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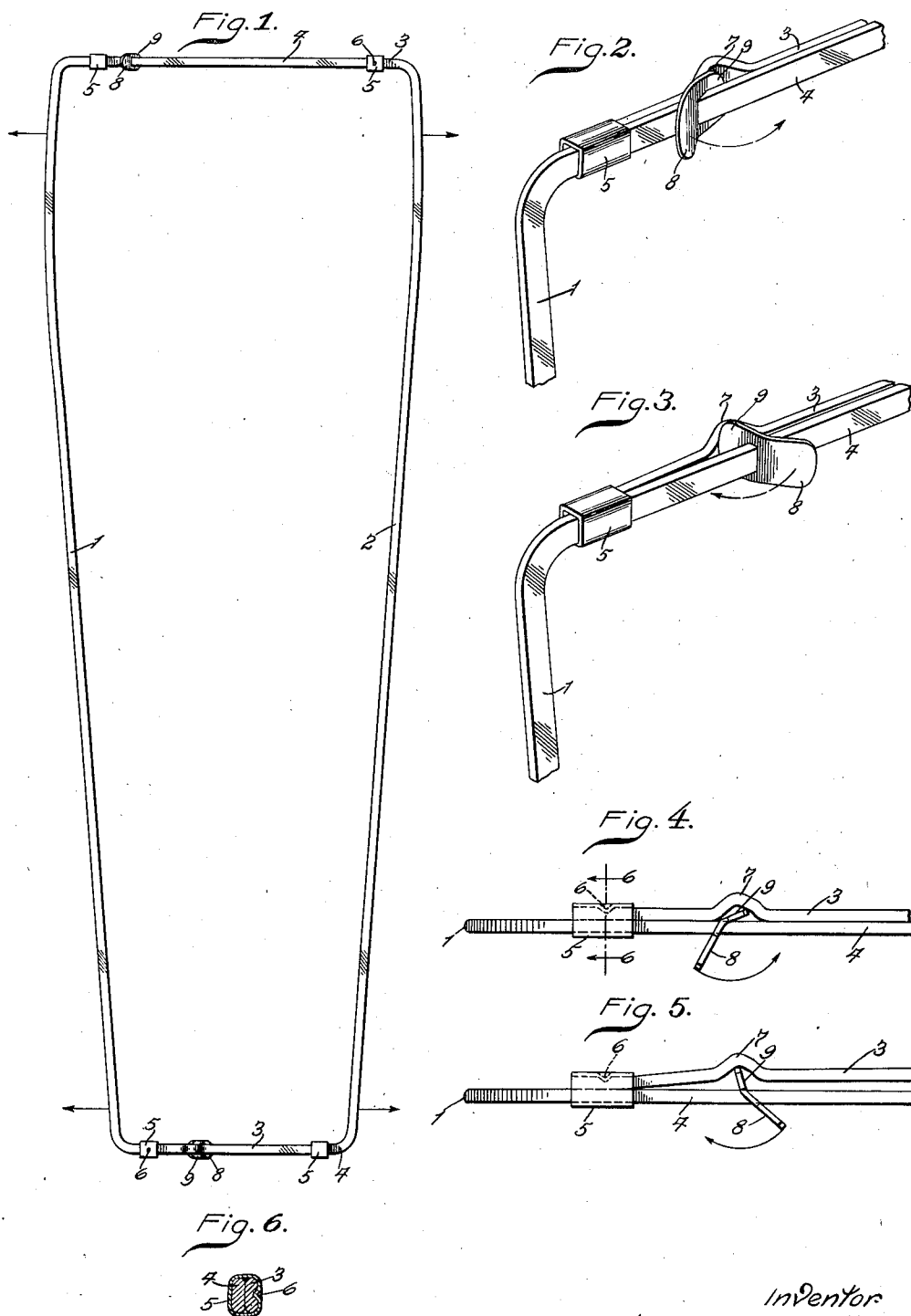
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ADJUSTABLE ROD JOINT

