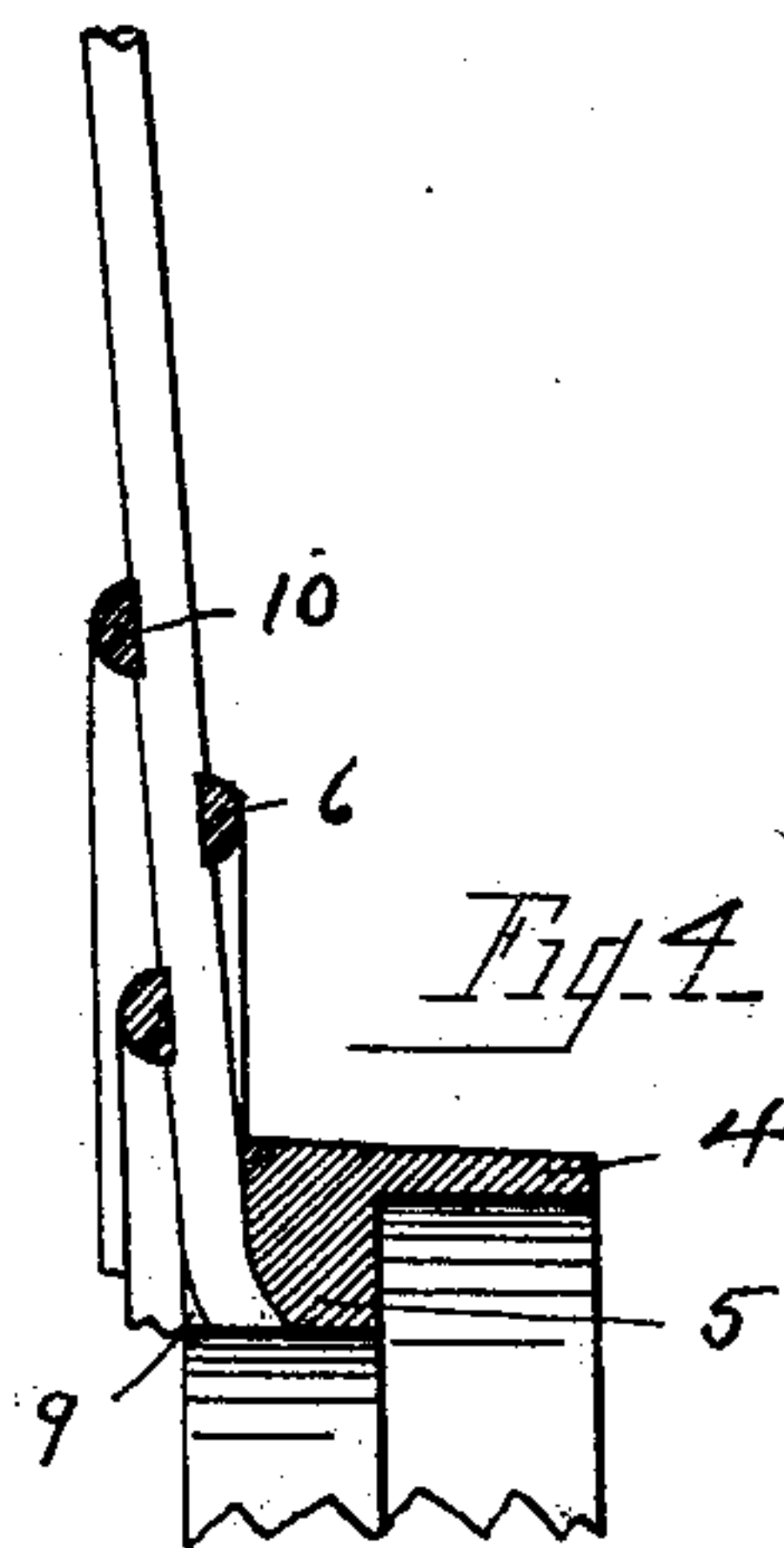
