May 29, 1956 D. M. RAGER 2,747,859

SPRING BUFFERS

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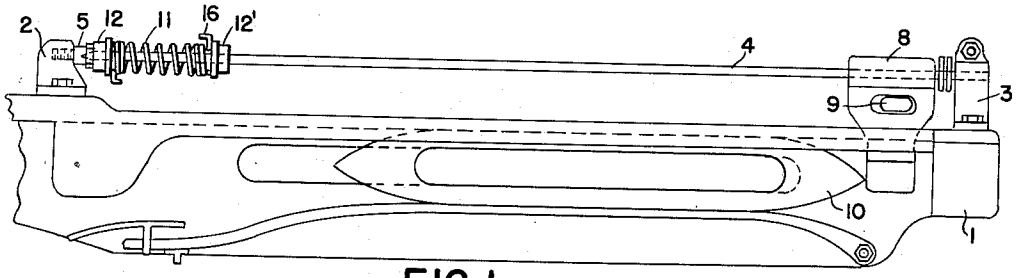


FIG. 1.

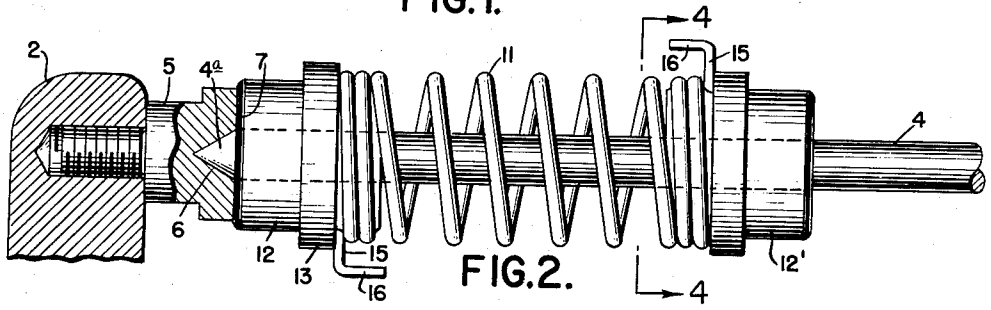


FIG. 2.

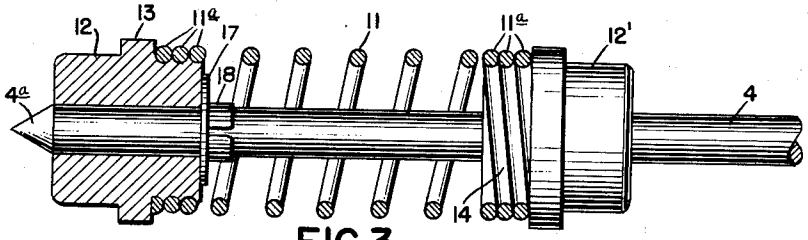


FIG. 3.

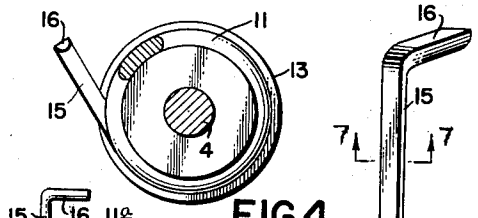


FIG. 4.

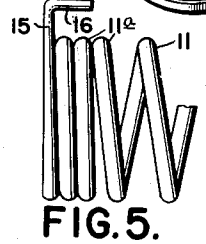


FIG. 5.

FIG. 6.



FIG. 7.

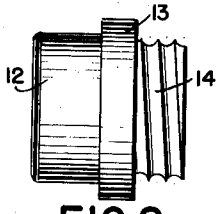


FIG. 8.

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SPRING BUFFERS

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5 Claims. (Cl. 267—1)

This invention relates to spring buffers, and more particularly to buffers adapted to serve as checks for the pickers of looms.

The general object of the invention is to provide a simple efficient and durable buffer of this type. To this end I employ a cylindrical coiled spring having plugs of impact resisting material mounted in each end thereof.

A specific object of the invention is to devise improved means for securing the plugs to the spring, and for this purpose I provide the plugs with external screw threads which are threaded into the end convolutions of the spring.

The relation of the parts is such that screwing the plugs into the spring tends to expand the same, and any attempt to turn the plugs backwards makes the convolutions of the spring contract, thus causing them to grip the plugs more tightly. For this reason the plugs never work loose, and it is ordinarily impossible to unscrew them, unless some additional means is employed.

A further specific object of the invention is, therefore, to provide special means for preventing the convolutions of the spring from contracting when it is desired to unscrew a plug for the purpose of removing the same.

With the above and other objects in view, and to improve generally upon the details of such devices, the invention consists in the construction and combination of parts hereinafter described and claimed, and illustrated in the accompanying drawing, forming part of this specification, and in which:

Fig. 1 is a plan view of a portion of a loom showing my improved buffer applied thereto.

Fig. 2 is a similar view on an enlarged scale of my improved buffer itself and one of the picker rod supports, parts being broken away and shown in section.

Fig. 3 is a longitudinal section through the buffer itself, parts being shown in elevation.

Fig. 4 is a transverse section substantially on the line 4—4 of Fig. 2 looking in the direction of the arrows.

Fig. 5 is a fragmentary elevation of one end of the spring itself looking from the left of Fig. 4.

