

No. 785,670.

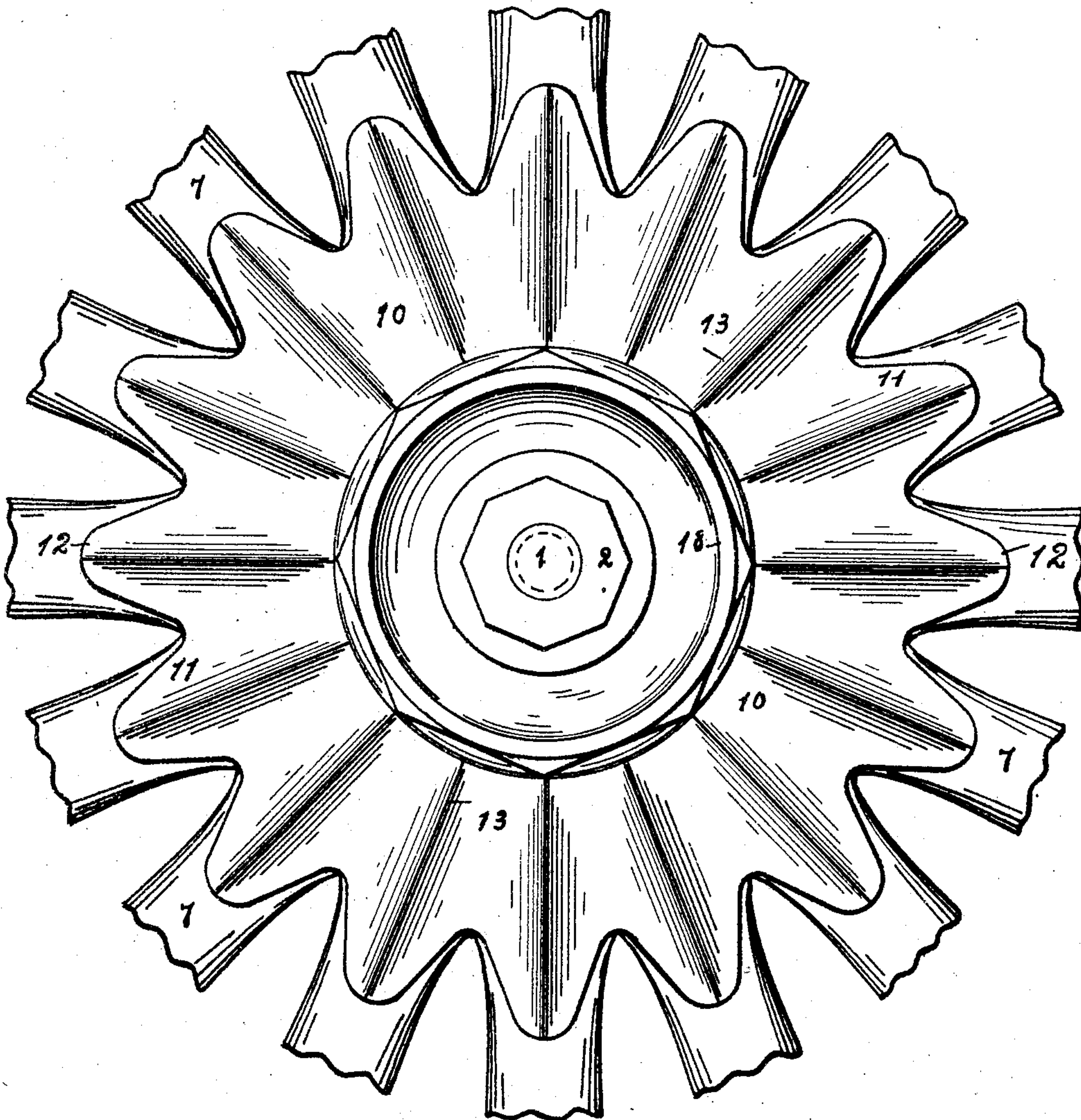
PATENTED MAR. 21, 1905.

