A. A. Taylor.

Drawing and Evening Rolls.

No. 41,030. Patented Dec. 22, 1863.

Fig. 1.

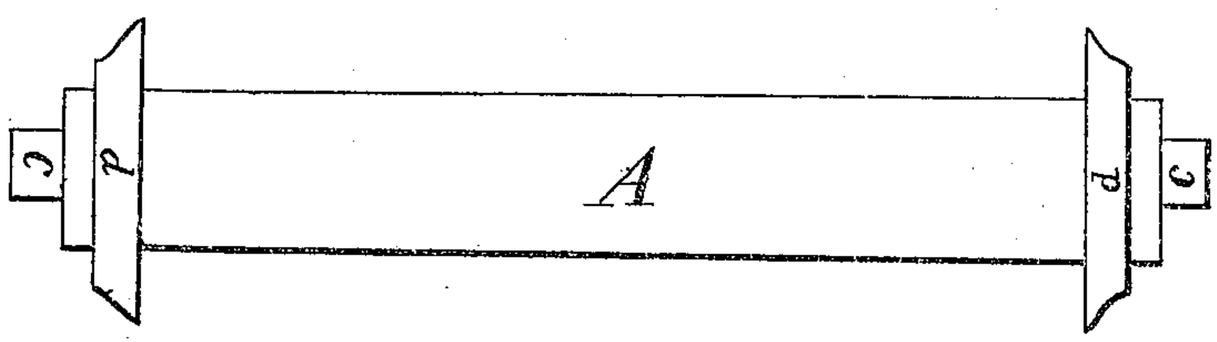
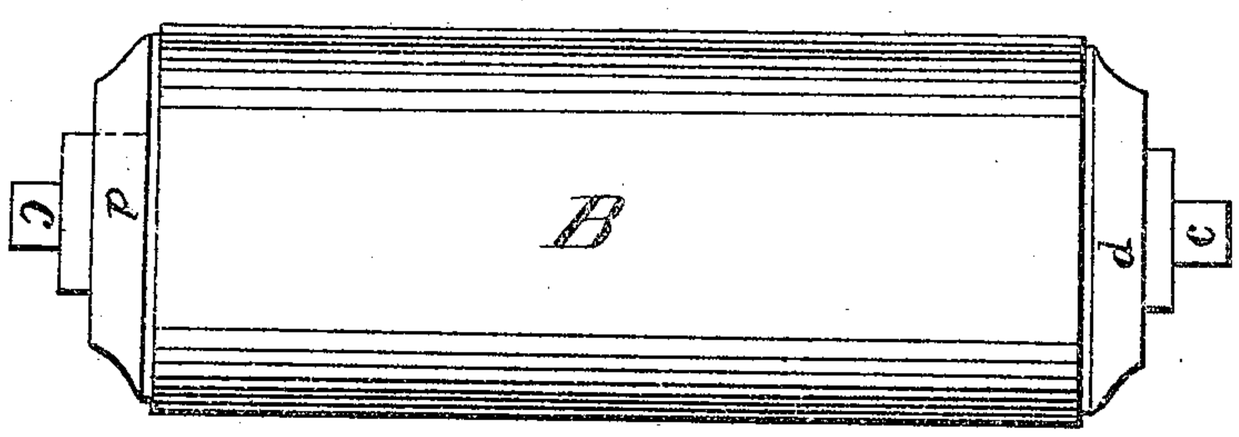


Fig. 2.



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UNITED STATES PATENT OFFICE.

AMOS A. TAYLOR, OF NEW YORK, N. Y.

IMPROVEMENT IN ROLLS FOR SPINNING YARN, &c.

Specification forming part of Letters Patent No. **41,030**, dated December 22, 1863.

To all whom it may concern:

Be it known that I, AMOS A. TAYLOR, of the city and State of New York, have invented a new and useful improvement in the method of preparing rolls used in spinning and preparing yarn for the manufacture of cloth and other purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 represents a shaft or spindle with flanges and bearings, and Fig. 2 represents a roll when finished.

