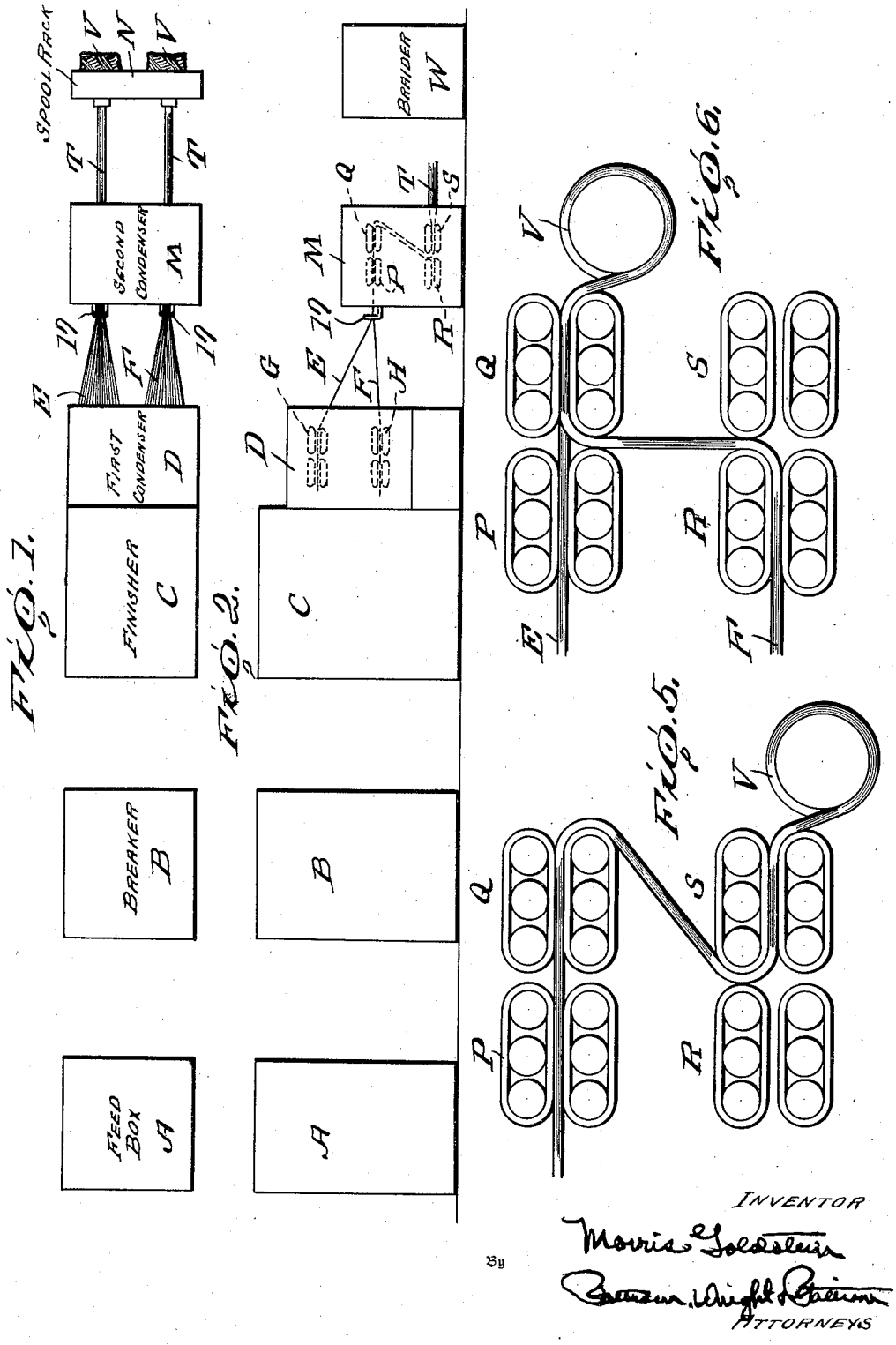
June 20, 1939. M. GOLDSTEIN 2,163,337

RUG AND FILLER THEREFOR AND METHOD OF PRODUCING THE SAME

Original Filed Aug. 4, 1937 3 Sheets-Sheet 1



