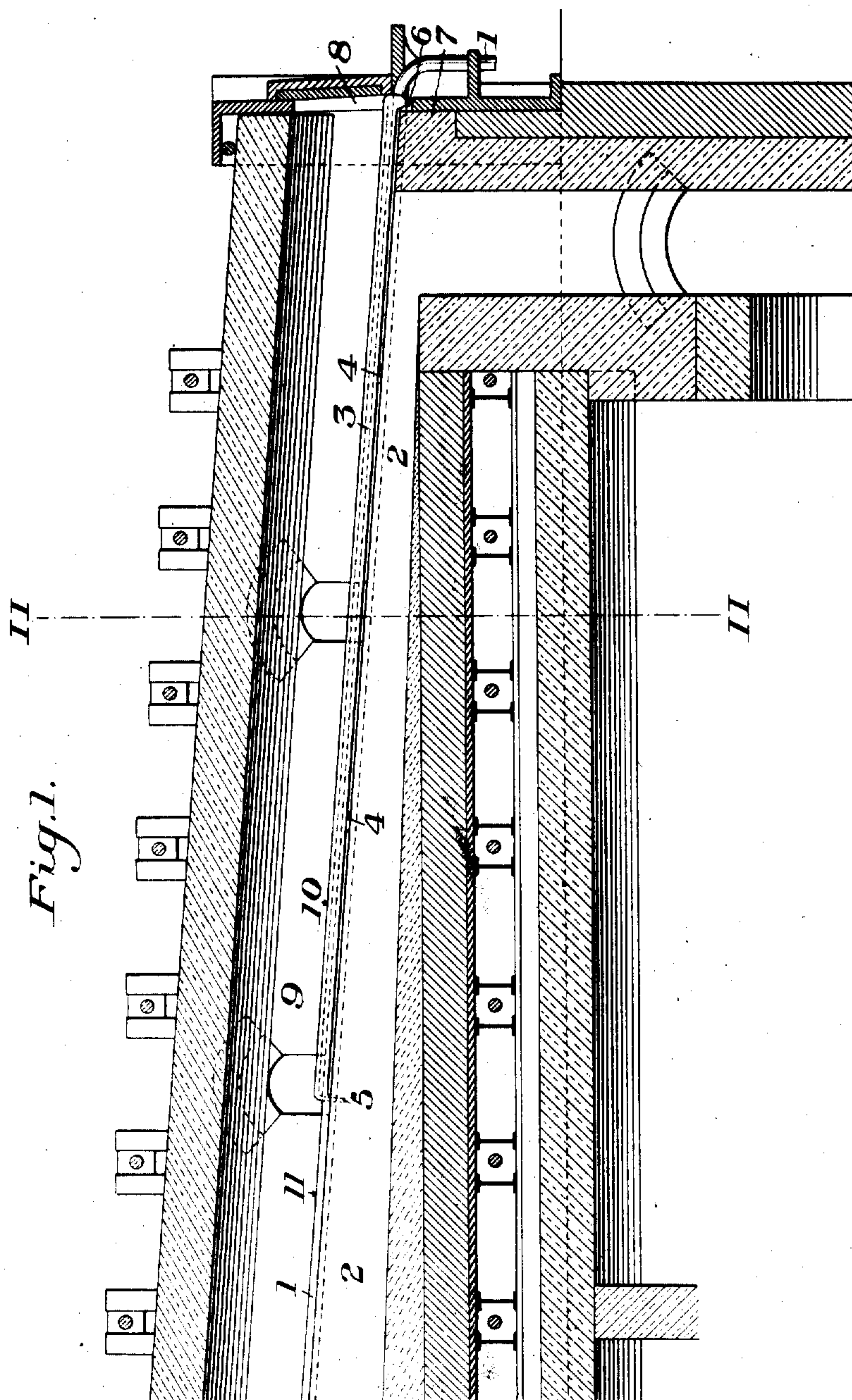


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2 SHEETS—SHEET 1.



