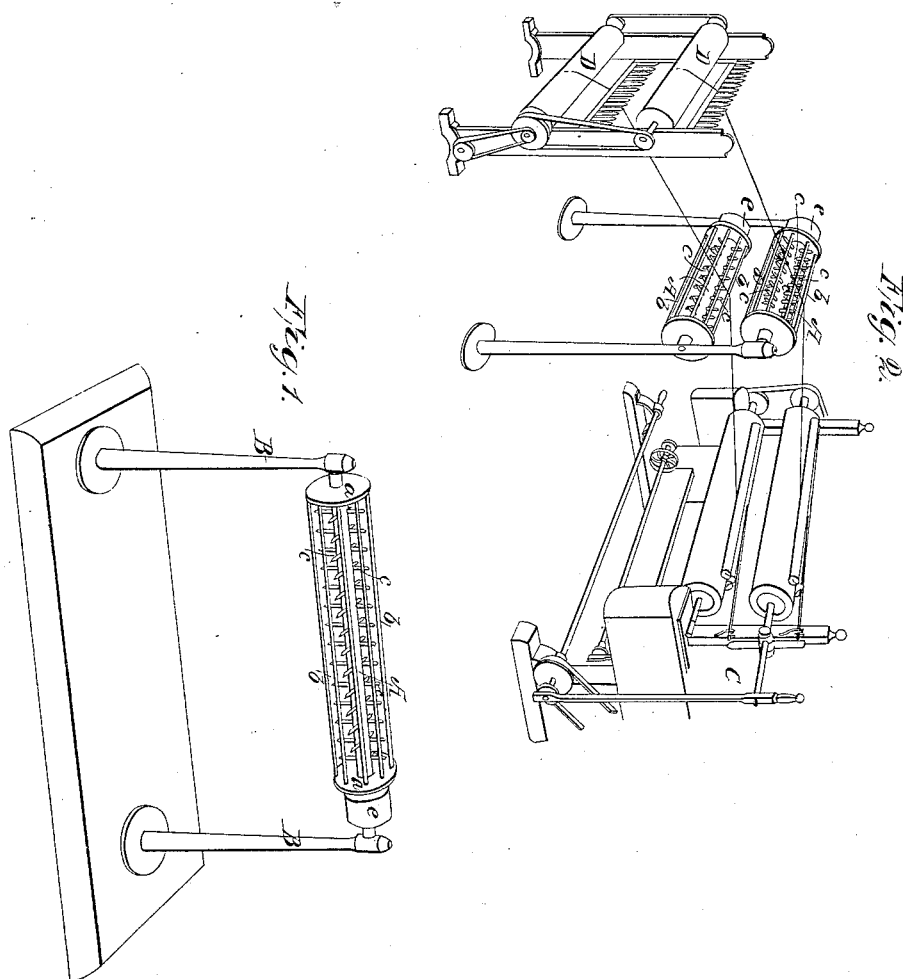


J. METCALF.  
WOOLEN MANUFACTURE.

No. 7,671.

Patented Sept. 24, 1850.



# UNITED STATES PATENT OFFICE.

JOSEPH METCALF, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN REMOVING ELECTRICITY FROM WOOL IN THE PROCESS OF MANUFACTURE.

Specification forming part of Letters Patent No. 7,671, dated September 24, 1850.

*To all whom it may concern:*

Be it known that I, JOSEPH METCALF, of the city and county of Worcester, and State of Massachusetts, have invented a new and useful Improvement in the Woolen Manufacture, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my apparatus, and Fig. 2 a similar view of the same as applied to a carding-machine.

It is a well-known fact that when wool is passed through a carding-machine electricity is copiously developed in its fibers, which causes them to diverge from each other. This tendency to diverge is generally counteracted by the free use of oil, of which a considerable quantity is used. As a considerable expenditure of labor and alkali is required to remove this oil, it is evident that any method by which it can be dispensed with, in whole or in part, will effect a saving not only in the first cost of the article, but in the cost of removing it from the yarn.

My improvement in the woolen manufacture consists in the discovery of a method of preventing the divergence of the fibers of wool by electricity without the employment of oil for that purpose. This method consists in the removal of the electricity from the wool by suitable conductors, which may be formed and arranged in various ways to suit different circumstances.

To exemplify the manner in which my discovery can be reduced to practice, I will proceed to describe the manner in which a rotary conductor may be constructed and applied to remove electricity from the rovings as they pass from a carding-machine to the spools. This apparatus consists of a reel, A, constructed of some good conducting substance. It is

formed of two heads, *a a*, secured to a horizontal shaft at a distance apart about equal to the width of the carding-machine to which the apparatus is mainly to be applied. These heads are connected by rods *b*, between which pointed spines *c* are projected from the shaft. The latter terminates at each extremity in journals which turn in bearings supported on conducting-standards B B, which convey the electricity to the ground. One or more of electric conductors thus constructed are interposed between the carding-machine C and the spools D, on which the rovings are to be wound, the rovings being conducted over the reel. The latter has a belt-pulley, *e*, secured to its shaft, and is caused to revolve by a belt at such a speed that its periphery shall move at the same speed as the rovings lying upon it. As the carding progresses the electricity excited in the fibers of the wool by the action of the carding-machine is conducted off by the rotary electric conductors before the rovings are spooled; and hence as the diverging force is removed the fibers lose their tendency to diverge from each other, and the roving, when wound upon the spool, is smooth, compact, and symmetrical.

I claim as my improvement in the manufacture of wool—

The removal of electricity from its fibers substantially in the manner and for the purpose herein set forth, but irrespective of the form, arrangement, or construction of the apparatus by which such removal of electricity is effected.

In testimony whereof I have hereunto subscribed my name.

JOSEPH METCALF.

Witnesses:

WM. S. BARTON,  
CHAS. E. STAPLES.