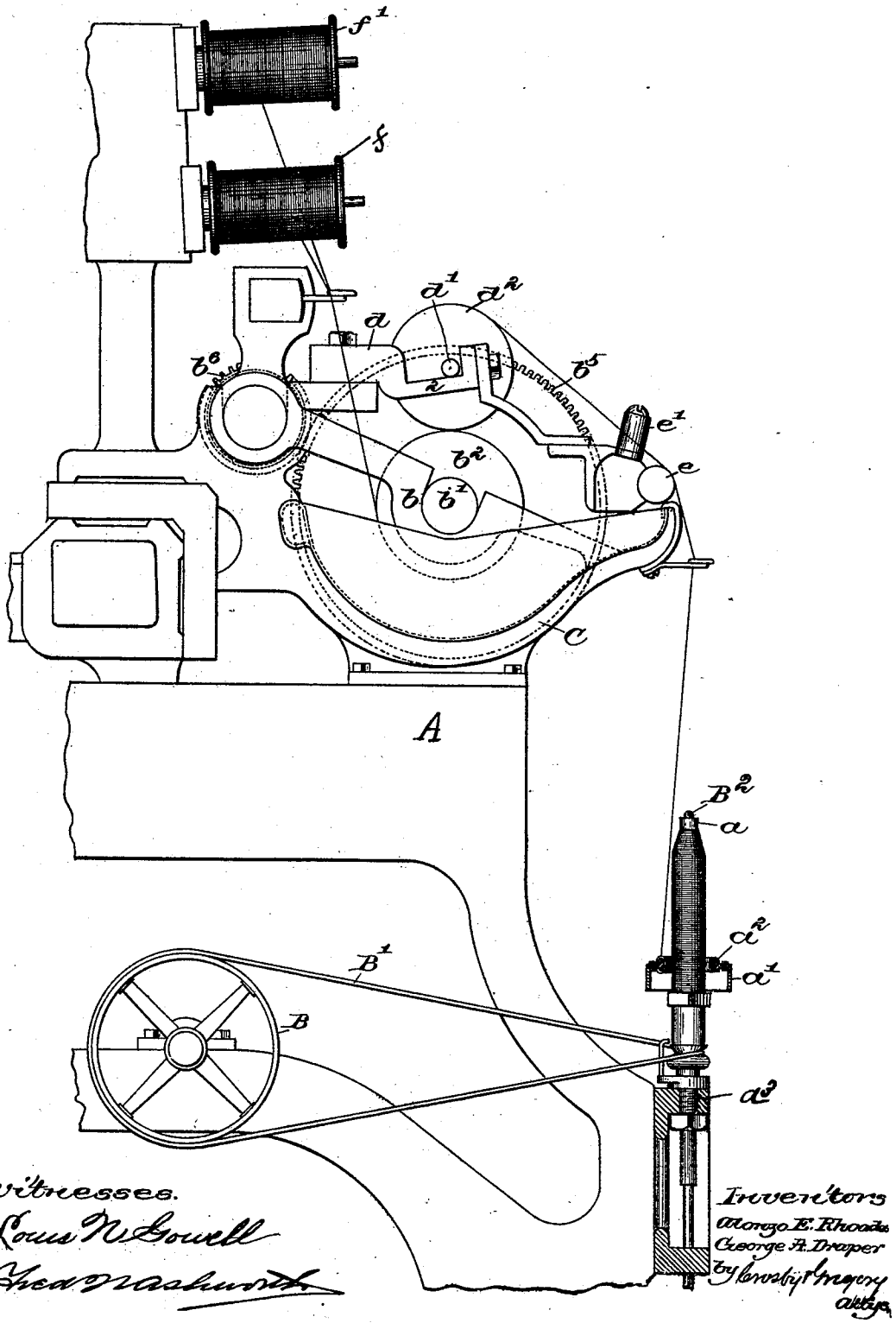
(No Model.)

A. E. RHOADES & G. A. DRAPER.

TWISTER ROLLS.

No. 513,826. Patented Jan. 30, 1894.



Witnesses.
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UNITED STATES PATENT OFFICE.

ALONZO E. RHOADES AND GEORGE A. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNORS TO THE HOPEDALE MACHINE COMPANY, OF SAME PLACE.

TWISTER-ROLL.

SPECIFICATION forming part of Letters Patent No. 513,826, dated January 30, 1894.

Application filed August 1, 1892. Serial No. 441,848. (No model.)

To all whom it may concern:

Be it known that we, ALONZO E. RHOADES and GEORGE A. DRAPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Twister-Rolls, of which the following description, in connection with the accompanying drawing, is a specification, like letters and figures on the drawing representing like parts.

