No. 632,947. Patented Sept. 12, 1899.

F. P. RAND.

DEVICE FOR WEIGHTING ROLLS IN TEXTILE OR ANALOGOUS MACHINES.

(Application filed Apr. 3, 1899.)

(No Model.)

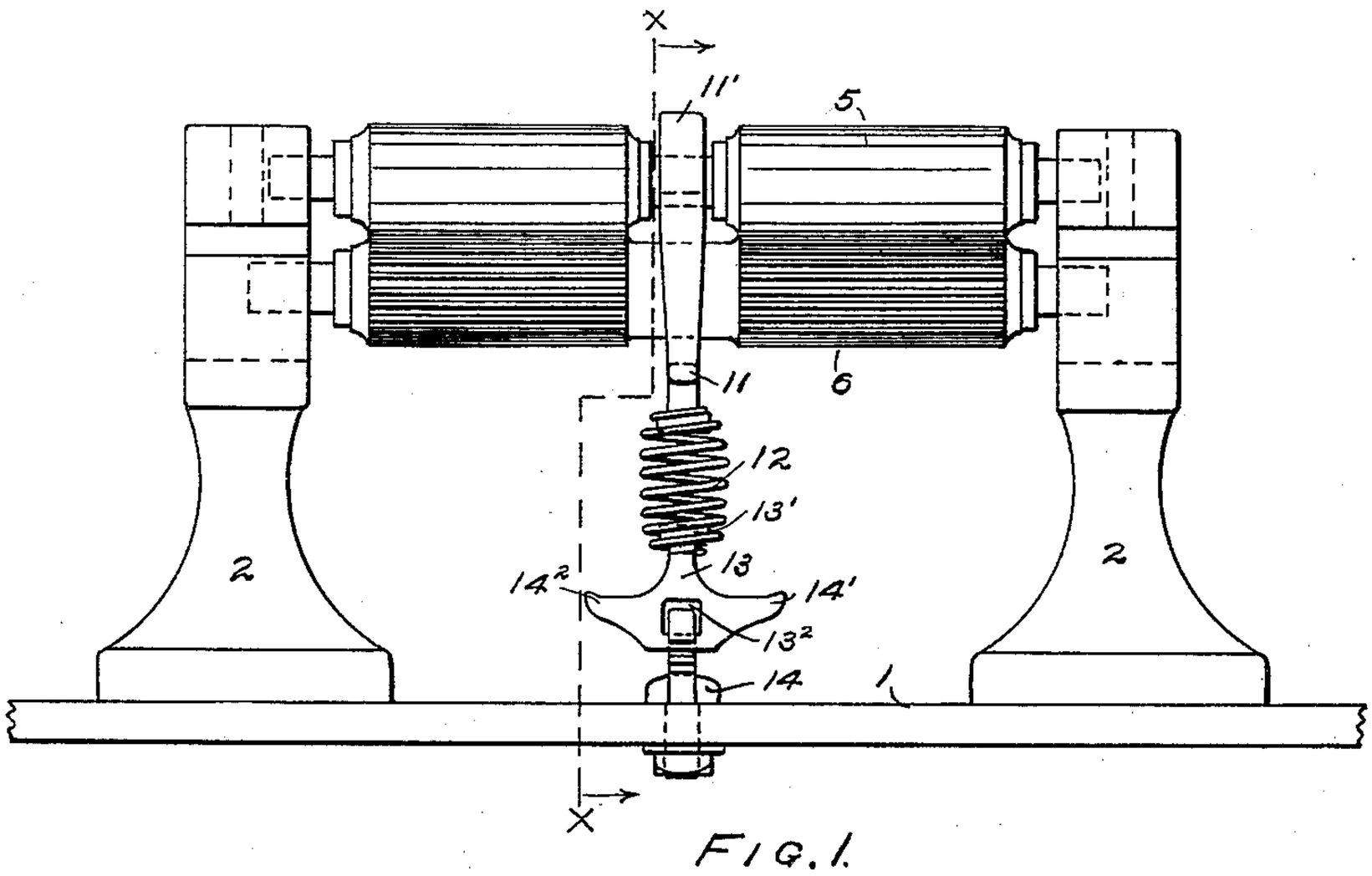

FIG. 1.

