

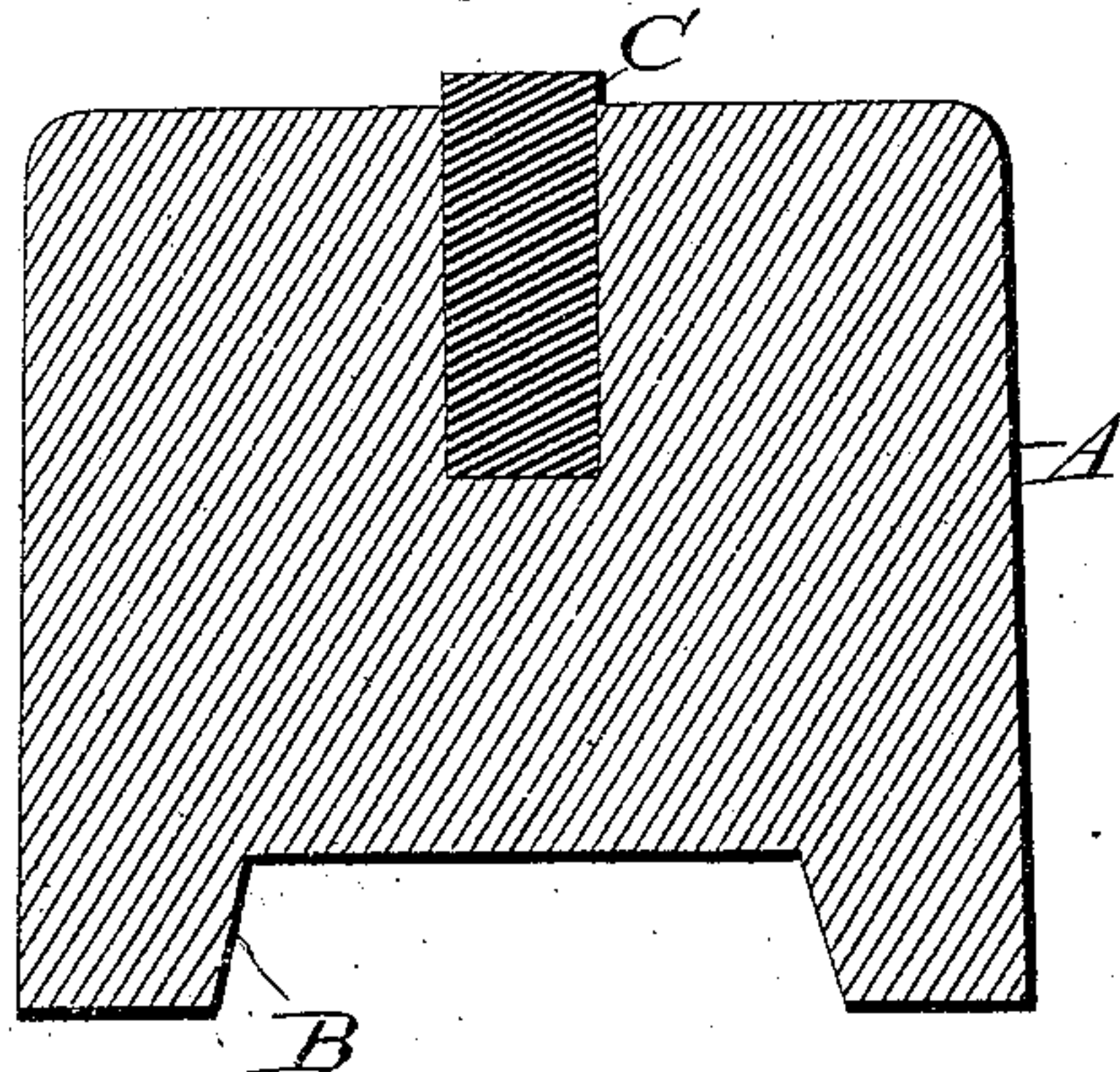
No. 852,000.

PATENTED APR. 30, 1907.

