

(No Model.)

J. A. STILLWELL.
METHOD OF MAKING METAL WHEELS.

No. 463,083.

Patented Nov. 10, 1891.

Fig. I.

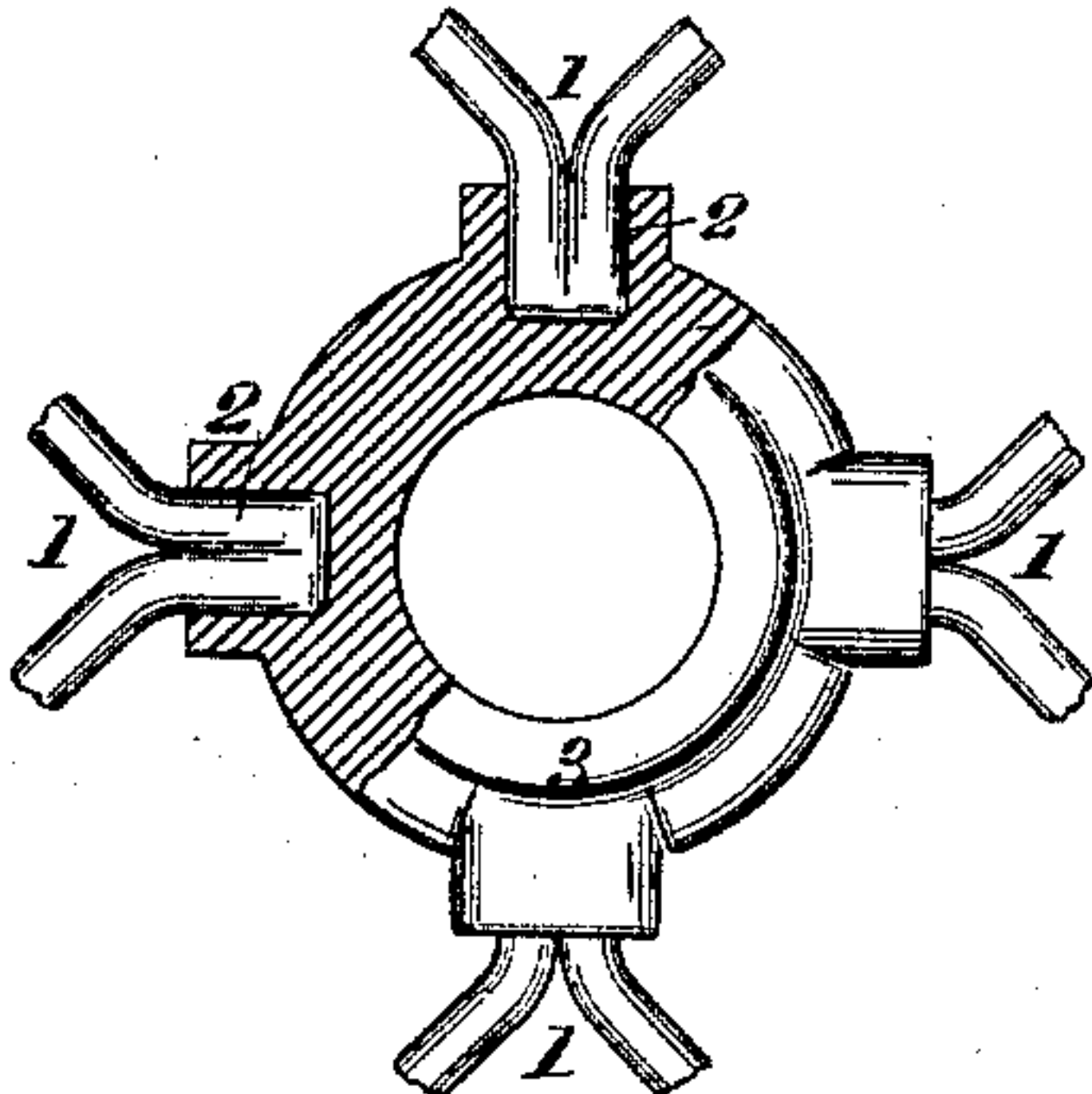


Fig. II.

