

No. 673,415.

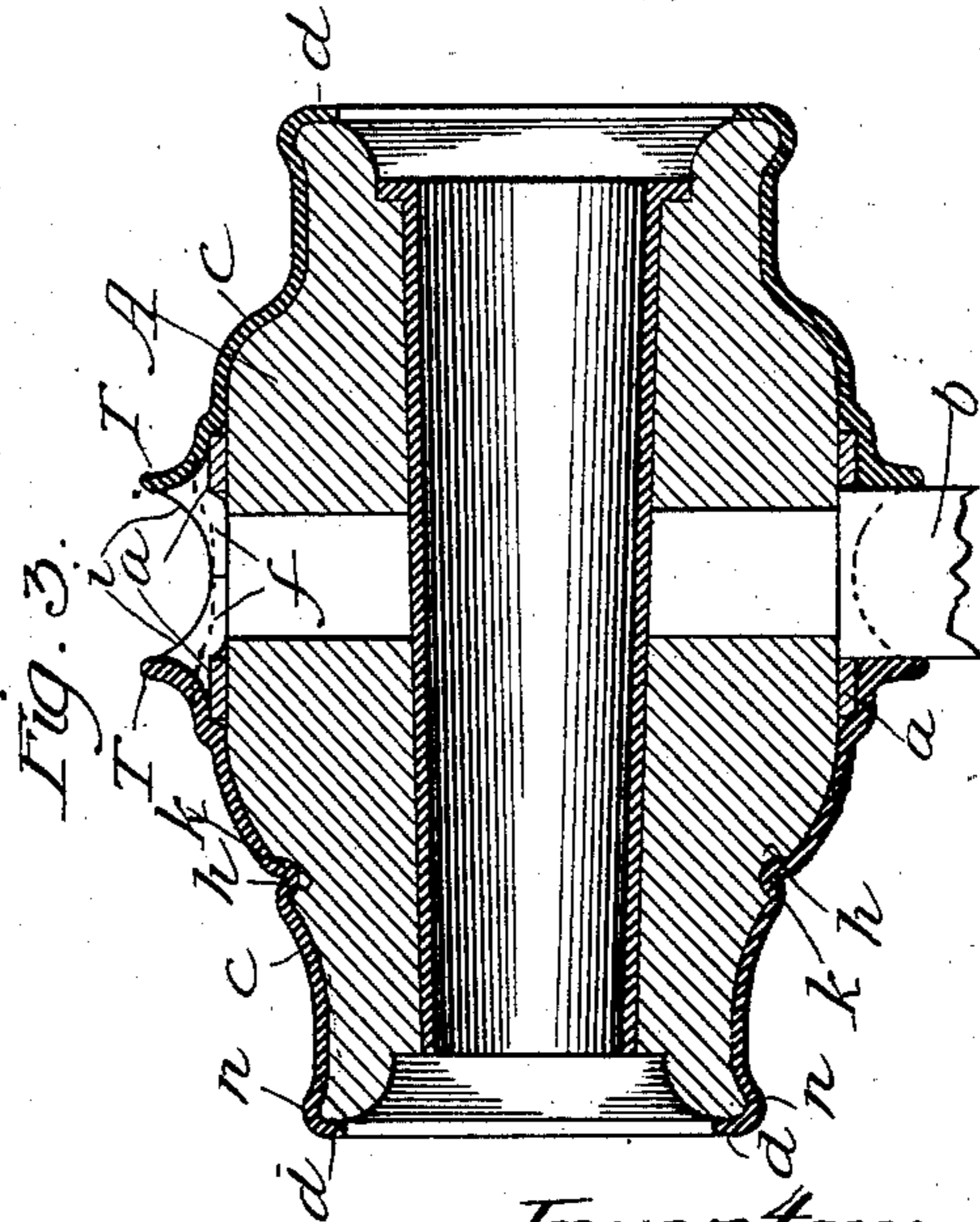
