

Aug. 12, 1958

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2,847,037

STOPPING MEANS FOR THE PICKER STICK IN WEAVING LOOMS

Filed Nov. 1, 1956

3 Sheets-Sheet 1

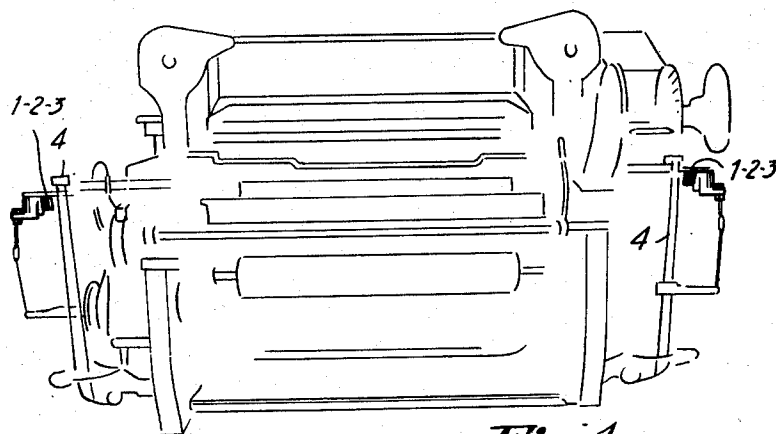


Fig. 1

Fig. 2

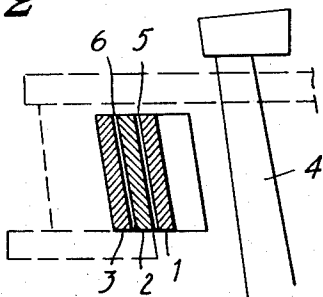


Fig. 3

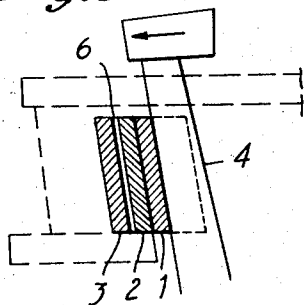
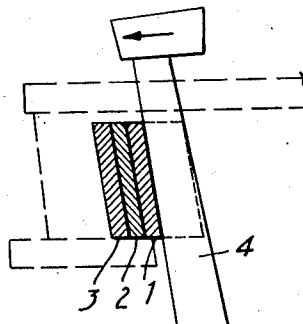


Fig. 4



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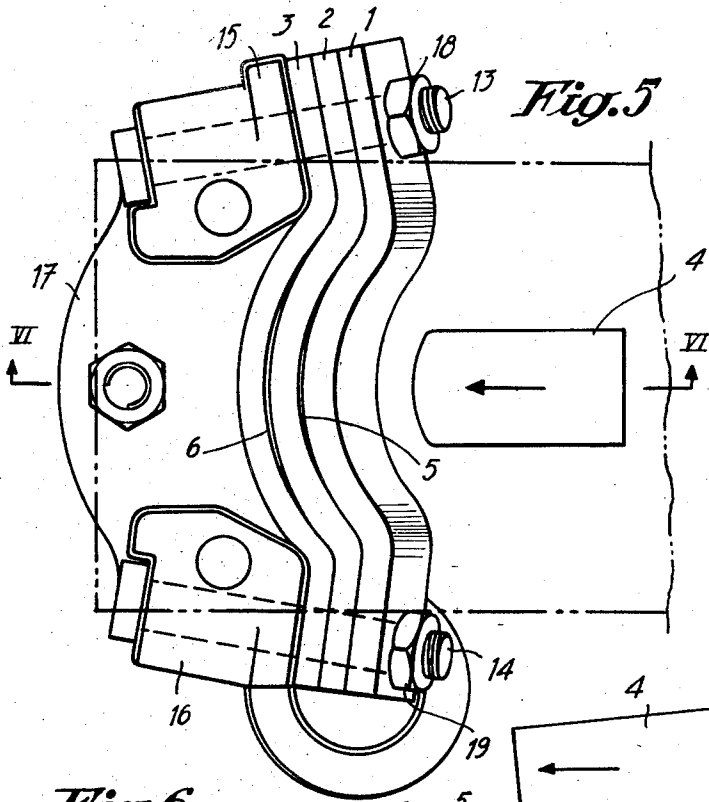
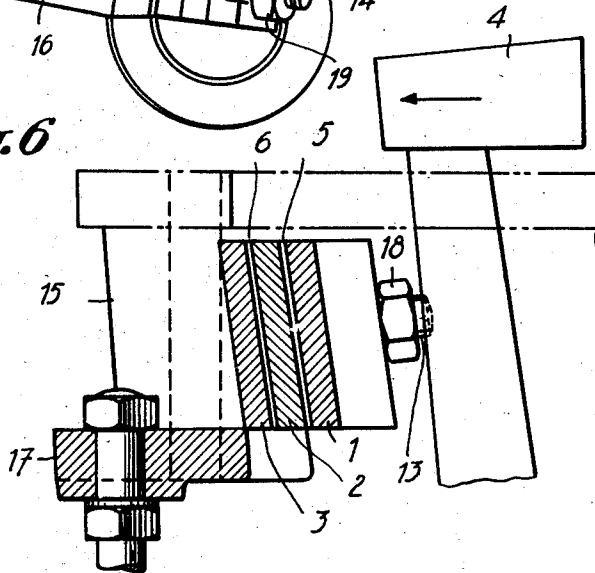