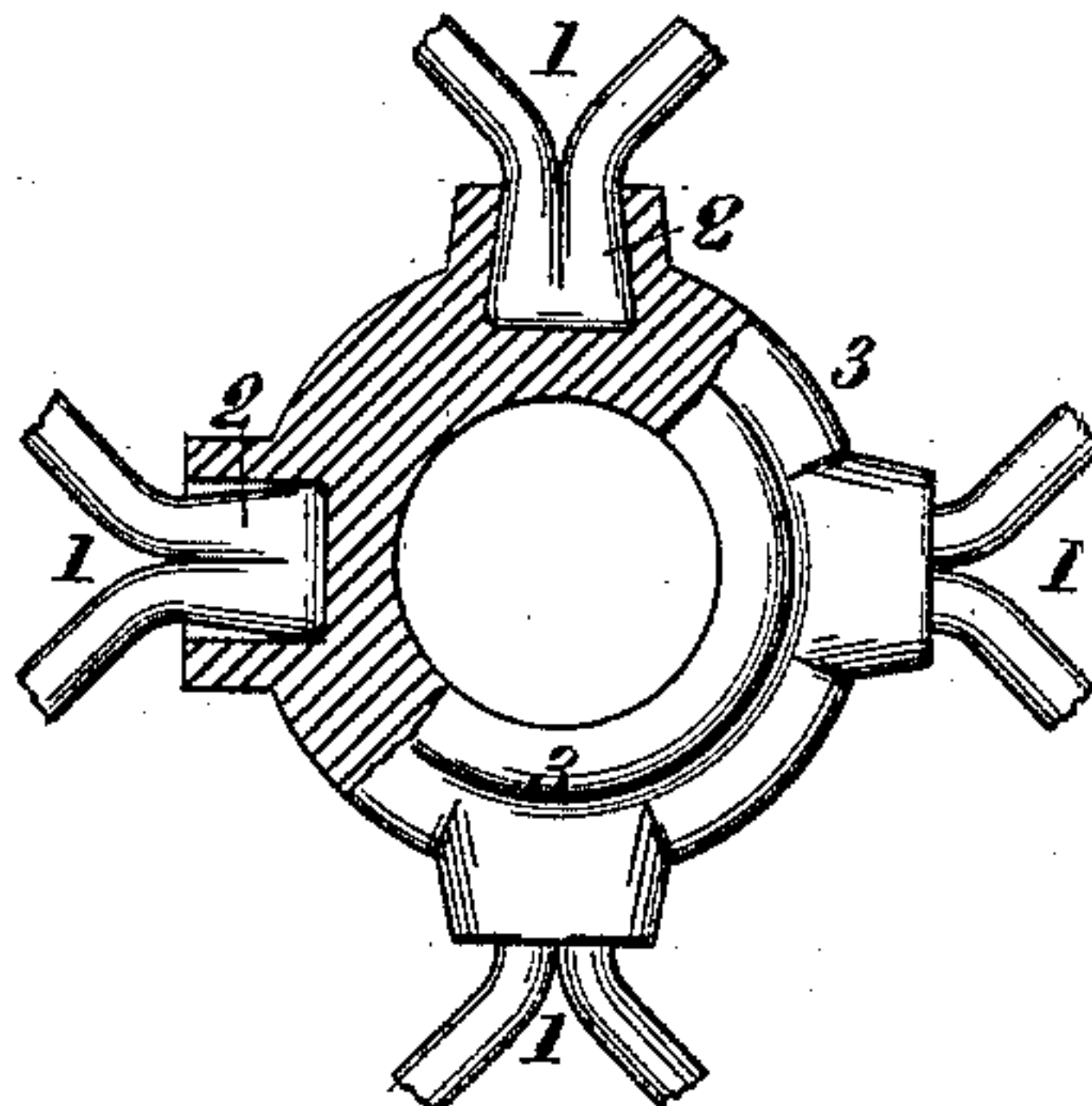


Fig. III.