Fig. 6 is a further enlarged perspective view of a portion of the end turn of the spring.

Fig. 7 is a transverse section on a still further enlarged scale substantially on the line 7—7 of Fig. 6, and

Fig. 8 is a side elevation of one of the plugs shown in Fig. 2.

Referring to the drawing in detail 1 designates a portion of a loom frame having spaced supporting brackets 2 and 3 secured thereto. Set in the bracket 2 is a bushing 5 having at its inner end a conical socket 6.

Supported between the brackets 2 and 3 is the picker rod 4, having a pointed end 4^a adapted to fit within the conical socket 6 of the bushing 5 as shown in Fig. 2. The inner face of the bushing 5 surrounding the socket 6 is perfectly flat as indicated at 7.

The picker is indicated at 8 and the picker stick at 9. The picker slides on the rod 4 and engages the shuttle 10 in the usual manner.

My improved buffer comprises a helical or cylindrical coil spring 11, the middle convolutions of which are spaced apart and open, while 2 or 3 convolutions at each end are closely wound as indicated at 11^a.

Fitted into the ends of the spring 11 are plugs 12 and 12' formed of some suitable impact resistant material. As best shown in Fig. 8, each of these plugs has an annular shoulder 13 surrounding the same and adjacent this shoulder an externally threaded neck 14, the threads being of such pitch and size as to match the convolutions 11^a of the spring. The extreme end convolutions are flattened on their outer side for approximately 180 degrees, such flattened side being adapted to lie snugly against the inner face of the shoulders 13.

The plugs 12 and 12' have central openings which loosely fit over the picker rod 4, so that the plugs may be mounted on such rod and will freely slide thereon.

The threaded necks 14 of the plugs 12 and 12' are screwed tightly into the end convolutions 11^a of the spring and the relation of the parts is such that screwing these plugs into the spring tends to expand the spring. Then the spring contracts and tends to firmly grip the plugs, thus preventing them from becoming accidentally loosened, and any attempt to unscrew the plugs will cause the spring to contract still further.

In order to prevent such contracting of the spring and thus to enable the plugs to be unscrewed and removed when desired, I extend the extreme end convolutions tangentially to form an arm 15, and preferably bend over the end of this arm to form a tab 16 as shown. By pressing firmly on the arm and tab 15 and 16 in a direction at right angles to the paper as shown in Fig. 2, the end convolutions of the spring may be slightly expanded, or at least prevented from contracting, as the plug is unscrewed.

The entire buffer assembly including the spring and plugs above described, is mounted on the picker rod as shown at the left in Fig. 1, the flat face of the plug 12 seating firmly against the flat face of the bushing 5, this bushing thus constituting a shock resisting abutment for the buffer. The impact of the picker is, of course, received by the other plug 12', and the spring 11 resiliently cushions this impact.

In order to maintain the plug 12 substantially in engagement with the face of the bushing 5 and prevent the buffer assembly from working along the rod toward the picker stick, I place a washer 17 against the inner face of the plug 12 as shown in Fig. 3 and hold this washer in position by means of a resilient split ring 18 which surrounds and frictionally engages the picker rod. The only force tending to move the buffer along the rod would be that resulting from the rebound of the spring after the impact of the picker therewith, and the frictional engagement of the ring 18 with the rod 4 is sufficient to hold the buffer assembly in position against the effect of this rebound.

What I claim is:

1. A picker buffer comprising a cylindrical coiled spring, the middle convolutions of which are spaced relatively far apart, while the end convolutions are closely wound, and a plug of impact resisting material screw threaded into the closely wound convolutions of each end of said spring, the final turn of said spring terminating in an arm extending outwardly a substantial distance from the coil, said arm acting as a lever whereby the end convolutions may be loosened to release the plug when it is desired to remove the same.

2. A buffer comprising a cylindrical coiled spring having at each end a plug of impact resisting material screwed into the ends of the spring, the final turn of said spring at each end terminating in an arm extending tangentially outwardly a substantial distance.

3. A buffer comprising a cylindrical coiled spring, the middle convolutions of which are spaced relatively far apart, and the end convolutions of which are closely wound, and a plug of impact resisting material screw threaded into the closely wound convolutions of each end, the final turn of such closely wound convolutions terminating in an arm extending outwardly a substantial distance, said arm serving as a lever whereby the end convolutions may be loosened to release the plug when it is desired to remove the same.

4. A buffer comprising a cylindrical coiled spring having at each end a plug of impact resisting material screwed into the ends of the spring, the relation of the parts being such that screwing the plug into the spring tends to expand the same, so that the spring contracts if the plug turns in the opposite direction, whereby accidental loosening of the plug is prevented, and means including a tangentially extending arm by which the spring may be prevented from contracting when it is desired to unscrew the plug.

5. A buffer comprising a cylindrical coiled spring having at each end a plug of impact resisting material screwed into the ends of the spring, the final turn of said spring at each end terminating in an arm extending tangentially outwardly a substantial distance, and a tab carried at the free end of said arm and projecting at substantial right angles thereto.

References Cited in the file of this patent

UNITED STATES PATENTS

1,009,595	Stacneck	Nov. 21, 1911
1,678,530	Phillips	July 24, 1928
2,181,386	Vanore	Nov. 28, 1939

FOREIGN PATENTS

30,539	Australia	Dec. 4, 1930
508,977	Great Britain	July 10, 1939