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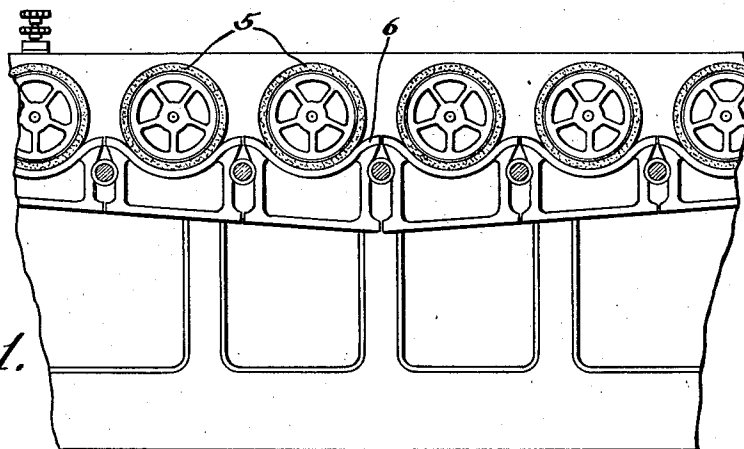
C. E. GALVIN

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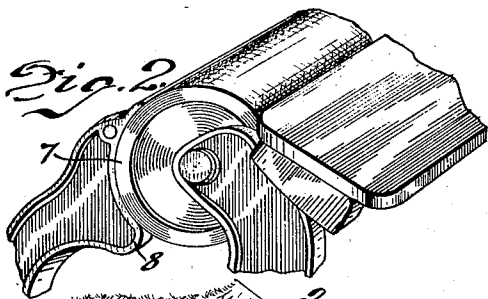
ROLL PADDING FOR IRONING MACHINES AND THE LIKE