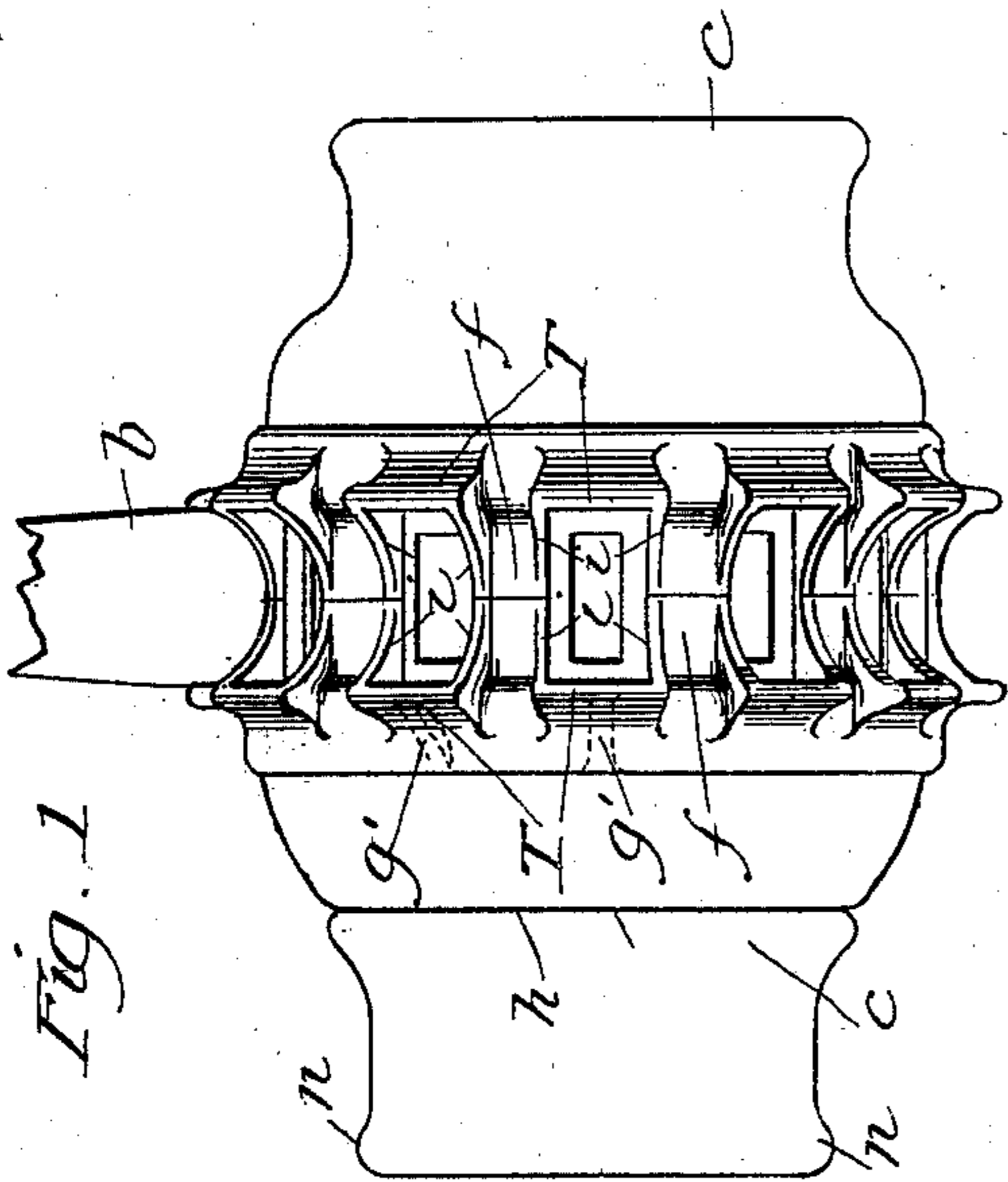
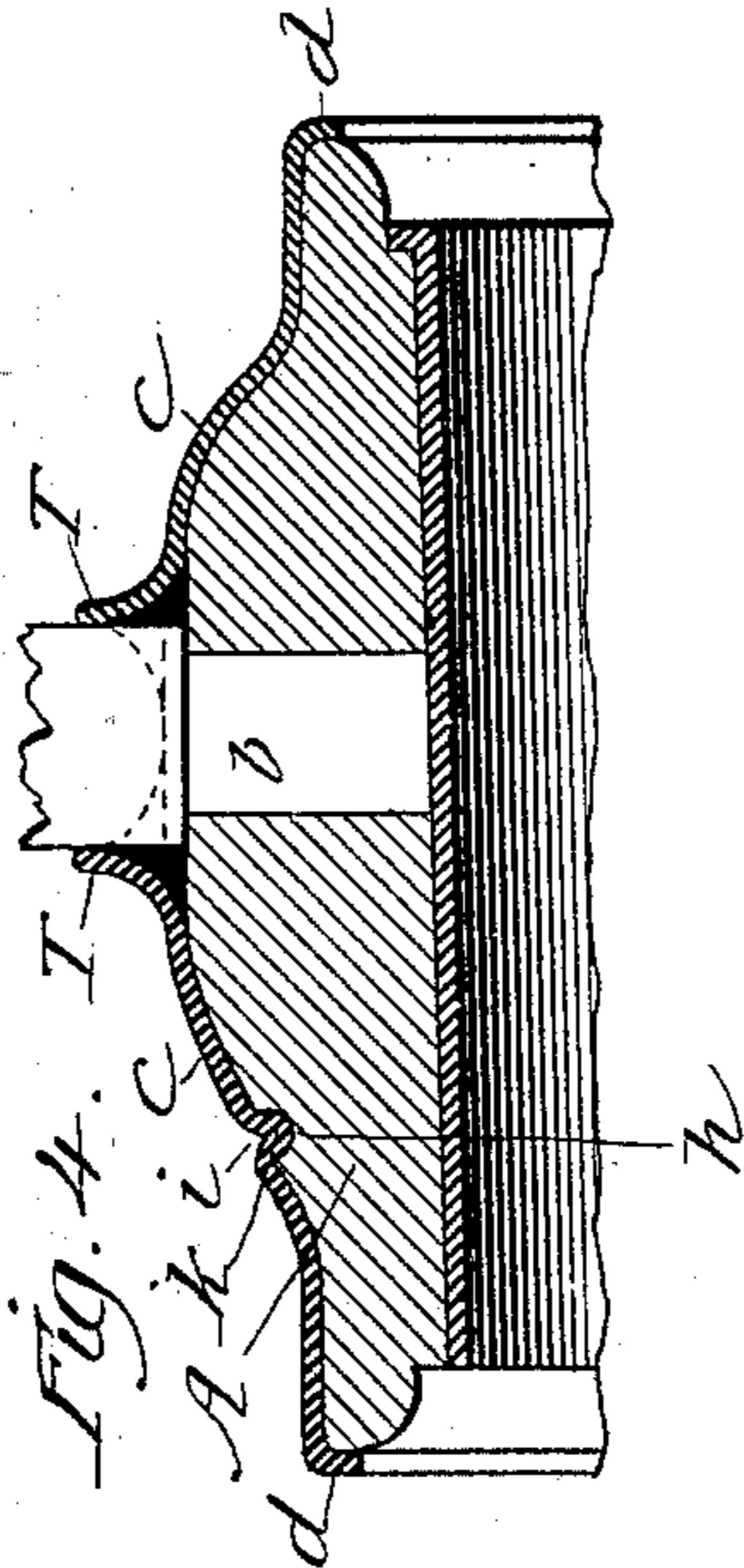
