

UNITED STATES PATENT OFFICE.

CHARLES MCBURNEY, OF ROXBURY, MASSACHUSETTS.

IMPROVEMENT IN THE MANUFACTURE OF DRESSING-ROLLS.

Specification forming part of Letters Patent No. 53,465, dated March 27, 1866.

To all whom it may concern:

Be it known that I, CHARLES MCBURNEY, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Dresser-Rolls and in the Preparation of the Semi-Elastic Compounds thereof; and I hereby declare the following to be a full, clear, and exact description of the same.

I have invented a rubber compound possessing the requisite properties for dresser-rolls and like purposes, which I designate by the name of "semi-elastic rubber," and which, to my knowledge, has not been used for the purpose of covering rolls or for similar purposes.

Dresser-rolls have been made of metal or soapstone covered with woolen cloth, of soft vulcanized rubber, and of vulcanite or hard rubber. All of these are defective, and their continued use is open to objections.

The rolls are used always by pairs, the yarn to be dressed passing between them as they revolve for the purpose of pressing all surplus dressing off, and in order to do this the more effectually it is necessary that one or both of the rolls should have a slightly elastic surface. To obtain this surface a fine woolen jacket or covering has been tried on the rolls. These coverings become saturated with the starch or dressing, rot, require frequent renewal, and consequently are very expensive. Soapstone rolls soon become indented by the thread or yarn, thus requiring frequent polishing, and wearing out very soon. The vulcanite is too hard, besides being very expensive, thus excluding its extensive application. Metal rolls covered with soft vulcanized rubber have been tried; but the objections to these are the extreme elasticity of the rubber and its liability to decompose from the action of the starch becoming very soft and sticky. What is required is an inexpensive material to cover iron rolls with, possessing a limited amount of elasticity, which will resist the action of the starch, which is sometimes acid, and has a decomposing influence on most fibrous materials.

That my invention may be understood and used by those skilled in the art of manufacturing rubber goods, I will give in detail a full and complete description of the compound and the mode of covering and finishing the rolls.

The compound is as follows: Twelve pounds of gum, twelve pounds rubber, coated rags, or

trimmings, such as always abound in rubber-factories, fifteen to twenty pounds flour of sulphur, four to six pounds oxide of zinc or other metallic oxide used in manufacturing rubber compounds. These materials are then ground or mixed into one mass by any of the usual methods of treating gum. The composition is then rolled out into sheets of any required thickness. Multiplied thicknesses are then wrapped onto the iron or other metal rolls till the required size is obtained. Several plies of cotton or linen cloth are wrapped tightly around the roll for the purpose of keeping it in the desired shape during the heating or vulcanizing process. The roll thus covered is then submitted to this process of heating by steam, the heat lasting from two to four hours at a temperature of from 250° to 275° Fahrenheit. By this process the compound is firmly attached to the iron rolls and the required hardness is obtained. It is then turned in a lathe or ground by emery-wheels to a perfectly uniform and given size and to a smooth though not polished surface. Thus is produced a roll possessing a limited amount of elasticity capable of resisting the action of acid, starch, or other solvents, also having the very desirable qualities of squeezing out all the surplus dressing in a more perfect manner than any of the rolls heretofore used, and of not flattening the yarn.

I do not claim the covering of rolls with vulcanized rubber; nor do I claim the heating process; nor do I confine myself strictly to the proportions of ingredients above given, as they may be varied more or less.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The covering of metal rolls with a semi-elastic vulcanized-rubber compound for dresser-rolls and for similar purposes, as set forth.
2. As a new article of manufacture, rolls for dressing yarn and other like purposes, composed of a metal shaft or roll covered with a semi-elastic vulcanized compound having the properties requisite to operate as herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

CHARLES MCBURNEY.

Witnesses:
H. H. MCBURNEY,
JAMES WILSON.