Filed Feb. 27, 1928

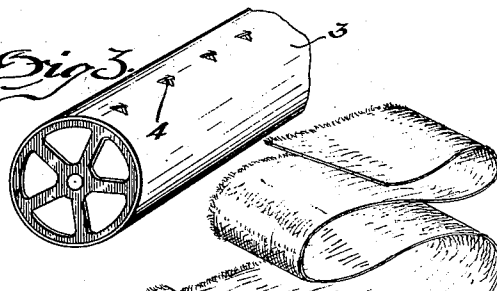
*Fig. 1.*



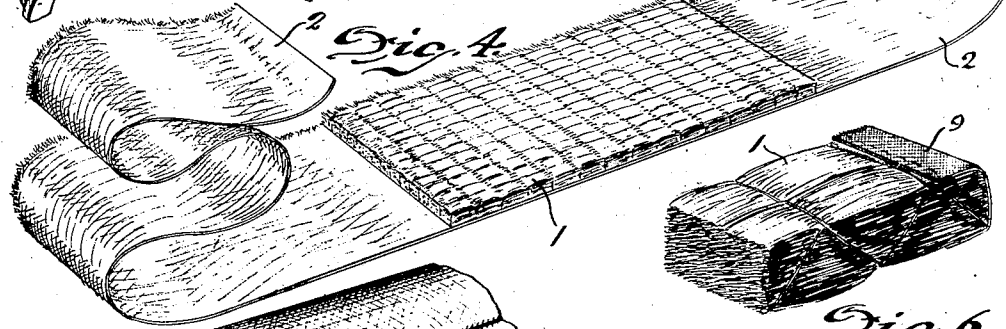
*Fig. 2.*



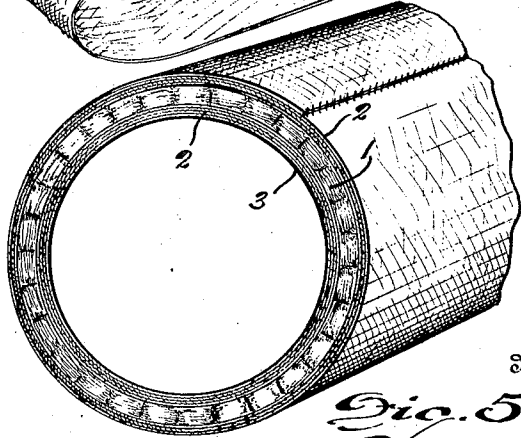
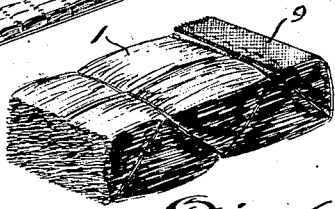
*Fig. 3.*



*Fig. 4.*



*Fig. 6.*



*Fig. 5.*



*Fig. 7.*

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## UNITED STATES PATENT OFFICE

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ROLL PADDING FOR IRONING MACHINES AND THE LIKE

Application filed February 27, 1928. Serial No. 257,535.

My invention relates to a resilient cushion or padding material and to means and mode of applying such material to rollers. While the invention will be described, for illustrative purposes, in its application to rolls of laundry ironing and pressing machines it is to be understood that the padding material is applicable to a wide variety of other purposes and shapes other than cylindrical rolls.

10 Furthermore, the application of the padding to rolls is not limited to heated rolls but extends to any general purpose cushion rolls. The material is also quite suitable for padding the bucks of steam pressing machines and may be utilized for other purposes than padding including filter or strainer purposes and especially where a flexible heat-resistant material is desired.

15 The heated rolls of laundry ironing or pressing machines are ordinarily covered with felt, cotton padding, or knitted cotton cord material which deteriorates very rapidly under the influence of heat. Furthermore such padding material soon becomes compact and loses its resiliency and cushion effect, necessitating frequent replacement.

20 The present padding material consists of a knitted blanket of metallic fibers known in the trade as "steel wool". The metallic fibers are formed into a roving or rope with which are knitted a plurality of tie or warp wires, forming a resilient metallic fabric of uniform thickness, which is highly resilient and will not readily compact or become compressed, and which will withstand heat of high degree without deterioration. In applying such resilient pad to a cylindrical roll it is combined with a binder cloth which may be canvas or duck and for rollers subjected to very high degrees of temperature, such binder cloth may be of wire gauze or woven wire screen. The end of such binder cloth is secured to the surface of the roller and one or more preliminary turns of the cloth are applied about the roller, and during the succeeding turn the binder cloth and metallic pad are wound together about the cylinder. The resilient metallic pad is cut to such size and proportion that it will exactly agree with the cylindrical surface of the roller to be covered with

its opposite margins abutting upon each other. Exteriorly of such metallic pad one or more final convolutions of the binder cloth are applied and the end of the cloth is secured to the underlying turn by stitching. It is obvious that bodies of metallic wool or felted metallic fibers may be deposited between the successive convolutions of such winding of cloth about the roller without the necessity of knitting or pre-forming the metallic fibrous material into a pad or blanket.

The object of the invention is to provide an improved form of cushion or padding material which will be highly resilient, of increased efficiency and durability, cheap in construction, highly resistant to heat and other deteriorating influences, and unlikely to get out of repair.

A further object of the invention is to provide improved means for applying such afore described metallic fibrous padding material to the surface of cylindrical rolls.

A further object of the invention is to provide an improved method of forming metallic fibers into a blanket or pad of uniform thickness and capable of indefinitely retaining its shape.

With the above primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents as hereinafter described and set forth in the claims. Referring to the accompanying drawings wherein are shown the preferred, but obviously not necessarily, the only form of embodiment of the invention, Fig. 1 is a detail sectional view of a portion of an industrial laundry ironing machine, showing a succession of rollers to which the present form of padding has been applied. Fig. 2 is a fragmentary view of a domestic ironing or pressing machine to the roller of which the present padding is applicable. Fig. 3 is a detail perspective view of a portion of a roller prior to the application of the padding material showing the tines or barbs by which the initial end of the binder cloth is secured. Fig. 4 is a perspective view

of a portion of padding material and binder cloth assembled relative to each other preparatory to application to a roller. Fig. 5 is a sectional perspective view of a roller with the padding material applied. Fig. 6 is a detail perspective view of a fragmentary portion of the metallic knitted padding or cushion material. Fig. 7 is a further detail view thereof.

