C. L. DAVID.

TENSIONING MEANS.

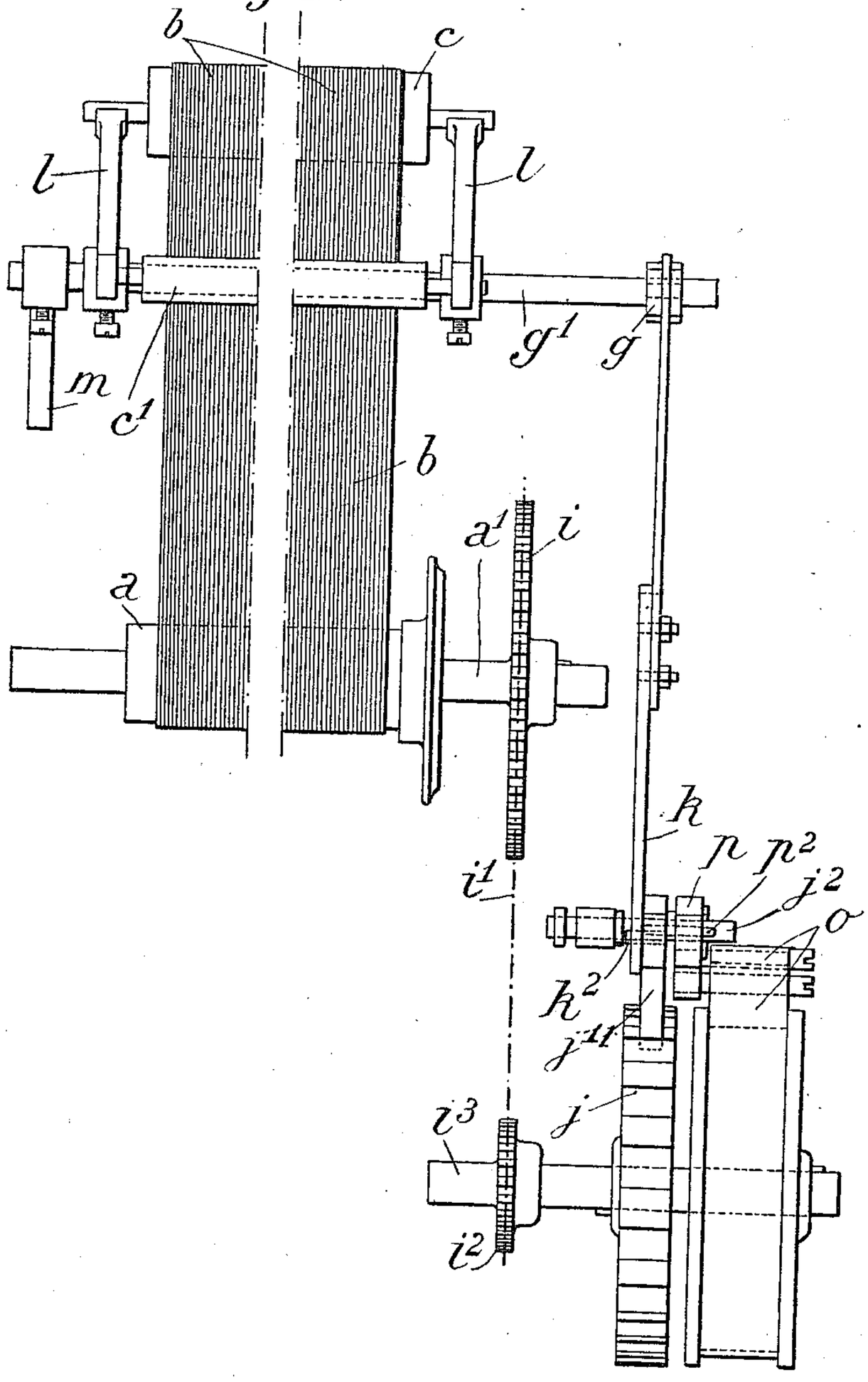
APPLICATION FILED MAR. 9, 1909.

993,963.

