July 28, 1953 M. GOLDBERG ET AL 2,646,913

FILLING MACHINE WITH ENDLESS BELT CONVEYERS FOR FIBROUS MATERIALS

Filed Oct. 8, 1951 3 Sheets-Sheet 1

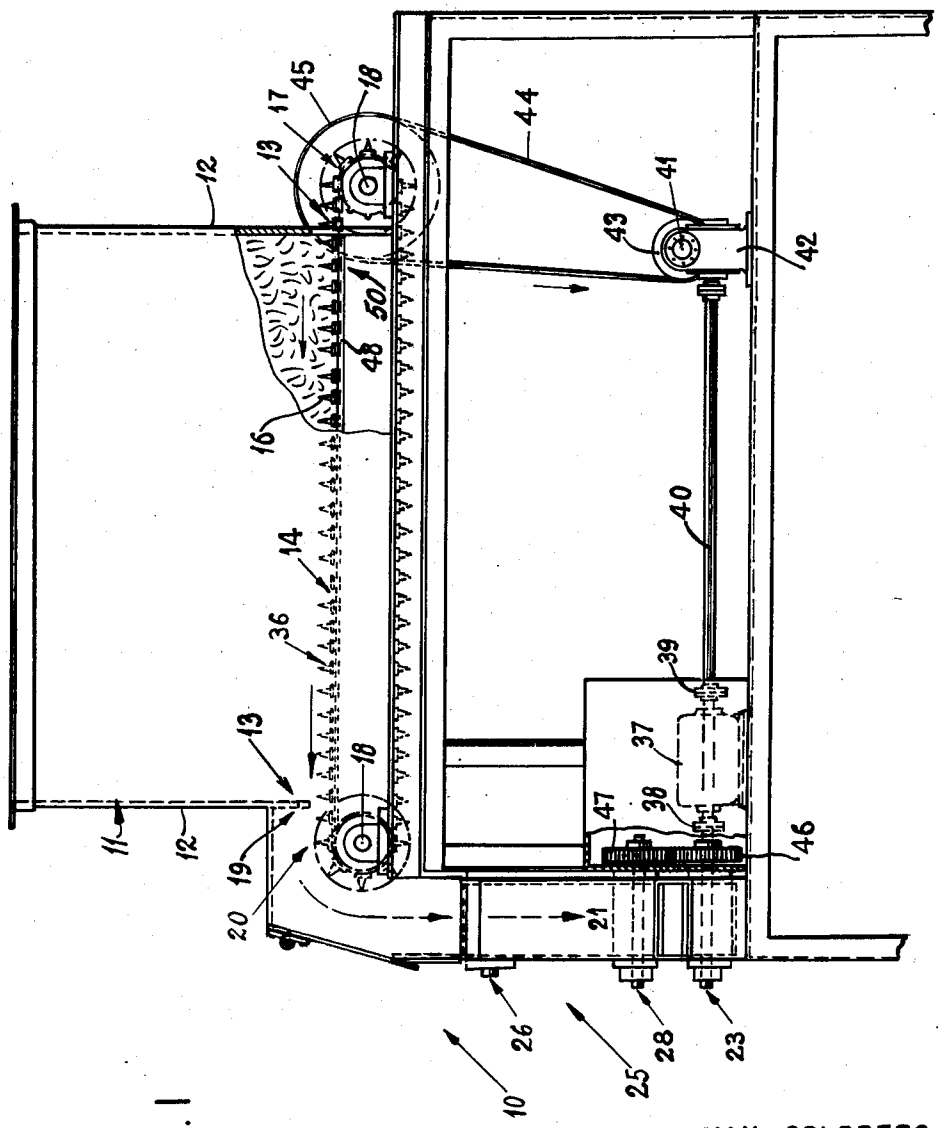


FIG. 1

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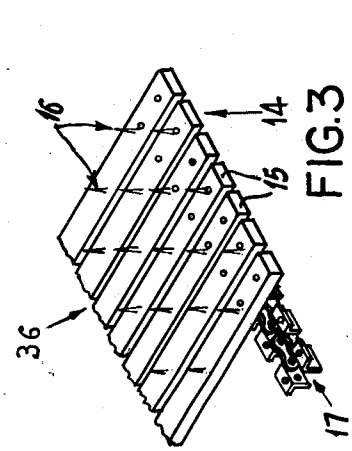


