H. E. DECKER.

INTERLOCKING FRAME FOR STANDS AND THE LIKE.

APPLICATION FILED SEPT. 2, 1914.

1,209,679.

Patented Dec. 26, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

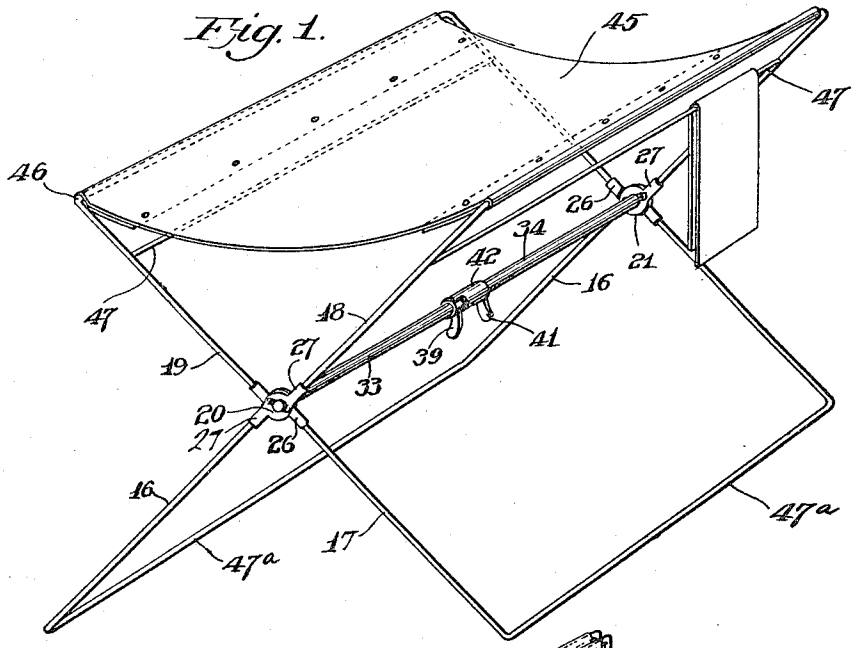
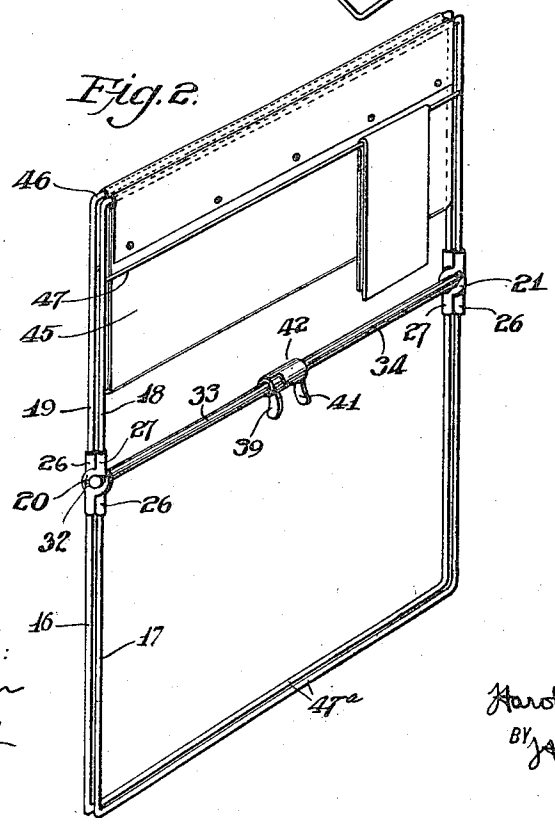