Like parts are indicated by similar characters of reference throughout the several views.

The cushion or padding material in the present case consists of a pad or blanket 1 formed from metallic fibers, known generally in the trade as "steel wool." While steel wire is the usual material from which such fibers are removed, wherefore it receives its designation as "steel wool," it is to be understood that to meet special conditions of usage other metals may be employed. The metallic fibers which are of fine hair like character, are removed from the wire stock by a succession of cutting or scraping tools, which produce such fibers as fine continuous, or substantially continuous shavings. These fibers from the several cutters are brought together to form a strand or roving of suitable size. This strand or roving is usually quite loosely assembled to an approximate diameter of one inch. The strand or rope may be loosely twisted upon itself, but ordinarily a light strand or cotton cord is wound helically about the assembled strand or roving in rather widely spaced convolutions sufficient to hold the assembled fibers together temporarily, until incorporated in the padding fabric.

The assembled strand or rope of metallic fibers which flow continuously from the fiber forming apparatus is conducted through a knitting machine or analogous apparatus in which the padding material is fabricated. Reversely disposed parallel portions of the roving of metallic fiber are interconnected and inter-tied one with another by a plurality of spaced wires of small diameter, which by the action of the knitting machines, are interlocked or looped one about the other intermediate each transverse roving of the fibrous metallic material. Fragmentary views of the completed material are shown in Figs. 6 and 7. This metallic wool fabric is produced in continuous runs of any desired width and is ordinarily one-half inch in thickness, although it may be produced of different thickness by varying the size of the strand or rope of fibers. The metallic fabric thus produced is subsequently cut to various sizes and shapes for use as cushions or padding material for various purposes. In its application to a roller, such as a laundry ironing machine roller, a portion of the material is cut to the size equivalent to the surface area of the roller to be covered.

This padding unit 1 is then secured by

stitching or otherwise to a strip of binder cloth 2 of greater length than the padding 1. This binder cloth extends in opposite direction beyond the margin of the metallic pad 1. For laundry ironing machines purposes, whether of industrial or domestic type, the binding cloth 2 is preferably light canvas or duck or any other suitable textile fabric. In the event that the roller is to be subjected to extremely high degree of heat the binder cloth 2 may be wire gauze or woven wire screen. The binder cloth 2 is sufficiently long to afford one or more initial turns about the cylinder or roller in advance of the metallic wool pad 1, and to afford subsequent to the application of the pad 1 a few additional external turns of the binder cloth. The initial end of the binder cloth 2 is secured to the cylinder 3 by any suitable means. A convenient and suitable means of attachment is by means of triangular barbs or spurs 4, which ordinarily are struck from the material of the cylinder or roller and projected slightly above the surface thereof. The end of the binder cloth is hooked on these integral triangular tongues or barbs projecting from the surface of the roller 3, after which the barbs or tongues are struck down flush with the surface of the roller by hammer blows. The binder cloth is then wound about the roller 3 through at least two preliminary turns. The metallic wool pad 1 is attached to the binder cloth in such relation to its end that sufficient length of binder cloth is afforded for the predetermined number of turns. Upon continued winding of the cloth 2 the pad 1 is wound through one complete rotation of the roller, together with the next succeeding turn of the cloth. The pad 1 is preferably cut to such size that its opposite margins will meet or abut at the completion of the single turn of such pad. However, it is obvious that if the pad is made of less thickness, two or more turns of the metallic wool pad 1 may be made about the cylinder. Following the winding of the metallic pad 1 about the cylinder additional turns, preferably two or more are made with the remaining end of the binder cloth 2. This serves to hold the pad 1 firmly in its position and affords a suitable textile fabric exterior surface for contact with the garment to be ironed, or other material to be passed over or under the roller.