INVENTOR

Morris Goldstein

By Bauer, Wright & Bauer

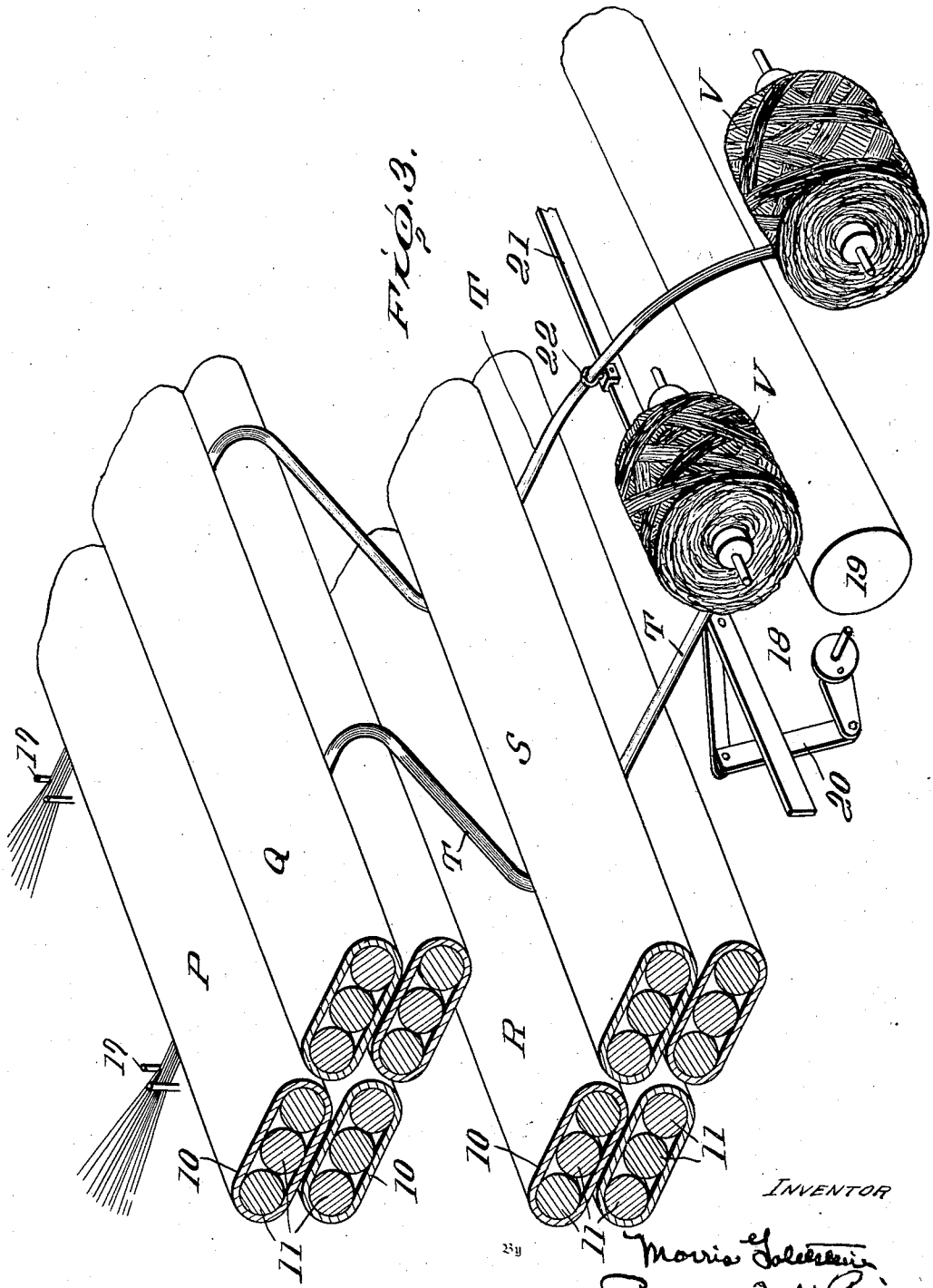
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Fig. 3.