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

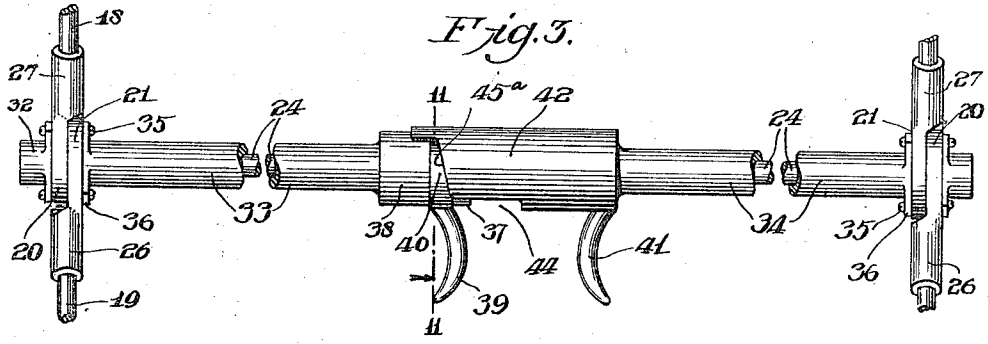


Fig. 4.

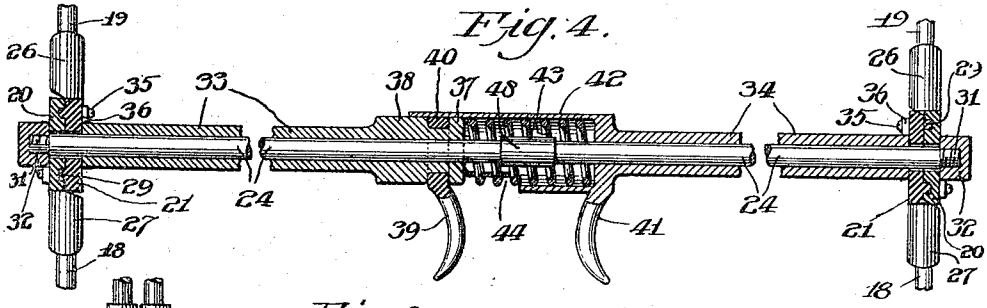


Fig. 5.

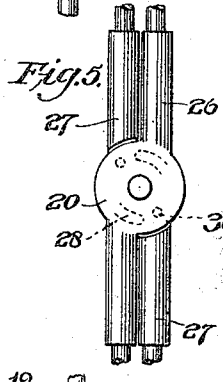


Fig. 6.

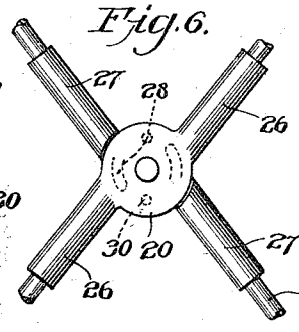


Fig. 7.

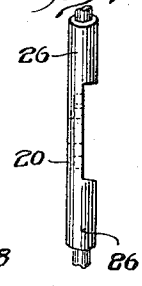


Fig. 8.

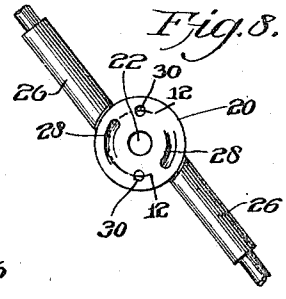


Fig. 13.

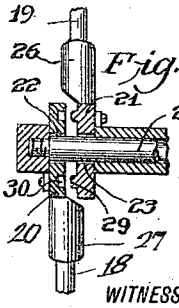


Fig. 9.

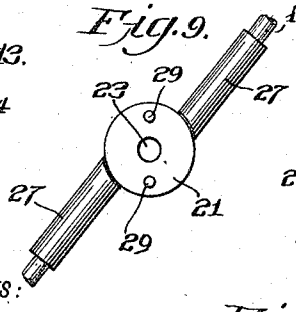


Fig. 10.

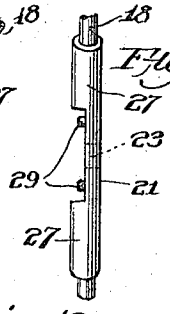


Fig. 11.

