

July 15, 1958

J. D. HOLLINGSWORTH

2,842,802

END WIRES

Filed Jan. 9, 1956

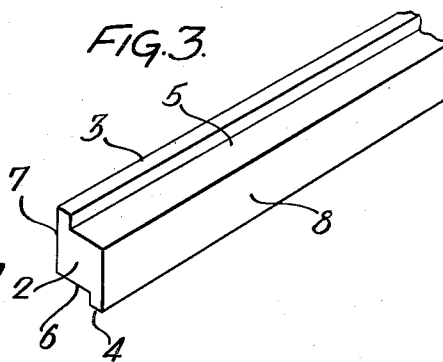
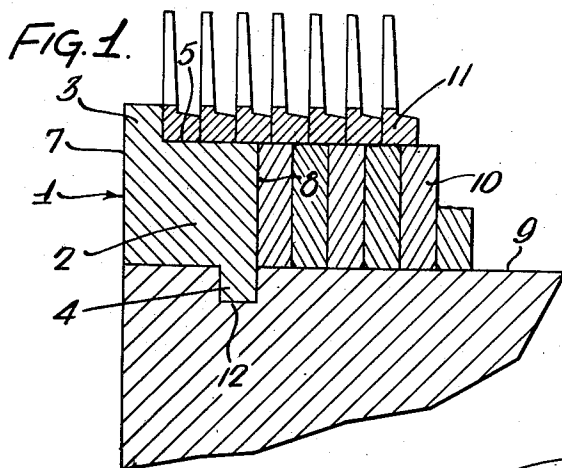


FIG. 4.

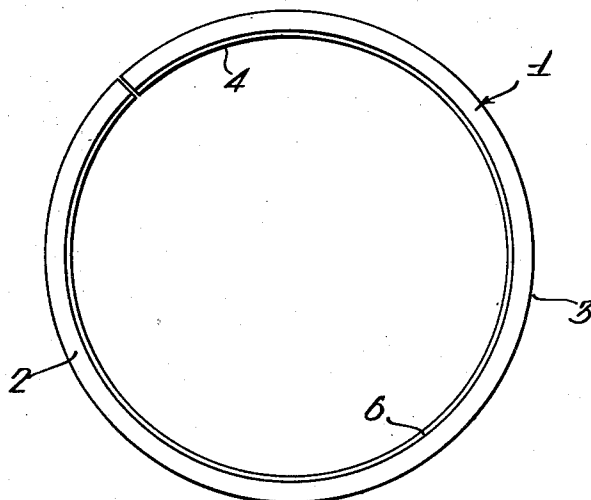
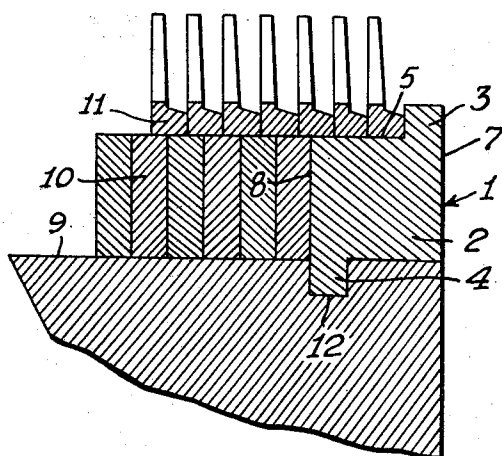


FIG. 2.



Inventor:
John D. Hollingsworth
by Howson & Howson
Atty's.

1

2,842,802

END WIRES

John D. Hollingsworth, Greenville, S. C.

Application January 9, 1956, Serial No. 557,904

4 Claims. (Cl. 19-112)

This invention relates to improvements in end wires of the type used in carding and like rolls as abutments for the terminal convolutions of a foundation wire and of metallic card clothing assembled on said foundation.

A particular object of the invention is to provide a pre-formed wire of this class which by reason of its novel shape eliminates necessity for the prior conventional separate grooved end wire and complementary end strip seating in the groove of said wire, all as hereinafter more fully described.

Another object of the invention is to provide a novel pre-formed end wire of the stated class the use of which will effect an appreciable economy in the time and expense of production and of assembly in the roll, also as hereinafter more specifically set forth.

Another object of the invention is to provide an end wire of the stated character which will afford a neater and more accurate assembly of roll cylinder and metallic card clothing.

Still another object of the invention is to provide a novel end wire which will permit the metallic clothing to be applied in relatively close proximity to the ends of the base roll so as to afford a clothed roll surface of maximum axial length.

A further object of the invention is to provide an end wire which will eliminate the voids in the active carding surface which are commonly present in the prior roll assemblies and to thereby improve the quality of the carding operation performed by the roll.

In the attached drawings:

Fig. 1 is a fragmentary sectional view of one end of a card roll equipped with an end wire made in accordance with the invention;

Fig. 2 is a fragmentary sectional view of the other end of the roll;

Fig. 3 is a view in perspective of a fragmentary length of the wire from which the end wire shown in Fig. 1 was produced, and

Fig. 4 is a side view of a length of the wire shown in Fig. 3 pre-shaped to the split annular form in which it is ready for assembly by snap action and subsequent welding or brazing of the split ends of the annulus with the basic cylinder of the roll assembly.

