(No Model.)

N. S. BOUTON.

MODE OF MAKING SECTIONAL CHILLS.

No. 421,900. Patented Feb. 25, 1890.

Fig. 1.

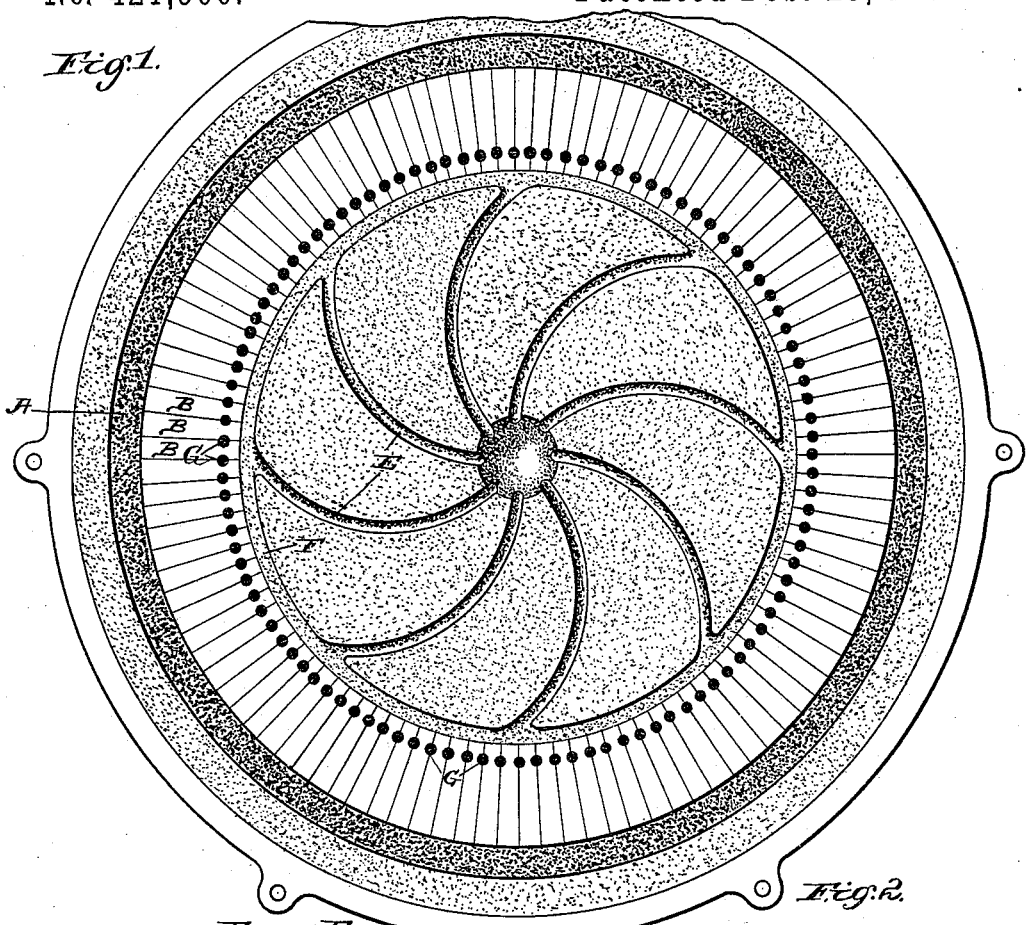


Fig. 2.

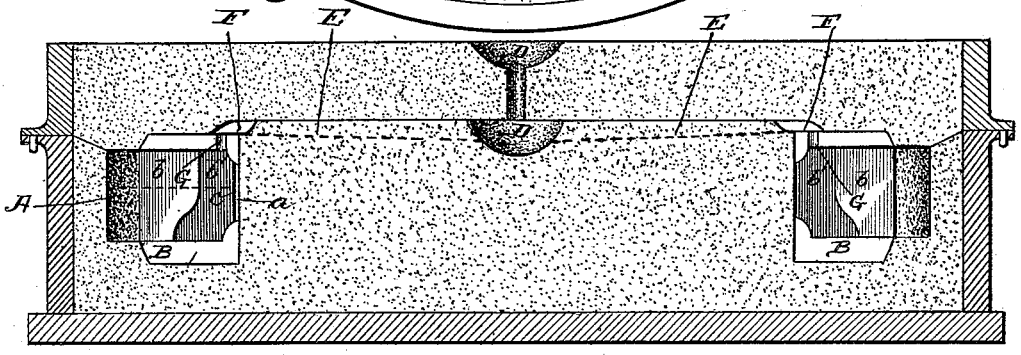


Fig. 4.

