L. E. THOMPSON.

SHELL CRIMPER.

APPLICATION FILED JAN. 16, 1909.

943,716. Patented Dec. 21, 1909.

Fig. 1.

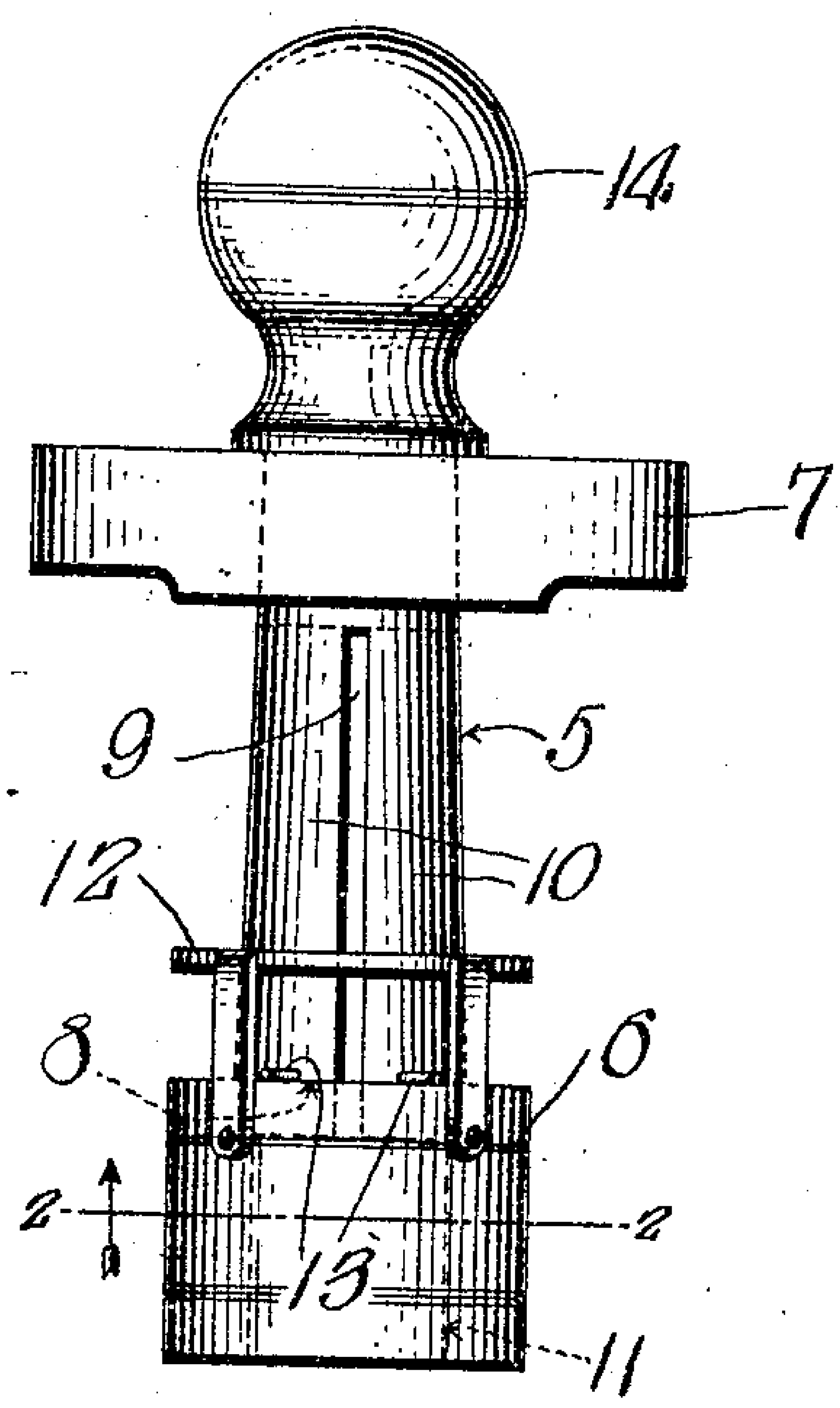


Fig. 3.

