

No. 689,787.

Patented Dec. 24, 1901.

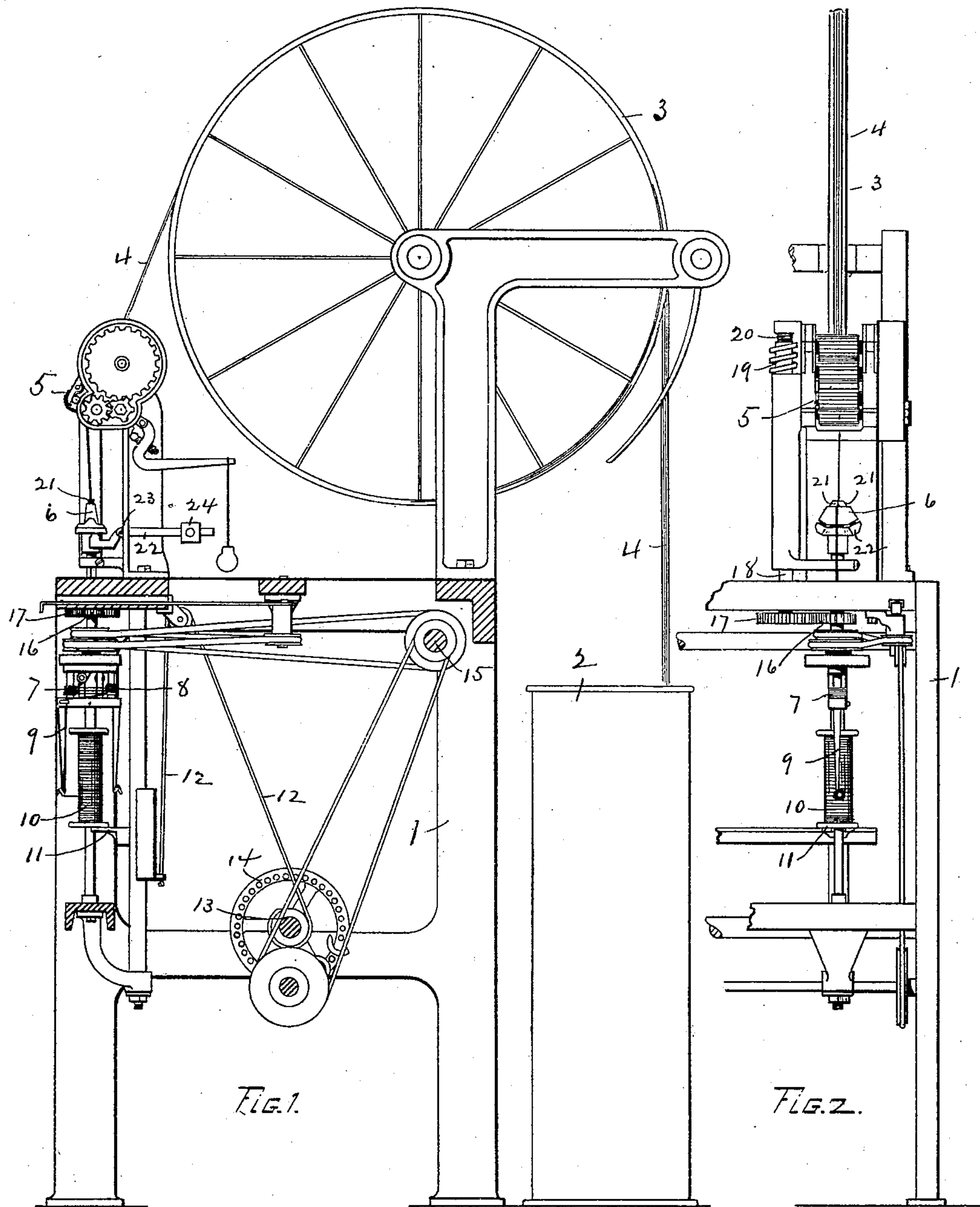
G. L. BROWNELL.

MACHINE FOR TWISTING COTTON SLIVERS.