C. H. S. HELLING.
WHEEL.

APPLICATION FILED AUG. 17, 1904.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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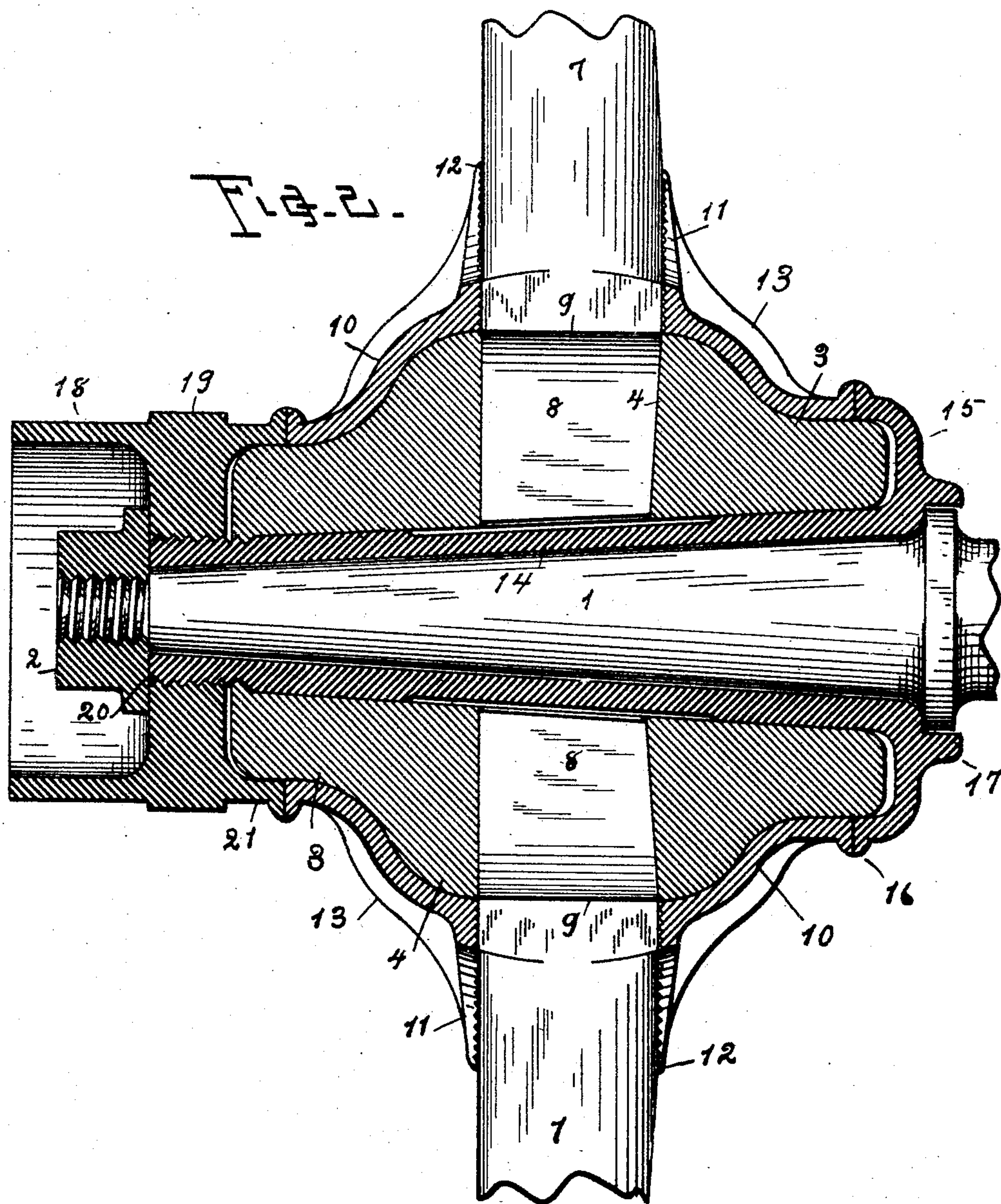
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4 SHEETS—SHEET 2.



