Aug. 4, 1959 L. NAMENYI-KATZ 2,897,953

CONVEYORS

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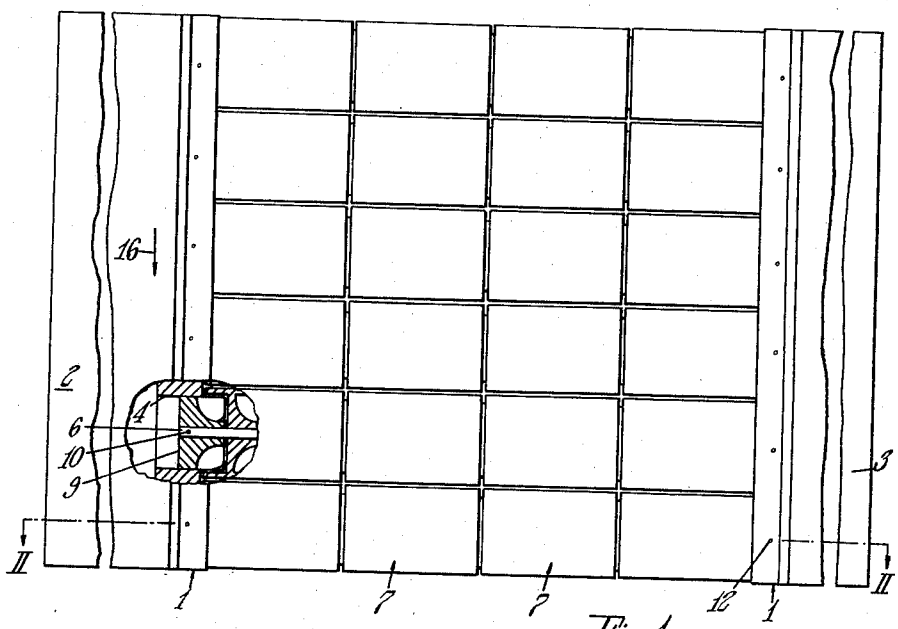


Fig.1.

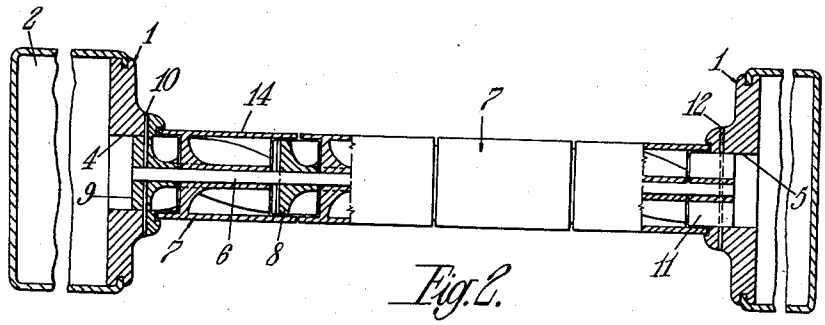


Fig.2.

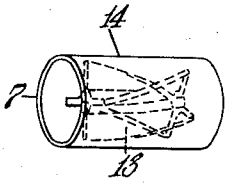


Fig.3.

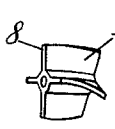


Fig.4.

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CONVEYORS

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5 Claims. (Cl. 198—127)

This invention relates to conveyors.

The invention consists of a conveyor comprising a plurality of substantially parallel shafts, each such shaft having independently mounted thereon a plurality of wheels or drums in close contact end to end and having internal vanes, the interior of the wheels or drums at one end of one or more shafts being adapted to be connected to the pressure side of an air pump or the like, whereby a stream of gas may be passed through the drums to act on the vanes and tend to revolve the wheels or drums on their respective shafts, thus propelling articles in contact with the outsides of the wheels or drums or with conveyor elements driven thereby.

The drums are preferably, for lightness and cheapness of manufacture, moulded from a thermoplastic material having anti-friction properties so that adjacent drums put on the same shaft can revolve independently.

This has the advantage that when an article on the conveyor is arrested then the drum or drums on which it is supported ceases to revolve without affecting the motion of the other drums and hence other articles on the conveyor. This means that wear of conveyor and article are practically eliminated. The conveyor according to the invention is thus particularly useful as a conveyor for articles which may be arrested en route, e.g. for checking.

Conveniently, connection of the interior of the drums to the pump is by means of inlet and outlet manifolds arranged along the sides of the conveyor and themselves connected respectively with the pressure and exhaust sides of the pump.

