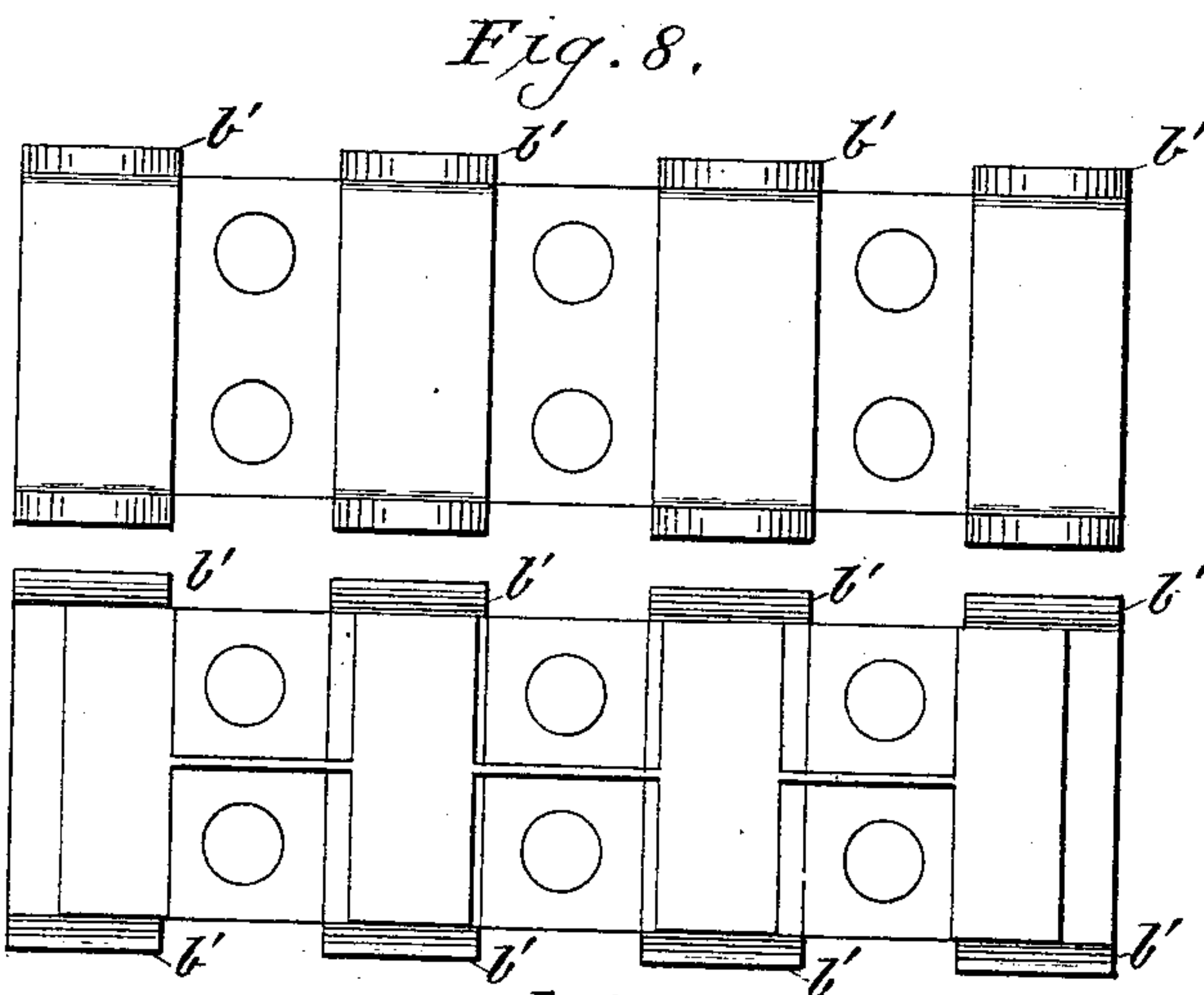
