Nov. 24, 1931. G. E. NORDSTROM 1,832,943

LOOM FOR WEAVING FIBER REED

Original Filed April 17, 1928 2 Sheets-Sheet 1

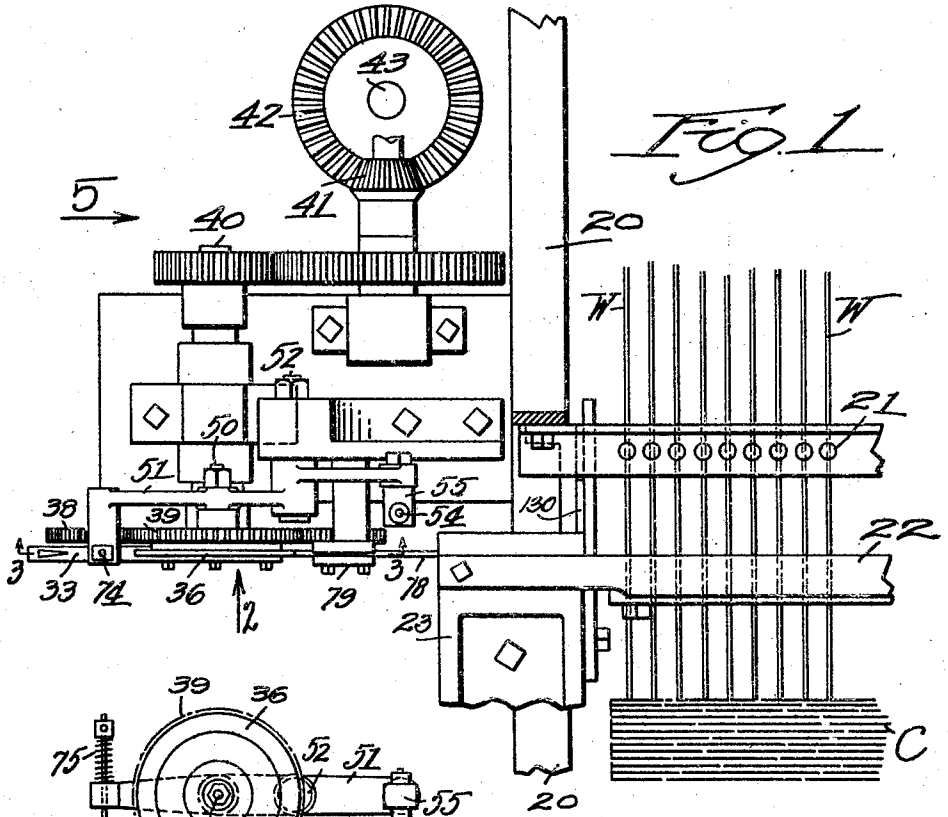


Fig. 1

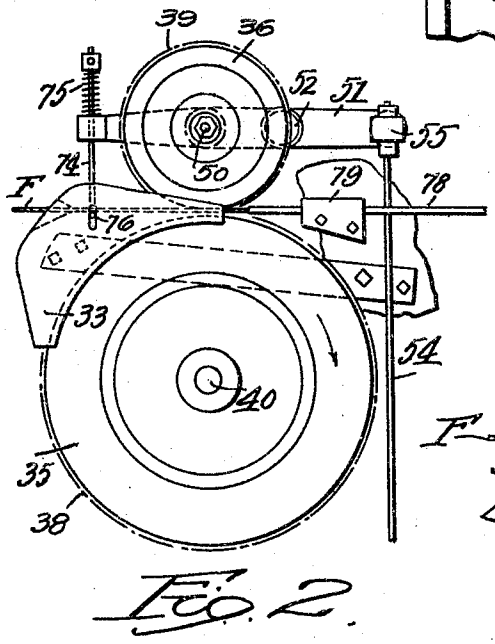


Fig. 2



Fig. 4

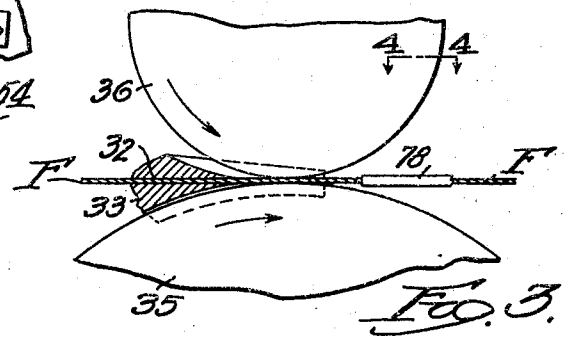


Fig. 3

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Fig. 5.

