L. K. SONE.

COLLAPSIBLE FRAME OR SUPPORT.

APPLICATION FILED MAR. 1, 1907.

900,322. **Patented Oct. 6, 1908.**

Fig. 1.

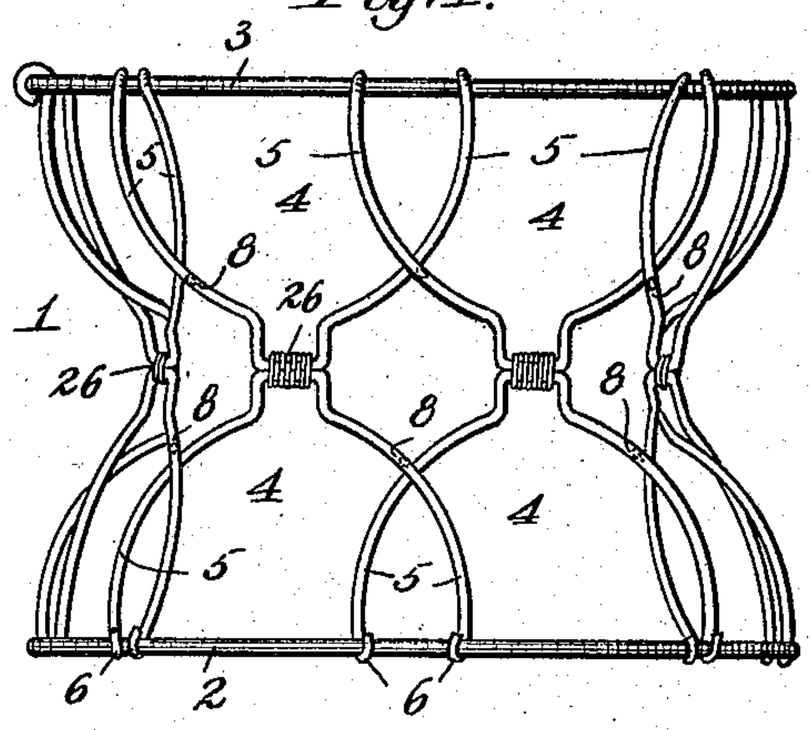


Fig. 3

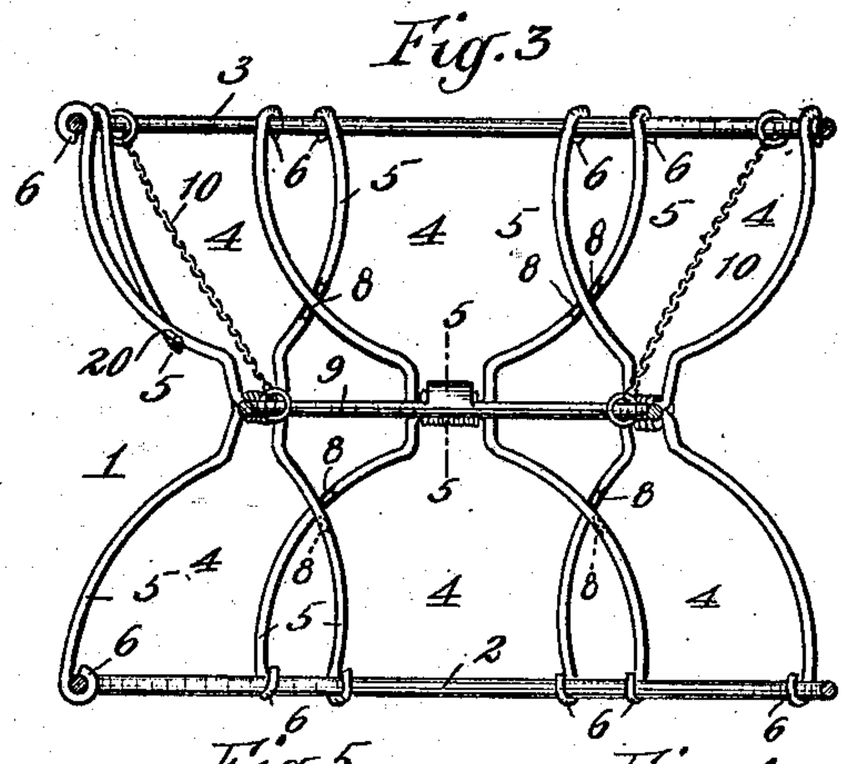


Fig. 2.

