

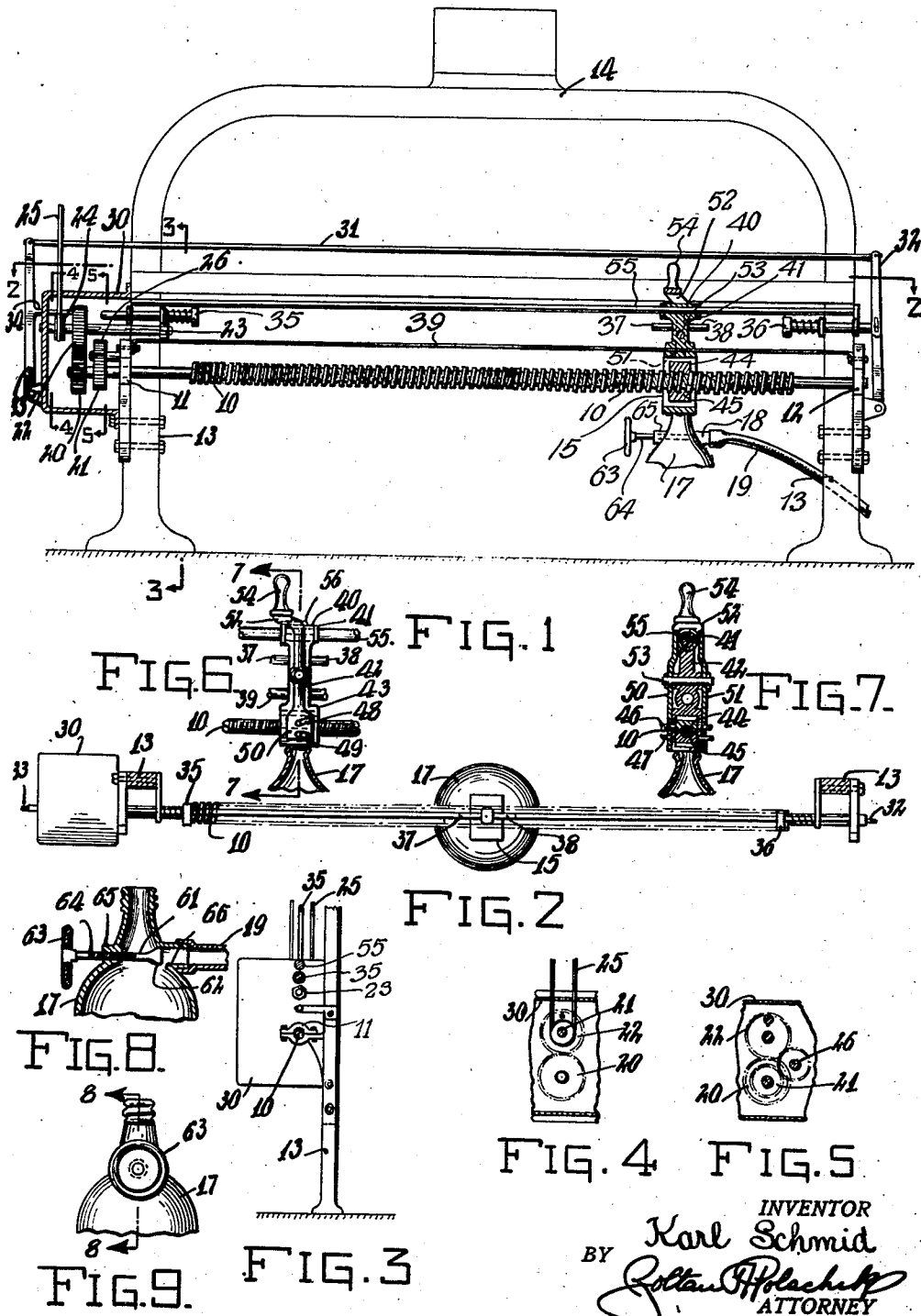
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SUCTION DEVICE FOR REMOVING WASTE AND DUST

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UNITED STATES PATENT OFFICE.

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SUCTION DEVICE FOR REMOVING WASTE AND DUST.

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This invention relates to air suction cleaning apparatus, and especially to that type used for dust and waste removal in proximity to machinery and the like. Its principal object is to provide a device of this character adapted to be mounted on suitable supports, and when so mounted to have a range of movement covering an area within the limits of its supporting structure.

A further object is a means to automatically traverse the receiving element.

These and other objects and features of the device will be fully disclosed in the following specification, and illustrated in the accompanying drawings, in which:

Fig. 1 shows the device mounted on the frame of a loom with the receiver disposed on the traversing mechanism.

Fig. 2 shows a plan view of the apparatus with the upper structure removed above the line 2—2 of Figure 1.

Fig. 3 shows a fragmentary section on a reduced scale, taken on the line 3—3 of Figure 1.

Fig. 4 shows a fragmentary sectional view on the line 4—4 of Figure 1.

Fig. 5 shows a fragmentary sectional view on the line 5—5 of Figure 1.