Fig. 6



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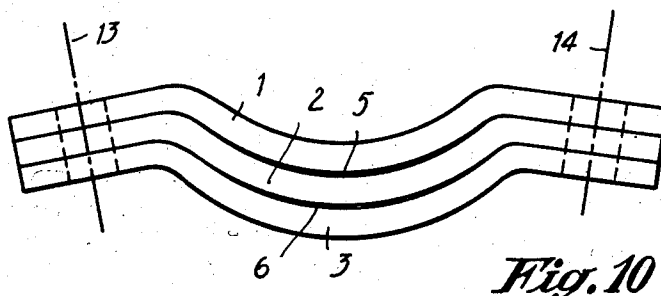
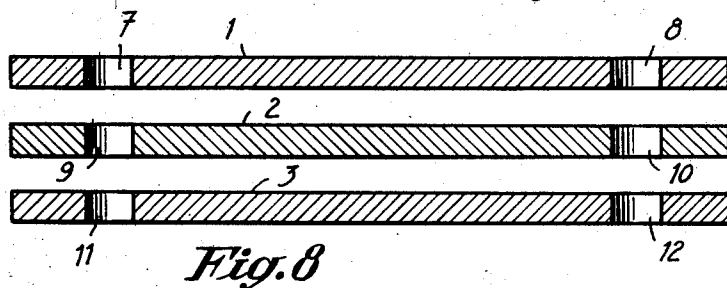
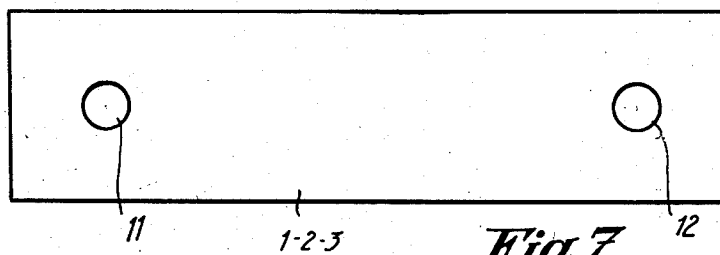
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STOPPING MEANS FOR THE PICKER STICK IN WEAVING LOOMS

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3 Sheets-Sheet 3



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STOPPING MEANS FOR THE PICKER STICK IN WEAVING LOOMS

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Application November 1, 1956, Serial No. 619,788

Claims priority, application Belgium December 17, 1955

1 Claim. (Cl. 139—166)

It is known how much importance must be attached to damping the movement of the picker stick at the moment the shuttle strikes the stop on the bottom of the shuttle box. The extent of this damping action and the way in which it is to be obtained must fulfill numerous conditions, for, whereas it is absolutely necessary that the greater part of the energy stored in the picker stick due to the kinetic energy of the shuttle, be rapidly dissipated as soon as said picker stick arrives at the end of its course, the latter should also retain sufficient freedom of movement so as to permit the shuttle to reach its correct end position on the bottom of the shuttle box. Moreover, it is absolutely necessary to prevent the picker stick from recoiling to the extent of setting in motion the shuttle before the picker motion does.

In order to satisfy said requirements stopping means of very different and often complicated design has already been proposed.