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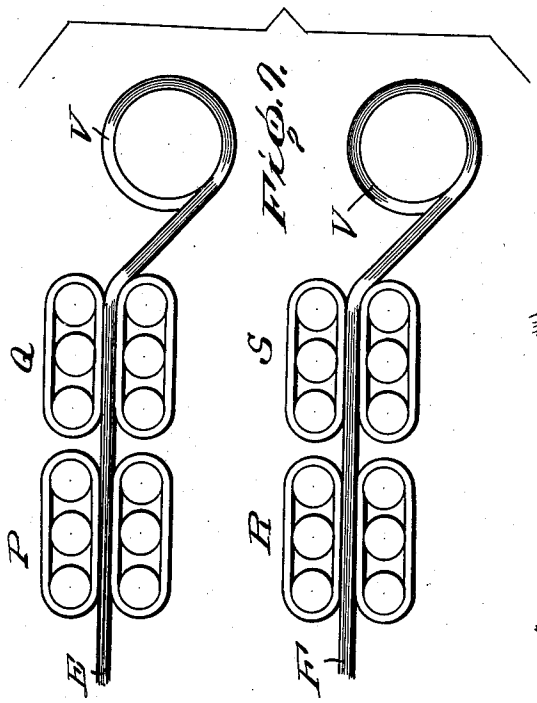


Fig. 1.

Fig. 2.

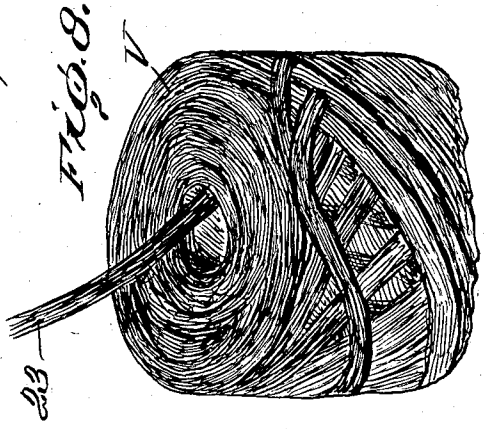


Fig. 8.

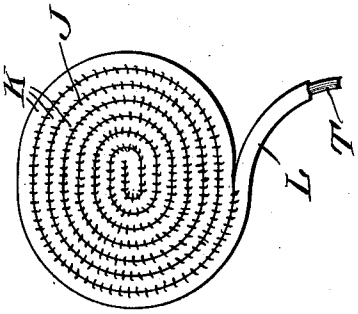


Fig. 10.

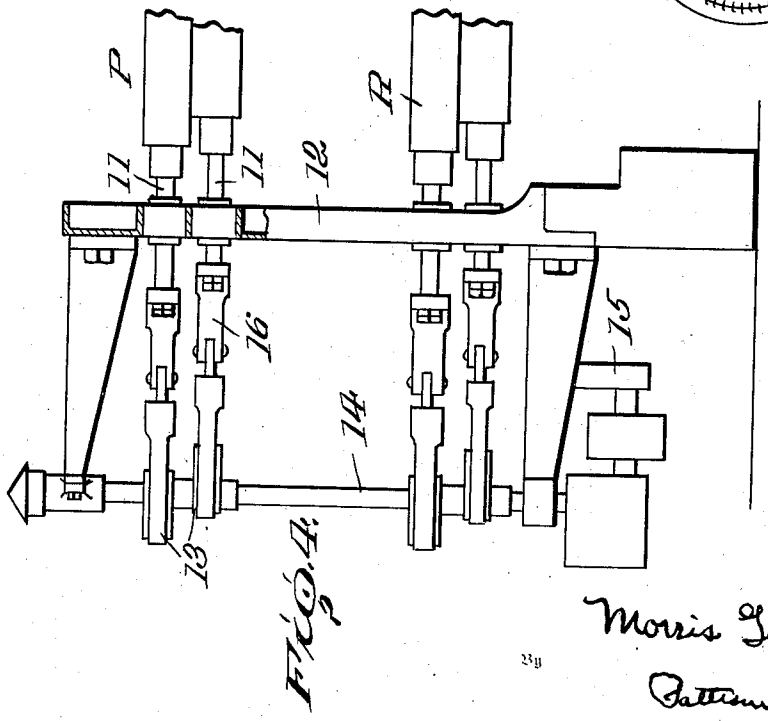


Fig. 4.

