March 5, 1929. G. ALEXANDER, SR 1,704,455

REED MOVING MECHANISM

Filed May 9, 1928 2 Sheets-Sheet 1

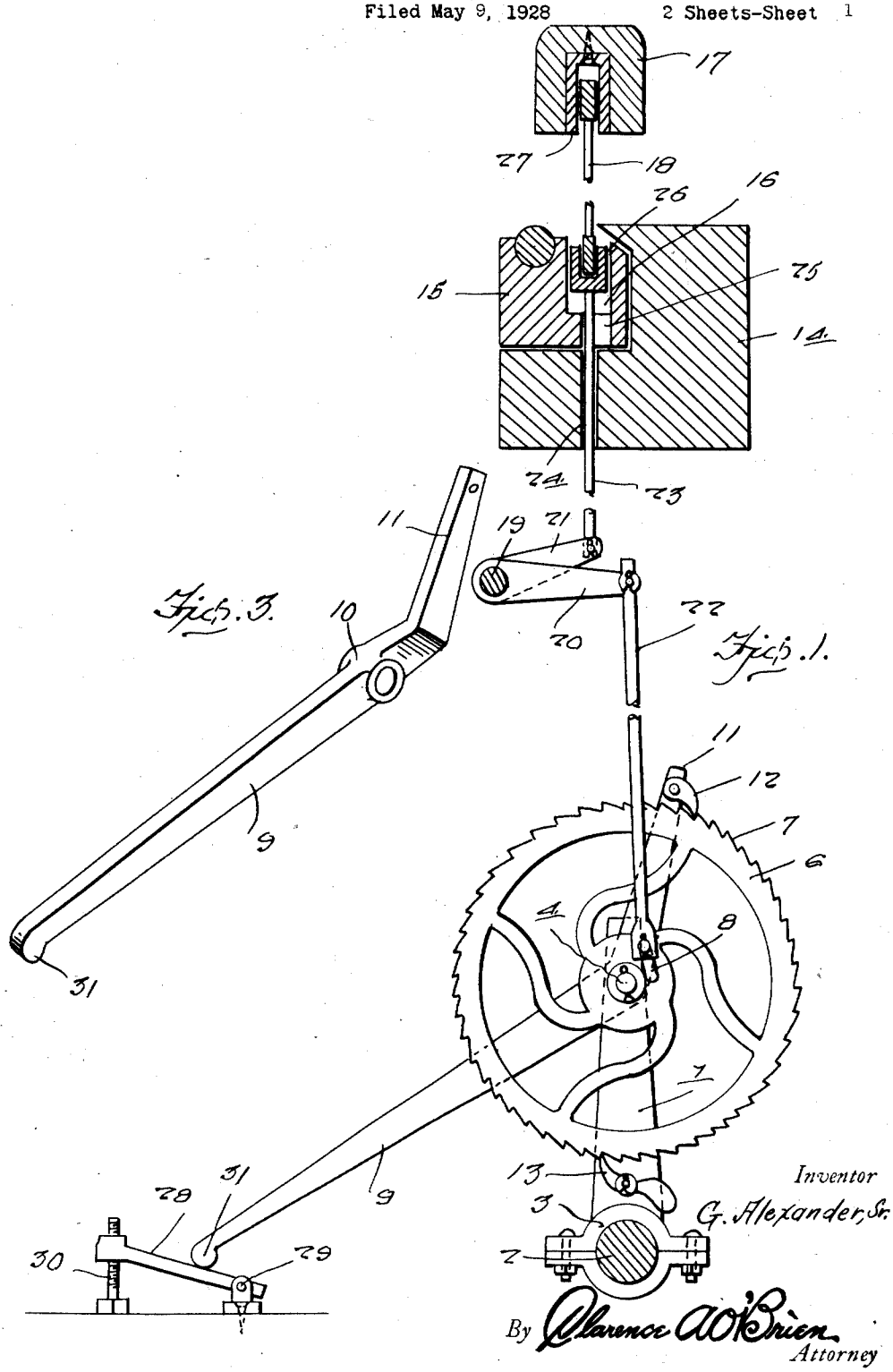


Fig. 3.

Fig. 1.

