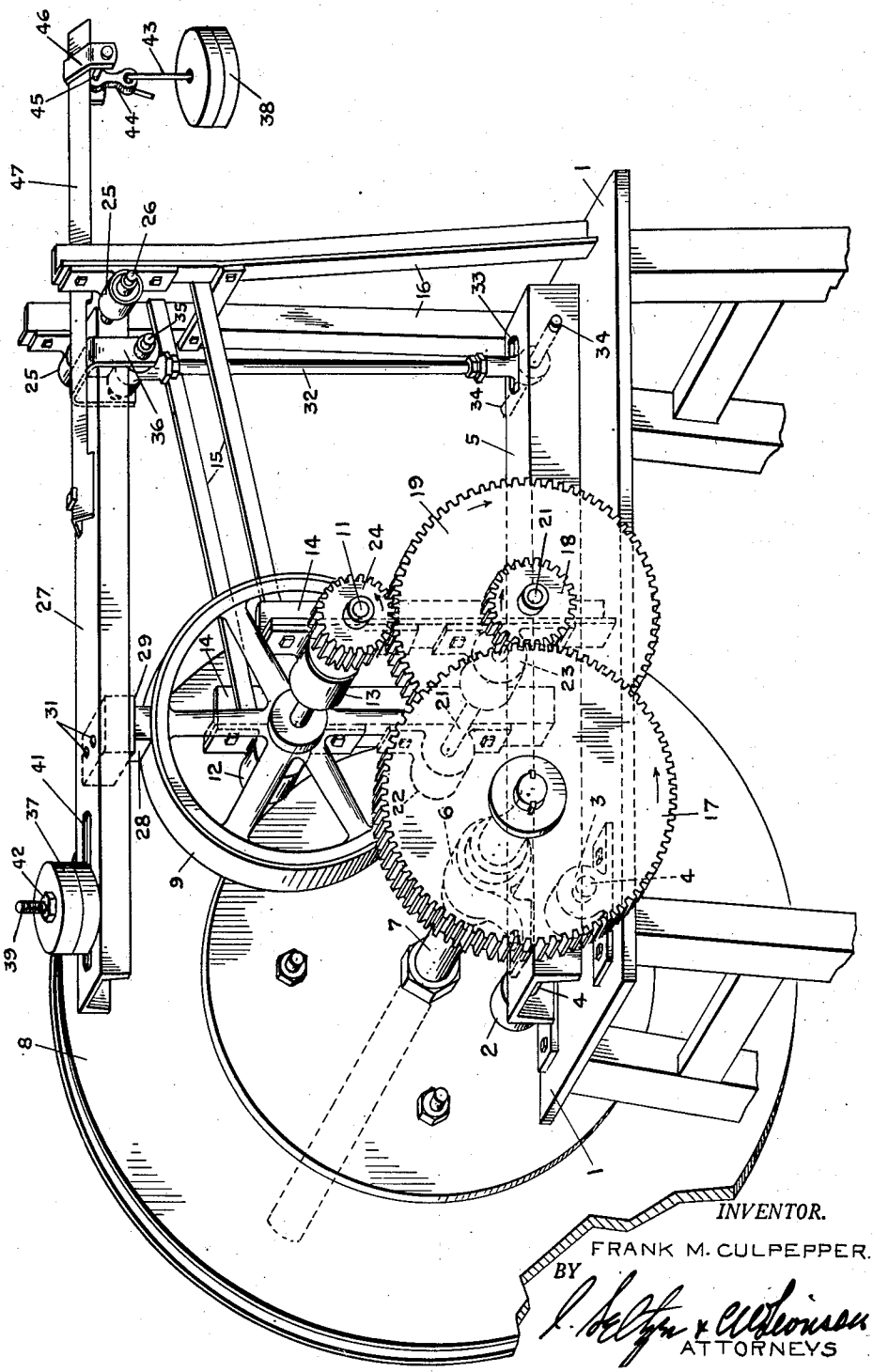
March 2, 1954 F. M. CULPEPPER 2,670,522

BRAKING MECHANISM

Filed June 30, 1949



INVENTOR.
FRANK M. CULPEPPER.
BY
ATTORNEYS

Patented Mar. 2, 1954

2,670,522

UNITED STATES PATENT OFFICE

2,670,522

BRAKING MECHANISM

Frank M. Culpepper, Newark, N. J., assignor to Celanese Corporation of America, New York, N. Y., a corporation of Delaware

