Dec. 1, 1953 R. C. WILSON 2,661,228

PIVOTAL CONSTRUCTION

Filed Jan. 30, 1950

FIG 1

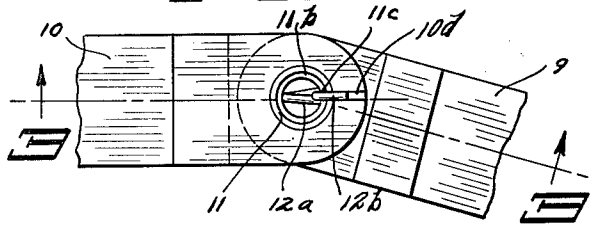


FIG 2

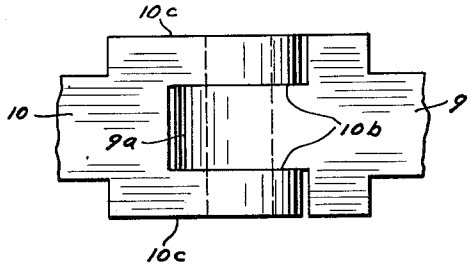


FIG 3

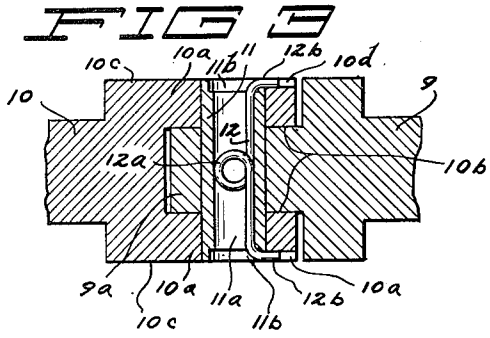


FIG 4

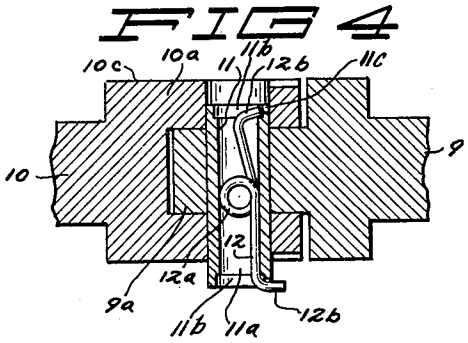
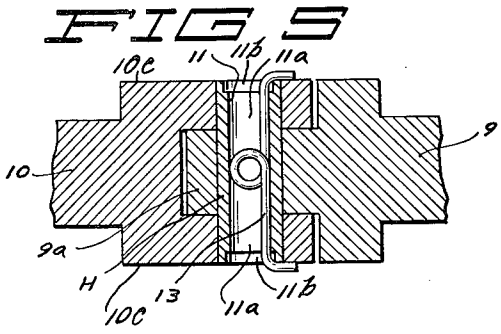


FIG 5



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PIVOTAL CONSTRUCTION

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2 Claims. (Cl. 287—96)

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This invention relates to a pivotal construction such as would be used in connecting a pair of links or other members.

It is an object of this invention to provide a simple pivotal connection comprising members having relatively movable portions, a pivot extending through and connecting said portions, said pivot preferably having its end surfaces flush with the remote surfaces of said portions, said pivot having a passage extending longitudinally therethrough, and a resilient locking member disposed in said passage and having an end portion adapted to extend over one end of said pivot and one of said surfaces.

It is a further object of the invention to provide such a structure as set forth in the preceding paragraph, in which said pivot has a recess in said end and said last mentioned surface has a recess therein, said end portion of said pivot being disposed in said recesses so as to prevent rotation of said pivot relatively to said last mentioned surface.

It is more specifically an object of this invention to provide a pivotal construction comprising a pair of members having overlapping portions and having a bore extending through said portions, said portions having engaging surfaces and surfaces remote therefrom, a pivot fitting in said bore and preferably having its end surfaces flush with said remote surfaces, said pivot having a passage extending longitudinally therethrough and a locking member disposed in and extending through said passage having end portions interfitting with the ends of said pivot and said remote surfaces and disposed within said remote surfaces, said pivot also preferably having counterbores at its ends in which said end portions of said locking member may be respectively disposed.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a view in side elevation of a pivotal construction of this invention;

Fig. 2 is a plan view of said construction;

Fig. 3 is a vertical section taken substantially on line 3—3 of Fig. 1 as indicated by the arrows;

Fig. 4 is a view similar to Fig. 3 showing some of the parts in different positions; and

Fig. 5 is a view similar to Fig. 3 showing a modification.

