion of the weight of the machine is supported on the rear wheel 5 so that the operator may easily lift the rearward portion of the machine and move it laterally from time to time as may be required to guide the machine as desired.

The support 1 has mounted thereon one or more endless carriers, herein shown as a pair of chains 7, which are arranged in parallel relation to each other at opposite sides of the machine. These endless chains are suitably guided in their lower stretches as by guide troughs 8 so as to move from a lower rear portion 9 upwardly and forwardly to the front portion of the support 1 where they are shown as passed upwardly about guiding sprocket wheels 10 and 11, from the upper of which sprocket wheels 11 the endless carriers are returned in an upper stretch to the rear portion of the support slightly forward of the wheel 5, whereupon they are guided in any suitable manner from the upper stretch to the lower stretch. These endless carriers are bridged across at suitable intervals by picker scoops 12, 12a, 12b, 12c, these picker scoops being spaced sufficiently closely together so that a plurality of them, herein shown as four, are maintained at all times in the lower stretches of the endless carriers, the rearmost extending quite close to the ground and those forwardly thereof being progressively further spaced upwardly therefrom. As shown in Figure 4, each of these scoops may comprise a cross bar 14 to which are secured the rear upturned end portions of a plurality of angle-shaped tines or comb members 15, the forward portions of which lie in substantial parallel relation to their pointed forward ends 16 and together form the bottom of the picker scoop. At the ends of the bar 14 short posts 17 may be secured thereto which extend toward the end tines of the series and form side wall portions for the scoops sufficiently close to prevent substantial discharge of the berries laterally from the scoops.

In the lower stretch of each of the endless carriers 7, these scoops are arranged right-side-up and with their pointed tine ends 16 projecting forwardly, while where the scoops are returned in the top stretches of the endless carriers, they are in inverted position as shown in Figure 1. A suitable receptacle 20, positioned between the sides of the support and at the forward end portion of the picker, receives the berries which are discharged from the picker scoops as they are turned up-side-down at the beginning of the top stretches of these carriers. The endless carriers are arranged to be driven so that the scoops in the lower stretch move forwardly and upwardly. To this end an internal combustion engine 30 has been illustrated as mounted upon the support, and having its driving pulley connected through the belt 31 to a countershaft pulley 32. The shaft carrying this pulley 32 is provided with a gear 33 meshing with a gear 34 on a cross shaft 35. This cross shaft 35 is provided with a drive pulley 36 over which passes a driving belt 37 engaging about a pulley 38 fixed to a shaft 39 to which the sprocket wheels 11 are secured. The machine is also designed to be self-propelled forwardly, and for this purpose the shaft 35 is shown as provided with a belt pulley 40 over which passes a belt 41 engaging about a pulley 42 on the axle 2. In the proportions illustrated, the machine is propelled forwardly at about sixteen times the rate of travel of the pickers with respect to the machine.

In Figure 3 is shown diagrammatically the action of the picker scoops as the machine is driven forwardly and as the scoops are presented to the bushes. As shown in this figure, the forward picker scoop is positioned at a substantial distance above the ground, and, as it is moved forwardly by the motion of the endless carriers and by the forward motion of the machine, its tines engage the upper portions of the bushes and comb them out in an upward and forward direction. This removes the berries from the upper portions of the bushes above the broken line *a* and combs them out so that they no longer present toward their upper ends the tangled mass which the picker first engaged. Following after this first picker scoop, a second picker scoop indicated at 12*a* is engaged in the bushes in a deeper zone and follows behind the forward picker scoop, gradually moving upward as well as forwardly, picking the berries within the zone indicated between the broken lines *a* and *b* and combing out a deeper zone than that combed out by the forward picker scoop, until it passes out of its picking zone and through the bush ends already combed out by the first scoop. Similarly the next rearward picker scoop 12*b* acts on the bushes between the broken lines *b* and *c*, picking the berries from a still deeper zone than the second picker scoop and finally passing through the upper portions of the bushes which have been combed out by the picker scoops in advance thereof. It will be noted that as each of the picker scoops progresses forwardly and upwardly, it first picks from a lower zone and then enters into the bushes at a level where the pickers in advance thereof have already operated and through which it may pass without exercising any great stresses upon the bushes; and that as the picker scoops approach the forward end of the machine, they pick progressively higher portions of the bushes until finally they pick from the end portions of the bushes where no previous picker has reached. Thus the work of each picker, when in operation throughout the lower stretch of the carrier, is divided so that it removes berries from first a lower level and then from progressively higher levels, and passes through only a limited depth of bushes which have not previously been picked from and combed out by those pickers in advance thereof.

It will be seen from this description that the machine in its normal picking operation carries out the desirable picking method hereinbefore outlined. It will also be understood that various changes and modifications might be made in the machine without departing from the spirit or scope of this invention or from the desirable method of picking hereinbefore described.

I claim:

1. A machine of the class described, comprising a support, a wheeled axle carrying said support, an endless carrier on said support and having a lower stretch extending forwardly and upwardly transverse to said axle and extending forwardly thereof, and an upper return stretch, scoops carried by said carrier, each of said scoops having a comb bottom, there being a plurality of said scoops always at said lower stretch and facing forwardly and right-side-up and at progressively lower elevations starting from the forward portion of said carrier, means positioned beneath the upper stretch of said carrier to receive berries combed from said scoops as said scoops are inverted on said return stretch, means for supporting the rear portion of said support, and means on said support for moving said endless carrier with its lower stretch moving forwardly and upwardly and for driving said carrier in the forward direction of said scoops.

2. A machine of the class described, comprising a support, a wheeled axle carrying said support, an endless carrier on said support and having a lower stretch extending forwardly and upwardly transverse to said axle and extending forwardly thereof, and a return stretch, scoops carried by said carrier, each of said scoops having a comb bottom, there being a plurality of said scoops always at said lower stretch and facing forwardy and right-side-up and at progressively lower levels rearwardly starting from the forward portion of said carrier, means positioned beneath the upper stretch of said carrier to receive berries from said scoops as said scoops are inverted on said return stretch, means for supporting the rear portion of said support, and means on said support for driving said carrier with its lower stretch moving forwardly and upwardly and connected to rotate said wheels to move said support forwardly.

3. A cranberry picking machine, comprising a ground supported frame, a conveyor carried by said frame and having a lower stretch upwardly inclined, and a return stretch, a plurality of scoops provided with comb elements extending upwardly and forwardly with the slope of said stretch and carried by said conveyor from adjacent to the ground upwardly throughout said lower stretch, and means for driving said conveyor with the scoops in said lower stretch moving upwardly and forwardly and said frame in the forward direction of said lower stretch, whereby said scoops pick from successively lower levels from front to back of the machine, the bushes being picked from at the lower levels at the lower portion of said lower stretch having pre-

viously been picked from at the higher levels by preceding scoops in said lower stretch.

4. A cranberry picking machine, comprising a ground supported frame, a conveyor carried by said frame and having a lower stretch upwardly inclined, and a return stretch, a plurality of scoops provided with comb elements extending upwardly and forwardly with the slope of said stretch and carried by said conveyor from adjacent to the ground upwardly throughout said lower stretch, and means for driving said conveyor with the scoops in said lower stretch moving upwardly and forwardly and said frame in the forward direction of said lower stretch, whereby said scoops pick from successively lower levels from front to back of the machine, the bushes being picked from at the lower levels at the lower portion of said lower stretch having previously been picked from at the higher levels by preceding scoops in said lower stretch, and a receptacle carried by said frame and positioned to receive berries from said scoops on their backward motions in inverted position in said return stretch.

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