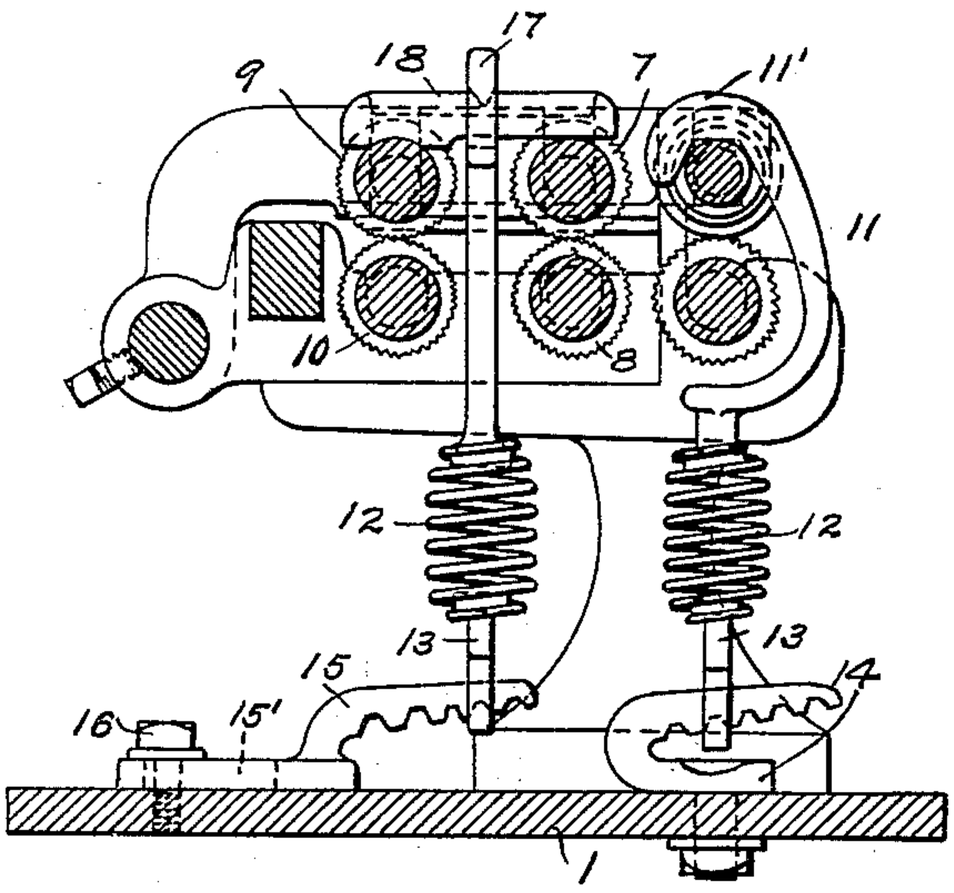

FIG. 2.

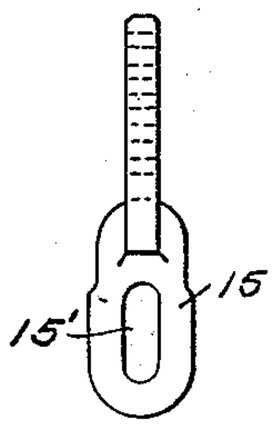

FIG. 3.

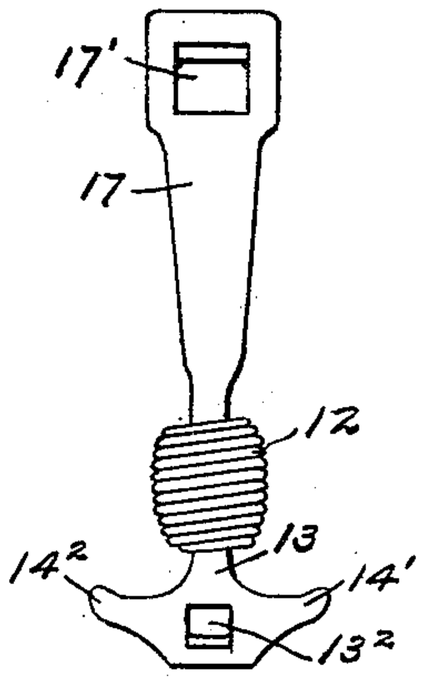

FIG. 4.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR WEIGHTING ROLLS IN TEXTILE OR ANALOGOUS MACHINES.