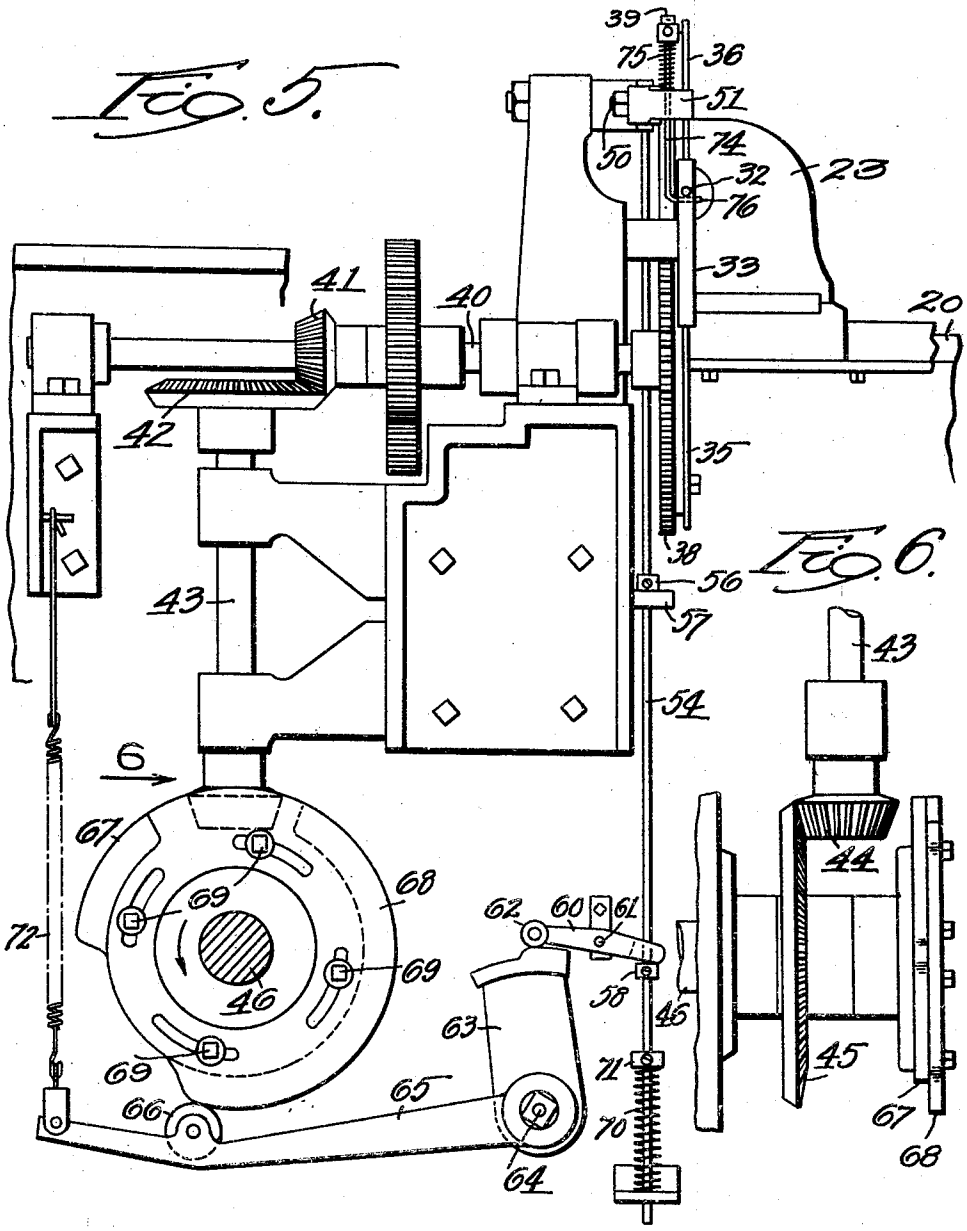


Fig. 6.

