L. S. CHADWICK.

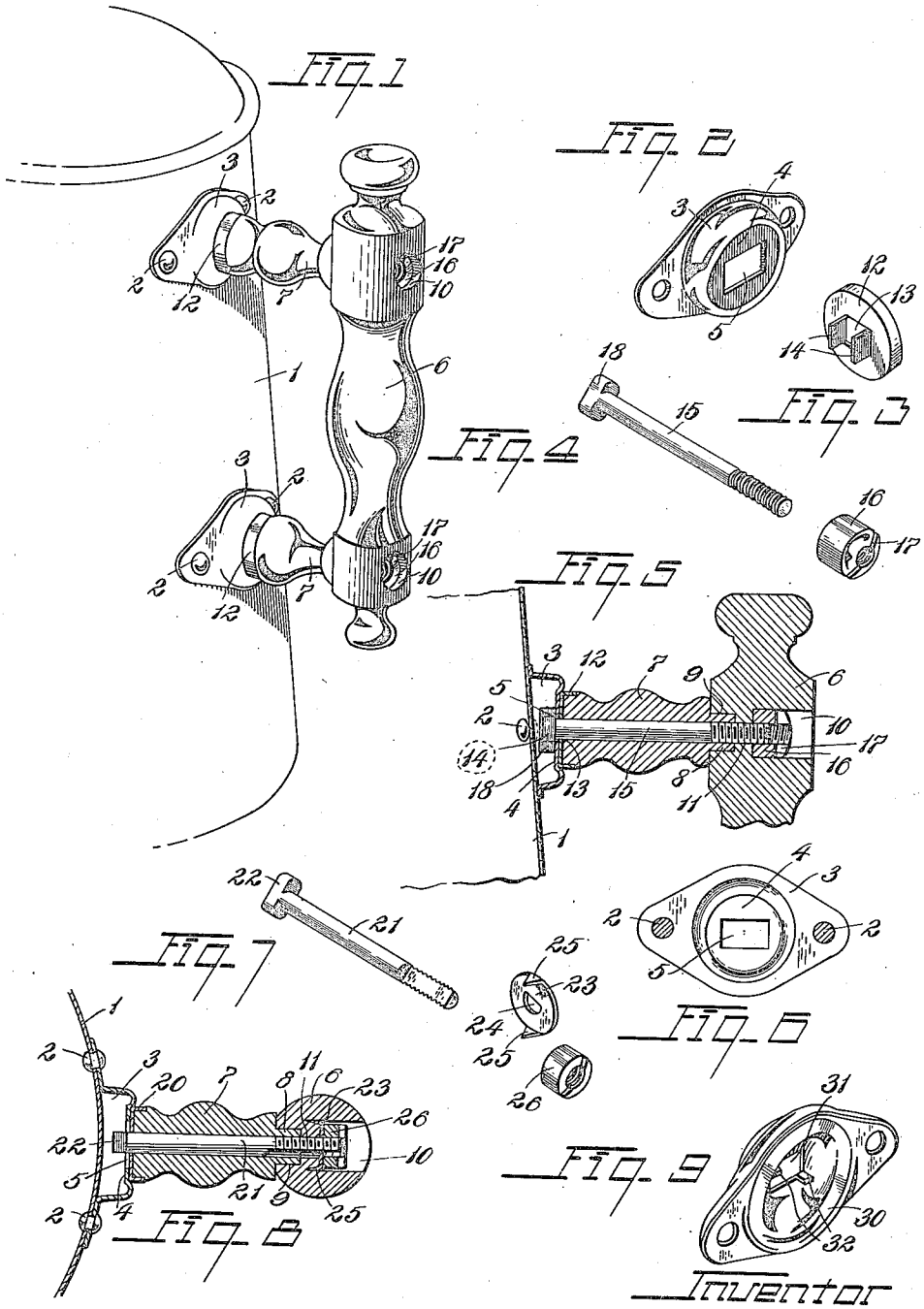
CONNECTING DEVICE.