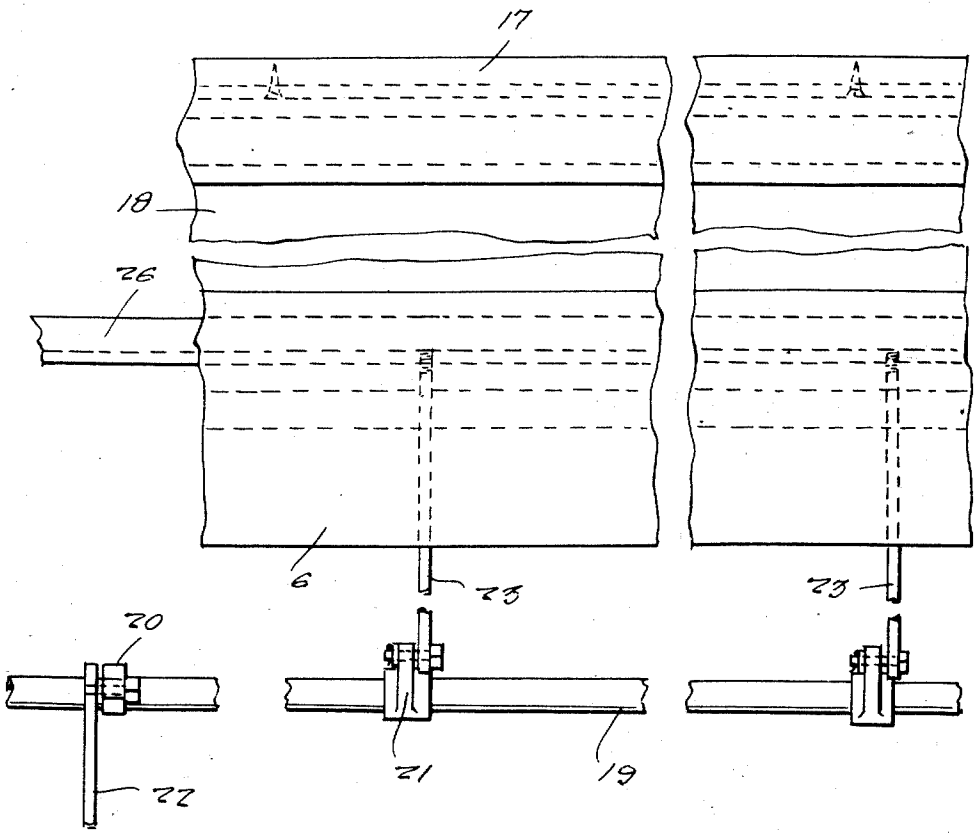
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REED MOVING MECHANISM

Filed May 9, 1928 2 Sheets-Sheet 2



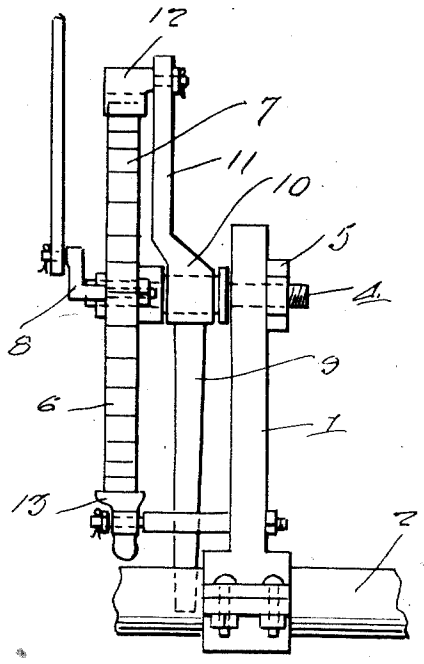


Fig. 2.

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UNITED STATES PATENT OFFICE.

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REED-MOVING MECHANISM.

Application filed May 9, 1928. Serial No. 276,323.

The present invention relates to a reed moving mechanism particularly adapted for association with standard looms for controlling the efficiency of the reed.

In the art of weaving, the reed is used in separating the warp threads, the reed is also used as a shuttle guide as it moves through the shed, delivering the filling and to bat the filling into the cloth.

The enormous frictional strain imposed upon the reed destroys its face, flattening the dents and cutting grooves at a point where the reed comes in contact with the cloth in beating up. It is obvious that if the point was continuous shifting the grooves would not be cut into the reed.

It is therefore a salient object of the present invention to provide a mechanism for moving the reed upwardly for a predetermined number of picks and then reversing the motion until a predetermined point is reached thus forming a cycle.

A further object of the invention resides in the provision of a reed moving mechanism of the above mentioned character which is simple in construction, inexpensive, strong and durable, and further well adapted to the purpose for which it is designed.

Other objects of the invention will become apparent as the nature of the invention proceeds, and when taken in connection with the accompanying drawing.

In the accompanying drawings, forming a part of this application and in which like numerals designate like parts throughout the several views:

Figure 1 is a view partly in elevation and partly in section of my improved mechanism for moving the reed, parts being broken away.

Figure 2 is a front elevation of the mechanism, the reciprocating lay being shown fragmentarily.

Figure 3 is a detail perspective view of the lever forming a part of the mechanism.

In the drawings, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a vertically disposed arm which is operatively connected at its lower end to the rocker shaft 2, by a sectional clamp structure shown generally at 3. A stud 4 projects through the upper end portion of the arm 1 and is disposed transversely with respect thereto, one end of the stud being threaded for receiving thereon a nut 5 which engages with the inner side face of the arm as clearly shown in Figure 2.