FIG. 3

FIG. 2

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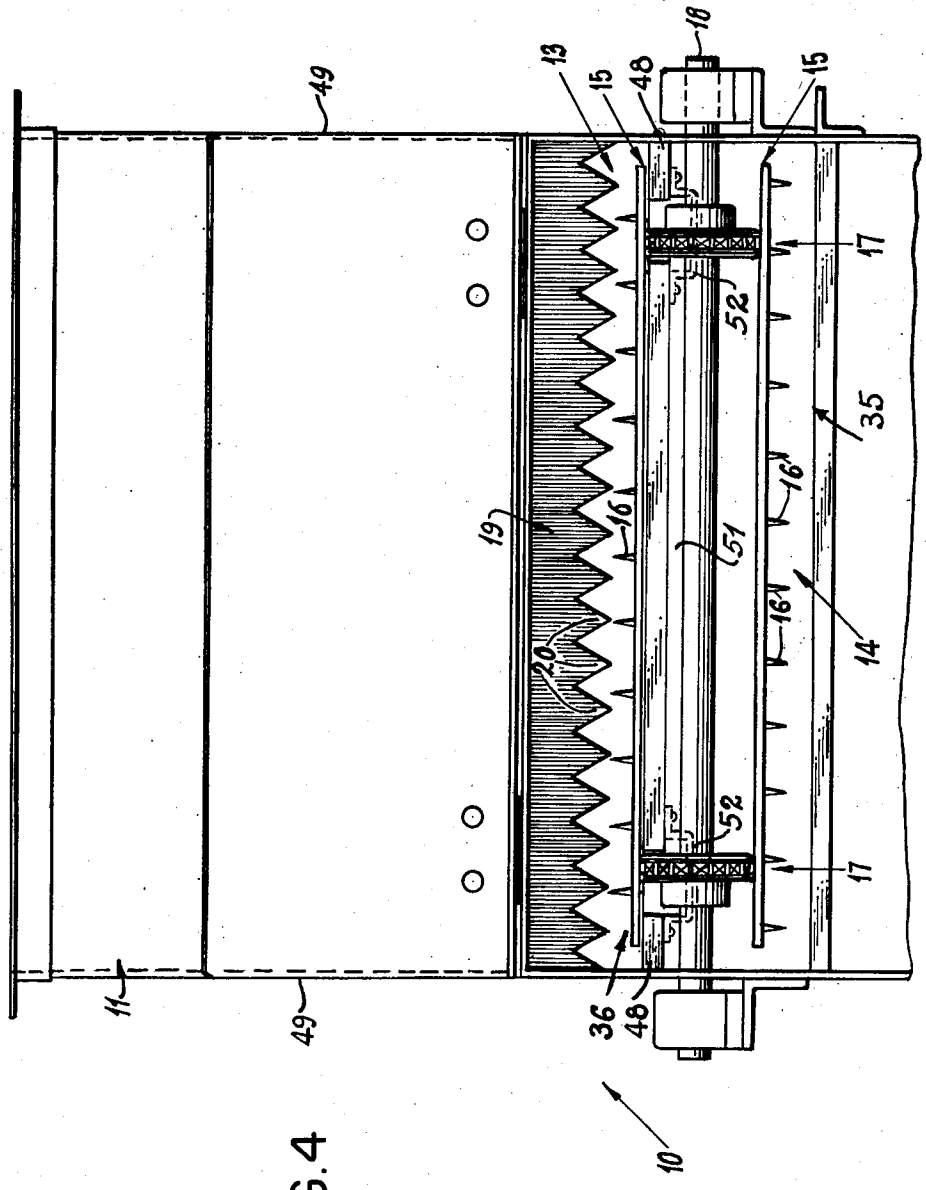


FIG. 4

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FILLING MACHINE WITH ENDLESS BELT CONVEYERS FOR FIBROUS MATERIALS

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Application October 8, 1951, Serial No. 250,348

2 Claims. (Cl. 226—45)

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This invention relates to an apparatus for picking and stuffing fibrous materials into casings of cushions, etc.

An object of this invention is to provide a combined picking and stuffing machine comprising an open top chamber for receiving fibrous materials, the chamber having two end walls with an opening at the lower end of each wall, and to provide an endless conveyor movably mounted on the floor of the chamber and comprising pronged carrier bars extending the entire width of the chamber, the prongs being adapted to assume an upright position while passing through the chamber so as to cause a feeding movement of the fibrous materials towards the opening in one of the end walls.

Another object of this invention is to position the prongs of the successive bars in staggered relation so as to sweep over the entire extent of the lower portion of the fibrous materials deposited on the floor of the receiving chamber.

