

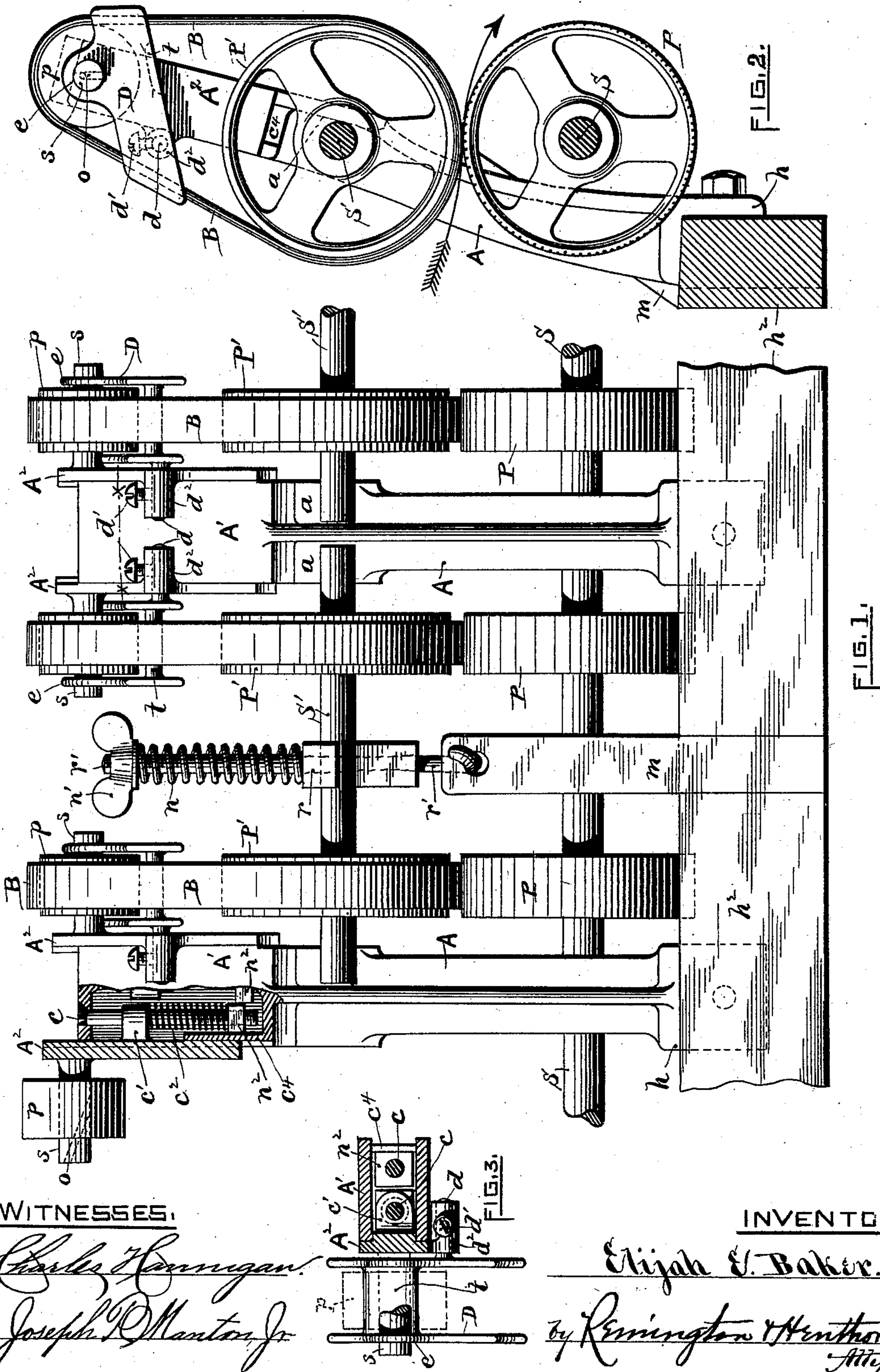
(No Model.)

E. E. BAKER.

DRAWING MECHANISM FOR SPINNING AND TWISTING MACHINES, &c.

No. 372,056.

Patented Oct. 25, 1887.



WITNESSES.

Charles Harrigan.
Joseph P. Manton Jr.

INVENTOR.