APPLICATION FILED JUNE 2, 1915.

1,306,100.

Patented June 10, 1919.

2 SHEETS—SHEET 1.



Inventor

Lee S. Chadwick,

By Hull, Smith, Brock & West

Attys.

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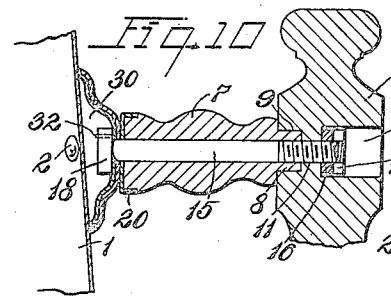

Fig. 10

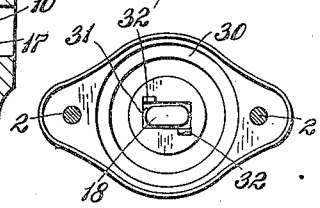

Fig. 11

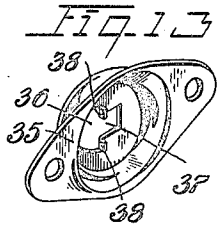

Fig. 13

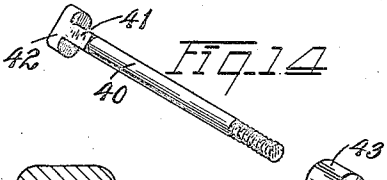

Fig. 14

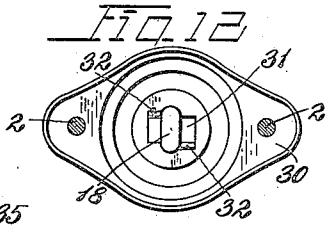

Fig. 12

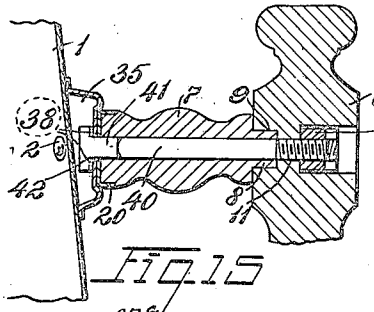

Fig. 15

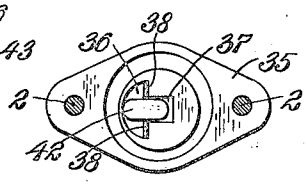

Fig. 16

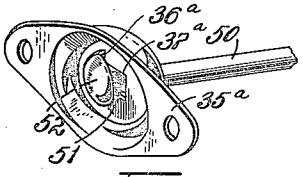

Fig. 20

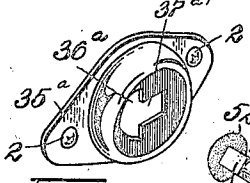

Fig. 18

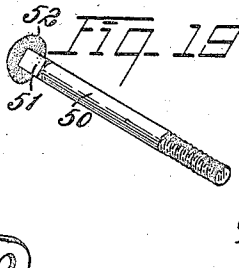

Fig. 19

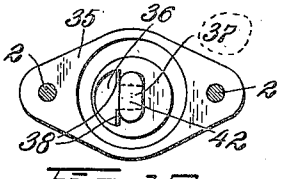

Fig. 17

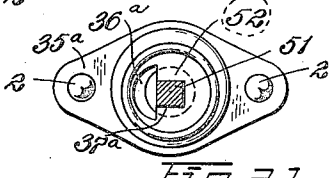

Fig. 21

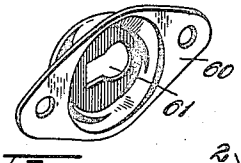

Fig. 22

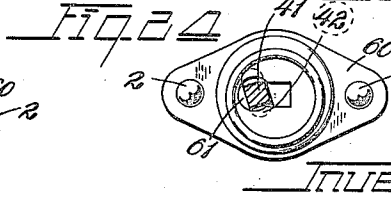

Fig. 24

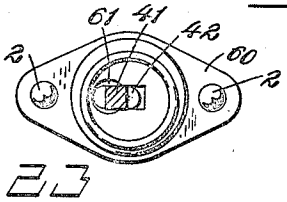

Fig. 23

Inventor

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UNITED STATES PATENT OFFICE.