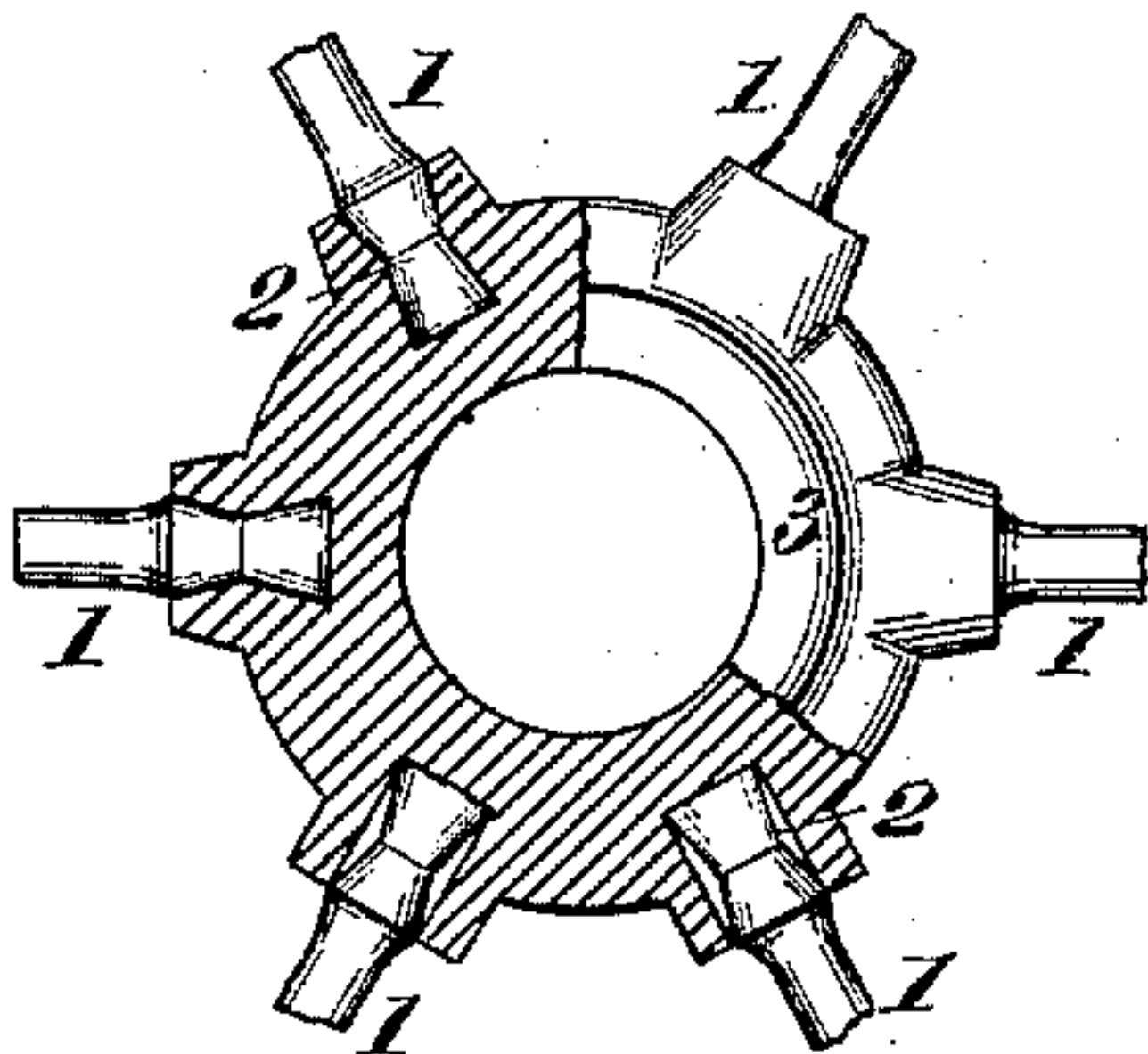


Fig. IV.

