Oct. 13, 1959 T. A. HOFFMANN ET AL 2,908,420

ARTICLE FEEDING APPARATUS

Filed Dec. 20, 1956 3 Sheets-Sheet 1

Fig. 1.

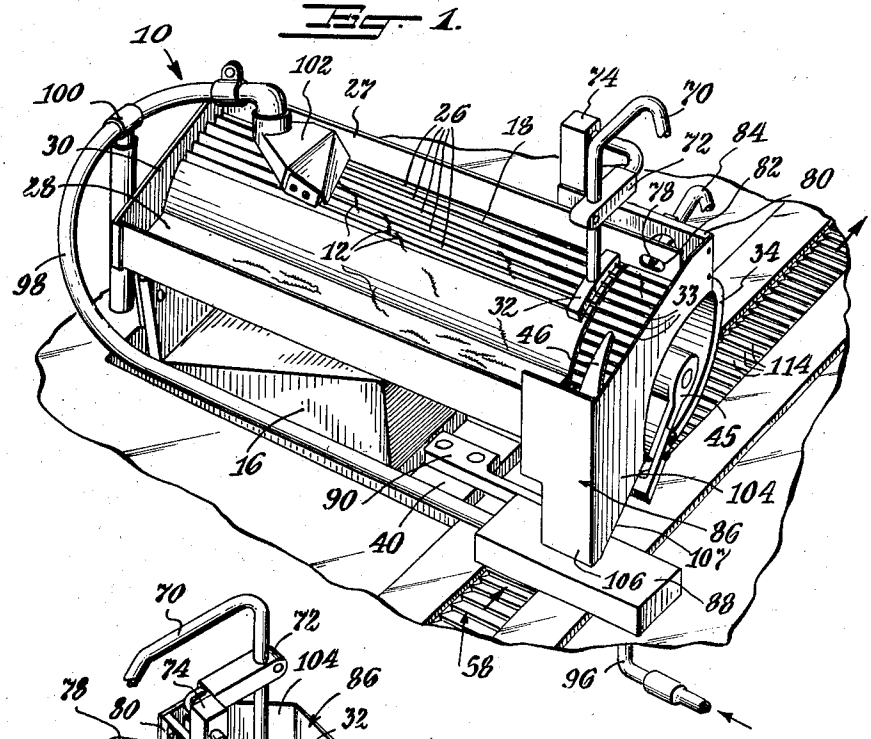
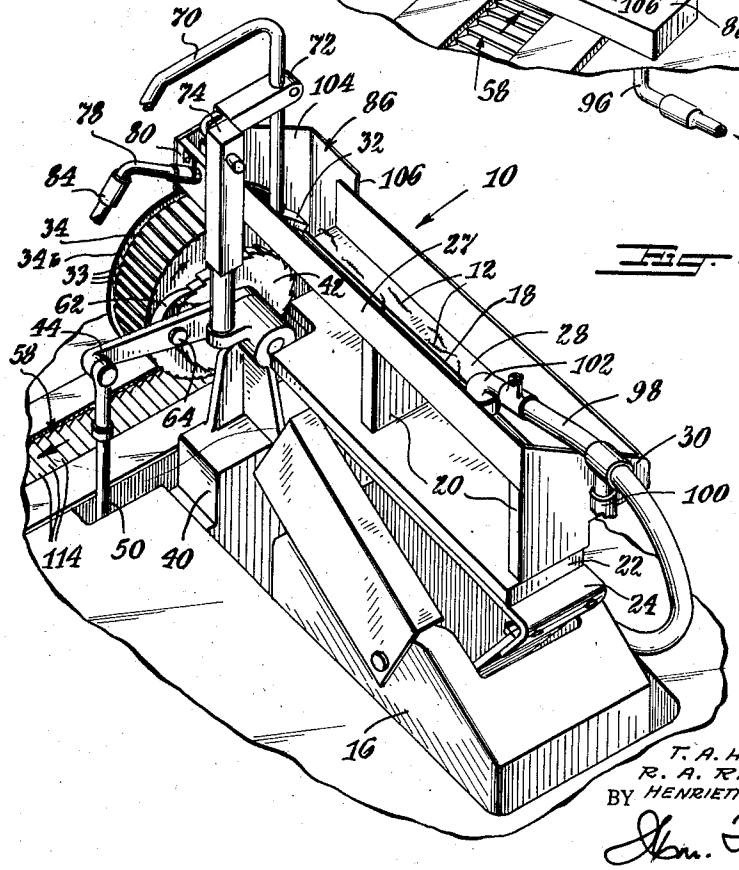


Fig. 2.



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Fig. 3.