Elijah E. Baker.
by Remington & Henthorn.
Attys.

UNITED STATES PATENT OFFICE.

ELIJAH E. BAKER, OF CAMBRIDGEPORT, MASSACHUSETTS.

DRAWING MECHANISM FOR SPINNING AND TWISTING MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 372,056, dated October 25, 1887.

Application filed November 5, 1886. Serial No. 218,041. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH E. BAKER, a citizen of the United States, residing at Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Drawing Mechanism for Spinning and Twisting Machines, &c.; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in the drawing mechanism for spinning and twisting machines in which the yarn passes between a driven fluted roll or wheel and an endless belt working under tension; and it consists, essentially, in the novel construction of the head or frame carrying the top or idler pulley over which the endless belt passes, and improved means whereby the tension of the belt is regulated, so that in working the pressure upon the belt between the bottom and top pulleys is automatically and uniformly maintained.

It consists, finally, in the device for effecting the lateral adjustment of the belt and the top or idler pulley, all as will be more fully hereinafter set forth and claimed.

The object of the present invention is to provide spinning and twisting machines with means whereby the driving mechanism thereof is rendered more efficient, and at the same time to produce a superior quality of yarn.

Said invention is an improvement upon that shown in my United States Patent No. 326,538, of September 22, 1885.

In the accompanying sheet of drawings, illustrating my invention, Figure 1 represents a front elevation thereof as attached to the frame of a spinning and twisting machine, a portion of one of the top-roll standards being cut away to show the interior construction. Fig. 2 is a side view of the same as viewed from the right of Fig. 1, and Fig. 3 is a horizontal sectional view taken through the line X X of Fig. 1.

A detailed description of the several parts shown in the drawings may be given as follows:

h^2 designates a portion of the frame of a

spinning and twisting machine of ordinary construction, said frame having the roll-standards A secured thereto. S indicates a shaft extending along in front of said standards and having corrugated lower rolls, P, mounted thereon, as usual.

S' indicates a short shaft mounted above the shaft S, on which are secured the two top rolls, P'.

B designates an endless belt interposed between the surfaces of the top and bottom rolls, P' and P, said belt passing over a loosely-mounted pulley, p , connected with the belt's tension-regulating device.

The pressure upon the belt while passing between the rolls P P' is effected and adapted to be regulated by means of an arm, m , secured to the frame h^2 , having a screw-threaded stem, r' , hooked into its upper end. Said stem r' passes through a block, r , which in turn is hooked over the shaft S'. A coiled spring, n , surrounds the upper portion of the stem r' , and is confined between the thumb-nut n' and the block r , the same being constructed and operating as usual and as shown in Fig. 1.

The following description relates more particularly to the improvements hereinafter claimed.

The upper portion of the said roll-standard A is made rectangular and hollow, as at A', the same being open at opposite sides and provided with sliding end pieces, A², each of said ends having a fixed stem, s , extending outwardly at right angles therefrom, on which a pulley, p , is loosely mounted. A hole, o , drilled in said stem serves for the introduction of lubricating-oil to the hub of the pulley. Upon the opposite or inner face of said end A² is formed a lug, c' , which is drilled to loosely receive the screw-bolt c , the head of the latter being counterbored into the upper end of the roll-standard, while the lower or screw-threaded portion of the bolt is tapped into the square nut n^2 , which practically is about the same width laterally as that of the chamber in which it is adapted to vertically move. A coiled tension-spring, c^2 , is confined between said nut and the under side of the lug c' . The said sliding end A² is further provided with an elongated external ear, d^2 , which is longitudinally drilled and furnished with a set-screw, d' .

D designates an adjustable belt-guide, the same consisting of the two sides, (see Fig. 2, &c.) united at the lower edges by a tie, *t*, and having an ear or extension, *e*, drilled to receive the fixed stem *s* and inclosing the loose pulley *p*, before described. The side of the guide adjacent to the roll-standard is provided with a stud, *d*, which is adapted to fit into the drilled ear *d*² of the sliding end *A*², all as clearly shown.