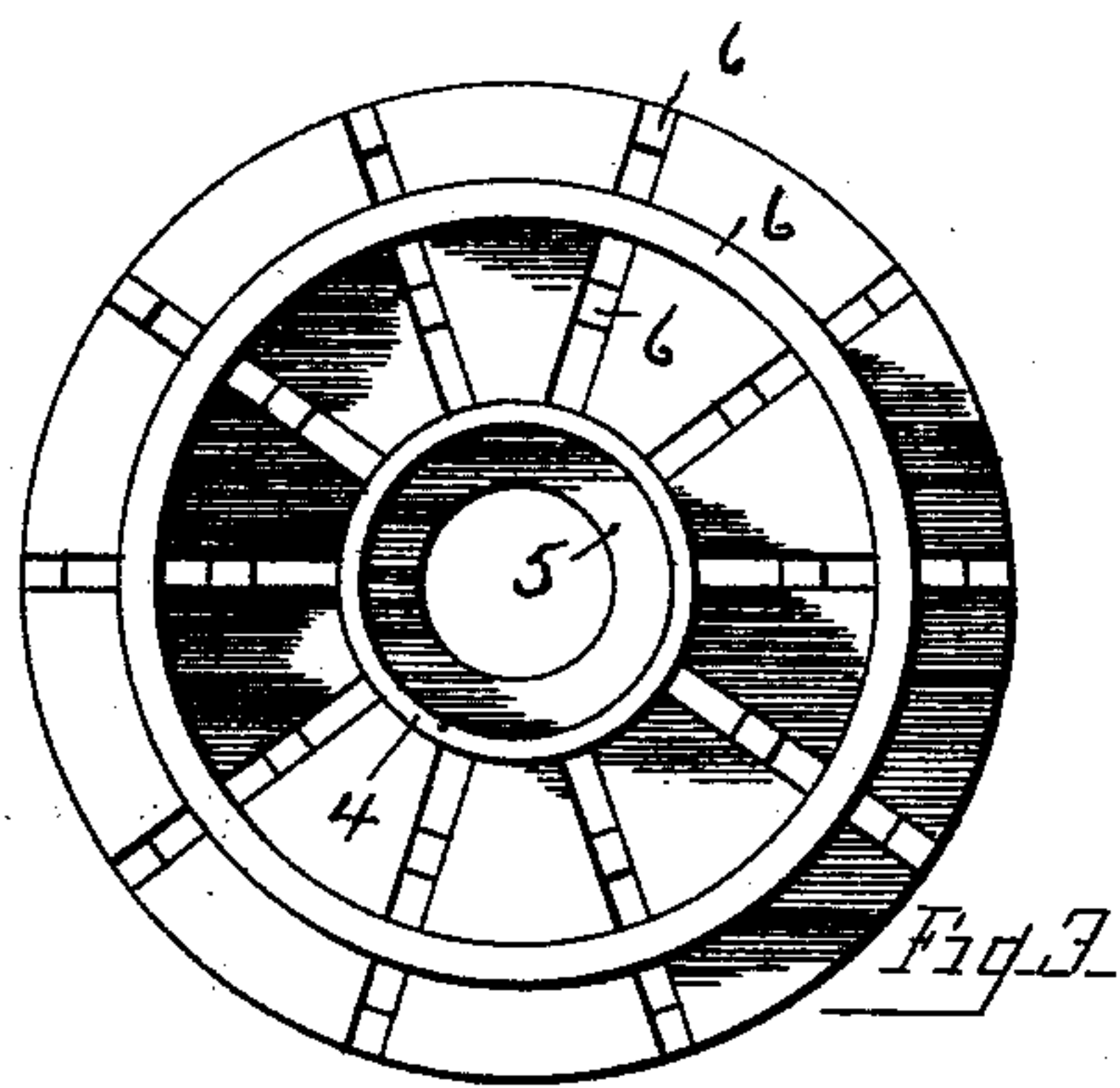