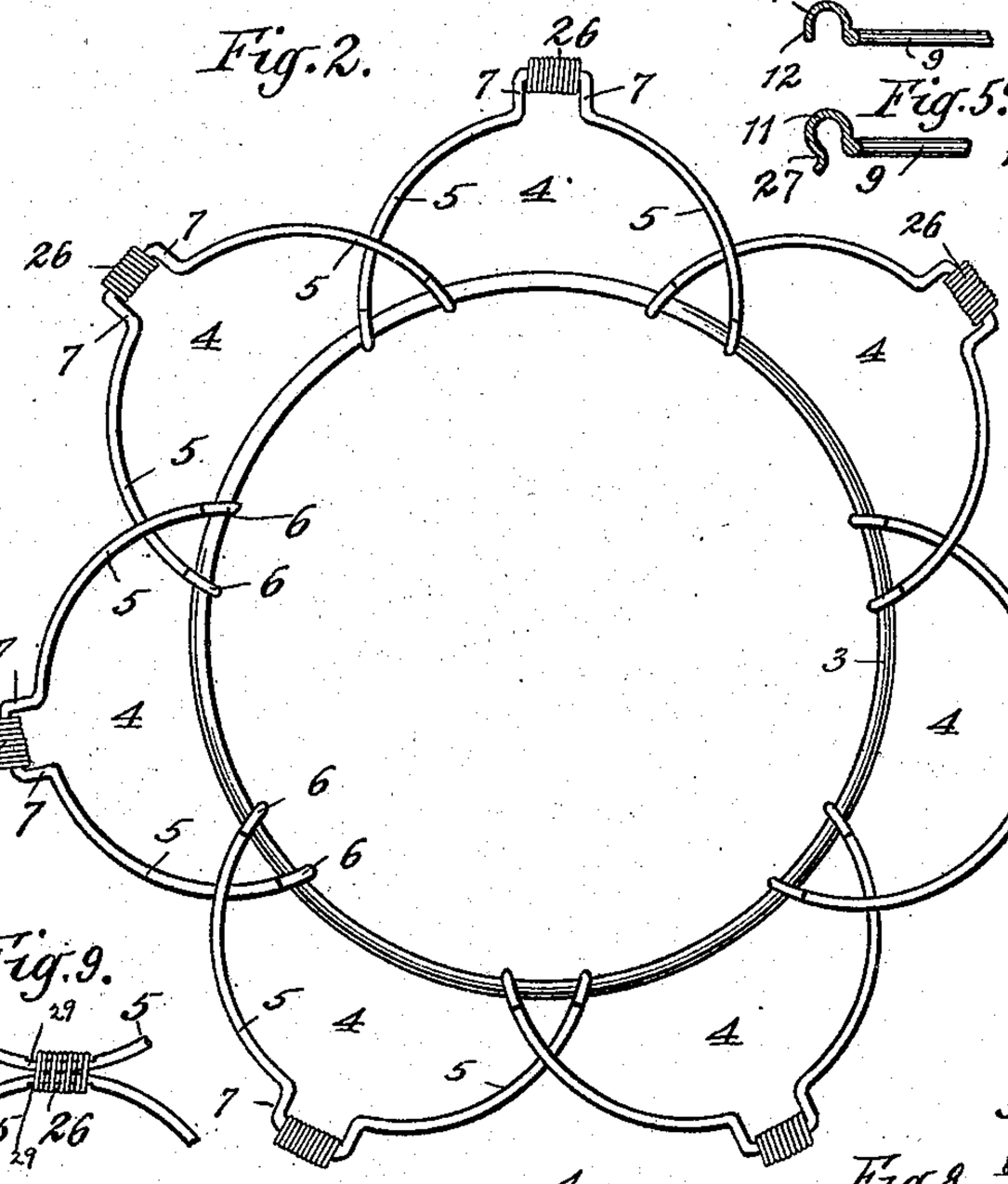


Fig. 5.