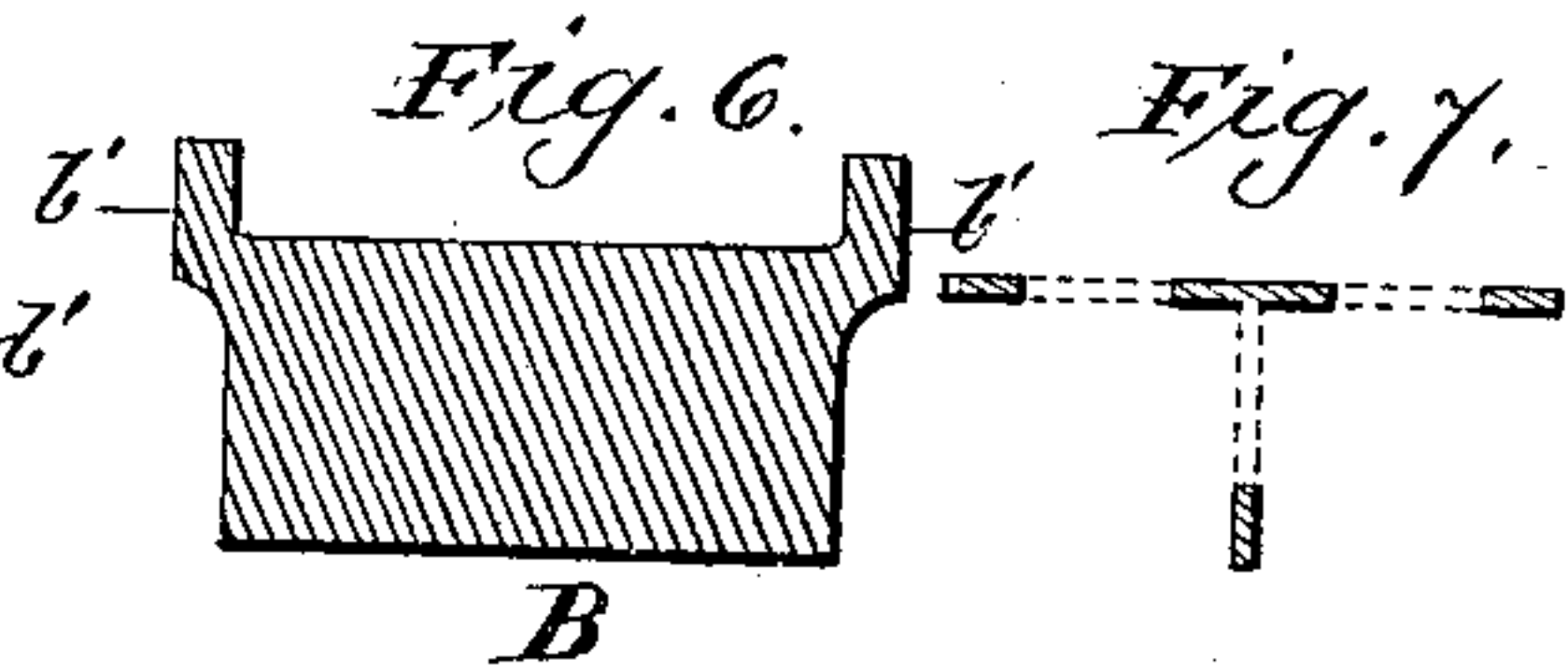
