This invention relates to mechanical cotton pickers and more particularly to a picker head which is to be applied directly to the individual boll and which has any desired connection to a container or storage receptacle, the usual connection to a gasoline engine for supplying power for operating the picker mechanism as well as the air compressor for discharging the cotton from the picker head to the container, being intended.

The present invention is an improvement over the picker head disclosed in my pending application for patent, S. N. 458,976, filed June 2, 1930 for Picker head.

In general the picker head according to the present invention is of the same character as that disclosed in the application referred to above incorporating a head with an air blast to provide suction therein, rocking arms with fingers thereon for twisting the cotton boll with relation to the picker, and other features.

A particular object of the present invention is to provide improved means for discharging the cotton from the cotton removing device, consisting of a plurality of circular saws, by providing an intermittent air blast between the saws directed into the picker head in place of the doffer arrangement for cleaning the saws as in my prior application. This intermittent blast provides pulsation of the suction on the cotton bolls being picked which is a decided advantage as well as reducing the number of parts, eliminating doffer and other parts, and simplifying the construction of the picker head.

Another object of the invention is to provide an air blast between the saws for clearing them which may be regulated for increasing or diminishing the air to the saws as may be desired.

A further object of this invention is to provide an air suction in the head and means whereby the suction may be regulated at will to produce only a slight suction or to increase the suction as desired.

A still further object of the invention is to provide an adjustable lip and support thereon for properly positioning the cotton bolls while the fiber is being drawn therefrom and preventing the bolls or locks or portions thereof from being drawn into the picker head.

Further features and objects of the invention will appear from the following specification, accompanying drawings and as pointed out in the claims.

In the drawings in which like characters of reference designate corresponding parts throughout the several views,—

Figure 1 is an elevation of one side of a picker head in accordance with my invention.

Figure 2 is an elevation of the other side of the said picker head.

Figure 3 is a vertical longitudinal section through Figure 1 with rotary cotton removing saws in elevation showing the relation of the air blast for removing the cotton lint on the discharge side within the picker head.

Figure 4 is a horizontal section through Figure 1 with the saws and their mounting removed showing the air supply tube upon which the saw assembly is rotatably mounted in elevation.

Figure 5 is an enlarged sectional view of the air supply tube and saws mounted thereon.

Referring more particularly to the drawings, 10 indicates the picker head having a suitable hose connection 11 to a cotton container, which for the present purpose need not be shown. A shaft 12 is connected by a flexible shaft to any suitable source of power and carries a pinion 13 adapted to mesh with the combined spur and bevel gear 14 supported on the transverse stud shaft 15 extending from the head 10 and transmits movement to the operating mechanism for picking the cotton as later described.

A shaft 16 extends through the head which has bearings therein and keyed to the shaft on the outside of the head is a spur gear 17 adapted to mesh with the spur teeth of gear 14 for driving this shaft. A smaller gear 20 is also keyed to shaft 16 at its outer end and is adapted to transmit motion to gears 21 and 22 which are fastened together and pivoted on a stud 22. Gear 23 in turn transmits motion to gears 24 and 25 which are similarly connected and pivoted on a stud 26 and gear 27 drives gear 28 which is keyed to the saw shaft 29.

Shaft 16 extending through the picker head has on its opposite end a driving gear 29 the same as gear 20 just referred to. Gear 29 drives a corresponding train of gears, 31, 32, and 33 on a stud 32 and 34 and 37 on a stud 26.

A plurality of saws 30, three being shown, adapted to be driven by the saw shaft 29, are mounted on a tube 31 which has series of apertures 32 on each side of each blade as shown in Figure 3 of the drawings. Saw shaft 29 is integrally connected to closed end 33 of tube 31. The opposite end 34 of this tube is open and the tube is rotatably mounted on a smaller tube 35 which is closed at its inner end 36 and extends...
outwardly through casing 10 on the opposite side of the picker head from shaft 29. Within the casing 10 tube 35 is provided with a longitudinal slit 37 extending the entire length of the tube inside the casing and so directed in the casing as to discharge air through the openings 32 to withdraw the discharged cotton. Thus the cotton is drawn down over the sides of the saws air is discharged under the lint at the desired point in the head in order to free the loops of cotton lint from the saw teeth. It is obvious that any shape opening may be used in the tube 35 in place of the slit 37 as shown, and that several such openings may be used for discharging the air at such points as may be desirable. For example, when the holes in the saw support tube pass one slot or hole, the cotton may be partially loosened from the saw tooth and it may be necessary for the holes in the support to pass another opening to entirely disengage the cotton. However, these openings may be made at any point in the tube 35 for discharging the cotton in the lower part of the head. It will further be understood that this arrangement will insure a clean tooth or saw coming up to re-engage the cotton boll on every revolution.

The outer end 38 of tube 35 extends a short distance beyond the casing providing an attachment for a connection for a supply of air as will be hereinafter set forth. This end 38 also provides a bearing for rocker arm 39 which is provided with a plurality of fingers 40 and saw shaft 29 also provides a bearing for a similar rocker arm 41 with its extending fingers 42. Gears 24 and 24' are each provided with studs 43 which engage in each of the rocker arms 39 and 41. These studs are so arranged on the gears that when the gears are rotated the rocker arms with their fingers are rocked in opposite directions as set forth in my former application hereinbefore referred to.

As described in the foregoing application, the compressed air leads to the picker head and has an entrance 46 for discharging air through the head towards the outlet and for causing suction on the cotton bolls while the saws are operating upon them and forcing the cotton thereafter through the hose connection 11 to the container.