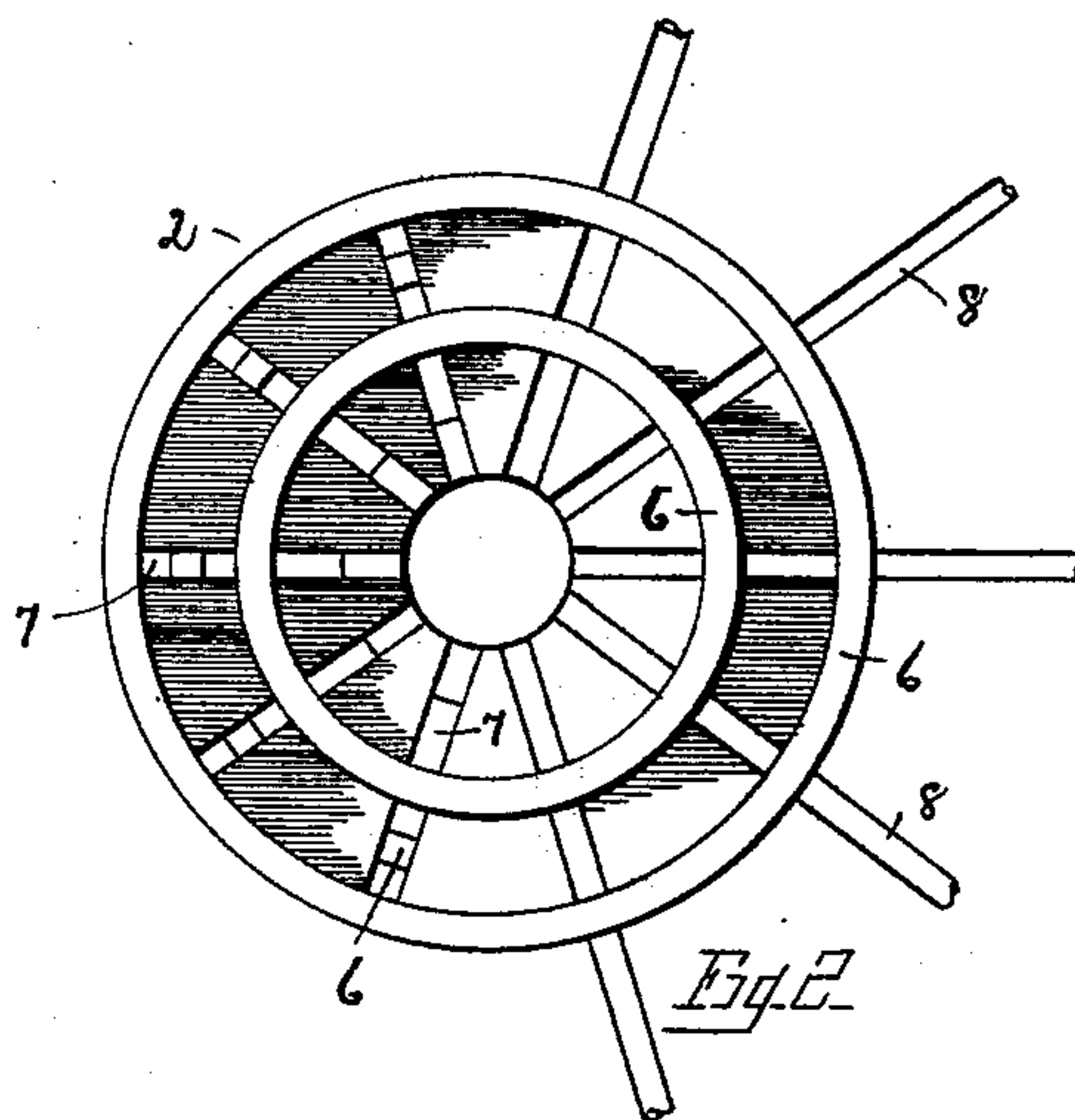