With reference to the drawings, an end wire in accordance with the invention as it appears in assembly with the cylinder of a carding roll may consist of a continuous annulus 1 composed of a metallic or other strip of the cross-sectional shape illustrated in Fig. 3. As shown, this strip or wire comprises a longitudinal midsection 2 of substantially rectangular cross-sectional form having integral longitudinal flanges, 3 and 4, which project respectively from two opposite faces 5 and 6 of the said midsection. In a preferred embodiment, and as illustrated, the flanges 3 and 4 are parallel to each other and normal to the faces 5 and 6 of the midsection 2 from which they respectively project, and the outer faces of the flanges lie flush with and form continuations

2

of the other faces 7 and 8 respectively of the midsection. A true transverse section of this wire is shown in Figs. 1 and 2 of the drawings. In forming the annular end wire 1, a section of this wire of suitable length is shaped to the required circular form thereby producing a split ring which is assembled in the cylinder of the carding roll as described below, the ends of the ring then being secured together by welding, brazing or other suitable means to form a complete annulus.

End wires of this form are adapted primarily for use with carding rolls which, designed originally for flexible or fillet card clothing, are to be converted for use with card clothing of the metallic type. Such conversion requires an increase in the effective outside diameter of the roll in order to compensate for the relatively small radial height of metallic card clothing as compared with clothing of the flexible or fillet type. Figs. 1 and 2 illustrate the manner in which the basic carding roll 9, designed originally for fillet clothing, is built up by means of foundation wires 10 which are wound in helical convolutions on the cylindrical shell of the basic roll. This foundation increases the effective diameter of the roll and forms a seat for the garnett wire 11 which in turn is applied in helical convolutions to form the toothed clothing.

It is obvious that in this type of conversion, it is necessary to provide abutment means at each end of the roll not only for the terminal convolutions of the foundation wire 10, but also for the terminal convolutions of the garnett wire 11. To this end, it has previously been customary to provide the base cylinder with a circumferential groove 12 adjacent each end for reception of an end wire to act as an abutment for the terminal convolutions of the foundation wire 10; and this end wire was conventionally provided with a circumferential groove for reception of a separate wire to form the required abutment for the terminal convolutions of the garnett wire 11. In accordance with the present invention, a single wire is provided adapted for assembly with the base cylinder to provide the required abutment for both foundation surface and toothed wire.

The manner in which the split ring, produced as described above from the wire illustrated in Fig. 3, is assembled with the roll is illustrated in Figs. 1 and 2. As therein shown, the integral flange 4 at the inner periphery of the annulus is sprung into the circumferential groove 12 and thereafter the ends of the split ring are united as described. By reason of the form and relative dispositions of the flanges 3 and 4, the flange 3 will then lie at the extreme ends of the roll as illustrated in Figs. 1 and 2. The foundation wire 10 wound on the cylindrical surface of the base roll as described, forms with the upper surface 5 of the end wire a continuous cylindrical surface for reception of the garnett wire 11 which constitutes in assembly the metallic card clothing of the roll. Since the flange 3 which confines the terminal convolutions of the clothing wire lies at the extreme end of the roll, a maximum axial extent of the cylinder is made available for reception of the clothing wire and the effective axial length of the carding roll is the obtainable maximum.

While the end rings may be made up as required from the blank wire or strip material, I have found it desirable to pre-form the wire into the split annular form. The use of pre-formed integral rings of this character not only materially facilitates the operation of building up rolls and applying the metallic clothing but also appreciably reduces the cost of assembly by avoidance of the necessity for forming the groove in the end wire which previously has been required for reception of a separate retaining ring for the metallic clothing and by

3

elimination of the operations of assembling this separate wire in the groove and uniting the ends thereof. Other advantages of the invention have been enumerated above.

I claim:

1. A carding roll comprising a base cylinder having a circumferential peripheral groove at each end, an end wire at each end of the cylinder having an annular mid-section seated on the peripheral surface of the cylinder and an integral radial flange projecting into the proximate groove in said surface, said end wire having also an outer circumferential integral flange projecting radially from and embracing said midsection, a foundation wire wound in helical convolutions on the base cylinder between said end wires and forming a cylindrical surface for reception of metallic card clothing and of lesser diameter than the outer periphery of the last-named flange, and a toothed wire wound in helical convolutions on said cylindrical surface between and confined between said outer flanges.

4

2. A carding roll according to claim 1 wherein the flanges lie at opposite axial sides respectively of the said mid-section.

3. A carding roll according to claim 2 wherein the outer side surfaces of the flanges coincide with the proximate axial side faces of the mid-section, respectively.

4. A carding roll according to claim 3 wherein one of the axial side faces of the mid-section, and the flange surface which coincides therewith coincide jointly with the adjoining end surface of the roll.

References Cited in the file of this patent

UNITED STATES PATENTS

943,029	Litchfield	Dec. 14, 1909
2,175,131	Schwartz	Oct. 3, 1939
2,340,221	Hollingsworth	Jan. 25, 1944