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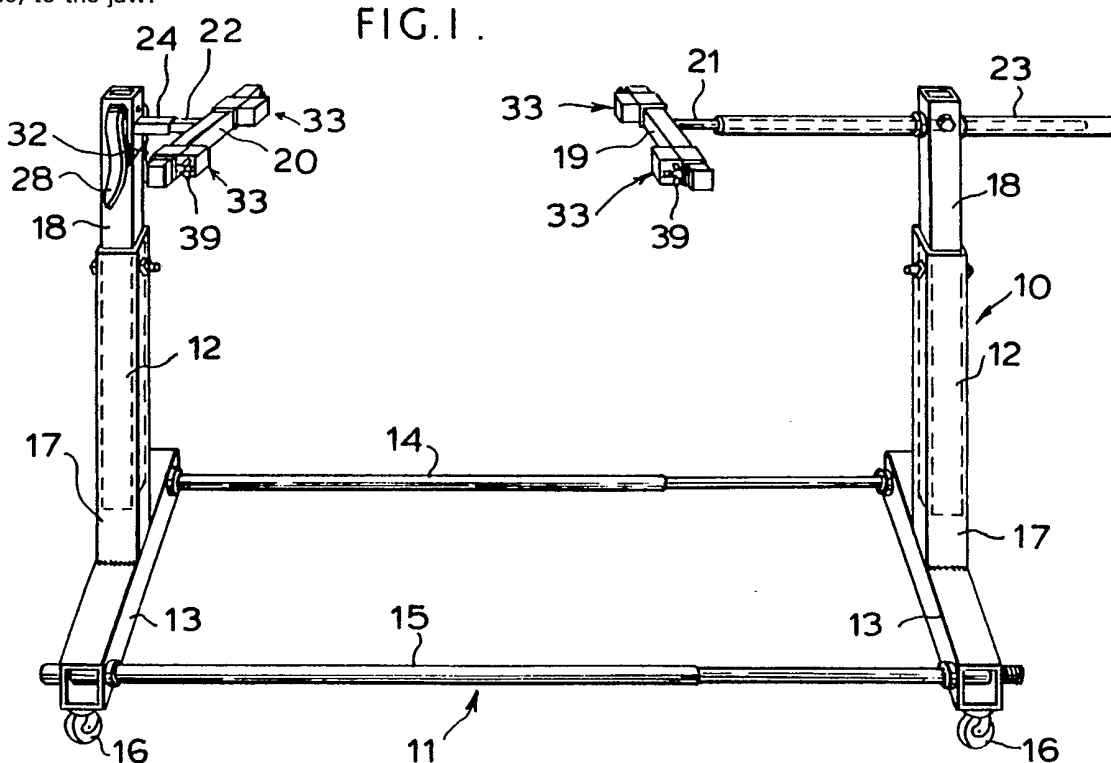
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(54) Multi-purpose clamp

