

(No Model.)

L. R. FAUGHT.
CHILL FOR CAR WHEELS.

No. 365,590.

Patented June 28, 1887.

FIG. 1.

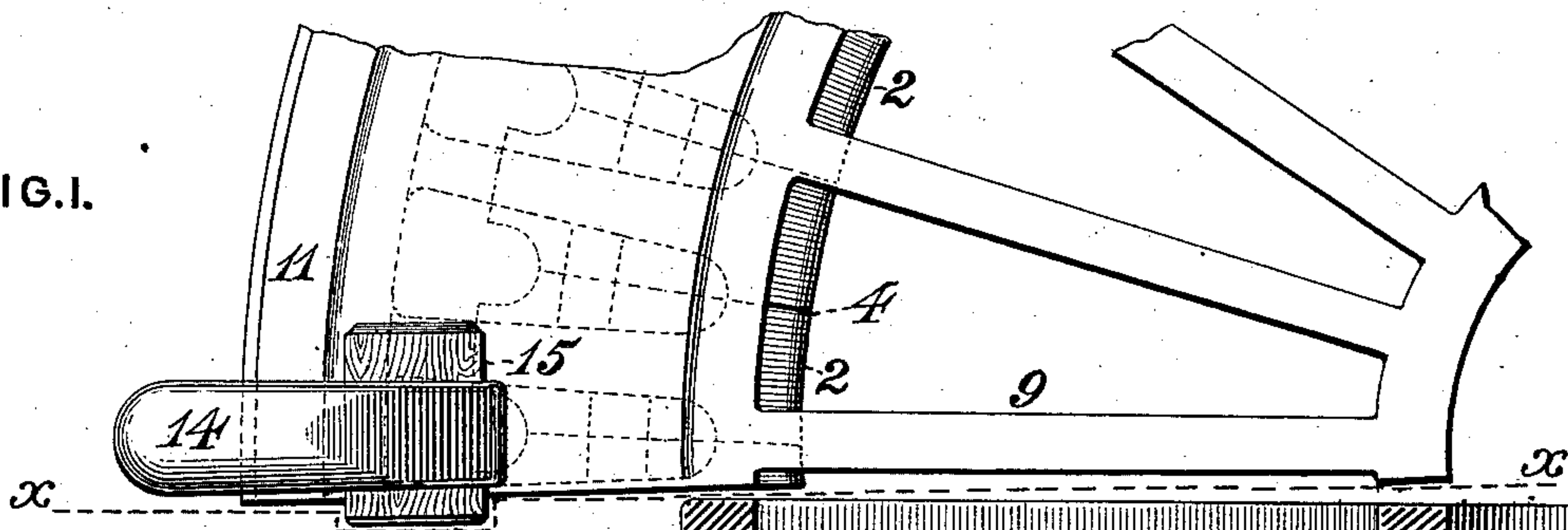


FIG. 2.