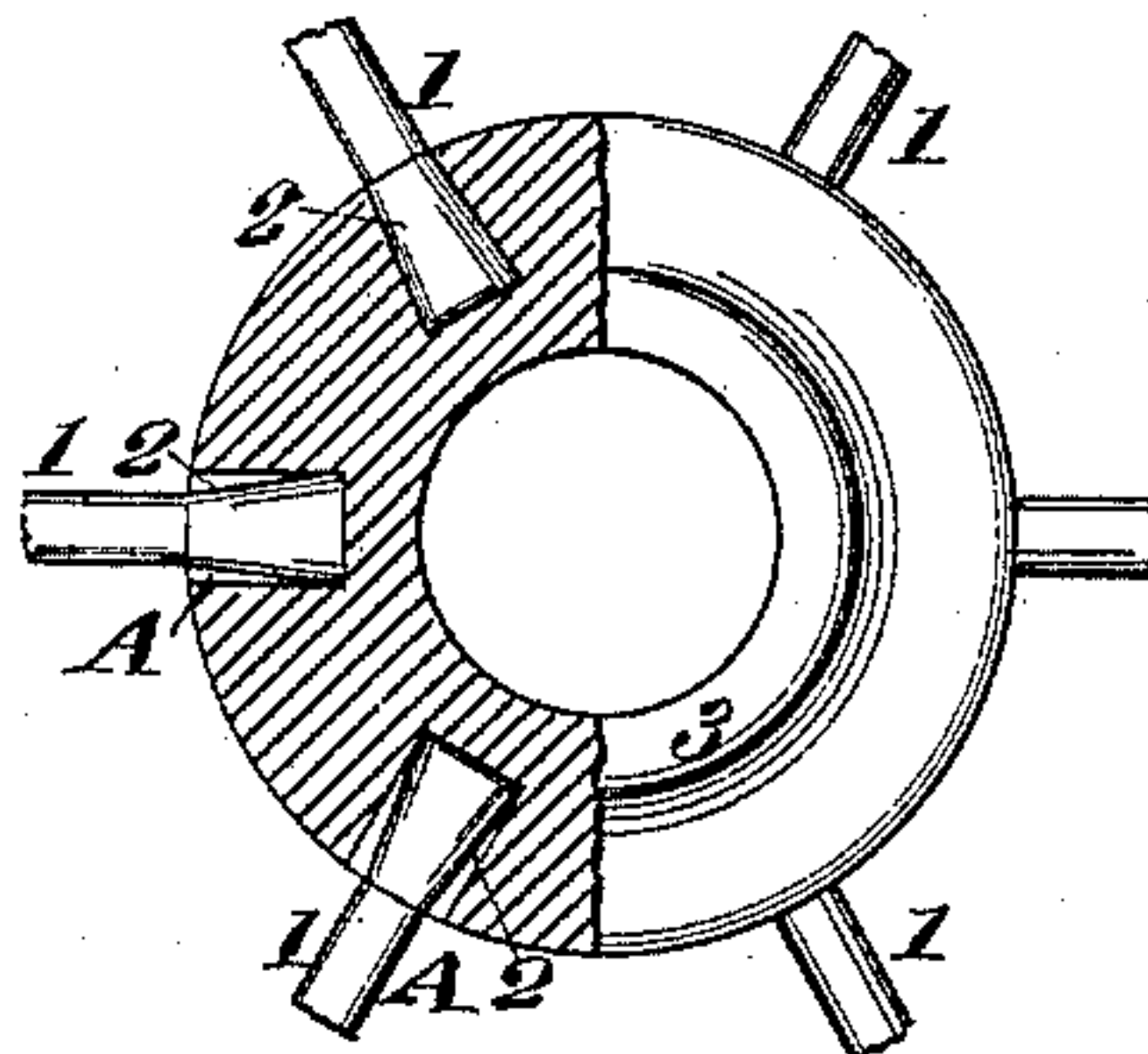


Fig. V.