WITNESSES

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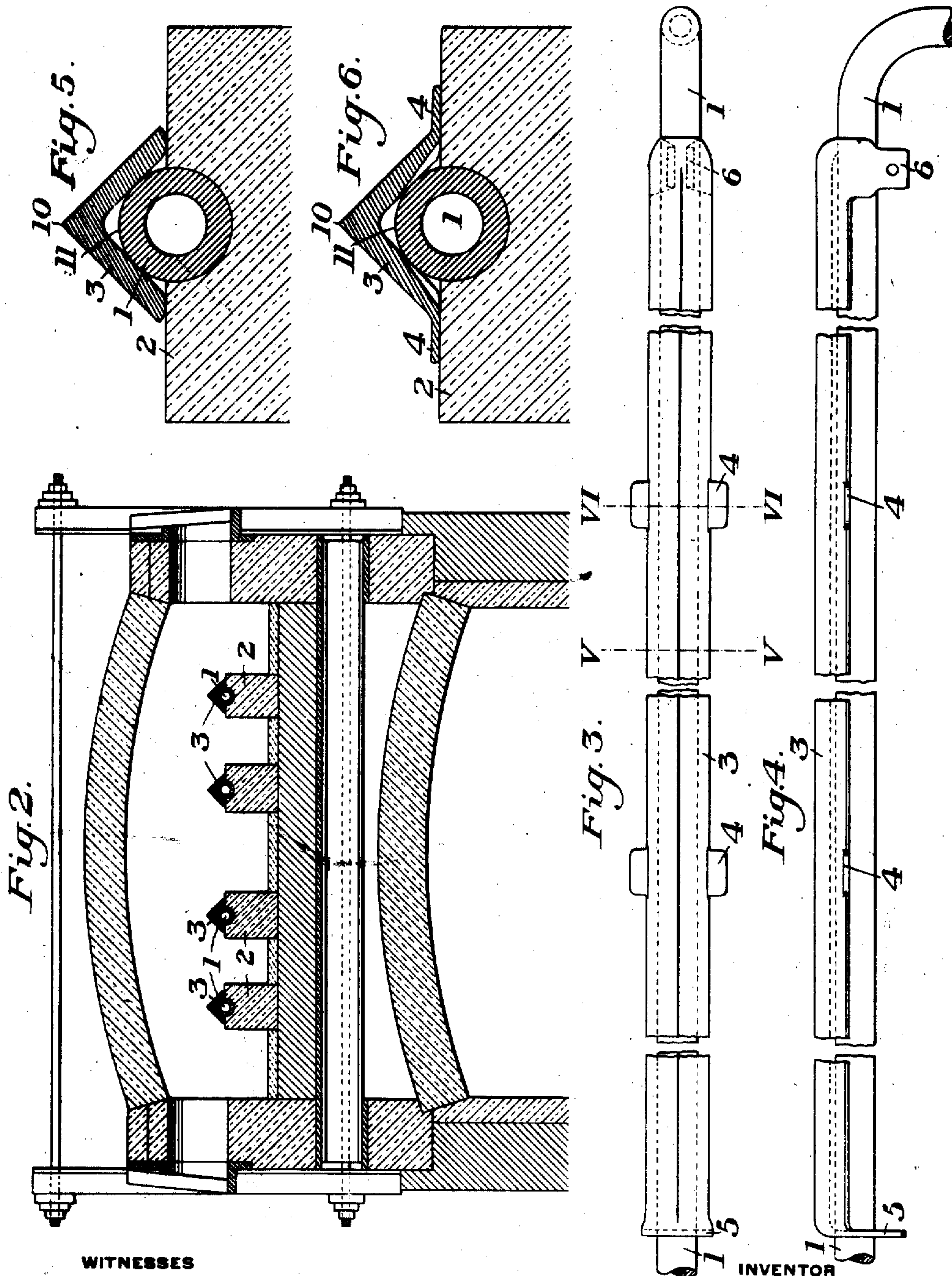
INVENTOR

David Davis,
by *Baker, Byrnes & Carmelee*,
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UNITED STATES PATENT OFFICE.

DAVID DAVIS, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN STEEL & WIRE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

CONTINUOUS HEATING-FURNACE.