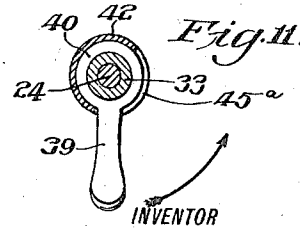
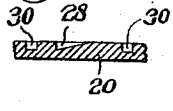


Fig. 12.



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INTERLOCKING FRAME FOR STANDS AND THE LIKE.

1,209,679. Specification of Letters Patent. Patented Dec. 26, 1916.

Application filed September 2, 1914. Serial No. 859,739.

To all whom it may concern:

Be it known that I, HAROLD E. DECKER, a citizen of the United States, residing at Cynwyd, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Interlocking Frame for Stands and the like, of which the following is a specification.

My invention relates to improvements in interlocking frames for stands or other devices.

One form of my invention, shown herein merely as an example of the same, is especially adapted to form a support upon which to rest a baby while drying it after its bath.

The invention comprises a suitable frame, means for automatically locking the device in required position, a supplemental or positive lock, a fabric top or support in the specific example shown, and other details of construction.

Referring to the drawings: Figure 1 is a perspective view of a folding stand in the open position. Fig. 2 is a perspective view in the closed position. Fig. 3 is a fragmentary detail of the locking means and associated parts. Fig. 4 is a partly sectional view of same. Fig. 5 is an end elevation of the frame sections shown in Fig. 3, in the closed position. Fig. 6 is a similar view in the open position. Fig. 7 is a side elevation of the outer of the two elements shown in Fig. 5. Fig. 8 is a rear end elevation of the same element. Fig. 9 is a rear end elevation of the inner of the two elements shown in Fig. 5. Fig. 10 is a side elevation of the same element. Fig. 11 is a section on 11—11 of Fig. 3. Fig. 12 is a fragmentary sectional detail on 12—12 of Fig. 8. Fig. 13 is a partly sectional view of the frame sections shown in Fig. 6.

Similar numerals refer to similar parts throughout the several views.

The framework of my improved stand comprises the two interlocking frames 16 and 17, formed preferably from round metallic rods to form side, top and bottom extensions as shown. Substantially midway of the side extensions 18 of frame 16 there are provided the hinge elements or disks 20 and 21, apertured at 22 and 23 to receive rod 24 and provided with the short tubular extensions 27 receiving the ends of sides 18. Side extensions 19 of frame 17 are similarly provided with coöperating hinge elements 20 and 21, similarly apertured at 22 and 23 to receive rod 24, and are provided with tubular extensions 26 receiving the ends of sides 19.

In assembling frames 16 and 17 one side extension of a frame is inserted between the side extensions of the other frame. The hinge element of one frame thus engages the outer face of the coöperating hinge element of the other frame at one side of the stand, while at the other side of the stand the hinge element of the first frame engages the inner face of the coöperating hinge element. This is clearly shown in Fig. 3. Referring especially to said figure, it will also be seen that the tubular extensions 26 and 27 project beyond the engaging faces of the hinge elements or disks, thus forming coöperating sockets or bearings for the disks at each side of the stand.

The outermost disks, 20, are each provided on their inner faces with the curved slots or grooves 28 adapted to receive pins 29 projecting from the faces of disks 21. Grooves 28 are cut into the faces of disks 20 at one end to a depth equal to the length of pins 29 and gradually rise to the faces of their respective disks at the opposite ends of the grooves. The inclined surfaces of each pair of grooves are oppositely arranged. That is, the closed or deeper end of the groove at one side of the disk is diametrically opposite the corresponding end of the groove at the other side of the disk, and the open or opposite ends of the two grooves are similarly disposed. To one side of the open end of each groove 28, in the arc of a similar circle, there is provided in the disk face a port or recess 30 equal in depth to the length of pins 29.