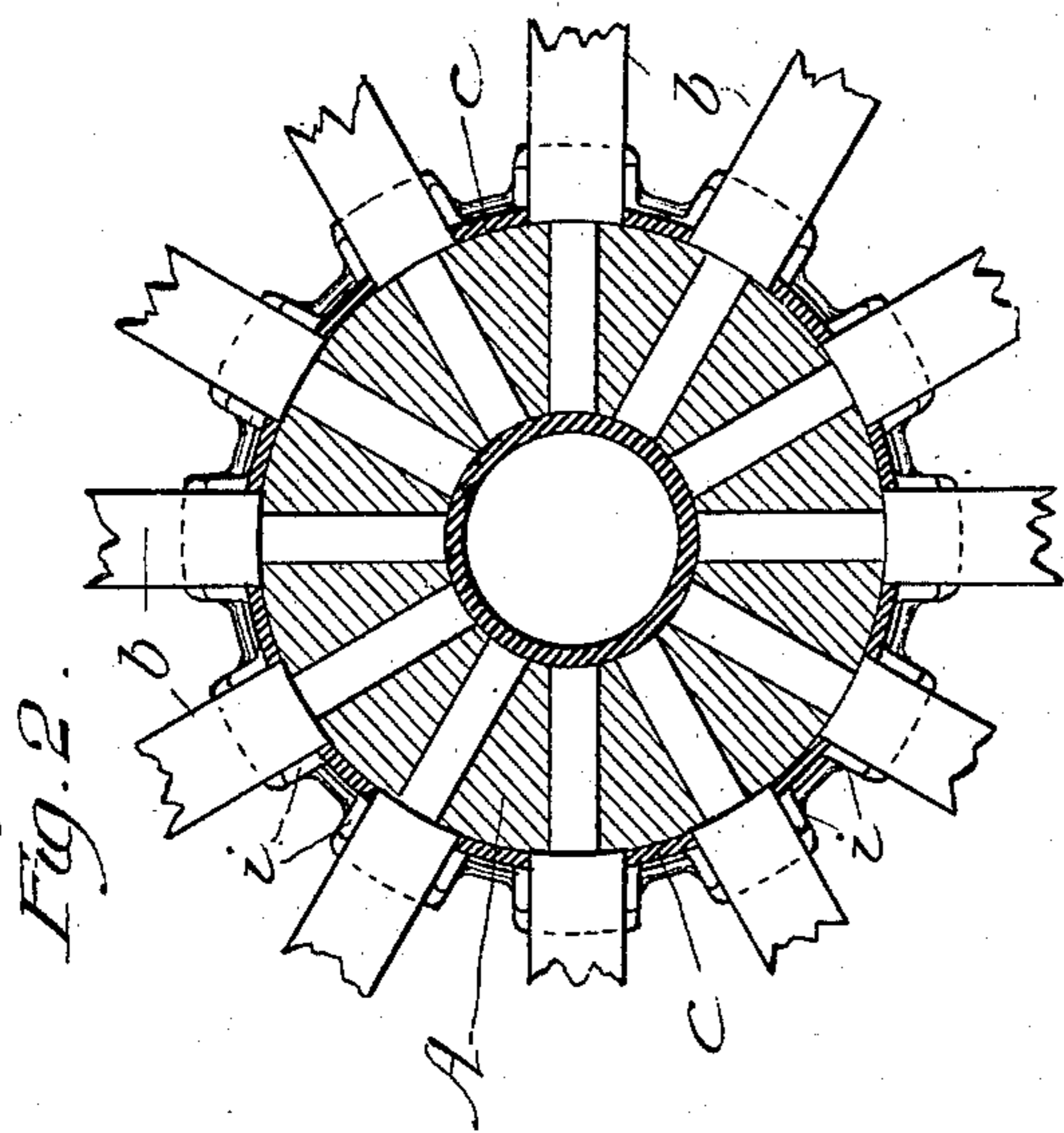
Patented May 7, 1901.