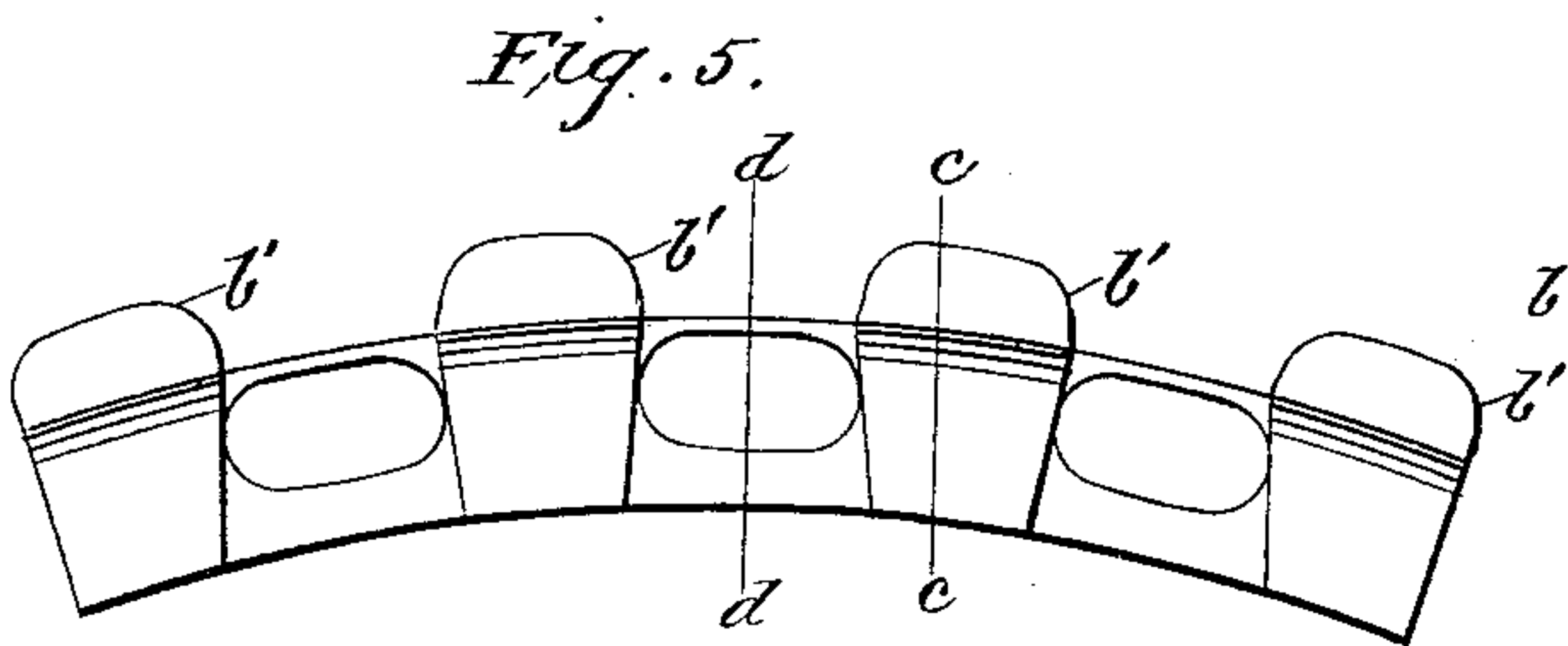
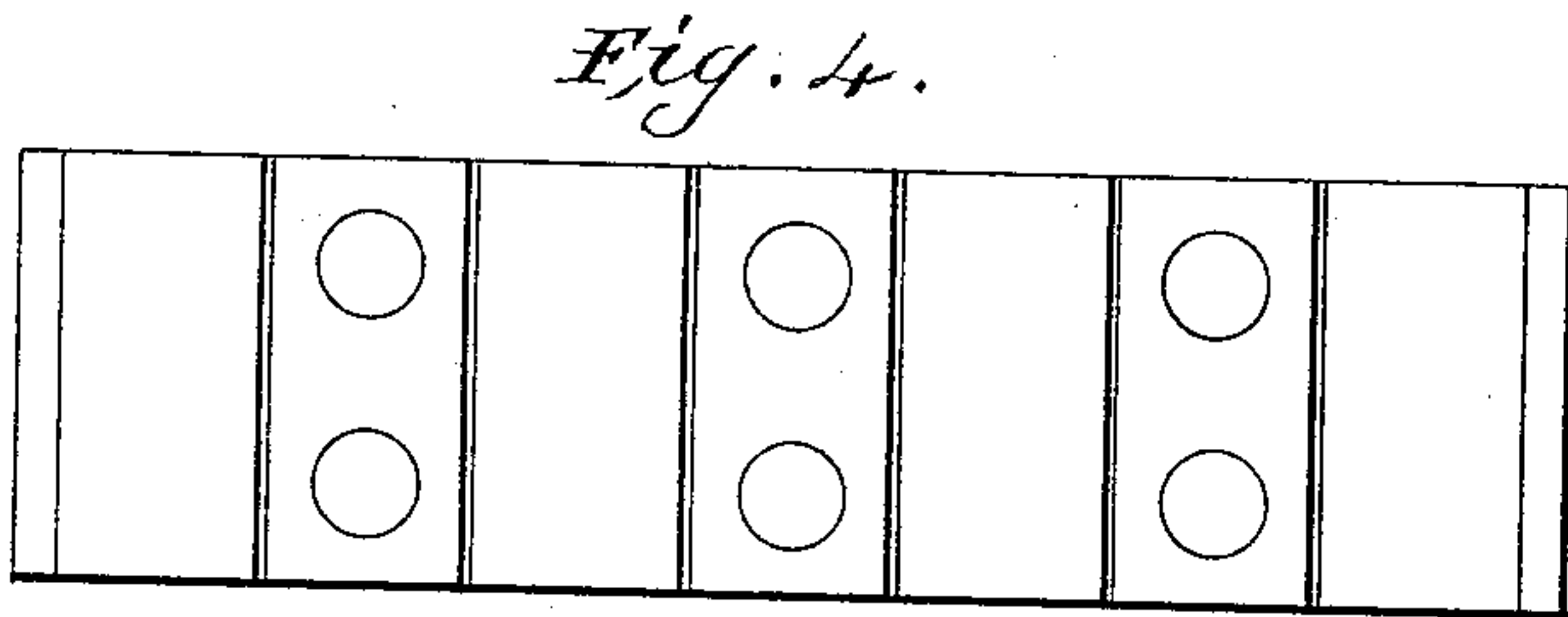