Fig. 5a

Fig. 4

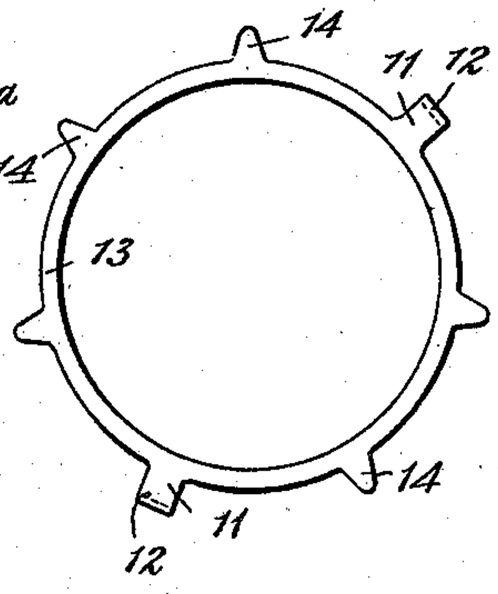


Fig. 6.

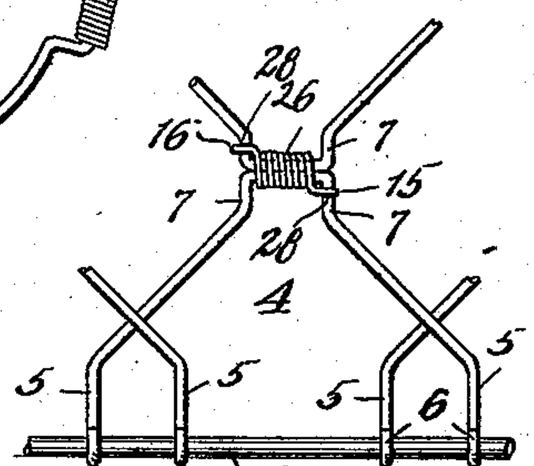


Fig. 9.

Fig. 7.

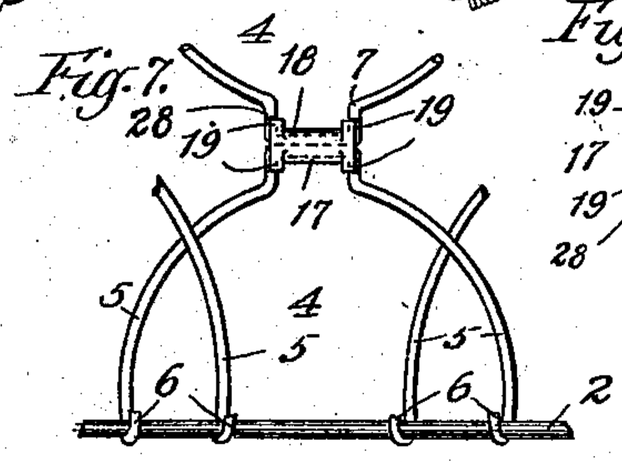
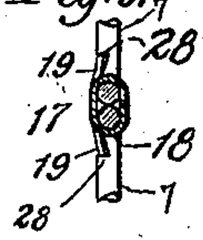


Fig. 8.



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COLLAPSIBLE FRAME OR SUPPORT.

No. 900,322. Specification of Letters Patent. Patented Oct. 6, 1908.

Original application filed February 23, 1906, Serial No. 302,347. Divided and this application filed March 1, 1907. Serial No. 360,023.

To all whom it may concern:

Be it known that I, LOUIS K. SONE, a citizen of the United States, residing in New York, in the county and State of New York, (post-office address, 50 West Seventy-seventh street, New York city,) have invented certain new and useful Improvements in Collapsible Frames or Supports, of which the following is a specification, taken in connection with the accompanying drawing.

This application is a division of my application No. 302,347, filed February 23, 1906, for traveling cooking utensil.

This invention relates to collapsible frames or supports suitable for any purpose.

