

No. 719,744.

PATENTED FEB. 3, 1903.

C. D. CANNON.
METHOD OF CASTING AND ARTICLE MADE THEREBY.

APPLICATION FILED JUNE 14, 1902.

NO MODEL.

Fig. 1.

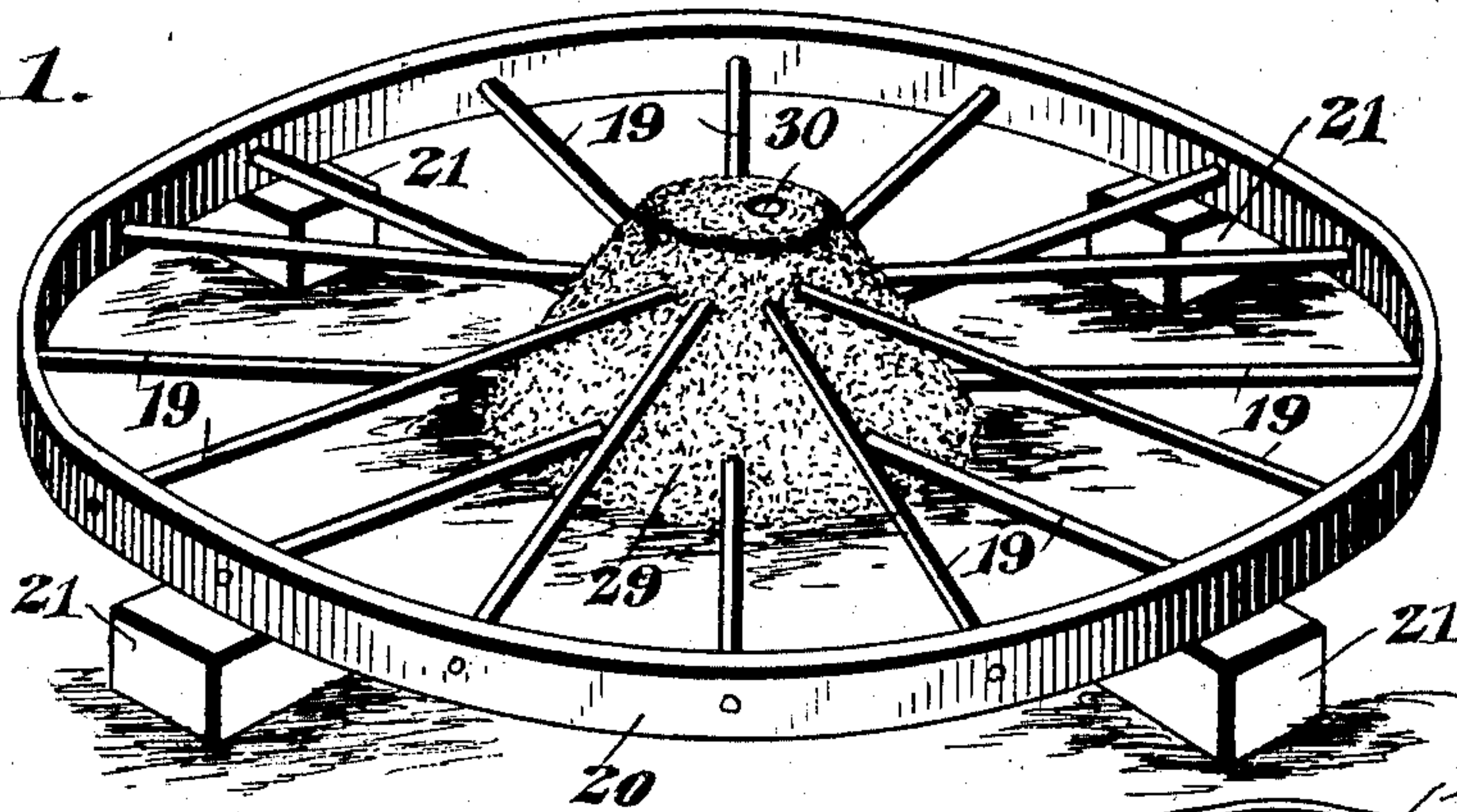


Fig. 2.