LEE S. CHADWICK, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND METAL PRODUCTS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CONNECTING DEVICE.

1,306,100. Specification of Letters Patent. Patented June 10, 1919.

Application filed June 2, 1915. Serial No. 31,784.

To all whom it may concern:

Be it known that I, LEE S. CHADWICK, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Connecting Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates generally, to devices for connecting members together; and more particularly to devices for detachably securing handles to such vessels as cooking utensils. The handles with which the devices are especially intended for use, are those formed of non-heat absorbing material that is more or less liable to damage by intense heat; and the class of vessels with which it is particularly adapted for use is high grade cooking utensils that are of an expensive quality, and that are necessarily subjected to high degrees of heat in their ordinary usage.

The invention has for its primary object, therefore, to provide a simple device whereby handles of the aforesaid nature may be very conveniently attached to vessels, such as cooking utensils, in a manner that will allow them to be easily removed, should they become damaged, as by severe heat, and perfect handles substituted therefor. The handles of the kind above referred to are usually inexpensive, being ordinarily made of wood; but the vessels to which they are attached are often of an expensive quality, as for instance, when made of aluminum. It is quite an advantage, therefore, to provide vessels of this character with removable handles, and to supply means for securing the handles to the vessels that may be readily manipulated by the average person, in replacing damaged handles, and which will not require the use of special tools for such purpose. Therefore, further objects of the invention are to provide devices whereby handles may be securely and rigidly fastened to vessels in an expeditious manner by the use of an ordinary screw driver, and which will allow the handle to be very conveniently removed when occasion arises; to provide securing devices for handles of the character aforesaid which are so designed as to be almost wholly concealed when the parts are assembled, and yet which are easily accessible, when it is desired to remove the handles; and, in more limited terms, to provide a combination of elements one of which is permanently connected to the vessel, another having a portion interlocking with the aforesaid element and extending through the handle, and further elements for locking the former ones against relative angular movement and for binding the parts positively together, thereby to provide a very rigid and substantial structure.

In the accompanying drawings I have shown various modifications of my invention, in any one of which the foregoing objects are attained.

In the drawings, Figure 1 is a perspective view of a handle attached to a vessel by the use of a device of my invention; Figs. 2, 3 and 4 are perspective views of the separate elements of one modification of my invention; Fig. 5 is a central vertical section through the upper end of a handle and the adjacent part of a vessel connected by the elements shown in Figs. 2, 3 and 4; Fig. 6 is a rear face view of the supporting plate shown in Fig. 2; Fig. 7 shows, in perspective, three of the elements that are employed in another form of my invention; Fig. 8 is a horizontal section through an assembly wherein the elements of Fig. 7 are employed; Fig. 9 is a perspective view of a further form of supporting plate; Fig. 10 is a section, similar to the section shown in Fig. 5, of the modification of my invention wherein the supporting plate of Fig. 9 is used; Fig. 11 is a rear face view of the aforesaid supporting plate, showing the bolt head in the act of being inserted through the slot thereof; Fig. 12 shows the bolt head in the position which it normally occupies within said plate; Fig. 13 is still another form of supporting plate; and Fig. 14 shows a modified form of bolt for use with the last mentioned supporting plate; Fig. 15 is a central vertical section through the upper portion of a handle, and the adjacent portion of a vessel to which said handle is attached by the elements shown in Figs. 13 and 14; Figs. 16 and 17 are rear face views of the supporting plate of Fig. 13, the former figure showing the bolt head in the act of being inserted through the slot of the supporting plate, and the latter figure, showing the bolt head in its locked position therein; Fig. 18 shows another form of