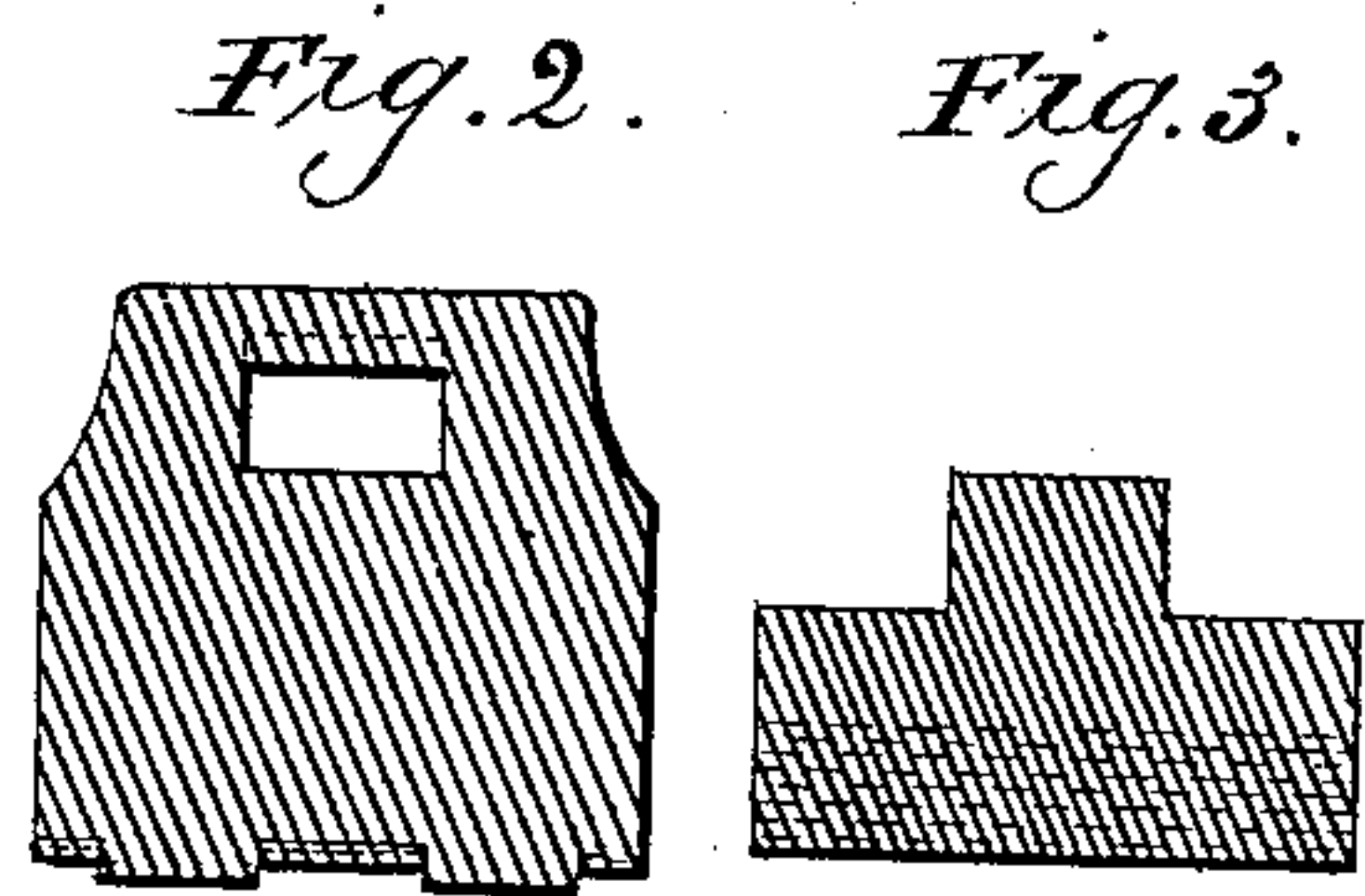