W. P. BETTENDORF.

HUB FOR WHEELS.

(Application filed Oct. 3, 1898.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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HUB FOR WHEELS.

SPECIFICATION forming part of Letters Patent No. 673,415, dated May 7, 1901.

Application filed October 3, 1898. Serial No. 692,464. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. BETTENDORF, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Hubs for Wheels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates particularly to the hubs of wooden wheels used on heavy draft and farm wagons; and its object is to greatly strengthen the hub and greatly increase its durability by preventing checking or other deterioration due to atmospheric or climatic conditions. This I accomplish by means hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a side view of a hub to which my invention is applied, showing the uppermost spoke (the outer portion of which is broken away) only in position. Fig. 2 is a central transverse section therethrough, showing the broken inner portions of the spokes in position. Fig. 3 is a longitudinal central section of the same. Fig. 4 is a similar view of a slightly-modified construction of one-half of said hub.

Referring to the drawings, A represents the usual-shaped wooden hub that is commonly employed in the construction of wooden wheels used in heavy draft-wagons or farm-wagons, the lack of care and rough usage of which generally make them particularly subject to the ravages of the elements. These hubs have heretofore been reinforced by a metal band or hoop *a*, surrounding the same next the spoke-sockets, and by a metal band or ferrule surrounding the ends thereof. The former I prefer to use. The latter I dispense with. When the hoop *a* is used, however, I prefer to make it not more than one-half inch wide and just strong enough to prevent the hub from splitting when the spokes *b* are driven home.

