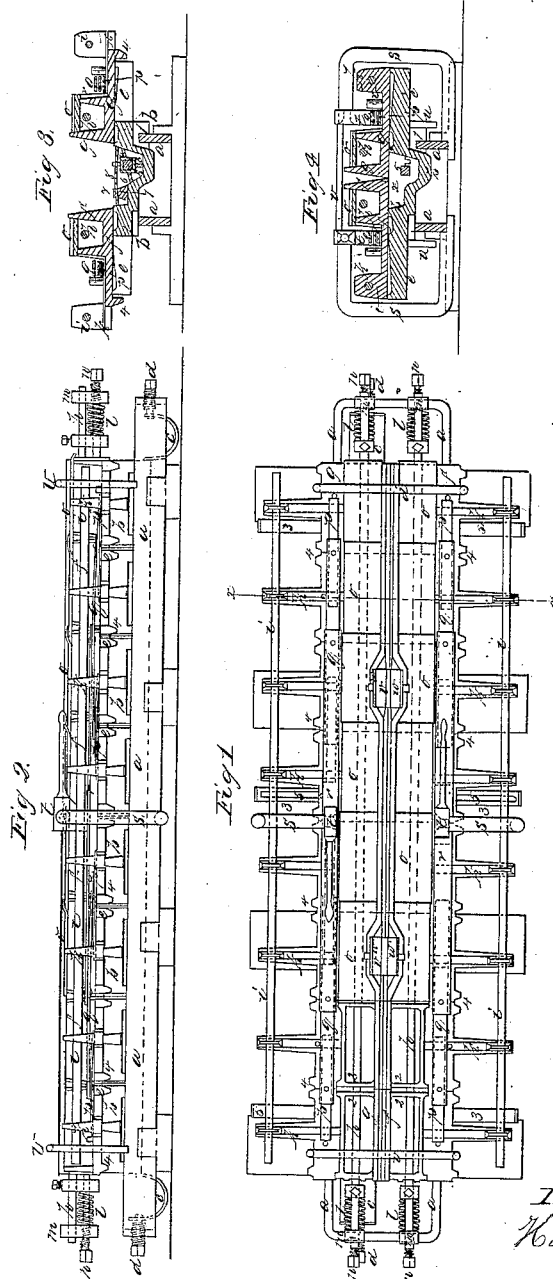


H. Jenkins,
Casting Railroad Bars.

N^o 50,362.

Patented Oct. 10, 1865.



Witnesses,
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UNITED STATES PATENT OFFICE.

HENRY JENKINS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MOLDS FOR CASTING RAILROAD-BARS.

Specification forming part of Letters Patent No. **50,362**, dated October 10, 1865; antedated September 27, 1865.

To all whom it may concern:

Be it known that I, HENRY JENKINS, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Molds for Casting Railroad-Bars or other Long Articles; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan or top view of my molds. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse vertical section of the mold open; and Fig. 4 is a similar view of the mold when closed, taken at the line *x x*, Fig. 1.

Similar marks of reference denote the same parts.

The nature of my said invention consists in a series of metallic sections formed and set together in such a manner as to produce a mold of any desired length that will remain true and straight, regardless of the expansion and contraction resulting from casting into such mold molten iron or other metal.

My molds are particularly adapted to casting railroad rails or bars, but may be applied to the casting of other articles.

In the drawings, *a* is a metallic bed formed of longitudinal bars set up edgewise and connected together at the ends. Upon the upper edges of these bars *a a* the mold is received.

b b are the various sections forming the mold or one side of said mold. Each section is provided with a notch setting over the edge of one of the bars *a*, as at 1, Fig. 3. The other side of the section rests upon the edge of the opposite bar *a*, so that the molds are free to expand in width; but they are all kept in line by the notches at 1 1. The length of each section *b* is to be such that the expansion and contraction will not perceptibly change its shape, and the adjacent edges of the molds are made true and square, so as to set closely together.

I make use of a spring, *c*, at each end of the frame *a*, compressed by a screw, *d*, which spring yields as the molds expand in use and press the sections closely together, so as to keep the joints tight when contraction may take place.

