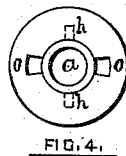
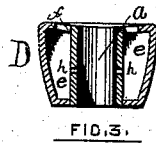
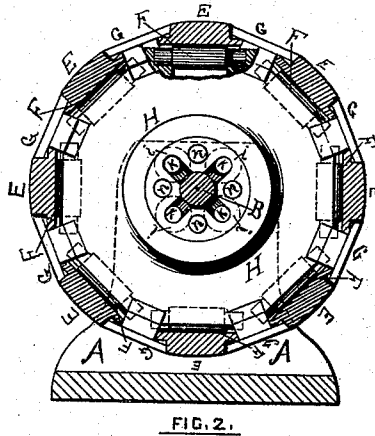
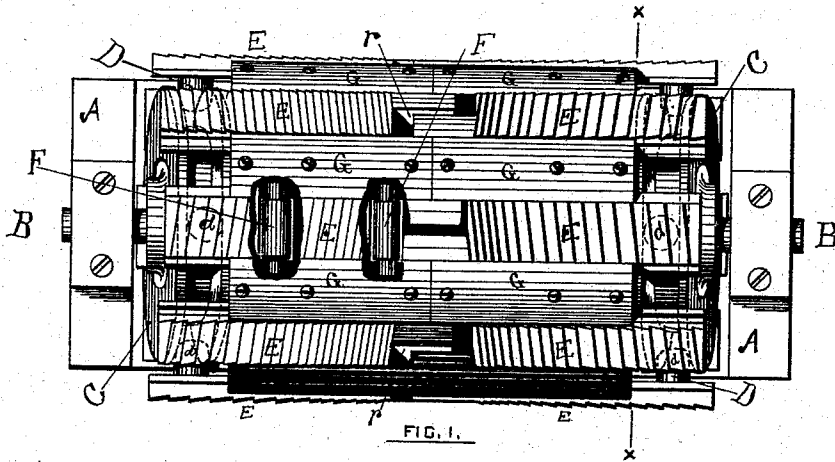


**C. A. LUTHER.**  
**Cloth Stretching-Machines.**

No. 156,643.

Patented Nov. 10, 1874.



WITNESSES.

*Thos. T. Barnesfield*  
*George H. Smith*

INVENTOR.

*Charles A. Luther*

# UNITED STATES PATENT OFFICE.

CHARLES A. LUTHER, OF PAWTUCKET, RHODE ISLAND.

## IMPROVEMENT IN CLOTH-STRETCHING MACHINES.

Specification forming part of Letters Patent No. 156,643, dated November 10, 1874; application filed June 18, 1874.

*To all whom it may concern:*

Be it known that I, CHARLES A. LUTHER, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain Improvements in Machines for Stretching Cloth, of which the following is a specification:

My said improvements relate to a method of constructing said cloth-stretching machines which shall reduce to a minimum the friction incident to the operation of such machines. Said improvements consist principally in placing suitably-sized rollers underneath all the sliding parts of said machines, and in such manner that these said parts shall pass over said rollers, instead of dragging along upon a metallic base or in wooden slides.

The accompanying drawing is hereby made a part of this specification, and exhibits one of said cloth-stretchers with my said improvements thereto attached.

Similar letters of reference in said drawing indicate corresponding parts.

Figure 1 of said drawing is a top view of said device, with parts of one of the teeth-bearing strips of metal torn away to show the rollers underneath the same. Fig. 2 is a transverse vertical section of said device on the line *x x* of Fig. 1. Fig. 3 is a vertical section of the truck which I use in said device; and Fig. 4 is a horizontal section of the same.

