March 28, 1967 L. E. STEIMEN 3,311,331

VIBRATION ABSORBING COMBINATION

Filed Oct. 7, 1965 2 Sheets-Sheet 1

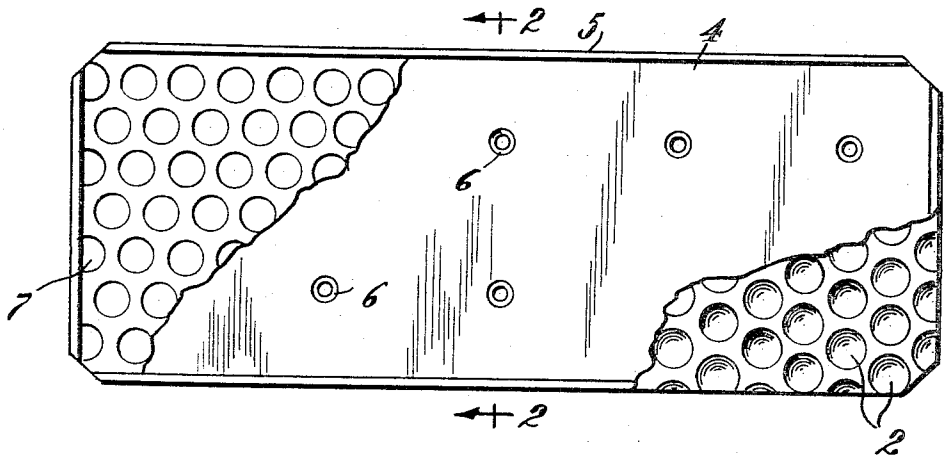

Fig. 1

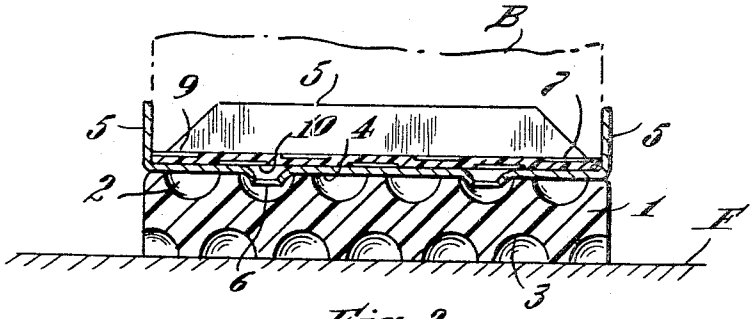

Fig. 2

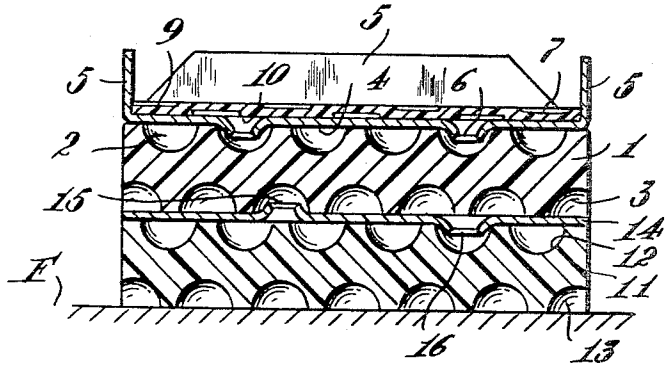

Fig. 3

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VIBRATION ABSORBING COMBINATION

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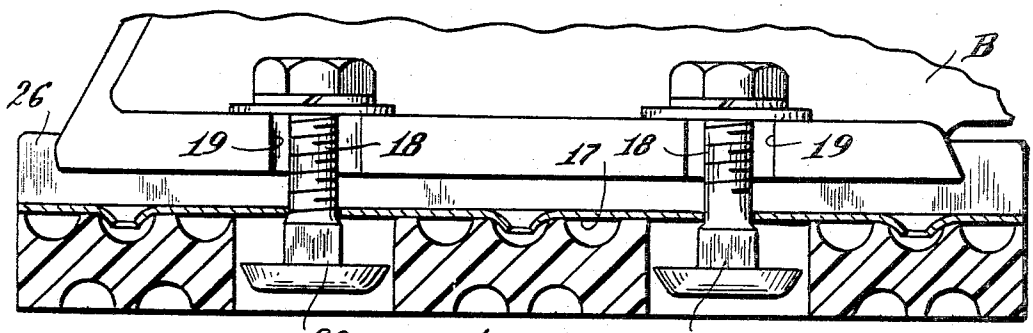

