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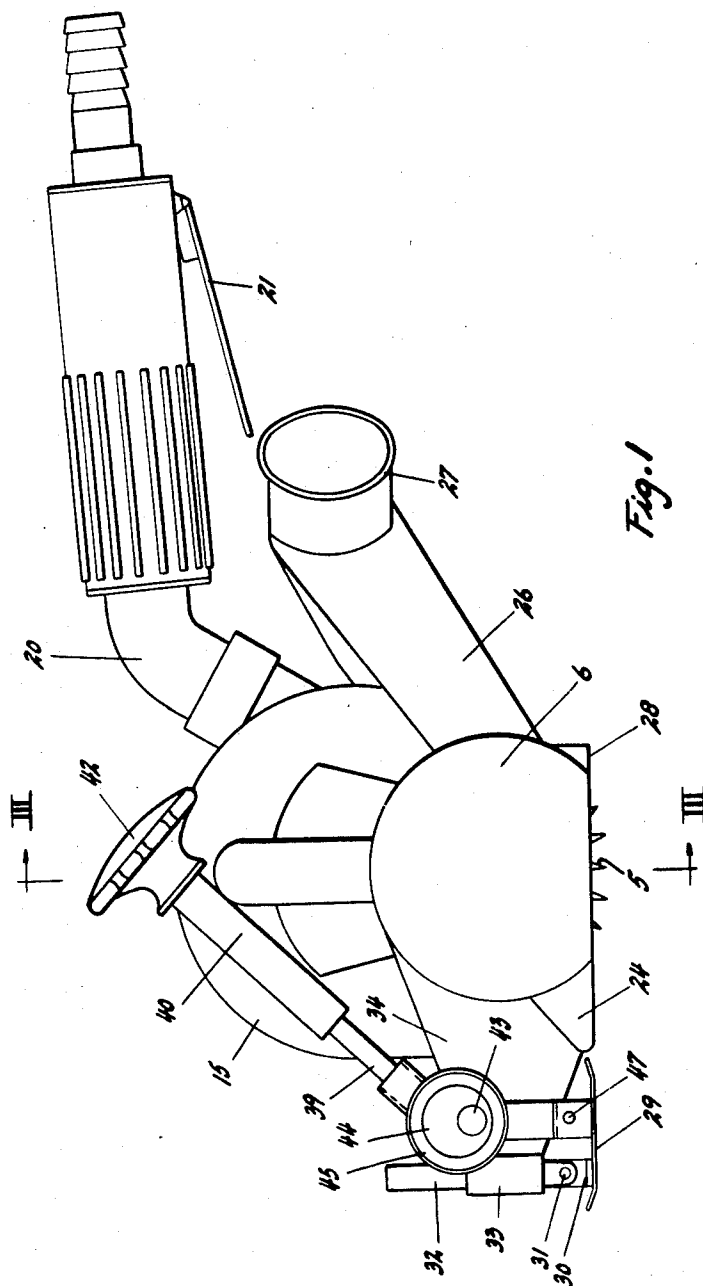
K. J. H. JEPPISON ET AL