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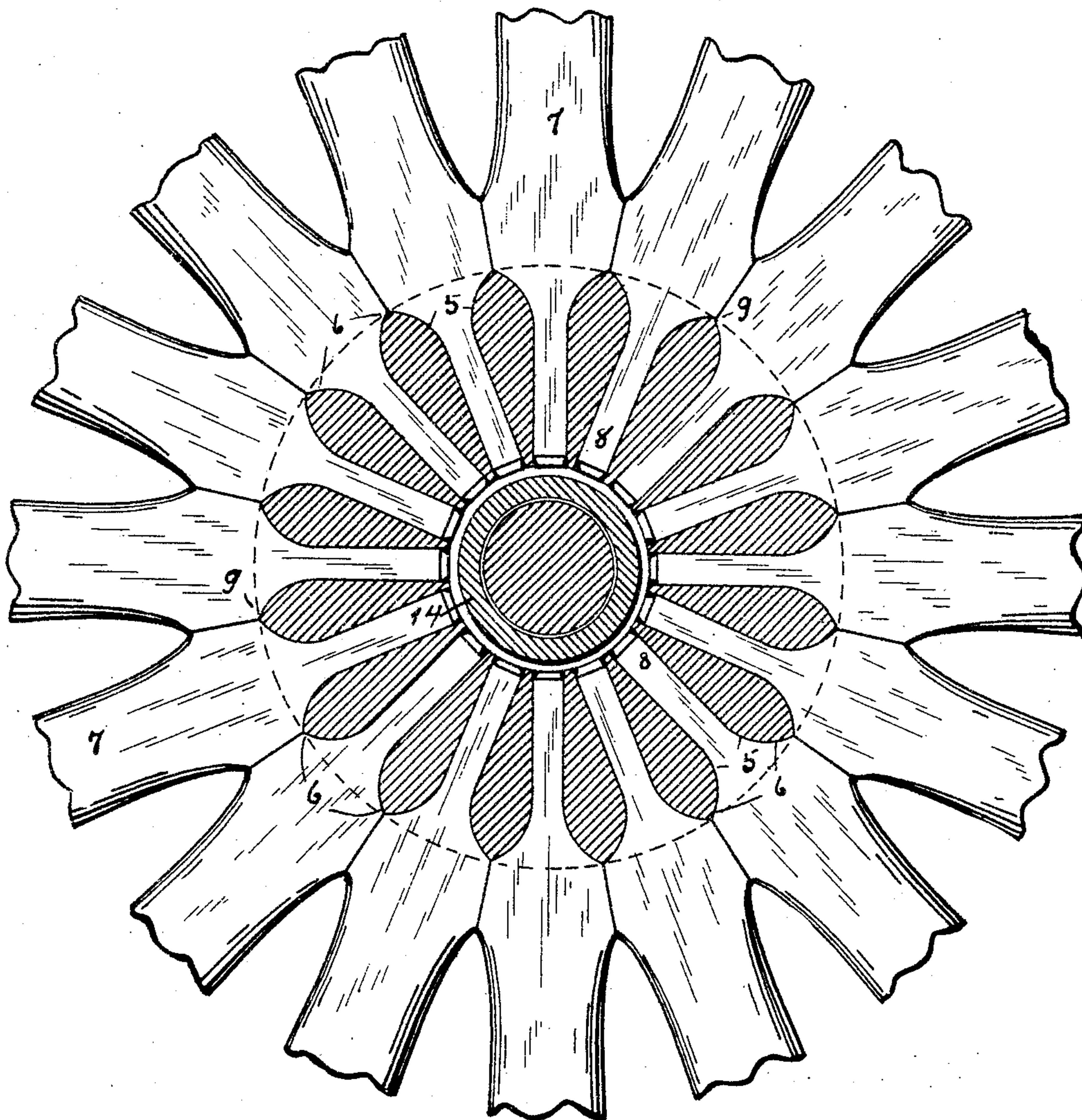
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4 SHEETS—SHEET 3.

Fig. 3.



