

(No Model.)

M. A. SMITH.
MANUFACTURE OF RIMS FOR BICYCLE WHEELS.

No. 557,520.

Patented Mar. 31, 1896.

Fig. 1.

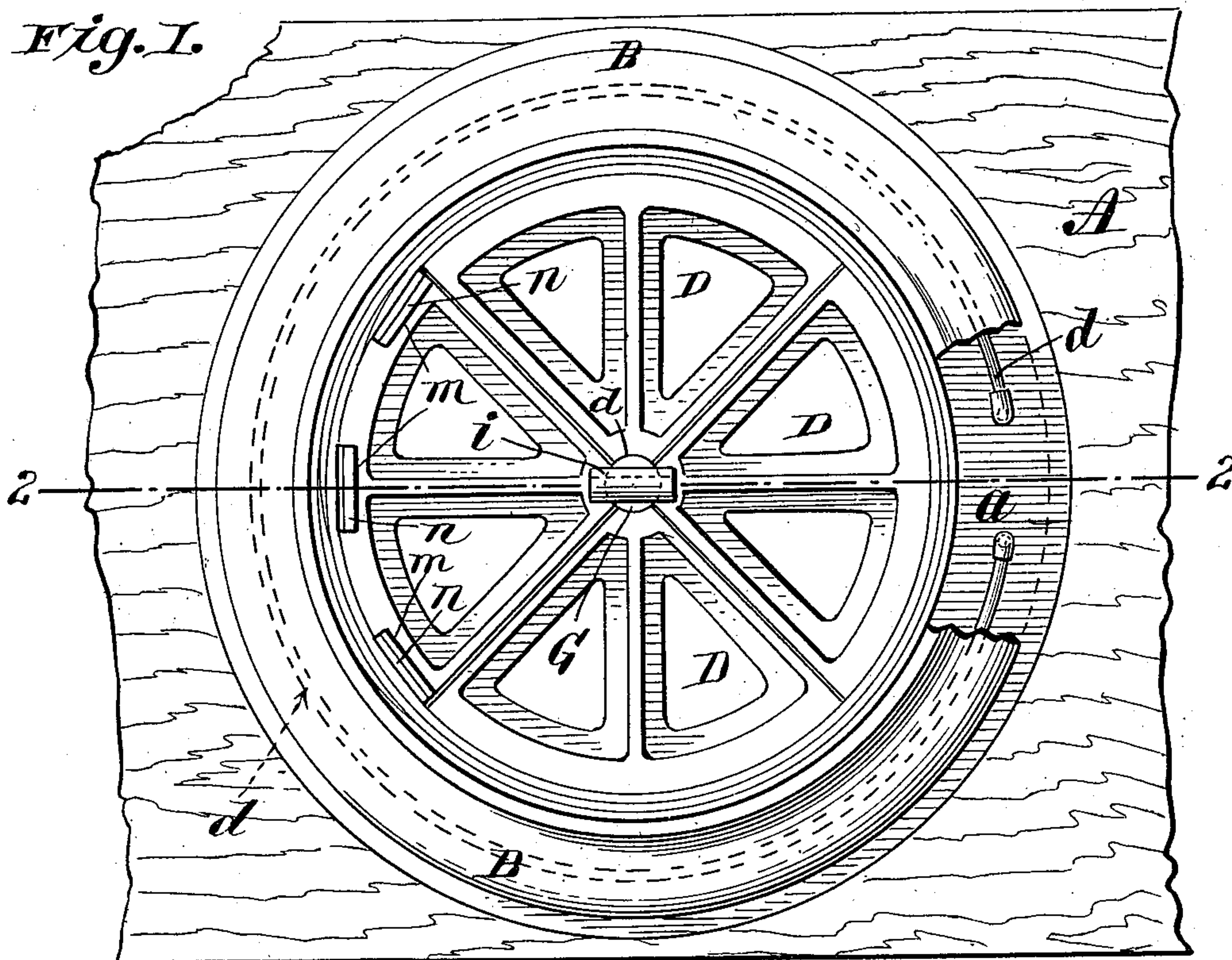


Fig. 2.

