

S. INGHAM.
LET-OFF MOTION FOR LOOMS.
APPLICATION FILED MAY 15, 1920.

1,421,241.

Patented June 27, 1922.
2 SHEETS—SHEET 1.

Fig. 1.

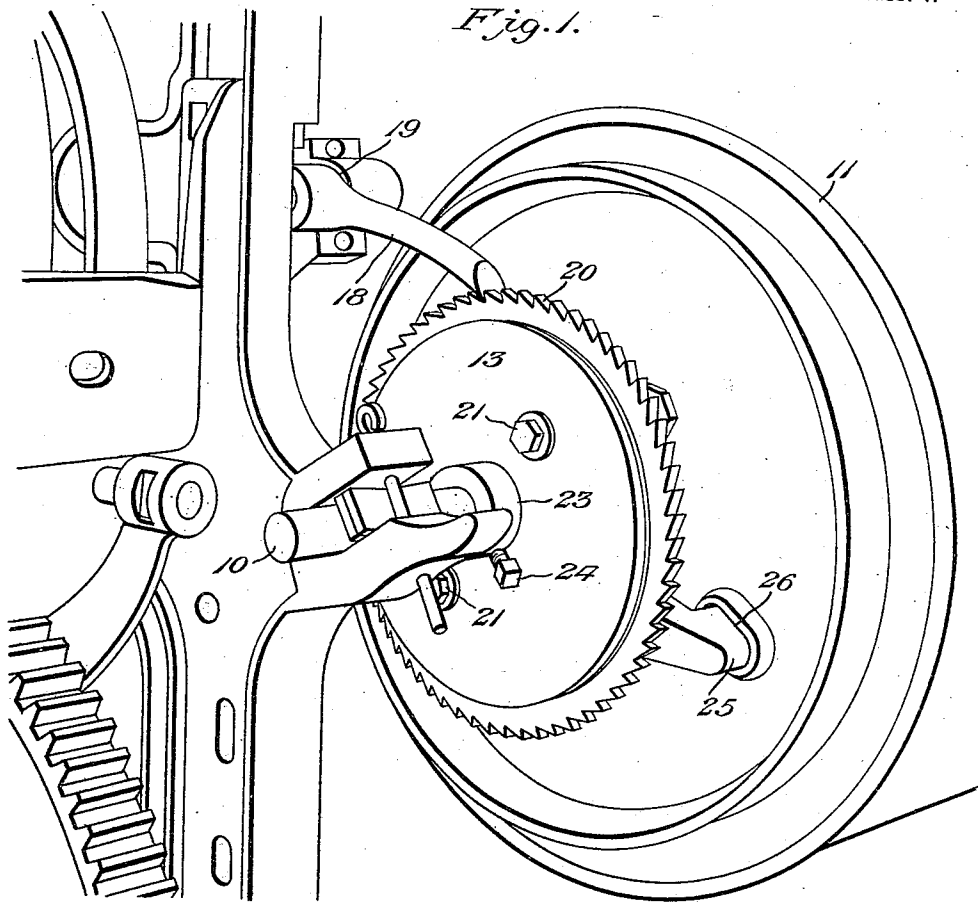
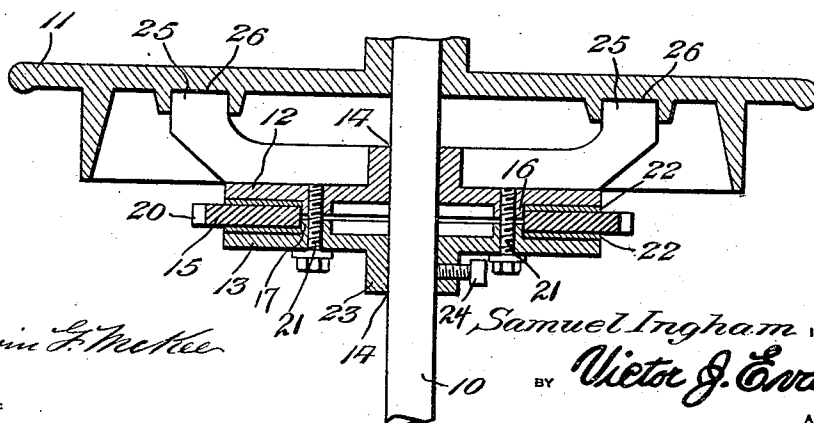


Fig. 2.



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Fig. 3.