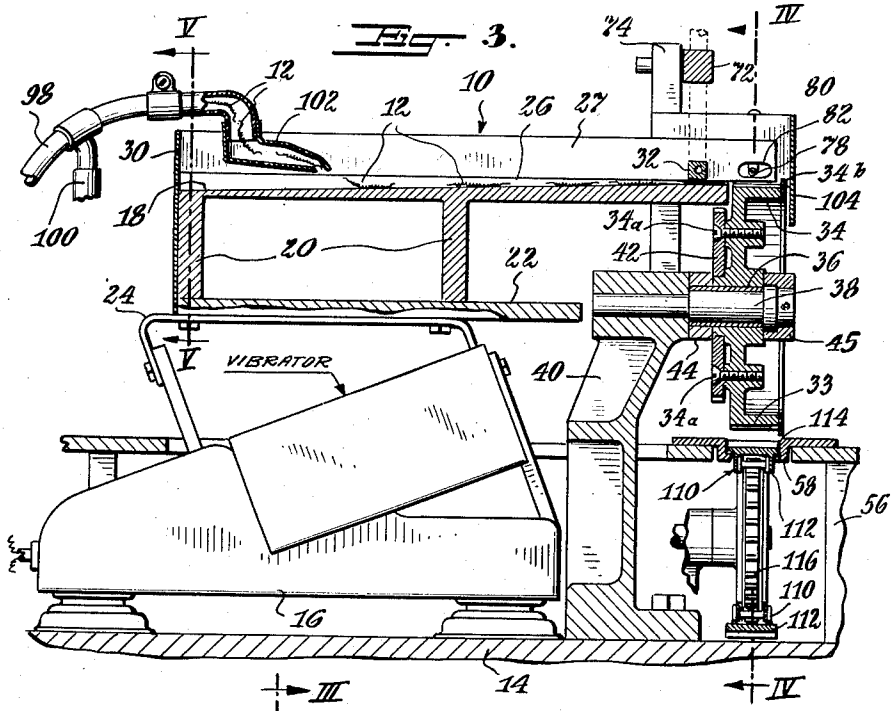


Fig. 4.

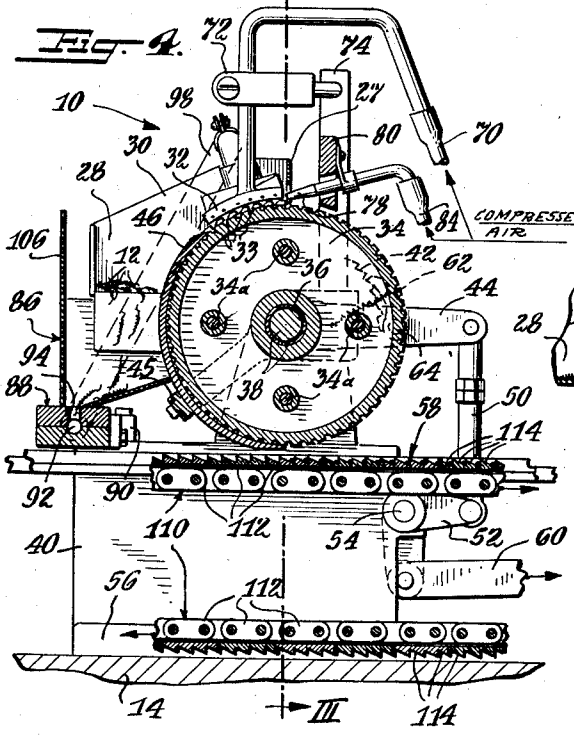
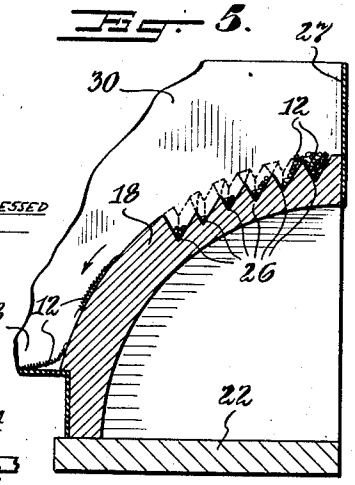


Fig. 5.



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ARTICLE FEEDING APPARATUS

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Fig. 6.

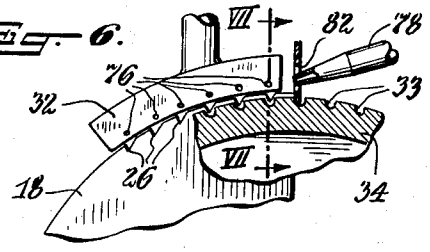


Fig. 7.