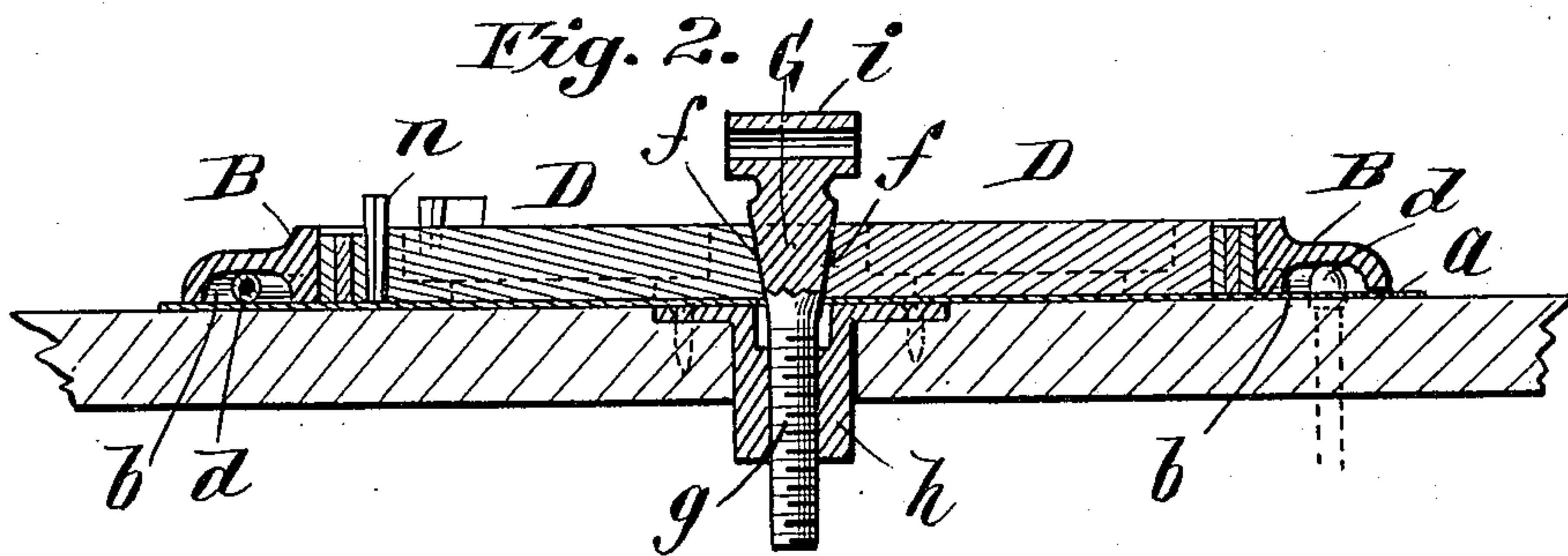


Fig. 4.

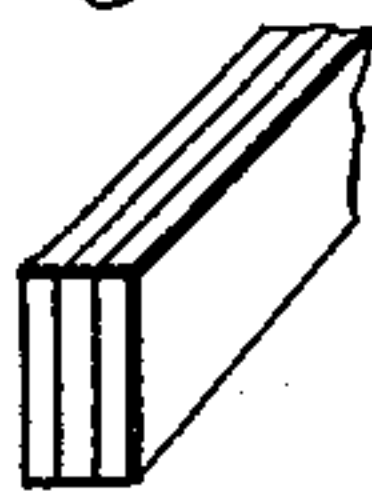


Fig. 3.