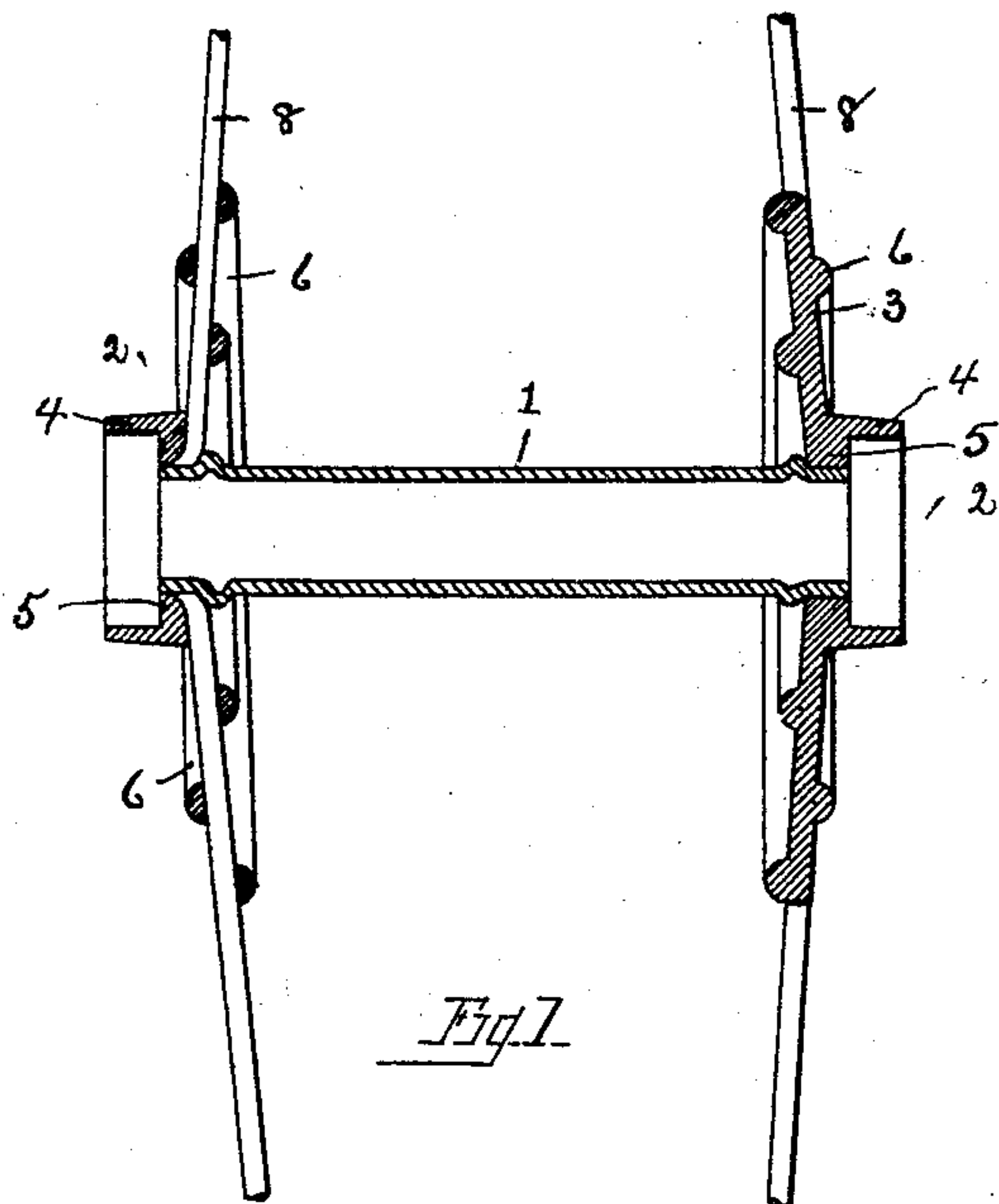