(Application filed June 3, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

Samuel T. Hobbs.

Elizabeth Gray.

Inventor:

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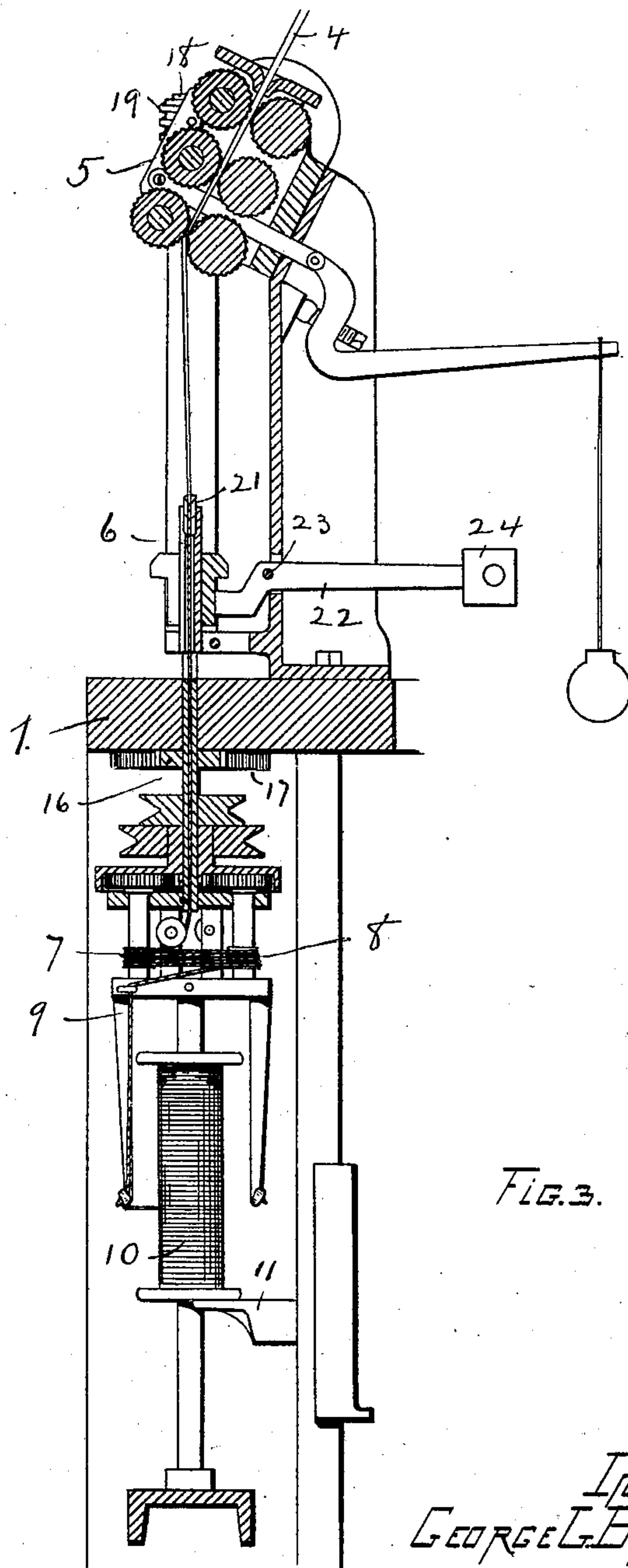


FIG. 3.

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UNITED STATES PATENT OFFICE.

GEORGE L. BROWNELL, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR TWISTING COTTON SLIVERS.

SPECIFICATION forming part of Letters Patent No. 689,787, dated December 24, 1901.

Application filed June 3, 1899. Serial No. 719,194. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. BROWNELL, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Machines for Twisting Cotton Slivers, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 represents an end elevation of a machine for twisting cotton slivers embodying my invention having a portion of the framework removed in order to disclose the operating parts. Fig. 2 is a front elevation of so much of the machine as is necessary to show the operating parts which act directly upon the sliver in the operation of twisting, and Fig. 3 represents an end elevation with the upper portion shown in central sectional view.