As above stated, disks or locking elements 20 and 21 are apertured at 22 and 23 to receive the ends of rod or axle 24. Rod 24 is threaded at each end 31 to receive winged nuts 32 secured to disks 20 by short screws as shown, passing through the wings of said nuts. Slide elements or casings 33 and 34 have a sliding fit on rod 24 and are secured to hinge elements 21 by screws 35 passing through wings 36 at the outer ends of the tubes.

Between end portion 37 of tube 33 and shoulder 38 forming an integral part of said tube, there is provided the finger-grip 39 having the annular extension 40 loosely mounted on tube 33. Finger-grip 41 is rigidly connected to the outer end of en-

larged portion or casing 42 of tube 34. Within casing 42 there is provided the light spring 43 adapted to bear at one end against end portion 37 of tube 33 and at the other end against the outer end of casing 42. Casing 42 is provided at its bottom with the longitudinally extending slot 44 into which finger-grip 39 passes when grips 39 and 41 are pressed toward each other against the tension of spring 43. One side of casing 42 is also cut away and has a tapered contour as shown at 45a in Fig. 3, for a purpose to be described. As means for limiting the manually operative movement of a slide element I provide rod 24 with the shoulder 48 for contact with a slide element.

The top 45 of the stand comprises preferably a strong piece of washable cloth or any suitable flexible fabric and may be detachably secured to tops 46 of the frame by spring fasteners, as shown, or in any suitable way. When the stand is in the folded or closed position cover 45 will hang between the side extensions as shown in Fig. 2. Rods 47 serve as braces for frames 16 and 17 and also to maintain top 45 between the frames when the stand is closed and in an inclined position. They may also serve as towel supports.

When the stand is in the closed position pins 29 of hinge elements 21 engage in the deeper ends of slots 28 in hinge elements 20. As the stand is opened pins 29 emerge from inclined grooves 28 and each pair of cooperating hinge elements 20 and 21 is forced apart. When the frames reach the relative positions shown in Fig. 1, pins 29 and recesses 30 have come opposite to each other, and the two sets of hinge elements are automatically forced together by the pressure of spring 43 against slide elements 33 and 34, pins 29 passing into recesses 30. The stand is thus automatically locked in the open position.

When it is desired to close the stand, finger-grips 39 and 41 are pressed toward each other, moving tubes 33 and 34 with disks 21 inwardly, the inner end of tube or member 33 sliding within casing 42 of member 34. This causes the withdrawal of pins 29 from recesses 30 and permits sections 16 and 17 to be moved into the closed position; it being understood that in the movement of the two frame sections in either direction a disk 20 turns with rod 24 and a coöperating disk 21 turns with its slide element 33 or 34 as the case may be, upon rod 24 at one side of the stand, while at the opposite side of the stand the movement of disk 21 with the rod-inclosing slide element is with and the movement of disk 20 in reverse direction to the movement of rod 24. As frames 16 and 17 are pushed toward each other into the closed position the finger grips may be released. Spring 43 then moves members 33 and 34 outwardly and pins 29 engage in the open ends of grooves 28 and pass through said grooves to the deeper ends of the same, at which time the opposed faces of each pair of disks 20 and 21 come together and corresponding frame sections of the two frames are brought together as shown in Fig. 3.

As additional means for maintaining the stand locked in the open position, finger-grip 39 may be given a quarter turn. This causes it to bind against the inclined end-portion 45a of casing 42 and the stand is then further locked in the open position and cannot be closed until grip 39 is turned back to its normal position in line with slot 44 in casing 42. In the event of wear between grip 39 and inclined portion 45a of casing 42, nuts 32 on threaded ends 31 of rod 24 may be tightened to cause the correct adjustment between the grip 39 and casing 42.