SPECIFICATION forming part of Letters Patent No. 632,947, dated September 12, 1899.

Application filed April 3, 1899. Serial No. 711,611. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN P. RAND, a citizen of the United States, residing in the city and county of Providence and State of Rhode Island, have invented a new and useful Device for Weighting Rolls in Textile or Analogous Machines, of which the following is a specification.

My invention is applicable to all textile and analogous machines in which the character and quality of the product is dependent in any wise upon the degree of pressure maintained between the rolls which immediately act upon the material of which such product is composed.

Heretofore in textile machines in which the material operated upon passes between rolls in the process of manufacture under a greater or less amount of pressure, dependent upon the character or quality of the product to be obtained, such pressure has been secured by the use of metal weights suspended from the top roll or rolls, the amount of pressure between the rolls being determined by the avoirdupois of the weight used. Such arrangement has necessitated the keeping on hand as a part of the machine equipment of a number of weights of different avoirdupois.

The purposes of my invention are to provide in textile and similar machines a compact and inexpensive means for readily adjusting and regulating the pressure of the rolls without the use of weights and for changing the degree of pressure at will. I accomplish the end desired by the novel construction, combination, and arrangement of parts hereinafter described and shown in the accompanying drawings, in which—

Figure 1 is a front elevation illustrating the manner of applying my invention to the front rolls of a machine. Fig. 2 is a section on the line $x\,x$ of Fig. 1, showing also the application of my invention to the rear rolls of a machine. Figs. 3 and 4 are detail views.

Similar reference-numerals indicate like parts where they occur in the drawings.

In the drawings I have shown simply a portion of the beam, the front and rear rolls, and their stands as the same are ordinarily arranged in a textile machine, as I consider this sufficient to properly illustrate and explain the construction, application, and operation of my invention. I have also shown my invention as applied to the rear as well as to the front rolls of such machine.

1 represents the beam of the machine upon which are secured in the well-known manner stands 2 2, in which are journaled in the usual way the front top and bottom rolls 5 and 6 and the rear top and bottom rolls 7 8 and 9 10.

The form of my invention as applied to the front rolls consists of a strap 11, provided at one end with a shank terminating, preferably, in a headed or enlarged portion, to which is secured one end of a coil-spring 12, and at its upper end terminating in a hook 11′, adapted for engagement with the top roll, Figs. 1 and 2. 13 represents a strap provided at one end, preferably, with an enlarged or head portion 13′, to which is secured the opposite end of said coil-spring 12, and at its opposite end, preferably, with an eye 13^2, adapted for engagement with a toothed or serrated hook 14, secured upon the beam 1. Said teeth are cut upon an incline and so graduated from point to back of the hook that by moving the eye 13^2 into engagement with one or another of said teeth the tension of the spring 12 can be increased or diminished, and thereby pressure equivalent to the weight required for the particular work in hand be brought to bear upon the top roll. For convenience in adjusting the eye 13^2 in the teeth of the hook 14 I provide laterally-extending thumb-holds 14′ 14^2.

The rear rolls because of their location in the machine are not so readily accessible as are the front rolls. I have therefore found it more convenient to use the form of hook shown in Figs. 2 and 3, in which the hook 15 overhangs its body portion, which is provided with an elongated slot 15′ and is adjustably secured upon the beam 1 by a bolt, as 16, passing through said slot and into the beam 1. I also for convenience of use in connection with the rear rolls modify the upper strap of the device by making said strap in flattened form, as 17, and providing the same with an eye 17′, through which is passed the

well-known saddle 18, which, as commonly used, rests upon two rear top rolls, Fig. 2.

The spring 12 is normally in the closed position, as shown in Fig. 4, and is distended when the device is in engagement with the rolls and serrated hook, Figs. 1 and 2. The serrated hook being graduated as to its teeth, as before stated, so that the tension of the spring 12 is increased or diminished as the strap 13 is caused to engage with one or another of said teeth, pressure equivalent to the force of said tension is brought to bear upon the rolls. In other words, the engagement of my invention with the rolls and serrated hook puts the spring under tension, thereby storing in said spring energy, which by means of the hook is so graduated as to maintain the required pressure between the rolls.