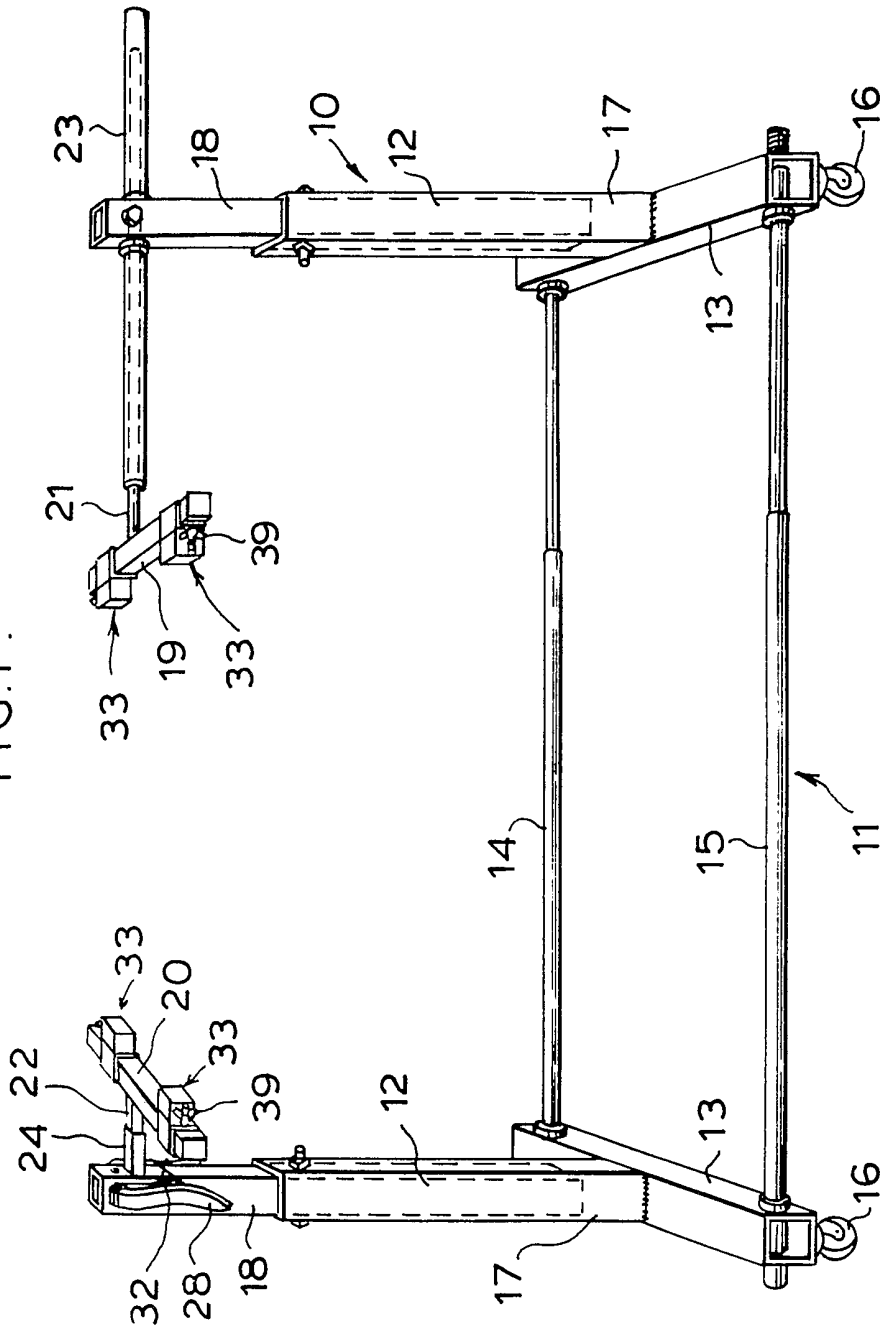
(57) A clamp is disclosed which comprises a stand (10) having a base (11) and two spaced apart uprights, for example in the form of upstanding, telescopically extendible, posts (12). A clamp jaw (19,20) is supported by each of the two uprights for angular movement about a horizontal axis. The distance between the two jaws (19,20) can be varied such as by extending or retracting two telescopically extendible tubular units (14,15) of the base (11). At least one of the two jaws (20) has means associated therewith (see Fig. 3) for locking it in a selected angular position. Each jaw (19,20) may have one or more holding devices (33) mounted thereon for releasably fastening a workpiece, such as a stool frame or chair frame, to the jaw.



The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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FIG. 1.



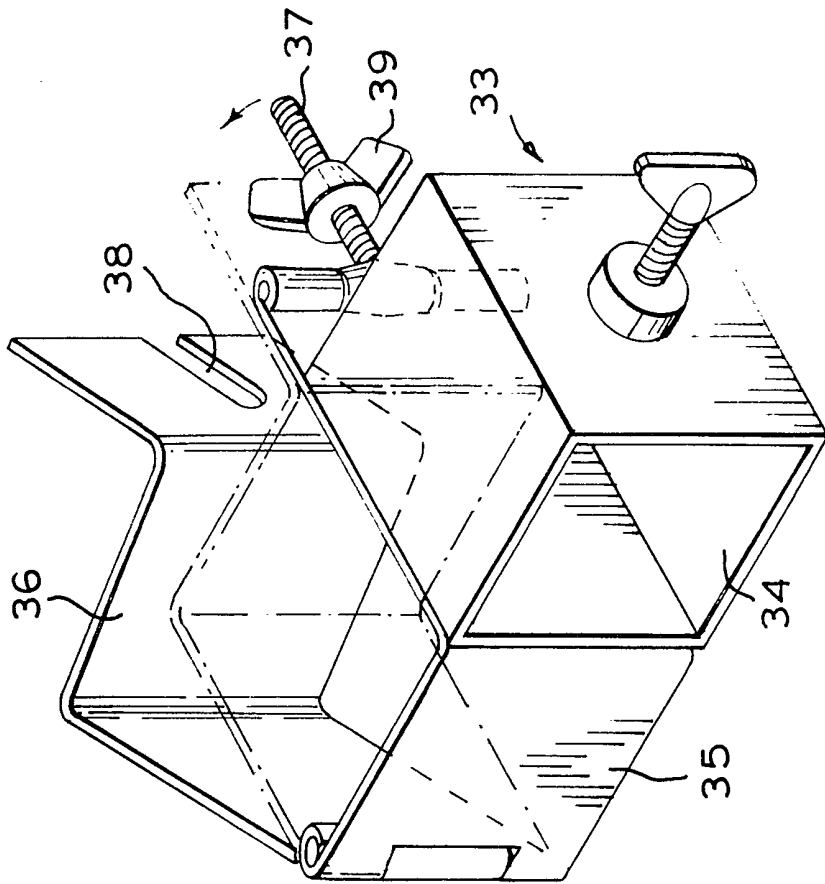


FIG. 2.