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UNITED STATES PATENT OFFICE

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LOOM FOR WEAVING FIBER REED

Original application filed April 17, 1928, Serial No. 300,342. Divided and this application filed November 15, 1929. Serial No. 407,528.

This invention relates to certain improvements in a loom for weaving fiber reed or other similar products and is a division of my prior application, Serial No. 300,342, filed by me April 17, 1928. In such a loom, no shuttle is used but the fiber is pushed or "shot" through the shed of the fabric from one edge thereof.

It is one object of my invention to provide improved mechanism for thus intermittently feeding or shooting the fiber into the fabric.

I have also provided a braking device for preventing overfeed of the fiber.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

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

Fig. 1 is a plan view of parts of a loom having my improvements embodied therein;

Fig. 2 is a front elevation of the feeding mechanism, looking in the direction of the arrow 2 in Fig. 1;

Fig. 3 is an enlarged sectional elevation, taken along the line 3—3 in Fig. 1;

Fig. 4 is a detail sectional view of a part of one of the feed wheels, taken along the line 4—4 in Fig. 3;

Fig. 5 is a side elevation of the feeding mechanism, looking in the direction of the arrow 5 in Fig. 1; and

Fig. 6 is a rear elevation of certain driving connections, looking in the direction of the arrow 6 in Fig. 5.

In Fig. 1 I have shown a portion of a loom frame 20 having harness mechanism 21 mounted thereon and having a reed or beater 22 mounted on brackets 23 and slidable on the loom side 20. The warp threads are indicated at W and the woven fabric at C.

The reed 22 is formed of upper and lower members which, when closed, provide a passage extending from side to side of the loom. The fiber reed is inserted in the fabric by pushing or shooting the fiber through the passage thus formed.

The fiber is fed from a suitable roll or creel to a passage 32 (Fig. 3) in a fixed guide-member 33. The guide-member presents the reed F between feed discs 35 and 36. The edges of the feed discs are grooved, as indicated at 37 in Fig. 4, and thus prevent lateral displacement of the fiber.

The feed discs 35 and 36 are fixed to gears 38 and 39 by which they are positively rotated. The gear 38 is mounted on a shaft 40 (Fig. 5) rotatable in fixed bearings and connected by bevel gears 41 and 42 with an intermediate shaft 43 having a bevel pinion 44 (Fig. 6) engaging a bevel gear 45 on a main driving shaft 46 which is continuously rotated from any convenient source of power.

The teeth of the gears 38 and 39 are made of unusual length, so that the upper gear 39 may be raised and lowered more or less without disengaging the gears.

The upper gear 39 and its disc 36 are mounted on a stud 50 (Fig. 1) secured in a rocking lever 51, pivoted on a fixed stud 52 and having a rod or link 54 connected thereto by a stud 55 mounted in an arm extending rearwardly from the hub of the lever 51.

The rod or link 54 (Fig. 5) is provided with a collar 56 engaging a bracket or projection 57 and limiting downward movement thereof.

A second collar 58 on the rod 54 is engaged by the forked end of a small cam lever 60, pivoted at 61 and having a roll 62 at its opposite end. The roll 62 engages a two-step cam 63, pivoted at 64, and having an arm 65 with a roll 66 engaging an actuating cam on the main shaft 46. The cam is made in two pieces 67 and 68, as indicated in Figs. 5 and 6, the piece 68 being slotted and being secured to the member 67 by bolts 69.

The two cam portions 67 and 68 may be adjusted angularly relative to each other, to vary the feed of the fiber in accordance with the width of the fabric being woven.

A spring 70 (Fig. 5) engages a third collar 71 on the rod 54 and forces the rod yieldingly upward as far as is permitted by the cam lever 60. A spring 72 (Fig. 5) also acts to apply yielding pressure to the cam lever 65.

The parts are shown in inoperative position in Fig. 5, with the feed discs 35 and 36 separated. When the roll 66 drops into the low

space between the members 67 and 68, the cam 63 is rocked to the right and the roll 62 drops, permitting the rod 54 to be moved yieldingly upward by the spring 70. This action pushes the upper feed disc 36 downward against the fiber which is resting on the groove on the lower feed wheel 35.

