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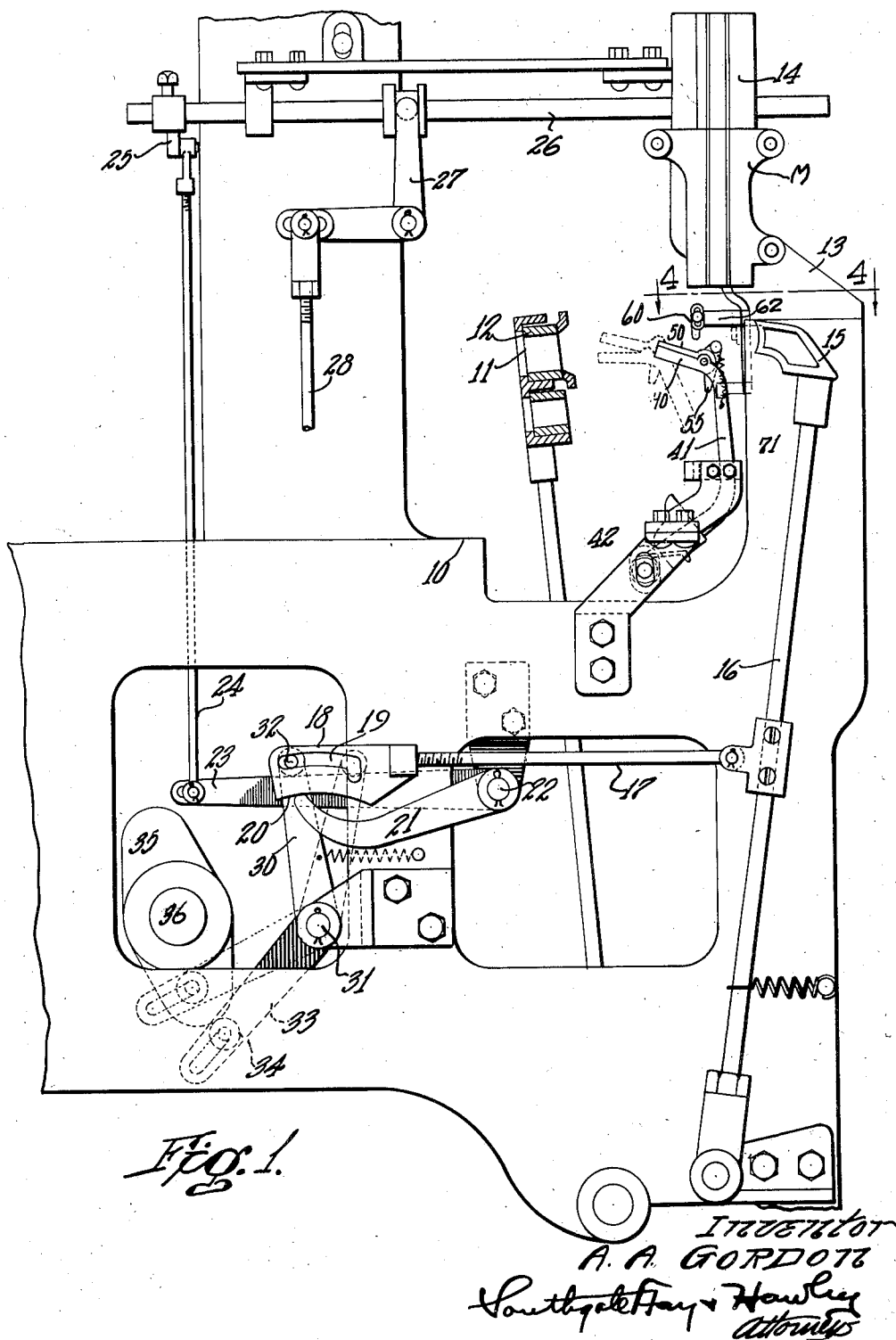
A. A. GORDON