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CLEANING APPARATUSES FOR CARDING MACHINES

Filed June 4, 1956

4 Sheets-Sheet 1



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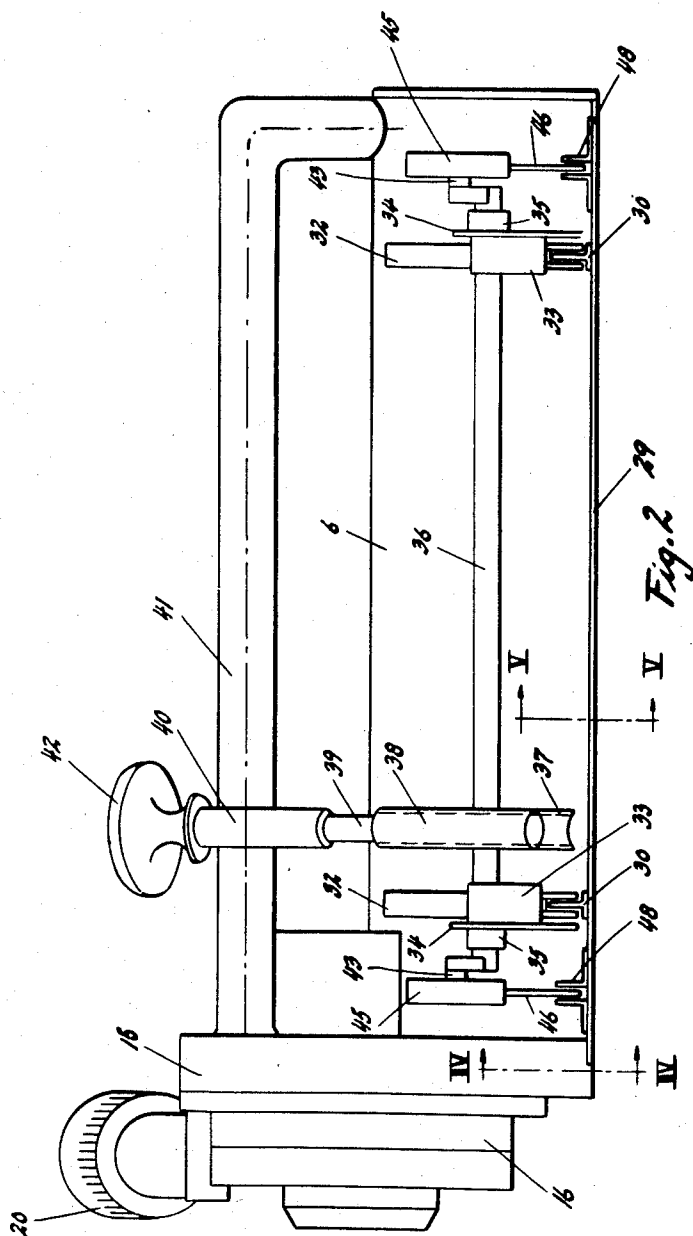
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