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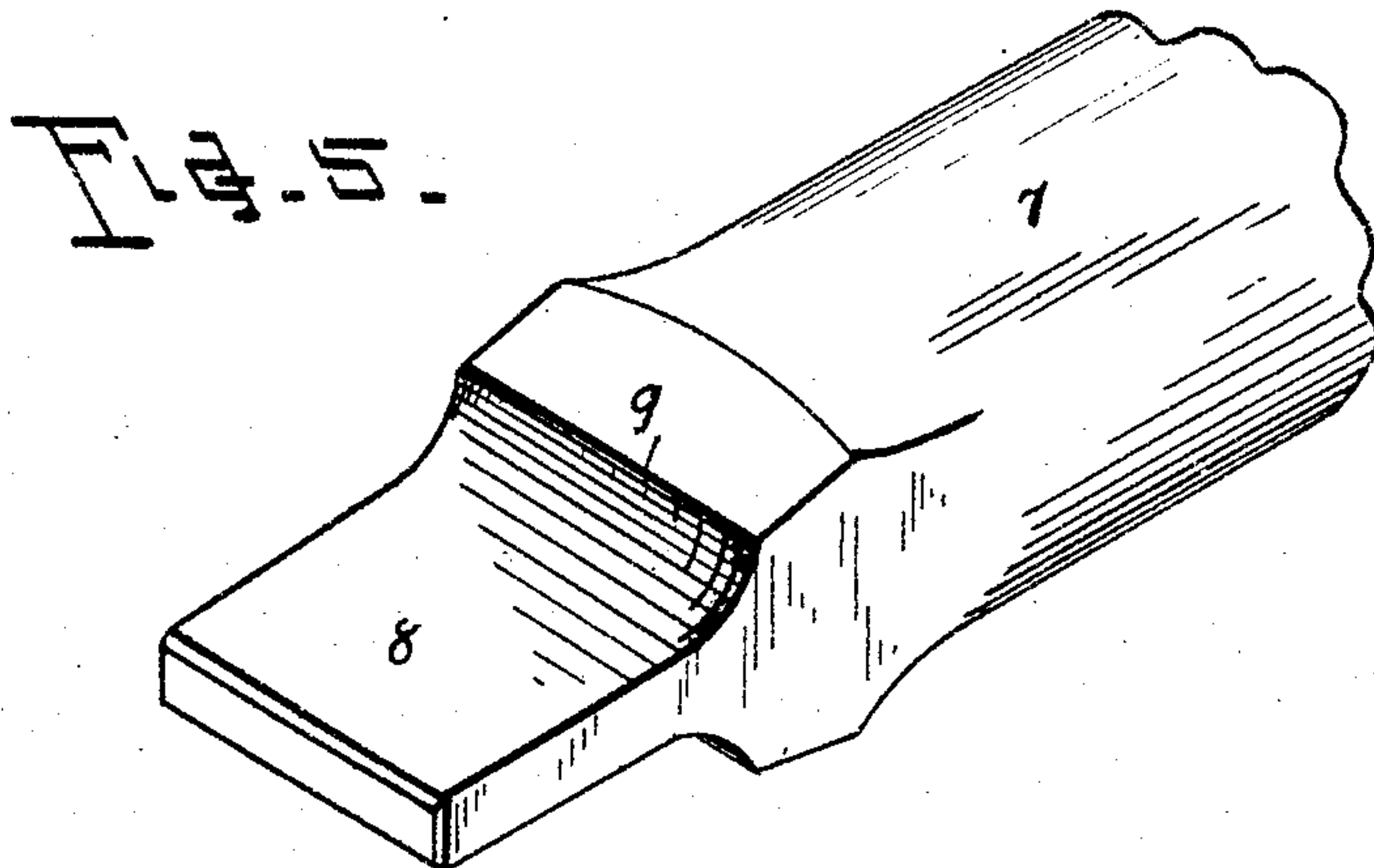
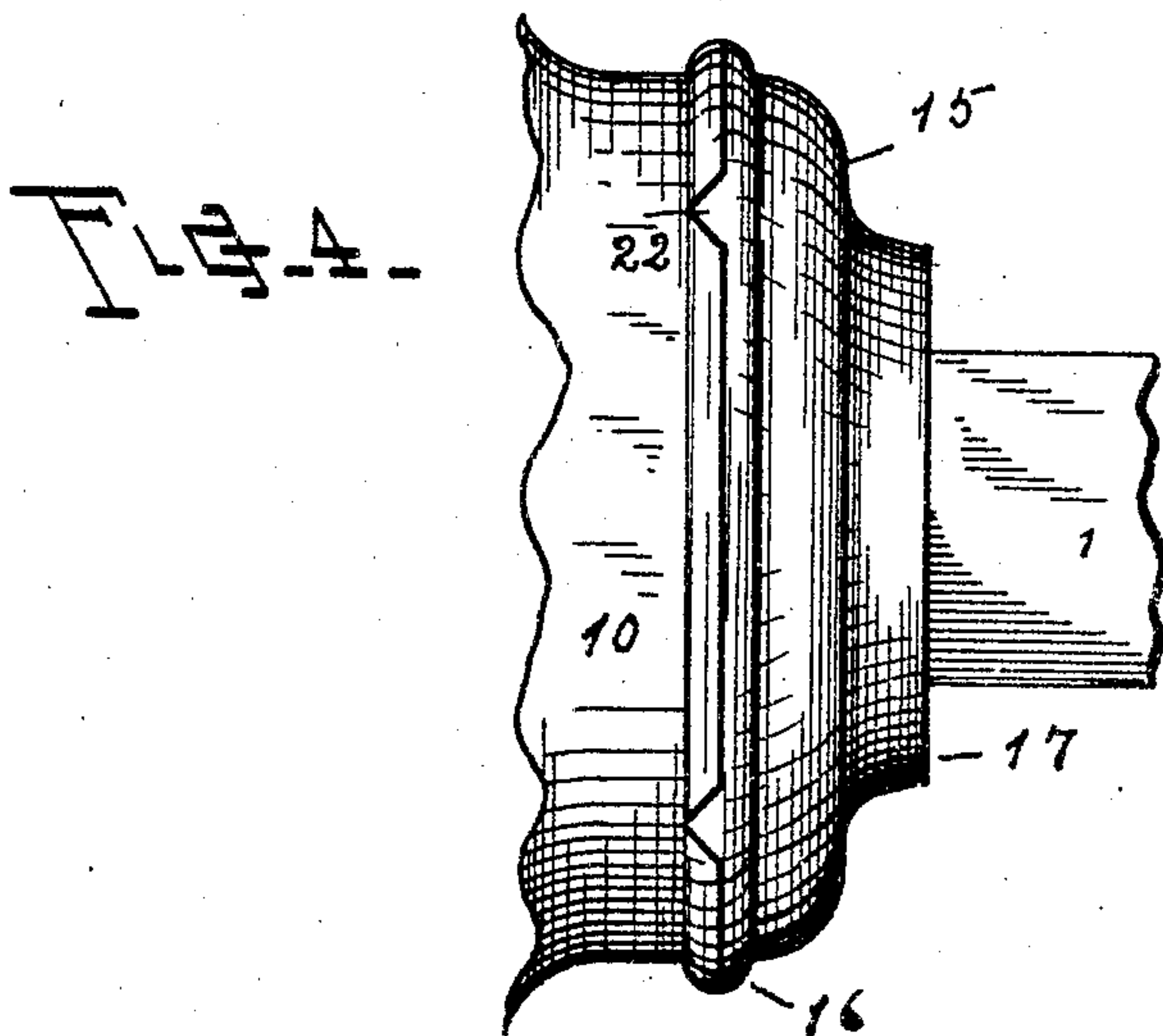
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4 SHEETS—SHEET 4.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES H. S. HELLING, OF ALAMEDA, CALIFORNIA.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 785,670, dated March 21, 1905.