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THREAD CUTTING MECHANISM FOR WEFT REPLENISHING LOOMS

Filed April 13, 1933

3 Sheets-Sheet 1



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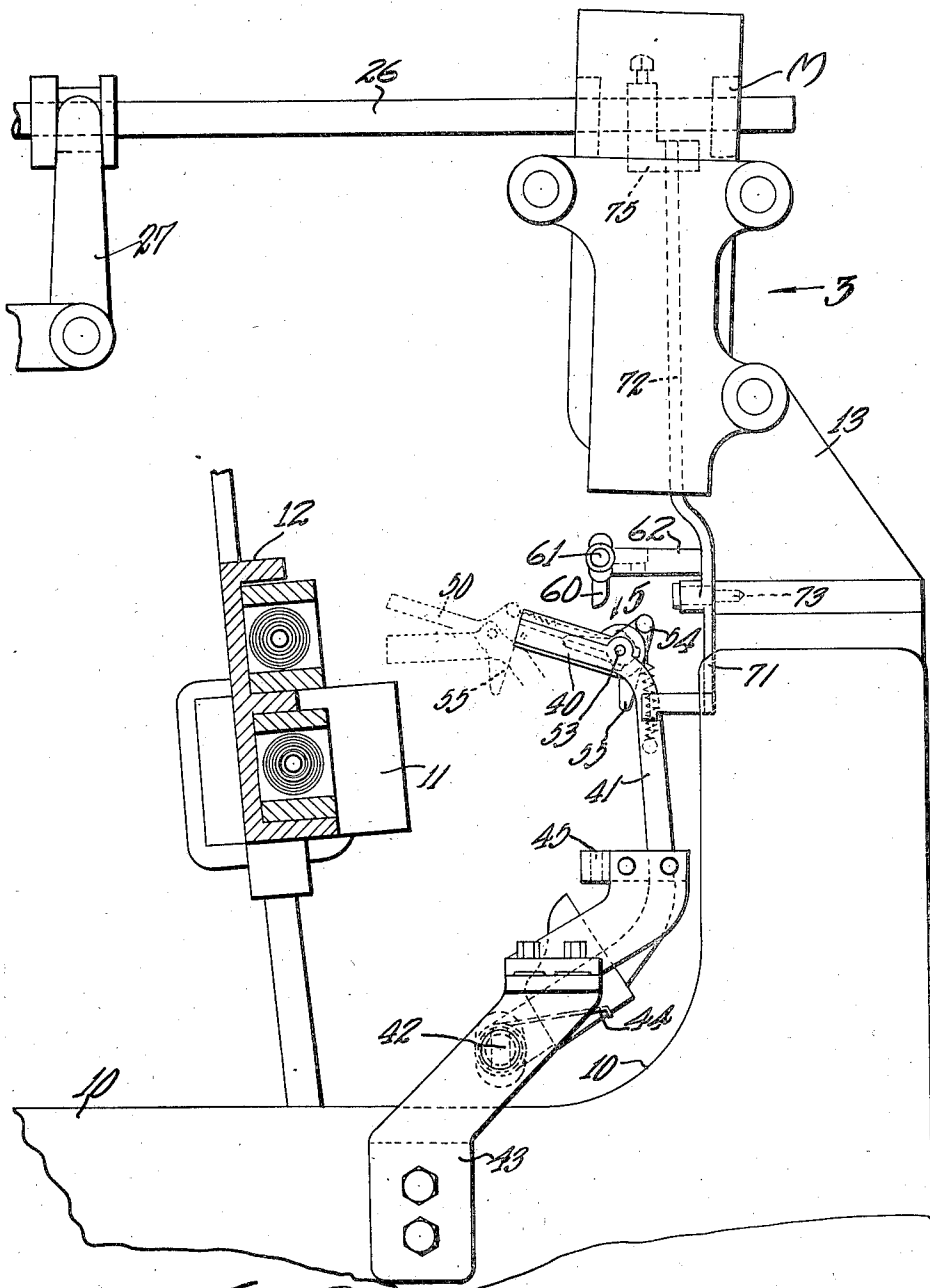
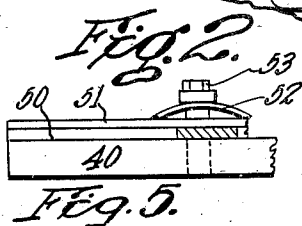
A. A. GORDON