In the use of my device the baby will be laid upon top 45 in position parallel with frame extensions 46. The mother or nurse may be seated with the knees beneath extensions 46 in such position as easily to reach the baby. The slight sag or dip of the fabric top 45 will serve effectually to prevent the baby from rolling off of the stand and this sag or dip will be further increased by the resiliency of frames 16 and 17 and any elasticity of the fabric top. It will be understood that all danger of injury from the bumping of the child's head will be eliminated since the only possible contact of the head with the stand will be against support 45 slung between top extensions 46 of resilient frames 16 and 17.

In the event of a failure to open the stand to its fullest extent, at which point it locks automatically, the first weight brought to bear upon top 45 will immediately open the stand to its fullest extent and cause its automatic locking in such position. It will also be understood that the base extensions 47a are of such a wide spread and present so long a bearing surface as to practically eliminate any danger of the stand toppling over.

What I claim is:—

1. In a supporting structure, the combination of coöperating frame sections, one section movable relatively to another, locking means operating between frame section sides, one element of said means provided with a groove deeper toward one end than toward the other and with a recess, and a coöperating element of said locking means provided with groove and recess engaging means.

2. In a supporting structure, the combination of coöperating frame sections, one section movable relatively to another, locking means operating between adjacently disposed frame section sides, one element of said means provided with a groove deeper toward one end than toward the other and

with a recess, a coöperating element of said locking means provided with groove and recess engaging means, and means for controlling the engagement between recess engaging means and recess.

3. In a supporting structure, the combination of coöperating frame sections, one section movable about the axis of another, locking means operating between frame section sides, one element of said means provided with a groove in an arc concentric with the axis of movement of a frame section and of gradually varying depth, a coöperating element of said locking means provided with a groove engaging portion, and means between oppositely disposed frame section sides for controlling the engagement between groove engaging portion and groove.

4. In a supporting structure, the combination of coöperating frame sections normally freely movable about a common axis, each frame section provided at opposite sides with a hinge element coöperating with a hinge element of a coöperating frame section, recess and projection means of engagement between coöperating hinge elements of coöperating frame sections, and means between oppositely disposed frame section sides for disengaging said engaging means.

5. In a supporting structure, the combination of coöperating frame sections movable about a common axis, each frame section provided at opposite sides with a hinge element coöperating with a hinge element of a coöperating frame section, recess and projection means of engagement between coöperating hinge elements of coöperating frame sections, a rod transverse the frame sections, said rod connected at opposite ends to oppositely disposed frame section sides, and a slide element relatively movable with respect to said rod secured to another frame section side.

6. In a supporting structure, the combination of coöperating frame sections freely movable about a common axis, each frame section provided at opposite sides with a hinge element coöperating with a hinge element of a coöperating frame section, recess and projection means of engagement between coöperating hinge elements of coöperating frame sections, a rod connected at opposite ends to oppositely disposed frame section sides, slide elements relatively movable with respect to said rod secured to other frame section sides, and manually operative means connected with the slide elements for preventing the accidental actuation of the same.

7. In a supporting structure, the combination of coöperating frame sections of approximately equal dimensions movable about a common axis, each frame section provided at opposite sides with a hinge element coöperating with a hinge element of a coöperating frame section, one of said hinge elements provided with a groove in an arc concentric with the arc of movement of the frame sections about the common axis and with a recess, said groove deeper toward one end than toward the other, and the hinge element coöperating with said last mentioned hinge element provided with groove and recess engaging means, a horizontally disposed rod transverse the frame sections, said rod secured at opposite ends to oppositely disposed frame section sides, and slide elements secured at opposite ends to other frame section sides and movable in line with and in direction transverse the longitudinal extension of the rod.

8. In a supporting structure, the combination of coöperating frame sections movable about a common axis, each frame section provided at opposite sides with a hinge element coöperating with a hinge element of a coöperating frame section, one of said hinge elements provided with grooves in an arc concentric with the arc of movement of the frame sections about the common axis and with recesses between said grooves, said grooves deeper toward one end than toward the other and the deeper end of one groove toward the shallower end of the other groove, and the hinge element coöperating with said grooved and recessed hinge element provided with groove and recess engaging means.