No. 901,230.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed March 7, 1908. Serial No. 419,710.

To all whom it may concern:

Be it known that I, DAVID DAVIS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Continuous Heating-Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a partial vertical longitudinal section of the heating furnace; Fig. 2 is a section thereof on lines II—II of Fig. 1; Fig. 3 is a detail top plan view of my construction partly broken away; Fig. 4 is a side elevation; and Figs. 5 and 6 are sections on the lines V—V and VI—VI respectively of Fig. 3.

20 In continuous heating furnaces it is customary to push the billets into the furnaces upon skid pipes through which a stream of water is circulated to keep the pipes cool and to prevent them from burning. The wear and tear of the billets upon the skid pipes, although said pipes are made of extra heavy iron, is such that their greatest life is about 25 six months, and that only when turned one or more times so that the unworn portions may be exposed in turn to the wear and tear of the billets.

30 In my construction, I preferably employ a superimposed shield, preferably of inverted V-shape, which protects the pipes from being cut or worn by the billets, thus giving them a life limited only by the life 35 of the skid pipes in the upper or more highly heated portion of the furnace in which I preferably do not cover said pipes. Owing to the heated and softened condition of the billets, at this point, they do not cut the pipes 40 as when the billets are cold. Moreover, the fastenings of the shields burn off more readily in this part of the furnace, as they are not sufficiently cooled by the pipes to withstand the intense heat. The resulting 45 saving is very material, both from expense of frequent replacing and from the loss of time entailed in such replacing during which the furnace must be shut down.

50 In actual practice it has been found that the skid pipes with covering shields of my construction often last over eighteen months,

while under the best of conditions similar pipes when uncovered will not last more than six months.

Referring to the drawings, the skid pipes 55 1 are preferably mounted on piers 2 and have inverted V-shaped protective coverings or shields 3 which are preferably made of steel. The shields are provided with side lugs 4, which rest on the piers 2 and serve to hold 60 the shields against turning or twisting movement. They are also provided with the end lugs 5 and 6, the lugs 5 being shown as turned downwardly into the brickwork of the piers, while the lugs 6 embrace the skid-pipes and 65 are secured thereto by bolts which are sufficiently loose to permit of the movements of expansion and contraction.

In operation, the cold blanks are pushed through the charging-in door 8 of the furnace upon the shields 3, and are shoved by any suitable pushing mechanism along the skids toward and into the highly heated portion 9 of the furnace where they now travel on the bare pipes. Owing to the construction of the shields 3, and the smaller contact surface 10 of the shields 3 as compared with the contact surface 11 of the pipes 1, the wearing and cutting by the billet is very largely reduced. I show the shields 3 covering 80 the skid pipes only in that part of the furnace adjacent to the charging door, but they may be continued throughout the whole length of the skid pipes, but for the reasons stated I do not regard this as good practice. 85 The size, shape and length of the shields may be varied, as well as the type of furnace, &c.

What I claim is:—

1. A heating furnace having longitudinally extending skid pipes, and shields therefor, consisting of inverted V-shaped metal pieces placed over said pipes, said shields extending less than the full length of the pipes; substantially as described. 95

2. A heating furnace, having longitudinally extending skid pipes, an inverted V-shaped metal shield placed over the said pipes, and having lateral supporting lugs; substantially as described. 100

3. A continuous heating furnace, skid pipes having shields thereover which present

a contact surface for the billets, said shields having supporting side lugs and securing end lugs; substantially as described.

4. A continuous furnace having longitudi-
5 nally extending piers, skid pipes supported on the piers, and shields for said pipes, said shields having supports on the piers and se-
cured at their ends against undue endwise movement; substantially as described.

10 5. A continuous furnace having longitudi-
nally extending piers, skid pipes supported

on the piers, and shields for said pipes, said shields having supports on the piers and having securing lugs at their ends; substan-
tially as described.

In testimony whereof, I have hereunto set
my hand.

DAVID DAVIS.

Witnesses:

H. W. Hertz,

JOHN O. KEEFE.