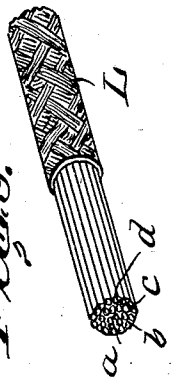


Fig. 9.

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2,163,337

RUG AND FILLER THEREFOR AND METHOD OF PRODUCING THE SAME

Morris Goldstein, Pawtucket, R. I.

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9 Claims. (Cl. 28—1)

There is today a large outlet for and sale of tubular rugs which are machine made rugs which are imitations of hand-made hooked or rag rugs. In order to meet competition, which is largely foreign, in this field, it is necessary to produce rugs which can be sold cheaply, which means that there must be a high degree of efficiency in the rugs and that the materials which go into the rugs be extremely reasonable or cheap of price.

These tubular rugs are fabricated from braided tubes which are filled or stuffed with a woolen filler and these tubes are wound or coiled to make a finished rug of the desired configuration, which is usually, although not necessarily, of a round or oval shape.

The primary object of the present invention is the provision of a novel and improved rug of the type commonly referred to as tubular rugs.

Another object of the invention comprises a novel and improved apparatus and method of producing tubular rugs including the filler therefor.

The objects and improved results of the present invention will appear in more detail in the following detailed description.

In the drawings:

Fig. 1 is a diagrammatic plan view of the apparatus utilized in practicing the present method and in producing the present improved filler.

Fig. 2 is a view in side elevation of the apparatus appearing in Fig. 1 of the drawings.

Fig. 3 is a schematic perspective view, partly in vertical section, illustrating the apparatus for carrying out an important step of the improved method.

Fig. 4 is a fragmentary view in side elevation, a portion thereof appearing in vertical section of the drive means for the rubbing aprons illustrated in Fig. 3 of the drawings.

Fig. 5 is a diagrammatic view illustrating one method of training the filler material through the rubbing aprons.

Fig. 6 is a diagrammatic view illustrating a different way of training the filler material through the rubbing aprons.

Fig. 7 is a diagrammatic view illustrating a still further manner of training the filler material through the rubbing aprons.

Fig. 8 is a perspective view of a roll of the improved rug filler.

Fig. 9 is a detailed perspective view illustrating the braided tubing and the improved rug filler therein.

Fig. 10 is a plan view of a tubular rug filled with the present improved rug filling material.

The manufacture of a cheap material to be used as a filler or stuffing has been long practiced but as will be hereinafter pointed out, such material in the form in which it is today manufactured, and which is generally referred to as roving, is not suitable for use as a filler in tubular rugs.

Having reference now to Figs. 1 and 2 of the drawings, A represents a feed box, B the breaker, C the finisher, and D the first condenser. The apparatus thus far described is the more or less conventional apparatus today utilized in the manufacture of roving. Due to the fact that a filler or the filling material must be cheap of manufacture it is composed of short length fibres, preferably and usually woolen, which is the ordinarily discarded material resulting from other textile operations. This short length fibre together with a few other fibres of longer length are fed to the feed box and pass through the breaker and the finisher and to the first condenser in the form of a web which is composed of loosely clinging short fibres and the few longer length fibres. In the first condenser D this webbing is cut longitudinally into what can be well termed strips and these strips are subjected to a rubbing action as they pass between one or more pairs of endless belts or tapes and are discharged from the first condenser in the form of a plurality of strands E and F. Each of these longer length strands is composed of a plurality of the quite closely adhering short fibres and due to this fact the inherent nature of these strands is that they have practically no strength to withstand any pull or tension. If a tension is placed upon these strands they are broken.

In the apparatus illustrated in Figs. 1 and 2 of the drawings the strands are illustrated as passing through an upper set of rubbing aprons or tapes G and a lower similar set H with the result that the strands E and F are discharging from the first condenser on an upper level and a lower level, as is clearly apparent in Fig. 2 of the drawings.

