Dec. 31, 1946. J. NAULT 2,413,643

SHOCK ABSORBER ON SWEEP ARM FOR PICKER MOTION LOOMS

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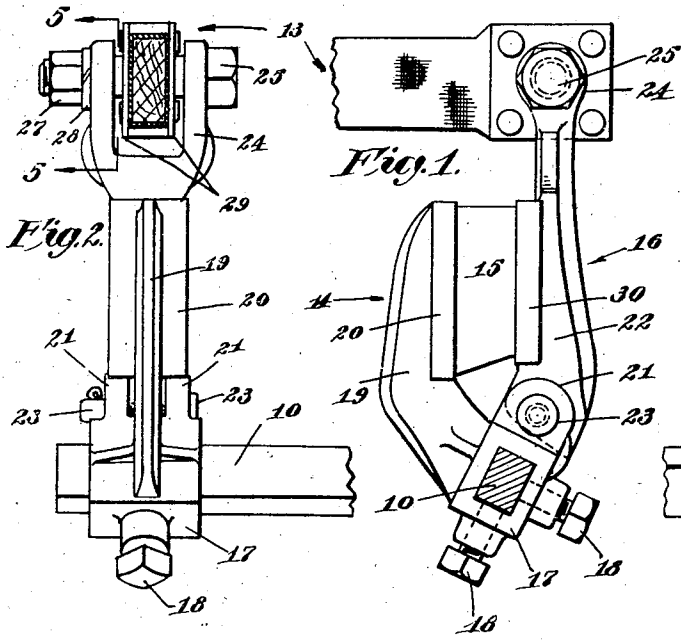


Fig. 2.

Fig. 1.

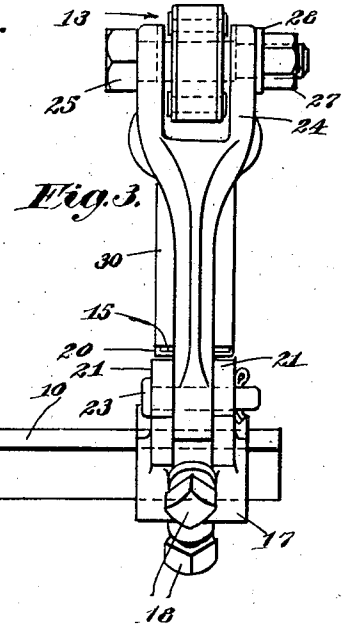


Fig. 3.

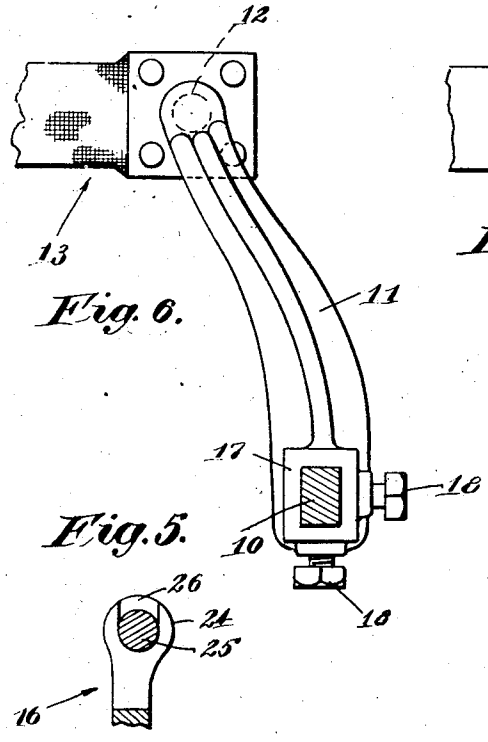


Fig. 6.

Fig. 5.

