

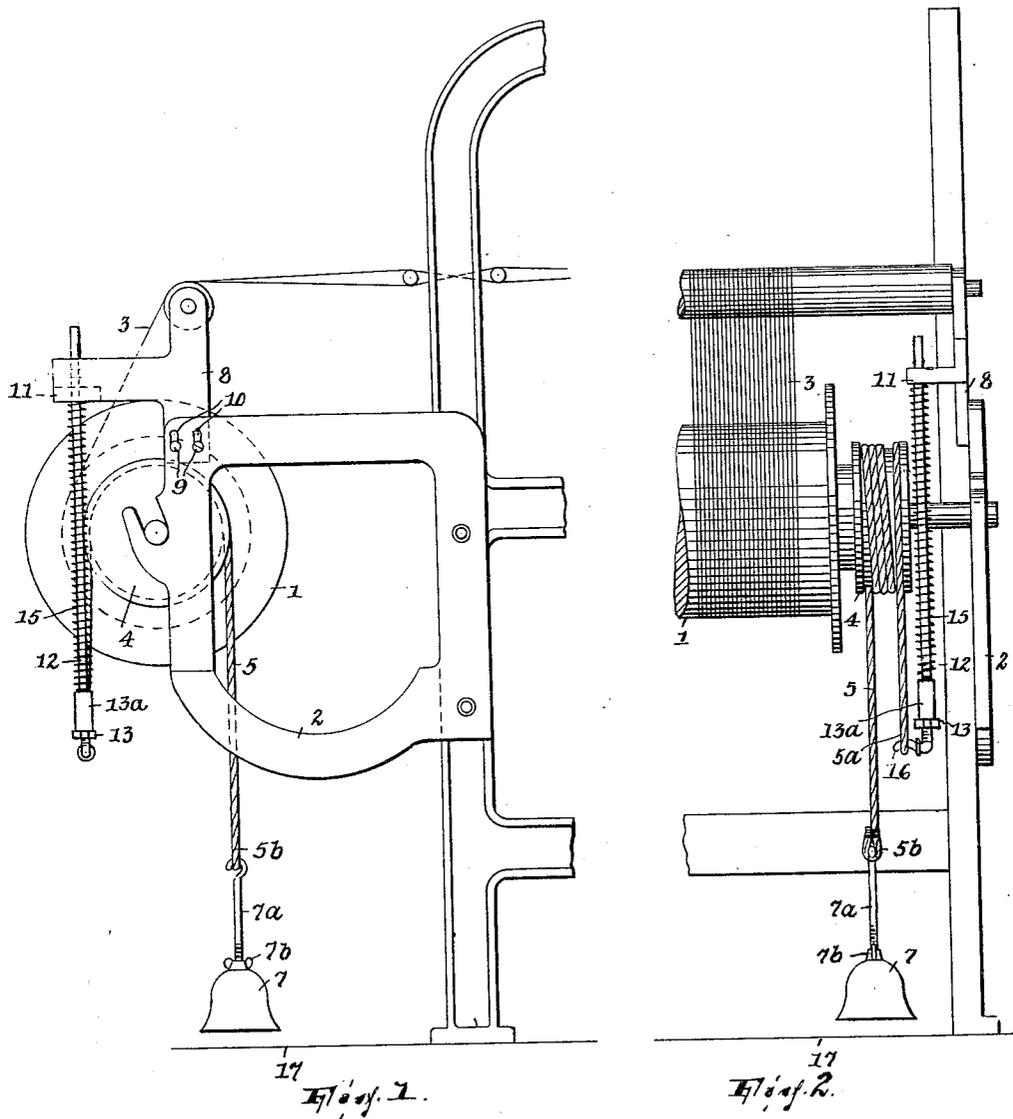
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LET-OFF MECHANISM FOR LOOMS

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# UNITED STATES PATENT OFFICE

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## LET-OFF MECHANISM FOR LOOMS

