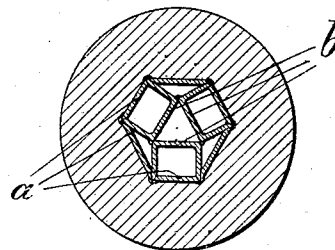
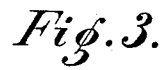


928,768.

*Fig.1.*



Inventor:  
Hugo Keitel

# UNITED STATES PATENT OFFICE.

HUGO KEITEL, OF DUSSELDORF, GERMANY, ASSIGNOR OF ONE-HALF TO THE FIRM OF MOMBERGER & CO., OF DUSSELDORF, GERMANY.

## ROLLING-MILL.

No. 928,768.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed November 25, 1907. Serial No. 403,722.

*To all whom it may concern:*

Be it known that I, HUGO KEITEL, a subject of the German Emperor, and resident of Dusseldorf, Germany, have invented certain new and useful Improvements in Rolling-Mills, of which the following is a specification.

By the employment of hard cast rolls in rolling mills, the drawback occurs that the same do burst under high strain owing to their hardness. Now, the present invention provides an improved method of, and device for, preventing these hard rolls from bursting.

On the accompanying drawing, a cast roll constructed according to this invention is shown in sectional elevation in Figure 1, while Figs. 2 to 5 are cross sections through the roll on the line A—B of Fig. 1, showing different kinds of insertion embodying this invention.

The improved method, and device, consists in that several flat iron or steel bars *a*, or figured iron or steel bars *b*, are by a suitably autogenous welding process, connected in such a manner that they leave one (see Figs. 1 to 4) or several (see Fig. 5) hollow spaces between them.

In the constructional form shown in Figs. 1 and 2, for instance four T-irons, in that shown in Fig. 3 three T-irons, in that shown in Fig. 4 four H-irons, and in that shown in Fig. 5 three U-irons and flat iron bars, are connected. The roll is now cast around one of these insertions so that the latter form a rigid core or skeleton for the rolls which on one hand efficiently prevents bursting of the

rolls and on the other hand allows of a cooling medium such as air, water, or the like, being led through the hollow spaces of the insertion to temper the interior of the rolls, especially also during the casting process.

The insertions which may, if necessary, be shaped narrower on the ends, are made so long that they reach into the trunnions of the roll thus serving also to increase the stability of the latter.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

1. A hard cast roll for rolling mills, comprising in combination, the roll with its trunnions, and rigidly connected metal bars longitudinally disposed in the interior of said roll and so arranged as to form spaces between them, for the purpose set forth.

2. A hard cast roll comprising in combination the roll with its trunnions and a skeleton of several metal bars welded together and disposed within the roll and projecting into the trunnions of the same.

3. A hard cast roll comprising in combination the roll with its trunnions, and a skeleton of several metal bars welded together and extending longitudinally of the roll, the bars so arranged as to leave spaces between them.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HUGO KEITEL.

Witnesses:

CLEMENS HICKMANN.  
WILHELM FLASCHE.