

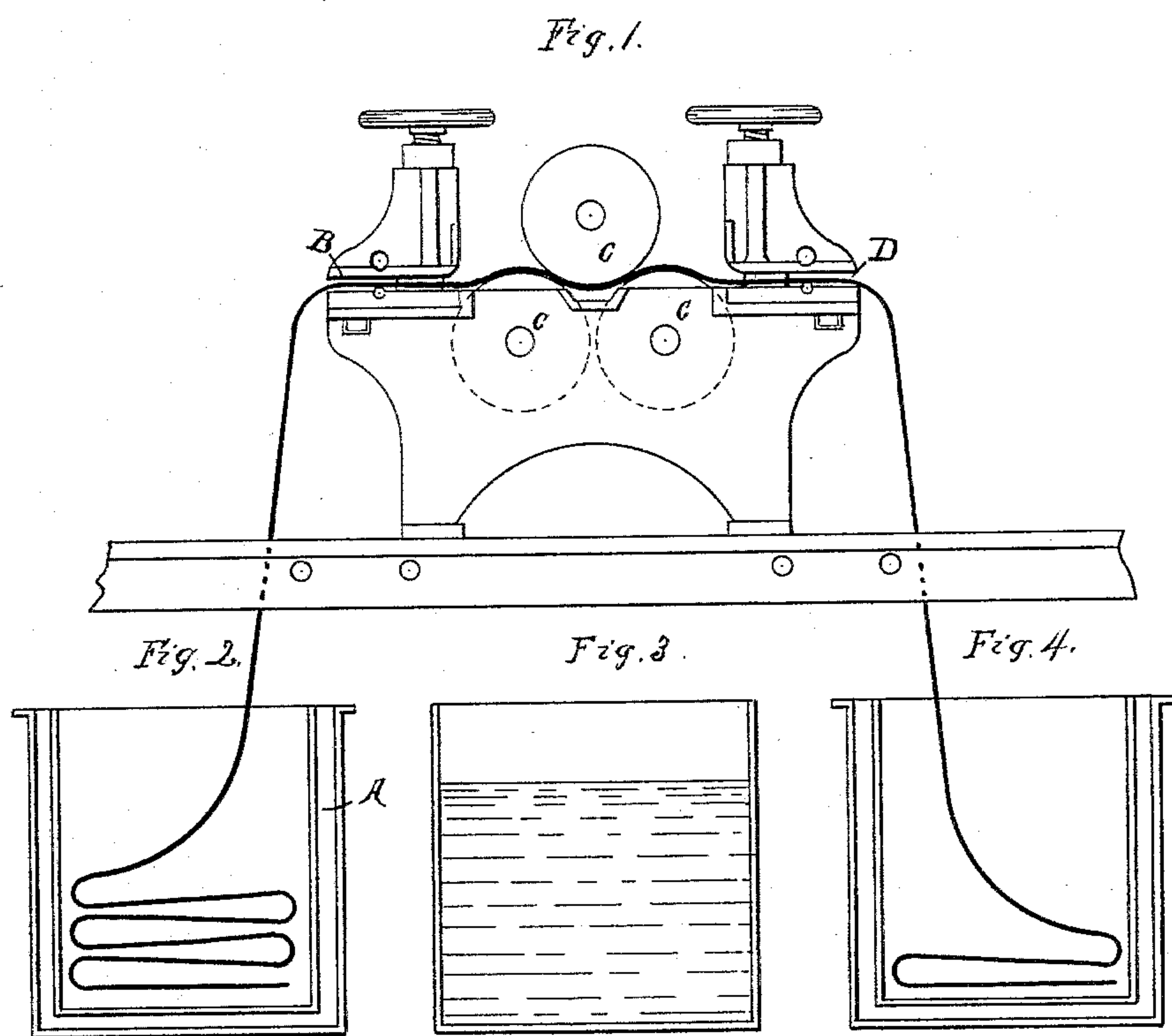
(No Model.)

2 Sheets—Sheet 1.

M. GANDY.
MANUFACTURING TEXTILE BELTS.

No. 331,958.

Patented Dec. 8, 1885.



Witnesses
James R. Taylor
J. H. Miller

Inventor.
Maurice Gandy
Attest: [Signature]

(No Model.)