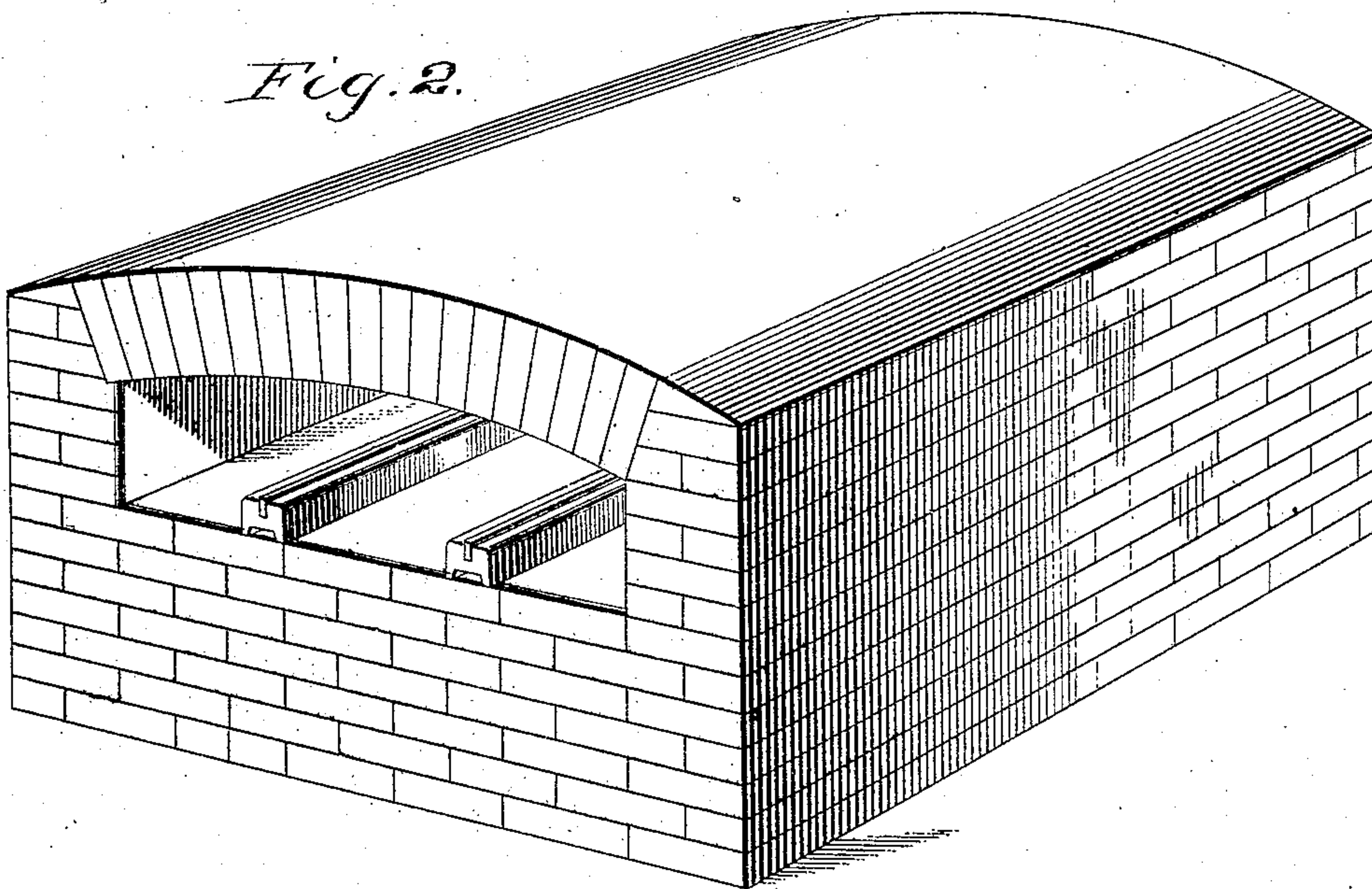
M. SKLOVSKY.  
FURNACE RAIL.

APPLICATION FILED FEB. 27, 1905.

*Fig. 1.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## FURNACE-RAIL.

No. 852,000.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed February 27, 1905. Serial No. 247,589.

*To all whom it may concern:*

Be it known that I, MAX SKLOVSKY, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Furnace-Rails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to furnace-rails, used in "continuous" heating furnaces, in which ingots, blooms, or other blanks are charged at one end of the furnace, and are gradually and usually intermittently urged forward, passing through the furnace, and discharged at the opposite side in a properly heated condition for working. In order to support the material as it passes through the furnace, two or more rails are usually laid upon the floor thereof, or above the bottom of the furnace, extending from end to end of the heating-chamber. The material is placed on these rails and slides upon them during its passage from the cool to the heated state. Prior to my invention, the rails generally used for this work were what are known as "pipe-rails," comprising hollow pipes or tubes through which a stream of cold water was continuously passed to prevent the burning up of the rail. These were objectionable and disadvantageous for many reasons. First, it was tedious and expensive, when putting in new rails, to adjust them to their proper places and to make all the water-connections. Special means were required for holding them in place, thus increasing the expense of installation, besides the cost of the pipe itself. Furthermore, even with the cold water passing continually through the pipes, they would warp more or less and wear out, and when worn through the water would escape into the furnace and make trouble. There was a large amount of labor involved in taking out and replacing the rails, and when in position they were comparatively short-lived, because a slight break or hole in a pipe would necessitate the discarding thereof. The almost constant attention of a steam-fitter was necessary, to keep the pipe-connections in good order, and regulate the flow of water so as to prevent the pipes from becoming emptied and getting red hot and