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THREAD CUTTING MECHANISM FOR WEFT REPLENISHING LOOMS

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3 Sheets-Sheet 2



Inventor
A. A. GORDON
Santhgate Fayr Hawley
Attorneys

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A. A. GORDON

1,970,743

THREAD CUTTING MECHANISM FOR WEFT REPLENISHING LOOMS

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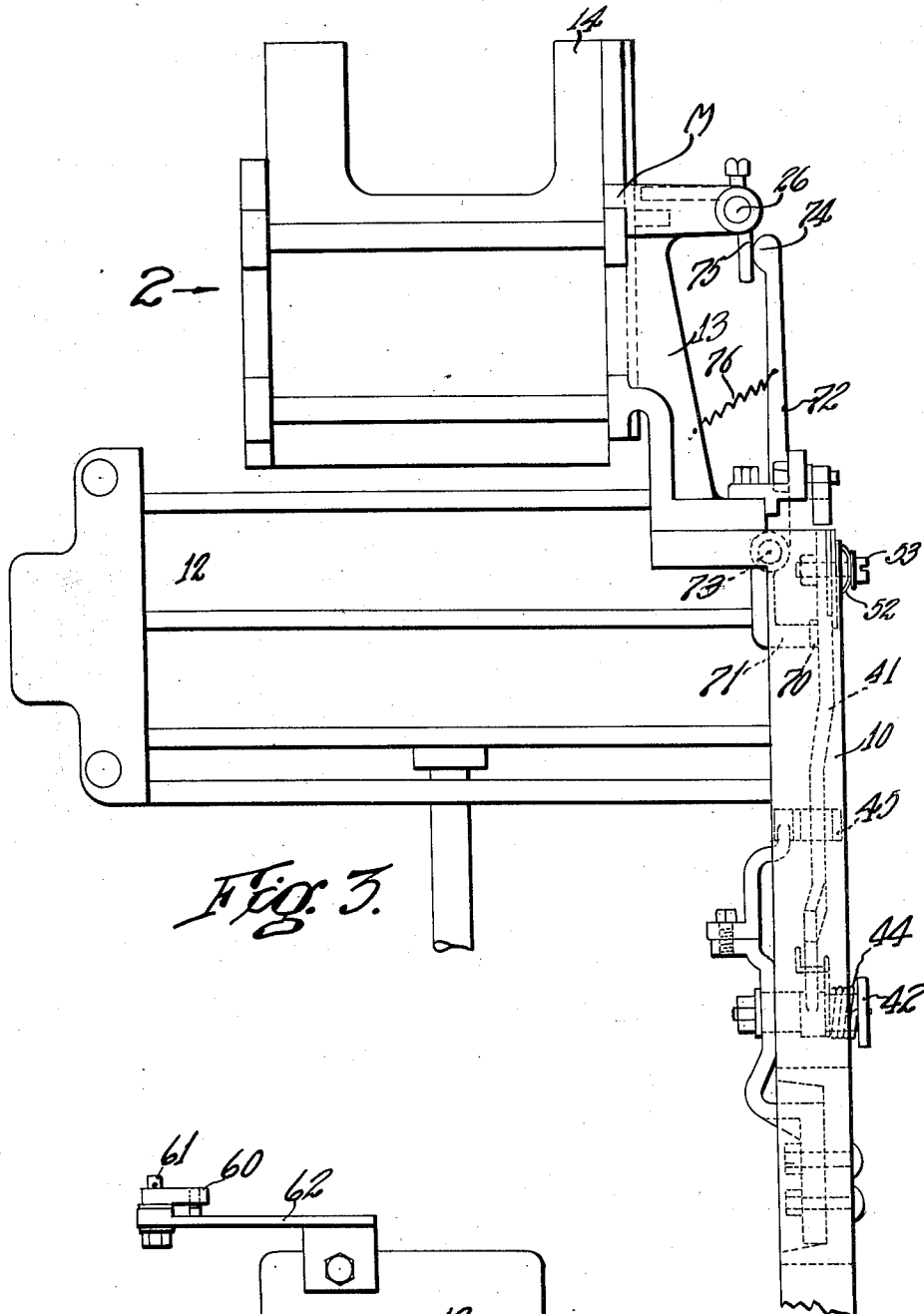