In the accompanying drawing showing an illustrative embodiment of this invention, in which the same reference numeral refers to similar parts in the several figures, Figure 1 is a side elevation of my collapsible frame or support in substantially its extended or operative position. Fig. 2 is a plan view of the support collapsed outward in its inoperative position though it can be collapsed inward, to occupy less space. Fig. 3 is a vertical section taken through the support showing additional locking devices to prevent the frame or support being collapsed. Fig. 4 is a plan view of a modified form of locking member. Fig. 5[a] is a sectional view taken on line 5—5 of Fig. 3. Fig. 5 is a view similar to Fig. 5[a], showing a slightly modified form of hook. Fig. 6 is a side elevation of a portion of the frame or support showing a modified form of locking member and a slightly modified form of substantially U-shaped members. Fig. 7 is a side elevation of a portion of the collapsible frame or support showing a modified form of a stop and clamping member formed in one piece. Fig. 8 is a detail view of the stop and clamping member shown in Fig. 7. Fig. 9 is a detail view showing a modified form of offset.

In the accompanying drawing showing illustrative embodiments of this invention, 1 is a collapsible frame or support suitable for any purpose. I preferably form this stand of two rings 2 and 3 respectively and on each ring I mount substantially U-shaped members 4, 4 having legs 5, 5, the lower portion of the legs being bent upon themselves forming hooks 6, 6 by which they are pivotally secured to the rings 2 and 3, respectively. While I preferably use substantially U-shaped members, such as shown in Fig. 1, I, of course, do not wish to be limited to this particular form of member as any two connecting members secured respectively to the rings 2 and 3 and to each other so as to permit the stand to collapse either inward or outward and be extended into its operative position would come within the terms of my invention. Such members may be bent or formed as shown in Fig. 1, or as shown in Fig. 6, or any other suitable way. The upwardly extending substantially U-shaped members mounted upon ring 2 and the complementary downwardly extending substantially U - shaped member mounted upon the ring 3 have their abutting surfaces fastened together by some suitable clamping means, such as the wrapped wire 26 shown in Figs. 1, 2 and 3. To prevent the abutting surfaces of the substantially U-shaped members from moving laterally upon each other to any appreciable extent I may form one or both of the substantially U-shaped members with an offset, such as 7, 7. These offset portions are so arranged that they snugly receive the clamping means 26 and therefore prevent one substantially U-shaped member from being moved laterally upon its complementary substantially U-shaped member which adds materially to the rigidity and stability of the stand when in its operative position. Instead of forming the offsets 7, 7, as shown in Figs. 1, 2, 3, 6 and 7, I may form them by cutting away or reducing a portion of the substantially U-shaped members as shown at 29, 29 in Fig. 9.

I preferably make the rings 2 and 3 as well as the substantially U-shaped members 4 of strong wire, precious or otherwise, and arrange the legs 5, 5 of one substantially U-shaped member so that they will cross or bisect the legs 5, 5 of the adjacent substantially U-shaped members as shown in Figs. 1, 2, 3, 6 and 7. It is, of course, understood, however, that the parts may be made from sheet metal as well as wire. While ordinarily my collapsible stand will rigidly hold any article upon the ring 3 which it is desired to support, I preferably use some locking means to prevent the substantially U-shaped members from being inadvertently collapsed inward and consequently permitting the article supported on the ring 3 to approach the ring 2. In the form

shown in Fig. 1, I place protuberances or lugs 8 on the inside of one of the legs 5 of the substantially U-shaped members, shown in dotted lines in Fig. 1. The adjacent leg 5 of one of the substantially U-shaped members 4 is caused to be locked by these lugs when the ring 3 has been drawn away from ring 2 as far as possible and then retracted slightly by pressing the abutting surfaces and coöperating clamping means inward toward the center of the stand, permitting the leg 5 of one U-shaped member to come into contact with the lug 8 carried by the adjacent U-shaped member; the parts will be locked in this position regardless of the weight of the article placed upon the ring 3 provided, of course, it is not sufficient to bend or break the parts of the stand.