A brake rod 74 (Fig. 2) is slidable vertically in the outer end of the feed lever 51 and is pressed yieldingly upward by a spring 75. The lower end 76 of the rod 74 is bent forward, as indicated in Fig. 5, and extends under the fiber F. When the lever 51 is rocked to separate the feed discs and stop the feed, the offset end 76 presses upward on the under side of the fiber and acts as a brake to prevent overrunning of the fiber.

As the fiber leaves the feed wheels, it enters a guiding tube 78 (Fig. 2) mounted in a fixed bracket 79 and is severed by a knife 130.

Briefly summarized, my improved feeding mechanism comprises upper and lower feed discs 35 and 36, continuously rotated and alternately moved toward and away from each other at predetermined times by the cam mechanism described.

When the feed wheels are moved toward each other, they engage the fiber F and force or shoot the fiber through the shed opening, the amount of feed corresponding to the width of the fabric and being determined by the setting of the cam portions 67 and 68 (Fig. 5). Overrunning of the fiber is effectively prevented by the braking device 76.

A simple and satisfactory feeding mechanism is thus provided, by which the feed may be accurately accomplished and conveniently adjusted.

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 claims, but what I claim is:—

1. In a loom for weaving relatively stiff filling, in combination, a pair of feed members, means to give both of said members a continuous feeding movement, means to move one of said members toward the other, and cam actuated means for controlling and timing the movement of said members toward each other to engage and feed the filling.

2. In a loom for weaving relatively stiff filling, in combination, a pair of feed members, means to give both of said members a continuous feeding movement, means to move one of said members toward the other, and cam actuated means for controlling and timing the movement of said members toward each other to engage and feed the filling and to maintain feeding engagement for a predetermined period.

3. In a loom for weaving relatively stiff filling, in combination, a pair of feed members, means to rotate both of said members continuously, means to move one of said members toward the other and cam actuated means for controlling and timing the movement of said members toward each other to engage and feed the filling and to maintain feeding engagement to feed a predetermined length of filling.

4. In a loom for weaving relatively stiff filling, in combination, a pair of rotatable feed members, intermeshing gears on said feed members having gear teeth of such length that they maintain driving engagement when said feed members are separated and inoperative, means to rotate said gears and members continuously, and means to move said members toward each other to engage and feed the filling, at a predetermined point in the cycle of operation.

5. In a loom for weaving relatively stiff filling, in combination, a pair of feed members mounted for separation and approach, means to rotate both of said members continuously, and automatically controlled means to effect an approach of said members to engage and feed the filling and to separate said members after a predetermined feeding action.

6. In a loom for weaving relatively stiff filling, in combination, a pair of feed members, means to give said members a continuous feeding movement, automatically controlled means to move said members toward each other to engage and feed the filling, and means adjacent said feed members effective to engage and retard said filling, said latter means becoming operative only as said feed members are separated.

7. In a loom for weaving relatively stiff filling, in combination, a pair of feed members, means to give said members a continuous feeding movement, automatically controlled means to move said members toward each other to engage and feed the filling, and means to apply yielding braking pressure to said filling as said members are separated.

8. In a loom for weaving relatively stiff filling, in combination a pair of feed members, means to rotate both of said members continuously, and means to move said members toward each other to engage and feed the filling, and automatic means to separate said members after a predetermined feeding action, said last means comprising an adjustable cam and connections from said cam to one of said members.

9. In a loom for weaving a relatively stiff filling, in combination a pair of feed members, means to give said members a continuous feeding movement, means to move said members toward each other to engage and feed the filling, an adjustable cam effective to move one of said members to inoperative position, connections from said cam to said member, and means adjacent said feed members effective to engage and retard said fill-

ing, said latter means becoming operative only as said feed members are rendered inoperative.

10. In a loom for weaving relatively stiff filling in combination, a pair of feed members, means to give said members a continuous feeding movement, means to move said members toward each other to engage and feed the filling, and means to separate said members, said latter means comprising an adjustable cam, and connections from said cam to one of said members, effective to limit feeding engagement to a predetermined period.

In testimony whereof I have hereunto affixed my signature.

GUSTAF E. NORDSTROM.