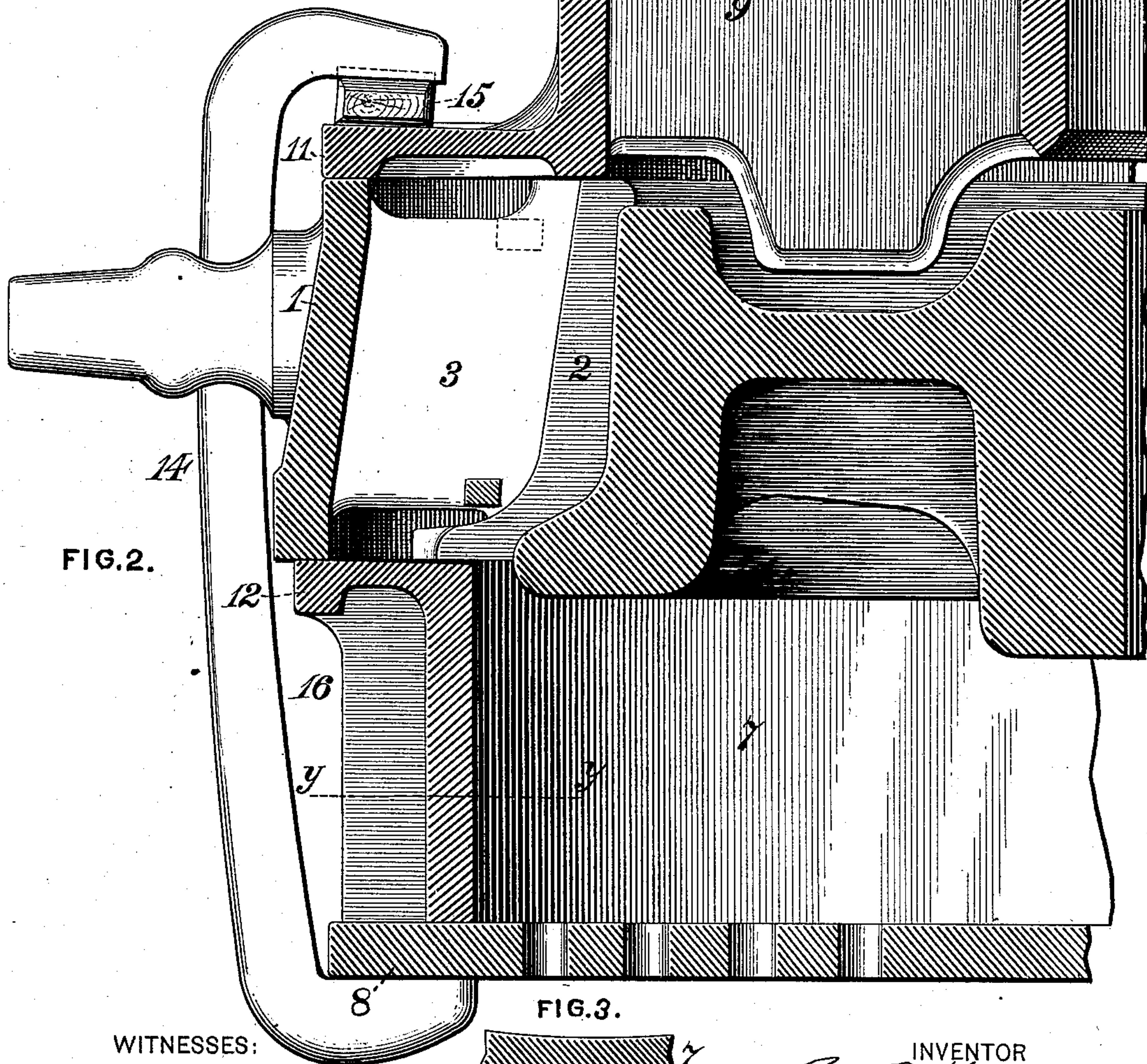
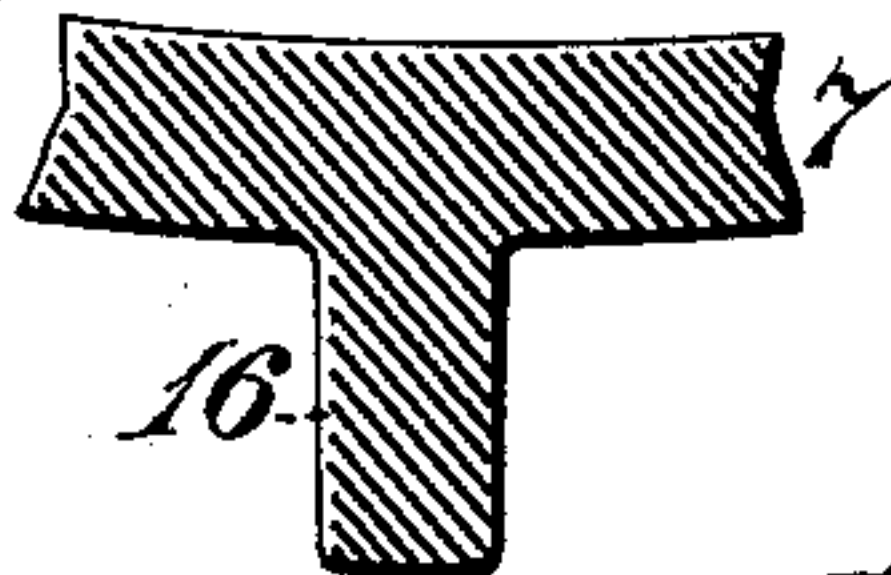


FIG. 3.



WITNESSES:

P. F. Eagle,
F. E. Gaither.

INVENTOR

L. R. Faught,
by J. H. Gordon Bell,
Atty.

UNITED STATES PATENT OFFICE.

LUTHER R. FAUGHT, OF PHILADELPHIA, PENNSYLVANIA.

CHILL FOR CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 365,590, dated June 28, 1887.

Application filed April 12, 1887. Serial No 234,528. (No model.)

To all whom it may concern:

Be it known that I, LUTHER R. FAUGHT, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Chills for Car-Wheels, of which improvement the following is a specification.

My improvement relates to chills composed of a continuous outer section or rim and a divided or segmental inner section united to the outer section by arms or bars, by the expansion of which, under the influence of the heat of the molten metal poured into the mold in the manufacture of a chilled car-wheel, the inner section is caused to contract or be reduced in diameter by the inward movement of its segments, chills of such description being therefore known as "contracting chills."

The object of my invention is to insure a free and unobstructed inward movement of the inner section of the chill in order to maintain, as far as may be, a close and continuous contact of the inside surface of the chill with the metal of the casting, and thereby produce a uniform density and depth of chill upon the tread of the wheel and secure the formation of a regular circular contour on the wheel and the maintenance of the same upon the chill.

To this end my invention, generally stated, consists in the combination, with a contracting chill, of a drag and cope having external projections adapted to bear upon the outer section of the chill, and faced off so as to have no bearing against the inner section, and clamps connecting the cope, chill, and drag, and transmitting pressure to the chill upon its outer section only.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a plan or top view of a portion of a car-wheel-chill mold illustrating the application of my invention; Fig. 2, a vertical section through the same at the line *xx* of Fig. 1, and Fig. 3 a horizontal section through a portion of the drag at the line *yy* of Fig. 2.