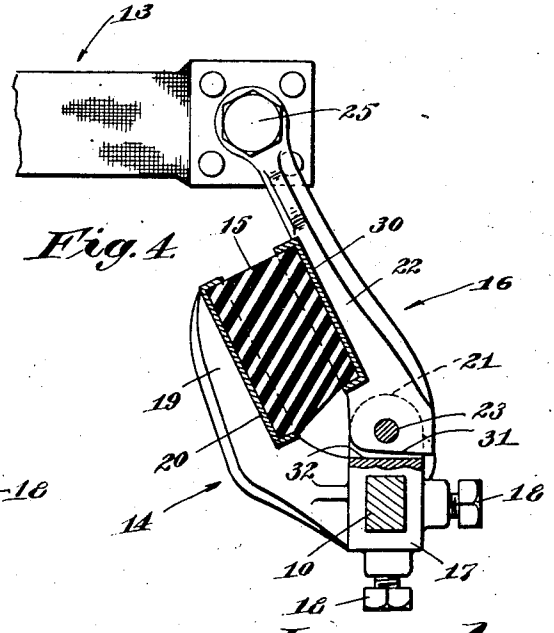


Fig. 4.

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SHOCK ABSORBER ON SWEEP ARM FOR PICKER MOTION LOOMS

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5 Claims. (Cl. 139—147)

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My present invention relates to shock absorbers and more particularly to shock absorbers for sweep arms for picker motion looms.

Heretofore, picker motion looms have been equipped with solid one-piece levers (sweep arms) which often break, tying up the loom. In other instances the shoe bar to which the conventional sweep arm is solidly attached breaks with the same result.

As is well known in the field to which this invention is directed, the sweep stick oscillates very rapidly and the shock at the end of each stroke is very great. In time this continuous and rapid shock tends to crystallize the toughest kind of metals resulting in breakdowns and loss of time.

Having the above defect in mind I have evolved an innovation in the sweep arm by providing for a yielding blow which is cushioned by means of a yieldable semi-solid rubber cushion which cannot crystallize, as happens with steel springs and the like therefore:

The principal object of my invention is an improved sweep arm for picker motion looms;

Another object is an improved sweep arm which provides for shock absorbing movement in the sweep arm itself, and

Other objects and novel features comprising the construction and operation of my device will be more apparent as the description of the same progresses.

In the drawing illustrating the preferred embodiment of my invention but not necessarily the only one:

Fig. 1 is a side elevation of the improved sweep arm, the shoe bar being broken off and shown in cross-section and the sweep arm broken off for convenience;

Fig. 2 is an elevation of the left-hand side of Fig. 1, the shoe bar being broken off and the sweep stick shown in cross-section;

Fig. 3 is an elevation of the right-hand side of Fig. 1, the shoe bar being broken off;

Fig. 4 is a side elevation partially shown in cross-section, the sweep stick being broken off, and showing the device in a different position;

Fig. 5 is a fragmentary cross-section taken on the line 5—5 of Fig. 2, and

Fig. 6 is a side elevation parts of which are broken off and shown in cross-section of a conventional sweep arm.

Referring more in detail to the drawing, and particularly to Fig. 6, at 10 I have shown the conventional shoe bar as used in picker motion looms upon which is mounted a conventional sweep arm 11 the upper end of which is provided with a stud

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12 which is inserted through the end of a sweep stick 13. The motion of the shoe bar 10 and lever or sweep arm 11 is oscillatory, the shoe bar 10 being the driving member. The oscillatory motion is very fast and sudden, eventually resulting in the rupture of either the bar 10 or the sweep arm 11 or both. In some instances the failure occurs in the stud 12.

In Figs. 1 to 5 inclusive is illustrated my improved shock absorbing sweep arm in which 14, 15 and 16 indicate the shoe bar lever; the resilient shock absorbing member, and the sweep stick lever respectively. The shoe bar lever 10 carries the lever 14 which is provided with a hub portion 17 securely fixed to the bar 10 by means of the set screws 18. To one side of the hub 17 is provided an off set member 19 one side of which is provided with a shallow box recess 20. On the upper side of the hub portion 17 is provided hinge members 21.