Similar letters are used in both figures to designate similar parts; but, as there are a variety of rolls used in the process of manufacturing, both the shaft and form of roll must be varied.

My invention relates to rolls used in spinning and preparing fibrous materials for the manufacture of cloth and other purposes; and it consists, chiefly, in forming such roll around a shaft or spindle in such a manner as to present a hard, smooth outer surfaces impervious to oils and other substances in or added to the materials operated on, and at the same time be elastic and yielding.

Rolls prepared as heretofore by winding strips of cloth around a shaft or spindle and a separate band of leather or other material over the body thus formed cannot be made so as to possess the uniform elasticity required, and, besides, rolls thus prepared, as well as rolls made of india-rubber, like those described in and constructed under the patent granted to Dan Read, are affected by the oils and other substances in or added to the materials to be manufactured, and the consequence is that the surfaces of the rolls soon become rough and creased, rendering them useless. The method hereinafter described obviates all these defects and produces complete rolls, having a hard smooth surface impervious to the oils and other substances aforesaid, and a uniform elasticity in every part required.

The construction and operation is as follows: A, Fig. 1, is a shaft or spindle. *c c* are bearings for connecting the roll with the machinery or frames; and *d d* are flanges, which may be used or not, as they can be dispensed with. B, Fig. 2, is a roll complete. The form of the shaft of course will be varied to accommodate the style of roll desired, and may be of iron or other suitable metal, or of wood. The rolls are formed by winding uniformly around the shaft or spindle A strips composed of gutta-percha or other fibrous or globular gums, (other than india-rubber,) sulphur, and other substances well known to persons skilled in the art of preparing such gums for vulcanization, and may consist of a series of such strips previously prepared in thin sheets, or may be of one piece of sufficient thickness to form the roll. When thin strips are used, they must be wound around the shaft evenly and smoothly until a sufficient thickness is obtained, and when flanges are used until the whole rises slightly above the outer circumference of the flanges, and so as to fill the entire space between the flanges, the strips being cut to the proper width for that purpose, and in forming the roll without flanges of course the strips are to be of the width required by the length of the roll. I have found by experimenting that the best mode of forming these rolls is to first wind around the shaft or spindle strips of the compound prepared in sheets until a sufficient body is obtained, and over this wind one or more layers of the compound, also prepared in sheets, with an increase of the proportion of sulphur in it. The under layers or body of the roll, as before stated, should be of a compound with less sulphur in it than that of which the outer layer is composed, so that in vulcanizing the main or under body will remain elastic or yielding, while the outer surface is hard and firm, the elasticity being diminished under the action of the heat in vulcanizing in proportion to the increase of sulphur in the compound. After the roll is thus formed the whole composition is vulcanized by applying the proper degree of heat in a manner well known in the business of vulcanizing like compounds until the outer surface attains the rigid condition required, which in the composition used by me is about 270° Fahrenheit; but this will be varied according to the proportions of sulphur in the compounds. When vulcanized, should the surface not be sufficiently smooth for the purpose to which the roll is to be applied, it may be made so by turning, grinding, or buffing.

I do not wish to be understood as confining my invention to forming the rolls around a shaft or spindle, as they may be formed around a shell or hollow cylinder in like manner and the shell or cylinder slipped on the shaft or spindle.

Having thus described said rolls and the method of preparing them, what I claim as my invention, and desire to secure by Letters Patent, is—

1. Preparing rolls for spinning and preparing yarn for the manufacture of cloth and other purposes of gutta-percha or other fibrous or globular gums (other than india-rubber) compounded and prepared as aforesaid.

2. Obtaining by the aforesaid means a surface impervious to oils and other substances in or added to the materials to be spun or manufactured, combined with the inner elasticity, as and for the purpose described.

AMOS A. TAYLOR.

Witnesses:
PETER VAN ANTWERP,
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DAN READ.