D. R. Pratt.

Drawing and Evening Spinning.

No. 5,434. Patented Feb. 8, 1848.

Fig. 1.

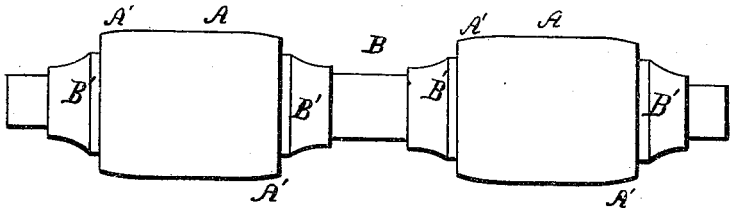


Fig. 2.

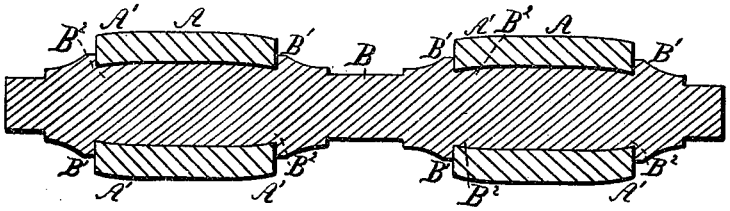
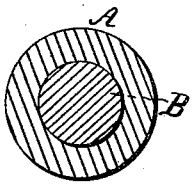


Fig. 3.



UNITED STATES PATENT OFFICE.

DANIEL R. PRATT, OF WORCESTER, MASSACHUSETTS.

DRAWING-ROLL FOR SPINNING MACHINERY.

Specification of Letters Patent No. 5,434, dated February 8, 1848.

To all whom it may concern:

Be it known that I, DANIEL R. PRATT, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in the Manner of Constructing the Top Roll Used in Cotton-Spinning and other Machinery, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a plan of the top roll, showing the metallic and india rubber portions combined. Fig. 2 is a longitudinal section of ditto. Fig. 3 is a cross section of ditto.

Similar letters refer to corresponding parts in the several figures.

The surface of the top drawing roll as at present used is very defective, inasmuch as it wants that degree of elasticity that is necessary for a perfect and universal draft on the cotton passing under it—being a covering of leather which becomes hard by use; and consequently requires frequent repairs—is liable to rot—to separate where joined; particularly in moist or damp weather—unequal elasticity of surface, being hard in some places and soft in others—and when it becomes hard it requires more weight to produce the required draft on the cotton than when first applied—affects the machinery throughout by the additional friction caused by the additional weight—injures the quality of the thread and reduces the elasticity of the cloth coverings on the roll which are placed beneath the external leather coverings. Besides each layer of cloth requires to be glued and the external leather covering is glued at the ends.

My improvement is designed to remove these evils. I effect the object by making use of a hollow cylinder A of vulcanized india rubber and combining it with an iron rod B having on its periphery shoulders B′ turned, or cast, for confining said elastic cylinder and preventing its moving endwise. The said vulcanized india rubber cylinder possesses that degree of elasticity to admit or allow of its being expanded and slipped over the shoulders and then contracts to the diameter of the roll between said shoulders, to which it will adhere by reason of its contractile force or nature without slipping. It also possesses that elasticity requisite to a proper draft on cotton and to produce an even draft.

The covering of the roll will be more durable. It will require no repairs, will not be affected by heat or cold and will not be liable to cut the thread and will produce a more profitable roll to the manufacturer—enabling him to make the metallic portion of the roller of smaller diameter and the elastic portion or external covering of the roll of the required diameter to produce the desired size of the roll by which a considerable weight of metal and consequent friction is dispensed with. The rolls thus covered are not so liable to crease by contact with the fluted rolls as when covered with leather. In fact such material will not crease so as to remain in creases, owing to their elastic nature.

Condensing cylinders, or rolls, used in the manufacture of wool, and rolls used in the machine for dressing, sizing and drying yarn, in the manufacture of wool and cotton, may be covered with the above named materials. And in order to draw down the ends of the covering material as seen at A′ Fig. 1 to prevent the corners of the rolls coming in contact with the fluted cylinders and the consequent wearing of the corners of the elastic covering and winding up and breaking the cotton on the roughened ends, grooves B^2 may be turned on the peripheries next the shoulder B′ and the ends of plain cylinders beveled off for the same purpose.

The metallic cylinders to be covered may be made hollow or solid.

The thread made by these rolls will be less liable to break; and consequently less attendance will be needed, and will be of a more even size and otherwise of a superior quality.

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

The invention of covering all kinds of drawing rollers intended to operate upon wool or cotton roving or yarn, with hollow cylinders of vulcanized india rubber in the manner and for the purpose herein set forth; the ends of the elastic contractile covering being lessened in diameter at the ends by beveling the ends of the metallic cylinder and grooving next the shoulders.

DANIEL R. PRATT.

Witnesses:

WM. P. ELLIOT,

ALBERT E. H. JOHNSON.