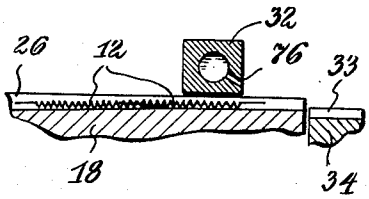


Fig. 8.

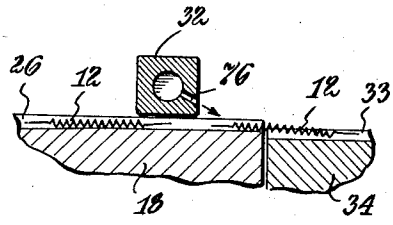


Fig. 9.

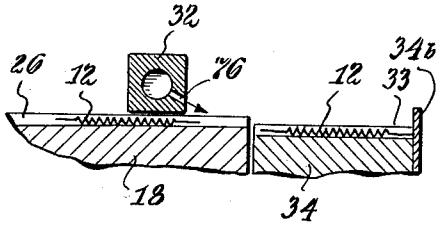
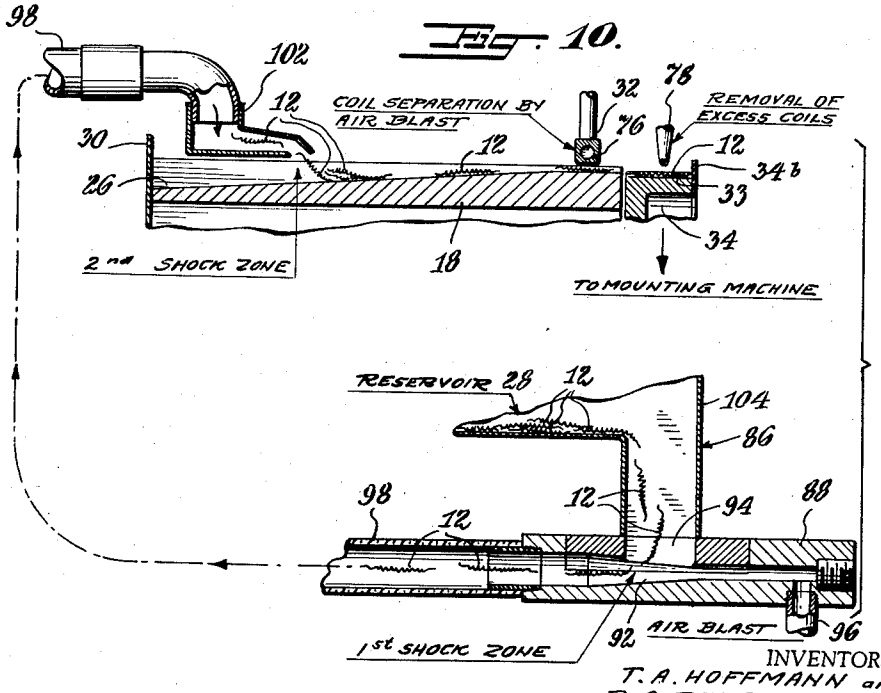


Fig. 10.



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United States Patent Office 2,908,420
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2,908,420

ARTICLE FEEDING APPARATUS

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Application December 20, 1956, Serial No. 629,754

7 Claims. (Cl. 221—201)

The present invention relates to article feeding apparatus and, more particularly, to a filament feeding device for automatically feeding lamp filament coils to an automatic mounting machine.

Heretofore, lamp filaments, which may be in the form of coiled-coils or single helical coils, have been fed manually or by various types of semi-automatic and automatic filament feeding apparatus to lamp stems on an automatic mounting machine, such as shown in U.S. Patent No. 2,637,144, issued May 5, 1953, to R. M. Gardner, which mounting machine automtically secures the legs of the coil to the lead wires of the lamp stem. The manual feeding of the coils to the automatic mounting machine is subject to high manufacturing costs and is limited by the speed and skill of the individual operator. In an attempt to reduce costs one form of automatic feeding apparatus which has heretofore been employed utilizes reciprocable transfer arms adapted to select one coil from the mass of coils in a reservoir and to transfer the coils to the mounting machine. Because of its lack of positive selectivity of untangled individual coils and low speed operation, this apparatus with its reciprocable transfer arms has not materially reduced manufacturing costs by increasing the production rate to any substantial extent. An alternative apparatus is also known to the prior art which utilizes conventional type vibratory feeders in which the coils are advanced up an inclined helical runway, but this apparatus likewise has proven unsatisfactory due to the continued entanglement of the coils on the runway and the inability of the device to properly untangle them.

