(No Model.)

B. M. PLUMMER.

BELT STRETCHING MACHINE.

No. 394,008. Patented Dec. 4, 1888.

Fig. 1.

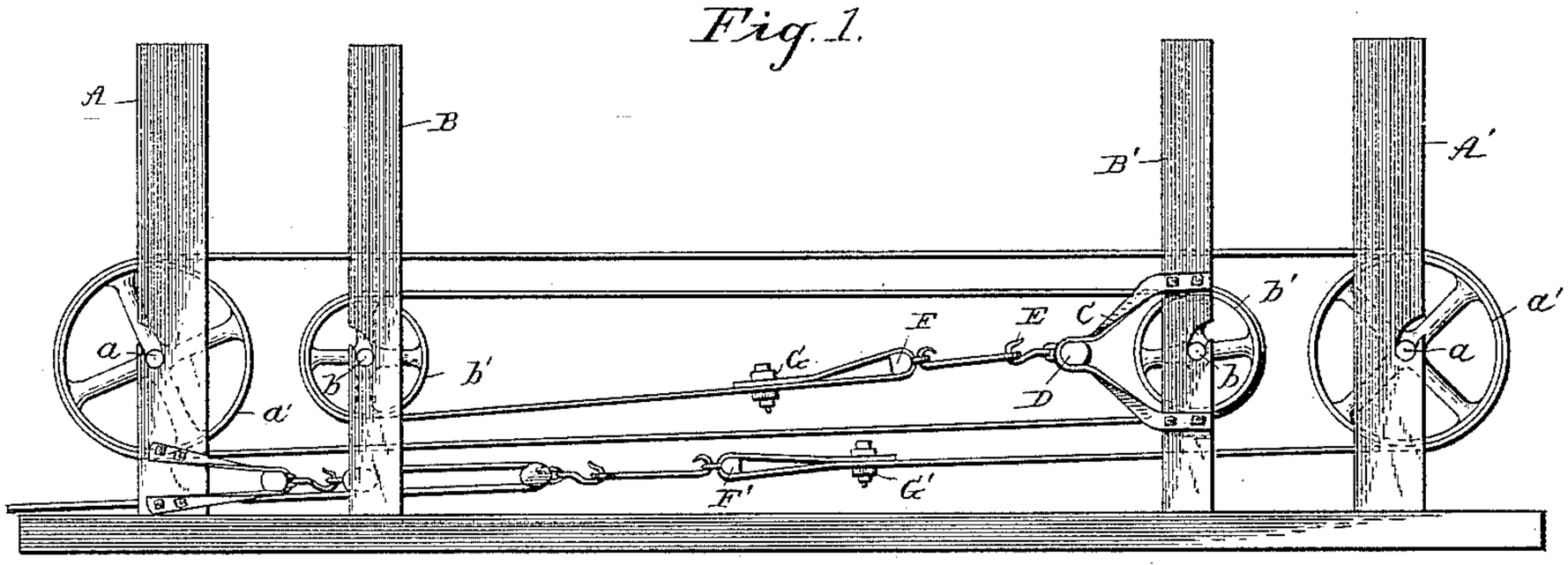


Fig. 2.

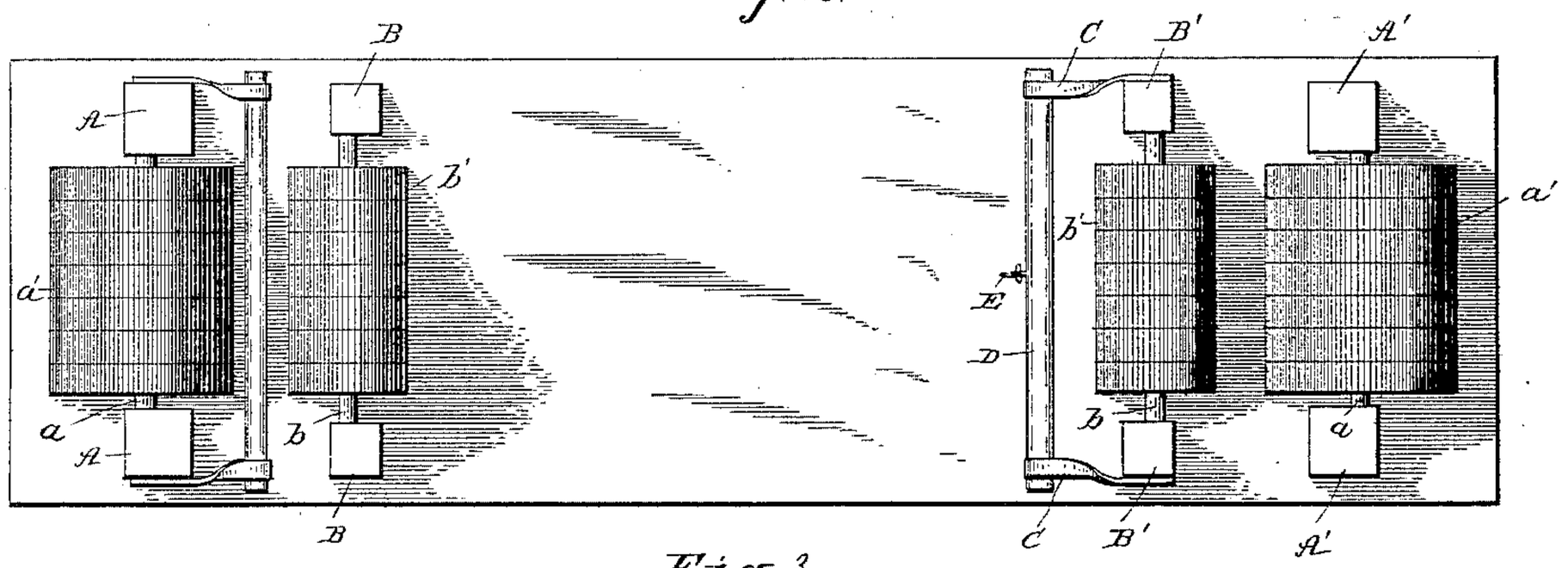
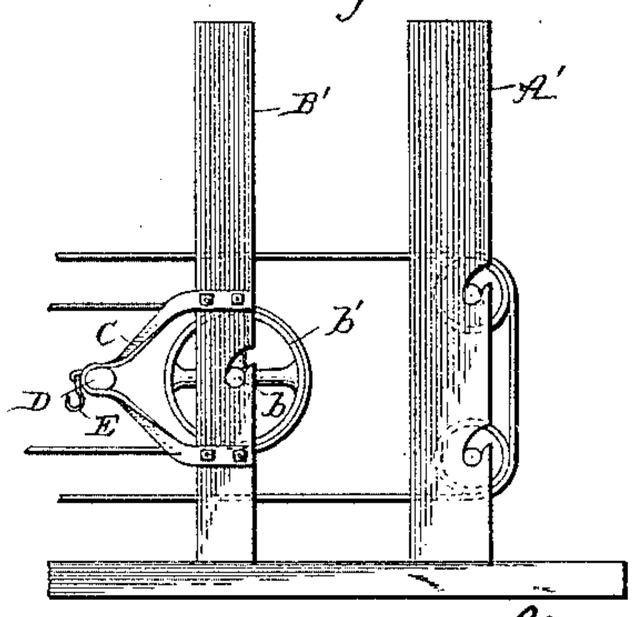