Hinged to the shoe bar lever 14 is the sweep stick lever 16 which comprises a main lever portion 22 the lower end of which is pivoted in the hinge members 21 of the hub 17 by means of the clevis pin 23. The upper end of the lever 16 is provided with a yoke portion 24. The sweep stick 13 loosely rides in the yoke 24 on a stud 25 fitted through suitable holes located through the said yoke. On the inside surfaces of the two yoke arms recesses 26, see Fig. 5, are provided to increase the shear strength of the connection and at the same time to reduce the possibility of the stud 24 becoming loosened. A nut 27 and lock washer 28 respectively are provided for the stud 25 to produce a solid union. The sweep stick 13 is of the conventional type usually being made of wood with a covering of duck fabric and reinforcing plates 29 composed of laminated Bakelite or the equivalent. On one side of the lever 16 is another box recess 30 directly opposite the box recess 20 on the member 14.

The third member 15 which completes the assembly is a block of resilient rubber or the equivalent which fits into the box recesses 20 and 30, as shown in Figs. 1 and 4.

In operation the apparatus, as shown in Fig. 4, is in position for movement to the right. The shoe bar 10 is suddenly snapped to the right, as shown in Fig. 1, which causes the bar lever 14 to suddenly compress the rubber block 15 causing the sweep lever member 16 to move in the same direction but the force of the blow is mainly absorbed by the rubber block 15.

By a closer inspection of Fig. 5 it will be noted that the lowermost end of the lever 16 pivoted

on the pin 23 to the hub 17 can move only slightly to the right before the straight side 31 engages the face 32 of the hub but when the lever 19 compresses the rubber block 15 the face 32 of the hub is free to move away from the straight surface 31 of lever 16 thereby making it possible for the two levers 14 and 16 to move toward each other while the levers are both moving to the right. The force is applied at 10 and thence to the hub 17 but the blow is struck midway between the bar 10 and the stud 25 thereby reducing the long leverage shown in Fig. 6 but at the same time maintaining the same length of stroke on the sweep arm 13.

While I have shown my invention somewhat in detail in its preferred form yet it is to be understood that other modifications may be used incorporating the same principle and yet be within the scope of the appended claims.

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

1. An improved shock absorbing sweep arm for picker motion looms comprising, an arm member fixed to the oscillating shoe bar of said loom, a second arm member pivoted to said first arm and having one end pivoted to a sweep stick of said loom, a resilient member interposed between said first arm and said second arm.

2. An improved shock absorbing sweep arm for picker motion looms located between the reciprocating shoe bar and the sweep stick of said loom comprising, an offset lever fixed to said shoe bar having a recess on one side for receiving a resilient member, a second lever pivoted to said first lever having an oppositely opposed recess for receiving a resilient member, one end of the second lever being pivoted to said sweep stick, a resilient member interposed between the two levers and held in said recesses.

3. An improved shock absorbing sweep arm for picker motion looms located between the reciprocating shoe bar and the sweep stick comprising, an offset lever fixed to said shoe bar having a hinge portion located at ninety degrees to the base of the said offset lever, a sweep stick lever member one end of which is pivoted to said sweep stick the opposite end of which is pivoted to said hinge portion, oppositely opposed receptacles located on the said offset lever and on said sweep stick lever member, and a resilient rubber block mounted in said receptacles.

4. In a picker motion loom having a reciprocating sweep stick and a reciprocating shoe bar, a compound sweep lever connecting said stick with said bar, a resilient member located in said compound member adapted to absorb the shock between said bar and said stick.

5. In a picker motion loom having a reciprocating sweep stick and a reciprocating shoe bar, a sweep arm pivoted to said sweep stick and having a lower pivoted end hinged to an offset lever, resilient means located between the two portions of said arm adapted to receive and cushion the shock imparted to the said sweep arm by said bar.

JOSEPH NAULT.