A further and more recent type of article feeding apparatus is known which employs a vibratory type reservoir from which pneumatic means sucks the coils through a funnel onto a feeding plate and thence such coils are finally delivered one at a time, to a transfer finger, such as the apparatus shown in U.S. Patent No. 2,760,679 issued August 28, 1956 to J. J. Chadderton et al. It has been found, however, that this latter article feeding apparatus also does not insure and guarantee the positive feeding of a coil at the proper moment and futher this recent type apparatus is not capable of operating at high hourly production rates, as required for high-speed commercial lamp production.

The existing disadvantages inherent in the above noted prior art article feeding apparatus are eliminated by the present invention through the provision of a coil feeding apparatus wherein the filamentary coils are accurately and positively untangled from entwined positions by impacting them against the grooved surface of a sorting conveyor which thus forms a plurality of single lines of aligned coils to thereafter assure the individual feeding of such coils to a transfer wheel.

Another object of the present invention is the provision of an article feeding apparatus which successively shocks the entangled articles to positively untangle them and wherein the apparatus then assures the individual feeding of the untangled articles to a transfer member.

A further object of the present invention is the provision of an article feeding apparatus, such as for the feeding of filamentary coils for electric lamps, wherein the apparatus is operable to first untangle entwined coils and thereafter feed them individually to a transfer member, which apparatus is operable with precision, accuracy and fidelity, at a high rate of productive speed.

Still further objects of the present invention will become obvious to those skilled in the art by reference to the accompanying drawings in which:

Fig. 1 is a frontal perspective view of the article feeding apparatus.

Fig. 2 is a rear perspective view of the article feeding apparatus.

Fig. 3 is a vertical sectional view of the article feeding apparatus taken on the line III—III of Fig. 4 looking in the direction of the arrows and showing the details of the article discharge end thereof.

Fig. 4 is a vertical sectional view of the discharge end of the article feeding apparatus along the line IV—IV of Fig. 3 in the direction of the arrows.

Fig. 5 is an enlarged vertical sectional view of the article receiving end of the sorting conveyor taken on the line V—V of Fig. 3 looking in the direction of the arrows and showing the sorting grooves thereof and the delivery end portions of said grooves in dotted lines for comparison.

Fig. 6 is an enlarged fragmentary end elevational view, partially in section, of the delivery end of the sorting conveyor, with the transfer wheel broken away to show the conveyor, and the associated pneumatic transfer means.

Fig. 7 is a vertical sectional view of the delivery end of the sorting conveyor, a portion of the transfer wheel and the pneumatic transfer means, along the line VII—VII of Fig. 6 in the direction of the arrows, and showing two aligned entwined coils as said coils approach the transfer means.

Fig. 8 is a vertical sectional view, similar to Fig. 7 and showing the separation of the two entwined coils by the transfer means.

Fig. 9 is a vertical sectional view, similar to Figs. 7 and 8, and showing the separated leading coil seated in a transfer groove.

Fig. 10 is a diagrammatic side elevational view of the article feeding apparatus showing the operation thereof.

Although the principles of the invention are broadly applicable to the sorting and feeding of entangled articles, the invention is particularly adapted for use in conjunction with the sorting and feeding of coils to an automatic mount machine for the making of electric lamp stems and hence it has so been illustrated and will be so described.

With reference to the form of the invention illustrated in the drawings an article feeding apparatus **10** is shown in Figs. 1 and 2 which is adapted to automatically feed articles, such as coils **12** for electric incandescent and fluorescent lamps, to an automatic mount machine of the type such as shown in U.S. Patent No. 2,637,144, issued May 5, 1953, to R. M. Gardner et al.

While various means may be utilized to support the apparatus **10** the form of the invention illustrated employs a table **14** on which is resiliently mounted a vibrator **16** for producing longitudinal vibrations with respect to the table **14**. A sorting conveyor **18**, essentially a quadrantal segment of a hollow cylinder provided with end and mid-ribs **20** (Figs. 2 and 3) for increased strength, is secured by means of a mounting plate **22** (see Figs. 2 and 3) to a vibrator support plate **24** upstanding from the vibrator **16**. The sorting conveyor **18** is provided with a plurality of spaced V-shaped sorting grooves **26**, which may be six in number, as shown

in Figs. 1, 5 and 6. The grooves **26** are adapted at the left hand end, when viewed in Fig. 1, to receive a plurality of the coils **12** and such grooves **26** are tapered toward the opposite or discharge end, as viewed in Fig. 1, to gradually decrease in depth and width. As the coils **12** are advanced up the grooves **26** by the movement of the vibrator **16**, which oscillates or vibrates the conveyor axially, excess, entangled and transversely positioned coils **12** slide off the arcuate surface of the conveyor **18** and a single line of aligned coils **12** (some of which may be entwined), is presented at the delivery or right hand end, as viewed in Fig. 1, of the grooves **26**. It will be understood that the number of sorting grooves **26** may be increased to any desired number to further guarantee the positivity of the coil feeding operation and to meet the demands of further increased high speed coil feeding.