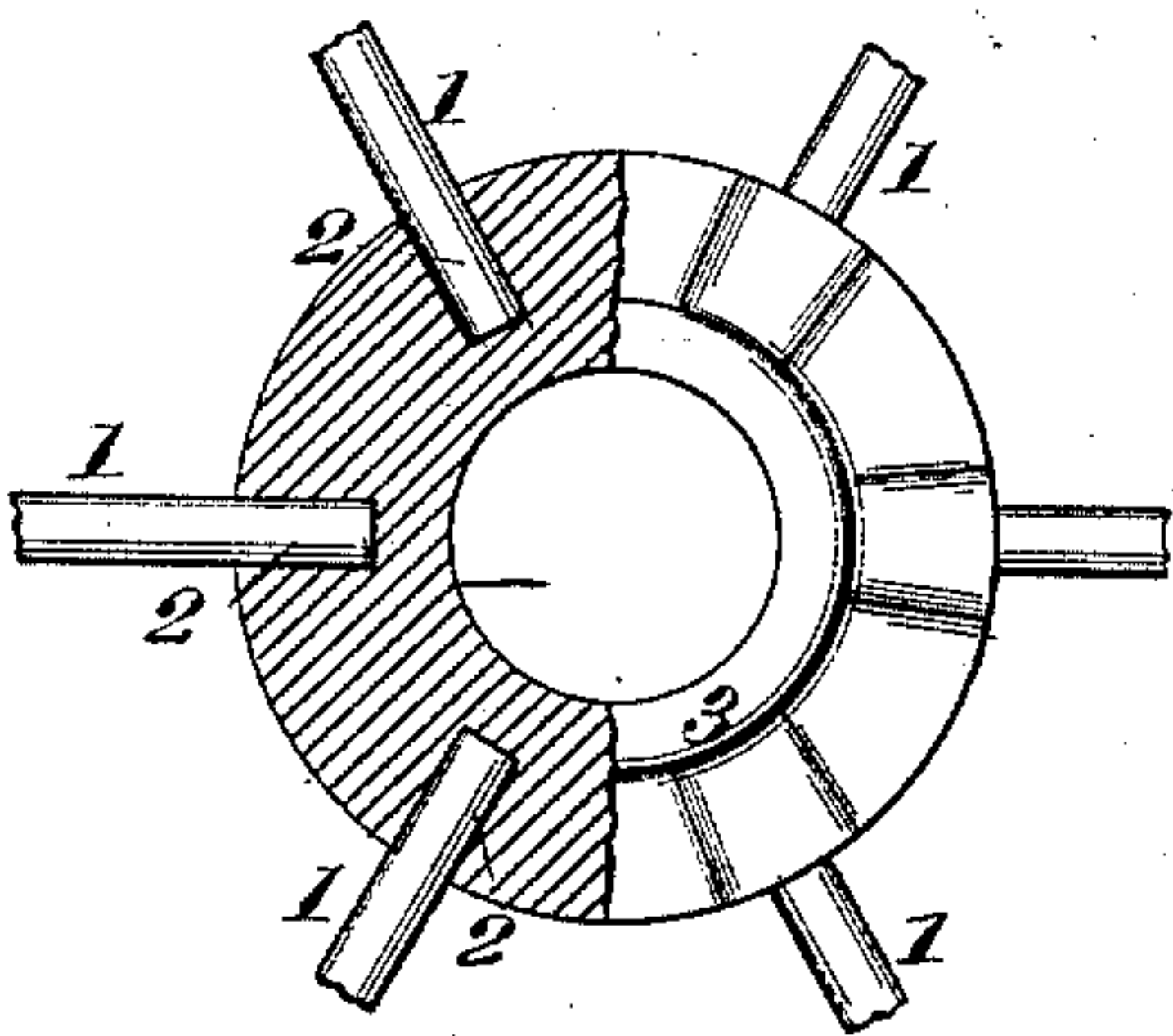
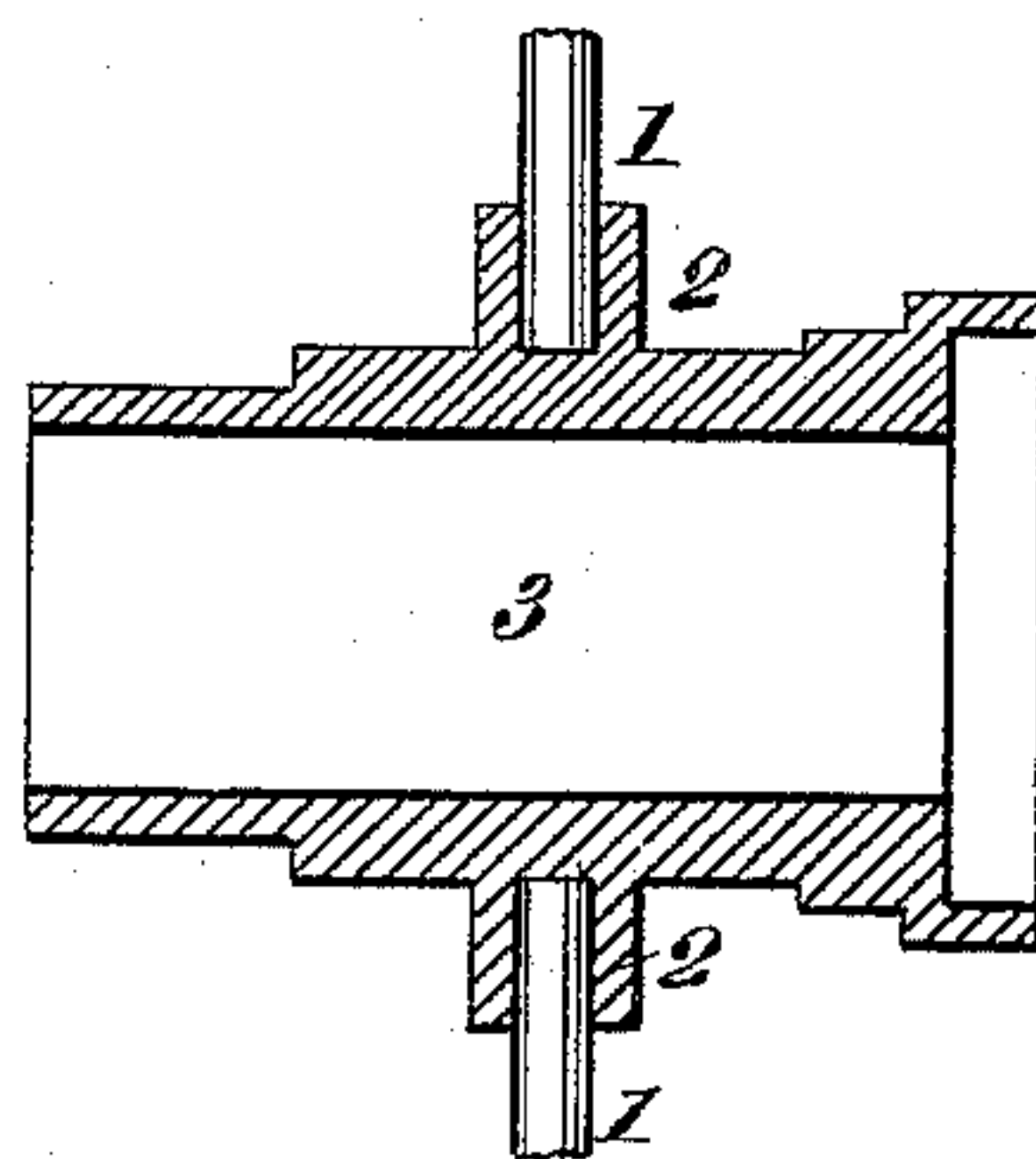