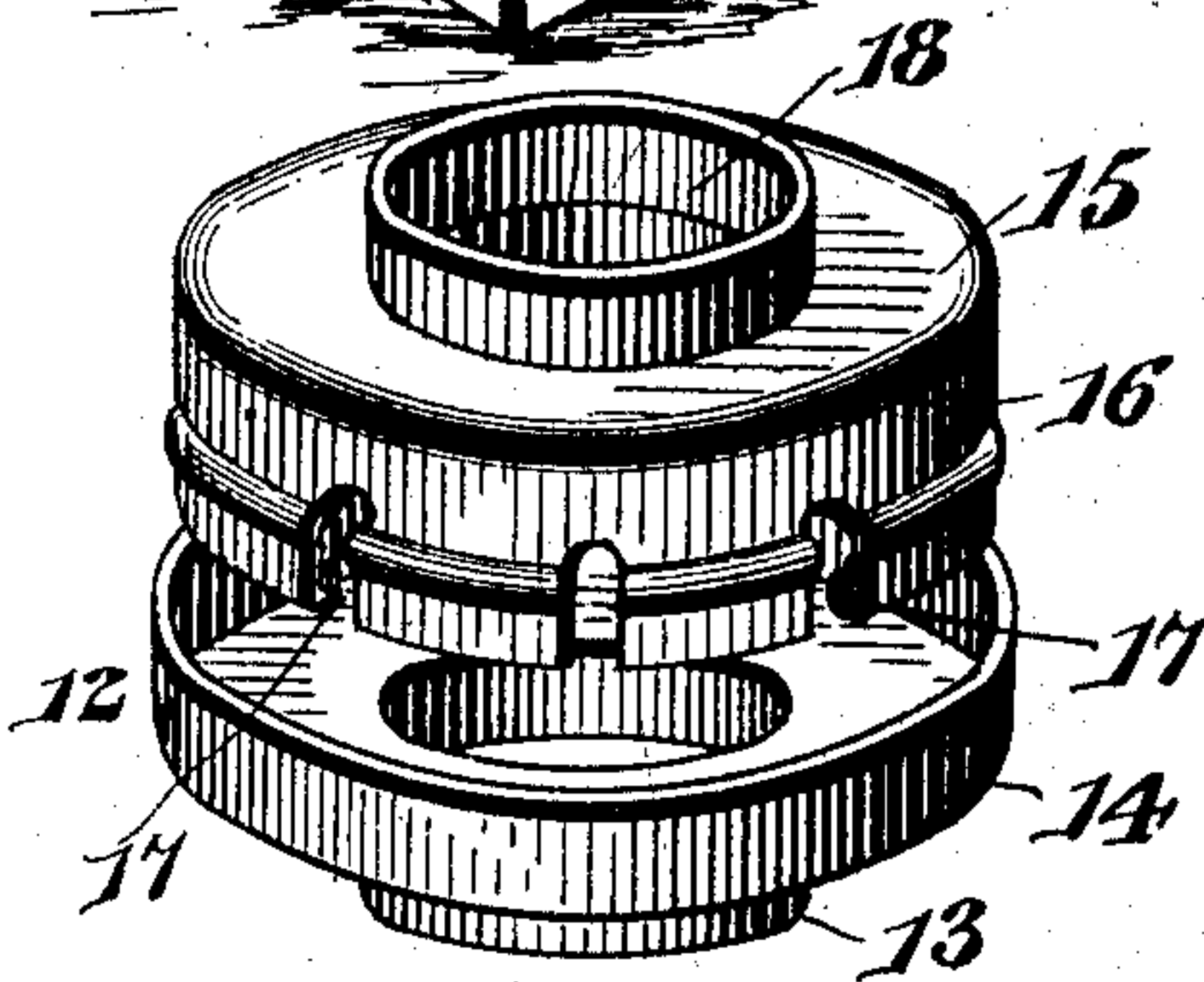
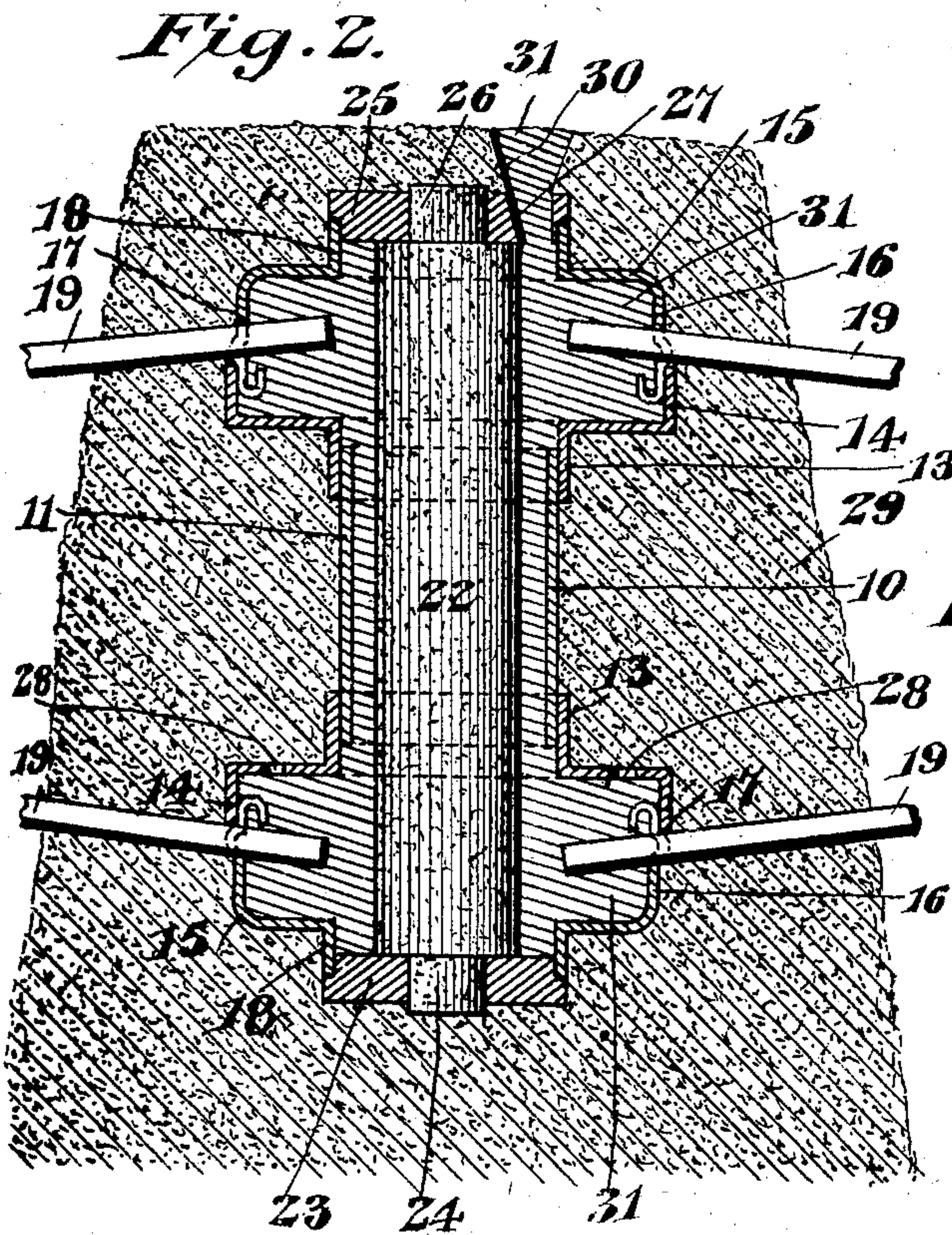