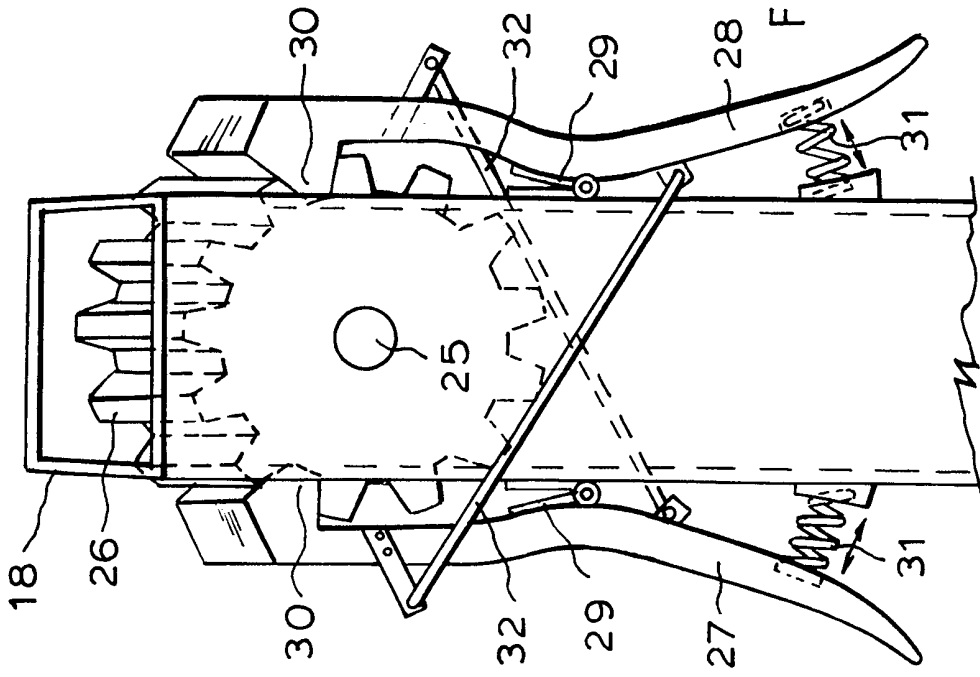


FIG. 3.

## SPECIFICATION

**Multi-purpose clamp**

5 This invention relates to a clamp and particularly but not exclusively to a clamp which can hold articles such as stool frames and chair frames whilst they are provided with weaved tops or covers.

10 Many elderly and disabled people are in need of something to keep them occupied. Occupational therapies, such as weaving stool tops and chair covers, basket work and tapestry, are particularly good for many such people as they hold their interest for prolonged periods and give many of them a sense of achievement. However, many such people find it difficult if not impossible to hold the work-piece particularly at the most appropriate angle whilst they are working on it.

20 According to the invention there is provided a clamp comprising a stand having a base and two spaced apart uprights, a clamp jaw supported by each of the two uprights for angular movement about a horizontal or substantially horizontal axis, means whereby the distance between the two jaws can be varied, and means for locking at least one of the two jaws in a selected angular position.

30 Preferred and/or optional features of the invention are set forth in Claims 2-14.

The invention will now be more particularly described by way of example with reference to the accompanying drawings in which:

35 *Figure 1* is a perspective view of one embodiment of a clamp according to the present invention,

*Figure 2* is a perspective view of one of the holders on an enlarged scale, and

40 *Figure 3* is a side view showing the mechanism for locking the one jaw against angular movement, also on an enlarged scale.

Referring to the drawing, the clamp shown therein comprises a stand 10 having a base 45 11 and two spaced apart uprights in the form of upstanding posts 12. The base 11 comprises a pair of parallel spaced apart box section members 13 joined together by two tubular units 14 and 15 each made up of two 50 telescopically extendible tubes, and is mounted on four ground engageable wheels or castors 16 provided on the underside of the two box section members 13. Each upstanding post 12 is made up of two telescopically extendible box section members 17 and 18. 55 The lower member 17 is joined to its respective member 13 by welding and the upper member 18 supports one of a pair of clamp jaws 19 and 20.