supporting plate; Fig. 19, a bolt and nut used in connection with the plate of Fig. 18; Fig. 20 illustrates the manner of inserting the head of the aforesaid bolt through the slot of the plate; Fig. 21 represents a front face view of the supporting plate shown in Fig. 18, and shows the shank of the bolt in section, and head of the bolt within the hollow of the plate; Fig. 22 is a rear perspective view of a further form of supporting plate wherewith a bolt of the character shown in Fig. 14 is used; and Figs. 23 and 24 are front face views of the aforesaid plate, showing the coöperation of the bolt therewith.

Taking up a detailed description of the invention by the use of reference characters and referring, first, to the form shown in Figs. 1 to 6, 1 represents a vessel which has secured to it, by any suitable means, such as rivets 2, supporting plates 3. Each of these plates is bulged outward in the center to form a hollow boss having a flat depressed circular face 4, that is provided with a horizontally disposed rectangular slot 5, as clearly shown in Figs. 2 and 6. The handle of the vessel is represented at 6, and is spaced a proper distance from the vessel, by tubular spacing members 7. The outer ends of these members have tenons 8 which occupy recesses 9 in the side of the handle, and directly through the handle from each of the recesses 9 is a cylindrical cavity 10, which is in axial alinement with the aforesaid recess. A bore 11 extends through the web between the recess 9 and adjacent cavity 10, and is arranged to register with the bore of the tubular spacing member 7. The end of each of the members 7 adjacent the vessel 1 is provided with a ferrule 12, which is of substantially the same diameter as the circular seat 4 of the supporting plate wherewith it is associated. The ferrule 12 has a substantially square central aperture 13, and located on each side of the aperture and extending outward from the face of the ferrule, is a lug 14. Since the ferrule is preferably made of stamped metal, these lugs may be conveniently formed of the material that is cut from the web of the ferrule in the punching of the aperture 13. A bolt 15 is adapted to be passed through the aperture 13 of the ferrule, the bore of the tubular spacing member 7, and through the bore 11 of the handle, it being explained that the width of the aperture 13 is only slightly greater than the diameter of the bolt. Where the threaded end of the bolt projects into the cavity 10, it is adapted to receive a cylindrical nut 16, the outer end of which is grooved at 17 for the reception of the end of a screw driver. The bolt 15 is provided with a transversely elongated head 18, that is of a width substantially equal to the diameter of the bolt. For convenience, this form of head will be referred to hereinafter as a T head.

In assembling the form of my invention just described, the ferrule is placed over the end of the tubular spacing member 7, and the shank of the bolt is slipped through said member, with the head of the bolt spaced from the ferrule a distance greater than the length of the lugs 14. The bolt head is turned to extend across the ends of the lugs, and these parts are then inserted through the slot of the supporting plate 3. It will be explained that the vertical extent of the lugs 14 is substantially equal to the corresponding dimension of the slot 5. Now, when the ferrule occupies the seat 4 of the supporting plate, the bolt 15 is turned through 90° and drawn outward until its head occupies the space between the lugs 14. It is obvious that the ferrule is positively locked against turning by reason of its lugs 14 extending vertically across the slot 5, and it is equally clear that the head of the bolt 16, being confined between the lugs 14, will be effectually locked against turning. When both of the spacing members 7 have been attached to the supporting plates, the handle 6 may be applied to the outer ends of said members, with the threaded ends of the bolts projecting into the cavities 10. The nuts 16 may then be applied to the bolts and tightened thereon by the use of a screw driver, to draw the parts firmly together, the bolt, in the meantime being prevented against turning in the manner already explained.

Throughout the remainder of this description, the vessel, handle, and spacing members will be referred to by the same reference characters as those used in connection with such parts in the foregoing description.

