This invention relates to filler feed mechanisms for cigar bunch machines, more particularly for scrap bunch machines, its main object being to convey the scrap tobacco from a receptacle to the filler feed belt of cigar bunch machines of the type disclosed in my prior Patents Nos. 1,916,017 and 1,672,503. It will be understood, however, that the invention is applicable to cigar bunch machines of any other type.

A further object of this invention is to provide improved means for conveying the tobacco which will remove small slivers and dust from the tobacco while in transit before it reaches the feed belt. This object is achieved by supporting a flexible reticulated suction belt between the tobacco receptacle and the feed belt in such a manner that a portion of the suction belt rests on the tobacco in the receptacle and its other end overhangs the feed belt. The suction belt is of the perforated or screen type and passes over a suction box, the bottom of which has narrow longitudinal slots over which the lower run of the suction belt moves in the direction of the feed belt.

Under the action of suction through the slots in the bottom of the suction box the portion of the tobacco upon which the suction belt is resting will adhere to the suction belt and be carried along with it until it reaches the end of the slots in the suction box, when it will be released from the action of suction and will drop off onto the feed belt and be conveyed to its destination in the manner described in above mentioned patents. While the tobacco is being carried away by the suction belt, the mass of tobacco in the receptacle is being rotated and raised to present a new surface from which the suction belt picks its charge.

The upper or driving end of the suction box is hinged on a shaft carrying the drive roller of the suction belt to permit of automatic adjustment of the pick-up end to the level of the tobacco and also for convenience in replenishing tobacco in the receptacle. Instead of having the suction box supported on the tobacco in the receptacle it could be connected to the mechanism for rotating and raising the tobacco so as to be raised while the rotation of the tobacco takes place and dropped as the rotation stops. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations hereinafter fully described and then specifically set forth in the claims hereto appended.

In the accompanying drawings which form a part of this specification and in which like characters of reference denote like parts:

Fig. 1 is a plan view, partly broken away, showing one form of the feed mechanism, wherein the suction box is supported by the tobacco in the receptacle;

Fig. 2 is a sectional side elevation of Fig. 1;

Fig. 3 is a sectional end elevation, partly broken away, of Fig. 1;

Fig. 4 is an end elevation, showing part of the drive mechanism;

Fig. 5 is a plan view, partly broken away, showing another form of the feed mechanism, in which the suction box is connected to the mechanism for rotating and raising the false bottom of the tobacco receptacle;

Fig. 6 is a side elevation, partly broken away, of Fig. 5;

Fig. 7 is a front elevation, partly broken away, of Fig. 6;

Fig. 8 is a detail cross-section through the mechanism for rotating the false bottom of the tobacco receptacle; and

Fig. 9 is a detail cross-section showing the cam which imparts a swinging motion to the suction box.

In carrying the invention into effect there is provided a receptacle for scrap tobacco, a suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, and means for driving the belt. In the best constructions contemplated the receptacle is provided with a false bottom and the driving means includes a driven shaft on which one end of the suction box is hinged, a drive roller fast on said shaft, and an idler roller journelled in the other end of the suction box, the suction belt being trained over the rollers. There is also provided in the best contemplated constructions mechanism for rotating and raising the false bottom of the receptacle and mechanism for intermittently swinging the suction box up from the tobacco in the receptacle. These various means and parts may be widely varied in construction within the scope of the claims for the particular device selected to illustrate the invention but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

In Figs. 1 to 4 of the drawings, 11 represents a receptacle containing a supply of tobacco T sup-
ported on a false bottom 12, which is slidely fitted into the receptacle. A threaded rod 13 fixed in the false bottom 12 serves to raise and lower the latter with its charge of tobacco, as will be presently described.

To the bottom of the receptacle 11 is attached a housing 14 which contains the worm gear 15 and worm 16. A key 17 in worm gear 15 slides in the keyway 18 in rod 13. A sleeve 19 threaded on rod 13 passes through the bottom of housing 14 and has attached to it a combination pulley and hand wheel 20.