Fig. 3.

Fig. 4.

Inventor
A. A. GORDON
Southgate Fay & Hawley
Attorneys

UNITED STATES PATENT OFFICE

1,970,743

THREAD CUTTING MECHANISM FOR WEFT
REPLENISHING LOOMSAlbert A. Gordon, Worcester, Mass., assignor to
Crompton & Knowles Loom Works, Worcester,
Mass., a corporation of Massachusetts

Application April 13, 1933, Serial No. 665,920

1 Claim. (Cl. 139—267)

This invention relates to weft replenishing looms and particularly to looms having multi-color stationary weft carrier magazines.

It is the general object of my invention to provide improved thread cutting mechanism for such looms, normally held in inoperative position but preferably released by the operating mechanism for the magazine on indication of substantial weft exhaustion.

A further object of the invention is to provide a thread cutter which will be opened after release and during rearward movement thereof, and which will be closed to grip and cut the thread by engagement by the lay as the lay moves forward after such release of the thread cutter.

My invention further relates to arrangements and combinations of parts which will be herein-after described and more particularly pointed out in the appended claim.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a side elevation of parts of a loom embodying my improvements, with the shuttle boxes shown in section;

Fig. 2 is an enlarged side elevation of certain parts shown in Fig. 1, with the shuttle boxes shown in section;

Fig. 3 is an enlarged front view, looking in the direction of the arrow 3 in Fig. 2;

Fig. 4 is a detail sectional plan view, taken along the line 4—4 in Fig. 1, and

Fig. 5 is a plan view of the thread cutter, partly in section and looking in the direction of the arrow 5 in Fig. 2.

Referring to the drawings, I have shown portions of a loom comprising a loom side 10, lay 11, drop boxes 12 and a multi-color weft magazine M. The magazine is preferably of the type shown in detail in my prior Patent #1,766,895, issued June 24, 1930 and comprises an upright frame 13 in which bobbin holders or compartments 14 (Fig. 3) are vertically slidable, said holders being selectively depressed to present a desired color or kind of bobbin in the path of a transfer member 15 (Fig. 1).

The transfer member is supported on a pivoted rod 16 connected by a link 17 to a plate 18 having a substantially L-shaped slot 19 therein and also provided with a segmental surface 20 engaged by the rear end of an arm 21. The arm 21 is mounted on a rock shaft 22 having a second arm 23 connected by a link 24 to an arm 25 on a rock shaft 26 having both a rocking and a sliding movement. The sliding movement of the shaft 26 is under the control of the bell crank 27 (Fig.

1) which is connected through a link 28 to the mechanism which controls the shifting of the drop boxes.

Usual operating mechanism (not shown) is provided for giving the rock shaft 26 a rocking movement and for connecting the same to depress a selected bobbin holder 14. For a more complete description of the magazine and its operating mechanism, reference is made to my prior patent above identified.

The transfer member 15 is given an operative rearward movement by an arm 30 (Fig. 1) mounted on a fixed pivot 31 and provided with a stud 32 extending into the L-shaped slot 19. A second arm 33 is fast with the arm 30 and is provided with a cam roll 34 engaged by a double cam 35 on the usual cam shaft 36 of the loom, which makes one revolution to each two picks of the lay.