The operation is as follows: The several parts having been arranged substantially as shown in Fig. 1, the pressure upon the belt *B* while passing between the top and bottom rolls, *P*¹ *P*, and also upon the fibers passing between the belt and the lower roll, *P*, (see arrow direction, Fig. 2,) is produced and adjustably maintained by means of the thumb-nut *n*¹, &c., before described. The belt is preferably made of leather, although other materials or compositions suitable for the purpose may be employed. The light coiled spring *c*² serves to maintain a uniform tension upon the belt between the loose pulley *p* and the upper roll, *P*¹, said spring being designed to just overcome the weight of the belt and the sliding end *A*², with its attached parts. If desired, however, the screw may be turned in the proper direction to increase the tension, or vice versa, thereby causing the nut *n*² to slide upwardly, and thus reduce the distance between the lug *c*¹ and the nut. An obvious advantage of this latter device is that, as the belt gradually lengthens by continuous service, the force of the spring *c*², acting upon the lug *c*¹, automatically presses the sliding end *A*², with its attached pulley, in an outward or upward direction and increases the distance between the said pulley *p* and *P*¹, and thereby prevents any "slip" of the endless belt. At times, also, the length of the belt *B* is materially changed by the varying temperature and humidity of the room in which it is running. By the use of my improved tension device the belt is automatically adapted to operate uniformly upon the fibers composing the yarn passing between the belt and pulley.

Heretofore when such elongation of the belt took place the latter often passed between the rolls in a "wavy" or "crimped" state, unless the attendant was very observant to detect and prevent it.

By means of my improved guide *D* the belt may be adjusted laterally much more readily than heretofore.

In view of the patent hereinbefore referred to, &c., I would not be understood as claiming, broadly, as my invention drawing mechanism having a device for regulating the tension upon the endless belt *B*.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is—

1. The combination, with the top rolls, *P*¹, and the endless belts *B*, of the standard *A*, the

oppositely-arranged pulley-carrying ends *A*², mounted to slide vertically in the head portion *A*¹ of said standard, and means, consisting of a screw-threaded bolt, spring, and nut, for moving said end pieces, *A*², in a vertical direction for the purpose of maintaining a tension upon the endless belt, substantially as shown and specified.

2. The combination, with the hollow head *A*¹, of the pulley-carrying sliding end *A*², having an inner lug, *c*¹, the bolt *c*, passing loosely through the said head and lug, the nut *n*², and the spring *c*², surrounding the bolt, substantially as shown, and for the purpose hereinbefore described.

3. The combination, with the spring-actuated frame end *A*², carrying the tension-pulley *p*, of the combined pulley and belt guide *D* and means, consisting of a stem secured to the guide, passing through an ear formed on the frame *A*², and a set-screw, *d*¹, for adjustably securing the guide to said frame end, substantially as shown and set forth.

4. The combination of upper and lower rolls, *P*¹ *P*, respectively, the standard *A*, the oppositely-arranged spring-actuated pulley-carrying end pieces, *A*², mounted to slide vertically in the head portion *A*¹ of said standard, loosely-mounted tension-pulleys *p*, stems *s*, on which the tension-pulleys are mounted, secured to said ends *A*², guides *D*, adjustably secured to the ends for retaining the pulleys *p* in position longitudinally of their stems *s*, and the endless belts *B*, running over the said pulleys *P*¹ *p*, substantially as shown and described.

5. The combination, with the standards *A*, having the tension-pulley-carrying and spring-actuated ends *A*² mounted thereon, and the belt-guides *D*, adjustably secured by screws *d*¹ to said ends, of the frame *h*², fixed lower rolls, *P*, upper rolls, *P*¹, endless belts *B*, passing over the upper rolls, *P*¹, and tension-pulleys, and means, consisting of an arm, *m*, block *r*, stem *r*¹, spring *n*, and nut *n*¹, for regulating the pressure upon the belt while passing between the rolls *P* *P*¹, the whole combined, arranged, and operating substantially as shown and hereinbefore set forth.

6. The combination, with the upper roll and endless belt of the drawing mechanism of a spinning and twisting machine, of a standard having a vertically-sliding end, a loosely-mounted tension or idler pulley, a stem secured to the sliding end, on which the tension-pulley is mounted, a spring mounted within the head of the standard and operating against said sliding end, and a bolt and nut for controlling the tension of the spring, substantially as hereinbefore set forth.

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

ELIJAH E. BAKER.

Witnesses:

ADAM W. MARTIN,
WM. H. MARTIN.