Fig. VI.



Attest.

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING METAL WHEELS.

SPECIFICATION forming part of Letters Patent No. 463,083, dated November 10, 1891.

Application filed July 28, 1891. Serial No. 400,969. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. STILLWELL, of Quincy, in the county of Adams and State of Illinois, have invented a certain new and useful Improvement in Methods of Making Metal Wheels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improved method of securing the spokes to the hub of a metal wheel; and my invention consists in the method hereinafter fully explained, and pointed out in the claim.

The drawings represent a wheel made according to my improved method.

Figure I represents the hub and a portion of the spokes, the former being partly in section. Fig. II is a similar view showing a slightly-different form to the inner end of the spokes. Fig. III is a similar view illustrating still a different form of the inner ends of the spokes and showing a single spoke, whereas in Figs. I and II double spokes are shown. Fig. IV is a view similar to Fig. III, with the exception that a different form or shape of the inner ends of the spokes is illustrated and the form of the hub differs somewhat from that shown in Fig. III. Fig. V is a view similar to Fig. IV, except the spokes have plain straight inner ends, instead of being enlarged, as shown in Fig. IV. Fig. VI is a longitudinal section through a hub, showing the inner ends of two of the spokes.

The object of showing the different forms and shapes which I have illustrated is to indicate that different forms and shapes may be used without departing from the spirit of my invention, (and a few of such forms and shapes are illustrated in the drawings,) as the hub may be of any desired shape or form and the spokes may be of any desired shape or form.

In carrying out my improved method the

hub is first heated, preferably to a cherry red, and then the spokes 1 are inserted into the sockets 2 of the hub 3, as shown at A, Figs. II and IV. The hub is then compressed by means of a suitable mechanism until the inner walls of the hole or mortise accurately conform to the shape of the inserted spoke, and, if desired, the operation may be continued until the spoke is compressed to any required form while within the hole or mortise. The hub is then allowed to cool, and in cooling upon the spokes which have not been heated it shrinks and more securely fastens itself upon the spokes than it was when the compression ceased, and the result is that when the wheel is finished the spokes are firmly and securely attached to the hub beyond any possibility of their becoming loose in the use of the wheel.

I am of course aware that it is not new to shrink one object upon another; but I believe that I am the first to have conceived the idea of compressing the heated hub upon unheated or cold spokes and then allow the hub to cool, so that it will by contraction become permanently and securely held upon the spokes or the spokes become permanently and securely held within it.

I claim as my invention—

The improved method of making metal wheels, which consists in first heating a formed or completed hub, then inserting the spokes in a cold condition into mortises or sockets formed in the hub, then compressing the hub while in a heated condition upon the spokes, and then allowing the hub to cool and contract, so as to become permanently attached to the spokes, substantially as set forth.

JNO. A. STILLWELL.

Witnesses:

WALTER I. BROCK,
ERNEST A. HENDERSON.