Worm 16 is mounted on shaft 21 journaled in housing 14 and carrying a sprocket 22 which is driven by chain 23 from sprocket 24 on drive shaft 25. On shaft 25 is an adjustably mounted friction roller 26 engaging a friction wheel 27. The hub of wheel 27 engages a hub on pulley 28, which drives pulley 29 through belt 29.

As drive shaft 29 turns it causes rotation of the worm gear 15 whereby the false bottom 12 is given a rotary motion through the engagement of key 17 with the keyway 18 in rod 13. The turning of drive shaft 25 also causes rotation of the threaded sleeve 19 upon the threaded portion of rod 13, thereby raising the latter through the smooth bore in the hub of worm gear 15 which remains coupled to the rod through key 17. Thus the false bottom 12 is raised with the charge of tobacco T.

One end of suction box 31 is pivoted in bracket 32 on shaft 33 on which is fixed the roller 34. The other end of the suction box carries a shaft 35 on which the idle roller 36 turns, the endless reticulated suction belt 37 which may be of the perforated or screen type, being supported by rollers 34 and 35 driven by the former. The suction box 31 has narrow slots 38 in its bottom extending the full length of the box. A flexible hose connects the outlet 39 with a suction device (not shown). A portion of the bottom of the suction box 31 is shaped to provide a flat surface adapted to press the corresponding portion of the suction belt 37 on top of the tobacco T so that the tobacco, which is held to the belt 37 by the suction 35, is carried along up the inclining portion of the bottom of the suction box and is deposited on the feed belt B when it reaches the end of the slots 38 in the bottom of the suction box where it is released from the action of the suction.

The drive for the suction belt 37 is derived from shaft 25 through sprocket 41 and chain 42 to sprocket 43 on shaft 44, carrying gear 45 driving gear 46 on shaft 33 with the drive roller 34. A roller 47 on shaft 44 drives the feed belt B which advances the tobacco deposited thereon under S shaped rakes (Fig. 2) which level off the tobacco and straighten the long scraps, to a bunch length severing mechanism (not shown).

In case any tobacco leaves should stick to the belt 37 after they have passed the suction slots 38, a rotating brush 48 sweeps them off and onto the feed belt B. Brush 48 is driven by gear 49 on shaft 50 from gear 51 on shaft 33.

The spaces at the sides of the suction box are shown covered by hinged lids 52 and 53, which permit of easy access for examination of condition of tobacco in the receptacle 11. These lids may be left in the raised position, indicated in dotted lines in Fig. 3, if desired. When replenishing the supply of tobacco the suction box 31 may be swung out of the way with the belt 37, the flexible connection to the suction supply being arranged to permit this.

In an alternative construction the free end of the suction box is supported by the mechanism for raising the false bottom of the tobacco receptacle, as illustrated in Figs. 5 to 9 inclusive. In this alternative construction the tobacco receptacle 11 is identical with the one used in the construction just described. Worm gear housing 14a is also identical with housing 14 except for the addition of a hinge lug 16b, on which is pivoted a lever 61 hinged on pin 62. At the one end of lever 61 is a cam roller 63 which contacts on cam 64 attached to pulley 20. The other end of lever 61 carries a pivoted sleeve 65 through which passes rod 66, the upper end of which is pivotally connected to extensions 67 and 68 of the suction box 31a. As was the case in the first construction the suction box 31a is hinged on shaft 33. With the adjustable collar 69 set at the proper height to suit the level of the tobacco T in the receptacle 11, the rotation of cam 64 will cause the suction box 31a periodically to swing up from the tobacco in the receptacle to clear the tobacco picked up by the suction box from the tobacco remaining in the receptacle during the travel of the belt under the suction box.

The functions of rotating and raising the tobacco T in the receptacle 11 as well as the driving of the suction belt 27 are performed in the manner already described for the first construction.

The spaces on each side of the suction box have, in this case, been shown as covered by segments rigidly connected with the suction box, and not hinged as in the first construction, but either type is optional for both constructions. When replenishing the supply of tobacco in the receptacle the collar 69 is released from rod 66 so that the suction box may be swung out of the way around shaft 33, thus providing a maximum of accessibility.

What is claimed is:

1. The combination with a receptacle for scrap tobacco, of a suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, and means for driving said belt.

