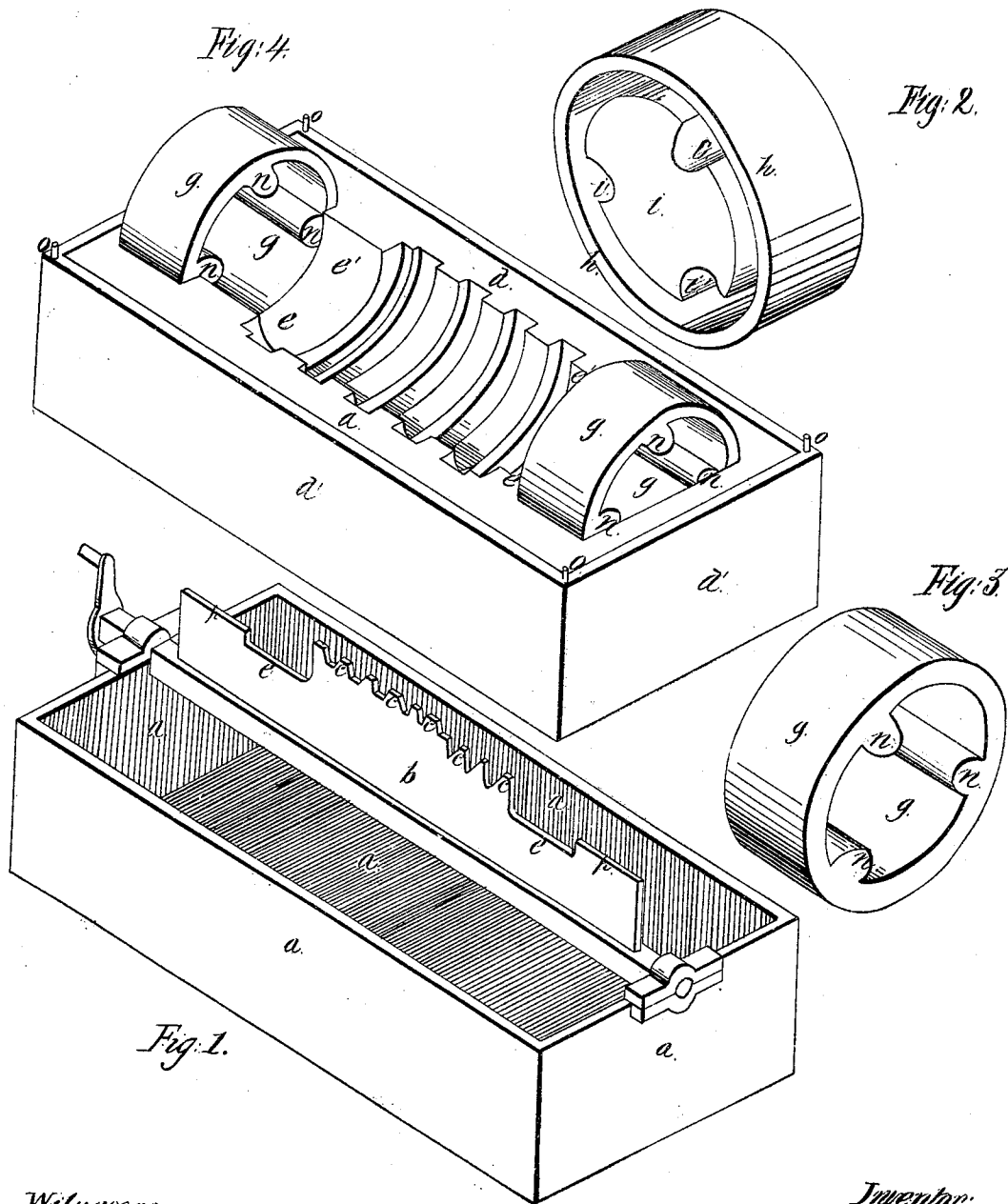


R.C. Totten,

Casting Rolls.

No. 87,805.

Patented Mar. 16, 1869.



Witnesses:
W.D. Lewis
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Inventor:
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his Atty.

United States Patent Office.

ROBERT C. TOTTEN, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 87,805, dated March 16, 1869.

