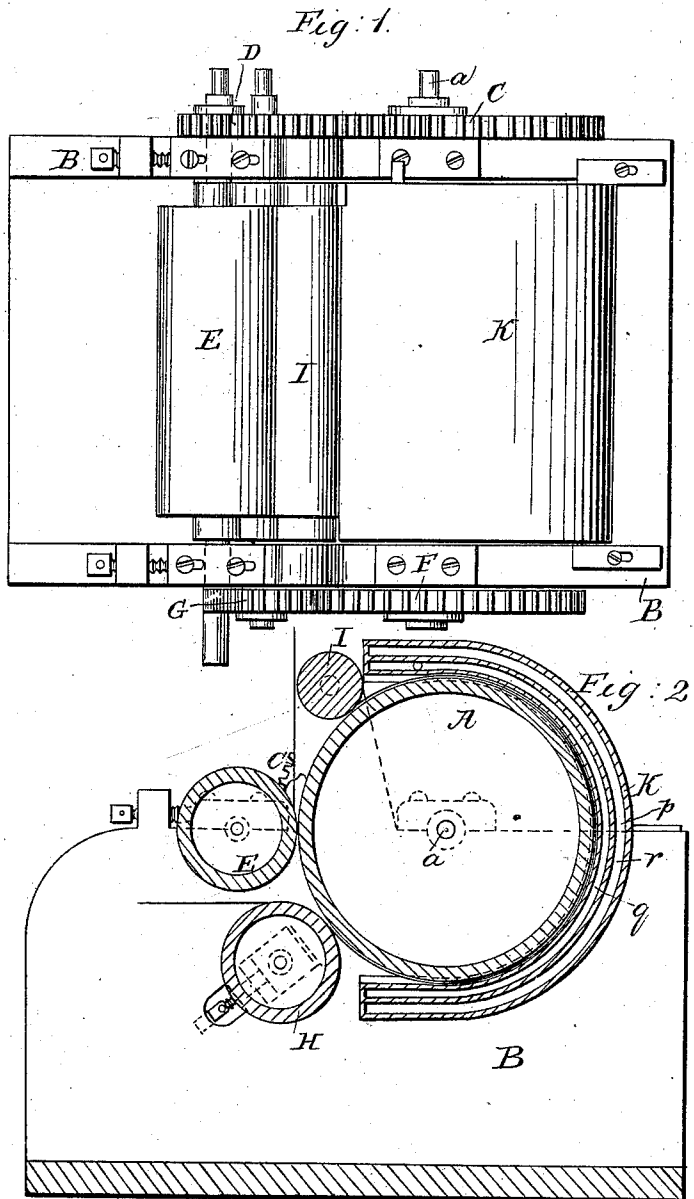


COBB & HILL.  
Making Rubber Fabrics.

No. 80,809.

Patented Aug. 11, 1868.



Witnesses

*S. N. Piper.*  
*A. P. Hale Jr.*

Inventors.

*J. W. Cobb & E. A. Hill*

*by their attorney*  
*R. H. Eddy*

# United States Patent Office.

JOHN W. COBB, OF MELROSE, AND EDWIN A. HILL, OF QUINCY, MASSACHUSETTS.

*Letters Patent No. 80,809, dated August 11, 1868.*

## IMPROVEMENT IN THE MANUFACTURE OF RUBBER AND OTHER COATED CLOTH AND FABRICS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that we, JOHN W. COBB, of Melrose, in the county of Middlesex, and EDWIN A. HILL, of Quincy, in the county of Norfolk, and State of Massachusetts, have invented a new and useful Machine for Coating Cloth with a Vulcanizable Material, such as caoutchouc or compositions of India rubber or gutta percha, and vulcanizing the coating; and we do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, and

Figure 2 a vertical section of the said machine.

In such drawing, A is the main cylinder of the machine, such cylinder being chambered, and having a passage, *a*, leading through one of its journals. Such passage is to enable steam to be introduced into the interior of the cylinder, for the purpose of heating it to a vulcanizing-temperature. The said cylinder is arranged within a frame, B, and has its journals supported in boxes in such frame, there being a gear-wheel on each of such journals. One of these gears, viz, C, engages with a pinion, D, fixed on the shaft of another but smaller hollow cylinder E, arranged in front of the main cylinder, and having a diameter somewhat greater than that of the said pinion. The cylinder E is also to be heated by steam let into it.

The other gear, viz, F, of the main cylinder, engages with a pinion, G, fixed on the journal of another hollow cylinder H, arranged below the cylinder E, and close to the cylinder A. The cylinder H should also have means for allowing steam to pass into it for heating it.

Above the cylinder A, is a roller, I, and there extends from such roller around the cylinder A, and nearly to the cylinder H, a hollow jacket or case, K, divided by a partition, *p*, into two shallow chambers *q r*. When the machine is at work, steam is to be let into the inner of the said chambers, the outer one being to contain air, and therewith operate as a means of preventing condensation of the steam by the external atmosphere.

The boxes of the cylinders E H are to be provided with adjusting-screws, by which the distance of the said cylinders from the main cylinder A may be either increased or diminished, as circumstances may require.

The outer curved surface of the cylinder E is to move faster than that of the cylinder A, in order to grind the rubber or caoutchouc between the two surfaces, and lay or spread it on the main cylinder, it being laid in the space between the two.

The sheet of cloth is to be run in upon the cylinder H, and thence between the cylinder A and its encompassing steam-jacket or case K, after which it goes between the cylinder A and the guide-roller I, and thence upward.

The cylinder H operates to press the cloth in contact with the rubber spread on the cylinder. It also heats such cloth and the rubber, and aids in effecting the vulcanization of the latter, which will be completed by the cylinder A and its steam-jacket.

We are aware that in machines for spreading rubber on cloth, it has been customary to warm the rollers by steam let into them, the temperature employed never having been sufficient to effect what is termed vulcanizing the rubber or caoutchouc composition, the vulcanizing of which has always afterward being effected by a different means.

What we claim as our invention, is—

The combination of mechanism for spreading rubber or a vulcanizable material on a surface or cylinder, and applying the coating to cloth, in manner as set forth, with mechanism for vulcanizing the coating of rubber or vulcanizable material, while it with the cloth may be passing about the surface or cylinder on which the rubber or said material may be spread.

We also claim the combination and arrangement of the steam-jacket or heater K, with the steam-heating cylinder A, and the two cylinders E H, arranged and connected so as to operate as and for the purposes specified.

We also claim the combination and arrangement of the air-protective space *r*, the steam-chamber *q*, and

the steam-cylinders A E H, arranged and connected, so as to operate substantially in manner and for the purposes as specified.

We also claim our process of applying rubber or caoutchouc or a vulcanizable material to cloth, and vulcanizing such rubber or material after such application of it, the same consisting in spreading the rubber or vulcanizable material on a cylinder, and forcing a sheet of cloth in contact with the coating so spread, and vulcanizing it while on the cloth, and while the latter with the rubber or vulcanizable material may be passed about the cylinder, such vulcanizing of the rubber or its equivalent being effected by heat applied to the cylinder or cylinders used in the process of spreading the rubber, as set forth, or to them and a steam-jacket, as described.

We also claim the process of making a sheet of rubber or vulcanizable material, and vulcanizing it, the same consisting in spreading the rubber or material on a cylinder by means as described, and vulcanizing the rubber while on such cylinder by heat produced therein, by means of steam let into it, as set forth, or into it, and a steam-jacket arranged with it, as specified.

JOHN W. COBB,  
EDWIN A. HILL.

Witnesses:

R. H. EDDY,  
F. P. HALE, Jr.