Application filed August 17, 1904. Serial No. 221,152.

To all whom it may concern:

Be it known that I, CHARLES H. S. HELLING, a citizen of the United States, residing at Alameda, county of Alameda, and State of California, have invented certain new and useful Improvements in Wheels, of which the following is a specification.

My invention relates to wheels, more particularly the hub portion of the wheel; and it consists in certain devices and combinations set forth in the claim at the end hereof.

In carrying out my invention I proceed as follows: I first construct the wooden portion of the hub in the usual manner, but preferably of a somewhat more than usually enlarged diameter at the mortises and with curved instead of square edges to the mortises, thus giving the latter flaring mouths. I make the spokes with curved instead of square shoulders to the tenons to fit the correspondingly-formed mouths of the mortises. In this way the spokes are stronger, because of the absence of the sharp angle at the base of the tenon, and there is more wood in the hub. The above parts being assembled, I then force a metallic shell upon each end of the hub by hydraulic or other suitable pressure, which shells comprise body portions to fit closely to the hub and flange portions, which bear against the faces of the spokes, with ear portions extending along the sides of the individual spokes, and stiffening-ribs running from the body up the flange and onto the ears. The box is forced into place in the usual manner; but in addition to the usual form the box is provided at the back or large end with a flange whose edge is turned in so as to contact with the edge of the metallic shell incasing the hub. At its front or smaller end the box is threaded on its outside, and the hub-band is provided with a central body portion tapped to fit said thread, so that it may be screwed up to place, with the inner edge of the band bearing against the edge of the hub-casing. The two sections of hub-casing are thus held in position with their flanges and ears against the spokes by the box and without the need of weakening the spokes by the insertion of rivets. Also the construction closes in the wooden portion of the hub by a complete cas-