Air duct 45 may have a branch 47 which passes through a regulator valve 48 and from there to the end 38 of tube 35 for supplying the compressed air to the saws at the desired pressure. If desired the air to this tube may be supplied by a separate connection.

Casing 10 is provided with a closure 49 extending over the inlet and to a point adjacent to saws 36. This closure has one or more openings 50 therein which permit the passage of air into the picker head thereby reducing the suction on the cotton bolls. These openings are regulated by a valve member or slide 51 so that the suction may be increased by closing the openings or diminished by having the openings more or less open; the retaining screw for slide 51 is adapted to move in a slot in the casing 10 so that when the screw is loosened slide 51 may be moved in a direction normal to the plane of the paper so as to cover or uncover the hole.

Drive shaft 12 is rotated in a direction to turn saws 30 in a direction away from said closure 49. The extreme end of casing 10 is spaced from saws 30 as shown and provided with a lip 52 and support 53 which may be permanently secured to this lip. As will be seen in Figure 3 the lip 52 is held to said extreme end by screws threaded in the lip and adapted to move in slots when loosened thereby permitting the effective length of the lip to be adjusted as desired. In operation the boll may be placed over and beyond the cotton boll and as the saws are turning in the direction of the lip it would have a tendency to hold and support the boll in position while the fiber is being drawn therefrom, whereas the edge of the boll or points of the locks would be supported by the projecting support 54 which extends entirely across the lip preventing the boll or lock or portions thereof from being drawn into the picker head.

The picking operation is accomplished in the following manner: The engine having been started, the compressor is operated to supply air through tube 45 to the picker casing head 10 and shaft 12 transmits rotary motion to the gear train on either side of the casing rotating saws 30 and rocking the rocker arms 39 and 41 with their extending fingers 42. Compressed air is also supplied to tube 35 through the compressed air connection at the projecting outer end 38 thereof. As the picker head 10 is advanced towards an individual boll the boll first comes in contact with the fingers 40 and 42 of the oppositely moving rocker arms and is given a twist to insure throwing all the locks in line for proper contact with the saws 30 and due to the suction created at the mouth of the head, the draw of the fiber is sufficient to remove the entire cotton from all of the locks without possibility of allowing the saws to cut the shafe or locks. The adjustable lip 52 and support 53 are so arranged as to carry the boll to the proper position with respect to saws 30 and the passageway into the head. In drawing the cotton from the bolls by the saw teeth it forms a loop on either side of the saws and it will be seen that under the loops of cotton on either side of the saws and at the bottom of the head the streams of air from the apertures 32 from both sides of the various saw blades are directed, pushing the cotton from engagement with the saw teeth and directing it into the stream of air from entrances 44 of the air blast for clearing the head and discharging same through hose connection 11 to the container. The air pressure to tube 35 may be varied by regulating valve 48 and the suction in the head may be increased or diminished by varying the adjustment of the openings 50 by regulating valve 51 so that the proper air pressure for suction on the head and air blast for removing the cotton lint from the saws may be adjusted as desired.

What I claim is:

1. In a cotton picker, a head, a plurality of coaxial saws, pneumatic means for discharging cotton from the head, and intermittent or discontinuous blowing of the cotton from the saws to within the sphere of influence of said pneumatic means, said transferring means operating in a direction radial of the saws.

2. In the cotton picker, a head, a plurality of coaxial saws, pneumatic means for discharging cotton from the head, and intermittent or discontinuous blowing of the cotton from the saws to within the sphere of influence of said pneumatic means.

3. In a cotton picker, including a head, a col...
1. In a cotton picker, a head, a cotton removing device comprising a plurality of coaxial circular saws, a tubular member on which said saws are mounted, said tube having a plurality of series of apertures at the sides of the saws, means for rotating said tubular member and saws, and means for providing air blasts at the sides of the saws comprising a tubular member upon which said first tubular member is rotatably mounted, said latter tube having a longitudinal slit therein directed interiorly of the head for discharging air through the apertures in the first said tube consecutively as said tube is turned.

2. A fiber translating means comprising a hollow shaft, a plurality of circular saws mounted to turn upon said shaft, an opening along one side of said shaft whereby a stream of air may be ejected therefrom, means for driving said saws, and means for directing fibers toward and away from said saws.

3. A fiber translating means comprising a hollow shaft having an opening along one side thereof whereby a stream of air may be driven therefrom, a plurality of annularly arranged fiber doffing means mounted to turn about said shaft, and means for driving said doffing means thru said stream.

4. A fiber translating device comprising a hollow shaft having an elongated aperture along one side, means for ejecting a stream of air from said aperture, a series of substantially alined fiber picking teeth arranged along but spaced from said shaft, and means for turning said teeth about said shaft whereby each tooth passes thru said stream of air each time it travels around the shaft to thereby deliver fibers into said stream.

5. A toothed roller comprised of a plurality of axially spaced toothed wheels and pneumatic means for cleaning the teeth consisting of means for producing air blasts outward along the sides of the teeth.

6. In a fiber handling machine, a fiber translating roller having external peripheral teeth and means located centrally of the roller for directing intermittent air blasts radially outward for removing fibers from the teeth.

7. The device of claim 6 in which said roller comprises a tubular shaft, a series of toothed wheels mounted in spaced relation in said shaft, said shaft having a series of circumferentially spaced air ports on each side of at least one of said wheels, means for revolving said shaft and means for opening each of said ports as it passes a predetermined point in its revolution whereby fibers may be removed from the teeth of said wheels as they pass in front of said point.

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