Fig. 6 shows the receiver supporting elements having means to release the threaded members and to secure the said receiver in a fixed position.

Fig. 7 shows a section on the line 7—7 of Figure 6.

Fig. 8 shows, slightly enlarged; a fragmentary view of the receiver with an adjustable valve mounted therein; the view being taken on the line 8—8 of Figure 9.

Fig. 9 shows a side view of the receiver and the valve wheel as illustrated in Figure 8.

The component parts of the apparatus may be described as follows:

Referring to Figure 1 of the drawings; a lead screw 10 is mounted within suitable supports as shown at 11 and 12. These supports are shown attached to the frame 13 of a loom 14. A receiver supporting element 15 is supported in threaded engagement on the said lead screw. A vertical member 16 is mounted in the said supporting element. A receiver 17 is secured to the lower extremity of the said element. This receiver is preferably funnel shaped having a wide open lower portion adapted to easily take in such waste material as presents itself; this

material being usually in the form of lint, ravelings, particles of woven fabric, dust and the like. A tube connection 18 is mounted on the side of the receiver and to it is attached the air tube 19 which is connected at its other extremity to a suitable pump, or suction apparatus.

The lead screw is provided with spur gears as shown at 20 and 21 and is driven through the gear 22 which is slidably mounted on the shaft 23 and is actuated by the pulley 24 and the belt 25. The lead screw is driven in reverse by means of the intermediate gear 26 which meshes with the drive gear 22 when the said gear is shifted into line with it. A casing 30 encloses the gear mechanism.

A shift bar 31 is pivotally secured at its ends to the levers 32 and 33. On the lever 33 is a push finger 34 which serves to slide the gear 22 when required. Contact plungers 35 and 36 are slidably mounted on the supporting frame and serve, when actuated by the release bars 37 and 38; to throw the bar 31 one way, or the other for the purpose of shifting the driving gear. A guide rail 39 extends parallel to the lead screw and engages the member 16.

As shown in Figs. 1, 6 and 7; a vertical frame 42 has within the box member 43 opposed blocks 44 and 45 which are threaded to engage the lead screw 10. These blocks are adapted to shift up or down within the box by means of side pins as shown at 46 and 47 which protrude through slots in the sides of the said box and are in engagement with the inclined slots as shown at 48 and 49. These slots being in the side plates 50 and 51 of the lever 52 which is pivotally mounted on the vertical frame by means of the shaft 53. The lever 52 is offset at the top and is provided with a handle 54. A slide bearing 40 is located at the top of the vertical frame and is provided with a split bushing 41 which bears against the rod 55 which is similar to the guide rail 39 and is positioned above same. A bevel plate 56 is held within this bearing frame and is adapted to be forced downward when the lever is thrown over to engage it, thus locking the supporting elements in fixed position.

As shown in Figures 8 and 9; a cut-off valve 61 is provided. This valve has a tapered closure member 62 which is operated by the hand wheel 63 and the threaded stem 64 which passes through the boss 65. This

closure member acts against the tubular valve seat 66. It will be seen that the form of the closure member is such as to prevent the catching of waste particles thereon; it being tapered toward the stem member.

In operation: the receiver having air suction drawing therethrough, is moved from side to side of the supporting frame by means of the lead screw and the gears are shifted whenever the release members 37 and 38 come into contact with the push fingers 35 and 36.

When the mechanism shown in Figures 6 and 7 at the right hand side of Figure 1 is in use; the movement may be stopped at any point by throwing over the lever 52 which will open the blocks 44 and 45 and at the same time will push down the bevel plate 56 and lock the members in fixed position.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is as follows:

1. In an apparatus of the class described, a receiver having an air suction tube attached, and the said receiver secured to supporting elements of the following construction, a vertical frame, a lever pivotally secured to the said frame, threaded blocks in a box compartment of the said frame and having pins protruding therethrough and the said pins engaging inclined slots in the sides of the said lever, a horizontally split bushing in the upper extremity of the said vertical frame, a bevel plate bearing on the

upper portion of said bushing and a shoulder on the said lever adapted to engage the said bevel plate, and the whole supported on a lead screw passing between the said threaded blocks, and itself supported on a suitable frame structure, and a horizontal rod passing through the aforesaid split bushing and supported at its ends by the aforesaid frame structure, and means to rotate the said lead screw and means to automatically reverse the rotation thereof.

2. In an apparatus of the class described, a lead screw journaled on the frame of a machine, a carrying member comprising adjustable threaded block sections mounted on said lead screw and adapted to be moved from one side to the other of said machine by rotation of said lead screw, a lever operatively connected with said block sections for moving the same apart to disengage the threads thereof from the threads of said lead screw for disconnecting the driving connection between the latter and said carrying member, a receiving member depending from said carrying member and adapted to move in unison therewith, and a tube attached to said receiving member adapted to communicate with the interior thereof for producing an inward draft of air into said receiver.

In testimony whereof I have affixed my signature.

KARL SCHMID.