Filed Sept. 9, 1940

2 Sheets-Sheet 1



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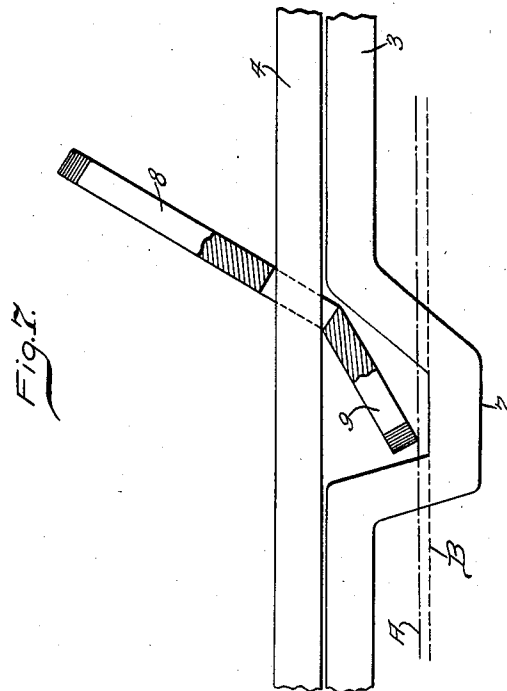
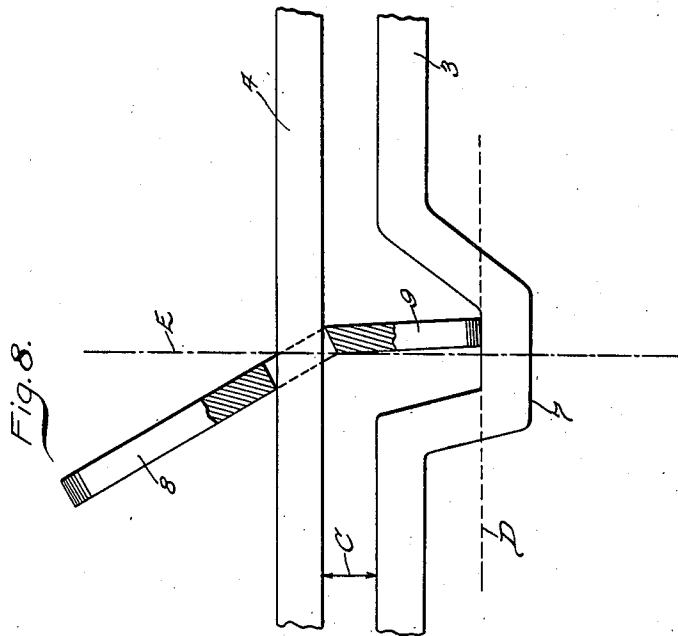
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UNITED STATES PATENT OFFICE

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ADJUSTABLE ROD JOINT

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3 Claims. (Cl. 287—58)

This invention relates to rod joints or couplings to provide an adjustable extent for a frame comprising a plurality of rod sections. More particularly the invention relates to a clamp or lock for securing said sections in a selected position and to release them for adjustment of the frame.

An object of the invention is to provide a clamp or lock of the character described which is economical to manufacture, and which is efficient in service and lasting in wear.

The invention comprises the elements and their combinations specifically pointed out in the appended claims, a preferred embodiment of which is illustrated in the accompanying drawings.

Fig. 1 is a plan view of a trouser stretcher and creaser embodying the invention;

Fig. 2 is a perspective view showing the parts in one relationship;

Fig. 3 is a view similar to Fig. 2 with the parts in an alternate relationship;

Fig. 4 is a plan view showing the parts in one relationship;

Fig. 5 is a view similar to Fig. 4 showing the parts in the alternate relationship;

Fig. 6 is a cross section on line 6—6, Fig. 4;

Fig. 7 is an enlarged diagram showing the parts in one relationship; and

Fig. 8 is a view similar to Fig. 7 showing the parts in the alternate relationship.

A frame selected for the purpose of showing a preferred embodiment of the invention, as illustrated in Fig. 1, includes side strip members 1 and 2, each of which has inwardly extending integral portions 3 and 4. The portions 3 and 4 comprise rods or sections which lie parallel to each other and substantially contiguous over considerable but adjustable portions, while means are provided for holding the rods in this parallel relationship but permitting them to slide with respect to each other.

The means just mentioned for holding the rods or sections 3 and 4 in contiguous relationship and slidable with respect to each other, comprise spaced members or collars 5, one on the end of each of the rods or sections 3 and 4. As specifically shown, and as best illustrated in Figs. 4, 5 and 6, the collar 5 embraces and is secured at the end of a rod section while also slidably embracing the adjacent rod. A convenient manner for securing the collar 5 to the end of the rod is shown and includes an indentation 6 embedded in the surface of the rod to which it is attached.

It may now be understood that the frame, as specifically shown, includes two frame members each having a side or longitudinal strip and end strips 3 and 4. The end strips or sections of one member are held in sliding relationship and contiguous to end strips or sections of the other member. Thus the frame is adjustable in width, as shown by the arrows on Fig. 1.

Being adjustable, the frame is provided with locking means, which is the essence of the present invention. This locking means is so arranged as to permit the adjustment of the frame as indicated, and which can be used to lock or clamp the frame members in any fixed position. The clamping or locking means includes in cooperation an integral section or crook 7 forming a recess on one of the side members 3 and 4, on 3 as specifically shown in the figures, and a key 8 which has an orifice passing the adjacent rod or section, 4 as specifically shown in the figures. The key 8 has an end portion 9 which rests in the recess of the crook 7. The orifice of the key 8 which passes the rod or section 4 is sufficiently large to permit the key to assume either of two angular positions with reference to the sections. In one of such positions, Figs. 2, 4 and 7, the end portion 9 lies in the recess of the crook 7 without pressure against the rod 3, whereas in the alternate position, as shown in Figs. 3, 5 and 8, the end portion bears against the wall of the recess and exerts pressure upon the rod 3, thereby placing the key in a cramping position with respect to the rod 4 to lock or cramp the sections 3 and 4 together.