The final end of the binder cloth 2 is secured by stitching to the underlying turn. Such padded rolls are employed in a wide variety of installations. In Fig. 1 there is shown a succession of padded rolls 5-5 which co-operate with steam heated matrices 6, which have polished surfaces over which the garments to be ironed are passed beneath the padded rollers 5. Inasmuch as the rollers are in direct contact with the heated surfaces intermediate the passages of the gar-

ments, the padding material is subjected to high temperature. The metallic wool padding will withstand such high temperature without deterioration. A similar condition exists in domestic ironing machines as illustrated in Fig. 2, wherein the padded rollers 7 contact with a heated shoe 8.

While "steel wool" consisting of long silky fibers shaved from steel wire is the material generally used for the present purposes, since such fibers are relatively strong and especially resilient, metallic wool is also made from other metals including copper, lead, aluminum, bronze, brass and nickel. It is also produced in various grades or degrees of fineness. Thus knit metallic padding or cushion material may be produced to meet a very wide range of conditions and different usage.

While the knitting operation will produce the usual selvage on the margins, it is desirable to bind the edges, particularly the cut margins formed by separating the pad from the knit stock material. The binding material is preferably wire gauze of thin closely woven wire fabric, which is wire stitched upon the padding as indicated at 9.

While the metallic fabric, forming the subject matter hereof, has been described, for illustrative purposes, in its application to roll padding, it is to be understood that it is not limited to such use but may be applied to other purposes wherein a flexible heat-resistant fabric may be desired.

From the above description it will be apparent that there is thus provided a construction of the character described, possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, and arrangement of parts, without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention is described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. A padding for rolls wherein the padding material is secured upon the roll by a winding of cloth enclosing the body of padding material characterized by a layer of metallic wool fibers interposed between successive turns of the cloth winding and interknitted tie strands uniting the body of metallic wool into a compact form.

2. Padding material consisting of a

knitted fabric including a succession of parallel rovings formed of elongated massed metallic fibers and a plurality of transversely disposed metallic wires knitted about such rovings.

3. A metallic fabric consisting of a body of metallic wool into which are interknitted with each other a plurality of wire strands to form an elastic metallic fabric.

4. A metallic fabric comprising a knit metallic fabric consisting of a body of metallic wool into which are knitted a plurality of metallic wire strands, said metallic wire strands being formed into successions of interlocking loops enclosing portions of the metallic wool.

5. A metallic fabric comprising a plurality of wire strands and a succession of parallel rovings of metallic wool fibers, the wire strands being interknit about the metallic rovings into a fabric of substantially uniform thickness.

6. A metallic fabric comprising a body of metallic wool fibers and tie strands interknit about portions of the metallic wool body to retain said body in predetermined form.

7. A metallic fabric comprising a succession of parallel strands, each consisting of a multitude of substantially parallel filaments of metallic wool and a series of spaced wire strands extending transversely of the strands of metallic wool and interlaced therebetween, thereby binding the parallel strands of metallic wool into a form retaining body of predetermined thickness.

8. A metallic fabric comprising a succession of individually separable strands of metallic wool each composed of a multitude of metallic filaments extending in substantially parallel relation and a series of transversely disposed tie strands uniting the strands of metallic wool one to another into a continuous flat form retaining fabric.

9. The herein described method of forming a metallic fabric, consisting in arranging a succession of parallel rovings of metallic fibers into a fabricated layer and knitting about such parallel rovings a succession of transversely disposed tie wires.

In testimony whereof, I have hereunto set my hand this 23 day of February, A. D. 1928.

CHARLES EDWARD GALVIN.