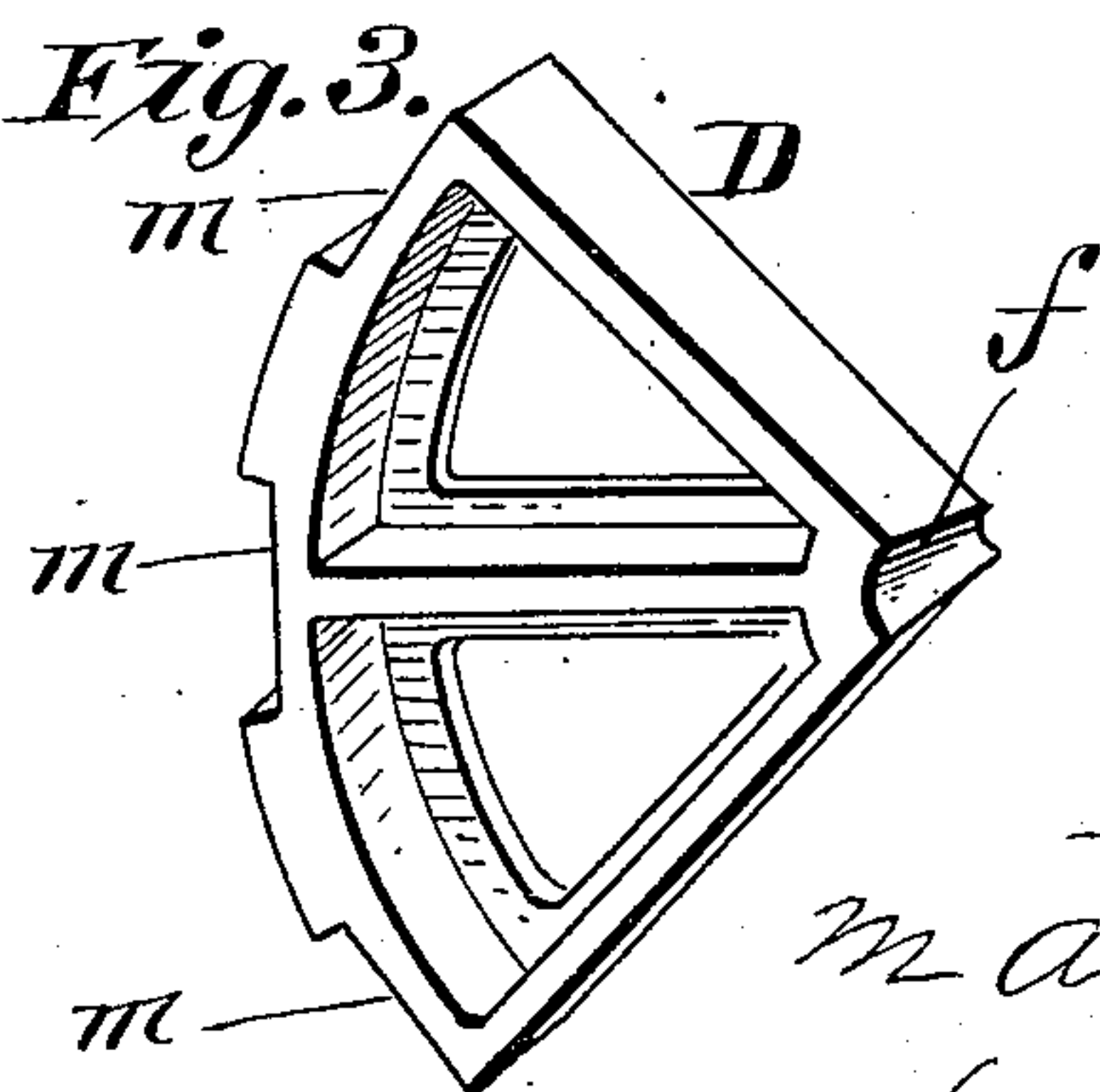


Fig. 5.



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UNITED STATES PATENT OFFICE.

MATHEW ANGUS SMITH, OF CLARENDON HILLS, MASSACHUSETTS, ASSIGNOR
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MANUFACTURE OF RIMS FOR BICYCLE-WHEELS.

SPECIFICATION forming part of Letters Patent No. 557,520, dated March 31, 1896.

Application filed March 30, 1894. Serial No. 505,687. (No model.)

To all whom it may concern:

Be it known that I, MATHEW ANGUS SMITH, a subject of the Queen of Great Britain, residing at Clarendon Hills, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in the Manufacture of Rims for Bicycle-Wheels, of which the following is a specification.

