

G. HART.
GRINDING WHEEL.
APPLICATION FILED JUNE 1, 1909.

945,526.

Patented Jan. 4, 1910.

Fig. 1.

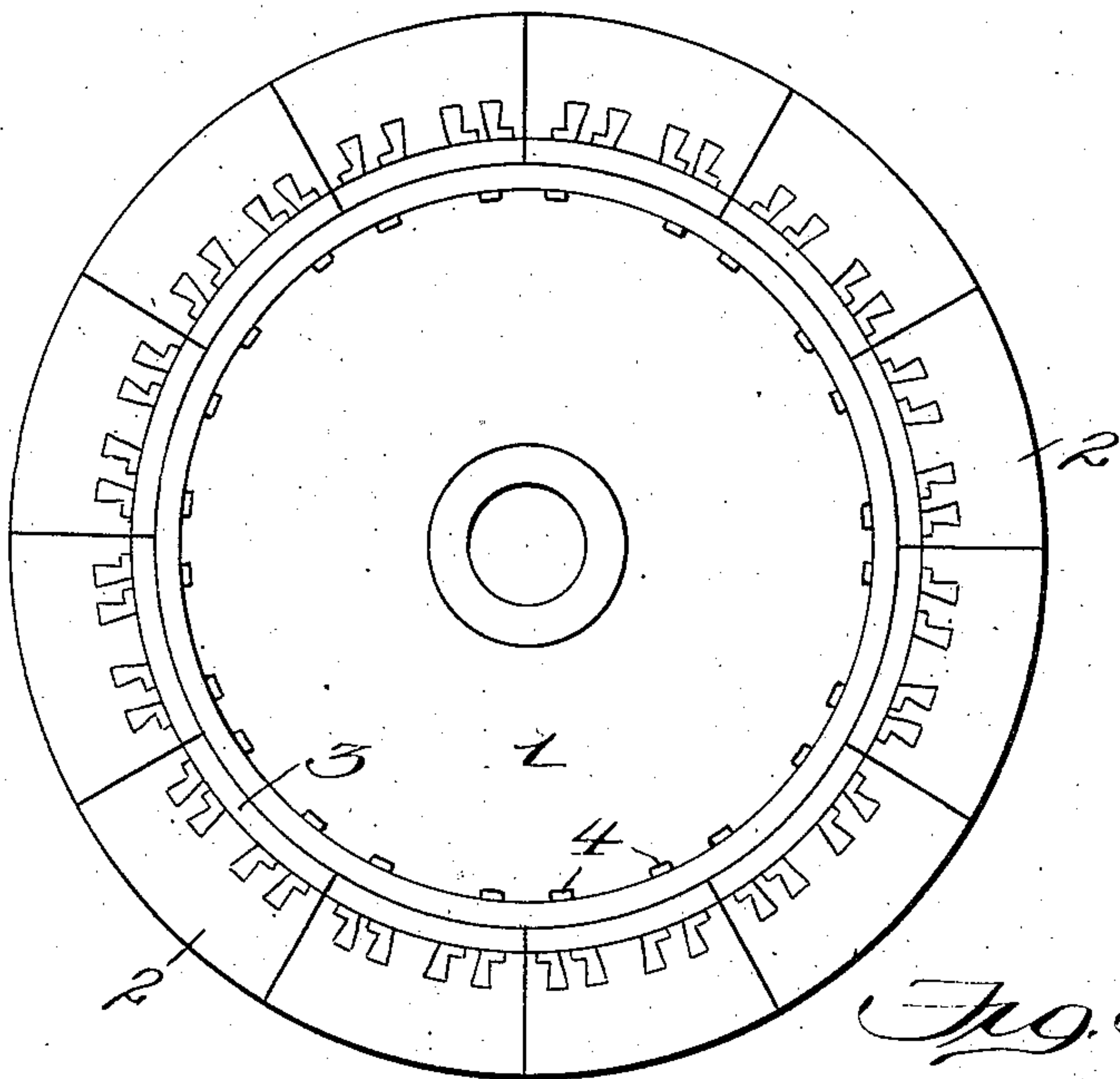


Fig. 2.