Instead of using lugs for stops I may form a depression 20 in one of the U-shaped members, such as shown in Fig. 3 within which the complementary legs of the adjacent U-shaped member are adapted to snap or be seated. In place of lugs or recesses 20, or in addition to them, I may use a ring 9, Fig. 3, of less diameter than the rings 2 and 3 and supported from the ring 3 by means of the chain 10. In this form of locking device, after the rings 2 and 3 have been extended to their maximum position, it is merely necessary to press the abutting surfaces and cooperating clamping means inward slightly until they are brought to bear upon the circumference of the suspended ring 9, the chain 10 being of just sufficient length to hold the ring 9 in the position where it will contact with the clamping means coöperating with the abutting surfaces. To still further prevent the collapsing of the stand, due to an accidental blow upon the substantially U-shaped members or otherwise, I may form a hook 11 upon the ring 9 so as to fit over the clamping means coöperating with the abutting surfaces. The end 12 of the hook 11 bearing upon the opposite side of the clamping means coöperating with the abutting surfaces from that of the ring 9 the substantially U-shaped members will be locked from movement in both directions in an obvious manner. To secure the ring 9 in position and to prevent any inadvertent displacement of it I may extend the hook 12 and bend it slightly inward to form the spring catch 27 (Fig. 5[a]) which will be sprung over the clamping means or connectors 26. Slight upward pressure on the ring 9 will be sufficient to release these clamping means from engagement with the spring catch 27, but if desired the operator may release the ring by pressing outward upon the catch 27. I may also prevent the undesirable movement of the members 4, 4 in both directions by placing two lugs 8, 8 either on the same leg 5 of one of the members 4, as shown in the upper portion of Fig. 3, or I may place them one on one leg 5 and one on the bisecting leg 5 of the adjacent member as shown in the lower portion of Fig. 3. By this arrangement of double lugs I prevent the accidental collapsing of the stand inward as well as outward. To place the stand in its inoperative or collapsed condition, such as shown in Fig. 2, it is merely necessary to bend or spring one of the legs 5, with its lug or lugs 8, past the bisecting and coöperating leg 5 of the adjacent substantially U-shaped member. As many of these locking lugs as is desirable may be used on one stand either alone or in conjunction with the depressions 20 and ring 9, Fig. 3, the locking members 17, Figs. 7 and 8, or 15 and 16, Fig. 6, or the ring 13, Fig. 4.

In place of a suspended ring, such as shown in Fig. 3, I may use a detachable ring 13, Fig. 4, stamped from sheet metal and having lugs 14, 14 to rest upon the upper portion of the clamping surfaces 26 within the offsets 7, 7 of the substantially U-shaped members attached to the ring 3. Upon this ring 13 I may also, in place of one or more of the lugs 14, 14, use hooks 11 with ends 12, or spring catches 27 substantially the same as shown in Figs. 5 and 5[a]. I may also form my locking members or stops as shown in Fig. 6 where the wire 26 has its ends 15 and 16 bearing respectively upon the offsets 7, 7 of two complementary U-shaped members carried by the rings 2 and 3 respectively. Or I may form my stops or locking members from sheet metal 17, shown in detail in Fig. 8 and in position in Fig. 7, where the central portion 18 clamps the meeting surfaces of the substantially U-shaped members together, performing the same function as the wrapped wire 26 in Fig. 1. It will be obvious that in this construction the shoulders 19, 19 bearing upon the offsets 7, 7 of two complementary substantially U-shaped members the collapsing of the stand will be prevented, the shoulders performing the same function as the lugs shown in Fig. 1, the ends recesses and rings shown in Fig. 4, the ends of the wire shown in Fig. 6, or the ring shown in Fig. 4. To give the shoulders 19, 19 a firm seat upon the substantially U-shaped members I may, if desirable, notch the members as shown at 28, Figs. 7, 8. I may also, if desirable, have the ends 15 and 16 of the wire 26 seat in similar notches 28, 28, Fig. 6.

Having thus described this invention in connection with several illustrative embodiments thereof, to the details of which I do not desire to be limited, what is claimed as new and what it is desired to secure by Letters Patent is set forth in the appended claims.

1. In a collapsible frame or support, two rings, members pivotally mounted upon the respective rings, means to clamp the meeting surfaces of two complementary members to-

gether, and means to prevent the support from being collapsed.