Application June 30, 1949, Serial No. 102,273

4 Claims. (Cl. 28—28)

1

This invention relates to a braking mechanism and relates more particularly to a device, for use with warping machines or other textile machines wherein warp is supplied from warp beams, for applying a braking force to said warp beams.

An important object of this invention is the provision of an improved device for braking section beams, containing warp yarns, which utilizes the reduction in weight of the section beams, as the yarn is removed therefrom, to maintain a relatively constant tension on the warp yarns in transit.

Another object of this invention is to provide an improved braking device for applying a braking force on section beams, containing warp yarns, which provides for relatively constant yarn tension at various slasher speeds without continuous operator attention, and which maintains uniform braking force when the taking-off of yarn is halted.

Still another object of this invention is to provide a novel balance system between the warp beam and the brake shoe, whereby the brake shoe applies to said balance system a braking force proportional to the weight of the yarn on the beam.

Other objects of this invention, together with certain details of construction and combinations of parts, will appear from the following detailed description and the appended claims.

In the drawing, the figure is a perspective view of a preferred embodiment of the invention.

Referring now to the drawing, the reference numeral 1 indicates a suitably supported platform or base, which may be supported on a warp beam creel, to which are fixed bearing members 2 and 3. A shaft 4, journaled in said bearing members 2 and 3, supports for pivotal movement, the rear end of a U-beam 5 of the balance system. A pillow block 6, preferably of the roller-bearing type, is fixed to said U-beam at a point adjacent to said rear end and has journaled therein the supporting shaft 7 of section beam, or beams, 8.

A brake drum 9 is geared off supporting shaft 7 and is arranged to turn at twelve times section beam speed. The brake drum 9 is provided with a shaft 11 which is journaled in bearings 12 and 13 in vertical standards 14 fixed to and supported at their lower ends on base 1. The upper ends of standards 14 have attached thereto cross-bars 15 which are fixed to standards 16, also carried by base 1.

The gearing for turning brake drum 9 comprises a gear 17 fixed to supporting shaft 7, which meshes with a gear 18 fixed, together with a gear 19 on a shaft 21 journaled in bearings 22

2

and 23 also attached to standards 14. Gear 19 meshes with a gear 24 fixed to brake drum shaft 11.

The upper ends of standards 16 are each provided with a bearing 25 and a shaft 26 is journaled in said bearings. A beam 27 is fixed to shaft 26 for rotary movement. A brake shoe 28 is supported on the underside of beam 27 in a suitable holder 29 attached to said beam 27 by means of screws 31. The brake shoe 28 may be of any suitable material, such as oak wood, molded asbestos brake lining, stainless steel sheet stock or brass sheet stock, for example. However, it has been found that high speed tool steel is eminently suitable for use as brake shoe material. Preferably, the material of the brake drum should be slightly harder than the material of the brake shoe, whereby the brake shoe need be replaced only at long intervals.

Beams 5 and 27 are operatively connected by means of a rod 32. Thus, the connecting rod passes through a slot 33 in beam 5, and a shaft 34, passing through the lower end of the connecting rod and through the beam, holds the connecting rod in position and permits pivotal movement thereof. The upper end of the connecting rod 32 is pivotally mounted on a shaft 35 carried in a strap 36, which strap may be moved as desired along the beam 27. By moving the strap 36 along the beam 27, or braking arm, the mechanical advantages of the brake may be varied as desired, i. e. changing the connecting rod position changes the proportion of the braking load applied by the brake shoe to the brake drum due to the weight of the yarn on the section beams.