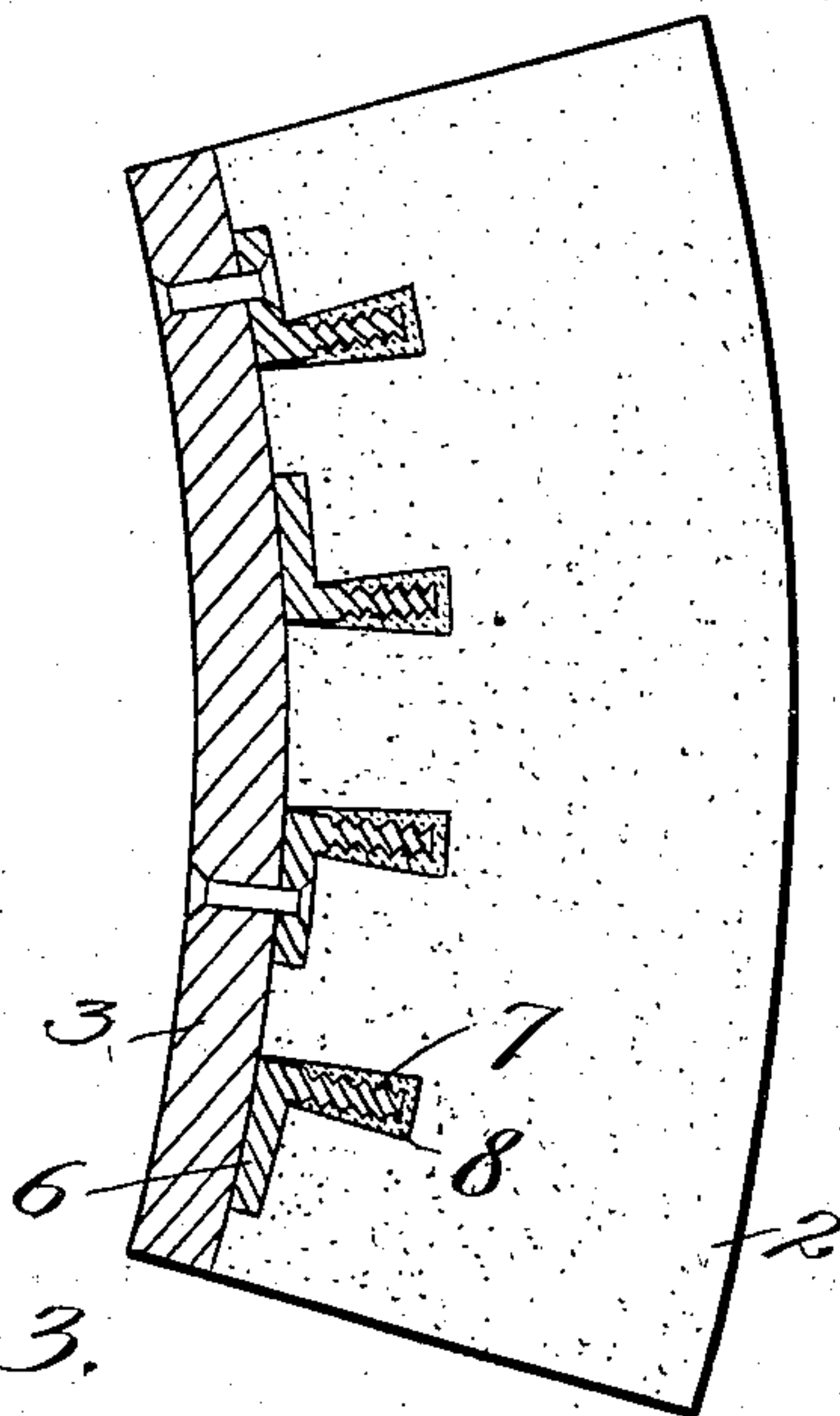


Fig. 3.