9. A stand comprising coöperating frame sections of substantially equal dimensions movable about a common axis, each frame section comprising an integral body having a substantially straight base-forming bottom extension and provided at opposite sides with a hinge element coöperating with a hinge element of a coöperating frame section, recess and projection means of engagement between coöperating hinge elements of coöperating frame sections, means for disengaging said engaging means, and a support.

10. A stand comprising coöperating frame sections movable about a common axis, automatic locking means operating between adjacently disposed frame section sides, a rod transverse the frame sections, said rod connected at opposite ends to oppositely disposed frame section sides, a slide element relatively movable with respect to said rod secured to another frame section side, and a support.

11. A folding stand comprising coöperating frame sections, one section movable relatively to another, a support carried by the frame sections, and means normally operative between the frame sections in response to downward pressure upon the support for automatically locking the stand in the open position, whereby in use the accidental closing of the stand will be prevented.

12. A frame, hinge elements carried there-

by at different points on the frame structure, coöperating hinge elements, a spring, recess and projection means operating between adjacently disposed hinge elements, a rod operatively connected with the frame at opposite sides thereof, and slide elements connected with the rod and to a plurality of hinge elements.

13. Coöperating frame sections, hinge elements carried thereby at opposite sides of the frame sections, coöperating recess and projection means operating between adjacently disposed hinge elements, a rod operatively connected with the hinge elements, manually-operative spring-controlled slide elements carried by the rod and connected to oppositely disposed hinge elements, and means independent of the slide element operating means for limiting the manually operative movement of a slide element.

14. Coöperating frame sections, hinge elements carried thereby at opposite sides of the frame sections, coöperating recess and projection means operating between adjacently disposed hinge elements, a rod operatively connected with the hinge elements, slide elements connected with the rod and to oppositely disposed hinge elements, a device carried by one of said slide elements having a binding relationship with the other of said slide elements, and means for maintaining said binding relationship in the event of wear of the parts.

15. Coöperating frame sections, hinge elements carried thereby at opposite sides of the frame sections, locking means operating between adjacently disposed hinge elements, casings connected to oppositely disposed hinge elements, one of said casings provided with a slot and adapted to receive a portion of the other casing, said slotted casing also provided with an inclined portion, and a finger-grip engaging in the slot in one position of the parts and, in another position of the parts, binding against the inclined portion of the slotted casing.

16. An infant's toilet stand comprising two resilient frames pivotally connected intermediate their ends whereby they may assume open and closed positions, and a supporting-fabric for a reclining infant carried thereby, said frames being capable of limited movement toward each other above their points of pivotal connection in response to the pull of the infant-supporting-fabric and said fabric sagging downward between the frames lengthwise of the recumbent infant.

17. An infant's toilet stand comprising cooperating frame sections, one section movable relatively to another, an infant support of flexible material carried by the frame sections and having a slight dip or sag therebetween as means for preventing substantial movement of the infant from side to side, and a lock, automatically operative upon the movement of the frame sections into the open position, whereby the stand will be prevented from closing accidentally.

18. An infant's toilet stand comprising cooperating frame sections movable about a common axis, locking means operative between adjacently disposed frame section sides, said locking means comprising recess and projection means of engagement automatically movable into the position of locking relationship as the stand is opened, and a flexible support slung between the frame sections.

19. An infant's toilet stand comprising cooperating frame sections freely movable about a common axis, recess and projection means of locking engagement between adjacently disposed frame section sides, an infant support of flexible material adapted to be drawn nearly taut between oppositely disposed frame section sides when the stand is in the open position and upon the locking engagement of the frame section sides, said support having in the open position of the stand a slight dip or sag as means for preventing substantial movement of the infant from side to side, and means for controlling said recess and projection means of locking engagement.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."