

(No Model.)

S. E. MAXWELL.
CHILL MOLD FOR CASTING TEETH ON GEAR WHEELS.
No. 500,591.

Patented July 4, 1893.

Fig. 1.

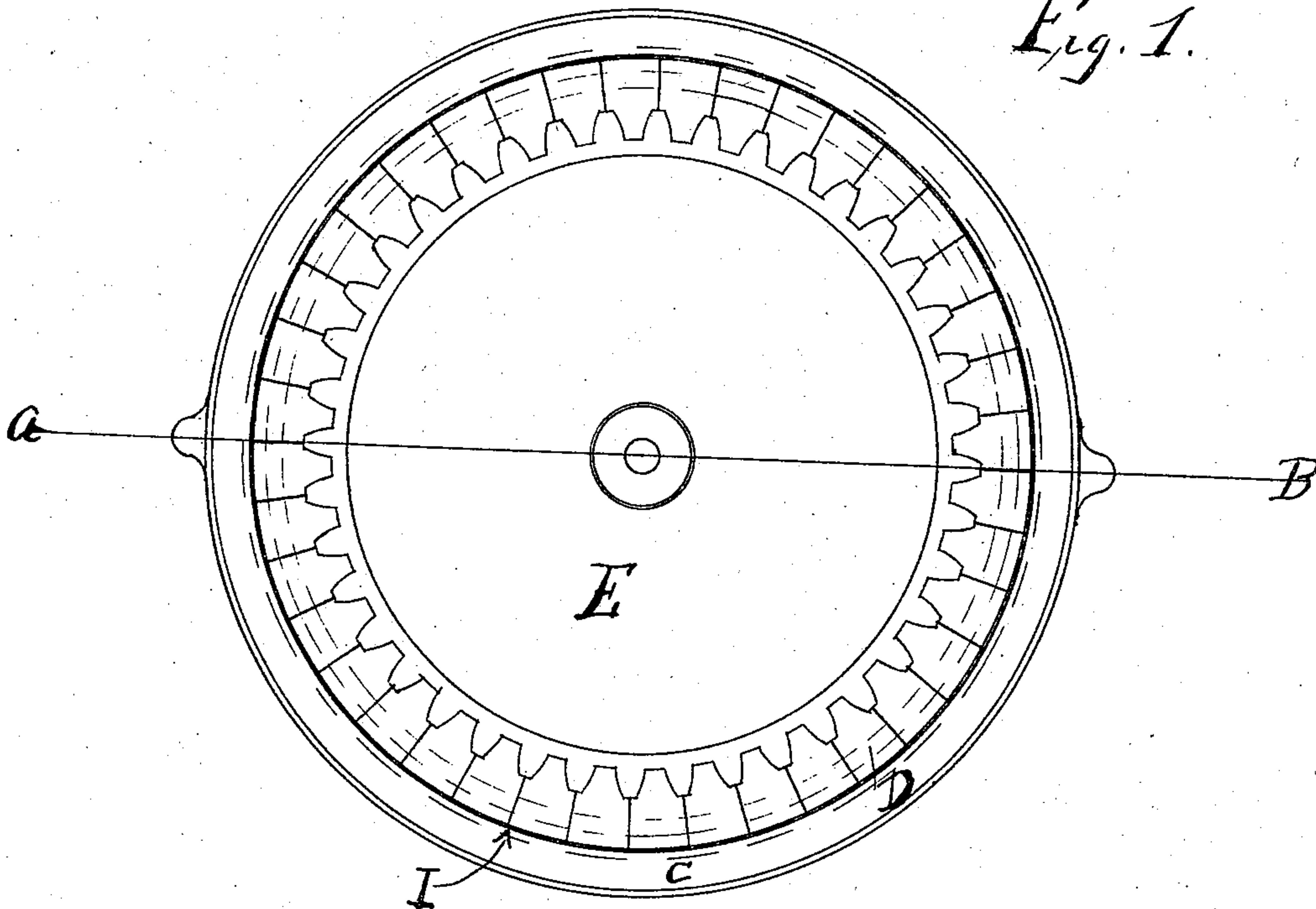
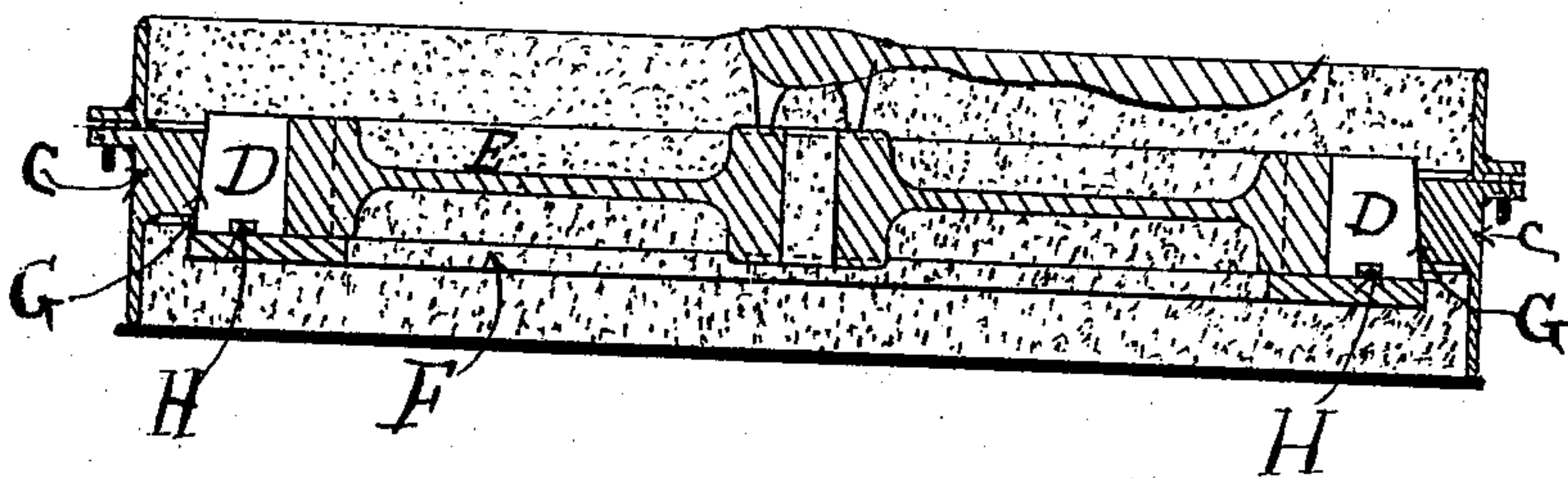