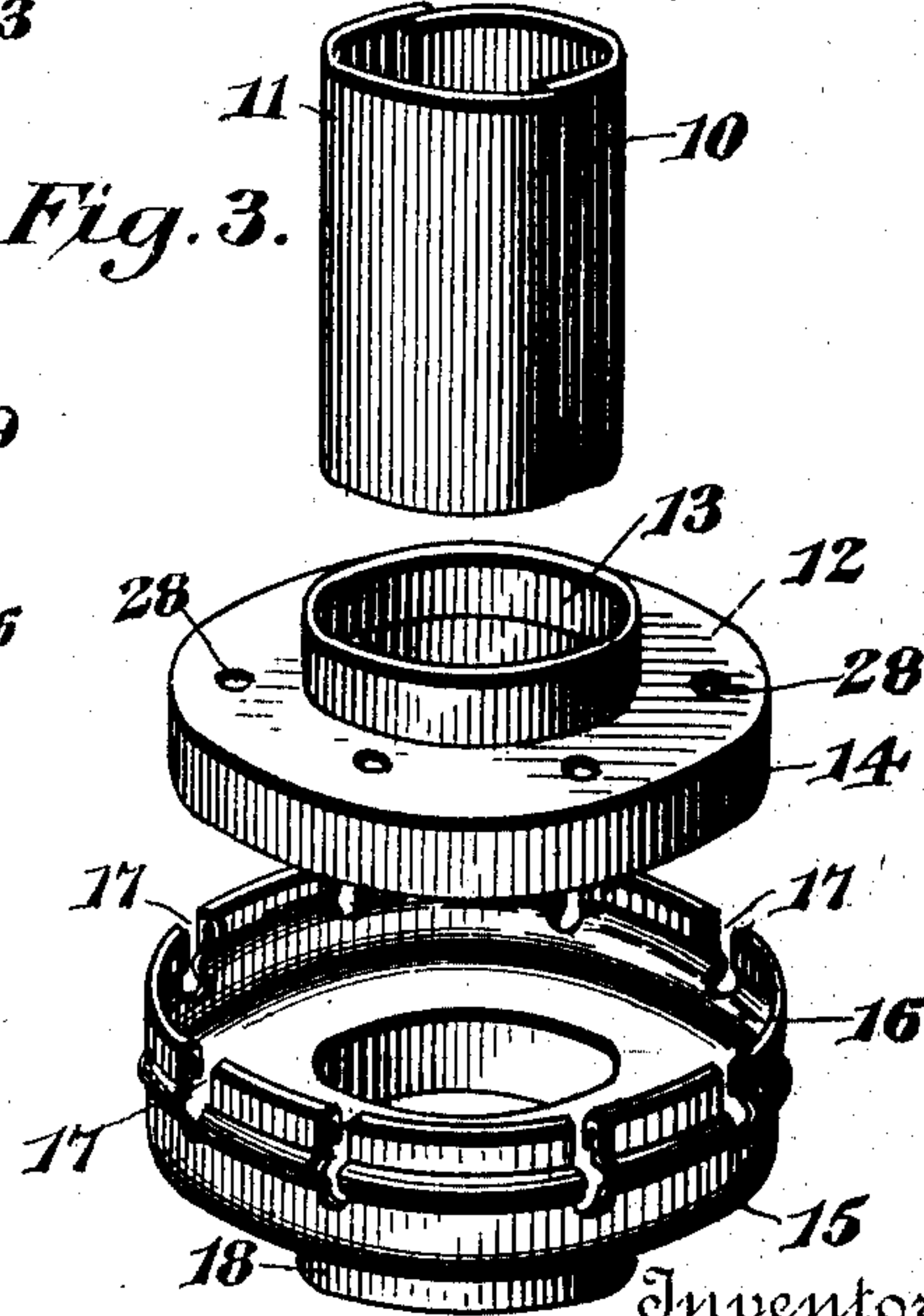