A A indicate the wooden frame-work of the machine, and B the central stationary shaft, on which the entire device revolves. C C are stationary cams, one at each end of the machine, by which, in combination with the trucks D D, the desired lateral motion is imparted to the sliding teeth-bearing strips, hereinafter described. The dotted lines indicate the parts of these cams which are concealed from view in the completed machine. D D are the trucks, to which the teeth-bearing strips aforesaid are attached by the bolt *d*, and which, revolving in the cams C C, communicate the sliding motion to said strips. E E are the teeth-bearing strips aforesaid; and F F are the rollers on which said strips are carried during the sliding motion, hereinafter described. G G are stationary metallic strips, placed alternately between the strips F F. H is a barrel or cylinder, on the outer side of which is the circu-

lar metallic frame-work which supports the parts E G, and which affords bearings for the rollers F. The interior of this barrel or cylinder contains the stationary shaft B, and also contains internal rollers *i i i i*, placed between said stationary shaft and the inner surface of the cylinder or barrel H. *h h h h* are the shafts or centers, on which the rollers *i i i i*, respectively, revolve. *n n n n* are connecting-rods running from end to end of the interior of said cylinder or barrel. The truck D has the bolster or bushing *a* running through, and cast in its center, between which and the walls of said truck is a chamber, indicated by *e*. From the top of said truck there are openings into said chamber, as shown at *f*, and there are also longitudinal or oblique passages from said chamber through the bushing, as seen at *h*. The bolster *a*, carried by or in said truck, revolves around the bolt *d*; the chamber *e* is filled with packing saturated with oil, and the passages *h* afford a ready communication, through which the oil is conveyed to lubricate the bolt *d*. The bolster *a* has two lugs, *o o*, cast on its outer sides, by which it is secured in the truck aforesaid. Through the openings *r* may be seen parts of the circular iron frame-work which affords bearings for the rollers F, and which supports the outer shell formed by the alternate stationary and sliding strips E G.

The general operation of these devices is well known, the cloth being passed over the sliding teeth-bearing strips E at the time when these strips are being drawn outward by means of the trucks D and the stationary cams C. As heretofore constructed, these sliding strips have rested immediately on slides attached to the iron frame-work which supported them. In the improved device herein described this frame-work is so modified in form as to receive and afford bearings for the rollers F. The teeth-bearing strips rest on said rollers, and, when passing backward and forward, as aforesaid, are carried by the revolutions of said rollers, and with only a minimum amount of friction. In the barrel or cylinder H rollers *i i i i* are inserted, so that when said cylinder turns around the stationary shaft B it is easily and smoothly carried by the revolutions of said rollers with only a minimum amount of friction.

The method of constructing the truck D, herein shown and described, is intended to obviate the difficulties attending the old form of truck, chief of which is the very irregular and deeply-grooved surface to which the bolt *d* is speedily reduced in operating the machine, resulting in an irregular and uncertain operation of the entire device. The insertion in said truck of the bolster or bushing *a*, provided with the longitudinal or oblique passages *h*, is found to accomplish the end sought; there is complete lubrication of the bolt *d*, and said bolt, being surrounded by the even and uniform interior of said bushing, is not subject to the irregular wearing away and grooving of its surface. Instead of the subsequent insertion of the bushing *a*, the said truck may be cast whole, entirely of any desired metal, with the oblique or longitudinal passages *h*, the chief object to be attained being the preservation of an even and continuous surface in the interior of the core or center and still have the truck and bolt self-lubricating. The large reduction of friction attained by the means shown and described is a very important element in the operation of these devices. For, in stretching cloth, it is often desired that the stretch shall be wholly in the width, and not

in the length. But, as these devices have been heretofore constructed, the greater the pressure resorted to to obtain the required amount of lateral stretch the greater the amount of friction encountered; and the resistance incidental thereto places in the length of the cloth much of the stretch that is desired in the width. The improved devices herein shown and described so materially reduce the friction and resistance that the lateral stretch is secured without increasing the length of the cloth.

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

1. In cloth-stretching machines or calender-stretchers, the combination of the rollers F with the sliding strips E, and with the truck D, constructed as set forth, and all in the manner and for the purposes substantially as shown and described.

2. The chambered truck D, constructed as described, and its combination with the bolt *d* and sliding strips E, for the purposes and in the manner substantially as set forth.

CHARLES A. LUTHER.

Witnesses:

THOS. P. BARNEFIELD,  
GEORGE H. SMITH.