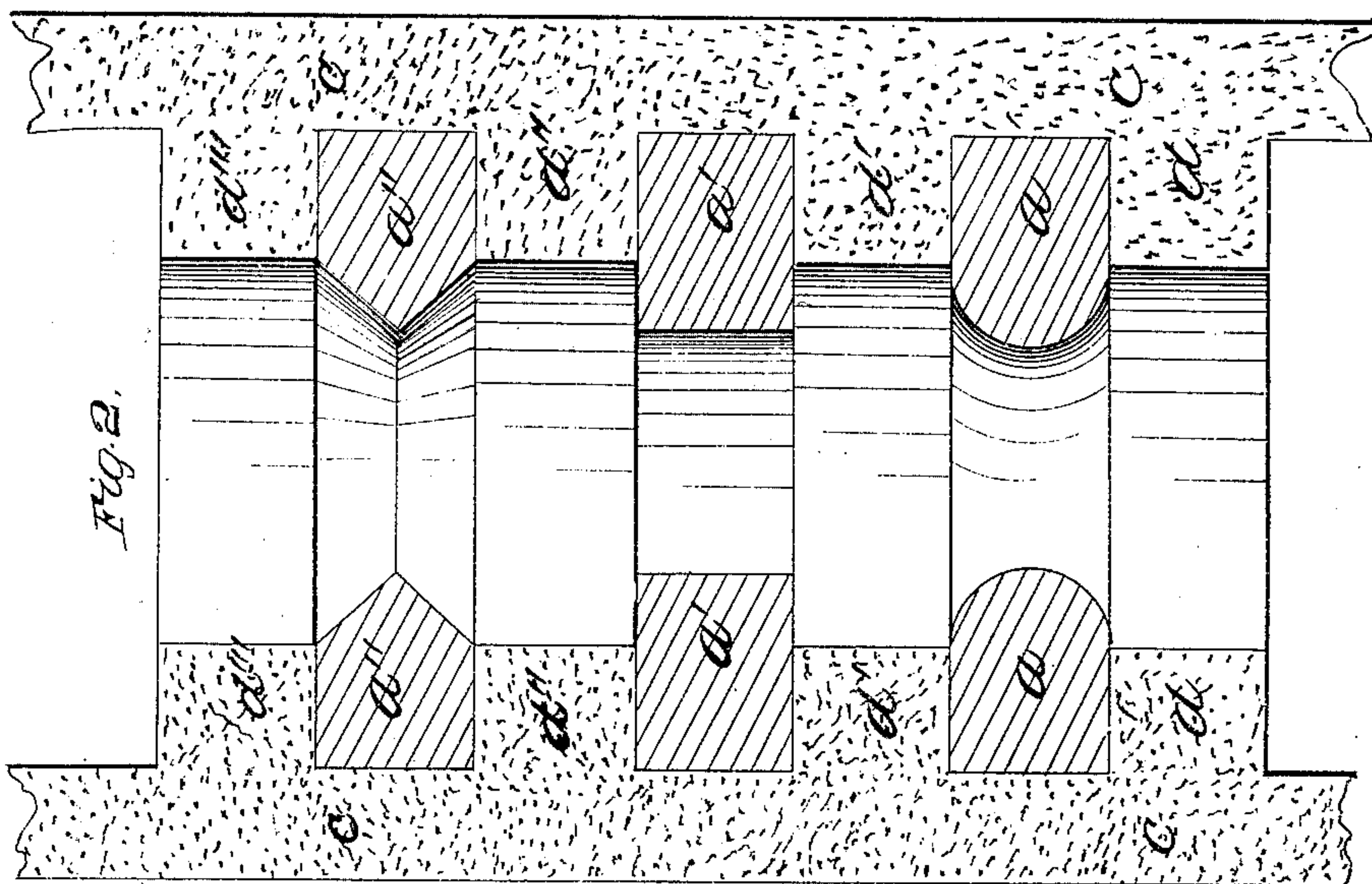