As shown particularly in Figs. 1 and 5, the left hand lower portion of the sorting conveyor **18** supports a reservoir **28**, suitably an open ended container having a rear-wall **30** extending along the receiving end of the sorting conveyor **18** and abutting a top retaining wall **27**. The reservoir **28** (Fig. 1) extends longitudinally along the side of the sorting conveyor **18** and may receive a fresh bulk supply of manually dumped coils, as the supply diminishes, or coils **12** automatically fed into this reservoir **28**, and the discarded coils **12** from the sorting conveyor **18** which gravitate to the reservoir when not retained by the grooves **26**.

If the aligned coils **12** are entwined in the sorting grooves **26**, as they arrive at the delivery end thereof, such coils **12** are separated and transferred by a first pneumatic means, such as for example an arcuate transfer shoe **32**, to registering transfer grooves **33** on the periphery of an indexable transfer wheel **34**, the periphery of which is located adjacent and slightly below the delivery ends of the sorting grooves **26**. If the aligned coils **12** in the grooves **26** are not entwined, but are separately aligned then the shoe **32** merely transfers them to the grooves **33**. If a coil **12** already rests in a groove **33** a second coil from the conveyor **18** will ride over the top of the first coil and be removed from the wheel as will appear later.

Transfer wheel

It will be understood from a consideration of Figs. 1, 3, 4, 6 and 10 that the transfer wheel **34** is rotatable on a suitable bushing **36** carried by a stud shaft **38**, mounted in a support bracket **40** upstanding from the table **14**. The transfer wheel **34**, a ratchet wheel **42** secured to the wheel **34**, as by screws **34***a* (Fig. 3) and a pawl lever **44** pivotable on the bushing **36** between the bracket **40** and the ratchet wheel **42** are retained on the bushing **36** by an arm **45** suitably pinned to the right hand end, as viewed in Fig. 3, of the shaft **38**. An arcuate shoe **46** (Figs. 1 and 4) is mounted on the arm **45** below the sorting grooves **26** for peripheral engagement with coils **12** in the transfer grooves **33** and for the removal of excess, entangled or transversely positioned coils **12** therefrom.

The pawl lever **44** (Figs. 3 and 4) is joined by a connecting rod **50** to a bell crank lever **52** pivoted at **54** on the bracket **40** adjacent frame portions **56** of a conventional coil transfer conveyor **58**, of the type shown in U.S. Patent 1,929,294, issued October 3, 1933 to J. M. Van Der Poel. The conveyor **58** is synchronized with and driven by the automatic mounting machine (not shown). A connecting rod **60** joins the bell crank lever **52** to the drive means (not shown) of such automatic mounting machine so that the transfer conveyor **58** and the transfer wheel **34** index in synchronism with the operation of the automatic mounting machine. A pawl **62** pivoted at **64** on the pawl lever **44** engages the ratchet wheel **42**, so that counterclockwise rotation, as viewed in Fig. 4, of the bell crank lever **52** by the drive means of the automatic mounting machine likewise moves the pawl lever **44** and the pawl **62** in a counterclockwise direction, thus indexing the ratchet wheel **42** and the transfer grooves **33** on transfer wheel **34** one index position in a counterclockwise direction, as viewed in Fig. 4. To assure the passage of a coil **12** from the sorting grooves **26** and the loading of each of said transfer grooves **33** with a coil **12** successive indexes of the transfer wheel **34** present an individual transfer groove **33** successively in register with each of said sorting grooves **26**, thus properly aligning the grooves **26** and **33** for the loading of each of said transfer grooves **33** with a coil **12** so that the coils **12** can be transferred by the transfer shoe **32** from the grooves **26** to the grooves **33** with positiveness.

Pneumatic means

As shown in Figs. 1 and 2, the first pneumatic means or arcuate transfer shoe **32**, is affixed to the lower end of a high pressure air line **70** supported by a bracket **72** projecting laterally from a mount rod **74** upstanding from the bracket **40**. The air line **70** is connected to a source of high pressure air (not shown). The pneumatic transfer shoe **32** is provided with a plurality of jets **76** (Figs. 7 through 9) angularly disposed about 60° from the vertical axis of the transfer shoe **32**, one jet being provided for each of the sorting grooves **26** in the sorting conveyor **18**. High pressure air from each jet **76** engages the barrel of the leading coil **12** at the delivery end of each groove **26**, untwining the legs of the leading coil **12** from the adjacent coil (Fig. 8), and projecting said lead coil **12** across, and then into, the adjacent registering transfer groove **33** on the transfer wheel **34** (Fig. 9).