Fig. 4

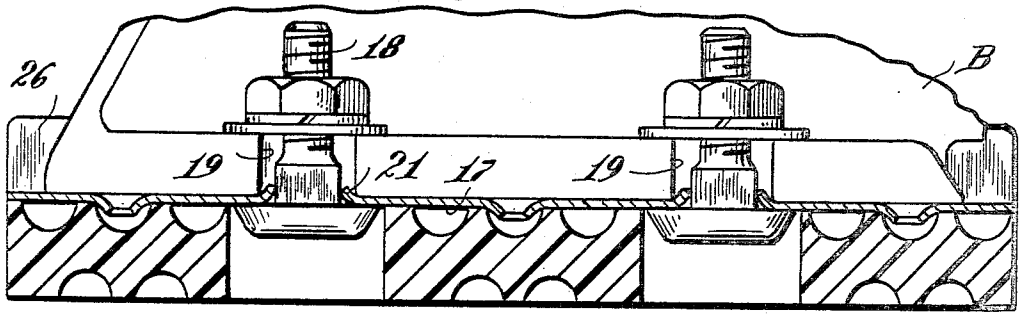

Fig. 5

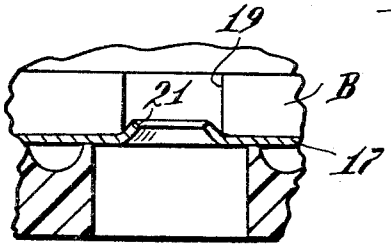

Fig. 6

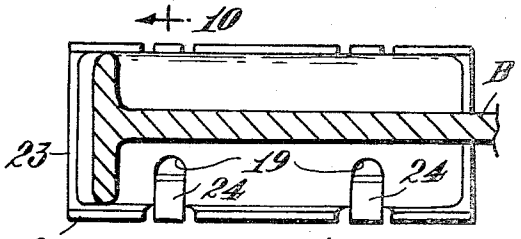

Fig. 9

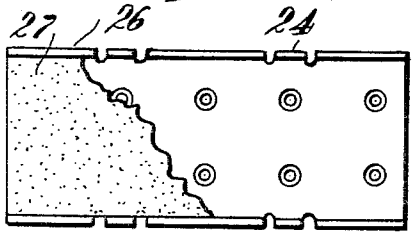

Fig. 7

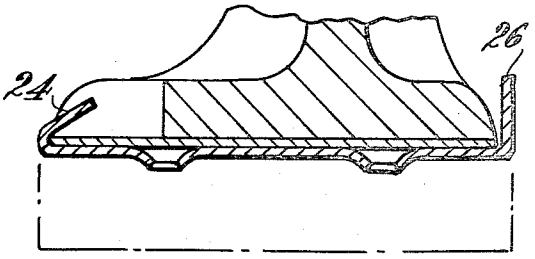

Fig. 10

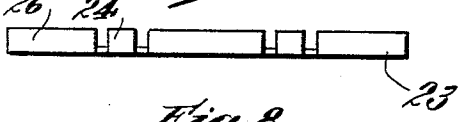

Fig. 8

United States Patent Office 3,311,331 Patented Mar. 28, 1967

3,311,331

VIBRATION ABSORBING COMBINATION

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Filed Oct. 7, 1965, Ser. No. 493,782
4 Claims. (Cl. 248—22)

This application is a continuation-in-part of application Ser. No. 449,141, filed Apr. 19, 1965, now abandoned.

For absorbing vibration of a lom or other machine having a leg, pedestal or other base, it has been proposed to place a pad of absorbing material under the base. While highly satisfactory pads have been produced it has been found that the vibration causes the machines to creep off the pads. To prevent this creeping it has been proposed to cement the legs of the machines to the pads and to cement the pads to the floor. However this makes it difficult to move the machines from place to place as is often desirable. Moreover the cement tends to impair the effiicency of the pads because it penetrates into the pads and either hardens or softens them depending on the solvents used in the cement.

Objects of the present invention are to prevent the aforesaid creeping without impairing the efficiency of the pads, at the same time leaving the machines completely mobile so that they can be moved from place to place.

The present invention involves the combination of a vibration-asborbing pad and means to interlock the pad with the base of a machine to prevent the base from creeping off the pad while permitting the base to be lifted freely off the floor. Perferably the aforesaid means has portions extending respectively above the bottom of the base and below the upper surface of the pad. The upwardly extending portions may comprise flanges around the periphery of said base or protuberances projecting upwardly into recesses in the base, and the downwardly extending portions may comprise protuberances extending into the pad. In the preferred embodiment the aforesaid means comprises a plate and the aforesaid protuberances may comprise bolts or they may be integral with the plate.

In a more specific aspect the invention may involve a second pad under the aforesaid pad and means to interlock the pads against relative transverse movement while permitting the pads to be separated freely. Said last means has portions extending respectively above the bottom surfce of the first pad and below the upper surface of the bottom pad, the last means preferably comprising protuberances which extend into recesses in said surfaces.