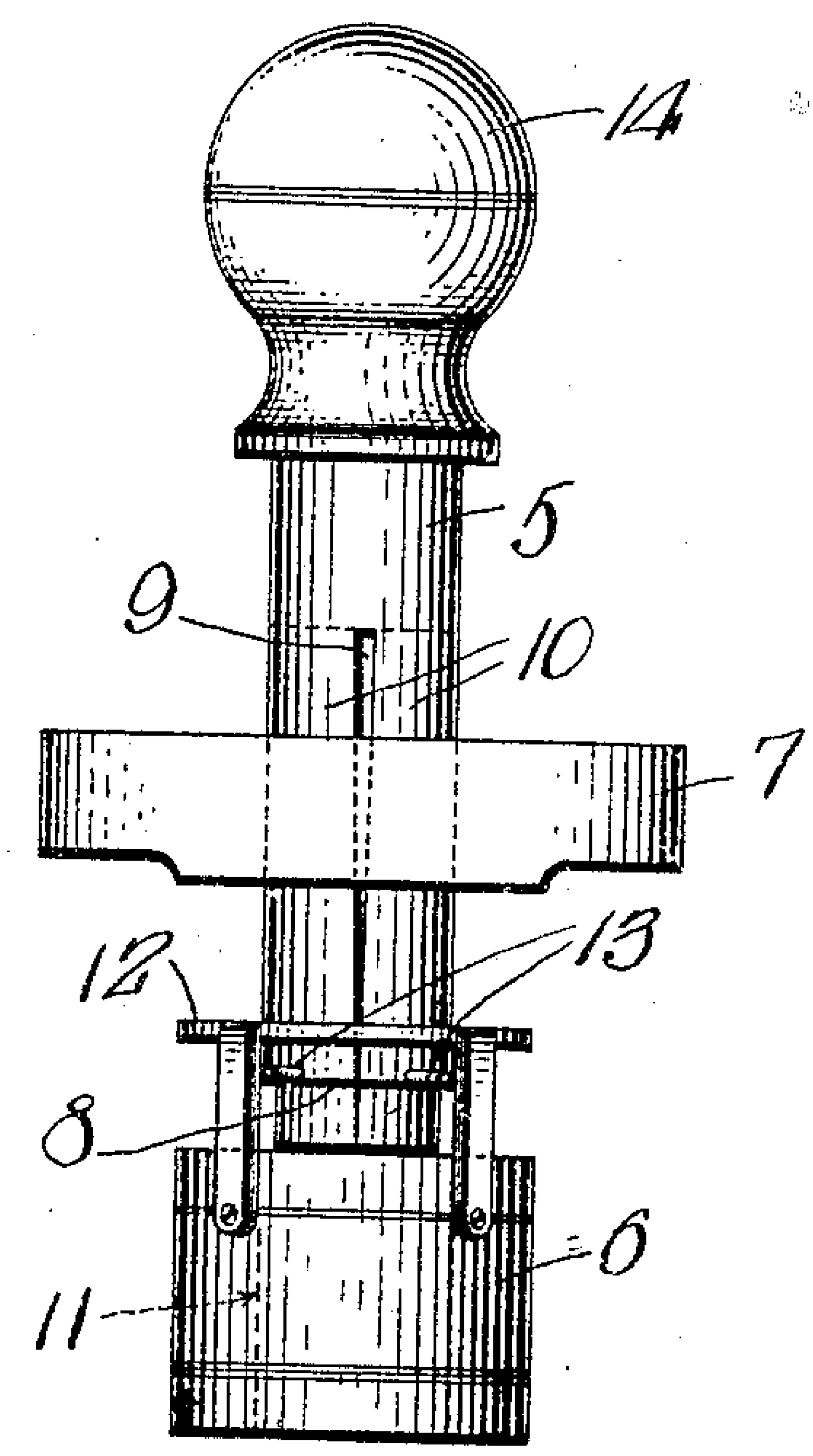


Fig. 2.