Fig. 3.



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UNITED STATES PATENT OFFICE.

BENJAMIN MURRAY PLUMMER, OF PHILADELPHIA, PENNSYLVANIA.

BELT-STRETCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 394,008, dated December 4, 1888.

Application filed September 26, 1888. Serial No. 286,420. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN MURRAY PLUMMER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Belt-Stretching Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to belt-stretching machines for taking the stretch out of belts in the manufacture of the same.

It is now well understood that in the manufacture of cotton or canvas belts the elasticity or stretch amounts to from ten to fifteen per cent. of its original length. It has therefore become important to stretch the belt to its limit of expansion and hold it there until set, to save and utilize the increase of length, which would otherwise be lost. This practice also relieves the user from the necessity of "taking up slack," formerly so frequently required with new belts. Machines of various kinds having series of rollers upon which belts are strung back and forth have been devised for taking the elasticity out of belts prior to putting them into use. In these machines the belt is fastened at one end of the frame, then stretched across the length of the frame around a roller at the other end, then back around another roller, and so on back and forth until the length of the belt has been taken up, and then a tension device, consisting of block and tackle or other means, is applied to the end of the belt to strain it and exhaust the stretch. The rollers in these machines are arranged one above another, and thus the machines take up an enormous amount of space.

My invention is intended to overcome this difficulty; and it consists in utilizing the space between the rollers, which has heretofore been left wholly vacant, by having rollers of varying diameters between those of the larger diameter. By this means the belt is subjected to the same straining that it receives in the older machines, but space is largely economized.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side view of my machine, showing a belt in the act of being stretched. Fig. 2 is a plan of the loose pulleys over which the belt passes and the shafts upon which they are mounted, and Fig. 3 is a view of a modification.

A A′ are supports or standards, and B B′ are similar supports or standards within the former, upon which are mounted the horizontal shafts *a b*, carrying the loose pulleys *a′ b′*. Rigidly connected to the standards B′ are brackets C, at the ends of which is connected the bar D. This bar is provided with a hook or hooks, E, as shown. The ends of the belt are folded upon themselves over bars F F′ and secured by means of suitable clamps, G G′. The standards A are provided with brackets, bars, and hooks similar to those described as being upon the upright B′. The pulleys *b′* are somewhat smaller in diameter than the pulleys *a′*, and therefore, as shown, may be placed between the two larger pulleys, and thus occupy the space usually vacant. This I consider my greatest advantage over similar devices which have preceded mine. Instead of one large pulley at each end, it is obvious that rolls or pulleys, as shown in Fig. 3, may be used, the object being to provide for leading a part of the belt back and forth over and around another part of itself without contact.

To operate my stretching device, one end of the belt is firmly secured to the standard B′ by means of the hooks upon the rods E and F. The belt is then led around the two pulleys *b′ b′*, thence forward and back around pulleys *a′ a′*, and is finally connected to the standard A, preferably by means of the block and tackle and hooks shown. Suitable power is applied at one or both ends until the belt becomes taut, when it is allowed to stand for a time, and the operation is repeated until the belt has been drawn out to its ultimate elasticity, become set, and all tendency to react has disappeared from the fabric.

It will be observed that by my arrangement of pulleys space is largely economized. It will be also observed that the same side of the belt is always next to the pulleys, thus avoiding the zigzag of other machines.

I do not confine myself to any definite num-

ber of pulleys, as it is obvious that any number more than two will bring one or more pulleys within or between the outer set, and thus contribute to the end sought.

Having now described my invention, I claim—

1. In a belt-stretching machine, the combination of three or more rolls or pulleys supported in suitable frame-work and having parallel shafts or axes, the outer rolls or pulleys being of greater diameter than those interposed between them, whereby a length of belt may be stretched around itself, thus taking up a minimum of space.

2. In a belt-stretching machine, the combination of two or more pairs of pulleys of different diameters supported in suitable frame-work, the outer pulleys being of greater diameter than the inner pulleys, as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN MURRAY PLUMMER.

Witnesses:
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