In ordinary practice the strands E and F are carried to a jack roll or some other like winding mechanism and wound thereupon for shipment and future use.

The present invention has to do with a further treatment of the roving or strands E and F so as to make a suitable filler material for the tubes of a tubular rug. Actual tests and trials have proven the inadequacy of the roving as it is discharged from the first condenser for use as a filler for these rugs. In Fig. 10 of the drawings a tubular rug is designated as an entirety by J and it will be seen that it is made up of a tube K. By

reference to Fig. 9 of the drawings it will be seen that the tube of which the rug is composed comprises a braided covering L which is of a tubular form. So as to make the rugs of a pleasing appearance the material going into the braided tube is usually of different colors so as to form some sort of color design.

In the manufacture of the filled tubes the roving is carried to a braider or braiding machine designated at W which braids the tubular covering thereon. The roving is usually fed to the braider from a spool but it can be led directly to the braiding machine. When the roving on a spool is fed therefrom to the braiding machine this of course places upon the roving or strands a certain amount of tension, but most important of all is the fact that in the braiding machine the roving is subjected to a considerable tension with the result that roving as it comes from the first condenser D cannot be carried to the braiding machine and a braided cover braided thereon because the roving will break under the tension to which it is subjected during this operation. Repeated trials have proven this to be true and have proven that the roving as it comes from the first condenser cannot be successfully utilized as a filler for the tubes.

I recognize that it might occur to someone to take a plurality of the roving strands E and F and twist them together in a single strand with the idea of feeding the twisted strand to a braider to have a tubular covering braided thereon. A practice of this kind however is not successful and not desirable for at least two major reasons. The first reason is that the plurality of roving strands thus twisted together provide what might be termed one large strand, but due to the twist given to each strand of roving it has been found that in the braider the strands are picked up by the braiding machine and are pulled through the braided cover thus making an unsightly finished tubing and at the same time making a tubing which rather than being symmetrical throughout its length is knotty and uneven. An additional and other major objection is that when a plurality of roving strands are twisted together in the above mentioned manner it results in the use of a greater amount of roving material to each foot of tubing and this in turn means that the cost of the tubing with its filler will be prohibitive of sale in the close price competition heretofore mentioned.

A still further objection to the twisting method and an objection which can well be termed a major one, is that a rug made up of a tubing with twisted filler is a hard rug in that there is little or no give or resiliency to the filler due to its having previously been twisted. Tubular rugs made up with a twisted filler are undesirable and the rug manufacturers will not accept a filler of this nature.

Recognizing that the roving as it comes from the first condenser in the usual and generally practiced manner of manufacture is not suitable as a filler for tubular rugs, and recognizing that twisting a plurality of strands of roving together is also objectionable and not acceptacle in the trade, I have devised the present improved method of producing an acceptable filler and producing as a new article of manufacture both a novel tubular rug and a filler particularly suited and adapted as a filler for a tubular rug.

Inasmuch as the method of producing a single strand of roving as it comes from the first condenser is well understood by those skilled in the art, further description of this portion of the apparatus is considered unnecessary and a description will now be given of the additional apparatus and the additional steps utilized and followed in the practice of my invention.

With the aforementioned well known apparatus for producing single strands of roving I utilize a second condenser M and a spool rack N.

The second condenser can be of identical construction as the first condenser although it need not necessarily be so. In the drawings the second condenser is sufficiently illustrated in Figs. 3 and 4 to enable those skilled in the art to well understand its construction and operation. By reference to these particular figures of the drawings it will be seen that there are two pair of upper rubbing aprons and two pair of lower rubbing aprons disposed in substantial alignment with the upper aprons. One pair of upper aprons is designated as an entirety by P and the other by Q while the lower pair are designated as R and S. Each of these rubbing aprons comprises an endless belt or tape **10** trained over a plurality of driven tubular shafts **11**. These shafts extend transverse the condenser and have their ends suitably supported in the end wall housing **12** of the condenser. By any suitable means (not shown) at the opposite side of the condenser to that appearing in Fig. 4, the shafts **11** are rotated so as to impart a rotary motion to the endless belts or tapes **10**. In addition to this rotary motion an oscillating motion longitudinal of each of the belts or aprons is imparted by suitable eccentrics **13** mounted on a vertically disposed shaft **14** which is driven by a belt **15** or the like. The eccentrics **13** are suitably connected to the shafts **11** by a linkage **16**.