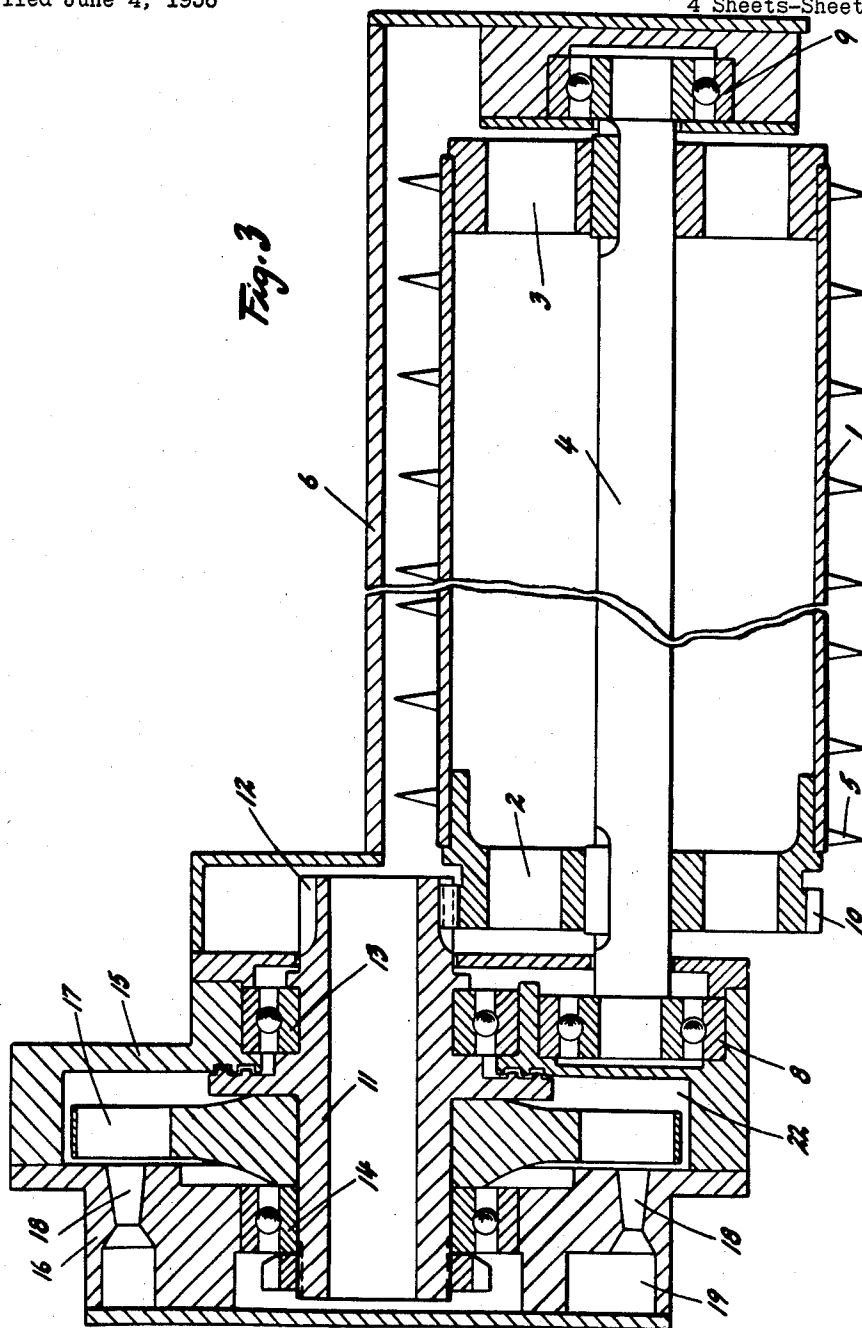
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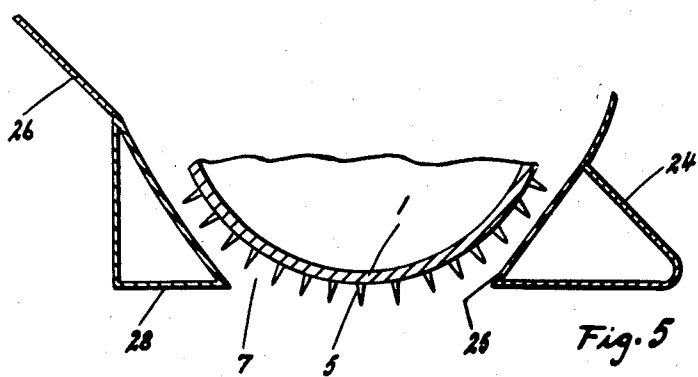
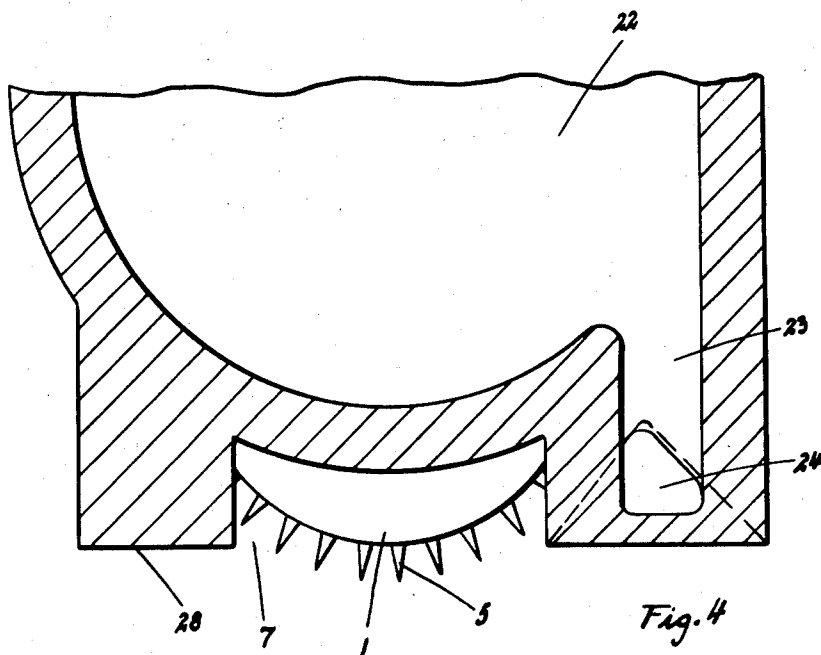
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CLEANING APPARATUSES FOR CARDING MACHINES