Similar reference-figures refer to similar parts in the different views.

The object of my invention is to provide an improved mechanism for twisting a cord or strand directly from a cotton sliver; and it consists in the construction and arrangement of parts, as hereinafter described, and set forth in the annexed claims.

Referring to the drawings, 1 denotes a portion of the supporting-framework; 2, a can containing the sliver; 3, a guide-wheel having a grooved rim over which the sliver 4 is conducted to a set of drawing-rolls 5, comprising three pairs of rolls, each pair having its speed slightly increased over the preceding pair, by which a draft is given to the sliver as it passes between the series of rolls.

From the drawing-rolls 5 the sliver 4 is conducted between the jaws of a compressor 6 and through the hollow journal-bearing of a flier-frame to a pair of scored stretching-drums 7 and 8, carried by the flier-frame, each of said drums having, preferably, a slight taper. The twisted strand is wound around the grooves of the stretching-drums from their smaller to their larger ends in order to slightly stretch the twisted strand, and from the stretching-drums 7 and 8 the strand is conducted to one of the arms of the flier-

frame 9, revolving around a winding-spool 10, held concentrically with its axis of rotation, upon which the twisted strand is wound.

The winding-spool 10 is supported upon a rail 11, having a rising-and-falling motion, by which the twisted strand is traversed or laid evenly upon the winding-spool. The rail 11 is given a rising-and-falling motion in the present instance by means of a flexible connection 12 between the rail and a drum 13, which is given a reciprocating rotary motion by actuating mechanism comprising a mangle-wheel 14. The flier-frame, winding mechanism, and stretching-drums are the same in construction and operation as those shown and described in Letters Patent of the United States No. 581,672, issued to me April 27, 1897, and both the flier-frame and stretching-drums are rotated by a belt connection from a driving-shaft 15, journaled in the framework of the machine. The spindle of the flier-frame is provided with a gear 16, which engages a gear 17 upon a vertical shaft 18, carrying at its upper end a worm 19, which engages a spur-gear 20, from which the several pairs of drawing-rolls 5 are driven at varying speeds in the usual and well-known manner.

As the construction and arrangement of the drawing-rolls 5 are the same as those now in common use in spinning machinery, I have not deemed it necessary to show or describe the same in detail.

The compressor 6 consists of a pair of jaws 21 21, sliding in oblique ways, with their upper ends grooved and in contact with the sliver as it passes between them and with their lower and divergent ends resting upon the forked end of the lever 22, pivoted at 23 and carrying a weight 24, by which the upper ends of the jaws 21 are pressed against the sliver, like the compressor shown in United States Patent No. 581,672, already referred to.

The drawing-rolls are positively connected with the flier-frame by means of the intermediate vertical shaft 18, and the speed of the stretching-drums is so timed relatively to the last pair of drawing-rolls that a slight tensile strain will be imparted to the sliver between the stretching-drums and the drawing-rolls.

The weight 24 is adjusted on the lever 22 to so regulate the pressure of the compressing-jaws 21 as to allow the sliver to rotate between the jaws and cause the twisting operation to take place as soon as the sliver is delivered from the last pair of drawing-rolls.

The speed of the drawing-rolls is adjusted relatively to the winding to give the requisite tension to the sliver during the operation of twisting, which takes place throughout the entire length of the sliver between the flier-frame and the drawing-rolls, and the pressure applied by the compressor is not enough to stop the rotation of the sliver, which is subjected to a twisting operation the entire distance between the flier-frame and the last pair of drawing-rolls.

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

In a machine for twisting a cotton sliver the combination of drawing-rolls, a flier-frame held at a fixed distance from said rolls, said rolls and said flier-frame having their speed adjusted whereby a tensile strain is imparted to the sliver between the drawing-rolls and the flier-frame and means for applying a pressure to the sliver between the rolls and the flier-frame without stopping the rotation of the sliver, substantially as described.

Dated this 27th day of May, 1899.

GEORGE L. BROWNELL.

Witnesses:

ELIZABETH GRAY,
RUFUS B. FOWLER.