Patented May 30, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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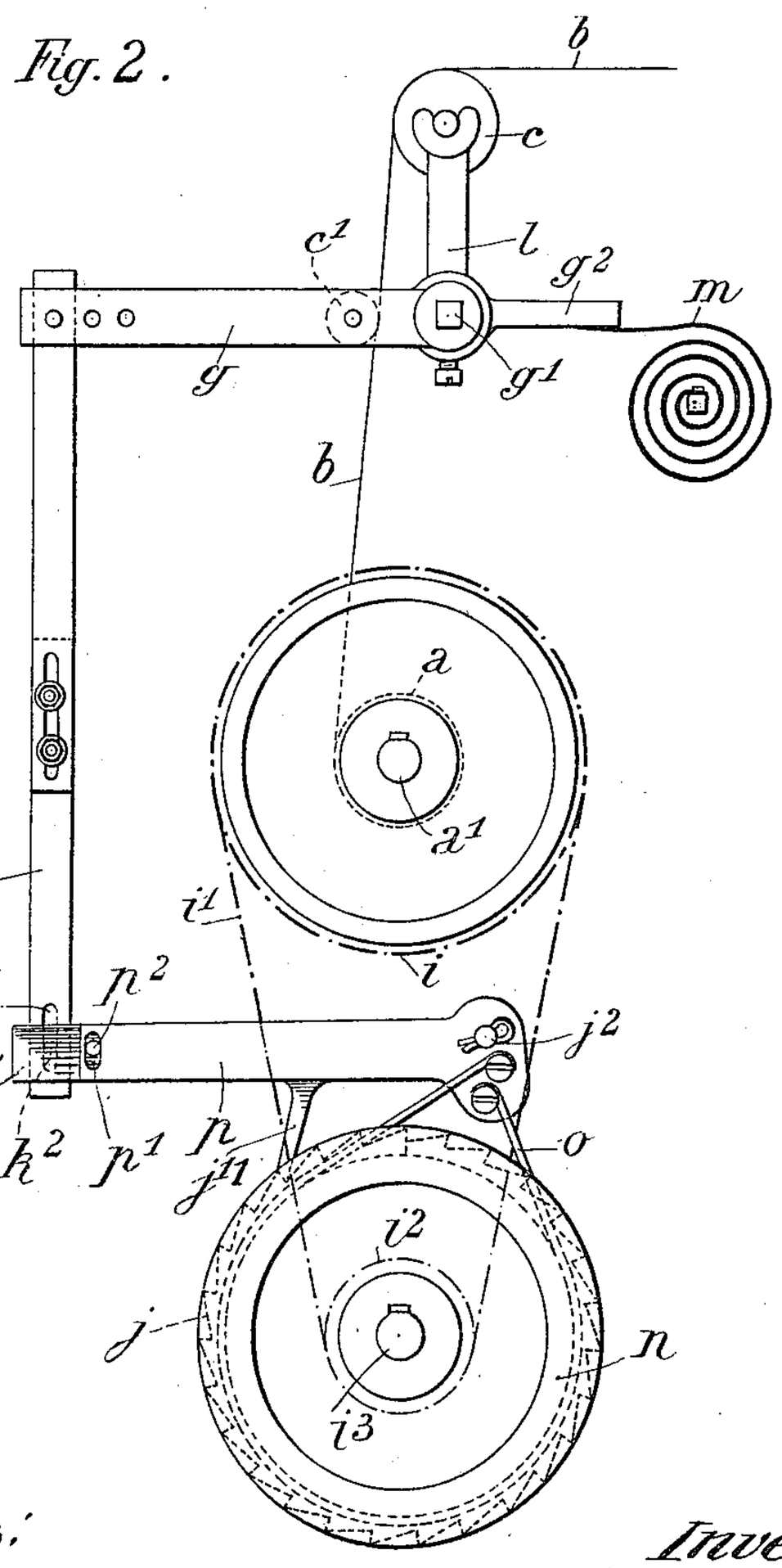
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES LUCIEN DAVID, OF RHEIMS, FRANCE.

TENSIONING MEANS.

993,963. Specification of Letters Patent. Patented May 30, 1911.

Application filed March 9, 1909. Serial No. 482,314.

To all whom it may concern:

Be it known that I, CHARLES LUCIEN DAVID, municipal councilor of the town of Rheims, a citizen of the French Republic, residing at 10 Rue de Trianon, Rheims, Marne, France, have invented certain new and useful Improvements in or Relating to Tensioning Means, of which the following is a specification.

This invention relates to tensioning devices such, for instance, as those provided generally on looms, the object of the invention, broadly stated, comprehending the production of an effective device of the type specified, for keeping a constant tension on material unwound or unrolled from a spool or bobbin.

The following description and the accompanying drawings, which show a structural embodiment of the invention in its application to the warp beam of a weaving loom, will enable the invention to be clearly understood.

