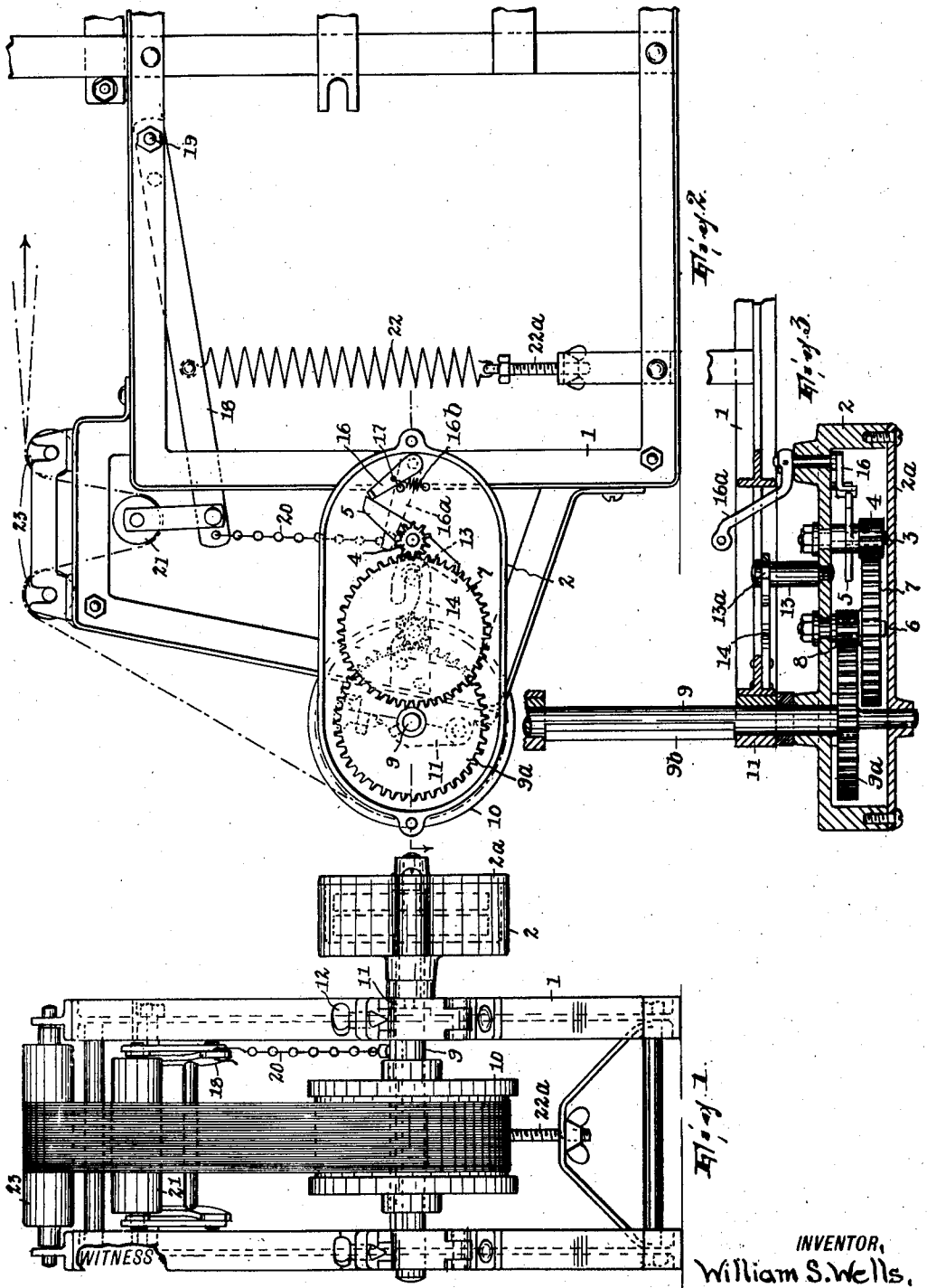
May 20, 1930. W. S. WELLS 1,759,531

LET-OFF MECHANISM FOR LOOMS

Filed Sept. 5, 1928



Patented May 20, 1930 1,759,531

UNITED STATES PATENT OFFICE

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LET-OFF MECHANISM FOR LOOMS

Application filed September 5, 1928. Serial No. 304,060.