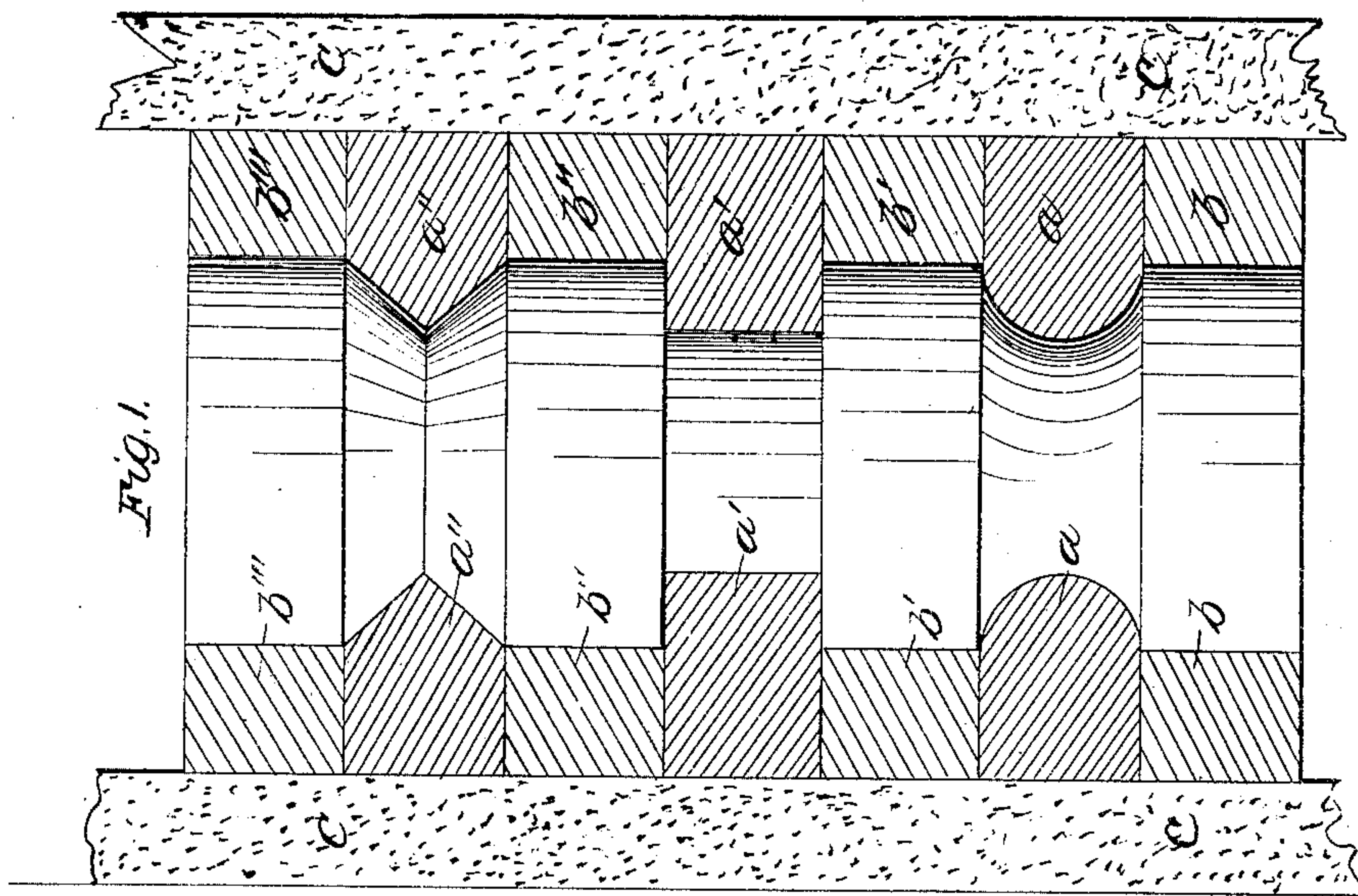