Kurt Josef Harry Jeppson and Knut Erik Olson, Malmo, and Otto Richard Paul Altmann, Limhamn, Sweden, assignors to Manufaktur Aktiebolaget i Malmo, Malmo, Sweden, a corporation of Sweden

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3 Claims. (Cl. 19—109)

This invention relates to a cleaning apparatus for carding machines.

In carding machines the card waste must be cleaned from time to time from the card clothings which will adhere thereto even though the machines are provided with fixedly mounted strippers. This cleaning work has hitherto been carried out by hand and is very time-consuming and heavy.

The present invention has for its object to provide an apparatus for performing this cleaning work which is readily designed so as to be portable to permit its use for a plurality of carding machines.

The invention is thus concerned with an apparatus for removing card waste from the card clothings on the rotatable drums in carding machines, and it is characterized in that a cylinder, which has its periphery equipped with teeth, is mounted for rotation in a housing with a slot uncovering an arc portion of the cylinder and extending along the whole length thereof, and that a compressed-air turbine mounted in or on the housing is drivingly connected to said cylinder.

Further objects and advantages of the invention will become apparent from the following description, reference being had to the accompanying drawings illustrating an embodiment of the invention. In the drawings:

Fig. 1 is a side elevation of the cleaning apparatus,

Fig. 2 is a view of the apparatus as seen from the left in Fig. 1,

Fig. 3 is a section on line III—III in Fig. 1,

Figs. 4 and 5 are sections on line IV—IV and V—V, respectively, in Fig. 2.

The illustrated cleaning apparatus has a cylinder 1 which is mounted between end walls 2 and 3 on a shaft 4. Teeth 5 spaced relatively large distances apart are carried by the periphery of the cylinder 1, and said cylinder is enclosed in a housing 6 which has a slot 7 (see Fig. 5) uncovering an arc portion of the cylinder and extending along the whole length thereof. The teeth 5 of the cylinder 1 project through said slot 7. The shaft 4 is rotatably mounted in the housing 6 on ball-bearings 8 and 9. The end wall 2 of the cylinder 1 is formed with a gear rim 10 engaging with a gear rim 12 formed on one end of a shaft 11. Said shaft 11 is rotatably mounted on ball-bearings 13 and 14 in a turbine casing 15, 16 which is fixedly connected to the housing 6 and can be considered as a part thereof. A turbine wheel 17 is non-rotatably secured to the shaft 11, and compressed-air jets are blown through nozzles 18 against the vanes of the turbine wheel. Compressed air is supplied to said nozzles 18 through a manifold 19 arranged in the part 16 of the turbine casing. The manifold 19 is connected to a compressed-air supply duct 20 which is designed so as to form a handle for the apparatus and contains a shut-off valve which is operable by means of a lever 21. The air discharged from the turbine wheel 17 passes from a chamber 22 in the part 15 of the turbine casing through a passage 23 to a discharge conduit 24

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(see Figs. 4 and 5) which extends along one longitudinal margin of the slot 7 which is parallel with the shaft 4, said discharge conduit opening into the slot by means of a narrow outlet orifice 25 extending along the whole length of the slot.

Adjacent to the longitudinal margin of the slot 7 which is opposed to the discharge conduit 24, the interior of the housing 6 is in communication with a suction fan (not shown), the suction conduit of which is connected to a suction hopper 26 formed on said housing and having a connection piece 27.

A slider 28 is fixedly arranged on the housing between the suction hopper 26 and the adjacent longitudinal margin of the slot 7, and on the opposite side of the slot 7 there is provided an adjustable slider 29 outside the discharge conduit 24. The slider 29 has lugs 30 which are pivotally connected by means of pivots 31 to guide rods 32 which are movable in sleeves 33. Said sleeves 33 are secured to brackets 34 projecting from the housing 6 and carrying bearings 35 for an adjustment shaft 36. Said shaft carries a worm wheel 37 by means of which the shaft 36 can be rotated by the rotation of a worm 38 meshing with said worm wheel and secured to an operating shaft 39. The shaft 39 is mounted in a sleeve 40 which is welded to a U-shaped handle member 41 which is parallel with the cylinder 1 and extends between the part 15 of the turbine casing and the end of the housing 6 remote from the turbine casing. The shaft 39 is rotatable by means of a handwheel 42, and the worm gear 37, 38 is self-locking so that the shaft 36 remains in the position into which it has been adjusted by means of the handwheel 42. The ends of the shaft 36 are provided with crank pins 43 which are fixedly secured to eccentric discs 44 surrounded by eccentric rings 45. Said rings 45 are fixedly connected to rods 46 which are pivotally connected by means of pins 47 to lugs 48 secured to the slider 29.