For the purpose of illustraton typical embodiments of the invention are shown in the accompanying drawings in which

FIG. 1 is a plan view;

FIG. 2 is a section on line 2—2 of FIG. 1;

FIG. 3 is a similar section of a modification;

FIG. 4 is a vertical section through another modification showing the base of a machine spaced from the vibration-absorbing means;

FIG. 5 is a similar view after the base has been seated and bolted in position;

FIG. 6 is a section like FIG. 5 after a bolt has been removed;

FIG. 7 is a plan view of the aforesaid plate;

FIG. 8 is a side view of the plate;

FIG. 9 is a view like FIG. 7 after the plate has been attached to the base of a machine, showing the base in section; and

FIG. 10 is a section on line 10—10 of FIG. 9.

The particular embodiment of the invention shown in FIGS. 1 and 2 comprises a vibration-absorbing pad 1 such as described and claimed in the patent to Stevens 3,050,-426 granted August 21, 1962. In its top and bottom surfaces the pad has hemispherical recesses 2 and 3. Resting on the pad is a cup 4 having upstanding flanges 5 around its periphery and protuberances 6 fitting in certain of the recesses 2. Covering the bottom of the cup is a pad 7 made of rubber, plastc or other non-skid material and having shallow recesses 9 and 10 in its upper and lower surfaces to increase its non-skid properties. The pad 1 is intended to rest on a floor F and the base B of a loom or other machine fits into the cup 4. The flanges 5 prevent relative movement of the base B transversely of the cup and the protuberances 6 fitting in the recesses 2 prevent transverse movement of the cup relatively to the pad 1. Owing to the resiliency of the pad 1 there is no substantial tendency for it to creep on the floor F. Consequently this combination effectively overcomes the tendency of the base B to creep along the floor.

The modification shown in FIG. 3 is like that shown in FIGS. 1 and 2 and corresponding parts are correspondingly designated. However it comprises a second pad 11 like pad 1 with recesses 12 and 13 in its upper and lower surfaces and between the two pads is disposed a plate 14 having upwardly projecting protuberances 15 fitting in the recesses 3 in the bottom of the pad 1 and downwardly projecting protuberances 16 fitting in the recesses 12 in the upper surface of the lower pad 11. By using two superposed pads more vibration can be absorbed.

The embodiment shown in FIGS. 4 and 5 is like that shown in FIGS. 1 and 2 except in that the plate 17, corresponding to 4 of FIGS. 1 and 2, is secured to the base B of a machine by means of bolts 18 extending through notches 19 such as customarily provided in the bases of looms. The bolts extend through openings in the plate which are preferably smaller than the notches 19 so that the peripheries 21 of the openings may be turned up in the form of flanges extending into the recesses as shown in FIGS. 5 and 6. These flanges may be preformed as shown in FIG. 6 or they may be formed in clamping the plate to the base of a machine by using bolts having shanks 22 somewhat larger than the threaded portions and making the openings in the plate which diameters approximate the same as the threaded portions of the bolts. Thus as the shanks 22 are drawn into the plate they curl the peripheries of the openings into flanges 21. If the flanges are preformed the bolts are unnecessary and if formed as shown in FIGS. 4 and 5 the bolts may be removed after the flanges have been formed.

In the modification shown in FIGS. 7 to 10 the plate 23, corresponding to 17 of FIGS. 4 to 6, has tabs 24 cut in its upstanding flanges 26 to extend into the notches 19 in the base B, the tabs being bent into the notches after the base has been seated on the plate.

As shown in FIG. 7 the upper surface of the plate 23 may be covered with abrasive 27 more firmly to prevent slippage of the base B on the plate. The abrasive particles may be bonded to the plate in any sutable way or they may comprise a part of an emery sheet cemented to the plate.

By avoiding the use of cement in contact with pads 1 and 11 the efficiency of the pads is not impaired and the machines are freely movable from place to place. By interlocking the pads and machine bases with cups which fit the bases the same pad may be used under bases of different sizes and shapes.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. For absorbing vibration of a machine having a base,

the combination of a vibration-absorbing pad, and means to interlock the pad with the base, characterized in that the pad comprises a slab of yielding material having recesses on its upper side and said means comprises a plate and upwardly projecting parts interfitting with the base to keep the base from creeping off the plate, the plate having downwardly projecting protuberances extending into said recesses to keep the plate from creeping off the slab.

2. The combination of claim 1 wherein said protuberances comprise bolts.

3. The combination of clam 1 wherein said protuberances are integral with the plate.

4. The combination of claim 1 wherein the plate has openings therethrough and said protuberances comprise upturned flanges around the openings.

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JOHN PETO, *Examiner.*