2 Sheets—Sheet 2.

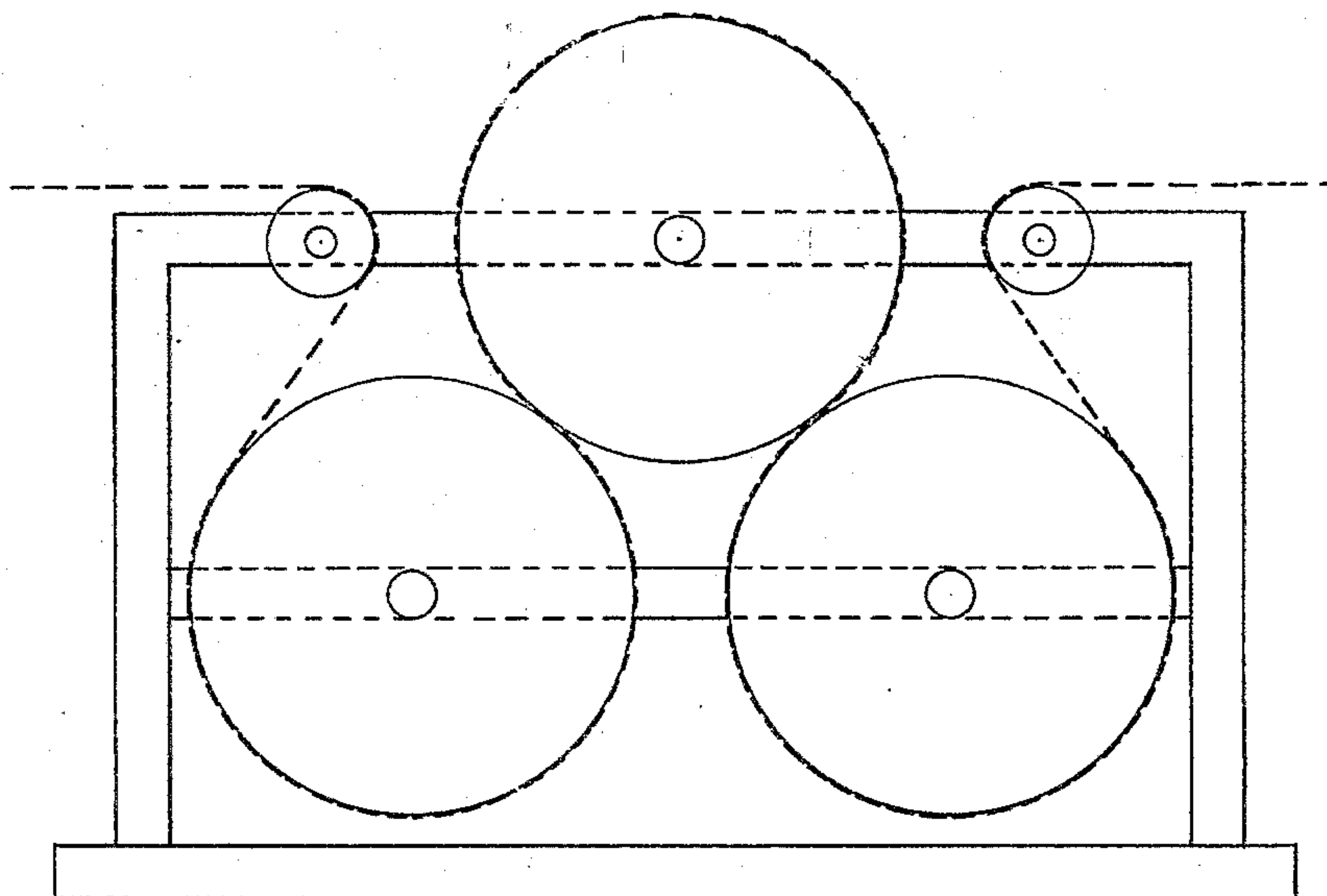
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Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

MAURICE GANDY, OF LIVERPOOL, ENGLAND.

MANUFACTURING TEXTILE BELTS.

SPECIFICATION forming part of Letters Patent No. 331,958, dated December 8, 1885.

Application filed May 16, 1885. Serial No. 165,772. (No specimens.)

To all whom it may concern:

Be it known that I, MAURICE GANDY, a subject of the Queen of Great Britain, residing at Liverpool, England, have invented certain new and useful Improvements in the Method of Manufacturing Textile Belts to be Used in Driving Machinery, of which the following is a description in such full, clear, concise, and exact terms as will enable any one skilled in the arts to which my invention appertains or with which it is most nearly connected to make and use the same, reference being had to the accompanying drawings, making part of this specification, and to the figures and letters of reference marked thereon.

Figures 1, 2, 3, 4, and 5 of said drawings are outline drawings of machinery and devices used in the practice of my said invention, as hereinafter described.

The object of my invention is to take the tensile elasticity out of textile belts and to render them proof against shrinkage and the absorption of moisture; and my said invention consists of the treatment of the belt or the textile material used in its construction during the fabrication of the belt, first, with heat sufficient to drive the moisture out of the texture, and then with oil sufficient to keep it out, the belt being stretched during heating and oiling to its maximum of tensile elasticity, by which the completed belt is rendered inert—that is, its tendency to draw back or shrink after being stretched is removed.