It will thus be realized that by a rotation of the handwheel 42 it is possible to rotate the shaft 36 so that the cranks 43 and the eccentrics 44, 45 move the rods 46 and consequently the sliding member towards or away from the brackets 34, the guide rods 32 simultaneously sliding in their guide sleeves 33. By the pivotal connection between the rods 32, 46 and the slider 29 the latter can also be tilted somewhat in every position of adjustment.

When the apparatus is to be used, e. g. for cleaning a drum of a carding machine, the operator grasps the apparatus by the handles 20 and 41, moving it towards the card drum in such a way that the slider 28 will be applied against the clothing of the card drum in parallel with the axis of said card drum, after the toothed cylinder 1 of the cleaning apparatus has first been set in rotation by operation of the lever 21 so that compressed air is supplied to the turbine wheel 17. The toothed cylinder 1 will now rotate in such a way that the teeth 5 enter the slot 7 at the outlet orifice 25 of the discharge conduit 24 and leave the slot 7 at the slider 28. After said slider 28 has come in contact with the clothing of the card drum the apparatus is swung around the slider 28 so that the slider 29 will also be applied against the card clothing. For this operation the slider 29 is set by means of the handwheel 42 in such a way that the teeth 5 engage to a satisfactory depth with the card clothing. The card drum is rotated slowly so that the card clothing will be cleaned around the entire periphery of an axial portion of the card drum. After that, the apparatus is moved to another portion of the drum for cleaning said portion, etc., until the entire card drum has been cleaned. In the cleaning operation the teeth 5 engaging the card clothing tear off the card waste which has been caught there and throw it towards the suction hopper 26

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from where the waste passes through the suction conduit (not shown) connected to connection piece 27 and is collected in an ordinary collecting device of any known type. The suction through the hopper 26 is improved by the air discharged from the turbine which enters the slot 7 through the outlet orifice 25 of the discharge conduit 24 and flows across the slot to the suction hopper 26 in the direction of rotation of the teeth 5.

What we claim and desire to secure by Letters Patent is:

1. An apparatus for removing card waste from the card clothing on rotatable drums in carding machines, comprising a cylinder, teeth mounted on the periphery of said cylinder, a housing for said cylinder, means rotatably mounting said cylinder in said housing, means defining a slot in said housing uncovering an arc portion of the cylinder and extending along the whole length thereof, a compressed air turbine mounted in said housing, means drivingly connecting said turbine to said cylinder, and a suction conduit opening into said housing adjacent that margin of said slot at which said teeth of said cylinder leave the slot during the rotation of said cylinder.

2. An apparatus for removing card waste from the card clothing on rotatable drums in carding machines, comprising a cylinder, teeth mounted on the periphery of said cylinder, a housing for said cylinder, means rotatably mounting said cylinder in said housing, means defining a slot in said housing uncovering an arc portion of the cylinder and extending along the whole length thereof, a compressed air turbine mounted in said housing, means drivingly connecting said turbine to said cylinder, an air outlet from said turbine, a discharge con-

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duit communicating with said turbine outlet and extending in parallel with the axis of said cylinder along substantially the whole length of that margin of the slot at which said teeth of said cylinder enter the slot during the rotation of said cylinder, orifice means in said conduit connecting the interior of said conduit with said slot along substantially the whole length of said slot adjacent said margin thereof, and a suction conduit opening into said housing adjacent that margin of said slot at which said teeth of said cylinder leave the slot during the rotation of said cylinder.

3. An apparatus according to claim 2 wherein a first slider is stationarily arranged on said housing adjacent that margin of said slot at which said suction conduit opens into said housing, and a second slider is adjustably mounted on said housing adjacent that margin of said slot at which said discharge conduit is arranged, said sliders supporting the apparatus on a drum of a carding machine during the cleaning of the card clothing of the drum.

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