R. C. Totten,
Casting Rolls.
N^o 63,443. Patented Apr. 2, 1867.



Witnesses:
W. D. Lewis
J. G. Brown

Inventor:
Robert C. Totten
by Bakewell & Christy
his Attorneys

United States Patent Office.

ROBERT C. TOTTEN, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 63,443, dated April 2, 1867.

IMPROVEMENT IN MOULDS FOR CASTING GROOVED ROLLS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ROBERT C. TOTTEN, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Moulds for Casting Grooved Chilled Rolls; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section passing through the axis of the chill or mould; and

Figure 2 is a similar section, showing a different mode of construction.

Like letters of reference refer to like parts.

On the 26th day of September, A. D. 1865, Letters Patent of the United States, No. 50,187, were issued to me for an improved mode of "casting grooved rolls in metal moulds," which improvement consisted in casting grooved rolls in an iron chill having metallic beads or projections in its cavity, the particular mode of casting, as described in the specification affixed to said Letters Patent, being to place in the cylindrical cavity of an iron chill or mould a number of iron rings, of shape, mode of adjustment, &c., as therein described. The invention I am about to describe is an improved mode of constructing such chills or moulds for casting grooved chilled rolls such as are described in the said Letters Patent, and are in common use; the nature of which invention consists in the construction of concentric rings of angular, rectangular, or curved inner faces, corresponding, in number, size, and shape, to the grooves required in the chilled roll to be cast, and in the arrangement of such rings with other rings, or with a sand or other non-metallic mould for forming the cylindrical surface of the roll.

In order to enable others skilled in the art to make and use my invention, I will proceed to describe its construction and mode of operation.

The flask *c*, in both figures, is designed to represent a dry sand or other non-metallic mould of the ordinary construction, and is itself made in or provided with a box or frame or other similar device in common use, and is baked, if need be, or otherwise hardened. Of iron, or other known material commonly employed for such purposes, I make the concentric rings *a a' a''*, &c., in any desirable number, with their inner faces angular, rectangular, or curved, corresponding to the grooves desired in the roll to be cast, and of such thickness in the direction of their radii as may be necessary to secure the requisite strength, but always greater than the depth of the desired groove or grooves. I also make other rings, *b b' b'' b'''*, whose inner surface corresponds to the cylindrical surface of the desired roll, and in such number, and of such thickness in the direction of their axes as may be necessary to provide one or more for each end of the chill or mould outside the outermost groove required, and one or more for each interval between grooves, so that when cast the end of the roll and the intervals between grooves shall have a cylindrical shape of uniform diameter. The rings above described, *a a'*, &c., *b b'*, &c., I arrange alternately, as in fig. 1, or otherwise, as may be desired, so as to give a chill or mould whose inner surface shall correspond to the exterior surface of the roll to be cast. The ends outside the outermost ring I form in the usual way. The chill or mould thus made I pack in a sand-mould, *c*, or other outer mould of the usual form and material, in any manner already in general use, or fasten the rings described to each other by clamps, or by packing or enclosing them in a box or frame, or by other known mechanical device. The casting is then done in the usual way. When desirable, I employ a core or pattern of the shape and size of the desired roll, to aid in preparing the mould. Each of the rings above described I make either solid or in two or more pieces, as may be preferred, or may be necessary. If made in two or more pieces, the core or pattern is readily removed previous to casting, and the rings also are easily removed from the roll after the casting is complete. Commonly I dispense with the core or pattern, and in such cases sometimes make each ring in one piece, solid. To remove them from the roll after the casting is complete and the roll sufficiently cooled, I break them, without danger of injury to the roll, by driving a wedge or wedges into one or more holes drilled in their outer faces for that purpose. This mode of constructing a mould I vary sometimes by substituting sand for all or a part of the rings *b b' b'' b'''*, and thus making the chill or mould represented in fig. 2, which consists of the rings *a a' a''*, above described, and arranged as above set forth, but packed in sand. The sand thus packed between the rings, as at *d d' d'' d'''*, usually is a part of the outer sand or other non-metallic mould, *c*, which surrounds the rings *a a' a''* as before. This form of a chill or mould I make with a core or without, as may be preferred,

and the rings *a*, &c., solid or in two or more pieces, as above set forth. By this device the cylindrical surface of the roll is formed by the sand chill or mould *c d d'*, &c. When necessary, however, to keep the rings *a a'*, &c., in their places, either while moulding or afterwards, I employ set-screws or other similar device in common use, such set-screws being worked in the frame or box ordinarily employed in moulding. As those parts of the above-described roll formed by the rings *b b'*, &c., are sometimes made of different diameters or of conical shape, I change, in such cases, the shape of the inner face of such rings to correspond thereto; or, if the form of mould shown in fig. 2 is used, I make the parts of the sand-mould marked *d d'*, &c., to correspond to such desired form.

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

A series of metallic rings, each ring made in one or more pieces, with angular, rectangular, or curved inner faces, for forming the grooves of a grooved chilled roll, such rings being packed in a mould made of sand or other non-metallic composition, or arranged substantially as described, with other rings, which form the cylindrical surface of the mould, the construction being substantially as above set forth.

In testimony whereof I, the said ROBERT C. TOTTEN, have hereunto set my hand in presence of

ROBT. C. TOTTEN.

Witnesses:

A. S. NICHOLSON,
GEORGE H. CHRISTY.