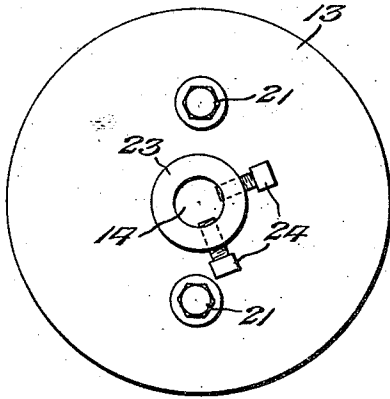


Fig. 4.

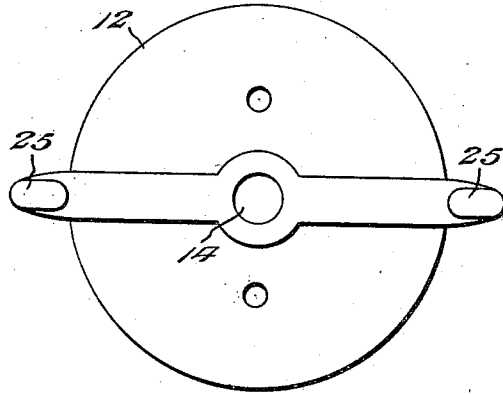
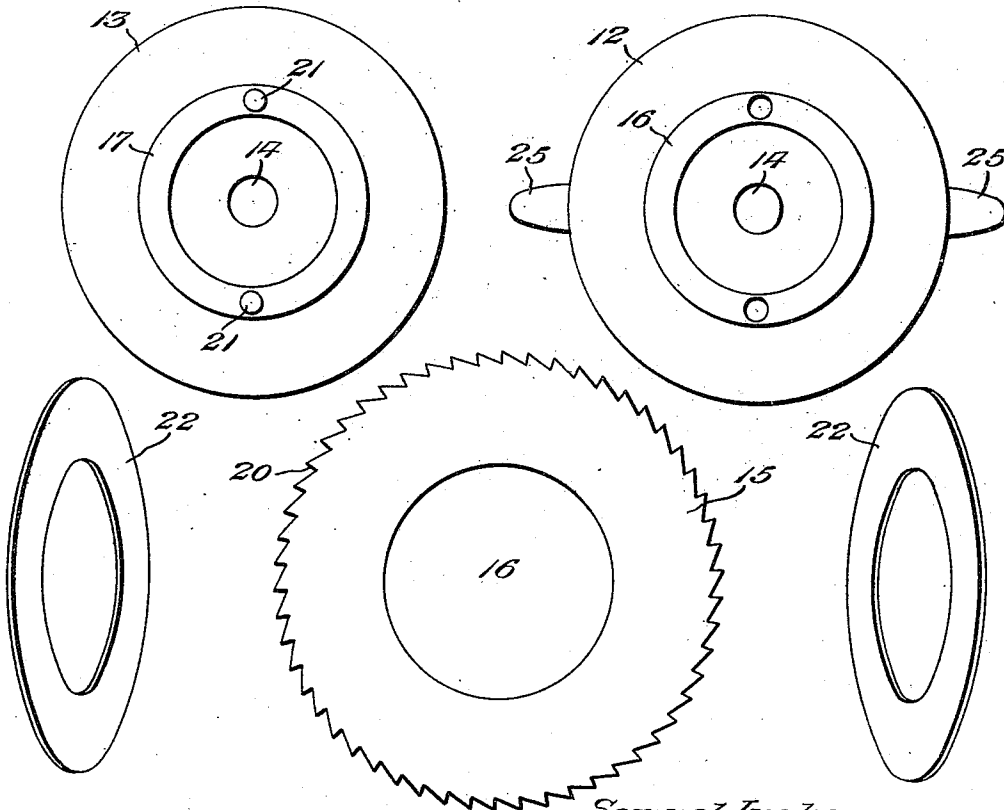


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL INGHAM, OF PAWTUCKET, RHODE ISLAND.

LET-OFF MOTION FOR LOOMS.

1,421,241.

Specification of Letters Patent. Patented June 27, 1922.

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To all whom it may concern:

Be it known that I, SAMUEL INGHAM, a citizen of United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Let-Off Motions for Looms, of which the following is a specification.

The object of the invention is to provide a simple, relatively inexpensive and efficient let off motion particularly designed for weavers' warp beams but also suitable for use in connection with other rolls or beams requiring frictional resistance, such as warp beams on dressing machines or slashers, rolls on cotton cards and the like, the purpose being to provide a device for the purpose indicated which can be readily applied to the machine in connection with which it is to be used and which will effectively control the speed or run of the warp threads or the equivalent thereof so as to maintain an even or uniform tension regardless of the amount of material upon the machine; and with this object in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawings, wherein:

Figure 1 is a general view in perspective showing the application of the let off motion or mechanism to a warp beam head.