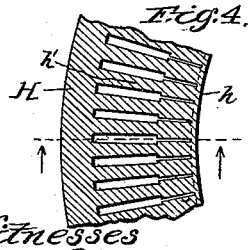


Fig. 3.

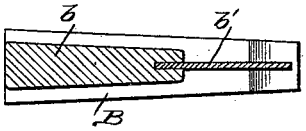
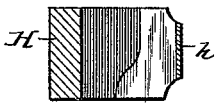


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

NATHANIEL S. BOUTON, OF CHICAGO, ILLINOIS.

MODE OF MAKING SECTIONAL CHILLS.

SPECIFICATION forming part of Letters Patent No. 421,900, dated February 25, 1890.

Application filed December 28, 1889. Serial No. 335,253. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL S. BOUTON, of Chicago, in the county of Cook, in the State of Illinois, have invented a certain new and useful Mode of Making Sectional Chills, of which the following is a specification.

My invention relates to the class of chills in which the chilling-face is made in sections, there being small interstices between the sections to afford room for local expansion when the molten metal comes in contact with the chill, its expansion as a whole being thereby prevented. Illustrations of chills of the class referred to are to be seen in United States Patents No. 352,792 and No. 411,369, to Whitney and Barr, respectively, the chills in both instances being for making car-wheels.

My invention is designed to facilitate the making of sectional chills, and thus lessen their cost and at the same time improve their finish.

In the drawings a car-wheel, chill-mold, and a portion of the resulting chill are shown as illustrative of my invention.

Figure 1 is a plan view of the drag of the chill-mold. Fig. 2 is a vertical cross-section of the mold. Fig. 3 is a horizontal cross-section of one of the cores used in the formation of the mold. Figs. 4 and 5 are views of a portion of the chill as it comes from the mold before it has been turned or finished.

To make a chill by my improved method, I first prepare the mold by forming a circular groove or ring A, whose width equals the width fixed upon for the chill. In the groove A are set cores B B, in contact at their top and bottom edges with the inner face of the groove. The form of the cores B is shown in Figs. 2 and 3. The top and bottom edges of the core are fitted to each other like the voussoirs of an arch, so that no metal can flow between them. The middle outer portion *b* of the cores are made somewhat thinner than the top and bottom edges, and the middle inner portion *b'* is formed of a thin sheet of asbestus paper, or other suitable refractory material, set into and sustained by the sand-body of the core. The inner edge *c* of the asbestus paper is not quite flush with the inner face of the core B, so that only the top and bottom portions of the cores touch the inner face of the groove A, and a continuous space *a* is left around the mold. As the cores B are not so wide as the groove A, there is also a space *a* at the outer portion of the groove to be filled with solid metal.

A skim-gate D is provided, from which runners E extend in the ordinary manner to a sheet-gate F, the metal passing therefrom to the openings G, formed in the adjacent sides of the cores. As it is undesirable to pour all the metal through these openings, other gates are preferably used for pouring the outer portion of the ring; but the provision of gates for this purpose being easily made by one skilled in founding needs no explanation herein. The shape of the chill H as it comes from the mold is shown in Figs. 4 and 5. The inner face *h* of the chill in the rough is continuous, and when the chill is put in the lathe the strain of the cutting-tool, instead of being exerted on each section *h'* as it comes in contact with the tool, will be distributed in the same way as in a solid chill. Thus it is possible to take a much heavier cut.

The strain on the cutting-tool is uniform, its edge cutting in solid iron only, and thus being better preserved; hence a smoother and more accurate surface is produced.

The thickness of solid metal on the inside of the chill is made only great enough to allow for finishing, so that when the chill is turned the light final cut of the tool reaches the divisions, as indicated by the dotted line in Fig. 4, thus completing the separation of the sections. I thus avoid the tedious and expensive operation of separating the sections by sawing, and at the same time attain speed and accuracy in turning by connecting and supporting the sections while under the strain of the first heavy cutting.

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

The mode of making a sectional chill, which consists in casting a rough chill having divisions which do not extend entirely through to the chilling-face, and then finishing by removing the metal from the chilling-face till the divisions are reached, substantially as described.

NATHANIEL S. BOUTON.

Witnesses:
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