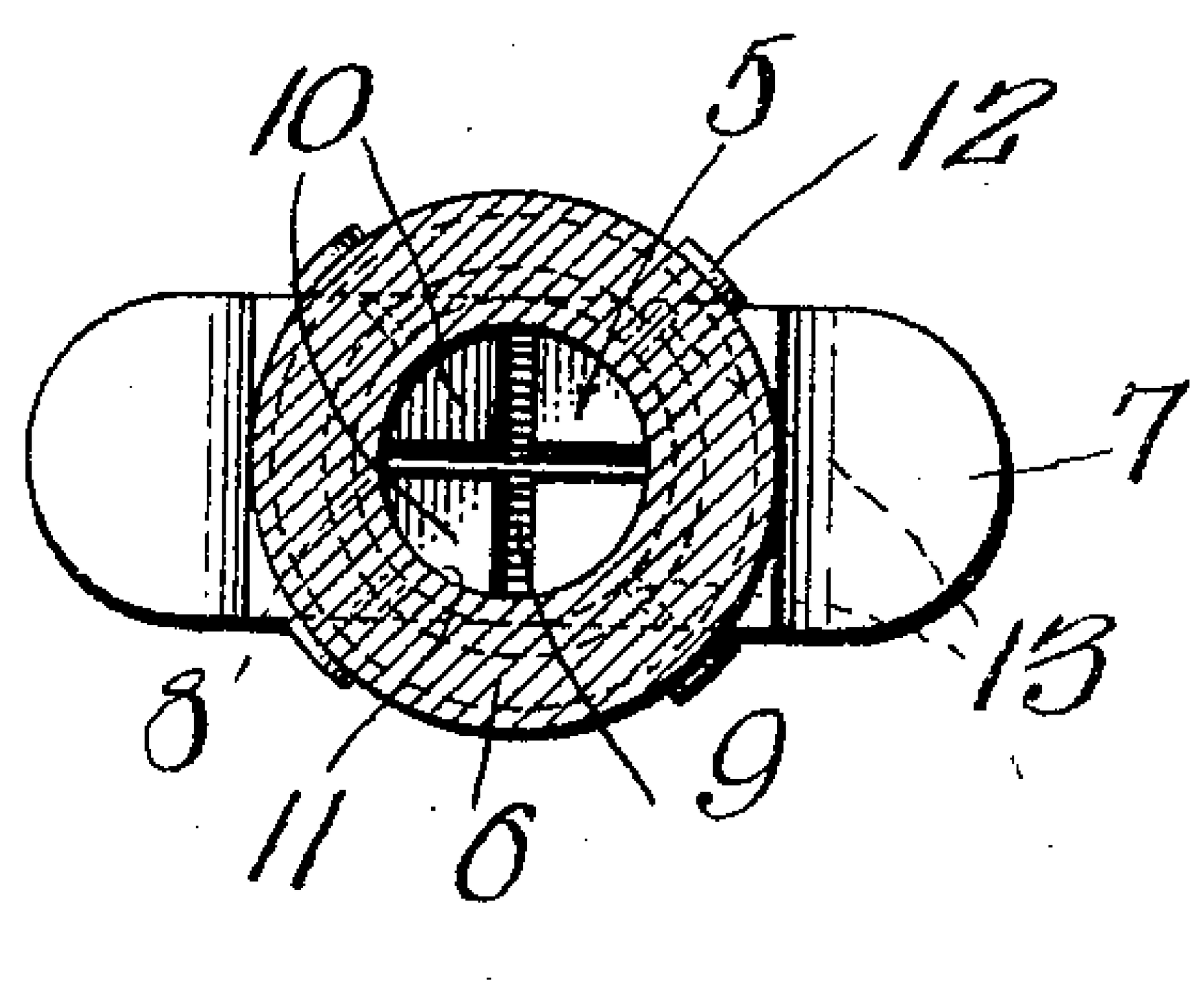
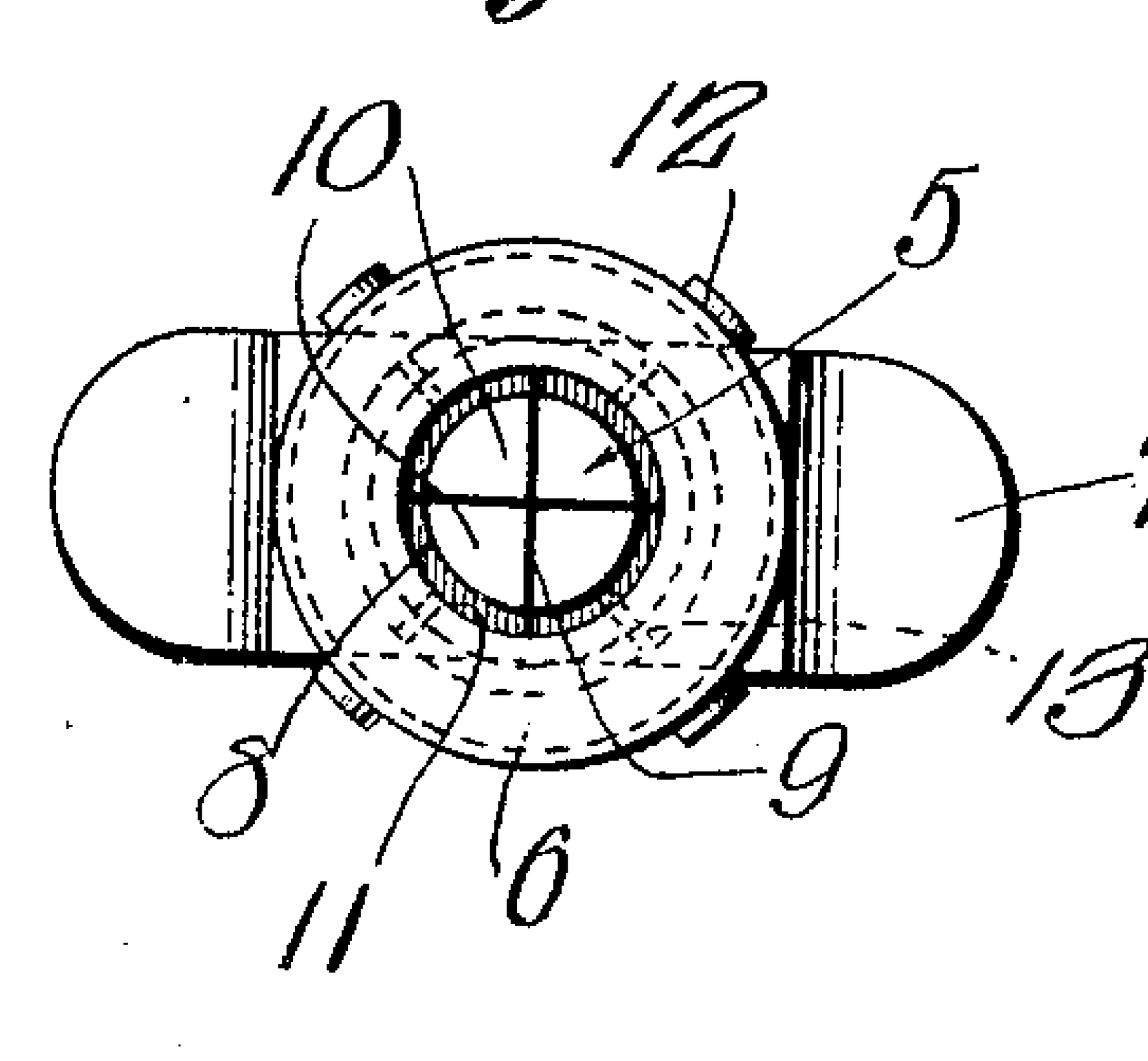


