

No. 619,084.

Patented Feb. 7, 1899.

J. H. MILLER.

CHILL MOLD FOR CASTING GEAR WHEELS.

(Application filed Apr. 28, 1898.)

(No Model.)

Fig. 1.

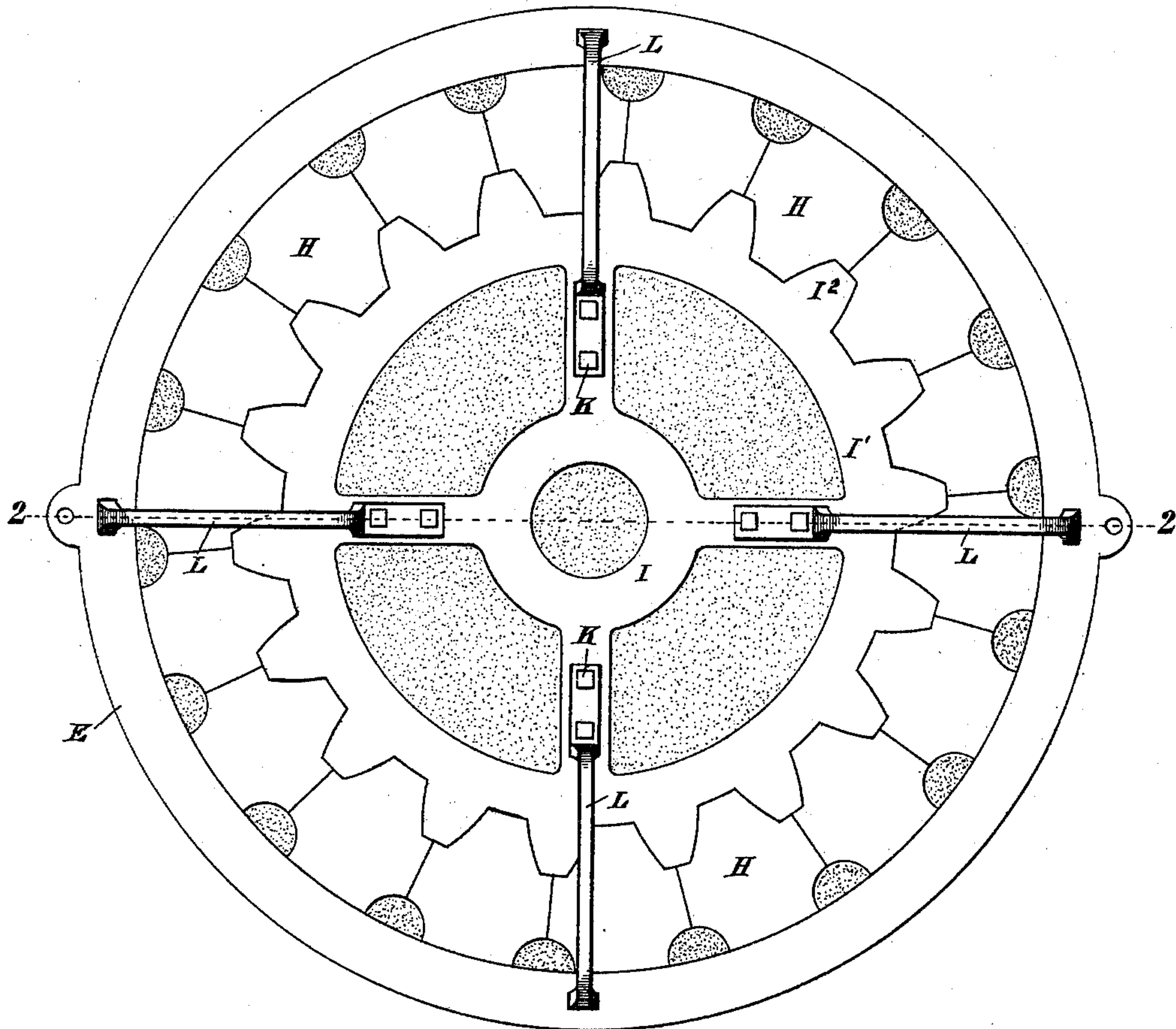
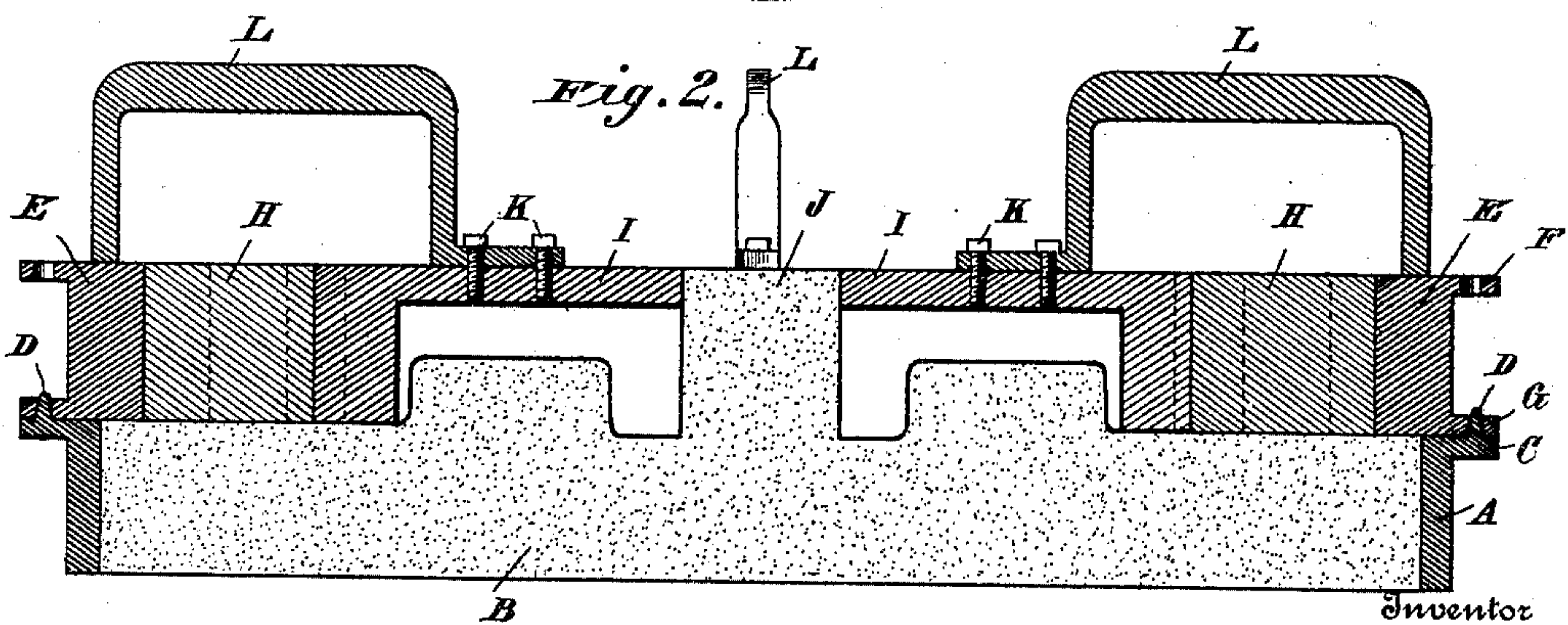