This invention relates to the manufacture of bicycle-wheel rims, more particularly to the method and means employed for laying together and holding in place and imparting pressure to the strips or layers of wood from which the rim is composed.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a plan view of the novel apparatus employed, showing also the action thereof upon the layers of wood from which the rim is produced. Fig. 2 is a vertical sectional view of the same, taken on line 2 2, Fig. 1. Fig. 3 is a perspective view of one of the segments, a plurality of which form the pressure device for internal application upon the layers of wood under process of formation. Fig. 4 is a perspective view showing a portion of the rim as built up by the employment of the present improvements, while Fig. 5 is a similar view showing the rim as further formed to adapt it for a pneumatic-tired wheel.

I have discovered that in making up wood rims for bicycle-wheels from layers of thin stuff which are superimposed and glued together and bent around to annular form and subjected to pressure until the wheel has become set that by merely holding the rim at its external periphery against distortion or any irregular or uneven displacement and imparting the pressure upon the built-up rim from its inside that the strength and stiffness or stability of the rim is increased in a remarkable degree beyond that found in a built-up wheel pressed from the outside; and therefore my invention, in part, resides in the method of producing a stiff built-up wood rim, which consists in bending around annularly and uniting one layer or strip of the wood upon another and subjecting the so-united layers to an expanding pressure while the ad-

hesive which unites the layers is becoming set; and the invention furthermore consists in an apparatus or mechanism for carrying out the process, and all as will hereinafter fully appear, and be set forth in the claim.

Referring to said drawings, A represents a table or bench, on which is placed a sheet *a* of zinc or other metal, while resting upon said zinc is a cast-iron ring B, having a smooth inner periphery, while in its base is a comparatively wide annular groove *b*. A steam-heating pipe *d*, circularly arranged, rests upon the zinc and within the chamber comprised in said annular groove, it having suitable ingress and egress pipes coupled thereto for permitting, properly, the steam circulation to suitably heat the ring. The ring is internally of the same size as the rim is to be externally. Within the ring are a series of cast-iron segments D, here shown as quadrants, and which are shown as comprising rim-segments and hub-segments united by suitable spokes or arms and strengthening-ribs, preferably thus in lieu of a more solid formation for lightness and facility of handling, and these, when assembled with their radial edges in contact, as seen in Fig. 1, have a diameter so much less than the internal diameter of the ring B as approximately equals the thickness of the rim to be produced. The segments have their inner corners concave, as seen at *f*, to conduce to the formation of a small circular wall concentric with the external periphery, which circular wall is downwardly tapering for the reception of the expanding cone G, which has below it the screw-shank *g*, which screw engages in the screw-tapped metallic bushing *h* set in the bench or table, while above this cone is a cross-head *i* to afford adequate means for turning the actuating-screw of the cone.

It will be noticed that one of the segments has at its outer edge three depressions or notches *m m m*.

Now in making up a rim the workmen first take a strip with scarfed ends and of sufficient length and gluing it on its inner face bend it around and place it with its outer face against the inner face of the ring B, the ends making a scarf-joint. The next layer, of

slightly decreased length, is glued and bent
around and laid closely within the first layer,
its scarf-joint coming at a point a little way
around from the joint of the first layer, and
5 the third layer is similarly applied within the
second. More than three layers may be used,
if desired. The segments are next brought
into effect by forcing them outwardly through
means of the expanding cone, the segment
10 having the said depressions *m m m* being so
placed that the depressions come respectively
next to or opposite the scarf-joints. The
pressure of the segments outwardly having
been effected in the maximum degree, wedges
15 or paired wedges, as seen at *n*, are driven be-
tween the base of the depressions *m* and the
wood rim to impart a special pressure upon
the scarf-joints to assure the integrity of the
rim structure thereat.

Having thus described my invention, what 20
I claim, and desire to secure by Letters Pat-
ent, is—

In an apparatus for making built-up wood
wheel-rims, a rigid annular die for the recep- 25
tion of the rim and a plurality of segment-
shaped parts of less diameter than the inte-
rior diameter of the rim, and lying within said
die, and means for forcibly expanding said
segments against the inner periphery of said
rim, and means for applying an excess of 30
pressure at one or more points on the periph-
ery of one or more of said segments, substan-
tially as described.

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