Loosely mounted for rotation on the outer end portion of the stud 4 is the ratchet wheel 6, the ratchet teeth formed in the outer peripheral face thereof being shown at 7. A crank 8 extends outwardly from the hub portion of the ratchet wheel 6, and the purpose thereof will be hereinafter more fully described.

An elongated lever 9 is formed with a sleeve 10, adjacent its upper end for receiving the stud 4, and this sleeve is disposed between the inner face of the ratchet wheel and the adjacent side face of the arm 1 and affords a means whereby the lever is fulcrumed on the stud. Offset arms 11 extend upwardly from the upper end of this lever, and carried by the upper end of the offset portion 11 is the pawl 12, that cooperates with the ratchet teeth 7, to effect the rotation of the ratchet wheel in a clockwise direction. A weighted pivoted pawl 13 is arranged on the lower portion of the arm 1 for engagement with the ratchet teeth 7 to prevent counter-clockwise rotation of the ratchet wheel and to permit the pawl 12 to move to a position to engage the next adjacent tooth 7. The specific construction of the arm and lever is shown very clearly in Figure 3 of the drawings.

The reciprocating lay of the loom is shown at 14, the reed cradle being illustrated at 15 and this reed cradle is formed with the usual reed receiving pocket 16. The hand rail is shown at 17 and the reed at 18.

The transverse shaft that is journaled in the usual lay swords (not shown) is indicated at 19. An arm 20 extends forwardly from the shafts 19 and a similar arm 21 also extends forwardly from this shaft. The outer end of the arm 20 is connected to the upper end of a rod 22, the lower end thereof being operatively connected to the crank 8.

The outer end of the arm 21 is connected to the lower end of a rod 23 that is slidable through an opening 24 provided therefor in the lay 14 and the upper portion of this rod 23 projects through an enlongated slot 25, formed in the bottom forward portion of the cradle 15, and carried by the upper end of this rod is the metallic lower cap 26 for receiving the lower end of the reed 18 and this cap is operable within the pocket 16, as is clearly shown in Figure 1. As indicated in Figure 2, a pair of arms 21 are associated with the shaft 19 and a pair of rods are oper-

atively connected at their lower ends with the forward ends of these arms, while the upper ends of the rods connect with the cap 26 shown by dotted lines in Figure 2.

A stationary metallic cap 27 is secured in the hand rail 17 for the upper end of the reed 18, and sufficient clearance is provided to permit the upward sliding movement of the reed. The invention further comprehends the provision of a foot 28 that is pivoted at its forward end as at 29, the opposite end of the foot being adjustable by the adjusting means shown at 30, whereby said foot may be disposed at any desired incline.

The free end of the lever 9 is formed with a rounded nose 31, that slides over the inclined foot 28.

In operation, the mechanism rocks back with the lay on the rocker shaft 2, and the lever 9 will slide rearwardly along the foot 28, causing the pawl 12 carried by the arm 11 to engage the ratchet teeth 7 and move the ratchet wheel 6 in a clockwise direction. The pawl 13 will prevent retrograde movement of the ratchet wheel and will permit the pawl 12 to be moved back on the forward motion of the mechanism and the lay to engage the next adjacent ratchet tooth.

The rotary motion of the ratchet wheel will cause the crank connecting rod 22 to move upwardly and downwardly and it is obvious that this motion will be imparted to the rod 23 which will raise and lower the cap 26 and the reed resting in said cap.

The provision of a mechanism of this character will prevent the destruction of the face of the reed and the flattening of the dents and the cutting of grooves at the point where the reed comes in contact with the cloth in beating up.

The simplicity of my mechanism enables the same to be readily and easily installed on a standard loom and the same will at all times be positive and efficient in carrying out the purposes for which it is designed and furthermore the parts are arranged so as to permit the same to be easily adjusted

While I have shown the preferred embodiment of my invention, it is to be understood that minor changes in the size, shape and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the appended claim.

Having thus described my invention, what I claim as new is:

In combination with a loom including a lay, a hand rail, a cradle arranged in the lay, and a reed arranged between the cradle and the hand rail, of means for raising and lowering the reed for the purposes described, said means including a rod slidable through the lay and the cradle, a cap on the upper end of the rod for receiving the lower edge of the reed, the hand rail being formed with a pocket to permit vertical movement of the reed therein, means for actuating said rod, said last mentioned means including an arm, a rocker shaft, the lower end of the arm being operatively associated with said rocker shaft, a ratchet wheel mounted for rotation on said arm, a crank carried by the ratchet wheel, a connecting rod connected at its lower end to said crank, an operative connection between the upper end of the connecting rod and the lower end of the aforementioned rod, and means for turning the ratchet wheel to actuate the crank during the operation of the rocker shaft, said last mentioned means including a lever fulcrumed at one end on the arm, a pawl carried by the fulcrumed end of the lever for cooperation with the ratchet teeth of the ratchet wheel, and an angularly disposed foot with which the free end of the lever cooperates.

In testimony whereof I affix my signature.

GAVIN ALEXANDER, Sr.