Fig. 2.



Witnesses
T. W. Riley,
Chas. Brock

Inventor
J. H. Miller,
by O. Mearns
Attorneys

UNITED STATES PATENT OFFICE.

JOHN H. MILLER, OF NEW CASTLE, PENNSYLVANIA.

CHILL-MOLD FOR CASTING GEAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 619,084, dated February 7, 1899.

Application filed April 28, 1898. Serial No. 679,139. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MILLER, a citizen of the United States, residing at New Castle, in the county of Lawrence and State of Pennsylvania, have invented a new and useful Chill-Mold for Casting Gear-Wheels, of which the following is a specification.

My invention relates to chill-molds for casting gear-wheels; and it consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of the mold with the pattern and chills in position in the sand. Fig. 2 is a vertical section therethrough, taken on the plane indicated by the dotted line 2 2 of Fig. 1.

Like letters of reference mark the same parts wherever they occur in both figures of the drawings.

Referring to the drawings by letters, A indicates the circular frame or ring of the lower half of the mold, and B the sand therein, the ring being provided on its upper edge with laterally-projecting lugs C, projecting outward beyond the ring and at right angles thereto, studs or pins D being provided at intervals, projecting upward from the flange C, as clearly shown in Fig. 2.

E indicates a ring provided with laterally-projecting lugs F and G at its upper and lower edges, said lugs being provided with holes to correspond in size and position with the pins or studs D, before described. When this ring is placed in position upon the ring A, the pins or studs D will engage in the holes in the lower lugs G and hold the ring E against movement in any direction.

H indicates a series of metal chills which are placed within the ring E, resting upon the sand in the mold and forming the outer face of the mold, by which the teeth of the gear-wheel are formed. These chills are segmentally shaped to fit snugly within the ring E and against each other, so as to form sub-

stantially a solid structure within the ring, the inner faces of the chills being formed so that when in position their conjoint inner surfaces will form the outline desired to be given to the periphery and teeth of the wheel to be cast.

I indicates a templet consisting of a central plate provided with an opening to fit over the core in the sand and an exterior ring I', provided with teeth I'' of the same shape as the teeth to be cast upon the wheel. To the upper surface of this templet I is secured, by means of bolts K, a plurality of metal arms L, which are extended radially and formed of a proper length to rest upon the face of the ring E when the templet has dropped to a position which brings its upper surface flush with the upper surface of said ring, thus preventing it from coming into contact with the sand already shaped or impressed by the pattern.

After the wooden pattern has been removed this templet is placed with its teeth in position to fit the inner surfaces of the chills, when the chills are placed in position, as shown, after which the templet is elevated by means of the arms L and the upper part of the mold (not shown) is placed in position upon the ring E, closing the mold ready for pouring.

By means of my invention the casting of gear-wheels in which the wearing-surface of the teeth are chill-hardened is greatly facilitated, while the full strength of the metal is retained in those parts of the gears where most strength is required, thus increasing the life of the gear and at the same time reducing friction and loss of power in operation, as well as the cost of manufacture.

While I have illustrated and described the best means now known to me for carrying out my invention, I do not wish to be understood as restricting myself to the exact details of construction shown, but hold that any slight changes or variations such as might suggest themselves to the ordinary mechanic would properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a mold for gear-wheels, of the ring E, the chills, H, of seg-

mental shape, adapted to fit snugly therein, the templet, I, fitting within the chills, and the arms, L, secured upon the upper face of the templet and adapted to rest at their outer
5 ends upon the upper face of the ring E, substantially as described.

2. The templet herein described, provided with gaging and lifting arms, L, secured to

the face of the templet, extending above the face, outward and downward, and adapted to support the templet by resting upon the outer ring of the mold, substantially as described. 10

JOHN H. MILLER.

Witnesses:

HIRAM G. MILLER,
H. H. GRAHAM.