Surrounding and completely enveloping each portion of the hub between the spokes and the ends thereof are two circumferential shells *c c*, which conform to the exterior curvature of said hub and have their end edges next the ends of the hub provided with an in-

wardly-projecting annular flange *d*, which laps over and against the ends of the hub, as shown. The end edges of these shells next the spokes are fluted in such manner as to form reinforcing-lugs T for the inner ends of the spokes of the wheels and tongues *f*, that project between the spokes. The reinforcing-lugs T are arranged at right angles to the plane of tongues *f*, which extend in the same horizontal plane as the part of the shell from which they project. I prefer to make the base or root of each of these lugs T inclined from the web of the shell, as shown, instead of projecting from said shell at a sharp angle. Such a construction reinforces and backs up said lugs T; but, if desired, these lugs may be yet further strengthened by providing the said inclined surface with a ridge *g'*, as shown in dotted lines in Fig. 1.

When forming the blanks preparatory to converting the same into shells *c*, the metal at the root of tongues *f* and located between the same and lugs T is drawn or stretched by the action of the dies to form reinforcing-walls *i i*, that bound the sides of the spoke-sockets at right angles to the plane of lugs T and connect the vertical side edges of said lugs to the side edges of said tongues. In order to retain these shells *c c* on the hub, I shrink the same thereon and electrically weld or otherwise directly secure the end edges of the tongues of one shell to those of the other at a point between the spoke-sockets of the hub. I much prefer to butt-weld the end edges of these tongues *f* together, as this can be quickly and conveniently done without much trouble; but such preference does not preclude the employment of other methods for this purpose. When this is done, the length of said tongues is such that their end edges can meet and so that the shells are held tightly on the hub and their longitudinal displacement rendered less probable.

In addition to the use of tongues *f* to securely hold the shells *c* on the hub I prefer to provide the same at an intermediate point between the spoke-sockets and the ends with one or more circumferential grooves *h* and to so groove the exterior of the shell as to form a circumferential tenon *k*, that will enter groove *h*. The shell is preferably made of thin sheet metal of uniform thickness, the

tenon *k* being formed by crimping the shell externally. The employment of this groove *h* and tenon *k* may be either with or without flaring the end portion *n* of the circumference of the hub and the shaping of the shell to conform to the curvature of such end portion.

The groove *h* and tenon *k* may be employed alone to retain the shells on the hub or the tongues *f* may be solely depended upon for this purpose, according as desired. I much prefer their joint use, however. The reinforcing-lugs *T* may also be dispensed with; but I consider the invention better with them both from a commercial and practical standpoint.

What I claim as new is—

1. In a wheel, the combination with a wooden hub, and spokes therefor, of a metallic shell covering said hub, and provided with spoke-apertures, said shell having inclined lugs *T* thereon, arranged on opposite sides of the spokes, and inclined webs *z*, bracing said lugs, *T*, substantially as set forth.

2. In a wheel-hub, the combination with the wooden hub having sockets therein, of a reinforcing-band surrounding the hub adjacent to the spoke-sockets, and a reinforcing-shell surrounding the hub and extending from the spoke-sockets to the end thereof, substantially as set forth.

3. In a wheel, the combination with a

wooden hub, and the spokes thereof of two metal shells completely enveloping the same between said spokes and the ends thereof; each provided with a series of suitably-separated tongues projecting from their adjacent edges toward the other shell with the tongues of which latter they are directly connected, and each shell provided with a series of outwardly-projecting lugs respectively located between said tongues, as and for the purpose set forth.

4. In a wheel, the combination with a wooden hub and the spokes thereof, of two metal shells completely enveloping said hub between said spokes and the ends of the same, one or both of said shells being provided with an interior circumferential tenon seated in a corresponding groove in said hub, and each provided with a series of suitably-separated tongues projecting from their adjacent edges toward the other shell with the tongues of which latter they are directly connected, and each shell provided with a series of lugs alternating with said tongues and projecting outward from the adjacent edges thereof, as and for the purpose set forth.

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