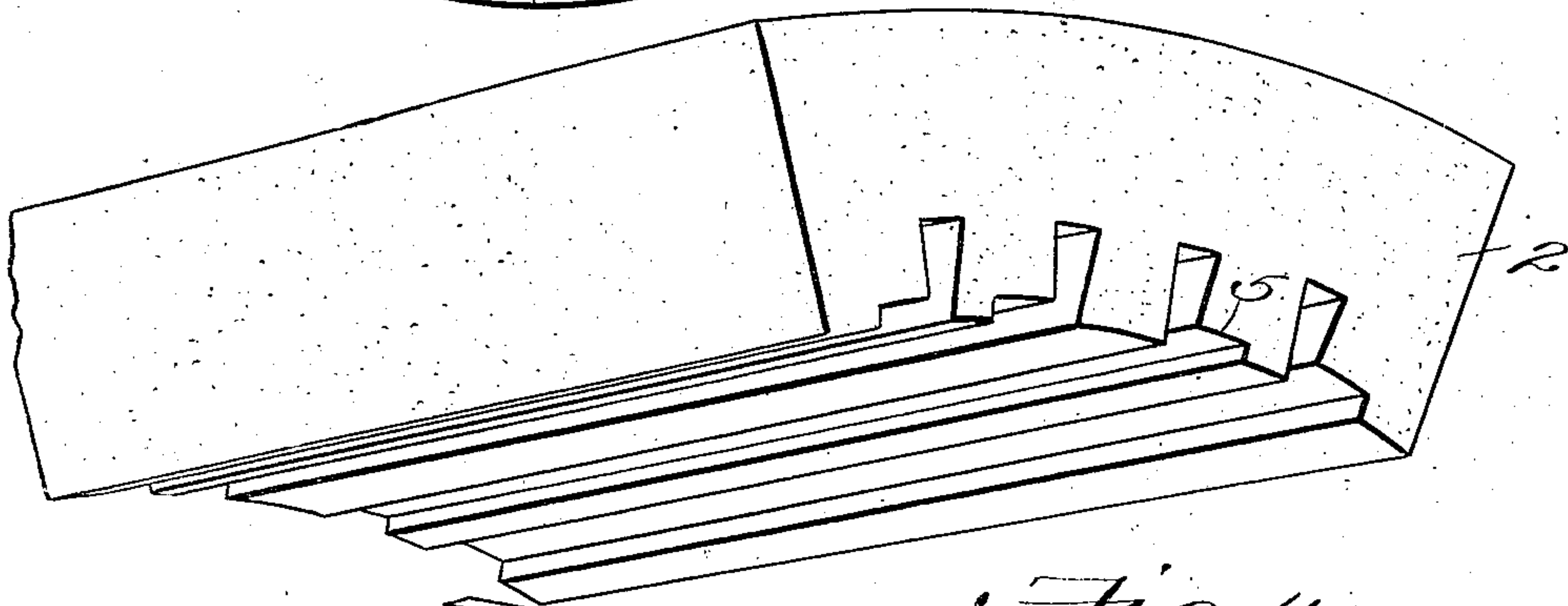
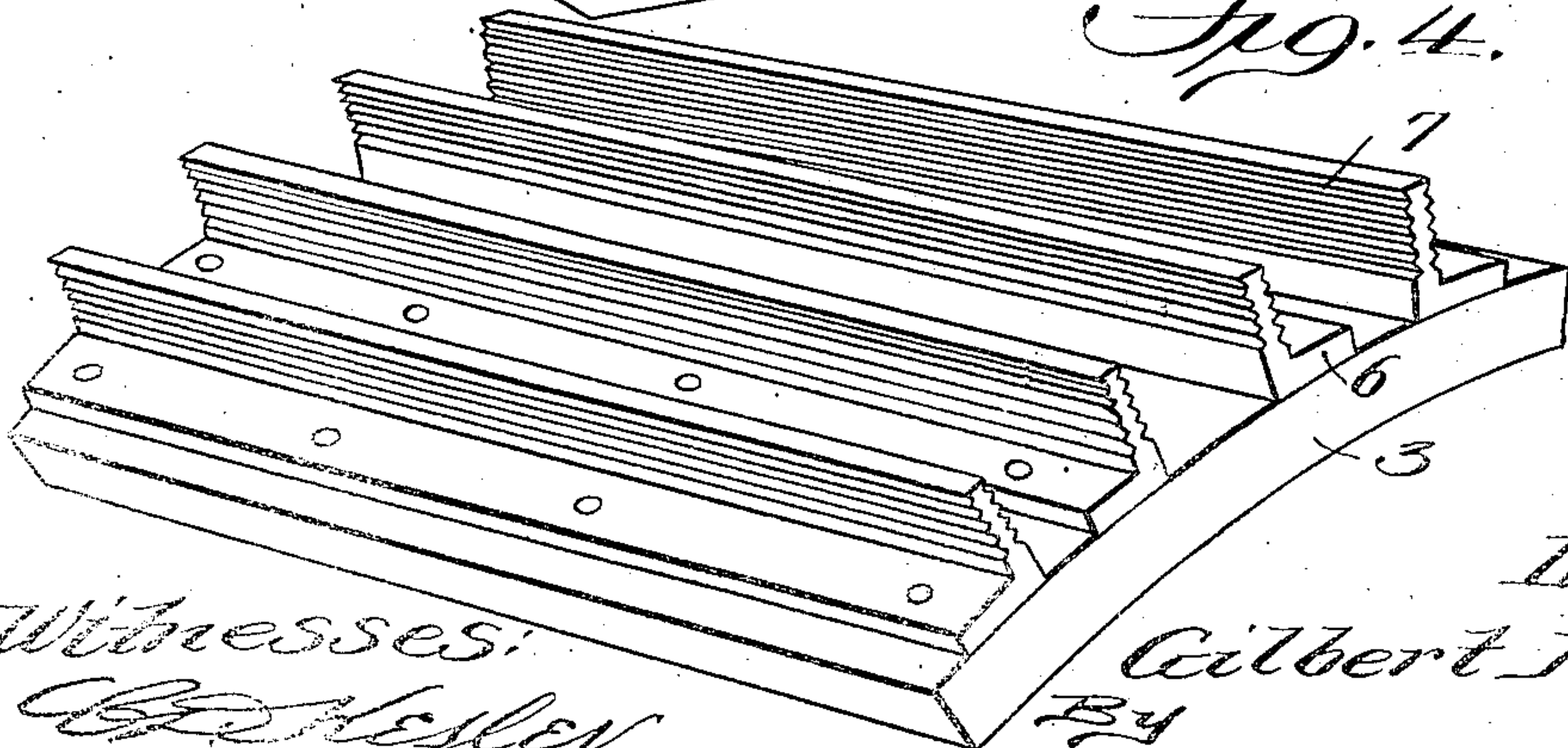


