

Feb. 7, 1967

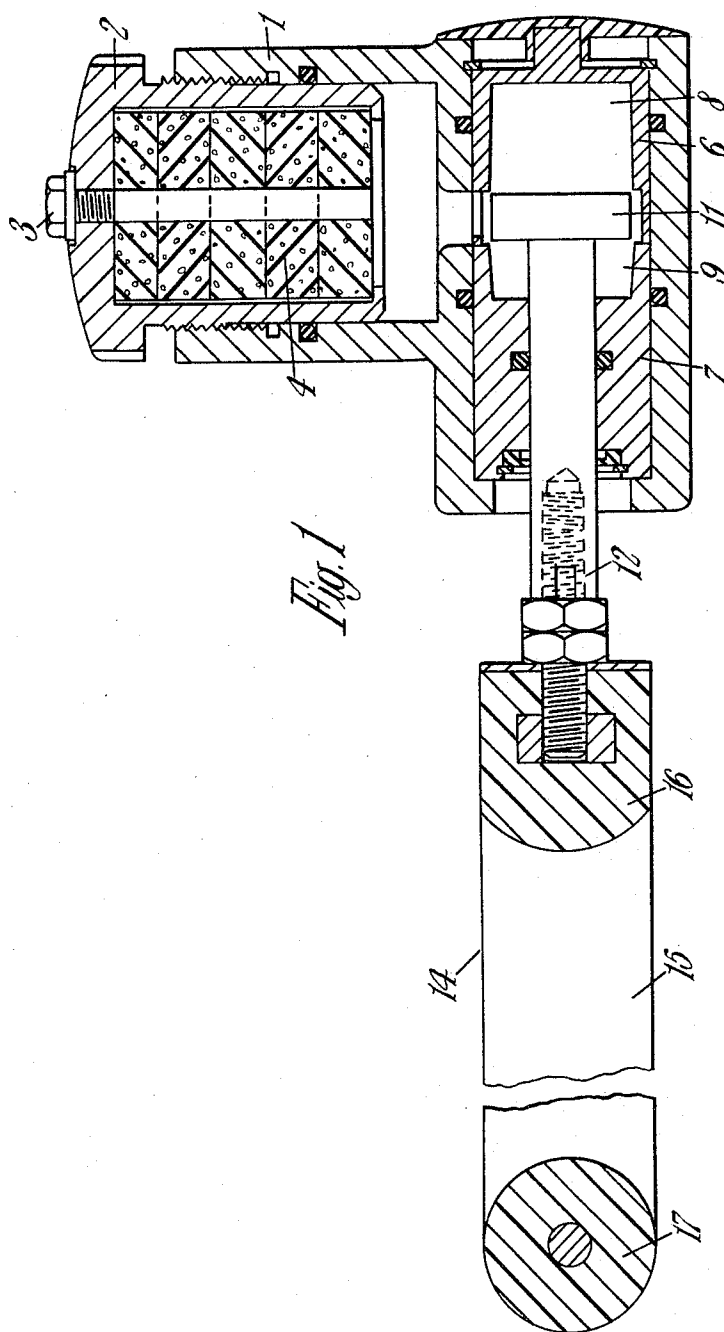
J. K. WAIN

3,302,940

BUFFERS

Filed Sept. 11, 1964

3 Sheets-Sheet 1



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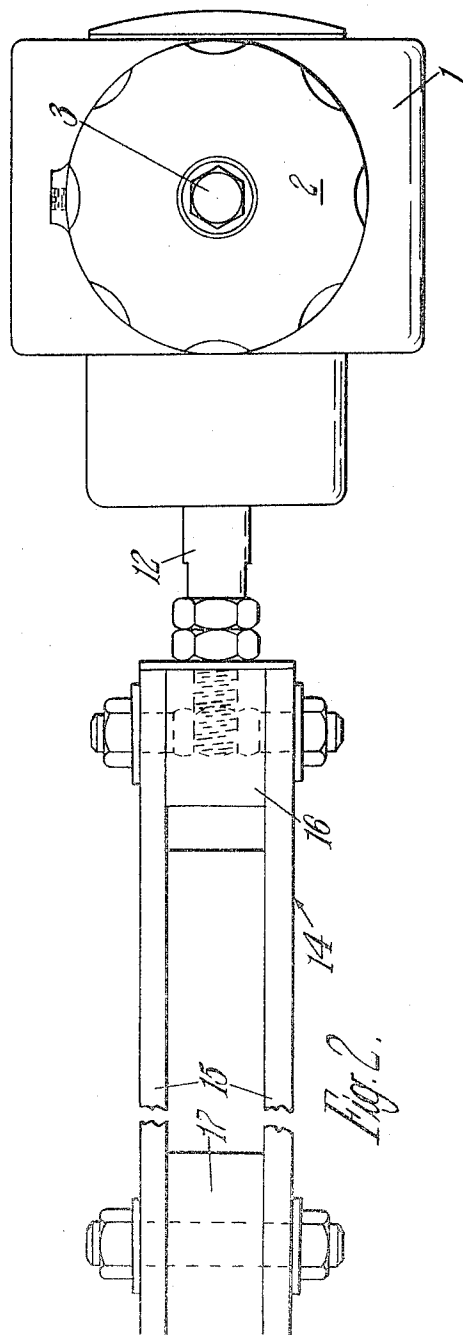
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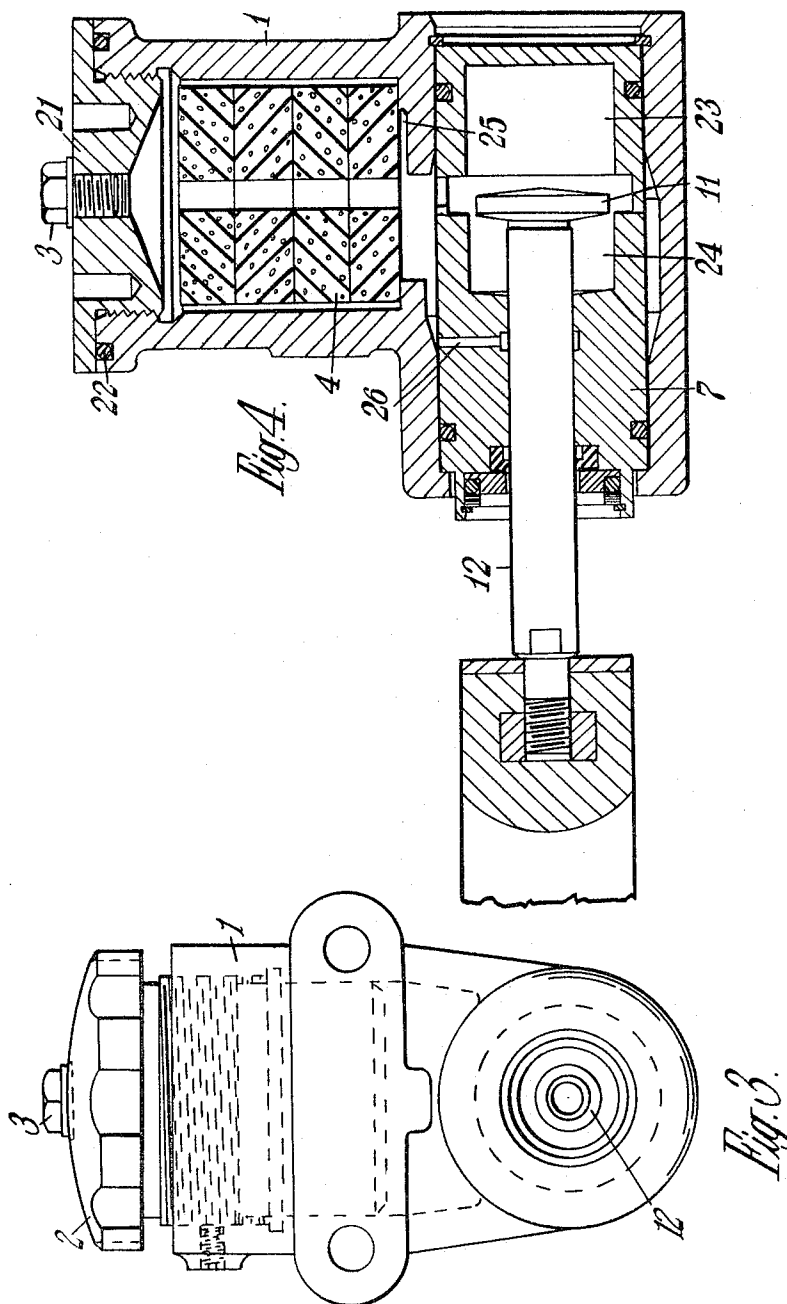
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BUFFERS

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3,302,940

BUFFERS

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3 Claims. (Cl. 267—1)

This invention relates to buffers and more particularly to loom buffers.