When the second condenser is in operation it will be apparent from the description thus far given that the belts or aprons **10** are being rotated and at the same time are being oscillated longitudinally.

By reference to Figs. 1 and 3 of the drawings it will be seen that a plurality of roving strands as they come from the first condenser are guided through suitable guide pins **17** or the like and led between the two upper sets of rubbing aprons P and Q. Due to the motion imparted to these rubbing aprons these plurality of strands come out from the far side of the rubbing apron Q in the form of a single strand T which is made up of a plurality of roving strands which have been caused to tenaciously adhere to one another. This strand T which is to constitute the filler for the rug and upon which the tubular covering is to be braided, is led downwardly and then forwardly and outwardly through the lower set of rubbing aprons S and is then either wound upon a suitable stub roll **18** which roll is driven through reason of the frictional engagement of the strand T with a main jack roll **19** mounted for rotation in the spool rack N or where the manufacture of the filler and rug is a continuous operation the strand T is led directly to the braiding machine W.

Suitable power means (not shown) well understood in the art, is provided for rotating the main jack spool **19** and through suitable linkage **20** driven off the jack spool a bar **21** is caused to reciprocate. This bar **21** is provided with a guide eye **22** through which the strand **7** is led prior to going onto the spool **18** with the result that the filler is wound upon the spool in the particular fashion illustrated in Figs. 3 and 8 of the drawings. A spool or ball of filler material is given

the general designating character V and by reference to Fig. 8 of the drawings it will be seen that when it comes time to unwind the ball for feeding the same to the braiding machine that it is unwound from the center as designated at 23.

In treating the individual strands of roving in the second condenser in the manner just described the filler strand T has peculiar characteristics. The treatment of the strands in the rubbing aprons does not in any way twist the strands but merely forms a plurality of the roving strands into what might be well termed a single piece of filler in which the individual strands all lie in substantially parallelism one with the other. This I have illustrated in Fig. 9 of the drawings where it will be seen that the individual strands *a*, *b*, *c*, and *d*, etc. making up the filler are not twisted in respect to one another but lie in parallelism. Actually these strands are closely adhering to one another due to the rubbing action to which they have been subjected. In Fig. 9 of the drawings the strands are slightly exaggerated and spaces are illustrated as being between them, but in the filler itself there is no space between the strands but they are in actuality in close cohesion.

The braiding machine W is of any conventional well known type and needs no specific description. This machine braids about the strand T a tubular covering such as described and illustrated in Fig. 9 of the drawings. The resultant filled tube is very pliable and can be coiled to form a rug as is clearly illustrated in Fig. 10 of the drawings.

With a filler of the type illustrated by T the objectionable feature of the braiding machine possibly picking up one of the strands of roving making up the filler is obviated; a greater length of filler can be manufactured from a lesser amount of roving due to the untwisted condition of the roving; the filler is resilient and pliant so that the rug will not be hard but will have give to it, but most important of all the filler made up of the plurality of strands treated by this rubbing action which has caused the strands to adhere, now has sufficient strength to withstand the tension to which it is necessarily subjected in its passage through the braiding machine.

So far as I am aware no one has ever treated roving in the manner which I have described, nor has anyone ever produced a satisfactory filler for tubular rugs in which the tube comprises a braided covering which is braided over the filler as it passes through a braiding machine.

It is to be of course recognized that the roving strands E and F as they come from the upper and lower levels of the first condenser can be trained in different manners through the rubbing aprons of the second condenser. In Figs. 1 and 2 of the drawings all of the roving strands coming through the first condenser are illustrated as being led or guided first through the two upper sets of rubbing aprons in the second condenser and this is also true of the illustration in Figs. 3 and 5 of the drawings.