(No Model.)

T. C. MUNZ.
WHEEL.

No. 482,806.

Patented Sept. 20, 1892.



WITNESSES

Carroll J. Webster

G. B. Southard.

INVENTOR

Theodore C. Munz

By William Webster
Atty.

UNITED STATES PATENT OFFICE.

THEODORE C. MUNZ, OF TOLEDO, OHIO.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 482,806, dated September 20, 1892.

Application filed August 17, 1891. Serial No. 402,823. (No model.)

To all whom it may concern:

Be it known that I, THEODORE C. MUNZ, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Metal Wheels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to metal wheels of that character used in bicycles, tricycles, children's carriages, &c., and has especial relation to the construction of the hub-disks, whereby great strength is insured with lightness of metal and economy of construction, a further object being to construct a wheel of neat appearance and few parts.

Heretofore wheels have been constructed the hubs of which, being in several pieces and the several modes of fastening the spokes complicated, requires great expense in assembling the same. My object is to form a simple, effective, and inexpensive wheel that shall subserve the same purpose as the more complicated ones.

In the drawings, Figure 1 illustrates a vertical section of the hub and spokes, showing the manner of holding the spokes in place. Fig. 2 is an inside end view of the hub-disk, and Fig. 3 is an outside end view of the same. Fig. 4 is a section in detail of an additional means of holding the spokes in place.

I will now proceed to describe the wheel in detail, like numerals of reference indicating like parts throughout the several views.

1 designates the thimble, which is of the ordinary construction, having a bead to hold the hubs apart, on the ends of which are the hub-disks 2. Each hub-disk 2 is formed of a web 3, sand-band 4, and bearing 5 for the thimble, all in one piece. On the web 3 are formed integral rings 6, which serve to hold the spokes from side movement.

7 designates radial openings in the web, extending from the circumference to the center of the hub, in which spokes 8 are passed, the lower portion of the bearing 5 having a curved recess 9 to allow of the spokes being bent therein, as will be described.

In assembling a hub to form a wheel the spokes 8 are first inserted, the ends projecting into the central orifice a short distance. A punch is then inserted, which first bends the ends into the recesses 9, when the ends are cut off, making a smooth bore for the insertion of the thimble 1, which may be slightly expanded at the ends to secure the disks from movement thereon. It will be seen that the spokes are held firmly in any direction of tension, as the turned end within the recess 9 holds the spokes from displacement by outward tension, and the thimble fitting snugly against the same prevents an inward movement, while the radial openings are of a size to hold the spokes closely therein and prevent lateral or side movement. In order to hold the spokes more firmly, I may bend the rings down so that they impinge into the spokes (see Figs. 4 and 10) without departing from the spirit of my invention. Thus it will be seen that I provide a wheel simple of construction, durable in use, and cheap of manufacture.

What I claim is—

1. In a metal wheel, hub-disks formed of a single piece having a web, a central opening therein, a sand-band concentric with the same, and rings upon either side of the web concentric to the central openings, in combination with spokes passed between the rings and having their ends upset within recesses formed within the web.

2. A metal wheel formed of a thimble, a disk upon each end thereof, each disk comprising, in a single piece, a web, having a central opening for the insertion of the thimble, recesses formed concentrically of the central opening and leading thereto for the reception of the inner ends of the spokes, radial grooves extending from the recesses to the periphery, rings upon each side of the web, and spokes arranged, the ends being forced, at an angle into the recesses and resting upon the thimble.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

THEODORE C. MUNZ,

Witnesses:

WILLIAM WEBSTER,
CAUSEE J. WEBSTER.

It is hereby certified that in Letters Patent No. 482,806, granted September 20, 1892, upon the application of Theodore C. Munz, of Toledo, Ohio, for an improvement in "Wheels," an error appears in the printed specification requiring the following correction, viz.: In line 72, the parenthetical clause "See Figs. 4 and 10," should read *See Fig. 4 at 10*; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 22d day of November, A. D. 1892.

[SEAL.]

CYRUS BUSSEY

Assistant Secretary of the Interior.

Countersigned:

W. E. SIMONDS,

Commissioner of Patents.