Referring to the drawings, a pair of members

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9 and 10 are shown, said members having overlapping end portions 10*a* and 9*a* respectively. While these overlapping portions could be variously arranged, in the embodiment of the invention illustrated, member 10 is shown as bifurcated having the parallel portions 10*a* between which the portion 9*a* is fitted and disposed. Portions 9*a* and 10*a* have engaging surfaces 10*b* and surfaces 10*c* are remote from and shown as parallel to surfaces 10*b*. Portions 9*a* and 10*a* are provided with a bore extending transversely therethrough and a cylindrical pivot member 11 is disposed in and fitted in said bore. Preferably the end surfaces of pivot 11 are flush with the surfaces 10*c*. Pivot 11 has a passage 11*a* extending longitudinally therethrough and in the embodiment of the invention illustrated this passage is shown as cylindrical and disposed axially of said pivot. Small or shallow counterbores 11*b* are formed in pivot 11 at each end thereof. A locking member 12 is provided and while this might be variously formed, in the embodiment of the invention illustrated it is shown as formed of a small resilient rod or wire the same being provided with a circular bend 12*a* intermediate its ends and having aligned portions extending oppositely from said bend and being provided with end portions 12*b*. End portions 12*b* are shown as being disposed substantially at a right angle to the axis of pivot 11. Pivot 11 is provided with a slot 11*c* at each end extending radially thereof, and member 10 has slots or recesses 10*d* formed in the surfaces 10*c* and extending radially of the pivot 11 so as to be aligned with the slots or recesses 11*c*. The counterbores 11*b* are of greater depth than slots 11*c*. The said end portions 12*b* are disposed in the slots or recesses 11*c* and 10*d* and are within the surfaces 10*c*.

In operation it will be seen that members 9 and 10 can be swung relatively to each other about the axis of pivot 11. Relative movement between pivot 11 and member 10 is prevented by the end portions 12*b* of the locking member 12. The sides of the joint or construction are kept flat and all flush with or within the surfaces 10*c*. Member 12 can be easily pushed into and through the passage 11*a* and disposed as shown in Fig. 3. When it is desired to remove pivot 11 one of the end portions 12*b* is sprung toward the axis of pivot 11 and member 12 moved slightly longitudinally of pivot 11 so that said end portion comes into one of the counterbores 11*b* where it will remain. The said end portion seats against the bottom of the counterbore and it

engages the side thereof so that it is resiliently held in such position. Said counterbores being somewhat deeper than slots 11c there is a side wall of each counterbore at slot 11c so that the end of member 12 will not pass into said slot. Pivot 11 can now be pushed endwise, as shown in Fig. 4, and removed from members 9 and 10. The pivot could be replaced by reversing the above described steps.

In Fig. 5 a modification is shown in which the ends of the locking member 13 corresponding to locking member 12 merely extend over the ends of pivot 11 and over the surfaces 10c, the recesses or slots 11c and 10d being omitted. Otherwise the structure is the same as shown in Figs. 1 to 4.

From the above description it will be seen that I have provided a very simple and efficient pivotal construction. The same is particularly useful where it is desirable and necessary to have the side surfaces of the joint each in one plane or all parts within the planes of the side surfaces. As stated, pivot 11 is held from rotation relatively to one of the members which are pivotally connected. The structure is easily made and the same can be readily assembled and disassembled. The construction has been amply demonstrated in actual practice, found to be very successful and efficient and the same is being commercially made.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A pivoted connecting structure having in

combination, a pair of members one of which has a bifurcated end and the other of which has a reduced end portion fitting between the bifurcations of said first mentioned member, said first mentioned member having outer flat surfaces, said members having a common bore therethrough with its axis perpendicular to said flat surfaces, a cylindrical hinge pin disposed in said bore with its ends substantially flush with said flat surfaces, said pin having a counterbore in each end, a one-piece locking member formed of a small rod or wire of resilient material, said locking member having a coil formed between its ends and disposed in said bore, said locking member having its ends bent transversely, said flat surfaces having slots formed therein extending radially from said counterbores, each of said bent ends extending through the wall of the counterbore adjacent thereto and disposed in one of said slots.

2. The structure set forth in claim 1, said counterbores being deeper than said slots and said slots being slightly deeper than the diameter of said locking member so that said bent ends are disposed between said flat surfaces.

RICHARD C. WILSON.

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