Fig. 2.



WITNESSES:

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SAMUEL E. MAXWELL, OF ASPINWALL, PENNSYLVANIA.

CHILL-MOLD FOR CASTING TEETH ON GEAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 500,591, dated July 4, 1893.

Application filed July 2, 1892. Serial No. 438,840. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL EDWARD MAXWELL, a citizen of the United States, residing at Aspinwall, county of Allegheny, State of Pennsylvania, have invented a new and useful Chill-Mold for Casting Teeth on Gear-Wheels, of which the following is a specification.

The object of this invention is to manufacture gear wheels which shall be much more durable and accurate than those made by the processes now in use. There are two processes by which gear wheels are now usually made. By the first process the wheel is cast solid and the teeth are cut in it afterward. By this method, it is necessary to cut into the soft part of the iron, thus forming a soft surface on the tooth of the wheel which quickly wears out. By the second process the wheel, teeth and all, is cast in green sand. The wheels cast in this way are somewhat more durable, but in order that the wheel, when cast, may be lifted out of the mold, the teeth must be tapered in a manner that somewhat spoils their shape.

By my invention it is intended to cast the wheel in the usual manner of casting them in green sand, except the teeth which are formed in my cast iron chill mold. By this method, as the hot metal which forms the teeth is poured into the mold, it comes in contact with the cold iron of the mold and by this means the surface of the teeth is chilled and hardened forming a true wheel with teeth having a hard durable surface.

The chill mold consists of a cast-iron ring divided into segments varying in number according to the number of teeth in the wheel to be cast.

In the drawings hereto attached Figure 1 represents a top view of the mold. "E" is a casting of a gear wheel. "D" is a sectional

ring composed of a number of segments to be determined by the number of teeth in the wheel to be cast. "C" is a cast iron ring; this ring has a taper on the inner edge as hereinafter stated, and it draws together, clamps and holds the segments of the ring "D" in position. The outer edge of the sectional ring "D" and the inner edge of the ring "C" are tapered, so that when placed together the segments may be drawn tightly into position around the pattern. In the under side of the section ring "D" there is a groove which is shown in Fig. 2 of the drawings by the letter H.

Fig. 2 is a section view of mold and casting through line A—B. "D" is the sectional ring; "C" is the outer cast-iron ring. "E" is the casting of wheel. In this figure "G" shows the taper in rings "D" and "C" above referred to. As an additional precaution and device for holding the segments of the ring "D" in place a third cast-iron ring is used, which is shown by dotted lines in Fig. 1 of the drawings, and by letter F in Fig. 2. The segments of ring D are placed upon this cast-iron ring and there is a tongue on ring F which fits into the groove H in the segments of ring D, holding them firmly in position.

Having fully described my invention, what I claim, and desire to secure a patent for, is—

The combination of the sectional ring D, having the taper on the outer edge and the groove H on the under side thereof, the outer cast iron ring C with the taper on the inner edge corresponding to the taper on ring D, and the under cast iron ring F, with the tongue fitting into the groove H in segments of ring D.

SAMUEL E. MAXWELL.

Witnesses:

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