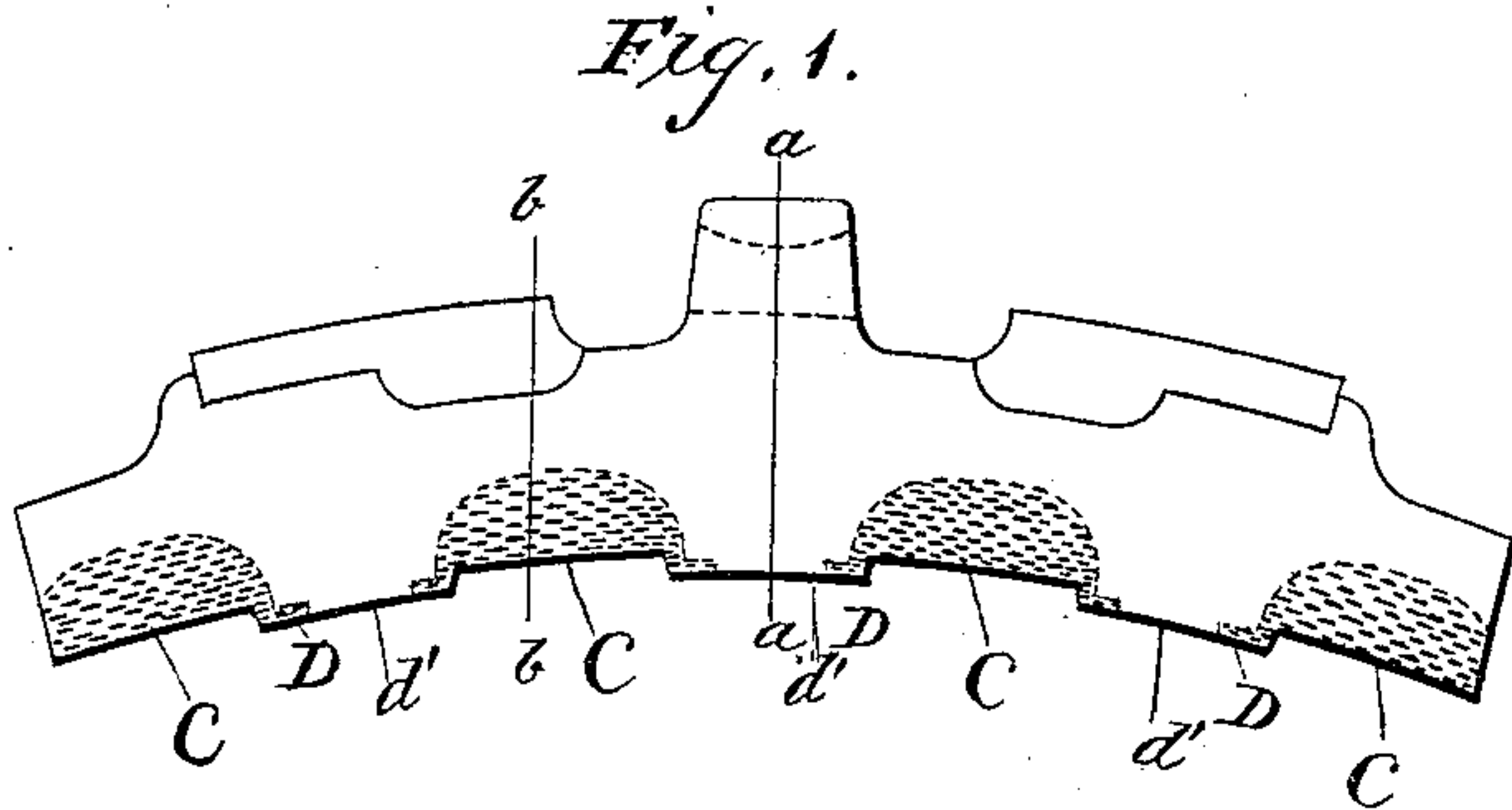