2. The combination with a receptacle for scrap tobacco, of a suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, and means for driving said belt, said means including a driven shaft on which one end of said box is hinged, a drive roller fast on said shaft, and an idle roller journaled in the other end of said box, said belt being trained over said rollers.

3. The combination with a receptacle for scrap tobacco, of a suction box overhanging said receptacle and resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, said box having elongated slots in its bottom, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, and means for driving said belt, whereby the tobacco is dropped from said belt after passing the end of said slots.

4. The combination with a receptacle having...
a false bottom adapted to support a mass of tobacco, of a suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, means for driving said belt, and mechanism for rotating and raising said false bottom.

5. The combination with a receptacle having a false bottom adapted to support a mass of tobacco, of a suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, means for driving said belt, and mechanism for rotating and raising said false bottom, said mechanism including a housing on the bottom of said receptacle, a sleeve rotatably mounted in said housing, a rod threaded into said sleeve and fixed in said false bottom, a worm wheel splined to said rod, and means for rotating said sleeve and worm wheel independently of each other to raise and rotate said false bottom simultaneously.

6. The combination with a receptacle for scrap tobacco, of a pivoted suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, means for driving said belt, and mechanism for intermittently swinging said box up from the tobacco.

7. The combination with a receptacle for scrap tobacco, of a pivoted suction box overhanging said receptacle and having a perforated bottom resting on top of the tobacco in the receptacle and adapted to be connected to a source of suction, an endless reticulated belt traveling over the bottom of said box to pick up tobacco from said receptacle, means for driving said belt, and mechanism for intermittently swinging said box up from the tobacco, said mechanism including a cam lever connected to the free end of said box, and a cam for actuating said lever.

8. In a feed for scrap bunch cigar machines, the combination with a receptacle having means for supporting a mass of tobacco, of a suction conveyor overlying said mass for removing tobacco from the upper surface of the mass, and mechanism for rotating and raising said means to maintain varying portions of said surface in the range of action of said conveyor, and devices for periodically lifting said conveyor to clear said surface.

10. A feed for scrap cigar machines having in combination, a receptacle for scrap tobacco having a device for supporting a mass of tobacco, and means for conveying scrap from the upper surface of the mass in said receptacle, and simultaneously removing dust from the conveyed scrap, said means comprising an endless moving conveyor screen having openings which are relatively small as compared with the scraps of tobacco to permit passage of air and dust without permitting passage of scrap, and a suction chamber coating with said conveyor to hold scrap from said receptacle on said conveyor and to remove the dust from said scrap during conveying thereof.

11. A feed for scrap cigar machines having in combination, a receptacle for scrap tobacco having a device for supporting a mass of tobacco, and means for conveying scrap from the upper surface of the mass in said receptacle, and simultaneously removing dust from the conveyed scrap, said means comprising an endless moving conveyor screen having openings which are relatively small as compared with the scraps of tobacco to permit passage of air and dust without permitting passage of scrap, a suction chamber coating with said conveyor to hold scrap from said receptacle on said conveyor and to remove the dust from said scrap during conveying thereof, a filler feed belt of a cigar bunch machine underlying a portion of said conveyor and means for cutting off the suction on a portion of said conveyor to deposit the cleaned scrap on said filler feed belt.

12. A feed for scrap cigar machines having in combination, a receptacle for scrap tobacco having a device for supporting a mass of tobacco, and means for conveying scrap from the upper surface of the mass in said receptacle, and simultaneously removing dust from the conveyed scrap, said means comprising an endless moving conveyor screen having openings which are relatively small as compared with the scraps of tobacco to permit passage of air and dust without permitting passage of scrap, a suction chamber coating with said conveyor to hold scrap from said receptacle on said conveyor and to remove the dust from said scrap during conveying thereof, and means for rotating said device about a vertical axis to present varying parts of said upper surface to said endless screen.

13. The combination with a walled receptacle having means for supporting a mass of tobacco, of said conveyor mechanism overlying said mass for removing tobacco from the upper surface of said mass, mechanism for rotating said conveyor means, devices covering the space between the receptacle walls and said conveyor mechanism for preventing piling up tobacco at said space.

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