IMPROVEMENT IN CASTING 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 the city of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Moulds for Casting Roll-Couplings; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a perspective view of a moulding-box and sweep, such as I use in making a sand-mould for casting rolls;

Figure 2 is a perspective view of the core-box and core, in which I make a mould for casting the necks, or, as they are sometimes called, the couplings of the roll;

Figure 3 shows, in perspective, the mould made in the core-box represented in fig. 2; and

Figure 4 is a perspective view of a flask, one-half of a sand-mould for casting a roll, and the coupling-moulds shown in fig. 3, in place, in each end of the sand-mould.

Like letters of reference indicate like parts in each. In making moulds for casting rolls, considerable difficulty is experienced in shaping that part of the mould in which the necks of the rolls are to be cast, since, while the body and journals of the rolls are to be of cylindrical shape, the necks to receive the coupling-boxes must be notched, or grooved lengthwise of the roll, so as to be keyed to the gearing, or to the other rolls, as may be desired. Hence, the moulds for the necks are usually made separate from the mould in which to cast the rest of the roll, and, like it, are made in halves; but it has been found difficult to make such half-moulds the exact counterparts of each other, and equally difficult to connect them with each other and with the mould for the body of the roll, so that the axes of the two shall in every case form a straight line, and also so that the grooves, or key-seats, shall have the same arrangement in the necks, or couplings, of continuous rolls, with reference to each other, or with reference to the coupling-boxes by which they are to be coupled together.

To overcome these difficulties, I have devised a new mode of making the neck, or coupling-moulds, and connecting them with the mould for the body of the rolls, so that the axes of the two moulds, when the casting is done, shall form a straight line; and

The nature of it consists in the construction and use of a mould-box and core, in which to make the coupling-mould, and in so making the mould for the body of the roll that the two moulds may be connected together and furnish a single mould, of a straight, axial line; and also in so making the sweep, by which is formed the face of the mould for casting the roll, that it shall sweep out a cavity, or cavities, in which to centre the neck-cores, or moulds.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and manner of use.

a is a mould-box, or trough, in which I make each

half of a sand-mould, shaping the face of the mould by a revolving sweep, *b*.

The teeth, or projections, *c*, on the face of the sweep *b* are designed to groove the inner face of the mould with such arrangement of grooves as may be desired in the roll.

Such a mould is shown at *d*, fig. 4, in its flask, *d'*.

Near each end of the sweep *b* are narrow portions, *e*, which form those parts of the mould, *e'*, fig. 4, against which are cast the journals of the rolls.

But at the ends, *f*, the sweep *b* is broader, so as to sweep out a cylindrical cavity of a diameter somewhat longer than that of the necks to be cast.

Such cylindrical cavities, in fig. 4, are occupied by neck-cores, *g*, made as yet to be described.

h is a circular core-box, the inner face of which is equal in diameter to the exterior diameter of the core *g*.

Inside of this, with axes in the same line, I place a core, *i*, which is of the size and shape to be given to the necks, otherwise called couplings, of the roll to be made, including the grooves *i'*, by which the roll is to be keyed to the gearing, &c.

In the cavity between the core-box *h* and grooved core *i*, I make a core, *g*, shown in fig. 3, with projections, *n*, against which are cast the grooves in the necks of the rolls.

Such moulds, after being properly baked, or otherwise hardened, I remove from the core-boxes, and place them in the cylindrical cavities made in the mould, as shown in fig. 4.

The counterpart of the mould and flask are then placed in position, united by dowels, *o*, and, after being properly secured, in any convenient way, the casting is done in the usual manner.

One of the chief advantages connected with my improvement, is the ease and accuracy with which the neck-moulds can be made and centred in the moulds for casting the roll. If the work be done with the least care, the axes of the moulds *g a* must form one straight line.

I do not wish to confine myself to any particular shape in which to make the cores *g*, since they must conform externally to the shape of the cavity formed by the broad part of the sweep *b*, and, on their inner face, to the outer face of the desired neck, and of course the shape of the core-box *h* and core *i* may be correspondingly varied. Nor, in making the core-box and core *i*, do I limit myself to any particular material.

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

Making the coupling-neck of cast rolls by means of a single core, *g*, inserted into a suitable cavity in the mould, substantially as hereinbefore described.

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

ROBT C. TOTTEN.

Witnesses:

A. S. NICHOLSON,
G. H. CHRISTY.