Pre-loading is necessary to bring the tension on the yarn to the desired degree. To this end, the braking arm 27 is provided with suitable loading weights 37 and counterbalancing weights 38. Loading weights 37 are mounted on a screw-threaded bolt 39. The position of said weights 37 is adjustable along the length of slot 41 in beam 27 in which the head of the bolt 39 is mounted, and held in adjusted position by a nut 42. The counter-weights 38 are supported on a hook 43 removably attached to a link 44, which link is pivotally mounted on a rod 45 carried by a shackle 46. A bar 47 attached to brake arm 27 adjustably supports shackle 46 with its counterbalancing weights.

The foregoing braking mechanism is highly satisfactory since contact with the yarn windings on the beams is avoided, it is fully automatic with respect to providing constant tension at various slasher speeds in use requiring substantially no attention on the part of the operator, torque re-

mains applied when feed of yarn is halted, and it may be easily adjusted so as to be set for yarns of different weight and for different tension.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that may variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. A braking mechanism for use in a textile machine for applying a braking force to a warp beam supported on a shaft, in combination, a brake drum, a brake shoe cooperating with said brake drum, a longitudinal beam pivoted at one end thereof for supporting said shaft, a pivotally mounted arm on which said brake shoe is supported, and a connecting rod adjustable along said brake shoe arm operatively joining said longitudinal beam and said brake shoe arm, the construction and arrangement being such that a braking force proportional to the weight of the yarn on the beam is applied by said brake shoe.

2. A braking mechanism for use in a textile machine for applying a braking force to a warp beam supported on a shaft, in combination, a brake drum, a brake shoe cooperating with said brake drum, a longitudinal beam pivoted at one end thereof for supporting said shaft, a pivotally mounted arm on which said brake shoe is supported, and a pivotally mounted connecting arm adjustable along said brake shoe arm operatively joining said longitudinal beam and said brake shoe arm, the construction and arrangement being such that a braking force proportional to the weight of the yarn on the beam is applied by said brake shoe.

3. A braking mechanism for use in a textile machine for applying a braking force to a warp beam supported on a shaft, in combination, a brake drum, a brake shoe cooperating with said brake drum, a longitudinal beam pivoted at one end thereof for supporting said shaft, a pivotally mounted arm on which said brake shoe is supported, a pivotally mounted connecting arm adjustable along said brake shoe arm operatively joining said longitudinal beam and said brake shoe arm, the construction and arrangement being such that a braking force proportional to the weight of the yarn on the beam is applied by said brake shoe, and a weight carried by said brake shoe arm and movable longitudinally of said brake shoe arm for applying a pre-load force on said brake drum.

4. A braking mechanism for use in a textile machine for applying a braking force to a warp beam supported on a shaft, in combination, a brake drum, a brake shoe cooperating with said brake drum, a longitudinal beam pivoted at one end thereof for supporting said shaft, a pivotally mounted arm on which said brake shoe is supported, a pivotally mounted connecting arm adjustable along said brake shoe arm operatively joining said longitudinal beam and said brake shoe arm, the construction and arrangement being such that a braking force proportional to the weight of the yarn on the beam is applied by said brake shoe, and a plurality of weights carried by said brake shoe arm and movable relative to said brake shoe arm for applying a pre-load force on said brake drum.

FRANK M. CULPEPPER.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
631,430	Perham	Aug. 22, 1899
912,942	Draper	Feb. 16, 1909
973,344	Cunniff	Oct. 18, 1910
1,062,443	Coulombe	May 20, 1913
1,103,661	Coulombe	July 14, 1914
1,536,047	Arnold	May 5, 1925
1,828,918	Balthasar	Oct. 27, 1931
2,103,821	Payne	Dec. 28, 1937
2,252,419	Slaughter	Aug. 12, 1941
2,340,921	Benoit	Feb. 8, 1944