In the form of my invention shown in Fig. 8, the same supporting plate is employed as that previously described, and is, therefore, designated 3. The ferrule 20 that is used on the end of each of the spacing members 7 in this and the following modifications, does not possess the lugs of the ferrule 12, or any other means for locking it against turning with respect to the supporting plate. Therefore, other means for accomplishing this end has to be included which will be pointed out in connection with the various modifications as they are taken up for consideration. In Fig. 8 the bolt is designated 21, and has a T head 22 identical with that of the former bolt 15. The shank of the bolt, however, is flattened on one side, as clearly shown in Figs. 7 and 8, and a washer 23, having an aperture 24 of a shape corresponding to the cross section of the shank of the bolt, is adapted for application to the bolt. This washer is provided with prongs 25 that are embedded in the circular wall of the cavity 10, when the washer is in place.

In assembling this form of the device, the bolt head is inserted through the slot of the supporting plate and is turned across the same so that the ends of the head overlie the side edges of the slot. The washer 23 is pressed into the bottom of the cavity 10 with its slot arranged to correspond to the angular arrangement of the shank of the bolt, when its head 22 lies across the slot 5 of the supporting plate, in the position just described. The nut 26 is then screwed onto the shank of the bolt until the parts are firmly drawn together. In this condition, the bolt 21 is effectually held against turning by the washer 23.

In the modification of my invention shown in Fig. 10, a special form of supporting plate is employed, the same being designated 30, and shown in perspective in Fig. 9, and in rear elevation in Figs. 11 and 12. I have shown this supporting plate as being of double thickness. This is only for the reason that it is desirable to have attachments of this character made of the same material from which the body of the vessel is formed, and in the case of aluminum vessels, an aluminum shell is formed over a substantial, pressed steel body, the aluminum being included only for the purpose of producing the desired appearance, and the steel for obtaining the required rigidity. This same construction might be followed out in any of the forms of my invention, although for the purpose of simplicity, I have omitted it from all except the one now to be described. The supporting member 30 is provided with a rectangular opening 31, from the diagonally opposite corners of which extend, inwardly, lugs 32, the opposed edges of which are spaced apart a distance substantially equal to the thickness of the head of the bolt that is intended for use with this plate. In this form of the invention the same bolt is used as that employed in connection with the modification shown in Figs. 1 to 6, and the other parts are identical with those of said modification, with the exception of the ferrule on each of the spacing members, and this is of the form shown in Fig. 8 and having, therefore, the same reference numeral applied to it.

In assembling the form of the invention shown in Fig. 10, the head of the bolt is inserted through the slot of the supporting plate, as indicated in Fig. 11, and is then turned transversely across the slot, with the ends of the head bearing against the lugs 32 (Fig. 12). It will be explained that the location of these lugs is such as will oppose the turning of the bolt during the threading on of the nut 16, so that, for all practical purposes, the bolt is effectually held against turning by such lugs.

In Fig. 15 I have shown a form of the invention wherein a supporting plate 35 is used, (see Fig. 13) the same having a slot 36 that is substantially T shaped, the portion 37 corresponding to the stem of the T being substantially square. A pair of lugs 38 project inward from the face of the supporting plate, above and below and to one side of the portion 37 of the slot, as clearly shown in Figs. 13 and 16. In this case, the bolt 40 has a neck 41 that is square in cross section, the cross sectional area of such neck being slightly less than the area of the portion 37 of the slot in the supporting plate. In other respects, the bolt 40 is the same as the bolt 15, having a T head 42 and a threaded shank for the reception of the nut 43.

In assembling this form of the device, the head 42 is fed through the slot of the supporting plate, as indicated in Fig. 16, and when it is beyond the ends of the lugs 38, it is turned into the position shown in Fig. 17, so that its square neck 41, being confined within the correspondingly shaped portion of the slot, is effectually held against turning, and the fact that the side of the bolt head bears against the lugs 38, prevents the bolt from sliding laterally and becoming displaced.