I have represented the bottom portions, *b b*, of the mold of a shape adapted to the formation of a railroad-bar. The sections *b b* have arms *ee*, extending outwardly from them, so as to support the sections *ff* and *gg*, forming the top portion of the mold. These sections *ff* and *gg* are made of a length corresponding to the sections *b b*, and are to be formed with flanges on their upper surfaces, as at 2 2, through which a rod or rods, *h*, pass, so as to hold the sections correctly in line with each other, but allow of expansion or contraction. The molds or sections *ff* and *gg* are further guided and connected by rods *i i*, passing through the ends of arms *k k*, these rods *i i* being specially employed in drawing the sections *ff* and *gg* apart to open the mold. The respective sections *ff* and *gg* are pressed together, so as to keep the joints tight, by spring *l*, acting to draw the nut *m* and screw *n* toward the said molds at each end; and said screw *n* takes at its end against the end sections, *f* or *g*. (See Fig. 2.)

In order to cover up the sections *ff* and *gg* and prevent any metal that may be spilt obstructing any of the parts, I employ covering-plates *o*, lapped over each other, similar to shingling. (See Figs. 1 and 2.) In Fig. 1 a portion of these plates is shown as removed to represent the sections of the molds more clearly. The sections *ff* and *gg* are moved toward or drawn from each other, as aforesaid; and 3 3 are arms with lips to prevent the molds being drawn back too far, and lugs 4 4 on *f* and *g* prevent either mold being shoved too far by taking the edges of *b*. Slots in two of the arms 3, as at 5, taking pins on the under side of the sections *f* and *g*, prevent end motion to either range of molds.

It is necessary that the molds *ff* and *gg* be clamped to the molds *b b*, and this should be effected quickly and in a manner easily performed, even when the molds are very hot. I effect this as follows: Each arm *k* forms a rest for a series of lever-clamps. The clamps *p p* extend from one arm to the next alternating, and are connected at their middle portions by bars *q*, which again are connected by the bars *r*, to the middle of which pressure is applied by a yoke, *s*, passing below the frame *a*, (see

Figs. 1 and 4,) at the end of which yoke is a cam, *t*, and lever to press on the bar *r'*, and by the series of lever-clamps aforesaid the same amount of pressure is applied to each mold-section to clamp it to the section *b*. Yoke-bars are to be applied at each end, or as often as required, as at *u*, to keep the molds *f* and *g* closely together.

v v are pouring holes or sprues formed between *f* and *g*, and I apply movable plates *w* to the faces of these sprues *v*, which are easily removed and replaced in cases where the metal adheres to their surfaces; and I prefer to rub over the surfaces of such plates plumbago or other material, to prevent the molten iron adhering.

The devices employed by me for holding a wrought-iron bar, 5, in place while I cast iron around it, are shown in Fig. 3. In this figure, 6 6 are wires twisted around the bar with their ends taking the mold, so as to prevent the bar being moved sidewise by the pressure of the molten iron. Small iron arms on a ring receiving this bar 5 may be employed to keep said bar 5 in its place instead of the twisted wire. *xx* are end pieces filling the mold at the ends of the bars, and mortised to pass the rod or bar 5.

To form holes for screws or spikes in the bar and avoid boring the same after it is cast, I employ metal core-studs 7 7, each formed with a notch through which a wire, 8, is passed, the ends of which, taking the insides of the mold, steady said core-studs, and said core-studs are easily knocked out when the bar has cooled,

the wire remaining in the bar, and may be cut off.

This mold may be made in two ranges of sections instead of three, if the rail is cast with the edge upward, in which case the separate sections will be supported vertically from the frame *a* instead of flatwise.

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

1. A series of metallic sections connected together in substantially the manner specified, so as to form a continuous mold that will allow for expansion and contraction without changing the shape or accuracy of the molds, as set forth.

2. The spring *c* or its equivalent at the ends of the frame, to press the sections closely together and permit the longitudinal expansion of the molds or sections while in use, substantially as specified.

3. The bars *h* connecting the sections *f* or *g*, and fitted with springs to press said molds together, substantially as specified.

4. The clamping-bars *p q r*, applied in the manner specified, to press the sections of the mold together with uniform force, as specified.

5. The movable plates *w*, applied to the faces of the pouring holes or sprues, as specified.

6. The metal core-studs 7 7, sustained by the wires 8, and forming the spike or screw holes in the cast railroad-bar, as specified.

Dated this 11th day of February, 1865.

Witnesses: HENRY JENKINS.
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