ing and prevents oil or grease from the axle getting to the tenons and mortises.

In the accompanying drawings I have shown my invention in what I consider its best form.

Figure 1 is a front elevation of the center of a wheel. Fig. 2 is a median longitudinal section. Fig. 3 is a section in the plane of the wheel. Fig. 4 is a detail view of the rear end of the hub, showing the joint between the hub-casing and the box-flange. Fig. 5 is a perspective view of the tenon end of a spoke.

In the figures, 1 is the axle, and 2 the usual nut of the end thereof.

3 is the wooden hub, with a center 4 of enlarged diameter, in which are cut the mortises 5. The mouths of the mortises are flared, as at 6, Fig. 3, thus producing curved edges.

7 represents the spokes, each provided with its tenon 8, connected with the body of the spoke by curved shoulders 9 to fit the flaring mouth of the mortises. The spokes when in place touch each other outside the hub and form a solid ring around the hub.

10 represents two shells fitting the hub and forming casings for it on both sides of the spokes. On each casing is a flange 11, which bears against the bases of the spokes and each provided with a series of ears 12, one for each spoke, which extend along the spoke. The inner side of each ear is provided with an indented face, which is imprinted in the spoke and forcibly keeps it in position, as shown exclusively in Fig. 2.

13 is a stiffening-rib running up the flange and ears from the body of the casing.

14 is the axle-box, which so far as concerns its functions as a box may be of the usual form. At the back end of the box is a flange 15, with its edge 16 turned in to abut the edge of the casing 10 and hold it in place. 17 is a ring-flange to act as a sand-band.

18 is the front band of the hub, provided with a solid body 19, bored and tapped at the center to fit a thread 20 on the end of the box 14. The back edge 21 of the band 18 abuts the edge of the front casing 10, and thus holds it in place. The two casing-sections are thus held in place on the hub and against the spokes by the axle-box, and it is not necessary to insert rivets and weaken the spokes by boring

them for that purpose. Also it will be observed that the front and back casings 10, the axle-box, and front band completely inclose the hub and prevent oil from getting into the 5 mortises. The edge of the rear casing is corrugated or notched, as at 22, Fig. 4, and the flange edge 16 is correspondingly formed to engage and lock with the casing.

23 is a depression formed around the circumference of the axle-box 14 at that portion 10 which lies opposite the mortises 5, made through the hub 3, thus providing a space between the inner ends of the spokes and the axle-box, the object of which is to prevent any 15 pressure from the spokes upon the axle-box.

The drawings and the above description are illustrative merely, and the structure may be variously modified by the mechanic without departing from the invention.

20 What I claim as new, and desire to secure by Letters Patent, is—

In a wheel, a hub, spokes therein, a front and rear shell fitting on the hub, a series of ears on each shell bearing against the spokes,

stiffening-ribs for the ears, the said rear shell 25 having notches in its rear edge, an axle-box having a curved flange adapted to overlies the rear end of the hub, but normally suitably spaced therefrom to allow adjustment of the said flange, projections on the flange, fitted in 30 the recesses of the shell, threads on the outer end of the axle-box, a hub-band threaded on the axle-box and having its edge bearing against the front shell, the said band being normally spaced from the end of the hub when 35 the edge of said band engages the shell, to permit adjustment of said band, the relation of parts being such that the hub-band causes pressure of the flange and band on the opposing shells, substantially as described. 40

In testimony whereof I have affixed my signature, in presence of subscribing witnesses, this 8th day of August, 1904.

CHARLES H. S. HELLING.

Witnesses:

C. S. TILTON,
J. CORINSON.