60 The clamp jaws 19 and 20 are elongate and are movable angularly about a common horizontal axis. Each jaw 19, 20 has an associated support arm 21, 22, respectively, extending perpendicularly to its longitudinal extent 65 from a position midway between its ends.

The support arm 21 of the jaw 19 is cylindrical and is mounted in a horizontal support tube 12 which is in turn supported by the upper member 18 of one of the upstanding posts 12 for free angular but not axial movement. The support arm 21 can be slidably moved within the support tube 23 to adjust the distance between the jaw 19 and its respective post 12 by releasing one or more screw threaded fasteners, which otherwise lock the tube 23 and arm 21 together.

70 The support arm 22 of the jaw 20 is of square section and is mounted in a square section support tube 24. The support tube 24 has a cylindrical shaft 25 (Fig. 3) secured to one end. The shaft 25 is supported by the upper member 18 of the other post 12 for angular movement. A toothed wheel 26 is fixed to the shaft 25 within the member 18 85 for a purpose which will become apparent later. The support arm 22 can be slidably moved in the support tube 24 to adjust the distance between the jaw 20 and its respective post 12 by releasing one or more screw threaded fasteners which otherwise lock the tube 24 and arm 22 together.

Two releasable locking levers 27 and 28 are pivotably mounted on opposite sides of the upper member 18 of the other post 12 by hinges 29. The upper free end of each locking lever 27, 28 is provided with a tooth 30 which is urged into engagement with the teeth of the gear wheel 26 by a compression spring 31 acting between the post 12 and the lower end of the locking lever. The interengagement between the teeth 30 and the teeth of the gear wheel 26 holds the shaft 25 and hence the jaw 20 against angular movement. The two locking levers are interconnected by links 32 so that pivotable movement of one lever 27, 28 against the action of its compression spring causes corresponding movement of the other lever 27, 28 to disengage the teeth 30 of both locking levers from the teeth of the gear wheel 26 and permit angular movement of the shaft 25 and hence of the jaw 20. In this manner, the locking levers can be released without difficulty from either side of the clamp.

115 With a clamp as described above it is possible to hold an article between the two jaws 19 and 20 and rotate that article to any desired angular position when so held by depressing either one of the two locking levers 27 and 28, as the jaw 19 is free to rotate with the jaw 20. The article can then be held in the desired angular position by releasing the levers 27 and 28 so as to allow the teeth 30 to interengage with the teeth of the gear 120 wheel 26.

The distance between the jaws 19 and 20 can be varied by adjusting the length of the two tubular units 14 and 15 of the base 11, each unit 14, 15 being provided with a locking bolt to lock the two telescopically extend- 130

ing parts of the unit in a desired position. The distance between the jaws 19 and 20 could also be varied by adjusting the position of one and/or the other support arm 21, 22 in its  
 5 respective support tube 23, 24 although this adjustment is provided primarily to move the jaws in unison with an article held thereby towards one or other end of the clamp. The height of the jaws can also be adjusted by  
 10 extending or retracting the two box section members 17 and 18 of each post and locking them in a desired position with lock bolts.

The clamp has many uses but it is particularly useful for holding articles, such as stool frames and chair frames, whilst provided with weaved tops or covers, of e.g. cord, seagrass or rush, by disabled and/or elderly persons. In this case two releasable holders 33 are slidably mounted on each jaw 19, 20 so that  
 15 each leg of the stool or chair frame can be held independently. Each holder 33 comprises a square section tubular slider 34 mounted on the jaw and lockable in any desired position by means of a lock bolt, and two holder  
 20 members 35, 36 hinged together. The one holder member 35 is L-shaped and is secured by one of its limbs to the slider 34, and the other holder member is generally Z-shaped. The holder members 35, 36 are preferably  
 25 lined on their inner surfaces with soft leather or other appropriate material to avoid damaging the legs of the stool or chair and can be drawn together to surround and grip a leg by a bolt 37, which is pivotably connected to the  
 30 free end of the one limb of the holder member 35 and which extends through a slot 38 in the free edge of the other holder member 36, and a co-operating wing nut 39. Other appropriate quick release fastening means could however be used instead.

When a stool or chair frame is held by the four holders 33, two on each jaw, it can be rotated about a horizontal axis to any desired angular position by a disabled or elderly person, simply by depression of one or other of the locking levers 27 and 28 and then by rotation of the frame.