Another object of this invention is to provide a chute at an end portion of the receiving chamber and extending below the receiving chamber, and to provide an endless conveyor belt rotatably mounted horizontally at the lower level of the chute and to provide a further endless conveyor belt rotatably mounted in the chute above the first conveyor belt and having a lower portion thereof in substantially parallel relation with the upper surface of the horizontal conveyor belt, and to mount a rectangular nozzle having two walls in tangent relation with one end portion of the conveyor belts and in position to receive fibrous materials fed thereinto by the conveyor belts and to deliver the materials into a casing of a cushion, etc.

With the above and other objects in view, the invention will be hereinafter more particularly described, and the combination and arrangement of parts will be shown in the accompanying drawings and pointed out in the claims which form part of this specification.

Reference will now be had to the drawings, wherein like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a front elevation of a filling machine for fibrous materials, embodying our invention.

Figure 2 is a side elevation of the machine shown in Figure 1 and partly broken away to show the interior thereof.

Figure 3 is a perspective view of a fragmentary portion of a prong type conveyor.

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Figure 4 is an enlarged side view of a fragmentary portion of the receiving chamber, a door being open to show a detailed view of an end portion of the pronged conveyor, a number of the prong bars making up the conveyor being removed to show a supporting floor under the prong bars.

In the illustrated embodiment of the invention, the numeral 10 indicates an apparatus for feeding and stuffing fibrous materials into casings such as that used for cushions, etc.

The apparatus 10 comprises an open top rectangular chamber 11 for receiving fibrous materials. The chamber 11 has two end walls 12 and an opening 13 in the lower portion of each of the end walls. The apparatus 10 comprises an endless conveyor 14 which includes elongated bars 15 extending across the entire width of the chamber 11. Each of the bars 15 has affixed thereto a plurality of elongated sharp pointed prongs 16 in spaced-apart relation. Each end of the responsive prong bars 15 is secured to a link of two endless sprocket chains 17 rotatably mounted on shafts 18.

A stationary serrated plate 19 may be placed over a shaft 18 at an opening 13 and has triangular downwardly facing picker prongs 20. The movable prongs 16 on the conveyor 14 move below the stationary prongs 20.

In practice, the movable conveyor prongs 16 may be made to coact with the stationary picker prongs 20 to set up a picking action on the materials deposited in the chamber 11. When the conveyor 14 is operated, the movable prongs 16 may feed lumps of the fibrous materials past the stationary picker prongs 20 and deposit the materials in processed and smaller pieces into a chute 21, which is positioned at the discharge end and below the receiving chamber 11.

An endless conveyor belt 22 is rotatably mounted horizontally on shafts 23, 23', at the lower level of the chute 21. A further endless conveyor belt 25 is rotatably mounted on shafts 26, 27 and 28 in the chute 21, above the first conveyor belt 22, and has a portion 30 in converging relation with the lower belt 22. The upper conveyor belt 25 also has a lower portion 31 in substantially parallel relation with the upper surface of the horizontal conveyor belt 22. A nozzle 32 is positioned in substantially tangent relation with the outer end portion of the conveyor belts and in position to receive fibrous material fed thereinto by the conveyor belts 22 and 25.

Suitable driving means is provided for rotating the conveyor belts in timed relation and in the

same direction to cause the fibrous filling material deposited in the chute 21 to be compressed by the converging portion of the conveyor belts 22 and 25, and then forcibly fed through the nozzle into a cushion casing 33.

A stationary secondary floor 35 is provided below the movable horizontal floor 36 formed by the adjacent conveyor bars 15. In operation, the filling material that adheres to the pointed prongs 16 and does not fall down the chute 21 is carried by the prongs 16 above the floor 35 to the rear end portion of the receiving chamber 11 where it is carried back into the receiving chamber 11.

It is to be noted that the fibrous filling materials may, if desired, be deposited into the receiving chamber 11 in comparatively large lumps which are unsuitable for insertion into pillow casings. This requires that the coacting movable and stationary prong elements should be spaced-apart from each other in a vertical direction as shown in Figures 2 and 4, so as to break up the large lumps.

As shown in Figures 1 and 2, it will be seen that the area of the receiving chamber 11 is very much larger than the area of the chute 21. It is obvious that the prong-fed material on the conveyor 14 is forcibly dropped into the small area chute and falls in a compressed state upon the belt 22.

It is to be noted that both belts 22 and 25 are bodily intact, without any prongs, resulting in the production of a pre-sized and smooth filler.