I claim as my invention—

1. In a textile or analogous machine in which the character or quality of the product is dependent upon the degree of pressure maintained between rolls which act formatively upon the material entering into said product, the combination with the top rolls and beam of such machine of a strap provided at one end with means for engagement with the top rolls, a second strap provided at one end with means for engagement with a serrated hook secured upon the beam of the machine, a coil-spring arranged to serve as a yielding spring connection between said two straps, and a graduated serrated hook secured upon the beam of said machine, and adapted to serve as a means for storing energy in said spring, and also as a means for graduating such energy to maintain the required pressure upon the rolls.

2. In a textile or analogous machine having a beam and top rolls, the combination with said parts of a strap 11, provided at one end with a hook, 11′, and at its opposite end with an enlarged or headed portion, a strap 13, provided at one end with an enlarged or headed portion, 13′, and at its opposite end with engaging means as an eye 13^2, and with laterally-extending thumb-holds 14′, 14^2, a coil-spring 12 adapted to be secured to the enlarged ends or headed ends of said straps to thereby form a yielding spring connection between the latter, and a graduated hook, as 14, secured upon the beam and arranged and adapted for engagement with the engaging means of the strap 13 and by such engagement to store energy in said spring and also to serve as a means for graduating such energy to maintain the required pressure upon the rolls.

3. In a textile or analogous machine the combination with the top rolls and beam, of a strap 11 provided with a hook 11′ at one end, a strap 13 provided at one end with an eye 13^2, a coil-spring 12 adapted to be secured to said straps 11 and 13 to thereby form a yielding spring connection between said straps, and a graduated hook 14 adapted for engagement with the eye 13^2 of the strap 13, and to serve in connection therewith as a means for storing energy in said spring, and also as a means for graduating such energy to maintain the required pressure upon the rolls.

4. In a textile or analogous machine having a beam and rear top rolls, the combination with said parts of a strap provided at its upper end with means for engagement with a saddle arranged for engagement with said rolls, a second strap provided at one end with means for engagement with a graduated serrated hook adjustably secured upon the beam of the machine, a coil-spring secured to said two straps and adapted to serve as a yielding spring connection between the same, and a graduated serrated hook adjustably secured to said beam and adapted to serve as a means for storing energy in said spring, and also as a means for graduating such energy to maintain the required pressure upon said rear rolls.

5. In a machine having a beam and rear top rolls, the combination with said parts of a saddle 18, arranged for engagement with said rolls, a strap 17, provided with engaging means, as an eye, 17′, adapted for engagement with said saddle, a strap 13, provided with engaging means, as an eye, 13^2, a coil-spring 12 adapted to be secured to said straps to thereby form a yielding spring connection between the same, and a graduated hook 15, adjustably secured upon the beam of the machine and arranged and adapted for engagement with the engaging means of said strap 13, and by such engagement to store energy in said spring, and also to serve as a means for graduating such energy to maintain the required pressure upon said rolls.

6. The combination with the top rolls and beam, of a hook 11, arranged and adapted for engagement with the top rolls, a strap 13 adapted for engagement with a hook 14, secured upon the beam, and a coil-spring 12 connecting said hook 11 and strap 13 and adapted thereby to form a yielding spring connection between said hook and strap, and a graduated hook 14, secured upon the beam and adapted for engagement with said strap, as and for the purposes specified.

7. In a textile or analogous machine, the combination with the top rolls and beam, of a strap 17 adapted for engagement with the top rolls, a second strap 13 adapted for engagement with a graduated hook 15 adjustably secured upon the beam of such machine, a spring 12 secured to said two straps and adapted to serve as a yielding spring connection between said straps, and a graduated hook 15 adjustably secured upon the beam of the machine, and adapted for engagement with said strap 13.

8. In a textile or analogous machine the combination with the top rolls and beam, of a strap 11, terminating at one end in a hook 11′, and at its opposite end in a headed portion, a sec-

ond strap 13, provided at one end with a head portion 13′, and at its opposite end with an eye 13^2, and with laterally-extending thumb-holds 14′ 14^2, a coil-spring 12 secured to the head portions of the straps 11 and 13, and constituting a yielding spring connection between said straps, and a serrated hook 15, secured upon the beam of the machine and adapted for adjustable engagement with the eye 13^2, of the strap 13.

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Witnesses:
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