The invention contemplates a stopping device of really extraordinary simplicity. This stopping device is based on a new concept consisting in that the damping of the picker stick movement is, in a way, achieved in a plurality of phases following each other in rapid succession, where-with a plurality of spaced stop elements is permitted to successively come into effective operation while exerting a progressive and cumulative braking action.

The stopping means according to the invention substantially consists of a plurality of short strips or slabs of an adequate material such as leather, said slabs being juxtaposed and joined together but having each, when at rest, a different radius of curvature, so that when the picker stick, on its impetuous return stroke, strikes said stopping means, it first meets the first of said stopping elements, which is thereby almost instantaneously beaten flat against the second element, said second element being made to strike the third element, thus the effect of this cumulative action is quite unequalled in that a powerful and progressive braking action is obtained, whereby the recoil of the picker stick is practically eliminated. By means of control measurements which have been undertaken, particularly with the aid of a high speed camera, it has been established that, due to the use of such a composite stopping device, the picker stick is practically restored to its original form, i. e. it is no longer deformed, at the moment the shuttle arrives on the bottom of the shuttle box.

There are many different ways in which said slabs may be joined together, and said slabs may be made in different forms and with different dimensions and relative positions. Various means may also be applied for providing said slabs with different radii of curvature.

As an example and without any restriction whatsoever a preferred embodiment will be described in more detail hereinafter with reference to the accompanying drawings, wherein:

Figure 1 represents, somewhat diagrammatically, some of the essential elements of a weaving loom, in order

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to bring out the location of the stopping means forming the subject of the invention;

Figures 2, 3 and 4 schematically and very succinctly show the three characteristic positions of the stopping device constituting the subject of the invention;

Figure 5 is a front view of a practical embodiment of the stopping means according to the invention;

Figure 6 shows a section along the line VI—VI of Figure 5;

Figures 7 to 10 schematically indicate the successive manufacturing stages of the main elements of the stopping device according to the invention.

As schematically shown in Figures 2 to 4, the stopping device according to the invention is made up of a plurality of elements, three in the case represented, 1—2—3, of a relatively pliant material such as leather. When the device is in its rest position said elements are slightly spaced, i. e. at least those parts of said elements which are directly exposed to the action of the picker stick 4, the spaces between said elements being indicated by 5 and 6 in Figure 2. When the picker stick 4 arrives at the end of its course, it first encounters the first element 1, which thereby is beaten flat against the element 2, where-after both said elements are in turn beaten against the third element 3. A really striking brake effect without a detrimental recoil is thereby obtained.

The invention also concerns a very elegant, economic and rapid way of manufacturing such a stopping device. This manufacturing process is illustrated in Figures 6 to 10, and it may be executed starting from e. g. three rectangular slabs 1—2—3 generally made of leather, all having same dimensions including thickness and each having a hole near both ends, 7—8, 9—10, 11—12 respectively. When these slabs are laid on top of each other, said openings are superposed so as to form two continuous passages through all of said slabs. Said passages are then slipped on two converging bolts 13—14 and fixed thereon. By judiciously choosing the distance between the openings of each slab as well as the relative position of both said bolts, said slabs 1—2—3 may be made to bulge upwards, i. e. in the direction in which said bolts 13—14 diverge (see Figure 9). The latter are held in position by suitable supporting means 15—16, which are themselves fixed on a common support 17. Said slabs thus superposed and held in position are firmly pressed together by means of the nuts 18—19 screwed each on one of said bolts 13—14. It then suffices to push said slabs downwards, i. e. in the direction of convergence of the bolts 13—14, to automatically produce the spaces 5—6 between the juxtaposed slabs 1—2—3 (Figure 10).

Similar results might of course also be obtained by other ways of fixing said slabs, and the latter might be replaced by other elements such as are equivalent or capable of operating in a similar way as the elements described.

What I claim is:

Process for manufacturing stopping means for the picker stick in weaving looms, comprising the steps of superposing a plurality of equal rectangular slabs of a suitable pliant material each having holes therein at opposite ends, passing bolts through corresponding holes of each of said slabs so as to keep said holes in alignment, screwing a nut on each of said bolts so as to clamp said slabs firmly together, mounting such bolts as are engaged in opposite ends of said slabs in slanting relationship with respect to each other so as to cause said slabs to bulge in the direction of divergence of said bolts, and exerting sufficient pressure on the bulging middle portions of said slabs so as to cause said slabs to bulge in the opposite di-

rection thus producing small spacings between said middle portions of said slabs.

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