Figure 2 is a sectional view of the same taken diametrically.

Figure 3 is an exterior face view of one of the friction disks.

Figure 4 is a similar view of the other frictional disk.

Figure 5 is a view comprising the several elements of the attachment separated.

The warp beam arbor of conventional form being indicated at 10 and the warp beam head at 11, the let off motion or mechanism is disposed as shown in Figure 1 in the concaved side of the head and is secured to the arbor, said mechanism consisting essentially of complementary opposed friction disks 12 and 13, having central openings 14 to receive and snugly fit the warp beam arbor, and an interposed ratchet disk 15 having an open center 16 for engagement with an annular bearing formed jointly by the mating or complementary bearing ribs 16 and 17 carried respectively by and project-

ing from the inner surfaces of said friction disks as shown clearly in Figures 2 and 5. A pawl 18 pivotally mounted as at 19 upon a convenient portion of the loom or other machine frame serves by terminal engagement with the peripheral teeth 20 of the ratchet disk 15 to restrain the latter, while the friction disks 12 and 13 are connected together through the central opening or space in the ratchet disk by means of set screws 21 engaging said disks respectively in the zones of the annular bearing ribs 16 and 17 and being adjustable to vary the frictional contact of the inner surfaces of said disks upon the side surfaces of the ratchet disk 15. Frictional washers 22 of felt or equivalent material are preferably interposed between the opposed inner faces of the friction disks and the side surfaces of the ratchet disk as shown in Figure 2.

The exterior collar 23 of the friction disk 13 is secured to the arbor 10 of the warp beam by a set screw 24, and there is provided an interlocking connection between the inner friction disk 12 and the warp beam head as by means of lugs 25 on the former engaging sockets 26 on the latter, it being obvious however that the relation of these interlocking elements may be reversed without detracting from the efficiency of the means for communicating motion from one to the other, the essential requirement being that the inner friction disk shall have an interlocking engagement with the warp beam head which will permit of ready detachment and removal of the let off motion when required.

From the foregoing it will be appreciated that my novel device occupies a comparatively small space within the hollow side of the warp beam head, and that by adjustment of the set screws 21 any desired frictional resistance may be provided to restrain the rotary movement of the warp beam with respect to the disk 15.

Retrograde rotation of the disk 15 is prevented by the pawl 18, but the said pawl 18 may be readily lifted out of engagement with the teeth of the disk 15 when it is desired to rotate the beam in retrograde direction.

It will be understood from the foregoing that my improvement applies a tension between the disk 13 and the disk 12, on the one hand, and the disk 15, on the other, and

that the beam is held against retrograde rotation by the pawl 18 in cooperation with the disk 15. It will be noted, however, that rotation of the beam under tension and with respect to the disk 15 is possible.

Having described the invention what is claimed is:

1. A let off motion for warp beams and the like consisting of opposed complemental friction disks secured together and to the warp beam, an interposed ratchet disk, means for relatively adjusting said friction disks to vary the frictional contact between the same and the ratchet disk, and means for securing the ratchet disk against rotary movement.

2. A let off motion for warp beams and the like having complemental friction disks and connecting set screws for varying the interval between the inner faces thereof, an interposed ratchet disk, and means for preventing rotary movement in one direction of said ratchet disk, one of said friction disks having means for effecting an interlocking engagement with the warp beam head.

3. A let off motion for warp beams and the like, having opposed complemental friction disks provided with inner complemental bearing ribs and central openings for receiving the warp beam arbor, one of said

disks being provided with a collar for engagement with the warp beam arbor and the other having an interlocking connection with the warp beam head, a friction disk having an open center and revolubly mounted upon said inwardly extending bearing ribs of the friction disks, means for relatively adjusting the friction disks toward the plane of the ratchet disks for varying the frictional contact therewith, and means for preventing rotary movement in one direction of the ratchet disk.

4. As an article of manufacture a let off motion for warp beams and the like consisting of opposed complemental friction disks having inner cooperating bearing ribs, one of said disks being provided with a collar for receiving a warp beam arbor and the other being provided with projecting lugs for engagement with sockets in a warp beam head, a centrally open ratchet disk mounted upon said cooperative bearing ribs, friction washers interposed between the surfaces of the ratchet disk and the opposing faces of the friction disks, set screws connecting the friction disks in the zone of said bearing ribs, and a pawl or dog for engaging the teeth of the ratchet disk.

In testimony whereof I affix my signature.
SAMUEL INGHAM.