A further advantage of the conveyor it its quietness of operation.

The invention will be further described with reference to the accompanying drawings, wherein:

Figure 1 is a plan view, partly in section, of a portion of a conveyor according to the invention;

Figure 2 is a section on the line II—II of Figure 1, and

Figures 3 and 4 are general views of components of the conveyor.

Referring first to Figures 1 and 2, reference numeral **1** denotes generally the frame of the conveyor to which are attached inlet and outlet manifolds **2** and **3** respectively connected to the pressure and exhaust sides of an air pump (not shown). Within the frame **1** there are formed pairs of aligned orifices **4** and **5** opening respectively into the inlet and outlet manifolds.

Supported between each pair of orifices there is a shaft **6** having rotatable thereon a series of internally vaned drums **7** interspersed with reaction idlers **8**, to be more fully described hereinafter. In orifice **4** the shaft **6** is supported on a stator **9** similar to idler **8** but held stationary by a pin **10**. In orifice **5** the shaft **6** is supported on a stator **11**, held stationary by a pin **12**.

Referring now to Figure 3, there is shown a drum **7**, moulded in one piece from nylon and having internal vanes **13**, not extending the full length of the casing **14** of the drum. The sweep of the blades in the example shown is 60° on the length of the blade. A hollow portion formed axially within the drum is arranged to fit the shaft **6** closely for rotation thereon.

Referring now to Figure 4 there is shown a reaction idler **8**, having vanes **15** with a 30° sweep, in the opposite direction to the sweep of vanes **13**, over their total length, and adapted for rotation about the shaft **6**.

The conveyor functions as follows.

Air from the pump in its travel from the inlet to the outlet manifold along the tubular duct defined by the outer casings **14** of the drums **7** acts on the vanes **13** to rotate the drums **7** and carry objects in contact with the outer casing **14** thereof in the direction of the arrow **16**. The idlers **8** act as reaction members and improve the air flow characteristics. If any of the objects being conveyed is arrested, e.g. during a hold up in inspection the drum or drums directly in contact with the object will cease rotation but will not interfere with the rotation of the adjacent drums on the same shaft **6** or on adjacent shafts. Thus, damage to the objects and the conveyor is avoided while maintaining operation of the unaffected parts of the conveyor.

Various modifications may be made within the scope of the invention such as gearing the vaned drums to larger or smaller conveyor elements to give slower or faster operating conveyors with the same feature of ability to stop an element of the conveyor without affecting neighbouring elements.

I claim:

1. A conveyor comprising a plurality of substantially parallel shafts, a plurality of hollow conveyor elements mounted on each of said shafts for independent rotation about said shaft, said conveyor elements being mounted on said shaft in close contact end to end so that their interior form a tubular duct, internal vanes in said hollow conveyor elements, means for supplying pressurised gas to one end of at least some of said tubular ducts whereby a stream of gas may be passed through said duct to act on said vanes to tend to rotate the conveying elements on their respective shafts, thus propelling articles in contact with the outsides of said conveying elements.

2. A conveyor as claimed in claim 1, in which the wheels or drums are moulded from a thermoplastic material having anti-friction properties.

3. A conveyor as claimed in claim 1, comprising an inlet manifold and an outlet manifold arranged along opposite sides of the conveyor, said tubular ducts being connected between said inlet and outlet manifolds, and means for connecting said inlet and outlet manifolds respectively to the pressure and exhaust sides of a pump.

4. A conveyor as claimed in claim 1, wherein the vanes in the conveyor elements extend over less than the full length of the conveyor element, further comprising vaned reaction idler members mounted for rotation about said shafts in the spaces between the vanes of adjacent conveyor elements.

5. A conveyor comprising a plurality of substantially parallel shafts, a plurality of drums mounted on each of said shafts for independent rotation about said shaft, said drums being mounted on said shaft in close contact end to end so that their interior form a tubular duct, internal vanes in said drums, a plurality of conveying elements each drivably connected to one of said drums, means for supplying pressurised gas to one end of at least some of said tubular ducts whereby a stream of gas may be passed through said duct to act on said vanes to tend to rotate the drums on their respective shafts to drive the conveying elements, thus propelling articles in contact with said conveying elements.

References Cited in the file of this patent

UNITED STATES PATENTS

663,337	Gemmill	Dec. 4, 1900
1,898,551	MacCutcheon	Feb. 21, 1933