A second pneumatic means, such for example as an air nozzle **78** (Fig. 1–4, 6, and 10), is mounted in a plate **80**, projecting laterally from the mount rod **74** substantially parallel to the wall **27** of the sorting conveyor **18**, and projects through a suitable slot **82** in said side wall **27**. The air jet from the nozzle **78** is directed transverse to the transfer grooves **33** to aid the retaining shoe **46** in the removal of any entangled, excess or transversely positioned coils **12** from the transfer wheel **34** without disturbing coils properly positioned in the grooves **33**. A suitable high pressure air line **84** connects the nozzle **78** to a source of high pressure air (not shown).

As shown in Figs. 1 and 2 guide means, such for example as a chute **86**, directs the movement of coils **12** from the reservoir **28** and discarded coils **12** from the transfer wheel **34** to an impacting means **88** (Figs. 1, 4 and 10) located beneath the wheel **34** and the reservoir **28**.

Impacting means

The impacting means **88** (Figs. 1, 4 and 10) is mounted by means of a bracket **90** to the forward portions, as viewed in Fig. 1, of the support bracket **40**. As shown particularly in Fig. 10 the impacting means comprises an expanding passage **92** provided with an article admitting slot **94** adjacent the bottom of the chute **86**. The lower right hand end, when viewed in Fig. 10, of the passage **92** is connected by an air line **96** to a high pressure air supply (not shown). A delivery tube **98**, suitably glass, extends from the left hand end, when viewed in Fig. 10, of the passage **92** to a point adjacent the receiving end of the sorting conveyor **18**. This delivery end of the tube **98** is supported by a bracket **100** secured to the sorting conveyor **18** and is provided with a deflector cap **102** of a generally S-like configuration, as shown in Fig. 3.

The entangled coils **12** are sucked through the slot **94** in the passage **92**, are transferred at a relatively high speed through the tube **98** and successively impacted against the sides of the cap **102** and then are impinged against

and projected into, the sorting grooves 26 in the sorting conveyor 18.

As shown particularly in Figs. 1, 2, 4 and 10 the guide chute 86 comprises a side wall 104 supported by the plate 80, a front wall 106, as viewed in Fig. 1, mounted on the impacting means 88, and a bottom portion 107 of the chute 86, as viewed in Fig. 1, which converges on the slot 94 located in the impacting means 88 (Fig. 10). Coils 12 from the reservoir 28 and discarded coils from the transfer wheel 34 are gravity fed by the chute 86 to the slot 94, from which they are then delivered to the sorting conveyor 18 by the air pressure passing through the passage 92 and delivery tube 98, as above described.

Transfer conveyor

As shown particularly in Figs. 1, 2 and 4 the transfer conveyor 58 has a movable endless member 110, such as a plurality of integrated links 112, provided with a plurality of coil receiving grooves or notches 114 movable into registry with the transfer grooves 33 on the transfer wheel 34 at the bottom of the latter, as the transfer grooves 33 pass beyond the retaining shoe 46. This movable member 110 is carried by guide members, such for example as the sprockets 116, only one of which is shown in Fig. 3 and which is indexable by means (not shown) at the same rate as the transfer wheel 34 and the automatic mount machine (not shown).

Operation

As shown particularly in Fig. 10, the coils 12 in the reservoir 28 are advanced by the vibrator 16 toward the delivery end thereof adjacent the guide chute 86 where they drop downwardly through gravity to a point adjacent the entrance aperture 94 in the passage 92, where they are sucked into the passage 92 by the stream of high pressure air flowing therein. The impacting means 88 imparts a high velocity to the coils 12 as the latter are sped through the tube 98. At the delivery end of the tube 98 the coils 12 are successively impacted against the sides of the deflector cap 102 and the surface of the sorting conveyor 18 to untangle the coils 12 into single unaligned coils. The untangled coils 12 are urged by the vibrations imparted to the conveyor 18, into and up the tapered sorting grooves 26 in the sorting conveyor 18 toward the delivery end thereof, which, as previously mentioned is adapted, because of the taper of the grooves 26 as to width and depth, to receive a single line of aligned intertwined or individual coils, thus allowing only one coil at a time to reach the upper end of each such groove 26. All excess, entangled and transversely positioned coils 12 fall off the curved surface of the sorting conveyor 18 into the reservoir 28 for recirculation.