In the drawings, Figure 1 is a side elevation of the invention. Fig. 2 is the corresponding end view.

In said drawings, *a* indicates the warp beam, *b* the warp to be unrolled, and *c* the usual whip roll for guiding the warp. The invention includes, in addition, a pair of two-armed levers *l* and a lever *g* keyed to a shaft *g'*, which in its turn is journaled in the frame, (not shown). The ends of the vertical arms of the levers *l* serve as bearings for the trunnions of the whip roll, and those of the horizontal arms as bearings for a roll *c'*. One or more springs *m* act on lateral arms g^2 secured to the shaft *g'*, so as to impart to the system of levers a tendency toward anti-clockwise movement.

The spindle *a'* upon which the beam *a* is mounted has keyed thereto a sprocket wheel *i* connected by a chain *i'* with a smaller sprocket wheel i^2 keyed to a spindle i^3 located below and parallel with spindle *a'*. To the second spindle are also keyed a ratchet wheel *j* and a drum *n* around which latter passes a brake band *o*, as hereinafter described. The ratchet *j* is engaged by a depending pawl j^{11} formed upon a lever *j'* pivoted at one end upon a pin j^2 set into the frame, the other end of said lever being provided with a pair of lateral pins p^2 and k^2 extending in opposite directions, the attachment of the pins being preferably such as to permit of their adjustment. Levers *g* and *j'* are joined by a vertical rod *k* composed of two sections whose overlapping ends have a bolt-and-slot connection with each other, thereby permitting the length of the rod to be adjusted. The free end of the upper rod section is connected by a pin to that of the lever *g*, while the corresponding end of the lower section has a slot *k'* formed thereon for the reception of the pin k^2. There is also pivoted at one end to the pin j^2 a brake lever *p* to which, adjacent the pivot, the ends of the band *o* are secured, the other end of the lever being formed with a slot *p'* into which the pin p^2 extends.

The operation of the invention is as follows: The tension exerted upon the warp is transmitted through the same to the beam *a*; said beam, however, is normally held against rotation, owing to its chain-and-sprocket connection with the spindle i^3 to which the ratchet *j* is keyed, the latter being engaged by the pawl j^{11}. The effect of such tension, therefore, is to cause the two-armed levers *l* and their shaft *g'* to turn in a clockwise direction, against the action of springs *m*. During this movement, the lever *g* secured to said shaft raises the connecting rod *k*, which latter in turn raises the pawl-lever *j'* through the medium of its slot-and-pin connection *k'*, k^2 therewith. Pawl j^{11} is thereby disengaged from the ratchet, whereupon the warp beam is free to rotate and to pay out the warp. As the pawl-lever swings upwardly, its pin p^2 is moved into contact with the upper end of the slot *p'* in the brake lever *p*, this lever being then raised in turn. The movement of the brake lever tightens the band *o* around the drum *n*, and thus checks the otherwise excessive speed of rotation of the warp beam.

Further description of the invention is deemed unnecessary in view of the foregoing, it being understood that there is no intention of its being limited to the exact construction shown and described, since modifications and changes may obviously be made within the scope of the appended claims.

What is claimed is:

1. In a let-off mechanism, the combination of a warp beam; a whip roll; a spindle connected with said beam for movement in unison therewith; a stop mechanism and a brake mechanism connected to said spindle for controlling the movements thereof; and a common means operated by the move-

ment of the whip roll for successively releasing said stop mechanism and operating said brake mechanism.

2. In a let-off mechanism, the combination of a warp beam; a whip roll; a spindle connected with said beam for movement in unison therewith; a stop mechanism and a brake mechanism connected to said spindle for controlling the movements thereof; a rod connected with the whip roll and with one element of the stop mechanism, for operating the latter; and an operating connection between said element and one element of the brake mechanism.

3. In a let-off mechanism, the combination of a warp beam; a whip roll; a spindle connected with said beam for movement in unison therewith; a stop mechanism and a brake mechanism connected to said spindle for controlling the movements thereof and including an operating lever; a vertically-movable rod having its upper end connected with the whip roll, and its lower end slotted; a pin carried by the lever of the first-named mechanism and arranged for engagement in the slot in said rod; and a pin carried by the lever of the second-named mechanism and arranged for engagement in a slot in the first-named lever.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES LUCIEN DAVID.

Witnesses:
H. C. Coxe,
Amand Marx.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."