In the use of contracting chills it has heretofore been the practice to cause the cope and drag with which the chill is associated in the formation of the mold to abut and bear against the parting faces of the inner section of the

chill, which is held under compression between the cope and drag when the several members of the mold are clamped together preparatory to casting the wheel. Inasmuch as it is not practicable to obtain a uniform bearing of the cope and drag upon the chill at all points, it will be seen that an irregular movement of the inner chill-section between the cope and drag tends to be induced upon the pouring of the metal, the result of which is to throw the section out of normal circular form, such irregularity being transmitted to the wheel and affecting it injuriously both as to its form and as to the depth of the chill produced. Further, the rigid bearing of the cope and drag upon the inner chill-section, even assuming it to be made uniform throughout, acts in opposition to the inward movement of the chilling-surface which the principle of the construction of the chill is designed to provide and permit, and this restraining action is aggravated by the fact that the expansion of the cope and drag is in the opposite direction to that of the inner chill-section. My invention removes the objection which has heretofore obtained, as above stated, and renders available to a correspondingly higher degree the substantial advantages of the class of chills to which it relates.

Referring to the drawings, my improvement is illustrated as applied in a mold comprising a drag, 7, provided with a suitable bottom plate, 8, a cope, 9, and a contracting chill having a solid or continuous outer section, 1, and a segmental or divided inner section, 2, connected to the outer section by bars or arms 3, the blocks or segments of the inner section, 2, being separated one from the other by narrow radial splits or divisions 4. Except as hereinafter described, the cope and drag may be of the ordinary or of any suitable and preferred construction, and so far as described the structure is not claimed as of my present invention.

In the practice of my invention the chill is, as heretofore, interposed between the cope and drag in assembling the parts to form the mold; but in lieu of clamping the inner section of the chill between the cope and the drag, as in prior practice, I cause these members to

fit freely against the inner chill-section without bearing to any perceptible degree thereon, and transmit to the chill the clamping-pressure by which the members of the mold are held in their adjusted relative positions through the outer section of the chill only. To this end I provide the cope 9 with an external flange, 11, which projects outwardly sufficiently far to rest upon the top of the outer section, 1, of the chill, and is faced off at its exterior on its lower side to bear truly thereon, and form upon or fix to the drag 7 a corresponding flange, 12, which is faced off truly at top to bear against the bottom surface of the chill-section 1.

The cope, chill, drag, and bottom plate are held firmly together when the mold is prepared for casting by two or more clamps, 14, which may be tightened or caused to draw by wedges 15, or screws, or by being moved from a vertical to an angular alignment in the ordinary manner, and the flanges are so faced that the surfaces of the cope and drag which adjoin the parting faces of the inner chill-section, 2, shall, when the parts are subject to the pressure of the clamps, be slightly farther apart than the surfaces of the flanges 11 12, which bear against the outer section, 1, of the chill, so that the inner section, 2, shall be wholly relieved from the thrust or pressure of the clamps, and will consequently be free to move inwardly as its segments, and the bars 3, by which they are connected to the outer section, 1, are expanded by the heat of the molten metal.

The bearing-surfaces of the cope and drag upon the outer chill-section may, if preferred, be formed upon a series of snugs or separated projections, according in number on the cope and drag with the clamps employed, instead of upon continuous flanges, as above described. The employment of the latter I deem, however, preferable, for the reason, among others, that they serve to protect the bars 3 from the cooling action of the air, and therefore promote in a corresponding degree their expansion. The provision of flanges of such character upon a cope and drag is not, however, herein separately claimed, as the same is set forth in a

separate application for Letters Patent filed by me April 9, 1887, Serial No. 234,228.

In order to further the direct transmission of the thrust to the outer chill-section from the bearing of the clamps against the bottom plate, 8, a series of ribs, 16, may be formed upon the exterior of the drag; but under ordinary circumstances the rigidity of the body of the drag will be found sufficient for the purpose.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, with a contracting chill, of a drag and a cope provided with bearing-surfaces external to their bodies and adapted to abut closely and bear against the lower and upper surfaces of the outer section of the chill, and having the parting surfaces of their bodies faced off, whereby they have no bearing against the corresponding surfaces of the inner section of the chill, substantially as set forth.

2. The combination, with a contracting chill, of a cope, a drag, and clamps or fastenings connecting the cope and drag to the outer section of the chill, the opposing surfaces of the cope and drag and of the inner section of the chill being faced off, substantially as set forth.

3. The combination of a chill composed of a continuous rim or outer section, and an inner section having a divided circular series of chilling blocks or segments united by bars to the outer section, a cope and a drag, each provided with an external flange or bearing abutting against the adjacent surface of the outer section of the chill and having their parting faces faced off, whereby they have no bearing against the parting faces of the inner section of the chill, and two or more clamps connecting the cope, chill, and drag through the flanges or bearings of the cope and drag and transmitting pressure to the chill upon its outer section only, substantially as set forth.

LUTHER R. FAUGHT.

Witnesses:

CHAS. E. PANCOAST,
HENRY MALPASS.