The picking stick of a loom has to be buffered in both directions and it is an object of the invention to provide a buffer assembly which is double acting and is suitable for use as a loom buffer.

The invention consists in a buffer comprising a plunger adapted to be damped in its motion in either direction away from a datum position, and an abutment assembly attached to the plunger to provide abutment surfaces for a part to be buffered and to transmit movement of the said part to the plunger upon impact between the part and the abutment surface in either direction of movement of the plunger.

Preferably, the buffer comprises a pair of squelch chambers, which may taper, located one on either side of the datum position of a head portion of the plunger to damp the movement of the latter away from the datum position.

Conveniently, the buffer also includes a body of closed cell expanded rubber or other elastomer to provide a self-recuperating action.

The invention will be further described with reference to the accompanying drawings in which:

FIGURE 1 is a vertical section through a buffer assembly constituting a preferred embodiment of the invention;

FIGURE 2 is a plan view of the assembly of FIGURE 1,

FIGURE 3 is an end elevation of the structure of FIGURES 1 and 2 with parts omitted for clarity, and

FIGURE 4 is a view similar to part of FIGURE 1 showing a modified form of buffer.

FIGURES 1 to 3 of the drawings show a housing 1 having reservoir extension closed by a telescopically received adjusting member 2 threaded into the housing 1. A vent and filler plug 3 is located in the head of the adjusting member 2. The adjusting member also contains a series of rings 4 of closed cell expanded rubber or like elastomer to provide an air cushion, isolated from the buffer oil, for purposes of recuperation.

Sealingly received in the housing 1 are members 6 and 7 presenting tapered squelch chambers 8 and 9 respectively, to a head 11 forming part of a plunger 12 passing sealingly and slidably through the member 7.

It will be understood that the housing is filled with oil and sealed so that changes in volume caused by movement of the plunger 12 in or out of the housing cause variations in the compression of the rings 4. Thus the plunger is always urged towards a position (the datum position, as illustrated in FIGURE 1) in which the internal pressure in the housing is in a fixed relationship to atmospheric pressure determined by the relative differential areas over which the internal and atmospheric pressures act on the plunger. This provides a double acting recuperation. It will also be appreciated that the chambers 8 and 9 co-

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operate with the head 11 to provide a double acting buffer action on the squelch principle.

Attached to the plunger is a sling 14 (omitted from FIGURE 3) arranged to be passed over a loom picking stick (not shown). As best seen in FIGURE 2, the sling 14 consists of a pair of nylon straps 15 interconnecting buffer stops 16 and 17. Stop 16 is rigidly connected to plunger 12.

The straps may be of any length desired to accommodate the required movement of the picking stick. At the end of its track the stick strikes one or other of buffer stops and the resultant shock is transferred to the plunger 12, movement of which is damped, in either direction from the datum position illustrated.

The structure shown in FIGURE 4 is essentially similar to that shown in FIGURES 1 to 3 except that the effective volume of the interior of housing 1 is not adjustable and the squelch chambers are not tapered. In FIGURE 4 the top of housing 1 is closed by a cap 21 screwed down against a sealing ring 22. The vent and filler plug 3 is housed in the cap 21.

The chambers 23 and 24 are not tapered but are merely dimensioned with respect to the head 11 so as to give a restricted fluid flow in or out of the chambers as the head 11 moves. This does not affect the basic shock absorption but only its progressive nature.

A passage 26 provides a leakage path for any fluid which may be forced down the stem of the plunger as this head 11 enters the chamber 24.

Various modifications may be made within the scope of the invention.

I claim:

1. A buffer assembly comprising a plunger, first damping means for damping movement of the plunger away from a central position in one direction, second damping means for damping movement of the plunger away from the central position in the opposite direction, and an abutment assembly rigidly attached to said plunger and comprising spaced, oppositely facing abutment surfaces adapted to be presented to a reciprocable part to be buffered at the ends of a stroke thereof, said abutment assembly being attached to said plunger so as to transmit movement of either abutment surface, consequent upon impact of the part to be buffered, to the plunger.

2. A buffer assembly as claimed in claim 1, wherein the plunger has a head, and each of said damping means comprises a squelch chamber for damping movement of the head away from a central position in a particular direction.

3. A buffer assembly as claimed in claim 2, wherein said buffer includes a body of closed cell expanded elastomer to provide a self-recuperating action.

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