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The object of this invention is to provide a let-off mechanism for looms which will permit the delivery of the warp in a uniform manner, thus to avoid certain imperfections in the woven fabric incident to the delivery not being uniform and the shots of filling consequently not being equally spaced, and which will not unduly encumber the loom or the floor in its vicinity and which may be readily adjusted by the attendant whenever such is necessary. One feature of the invention consists in subjecting to the action of a spring the relatively rear end of a flexible device which is coiled around the beam-head and has its forward held in some way so that it will thereupon act as a brake or resistance to rotation of the beam, whereby this spring instead of the usual weight both maintains the braking contact of said device on the beam and tension on the warp. By using a spring instead of a weight the sticking of said device to the beam-head, which often characterizes the use of a weight and produces imperfections in the weaving, is avoided and the necessary adjustments may be accomplished with greater facility. Another feature consists in providing means in connection with our mechanism as already outlined which when employed will occasionally cause relaxation of the grip of said flexible device on the beam-head, as a weight suspended from its forward end and adapted from time to time to touch the floor or equivalent.

The drawing shows our invention in place on a loom, only a portion of which is shown. Fig. 1 being a side elevation; and Fig. 2 a fragmentary rear elevation.

The beam 1 is journaled in the usual manner in some part of the loom frame, as the projecting bracket 2. 3 designates the warp extending therefrom. 4 is the beam-head.

Coiled about the beam-head is a rope or equivalent flexible device 5. Its forward end should be held in some way, preferably by a weight 7 which is arranged near enough to

the floor or other stop 17 so that it will touch the same to so far relax the grip of said device on the beam-head as to allow the latter to rotate independently of the former, this usually occurring more or less periodically.

Attached to and forming a part of the loom-frame is an arm 8. Preferably this arm is attached to the frame above the beam as shown and so as to be adjustable vertically, as by bolts 9 extending through vertical slots 10 in the arm. The arm has an abutment or shoulder 11.

Penetrating and freely movable vertically in and guided by this abutment is a vertical rod 12 which near its lower end has an adjusting nut 13 screwed thereon. Between the abutment and nut and coiled around the rod is a spiral spring 15. The nut may have an upwardly extending sleeve 13a which protects the threading of the rod from the wearing action of the spring at its lower end. The lower end of the rod is bent off and formed as a hook 16 whose bight or bend has its concave side downward and to this a loop 5a on the rear end of the flexible device 5 is attached.

It is assumed, of course, that the sheet of warp and woven fabric is held at its forward end against backward movement, as by the usual take-up mechanism of the loom; also that the spring, by adjusting the nut up or down, is under some tension, such tension determining the tension of the fabric-and-warp sheet as well as maintaining the braking action of device 5 on the beam. When the loom is operating, as the said sheet is advanced by the take-up mechanism the beam-head slips in the coils of the device 5 and so the warp is let off. When the nut is adjusted up the tension on the warp-and-fabric sheet and the resistance to rotation of the beam are increased; and when it is adjusted down said tension and resistance are decreased.

By the mechanism set forth the resistance

of the beam to rotation and the tension of the warp-and-fabric sheet can be altered with the greatest ease because only the nut 13 requires manipulation and that is within easy reach of the operator.

Again, the construction is such that any existing loom can be equipped with the mechanism at very little expense and with inconsiderable changes in the loom, and it also leaves the floor at the back of the loom clear of obstruction.

If adjustment of the weight 7 vertically is required this may be effected by providing the weight with a stem 7a which is screwed therein so as to be vertically adjustable relatively thereto and which has a hook as shown to engage in a loop 5b at the rear end of said flexible device 5; 7b is a lock-nut for the stem.

Having thus fully described our invention, what we claim is:

In combination, a loom frame, a warp-beam revoluble therein, a flexible device coiled around the beam and having its forward end held against substantial displacement of said device lengthwise and relatively rearwardly thereof, said frame having above the beam axis a rearward overhanging arm, a vertically elongated up-and-down movable structure arranged endwise of the beam and having its upper end guided by said arm and its lower end extending below the beam, and a spring interposed between said arm and structure and opposing rise of the latter, said structure having below the beam a portion projecting laterally under the beam and to which the rear end of said device is connected.

In testimony whereof we affix our signatures.

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