In the manufacture of textile belts it has been the practice to stretch them while in their normal state as to temperature and moisture, no attempt having been made of which I have any knowledge to heat the belt to drive out the moisture, and to stretch and oil it while it is still dry and hot. These belts as heretofore manufactured by myself and others, stretched and oiled while in their natural condition as to temperature and moisture, have a tendency to draw back or shrink to their normal length after the tensile strain is relaxed. While this does not injure the belt, it is nevertheless a source of no little inconvenience, necessitating, as it does, cutting and taking up the belt. Now, I have discovered that by thoroughly heating the belt sufficient to drive out the natural moisture of the fabric,

and by stretching and oiling it while in such heated and dry state, the belt is not only much more thoroughly stretched, but its tendency to shrink or draw back is removed, the moisture in this case being driven out and the tensile strain applied while the fiber is hot and dry and the fabric soft and pliable. The fibers and threads under the stretching strain become permanently set, while at the same time they readily absorb the oil, thus preventing the subsequent absorption of moisture, making the belt non-elastic and inert in the direction of its length.

In the practice of my invention I proceed substantially as follows: I take the belt as it comes from the loom or sewing-machine and coil it into a tank, Fig. 2, inclosed in a steam or hot-air chamber, A. In this chamber I apply the heat and continue it until the belt is well heated and the moisture driven out of the texture. I then pass one end of the belt under the nipper B at the left of Fig. 1 and pass it on between the rollers C C C and under the nipper D at the right of Fig. 1. The nipper B is then screwed down hard on the belt and the rollers put in motion, the nipper D being left open. By these means the belt is drawn by the rollers through the open nipper D into the tank, Fig. 4, also inclosed by a heated chamber, the same as in Fig. 2. The nipper B is then opened and the nipper D closed down hard on the belt. The rollers are then again put in motion, but in the opposite direction, by which means the belt is drawn through the nipper D and delivered again in the tank, Fig. 2, and so on from one tank to the other until it is thoroughly stretched and the moisture driven out of it.

The operation is very much expedited by introducing steam to the interior of the rollers C C C and the nippers D and B. The belt, after it has been passed and repassed between the rollers and nippers until it is thoroughly dried and stretched, is led directly from the stretching-machine into the oil-tank, Fig. 3, which may or may not be kept hot. I prefer to keep it heated, although I do not consider it essential to the success of the operation.

Instead of the tanks, Figs. 2 and 4, the belt may be heated by passing it over one or more heated rollers, as shown in Fig. 5; but this is

merely a modified method of practicing the invention, differing nowise in principle from that already described.

After the belt has been left long enough in the oil-tank to become sufficiently saturated with oil it is again led through the stretching-machine, or a machine substantially the same, for the purpose of expelling the surplus oil, after which it is dried and finished in the usual way.

It will of course be understood that Fig. 1 of the drawings is a mere diagram of the stretching-machine; but a full description of this machine will be found in United States Letters Patent No. 228,186, dated June 1, 1880, and also in Letters Patent No. 314,825, dated March 31, 1885, to which reference is made for a full description of the construction and operation of a suitable machine for the practice of this invention. It will also be understood that this invention is applicable not only to the stretching of laminated belts, such as are described in my aforesaid Patent No. 228,186, dated June 1, 1880, but also to what are known as woven belts—that is, belts that are woven in the loom to the desired width and thickness.

A modified method of practicing my invention is to heat the textile belting until it is in a fit state to be operated upon as aforesaid and by then placing it in a stretching-frame substantially such as is described in my United States Patents No. 269,519, dated December

26, 1882, and also in an application of mine now pending, filed September 2, 1884, bearing Serial No. 142,072, and stretching it as described in said patents until the fibers and threads are permanently set, and by then again heating it before passing it into the oil or other suitable saturating compound or material; or the belt may be put into the saturating-liquid as it comes from the stretching-frame without reheating it; but that is not so effectual as to treat it with the saturant while warm.

Another modification is to put the machinery in a chamber of proper size and construction, and heat it (the chamber) up to a temperature sufficient to evaporate the moisture and soften the texture and perform the whole operation in said chamber; but this plan is objectionable because it is inconvenient.

Having thus described my invention, I claim and desire to secure by Letters Patent—

The method substantially herein described of treating textile belts, which method consists of first submitting the belt to heating action substantially as set forth, then stretching it in a suitable apparatus, and saturating it in a suitable saturant while it is still hot and dry, substantially as described, for the purpose specified.

MAURICE GANDY.

Witnesses:

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