Diagrams 7 and 8 show the action of the key. For the purpose of illustration the contour of the crook 7 is somewhat specialized or exaggerated by the different wall portions being definitely angular to other wall portions of the recess, whereas in practice, and as best shown in Figs. 3 and 4 the wall of the recess is a series of curves. The difference, however, is a matter of preference dictated by the exigencies of manufacturing.

The key 8 has a body portion extending outwardly beyond the rod section 4 for manual engagement, while the inner end portion 9 extends into the recess formed by the crook 7. The key is bent or curved so that the end portion 9 may be said to be angularly disposed with reference to the remaining or body portion of the key. It will be understood that the word angular is used here in a broad manner, and this angularity can be secured by a curvature in the key. But the angularity is such as to permit,

as best shown in Figs. 7 and 8, the alternate positions in which the key may be positioned, so that the end portion 9 will rest within the recess of the crook 7 without bearing upon the wall of the recess, or one in which the end portion 9 will positively bear against the wall of the recess.

The first relationship is best shown in Fig. 7.

The end of the key will occupy a position indicated by the line A, whereas the bottom of the recess of the crook 7 is indicated by the line B. Thus the clearance between the end portion 9 and the crook 7 is the distance between the lines A and B. In this position the rods 3 and 4 are free for relative movement and the frame may be extended or contracted within limits.

In the alternate or cramping position, as shown in Fig. 8, the key 8 will occupy such a position as to bear against the wall of the recess of the crook 7 to press the rod 3 outwardly for a distance indicated by the line C. In this position the bottom of the recess is indicated by the line D. It will be seen that the end portion 9, because of the bend in the key or the angularity between the end section 9 and the body section deviates only slightly from a line E perpendicular to the rods. In this position the key is cramped on the rod 4 and relative movement between the rod sections 3 and 4 is restrained.

It will be understood, therefore, that the present invention includes an adjustable joint for an extensible frame where the frame comprises a pair of adjacent relative slidable rod sections 3 and 4. Spaced members 5 maintain the sections in slidable relationship and substantially contiguous to each other between said members. The key 8 is positioned between said members with an orifice passing one of the sections, 4 as specifically shown, and an end portion 9 which bears against the other section. The orifice is such as to permit the key to assume either of two angular positions with respect to the rods; in one position the rod sections may be moved freely with respect to each other, while in the other position the key is cramped against the rod passing through its orifice, thereby holding the rods or rod sections in fixed position.

The particular arrangement of the key which permits its two positions, one a releasing position and the other a cramping position, is its curvature or angularity. However such a key can be made which is plane but which has the walls of its orifice stamped or cut oblique to its surface rather than perpendicular. Difficulties of manufacture and other advantages of the angular key make the embodiment specifically shown and described a preferred one.

The strip members 1 and 2 are preferably of steel stock of sufficient rigidity to provide a frame to meet its requirements in this respect,

and with enough resiliency to permit the operation of the clamping means.

Various changes in the details of construction, some of which have been suggested, may be made without departing from the spirit of this invention, the invention residing in the elements and their combinations specifically pointed out in the appended claims.

I claim:

1. In an expansible frame having a pair of resilient rods with means for holding the rods substantially contiguous to each other and slidable one with respect to the other, the improvement comprising clamping means including a crook in one of the rods providing a recess adjacent the near face of the other rod, and a key having an orifice passing said other rod, and an end portion positioned in said recess, the orifice being sufficiently large to permit the key to assume either of two angular positions with respect to the rods, the key being positioned and arranged so that said end portion lies in said recess without pressure against the wall of the recess when in one of said positions, but of sufficient length to bear against the wall of the recess and to bow the rods relative to each other when in the other of said positions.

2. In an expansible frame having a pair of resilient rods with means for holding the rods substantially contiguous to each other and slidable one with respect to the other, the improvement comprising clamping means including a crook in one of the rods providing a recess adjacent the near face of the other rod, and a key having an orifice passing said other rod, and an end portion positioned in said recess, the orifice being sufficiently large to permit the key to assume either of two angular positions with respect to the rods, the key being bent and otherwise proportioned and arranged so that the said end portion lies in said recess without pressure against the wall of the recess when the key is in one of said positions, but of sufficient length to bear against the wall of said recess and to bow the rods relative to each other when the key is in the other of said positions.

3. An adjustable joint for an expansible frame comprising a pair of adjacent relative slidable resilient rod sections, spaced members for maintaining said sections in sliding relationship and substantially contiguous between said members, a key positioned between said members having an orifice passing one of the sections and an end portion bearing against the adjacent surface of the other section, constructed and arranged to restrain relative movement of the sections when the key is in one position and to permit relative movement of the sections when the key is in an alternate position.

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