High pressure air jets from the transfer shoe 32 engage the barrel of the leading coil 12 in each of the grooves 26, separating when necessary, the leading coil 12 from its adjacent coil, and projecting the leading coil 12 across the wheel 34 against the wheel rim 34*b* where the leading coil 12 falls in the registering transfer groove 33. When another coil 12 is projected across the wheel 34 against the rim 34*b* by the shoe 32, said other coil cannot enter the loaded groove 33 and rolls off the wheel 34. Each transfer groove 33 is then indexed successively into register with each of the other sorting grooves 26 to guarantee the filling of each of the transfer grooves 33 with a single coil 12. If, for example, a coil 12 becomes positioned transverse to one of the transfer grooves 33 or one or more entangled coils is caught therein, the air nozzle 78 and the retaining shoe 46 removes such coils from the transfer wheel 34, and they drop downwardly through the guide chute 86 for recirculation through the impacting means 88 as hereinbefore described.

After each transfer groove 33 on the transfer wheel 34, having a single coil 12 positioned therein, has passed the last sorting groove 26 in the sorting conveyor 18, the positioned coil 12 is indexed into peripheral engagement with the retaining shoe 46. The positioned retained coil 12 is successively indexed around the periphery of the transfer wheel 34 in a counterclockwise direction as viewed in Fig. 1 until it arrives at the bottom of the shoe 46 directly above a notch 114 on the movable member 110 of the transfer conveyor 58, into which the coil is deposited for transfer to the automatic mounting machine (not shown).

Although a preferred embodiment has been disclosed, it will be understood that modifications may be made within the spirit and scope of the invention.

What is claimed is:

1. Article feeding apparatus comprising an arcuate sorting conveyor provided with a plurality of sorting grooves, each of said grooves being shaped to receive articles at one end and by discarding excess articles to present only a single line of aligned articles at the opposite end, means for vibrating said sorting conveyor to cause said articles to move along said grooves and to cause any excess, entangled, and transversely positioned articles to leave said grooves, and a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned, with the opposite end of said sorting grooves, means connected to said wheel for moving the wheel to present each of said transfer grooves in turn, in alignment with each of said sorting grooves to assure the passage of the vibrated moving articles from said sorting grooves and loading of each of said transfer grooves with an article.

2. Article feeding apparatus comprising a sorting conveyor provided with a plurality of sorting grooves, each of said grooves being adapted at one end to receive articles and by discarding excess articles to present only a single line of aligned articles at the opposite end, means for vibrating said sorting conveyor to cause said articles to move along said grooves and to discard any excess, entangled and transversely positioned articles from said grooves, a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned with the opposite end of said sorting grooves, said wheel being movable to present each of said transfer grooves in turn, in alignment with each of said sorting grooves to assure the passage of said articles from said sorting grooves and the loading of each of said transfer grooves with an article, a first pneumatic means adjacent the delivery end of said sorting conveyor for separating said aligned articles and delivering them one at a time from said sorting grooves to said transfer grooves, and a second pneumatic means transverse to said transfer grooves for removing any excess, entangled or transversely positioned articles from said transfer grooves.

3. Article feeding apparatus comprising a sorting conveyor provided with a plurality of sorting grooves, each of said grooves being adapted at one end to receive a plurality of said articles and by discarding excess articles to present only a single line of aligned articles at the opposite end, means for vibrating said sorting conveyor to cause said articles to move along said grooves and the latter to discard any excess, entangled and transversely positioned articles from said grooves, a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned with the opposite end of said sorting grooves, said wheel being movable to present each of said transfer grooves in turn, in alignment with each of said sorting grooves to assure the passage of said articles from said sorting grooves and the loading of each of said transfer grooves with an article, a first pneumatic means adjacent the delivery end of said sorting conveyor for separating said aligned articles and delivering said articles one at a time from said sorting grooves to said transfer grooves, a second pneumatic means transverse to said transfer grooves for removing any excess, entangled or transversely positioned articles from said transfer grooves, and means adjacent said transfer wheel for holding said delivered individual articles in said transfer grooves during

movement of said wheel and until they are transferred therefrom to an article receiving member.

4. Article feeding apparatus comprising a sorting conveyor provided with a plurality of sorting grooves, each of said grooves being adapted at one end to receive articles and by discarding excess articles to present only a single line of aligned articles at the opposite end, means for vibrating said sorting conveyor to cause said articles to move along said grooves and to discard any excess, entangled and transversely positioned articles from said grooves, a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned, with the opposite end of said sorting grooves, said wheel being movable to present each of said transfer grooves in turn, in alignment with each of said sorting grooves to assure the passage of said articles from said sorting grooves, and the loading of each of said transfer grooves with an article, a first pneumatic means adjacent the delivery end of said sorting conveyor for separating said aligned articles and delivering said articles one at a time from said sorting grooves to said transfer grooves, a second pneumatic means transverse to said transfer grooves for removing any excess, entangled or transversely positioned articles from said transfer grooves, means closely adjacent said transfer wheel for holding said delivered individual articles in said transfer grooves during movement of said wheel in transferring said articles from said sorting conveyor to an article receiving member, and a reservoir adjacent said sorting conveyor for receiving a fresh supply of articles and any discarded articles from said sorting conveyor.