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

LEONARD E. THOMPSON, OF FODVANG, MINNESOTA.

SHELL-CRIMPER.

943,716. Specification of Letters Patent. **Patented Dec. 21, 1909.**

Application filed January 16, 1909. Serial No. 472,673.

To all whom it may concern:

Be it known that I, LEONARD E. THOMPSON, a citizen of the United States, residing at Fodvang, in the county of Marshall, State of Minnesota, have invented certain new and useful Improvements in Shell-Crimpers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has reference to improvements in shell crimpers, and it resides, generally, in the provision of an extremely simple and inexpensive device including a plunger having a normally expanded working portion movable within the bore of the tubular head connected therewith into contact with the shell end, upon which latter said portion is constructed and arranged to exert both an endwise and a lateral pressure.

To this end, the device, briefly described, comprises a solid plunger whose lower or working portion is split longitudinally, so as to form a plurality of fingers, the spaces between the fingers being sufficiently wide to permit a positive inward movement of the fingers toward and into contact with each other under the influence of a clamp slidable upon the plunger, the fingers resuming their normal position when the clamp is moved out of binding engagement therewith. The end of the working portion of the plunger is also formed with an annular crimping shoulder arranged for contact with the shell end when the plunger is moved downwardly into the bore of the head, the shoulder being intersected by the longitudinal splits or cuts which result in the formation of the fingers. The several portions of this shoulder will therefore exert a downward pressure upon the shell end, while the fingers themselves will normally exert a lateral pressure thereupon.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts, or features, as the case may be, are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a front elevation of the complete device, showing the plunger lowered, and its fingers in their normal or expanded position. Fig. 2 is a section taken on the line 2—2 thereof. Fig. 3 is a front elevation showing the plunger raised and its fingers contracted. Fig. 4 is a bottom plan view of Fig. 3.