An optional method of treating the roving strands in the second condenser is illustrated in Fig. 6 of the drawings where those strands E coming from the upper level of the first condenser are shown as passing straight through the upper rubbing aprons P and Q while the strands F from the lower level of the first condenser are shown as passing through the pair of rubbing aprons R of the lower set of aprons in the second condenser and then joining the strand E and passing outwardly through the second set of upper rubbing aprons Q of the second condenser.

Fig. 7 illustrates a still further optional form of leading the roving through the second condenser and here it will be seen that the strands E from the upper level of the first condenser pass straight through the upper rubbing aprons P and Q of the second condenser while the strands F in the lower level of the first condenser pass through the lower sets of aprons R and S of the second condenser.

I have found that the strands of roving will withstand such a very small amount of tension or pull that it is highly desirable to drive all of the mechanism constituting the finisher C, the first condenser D and second condenser M from a common drive so that the apparatus will be synchronized and not have any tendency to subject the roving strands to any appreciable amount of tension which of necessity would result if synchronism were not assured.

To those skilled in the art it will be recognized that the problem of providing a filler for the use intended cannot be solved by attempting to spin the roving strands because the strands or roving do not have sufficient strength to withstand a spinning or twisting operation.

The method and apparatus which I have devised results in the production of a novel and improved tubular rug which is extremely cheap of manufacture and has the numerous attributes hereinbefore pointed out.

The method and apparatus which I have devised results in the production of a rug filler having all the attributes desirable to a material intended for this use.

Having thus described my improved method, the apparatus utilized in practicing the same, and the improved article resulting from the practice of the method, the invention is to be limited only within the scope of the hereinafter appended claims.

I claim:

1. As a new article of manufacture, a piece of filling material consisting of a plurality of roving strands each of which is composed of a plurality of short length fibres, said roving strands lying in parallelism with one another and adhering to one another to constitute a single general strand, and a tubular covering for said filler.

2. The improved method of producing a tubular rug, consisting of providing a plurality of individual roving strands composed in the major part of a plurality of short length fibres held together by a rubbing action imparted to them, grouping a plurality of said roving strands and subjecting said group of strands to a rubbing action and continuing said rubbing action until the individual roving strands have closely adhered to one another to form a single strand composed of a plurality of said individual roving strands disposed in parallelism with one another, providing a yieldable tubular cover for said single strand coiling said covered strand to form a rug of the desired shape and size, and securing the adjacent convolutions of said coil together.

3. As a new article of manufacture, a piece of filling material consisting of a plurality of roving strands each of which is composed of a plurality of short length fibres, said roving strands lying in parallelism with one another and adhering to one another to constitute a single general strand, and a tubular braided cover therefor.

4. As a new article of manufacture, a rug comprising, a yieldable coiled tube, a filler in said

tube composed of a plurality of roving strands which have been caused to adhere to one another, said strands being disposed in parallelism to one another, and means securing the convolutions of said tube together.

5. As a new article of manufacture, a rug comprising, a braided coiled tube, a filler in said tube composed of a plurality of roving strands which have been caused to adhere to one another, said strands being disposed in parallelism to one another, and means securing the convolutions of said tube together.

6. As a new article of manufacture, a piece of filling material consisting of a plurality of roving strands, said strands being disposed in parallelism with and adhering to one another to constitute a single general strand, and a tubular covering for said general filler strand.

7. As a new article of manufacture, a piece of filling material consisting of a plurality of roving strands, said strands being disposed in parallelism with and adhering to one another to constitute a single general strand, and a flexible braided covering for said general filler strand.

8. The improved method of producing a rug, consisting in providing a plurality of individual roving strands, grouping a plurality of said strands and subjecting said group to a rubbing action which will result in the formation of a single general strand the individual strands of which lie in parallelism with and closely adhere to one another, providing a tubular cover for said general strand, coiling said covered strand to form a rug of the desired shape and size, and securing the convolutions of said coil together.

9. The improved method of producing a rug, consisting in providing a plurality of individual roving strands, grouping a plurality of said strands and subjecting said group to a rubbing action which will result in the formation of a single general strand the individual strands of which lie in parallelism with and closely adhere to one another, braiding a tubular cover on said general strand, coiling said covered strand to form a rug of the desired shape and size, and securing the convolutions of said coil together.

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