This invention relates to means for letting off yarn or the like, strips, etc., from a wound mass thereof and at the same time preserving tension thereon. The principal object is to provide for perfect uniformity of tension regardless of the let-off action and of other influences tending to vary the tension as, for example, when the material is a warp in a loom and so is subject to the shed-forming movements of the loom harness.

Figs. 1 and 2 are a rear and a side elevation of the mechanism, Fig. 2 showing the housing cover 2^a removed;

Fig. 3 is a section on line 3—3, Fig. 2, certain parts appearing in plan.

Figs. 1 to 3: 1 is any suitable frame and 2 a housing at one side thereof having a removable cover 2^a. Journaled in the housing on a stud 3 is the rotary element consisting of a pinion 4 and a pair of opposite stop-arms 5. Journaled in the housing on a stud 6 is a gear member comprising a gear 7, meshing with pinion 4, and a pinion 8. Journaled in the housing and also in open bearings in the frame is the shaft 9 for a beam 10 on which the mass of warp threads (here a multiple of them) is wound, said shaft having a gear 9^a in mesh with pinion 8 and also a spline 9^b with which the beam engages, and which may equal in length the space between the bearings and thus hold the shaft against endwise displacement. The housing and said shaft form in effect a unitary structure which is removably supported in the frame thus: The shaft is held in its bearings by pivoted caps 11 which may be swung down, to clear the shaft, upon withdrawing thumb-screws 12 engaged with the caps. The housing has a stud 13 formed with a reduced portion or neck 13^a received in a hook 14 forming a rigid projection of the frame. Said structure is thus supported by the bearings and the hook and upon swinging down the caps it may be removed, as when replenishing of the warp is necessary.

The brake-member is here a pawl pivoted in the housing and whose pawl-arm 16 normally rests here, by gravity as well as under the pull of a spring 16^b, against a stop 17, in braking or rotation-opposing relation to (one of the arms 5 of) said rotary element, but movable therefrom to clear the same; for effecting such movement the pawl may have an additional arm 16^a.

The means thus to move the brake-member here consists of a lever structure 18 fulcrumed at 19 in the frame, a chain 20 or other flexible connection connecting it with arm 16^a of the brake-member, and a roller 21 journaled on the lever. The lever, which in this example overhangs the brake element, tends to fall by gravity, but its tendency to move downward may be augmented by a spring 22 having an adjusting-screw connection 22^a with the frame. The warp extending from the beam reaches over two rollers 23 journaled on the frame and between them it extends under roller 21.

When the warp is drawn upon tension is established, by the means 18—21—22, which exerts bend-forming pressure on the warp. The warp being drawn upon and overcoming this pressure moves said means until the latter finally moves the brake-member to the position where it releases the rotary element, which is operatively connected with the rotary wound mass, through the gearing, such release of the rotary element of course results in a more or less rotation of the wound mass, paying out the warp, with incidental reaction of the mentioned means and consequent re-establishing of the braking condition. Thus, while letting-off is automatically accomplished, the tension is at all times equable, the latter being principally due to the said means being movable independently of the brake-member.

By gearing-down, from the rotary member 9^a—9 on which the wound mass is wound to the rotary element the brake element (if of the positive type, as in the examples set forth) is more delicately responsive to release by the warp and the shocks incident to its checking action appreciably reduced.

Having thus fully described my invention, what I claim is:

1. In combination, a loom frame, a unitary structure removably supported therein and comprising a support arranged at one side of the frame, a rotary warp-beam receiving

member journaled in the support and projecting from the side thereof next to the frame and having means to interlock it with the beam for rotation therewith, and warp controlled means on the support to releasably hold said member from rotation.

2. In combination, a loom frame, a unitary structure comprising a support arranged at one side of the frame, a rotary warp-beam receiving member journaled in the support and projecting from the side thereof next to the frame, and warp controlled means on the support to releasably hold said member from rotation, said frame having a bearing for said member open laterally of the axis of the latter and said support being removably supported on the frame.

3. In combination, a loom frame, a unitary structure arranged beside and removable from the frame and comprising a support, rotary means journaled in the support and including a rotary warp-beam-receiving member having means to separably interlock it with the beam for rotation therewith, and warp-controlled means on the support to releasably hold said rotary means from rotation.

In testimony whereof I affix my signature.

WILLIAM S. WELLS.