Fig. 4.



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UNITED STATES PATENT OFFICE.

GILBERT HART, OF DETROIT, MICHIGAN.

GRINDING-WHEEL.

945,526.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed June 1, 1909. Serial No. 499,381.

To all whom it may concern:

Be it known that I, GILBERT HART, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Grinding-Wheels, of which the following is a specification.

This invention relates to new and useful improvements in grinding wheels and it has more particular reference to a grinding wheel of that general type which is disclosed in my prior U. S. Patents, No. 779,848, granted January 10, 1905, and No. 825,460, granted July 10, 1906, in which plates interlockably related to and carrying grinding segments are positioned in conterminous relation upon the rim of a spider or wheel body.

The present invention proposes an improvement in the segment locking means, the ultimate purpose of which is to provide more efficiently against the bursting of the wheel or the displacement of the segments by centrifugal force, it being understood that in grinding wheels of large size and requiring a considerable amount of horse power for their operation, the segments should be held in place in the strongest possible way.

In the accompanying drawings, I have illustrated a preferred and advantageous embodiment of the invention.

In the said drawings: Figure 1 is a side elevation of a grinding wheel constructed in accordance with the present invention. Fig. 2 is an enlarged longitudinal sectional view of one of the segments and its securing plate, showing in detail the novel interlocking means. Fig. 3 is a detail perspective view of one of the segments, the others being similar in construction, and Fig. 4 is a detail perspective view of one of the securing plates, showing the interlocking means carried thereby, the other plates being similar in construction.

Similar characters of reference designate corresponding parts throughout the several views.