The four legs of a stool or chair frame do not always lie at the corners of a rectangle and in order to allow the two jaws to move out of parallelism to compensate for this one or both jaws 19, 20 could be connected to its associated support arm 21, 22 by a ball joint, or other universal joint.

Also to facilitate adjustment of the clamp a mechanical arrangement which converts rotary motion into linear movement could be used to adjust the distance between the two posts 12 and if desired the height of each post. Such a mechanical arrangement could take the form of an elongate nut and a bolt fixed respectively, to the two parts to be moved and a crank handle for turning the nut or the bolt via a gear mechanism. Alternatively, it could incorporate a rack and pinion drive.

In a case where the distance between the two posts 12 is adjusted in such a manner, the mechanical arrangement is disposed between the two members 13 in a vertical plane  
 70 aligned with the two posts 12 and the tubular units 14 and 15 of the base can then be used simply as guides. Indeed one of the units 14 and 15 could be removed to provide a wheelchair bound person ease of access to an article held by the clamp.

The jaws 19, 20 could also be used to support a work top at a desired angle to the horizontal. In this case the work top is secured to the clamp jaws 19, 20 (or substitute  
 80 jaws of greater length) by any appropriate releasable fastening means such as bolts and associated wing nuts or quick release fasteners. The jaws can be turned to the desired angular position. If additional support is required four telescopically extendible legs could be provided. Each leg could have at its upper end a square section socket extending at right angles to the longitudinal extent of the leg so that it can be fitted on an end of one of the  
 85 jaws 19, 20. The length of each leg could then be adjusted and locked at a required length by a lock bolt to ensure that whatever the angle of the work top it is supported not only by the jaws 19, 20 but also by engagement of the four legs with the ground.

Such a work top could be provided with, for instance, a releasable fastening bar for gripping a meshlike backing of a rug or mat.

A person skilled in the art will realise that many modifications can be made to the above clamp without departing from the scope of the invention defined by the appended Claims. For example, the uprights need not be upstanding posts but could instead be upstanding frame units or side plates, for example.

## CLAIMS

1. A clamp comprising a stand having a base and two spaced apart uprights, a clamp jaw supported by each of the two uprights for angular movement about a horizontal or substantially horizontal axis, means whereby the distance between the two jaws can be varied, and means for locking at least one of the two  
 110 jaws in a selected angular position.

2. The clamp according to Claim 1, wherein the base of the stand is adjustable to vary the distance between the two uprights and thereby the distance between the two  
 115 jaws.

3. The clamp according to Claim 2, wherein base of the stand is adjustable by a mechanism which converts rotary movement of an actuating member into linear movement for varying the distance between the two uprights.

4. The clamp according to anyone of Claims 1-3, wherein each jaw is movable relative to its respective upright in a direction parallel to the spacing between the two jaws.

5. The clamp according to anyone of Claims 1-4, wherein each upright is extendible to vary the height between its associated jaw and the base of the stand.
- 5 6. The clamp of Claim 5, wherein the uprights are extendible by a mechanism which converts rotary movement of an actuating member into linear movement of one of two telescopic parts of each upright.
- 10 7. The clamp of anyone of the preceding Claims, wherein only one of the two jaws has means for locking it in a selected angular position, the other jaw being free to move angularly.
- 15 8. The clamp of anyone of the preceding Claims, wherein each jaw has an associated support arm extending transversely to the jaw and connected to a respective upright.
- 20 9. The clamp of Claim 8, wherein at least one of the jaws is connected to its respective support arm by a universal joint.
- 25 10. The clamp of anyone of the preceding Claims, wherein each jaw has one or more holding devices mounted thereon for releasably fastening a workpiece to the jaw.
- 30 11. The clamp of Claim 10, wherein each jaw is elongate in a direction transverse to said horizontal axis and has two such holding devices mounted thereon, the two holding devices being movable along the respective jaw so that the distance between the two holding devices on each jaw can be varied.
- 35 12. The clamp of anyone of the preceding Claims, wherein the base of the stand is mounted on ground engageable wheels or castors.
- 40 13. The clamp of anyone of the preceding Claims, further comprising a work top and means for releasably fastening the work top to the two jaws.
- 45 14. The clamp of Claim 13, wherein the work top has means whereby a meshlike backing of a rug or mat can be releasably fastened to the work top.
- 50 15. The clamp of Claim 13 or Claim 14, further comprising four extendible legs which can be releasably fastened to the two ends of the two elongate jaws, respectively, and which can support the work top in a horizontal plane or at any appropriate angle to the horizontal.
16. A clamp substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.