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

CLINTON D. CANNON, OF BATTLECREEK, MICHIGAN, ASSIGNOR OF ONE-THIRD TO CORODON S. CANNON, OF BATTLECREEK, MICHIGAN.

METHOD OF CASTING AND ARTICLE MADE THEREBY.

SPECIFICATION forming part of Letters Patent No. 719,744, dated February 3, 1903.

Application filed June 14, 1902. Serial No. 111,792. (No model.)

To all whom it may concern:

Be it known that I, CLINTON D. CANNON, a citizen of the United States, residing at Battlecreek, in the county of Calhoun and State of Michigan, have invented a new and useful Method of Casting and Articles Made Thereby, of which the following is a specification.

The present invention relates to a new method of metal casting and a new article formed by said method.

While the invention relates more particularly to the making of vehicle-wheels having cast-metal hubs, it will be evident to those skilled in the art that it may be employed in the construction of other articles.

One object of the invention is to provide means for obviating the necessity of carefully-made sand molds by employing a form which becomes incorporated with and constitutes a part of the finished article.

Another object is to produce by means of the new method an article having the combined advantages of cast and malleable metal and, furthermore, having a surface that does not have to be finished in any manner after the casting operation.

The invention will be readily understood by reference to the accompanying drawings, taken in connection with the following description; but it will be evident upon an inspection of the claims hereto appended that the invention is not limited to the exact details shown and described.

In the drawings, Figure 1 is a perspective view illustrating a vehicle-wheel prepared for the casting of the hub. Fig. 2 is a vertical sectional view, on an enlarged scale, through the mold after the hub has been cast. Fig. 3 is a perspective view of the sheathing or form with the sections thereof disassociated.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

In carrying out the invention, as shown, a shell or sheathing is first formed of the desired shape the casting is to be made. This sheathing is constructed of separate malleable-metal sections, which are adjustably associated. In the present instance it is of the desired shape of the hub and comprises semicylindrical spindle-sections 10 and 11, upon the ends of