thereby exploding when the water was suddenly let into them and turned into steam. Moreover, the use of these pipes caused "cold streaks" to show in the material at the lines of contact thereof with the rails, where the material could not be heated. A great deal of the heat of the furnace was also carried off by the water, thus reducing the economy of the work.

The main object of my invention is to obviate these troubles and disadvantages, by providing the furnace with simple, economical, practicable and lasting furnace-rails of metal, wherein the bearing surfaces for the material or the rail proper are effectively protected from warping and deterioration, and which when eventually worn may easily be taken out and replaced by new rails at a comparatively low cost. This is accomplished by means substantially as illustrated in the accompanying drawings, which form a part of this specification.

The invention will be fully described with reference to said drawings and then particularly pointed out and defined in the appended claims.

In said drawings: Figure 1 is an enlarged cross-section of a furnace-rail embodying my invention. Fig. 2 is a perspective view, showing a furnace equipped with the improved rails in place therein.

The letter A denotes a comparatively large or heavy cast-iron bar, preferably substantially square in cross-section, constituting a bed-member of the furnace-rail, and of length commensurate with that of the heating-chamber, though several sections A may be used laid end to end if desired. The bar is shown with a longitudinal channel B along its under side, and it rests on this channeled side, either flat upon the floor or otherwise suitably supported above the bottom of the furnace; the weight of the bar serving to keep it in place, though it may be clamped if desired. The bar may be made of various shapes; though the cross-section shown has been found in practice a shape that will give good results. In its top, the bar is formed with a longitudinal groove in which is embedded the rail proper C, the latter being preferably of steel and presenting a surface or bearing to receive the material which is slightly above the top surface of the inclosing cast-iron jacket or protector. This groove is



comparatively deep and narrow, and in practice is planed out to secure an accurate fit of the rail C, which is comparatively high and narrow, and projects but slightly above the upper surface of the bar to provide the said bearing surface. Thus the cast-iron bar A practically constitutes a jacket for the steel rail C, surrounding it upon three sides, and largely protects the latter from warping and becoming useless. The rail forms a desirable surface on which the material slides easily from one side or end of the furnace to the other.

While of course this rail will not last forever, yet it lasts so long that it is far more economical, enduring and satisfactory than the water-pipe-rail, and is practically free from warping. There is no labor involved in renewing the rails, as the old rails have to be simply lifted out and new ones set in place, being there clamped if desirable. No water-connections are necessary, and no corresponding labor in making these connections, and no expense of continual attention from a skilled steam-fitter.

A vital advantage of this improved rail is, that when the work is moved along over it there are no "cold streaks" left where the work contacts with the rails. Where water-pipes are used, the work does not heat where it contacts with the pipes, and cold streaks are left upon the stock that is heated. In the present construction, the rail assumes the same temperature as the stock, and hence there are no cold streaks left on the material. Another advantage is that with the metal

rail no heat of the furnace is carried off, as is the case with water-cooled pipe-rails, and therefore the economy of the work in practice with the present rail is much greater. Again, this rail is adjustable horizontally and angularly, so as to be adapted to different lengths of work instantaneously. With the old pipe rails all the connections had to be changed. Of course the present rail is entirely free from the danger of explosion, which danger was always present in the old pipe rail.

The cast-iron bars or bed-rails are preferably left rough with the molding sand on them, and this protects them in a degree from the deteriorating influence of the furnace heat.

Should the cast-iron rail break or crack, the embedded steel rail would hold the parts effectively together.

I claim as my invention, and desire to secure by Letters Patent of the United States:—

A compound furnace-rail comprising a heavy cast-iron bed-member having a deep longitudinal groove along its upper side and a comparatively narrow steel rail fitted and embedded in said groove and having its bearing edge slightly above the surface of said bed-member.

In testimony whereof I affix my signature, in presence of two witnesses.

MAX SKLOVSKY.

Witnesses:

CHAS. H. POPE,  
F. D. HOLT.