Under normal conditions, the stud 32 oscillates freely in the slot 19 but on indication of weft exhaustion the plate 18 is raised, so that the stud 32 is caught in the downwardly extending portion of the slot 19 and draws the transfer member 15 rearward to transfer a bobbin from the depressed bobbin holder to the indicated shuttle.

All of these parts are of well-known construction and in themselves form no part of my present invention, which relates particularly to improved thread cutting mechanism and control devices therefor.

My improved thread cutter comprises a member 40 (Figs. 2 and 5) fixed at the upper end of a lever 41 pivoted on a stud 42 which in turn is mounted on a bracket 43 secured to the loom side 10. A coil spring 44 (Fig. 3) is mounted on the stud 42 and acts to move the thread cutter rearward whenever the same is released. An adjustable stop 45 limits such rearward movement.

My thread cutter also comprises a movable cutter blade 50 (Fig. 5) and a clamping or pressure plate 51, the latter plate being held from angular movement relative to the member 40 but being pressed yieldingly toward the blade 50 and member 40 by a spring washer 52 secured by a clamping bolt 53.

The cutter blade 50 is pivoted on the bolt 53 and has an upwardly extending offset projection 54 (Fig. 2) and a depending projection 55. A latch 60 (Figs. 2 and 4) is pivoted at 61 on a stand 62 and is held from clockwise movement (as viewed in Fig. 2) but is free to swing in the opposite direction.

When the thread cutter is released and moves rearward, the projection 54 is engaged by the

latch 60 and the cutter blade 50 is rocked to the open dotted line position shown in Fig. 2. As the lay thereafter moves forward, the lay engages the depending projection 55 and moves the cutter blade 50 from the dotted to the full line position shown in Fig. 2, thus clamping and cutting the thread. On such forward movement, the latch 60 swings freely out of the path of the projection 54.

10 The lever 41 is provided with a beveled lug 70 (Fig. 3) positioned for engagement by the offset lower end 71 of a locking lever 72, mounted on a fixed pivot 73 and having its upper end portion 74 positioned for engagement by an arm 75 extending downward from the rock shaft 26. A spring 76 normally holds the locking lever 72 in the full line position shown in Fig. 3.

When the thread cutter is forced forward by engagement by the lay, the beveled lug 70 displaces the depending projection 71 of the lever 72 and passes beyond the same, but the lever 72 thereafter snaps back to initial position and prevents return or rearward movement of the thread cutter until the lever 72 is given a releasing movement by the rocking of the rock shaft 26, which rocking movement simultaneously depresses a selected bobbin holder 14 and presents a fresh weft carrier in the path of the transfer member 15. At the same time the plate 18 (Fig. 1) is raised to connect the transfer member 15 with its operating cam 35.

I have thus provided means by which a normally inoperative thread cutter is released for rearward movement to operative position simultaneously with the presentation of a fresh weft carrier in transfer position, and I have further provided means by which the means for with-

drawing the locking lever to release the thread cutter and the means for presenting the weft carrier in position for transfer are simultaneously operated by a single actuating element.

I thus insure that the timed relation between the presentation of the weft carrier in transfer position and the release of the thread cutter shall be positively predetermined and not liable to variation.

While my improved thread cutting mechanism and its operating connections are capable of general application to weft replenishing looms, it possesses special advantages when used in pick-and-pick looms in which two or more shifting shuttle boxes are provided at the magazine side of the loom. With my improved mechanism, the thread cutter is released very promptly upon indication of weft exhaustion and moves rearward to engage and cut the thread before any opportunity occurs for displacement of the weft end or for entangling thereof with the weft ends connected to other shuttles.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claim, but what I claim is:—

In a loom, a weft carrier magazine having a plurality of bobbin holders selectively movable downward to present a bobbin in transfer position, a rock shaft effective to depress a selected bobbin holder on indication of substantial weft exhaustion, a thread cutter normally held in inoperative position, and means actuated by said rock shaft to release said thread cutter substantially simultaneously with the depression of said selected bobbin holder thereby.

ALBERT A. GORDON.

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