Referring more particularly to the drawings, 5 designates, generally, the plunger, 6 the head, and 7 the sliding clamp arranged to contract the lower or working portion of the plunger, as hereinafter described.

The plunger, which constitutes the main element of the crimper, increases gradually in diameter from its upper to its lower end, at which latter point it is reduced so as to provide an annular circumscribing shoulder 8. The working portion of the plunger is cleft or split longitudinally by a pair of cuts 9 which intersect each other at right angles throughout their entire length, and which open through the side wall and the lower end of the plunger, this construction resulting in the formation of a series of four fingers 10, which are co-extensive in length with the cuts, as will be obvious. Each finger thus includes a portion of the shoulder 8 which latter is likewise intersected by the cuts.

The cylindrical head 6 is formed in the usual manner with a bore 11 which opens through the top and bottom faces thereof, and is arranged to receive therein the upper end of the shell to be crimped. Said head is arranged concentrically of the plunger and is provided with a spider 12, whose annular body portion fits loosely upon the split working portion of the plunger while its legs are secured at their lower ends to the head, the interior diameter of the spider body being approximately equal to the diameter of the bore 11. The upper portion of the bore is arranged to receive the lower ends of the plunger fingers, the extent to which the fingers enter the bore being limited by a series of lateral pins 13 with which they are provided, said pins serving further, to prevent complete separation of the head and plunger.

The width of the cuts 9 is such that the mutually-adjacent side faces of the fingers lie normally in spaced relation to each other, and since these fingers have a gradually increasing width from their upper to their lower ends, the working portion of the plunger may be regarded as normally expanded, inasmuch as it is necessary to force the fingers inwardly toward each other in order to bring them into mutual contact. This inward movement or compression of the fin-

gers is effected by means of the clamp 7, which latter is slidably fitted upon the plunger, being provided for that purpose with an opening through which the plunger passes. Therefore, when the clamp is slid toward the lower end of the plunger, it will force the free ends of the fingers to move inwardly toward each other, the size of the opening being such that its wall is brought into binding contact with the outer faces of the fingers at the same time that the mutually-adjacent inner faces thereof meet each other. The clamp itself is in the form of a short flat bar arranged transversely of the plunger, as shown, the end portions of the bar affording handles or finger pieces by means of which it may be slid in either direction. The plunger terminates in a knob or handle 14.

In the operation of the invention, the working end of the plunger is first contracted by means of the slide, as above described, after which the head is fitted upon the upper end of the paper shell, whose upper edge has been previously bent inwardly, the shell resting in vertical position upon a suitable support. The plunger is then depressed, the reduced end thereof entering the shell and turning the bent edge inwardly and downwardly, in which operation it is assisted by the annular shoulder 8 which overhangs and rests upon the shell at the line of bending. The clamp is then moved upwardly out of binding engagement with the fingers, whereupon the latter are free to resume their normal position, thus exerting a lateral pressure directly against the crimped portion of the shell, the crimping operation being finally completed by rotating the plunger in either direction, so as to render the crimping uniform.

The device as a whole can be manufactured in various sizes, and of any preferred materials.

What is claimed is:—

1. In a shell crimper, the combination of a member having a normally expanded working portion; a recessed head slidably connected with said portion; and means for contracting said portion independent of its engagement with the shell.

2. In a shell crimper, the combination of a member having a normally expanded working portion; a recessed head slidably connected with said portion; and means carried by said member for contracting said portion.

3. In a shell crimper, the combination of a member having a normally expanded working portion; a recessed head slidably connected with said portion; and means independent of its engagement with the shell slidable upon said member into engagement with said portion, to contract the same.

4. In a shell crimper, the combination of a member having the working portion thereof split to form a series of crimping fingers; a recessed head slidably connected with said portion; and means for forcing said fingers toward each other, to contract said portion independent of the engagement of said fingers with the shell.

5. In a shell crimper, the combination of a member having the working portion thereof split to form a series of crimping fingers; a recessed head slidably connected with said portion; and a slide fitted upon said member and movable thereupon into binding engagement with said fingers, for forcing the same toward each other, to contract said portion.

6. In a shell crimper, the combination of a head having a bore arranged to receive the upper end of a shell; a plunger with which the head is slidably connected, said plunger having a compressible working portion arranged for movement into and out of engagement with the end of the shell; and a member slidable in one direction upon said portion to contract the same, and in the other direction to permit its subsequent expansion.

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

LEONARD E. THOMPSON.

Witnesses:

OLE KLEPPE,

THORVALD THOMPSON.