5. Article feeding apparatus comprising a sorting conveyor provided with a plurality of sorting grooves, each of said grooves being adapted at one end to receive articles and by discarding excess articles to present only a single line of aligned articles at the opposite end, means for vibrating said sorting conveyor to cause said articles to move along said grooves and to discard any excess, entangled and transversely positioned articles from said grooves, a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned with the opposite end of said sorting grooves, said wheel being movable to present each of said transfer grooves in turn in alignment with each of said sorting grooves to assure the passage of said articles from said sorting grooves and the loading of each of said transfer grooves with an article, a first pneumatic means adjacent the delivery end of said sorting conveyor for separating said aligned articles and delivering said articles one at a time from said sorting grooves to said transfer grooves, a second pneumatic means transverse to said transfer grooves for removing any excess, entangled or transversely positioned articles from said transfer grooves, means on said transfer wheel for holding said delivered aligned articles in said transfer grooves during their transfer by said wheel from said sorting conveyor to an article receiving member, a reservoir adjacent said sorting conveyor for receiving a fresh supply of articles and any discarded articles from said sorting conveyor, and impacting means for receiving articles from said reservoir and any articles not transferred to said transfer wheel and operable to impart a velocity to said received articles and to cause them to be successively impacted against a delivery end of said impacting means and against said sorting conveyor to untangle said articles.

6. Article feeding apparatus comprising a sorting conveyor provided with a plurality of sorting grooves, each of said grooves being adapted at one end to receive articles and by discarding excess articles to present only a single line of aligned articles at the opposite end, means for vibrating said sorting conveyor to cause said articles to move along said grooves and to discard any excess, entangled and transversely positioned articles from said grooves, a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned with the opposite end of said sorting grooves, said wheel being movable to present each of said transfer grooves in turn, in alignment with each of said sorting grooves to assure the passage of said articles from said sorting grooves and the loading of each of said transfer grooves with an article, a first pneumatic means adjacent the delivery end of said sorting conveyor for separating said aligned articles and delivering said articles one at a time from said sorting grooves to said transfer grooves, a second pneumatic means transverse to said transfer grooves for removing any excess, entangled or transversely positioned articles from said transfer grooves, means on said transfer wheel for holding said delivered individual articles in said transfer grooves during their transfer by said wheel from said sorting conveyor to an article receiving member, a reservoir adjacent said sorting conveyor for receiving a fresh supply of articles and any discarded articles from said sorting conveyor, impacting means for receiving articles from said reservoir and any articles not transferred to said transfer wheel and operable to impart a velocity to said received articles and to cause them to be impacted successively against a delivery end of said impacting means and against said sorting conveyor to untangle said articles, and guide means for directing the movement of said articles from said reservoir and said transfer wheel to said impacting means.

7. Coil feeding apparatus comprising a sorting conveyor provided with a plurality of sorting grooves, each of said grooves being adapted at one end to receive coils and by discarding excess coils to present only a single line of aligned coils at the opposite end of said sorting grooves, means for vibrating said sorting conveyor to cause said coils to move along said grooves and to discard any excess, entangled and transversely positioned coils from said grooves, a transfer wheel provided with a plurality of transfer grooves, each adapted to be aligned with the opposite end of said sorting grooves, said wheel being indexable to present each of said transfer grooves in turn, in alignment with each of said sorting grooves to assure the passage of said coils from said sorting grooves and the loading of each of said transfer grooves with a coil, a first pneumatic means adjacent the delivery end of said sorting conveyor for separating said aligned coils and delivering said coils one at a time from said sorting grooves to said transfer grooves, a second pneumatic means transverse to said transfer grooves for removing any excess, entangled or transversely positioned coils from said transfer grooves, means closely adjacent said transfer wheel for holding said delivered individual coils in said transfer grooves during their transfer by said wheel from said sorting conveyor to a mount making machine, a reservoir adjacent said sorting conveyor for receiving a fresh supply of coils and any discarded coils from said sorting conveyor, impacting means for receiving coils from said reservoir and any coils not transferred to said transfer wheel and operable to impart a velocity to said received coils and to cause them to be impacted successively against a delivery end of said impacting means and against said sorting conveyor to untangle said coils, and guide means for directing the movement of said coils from said reservoir and said transfer wheel to said impacting means.

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