As shown in Figure 1, the shaft 23' has a gear 46 fixed thereon and in meshed relation with a gear 47 fixed to the shaft 28. The driving means for the machine embodies a slow speed motor 37 direct connected by a coupling 38 to the shaft 23. The motor 37 is also direct connected by a coupling 39 to a shaft 40 which is connected to a shaft 41 positioned in right-angular relation therewith by a gear unit 42. A pulley 45 is mounted on the shaft 18. A pulley 43 is mounted on the shaft 41 and serves for driving a belt 44 which rotates the pulley 45 and the shaft 18 thereby actuating the shaft 28 and the conveyor belts 22 and 25 and the endless prong conveyor 14 which is driven by the shaft 18.

The movable horizontal conveyor floor 36 is supported by horizontal bars 48, 48 fixed to two side walls 49, 49 of the receiving chamber 11. The bars 48, 48 function as a skeleton floor 50 between the bars of which the endless sprocket chains 17, 17 are freely driven and carry the cross-bars 15.

It is to be noted that the floor of the receiving chamber 11 and the moving floor formed by the conveyor may slope downward to the floor of the factory. One end wall 12 may be removed to permit large masses such as a bale of filling material to be fed to the inclined conveyor at its lowest elevation.

It is also to be noted that the gear unit 43 may be replaced by a variable speed pulley for operating the machine at desired speeds.

As best shown in Figure 4, it will be seen that a floor plate 51 is positioned between the sprocket chains 17 with its upper surface at the same level as the upper surface of the bars 48, 48. The plate 51 is supported by the side bars 48 and by channel-shaped bridge members 52, the bodies of which are below the upper portions of the sprocket chains, the upper strands of the conveyor riding above the bridge members.

In accordance with the patent statutes we have described and illustrated the preferred embodiment of our invention, but it will be understood that various changes and modifications can be made therein without departing from the spirit of the invention as defined by the appended claims.

We claim:

1. In a machine for feeding and stuffing fibrous materials into casings, comprising an open top chamber for receiving fibrous materials, an endless conveyor comprising pronged carrier bars movably mounted on the floor of said chamber, said prongs being in spaced apart relation over the entire length of said carriers respectively and being adapted to assume an upright position while passing through said chamber, said chamber having two end walls and an opening in the lower portion of each of said walls permitting said pronged carrier bars to pass therethrough, an upright chute connected with an end portion of said receiving chamber and extending below said receiving chamber, an endless conveyor belt rotatably mounted horizontally at the lower level of said chute, a further endless conveyor belt rotatably mounted in said chute above said first conveyor belt and having a portion in converging relation with said lower belt, said upper conveyor belt also having a lower portion thereof in substantially parallel relation with the upper surface of said horizontal conveyor belt, a nozzle positioned in substantially tangent relation with one end portion of said conveyor belts and in position to receive fibrous material fed thereinto by said conveyor belts, and means for rotating said conveyor belts in timed relation to cause the fibrous filling material deposited in said chute to be compressed by said converging portion of said conveyor belts and then forcibly fed by said parallel portions of said belts through said nozzle.

2. In a machine for feeding and stuffing fibrous materials into cushion casings, comprising an open top chamber for receiving fibrous materials, an endless conveyor comprising carrier bars having elongated sharp pointed prongs and being movably mounted on the floor of said chamber, said prongs being in spaced apart relation over the entire length of said carriers respectively and being adapted to assume an upright position while passing through said chamber, said chamber having two end walls and an opening in the lower portion of each of said walls permitting said pronged carrier bars to pass therethrough, an upright chute connected with an end portion of said receiving chamber and extending below said receiving chamber, a bodily intact endless conveyor belt rotatably mounted horizontally at the lower level of said chute, a further bodily intact endless conveyor belt rotatably mounted in said chute above said first conveyor belt, and having a portion in converging relation with said lower belt, said upper conveyor belt also having a lower portion thereof in substantially parallel relation with the upper surface of said horizontal conveyor belt, said bodily intact belts causing a presized and smooth filler to be fed into said casing, the prongs of the successive bars being positioned in staggered relation so as to sweep over the entire extent of the lower portion of the fibrous materials on said floor, a nozzle positioned in substantially tangent relation with one end portion of said conveyor belts and in position to receive fibrous material fed thereinto by said conveyor belts, and means for rotating said conveyor belts in timed relation to cause the fibrous filling material deposited in said chute to be com-

pressed by said converging portion of said conveyor belts and then forcibly fed by said parallel portions of said belts through said nozzle and into said cushion casing.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
894,307	Zofnass	July 28, 1908
1,570,848	Lloyd	Jan. 26, 1926
2,221,262	Mims et al.	Nov. 12, 1940