(No Model.)

J. J. LAPPIN.
BRAKE SHOE.

No. 329,459.

Patented Nov. 3, 1885.



Witnesses
Thos Woodbridge
W. T. Woodbridge.

Inventor
John Joseph Lappin
by his atty
William Gill.

UNITED STATES PATENT OFFICE.

JOHN JOSEPH LAPPIN, OF TORONTO, ONTARIO, CANADA.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 329,459, dated November 3, 1885.

Application filed March 2, 1885. Serial No. 157,522. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOSEPH LAPPIN, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Brake-Shoes for Railway-Car Wheels and other Car-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same.

10 This invention relates to that class of brake-shoes which are made of cast metal, having chilled portions in the face thereof for the purpose of increasing the durability of the shoe and to prevent the skidding of the wheels.
15 In the previous patents obtained by me for improvements in brake-shoes, the first of these, being for the Dominion of Canada, bearing date July 11, 1883, and numbered 17,213, had chilled portions across the face of the shoe,
20 and of about a uniform depth in the shoe. The second patent, being for Great Britain, bearing date January 24, 1884, and numbered 2,056, had also chilled parts across the face of the shoe and of about a uniform depth in the
25 shoe. The third patent, being for the United States, bearing date February 5, 1884, and numbered 292,827, having the chilled parts straight across the face of the shoe, and the chilled parts about a uniform depth therein.
30 A fourth patent, for Canada, bearing date November 29, 1884, and numbered 20,858, has chilled parts only partially across the face of the shoe.

35 In the present application I cover nearly the full face of the shoe with chilled metal. Certain portions of the face are chilled about the depth of seven-eighths of an inch, the other portions being chilled only about one-eighth of an inch deep. The thinner chilled
40 portions have each two circular veins of soft metal passing through the chill and slightly projecting therefrom. The object to be obtained by this mode of construction is that these soft portions will act first upon the wheel
45 and wear down to a fit thereon before the thinned chilled parts come to act on the same; and when these thinner portions come into action they will wear down until the thicker chilled parts come into action, thus allowing
50 the thicker chilled portions to come more gradually into action than in my previous pat-

ents, and when both the thick chilled portions and the soft unchilled portions come into action the action of the one will modify the action of the other in proportion to the area of the respective surfaces of the same, and from my process of chilling, hereinafter described, I simplify and lessen the cost of the shoe.