The type of structure referred to comprises essentially the spider 1, the grinding segments 2 and the securing plates 3, which are interlockably related to the segments 2 and which are secured rigidly to the rim of the spider 1 by suitable fastening means providing for their removal, as, for example, bolts 4. This structure, as thus generally stated, is shown in my two prior patents to which reference has been made.

The segments 2, of which any desired number may be employed, may be constructed of any material suitable for the purpose for which the wheel is used, as, for example, emery, used for grinding purposes, and which is molded and afterward baked. The segment thus formed is provided with a suitable number of transverse recesses, as 5, which are preferably of L shape and disposed in parallelism. The recesses, by virtue of their shape, have circumferential legs and radial legs, the latter increasing in width as they extend outwardly.

The plates 3 are provided with a number of transverse projections, as 6, which correspond to the recesses 5 and in the embodiment shown are of L shape. These projections may be of wrought iron and riveted to the plates, as shown in the drawings, or they may be cast on the plates, or rigidly attached thereto in any other suitable manner. Their circumferential legs correspond in dimensions to the circumferential legs of the recesses 5 but their radial legs are of less extent and less transverse width than the radial legs of the recesses 5, and are preferably provided with corrugations, as 7, which extend longitudinally of the projections 6. The radial legs of the projections extend into the radial portions of the recesses 5 and are spaced from the walls of said radial portions, as shown more particularly in Fig. 2. Filling spaces are thus afforded which extend transversely of the segment and into which is poured, while in a plastic or molten state, any suitable self-hardening material, indicated by the numeral 8, as, for example, brimstone, to effect a rigid and permanent union between the segments 2 and the projections 5. This union is rendered the more efficient by reason of the employment of the corrugations 7 which provide for a stronger grip of the cementitious bond and overcome any liability of the disengagement of the projections and the brimstone under a very strong degree of centrifugal force, which liability might otherwise be incident to the conditions noted if the projections were smooth faced.

It will be noted that the radial legs of the recesses 5, aside from being of greater dimensions than the radial portions of the projections 6, are of substantial, inwardly tapering, wedge shape, and this formation provides a further safeguard against the tendency of the projections to "pull" from

the bond, since the obvious result of any infinitesimal or imperceptible outward radial movement of the segments would result in producing a stronger wedging compression of the filling material against the projections, thereby tightening the grip of the latter.

The self-hardening material, aside from its primary function, noted in the foregoing description, efficiently strengthens the segments along their lines of connection to the securing plates and provides against the "wearing down" of the projections, which, in the course of time would be an incident to loose play, even though slight.

The embodiment herein shown, in so far as I am aware at the present time, is preferred, but it will be understood that no specific description or disclosure herein contained is intended to have a limiting effect on the claims.

Having fully described my invention, I claim:

1. In a wheel structure of the type set forth, a spider having a rim, a segment having an elongated recess in its inner face, an elongated projection rigidly associated with the rim and disposed in the recess, the projection having roughened side faces, and a self-hardening material disposed in the recess and surrounding the projection.

2. In a wheel structure of the type set forth, a spider having a rim, a segment having a transverse recess in its inner face, a projection extending transversely of the rim,

rigidly associated therewith, and disposed in the recess, the projection having corrugated side faces, and a self-hardening material disposed in the recess and surrounding the projection.

3. In a wheel structure of the type set forth, a spider having a rim, a segment having a transverse inwardly tapering recess in its inner face, a projection extending transversely of the rim, rigidly associated therewith and disposed in the recess, the projection having corrugated side faces, and a self-hardening material disposed in the recess and surrounding the projection.

4. I. a wheel structure of the type set forth, a spider having a rim, a segment having its inner face provided with a recess which comprises a radially disposed inwardly tapering leg and a circumferentially extending leg, a projection rigidly associated with the rim and having a radial portion disposed in the radial leg of the recess and a circumferential portion disposed in the circumferential leg of the recess, and a self-hardening material disposed in the radial leg of the recess and inclosing the radial leg of the projection.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GILBERT HART.

Witnesses:

THOMAS V. DUTTON,
MICHAEL H. DEMPSEY.