which are slidably mounted inner head-sections 12, these sections having contracted collar portions 13, that fit over the ends of the spindle-sections and being provided with enlarged portions having annular flanges 14. Outer head-sections 15 are provided with annular walls or flanges 16, which fit within the annular flanges 14 and are provided with a plurality of sockets 17. The outer ends of the sections 15 are contracted and are in the form of collars 18. The various sections are associated as shown in Fig. 2, and the spokes 19 of the vehicle-wheel are passed through the sockets 17, the ends of said sockets being closed by the annular flanges 14 of the inner head-sections. The outer ends of the spokes 19 are fastened to the tire or rim 20 of the wheel in the usual manner. Said rim is then supported by suitable blocks, as 21, a slight distance above the floor, and the various sections of the sheathing are adjusted to properly position said sheathing with relation to the spokes and tire and to obtain the necessary pitch or dish to the wheel. The usual core is then passed vertically through the sheathing, being supported at its lower end by a cap-plate 23, which fits within the lower collar 18 and has a central opening that receives the contracted lower end 24 of the core. A similar cap-plate 25 closes the upper end of the sheathing and has a central opening which receives the contracted upper end 26 of the core. This cap-plate is, furthermore, provided with a sprue-opening 27. It is also desirable to provide vent-openings—as, for instance, 28—in different portions of the sheathing. After the various adjustments have been obtained and the core properly positioned a body of wet sand, as 29, is packed closely around the sheathing, thereby forming a retaining-wall for the same. This sand also covers the structure, and a sprue-opening 30 through this sand communicates with the sprue-opening 27 in the cap-plate 25. Molten metal, as 31, is then poured through the sprue-opening and fills the space left within the sheathing. This metal completely surrounds the inner ends of the spokes 19 and, furthermore, liquefies to a certain extent the inner portions of the sheathing, so that the two metals will become fused together, thus form-

ing a homogeneous body. The cold wet sand, however, upon the outside prevents the entire melting of the sheathing, so that its outer surface is preserved. After the casting has sufficiently cooled the sand is broken away, the core is removed, and the article is complete.

In the first place it will be seen that by employing the metallic sheathing the necessity for a carefully-made sand mold is obviated, and no skilled labor is required. This sheathing, furthermore, prevents any sand from falling into the mold, and thus obviates the danger of imperfect castings. Further than this, by constructing the sheathing of sections the hub may be formed in any relation desired with respect to the remainder of the wheel. Then, again, by constructing the sheathing of malleable metal the structure is much stronger, as the sheathing constitutes a part thereof. As a result it has been found that much lighter castings may be made. Furthermore, the outer face of the sheathing is already finished, and therefore the completed hub does not have to be refinished or worked in any manner. It will be evident that the invention has many advantages over the prior art and that it may be employed for other purposes.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. That improvement in the art of casting metallic articles which consists in first forming an outer metallic sheathing in sections and of the shape of the article to be cast, and casting a metallic body within the sheathing and in contact therewith.

2. That improvement in the art of casting metallic articles which consists in first forming a metallic sheathing of the shape of the article to be cast out of adjustably-associated sections, and casting a metallic filling within the sheathing and in contact therewith.

3. That improvement in the art of casting metallic articles which consists in first forming a malleable metallic sheathing of the shape of the article to be cast out of adjustably-associated sections, packing wet sand about the sheathing and casting a metallic body within the sheathing and in contact therewith.

4. That improvement in the art of casting hubs for vehicle-wheels which consists in first forming a metallic sheathing of the shape of the hub out of adjustably-associated sections, passing vehicle-spokes through said sheathing, adjusting the sections to obtain the proper relation of the sheathing with respect to the remainder of the wheel, packing retaining material about the sheathing and casting a body of metal within the sheathing and about the spokes.

5. An article of the class described consisting of a body comprising an outer metallic sheathing, made up of sections and a filling cast within and contacting with the sheathing, said filling and sections of the sheathing being fused together.

6. An article of the class described, comprising a metal sheathing formed of separate sections, the ends of which are overlapped, spokes passed through the sheathing between the overlapping ends of certain sections and projecting within said sheathing, and a metallic filling permanently cast within the sheathing and in contact therewith, said filling surrounding the spokes, the filling and sheathing being fused together.

7. An article of the class described consisting of a body comprising an outer metallic sheathing formed of sections, the adjacent edges of which are overlapped, and a filling cast within and contacting with the sheathing, said filling and sheathing being fused together and holding the sections against relative movement.

8. An article of the class described comprising an outer metallic sheathing formed of sections, certain of said sections having openings therethrough, spokes passed through the openings, and a filling cast within and contacting with the sheathing and the spokes, said filling and sheathing being fused together and holding the sections against relative movement.

9. An article of the class described consisting of a body comprising an outer metallic sheathing formed of sections, certain of said sections having openings arranged in their edges, the edges of the adjacent sections closing the ends of the openings, spokes passed through the openings, and a filling cast within and contacting with the sheathing, said sheathing and filling being fused together, thereby holding the sections against relative movement.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CLINTON D. CANNON.

Witnesses:

R. H. DAY,
A. B. ALLEN.