In the accompanying drawings, Figure 1 is a side view of the shoe. Fig. 2 is a cross-section of the same through the line *a a* in Fig. 1. Fig. 3 is a cross-section through the line *b b* in Fig. 1. Fig. 4 is a face view of the shoe. Fig. 5 is a side view of the chill. Fig. 6 is a cross-section through the line *c c* in Fig. 5. Fig. 7 is a cross-section through line *d d* in Fig. 5. Fig. 8 is a face view of the chill, and Fig. 9 a back view of the same.

Similar letters of reference indicate the same parts in all the views, as in this specification.

A represents the brake-shoe; B, the chill, which I use in molding the shoe; C, the thick chilled parts in the face of the shoe; D, the thin chilled parts in the same; *d'*, the unchilled parts in the middle of the thin chilled parts, and which project through the same; *b'*, the projections on the ends of the chill, which pass up the side of the shoe-pattern when molding the shoe, to prevent the chill moving out of its position during this process.

80 It will be observed that the several chills used in the molding of the shoe are in this case united together in one piece and fit accurately on the face of the shoe-pattern, and that in each of the thin chilled parts D there are two apertures, which produce two veins of unchilled metal, which project through the thin chilled parts, and which soft projecting parts are the parts which come first in contact with the car-wheel in operating the brakes. The shoe being molded from the several chills united in one piece, is a further simplification in the molding of the same, and is therefore an improvement in the manufacture of my shoe. These unchilled parts in the face of the thin chilled parts, already referred to, first wear down to an exact fit on the face of the wheel, when the thin chilled parts come in contact therewith, which also wear down to an exact fit, and wear down until the thick chilled parts come into action on the wheel, the object being attained of the thick chilled

parts coming more gradually into action on the face of the wheel.

The process of molding my shoe in the foundry, though somewhat similar to that in my prior patents, I will now describe. The shoe-pattern is laid on a follow-board, the face of the pattern uppermost. The chill, which in this case is in one piece, is placed on the face of the pattern. A mold-box is now placed on the follow-board, and sand filled therein and rammed carefully and packed in the usual way between the open parts of the chill and around the same, and filled to the top of the box and smoothed off, when a bottom board is placed thereon and clamped and turned over. The follow-board is now removed, and the cope or upper half of the box placed on the lower half and filled with sand and rammed, and the gate for the molten metal formed in the ramming thereof. The gate-pin, from which the gate is formed, is now removed, and the cope or upper half of the box taken off, and the pattern carefully removed out of the sand and from the chill without disturbing the same, which remains in the sand with its face uppermost. The mold being now complete, the cope is replaced on the box and securely clamped, due attention having been given to the ventilation of the mold. The molten metal is now poured therein, and will

rest on the face of the chill, completing the process, the shoe being cast face down, so that the inferior metal will rise to the top and form the back of the shoe, and the purer metal fall to the bottom and form the face thereof.

I do not limit myself to the number of thick chilled parts, or thin projecting chilled parts, nor to the definite depth of the chilled parts, as these are regulated from time to time as circumstances may require; nor do I limit myself to a smooth-faced shoe or to a shoe with projecting parts thereon—that is, with or without strips on the face of the shoe.

Having thus described my invention, I claim—

A brake-shoe, A, constructed with thick chilled parts and thin projecting chilled parts, alternately, in the face of the shoe, the thin chilled parts having one or more circular veins of soft metal projecting through the chill and cast with the face down, thereby providing for the coarse and inferior metal rising to the top and making the back of the shoe, and the pure metal to fall to the bottom and make the face thereof, substantially as described, as a new manufacture.

JOHN JOSEPH LAPPIN.

Witnesses:

THO. WOODBRIDGE,
W. T. WOODBRIDGE.