The supporting plate shown in Figs. 18, 20 and 21 is identical with that just described, with the exception that it has no lugs 38. Also, the bolt 50, used in connection with this supporting plate is quite similar to the one indicated at 40, the same having a squared neck 51; but it differs from the former bolt by having a round head 52, like that of a carriage bolt. Because of the similarity between the supporting plate shown in perspective in Fig. 18, and the former type of Fig. 13, I have employed the same reference numerals for the corresponding parts thereof, adding to them the exponents a. In putting these parts together, the head of the bolt is fed or buttoned through the enlarged portion of the slot, in the manner indicated in Fig. 20, and the bolt is then moved laterally into the reduced portion of the slot, where its square neck 51 is prevented from turning because of the corresponding shape of such reduced portion 37^a.

Figs. 22, 23 and 24 show a supporting plate 60, having a key-hole slot 61, through which the T head of a bolt, like the bolt 40, may be inserted in the manner indicated in Fig. 23, the entire length of the slot being slightly greater than the length of the bolt head. The diameter of the circular portion of the slot, as will be observed from Fig. 24, is substantially equal to the diagonal of the square neck of the bolt. Therefore, when the head of the bolt has passed through the slot and has been shifted laterally into the circular portion thereof, the bolt head may be turned across the slot and the neck of the

bolt then moved into the square end of the slot, where it is effectually held against turning.

Having thus described my invention, what I claim is:

1. In combination with a pair of members, the first having a slot and the second a bore, a device for connecting the members and comprising an element that extends through the bore of the second member and has a head that is of a greater transverse dimension than the width of a portion of the aforesaid slot, said head being adapted to be inserted through said slot and arranged across the same, means for holding the element against rotation with respect to the first member, the end of the element remote from its head being threaded, and the second member having a recess into which its bore opens and into which the threaded end of the element projects, and a nut contained within said recess for application to the threaded end of the element whereby the members are held against separation.

2. In combination with a pair of members, the first having a slot that is provided with a restricted portion, and the second having a through opening, a device for connecting the members and comprising an element that extends through the opening of the second member and has a head of greater area than the restricted portion of the slot and that is adapted to be inserted through said slot, the element having an angular portion adjacent its head that is arranged to fit within the restricted portion of the slot, means for retaining the angular portion against withdrawal from the restricted portion of the slot, the end of the element remote from its head being threaded, and a nut for application to the threaded end of the element for holding the members against separation.

3. In combination with a pair of members, the first having a depression and a slot within said depression that is provided with a restricted portion, and the second having a through opening that is adapted to register with the restricted portion of the slot when the end of said second member is fitted within the depression of the first, an element that extends through the opening of the second member and has a head of greater area than the restricted portion of the slot and that is adapted to be inserted through said slot, the element having an angular portion adjacent its head that is arranged to fit within the restricted portion of the slot and to be held therein by the interengagement of the end of the second member with the depression of the first, the end of the element remote from its head being threaded, and a nut for application to the threaded end of the element for holding the members against separation.

4. In combination with a pair of members, the first being provided with a slot having a restricted portion, and the second being provided with a through opening, an element of substantially the same cross-sectional area as the opening of the second member and extending therethrough and having a head of greater area than the restricted portion of the slot and that is adapted to be inserted through said slot, the element having an angular portion adjacent its head that is arranged to fit within the restricted portion of the slot, the end of the element remote from its head being threaded, the aforesaid members having parts coöperating to hold them against relative movement in any direction at right angles to the axis of the element when the opening of the second member is in register with the restricted portion of the slot of the first, and a nut for application to the threaded end of the element for holding the members against separation.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

LEE S. CHADWICK.

Witnesses:

W. E. SHEPPARD,

A. R. WHITTAKER.