This invention has for its object to improve that class of machine in which the yarn to be doubled and twisted is wet or moistened.

In our invention the bottom roll of a pair of rolls to deliver the yarn to the spindles is placed in a pan of water so that the said roll is kept from accumulating gum, and the upper roll of the pair resting on the yarns on the bottom roll is held in feeding contact with the bottom roll by the yarns when unbroken; but the journals of the upper roll rest on inclined bearing ways, and when a yarn breaks, the upper roll rolls down the said inclines and breaks contact with the bottom roll.

In our invention the rolls are kept free from gum, and consequently the end of the broken yarn will not stick to the rolls, and being free from gum one roll has no tendency whatever to stick to the other roll, and consequently the clean rolls are more delicate in their action, and the degree of inclination of the ways may be but slight for the journals of the upper roll and yet work with light weight yarn.

One part of this invention consists in the combination with a water box or pan and a pair of yarn delivery rolls, the bottom roll of the pair running in the water in the said box whereby the gumming of the roll and the consequent sticking of the upper roll thereto is practically obviated, of inclined bearing ways for the journals of the upper roll, whereby the said roll on the breaking of a yarn rolls down the said inclined bearing ways and further feeding of the yarns and entangling of the same are obviated.

The drawing shows in vertical section and elevation a sufficient portion of a doubling or twisting frame with our improvements added to enable our invention to be understood.

A is the frame-work; B the spindle driving drum; B′ the spindle band; B^2 a spindle rotated by the said band; *a*, a bobbin; *a′* a ring rail; a^2 a ring, and a^3 the spindle support. The frame has mounted upon it the water box or pan C, and above the said box or pan are suitable bearings *b* for the journals *b′* of the bottom roll b^3 so that the said bottom roll runs in the water in the box or pan, the yarn passing under the said roll being wet by the water or other fluid therein.

We have located above the arms *b*, inclined bearing ways or tracks 2 on which bear the journals *d′* of the upper delivery roll d^2. The delivery rolls in practice may be rotated in any usual or suitable manner, the roll b^2 in this present instance having on it a gear b^5 which is engaged and rotated by a gear b^6 driven from any suitable source.

In front of the delivery rolls is the usual glass rod *e*, and above and co-operating with it we employ side guides consisting of glass covered guide rolls *e′*. The yarn may at desired points be passed through suitable guide eyes. The yarns to be doubled or twisted are shown as taken from spools *f*, *f′*, under the bottom delivery roll b^2 located in the water in the water box or pan, where the yarn is wet, and the yarn is then led directly up above the bottom roll and back between it and the upper roll and up behind the upper delivery roll and over it and directly to the rod *e* and spindle. The combined strength of the two yarns when unbroken between the upper roll and spindle serves to hold the upper roll forward or in feeding contact with the bottom roll as shown in the drawing, but should a yarn or yarns break, the upper roll will by gravity roll down the inclined bearing ways, and in so doing, the frictional contact between the two rolls will be so far destroyed or lessened that they will cease to draw the yarn off from the spools, and further, the movement of the upper roll away from the bottom roll pulls back the broken end or ends.

While it is preferred to run the yarn up behind and over the top of the upper roll as shown, yet this invention is not limited to the particular run shown for the yarns, the gist of this invention lying in locating the bottom delivery roll in the water box or pan, and providing inclined ways for the upper roll where-

by the upper roll is free to retire from the bottom roll on the breaking of an end.

The doubling and twisting operation is greatly facilitated, and the quality of the yarn is improved by wetting the yarn while on the bottom roll and maintaining the yarn in contact with the delivery rolls until discharged therefrom to go directly to the spindle.

The box or pan may contain water or any other fluid commonly used in wet twisting.

It is of the greatest importance that the delivery rolls be kept free from gum, and this is a great trouble in machines wherein the water box or pan is located at a distance from the delivery rolls, but by locating the bottom delivery roll in the water it has been found that the delivery rolls do not accumulate gum and will not, therefore, present an adhesive surface to attract a broken end or enable one roll to cling to the other so as not to readily run down the inclined bearing guides.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination with a water box or pan and a pair of yarn delivery rolls, the bottom roll of the pair running in the water in the said box or pan whereby the gumming of the roll and the consequent sticking of the upper roll thereto is practically obviated; of inclined bearing ways for the journals of the upper roll whereby the said roll on the breaking of a yarn rolls down the said inclined guideways and further feeding of the yarns and entangling of the same is obviated, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALONZO E. RHOADES.
GEO. A. DRAPER.

Witnesses:
H. F. SEARLES,
E. T. ROSS.