2. In a collapsible frame or support, two rings, members each having a plurality of legs pivotally mounted upon the respective rings, means to clamp the meeting surfaces of two complementary members together, and means to prevent the support from being collapsed.

3. In a collapsible frame or support, two rings, members each having two legs pivotally mounted upon the rings and provided with offsets, means to clamp the meeting surfaces of two complementary members together, said means being located in the offsets.

4. In a collapsible frame or support, two rings, members each having two legs pivotally mounted upon the rings, and provided with offsets, means to clamp the meeting surfaces of two complementary members together, said means being located in the offsets, and means to prevent the support collapsing when in its operative position.

5. In a collapsible frame or support, two rings, members, each having two legs pivotally mounted upon the rings, the legs of two adjacent members bisecting each other, means for clamping the meeting surfaces of two complementary members together, and one or more lugs formed upon one or more of the legs of the members adapted to coact with legs of an adjacent member to lock the support in its extended or operative position.

6. In a collapsible frame or support, two rings, substantially U-shaped members each having two legs pivotally mounted upon the respective rings, means to clamp the meeting surfaces of two complementary members together, and means to prevent said support from being collapsed.

7. In a collapsible frame or support, two rings, substantially U-shaped members pivotally mounted upon said rings, clamping means to connect said U-shaped members, some of said U-shaped members having opposite portions in which said clamping means are located to maintain alinement.

8. In a collapsible frame or support, two rings, substantially U-shaped members pivoted upon the respective rings, two complementary U-shaped members having offsets, means to clamp the two complementary U-shaped members together, said means being located in the offsets and means to prevent the support from being collapsed.

9. In a collapsible support consisting of two rings, substantially U-shaped members, the legs of each substantially U-shaped member connected to one ring bisecting the legs of the next substantially U-shaped member on the same ring, means for connecting the meeting surfaces of each U-shaped member to another complementary substantially U-shaped member, and one or more stops upon the U-shaped members.

10. In a collapsible frame or support consisting of two rings, substantially U-shaped members mounted upon the respective rings, the legs of one substantially U-shaped member bisecting the legs of the succeeding substantially U-shaped member upon the same ring, means for yieldingly connecting the meeting surfaces of the substantially U-shaped members and means to lock the collapsible frame or support in its elevated position.

11. In a collapsible frame or support, two rings, members each having a plurality of legs pivotally mounted upon the respective rings, means to clamp the meeting surfaces of two complementary members together, and means to prevent the support from being inadvertently collapsed in either direction.

12. In a collapsible frame or support, two rings, members each having a plurality of legs, means to clamp the meeting surfaces of two complementary members together, and lugs and coöperating locking means arranged upon the legs of the members to prevent accidental collapsing of the support either inward or outward.

13. In a collapsible frame or support, two rings, members each having a plurality of legs, means to clamp the meeting surfaces of two complementary members together, lugs arranged upon the legs of the members to prevent accidental collapsing of the support either inward or outward and a ring to limit the inward movement of the meeting surfaces of the two complementary members.

14. In a collapsible frame or support, two rings, members each having a plurality of legs, means to clamp the meeting surfaces of two complementary members together, lugs arranged upon the legs of the members to prevent accidental collapsing of the support either inward or outward and a ring having a hook, the ring limiting the inward movement of the meeting surfaces of the two complementary members and the hook preventing the outward movement of the meeting surfaces of the two complementary members.

15. In a collapsible frame or support, two rings, members each having a plurality of legs, means to clamp the meeting surfaces of two complementary members together, lugs arranged upon the legs of the members to prevent accidental collapsing of the support either inward or outward and a ring having a hook and a spring catch, the ring limiting the inward movement of the meeting surfaces of two complementary members and the spring catch preventing accidental outward movement of the meeting surfaces of the two complementary members

and holding the ring in its operative position.

16. In a collapsible frame or support, two rings, members each having a plurality of legs pivotally mounted upon the respective rings, means to clamp the meeting surfaces of two complementary members together, and lugs and depressions formed upon the legs of the same to coöperate with the leg of an adjacent bisecting member to prevent the support from being collapsed.

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