

(No Model.)

C. H. MORGAN.
ROLLING MILL.

No. 586,732.

Patented July 20, 1897.

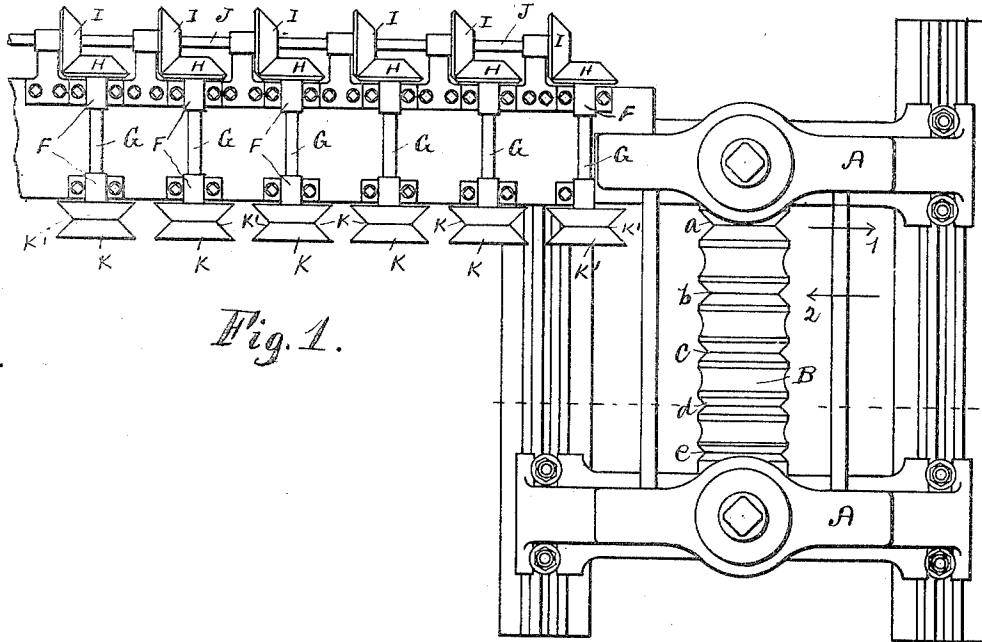


Fig. 1.

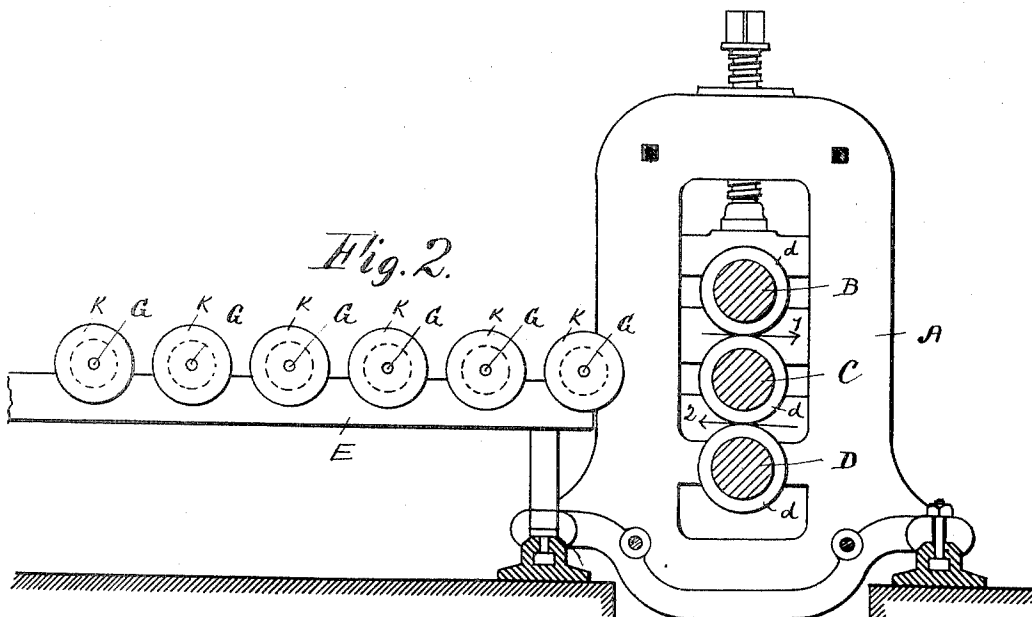


Fig. 2.

WITNESSES.
L. M. McTadaen.
R. L. Morgan

INVENTOR.
Charles Morgan

UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
MORGAN CONSTRUCTION COMPANY, OF SAME PLACE.

ROLLING-MILL.

SPECIFICATION forming part of Letters Patent No. 586,732, dated July 20, 1897.

Application filed April 5, 1894. Serial No. 506,527. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MORGAN, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Rolling-Mills, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, and in which—

Figure 1 represents in plan view a portion of a rolling-mill embodying my invention; and Fig. 2 is a side view of the same represented in section on line 2 2, Fig. 1.

Similar letters refer to similar parts in the different views.

My present invention relates to the means for feeding billets to the rolls of rolling-mills; and it consists in the construction and arrangement with the reducing-rolls of a series of feed-rolls, as hereinafter described, and set forth in the annexed claim.

Referring to the drawings, A A represent the housings of the reducing-rolls B C D, arranged one above the other in the usual manner and provided with a series of circumferential grooves *a, b, c, d, and e*, of varying size and depth, by which the billet is reduced by its successive passage through the series in the order named, the billet first passing between the rolls B and C in groove *a* in the direction of the arrow 1 and being returned in groove *b* between the rolls C and D in the direction of the arrow 2, and so on to the end, each passage of the billet through the rolls decreasing its size. As the billet is successively passed between the rolls it must be raised or lowered the diameter of the central roll C and shifted from one groove to the next smaller, and it is therefore necessary that the entire space at the front and rear of the rolls B C D should be kept clear in order to allow the unimpeded manipulation of the billet by the attendants; and it is the object of my present invention to provide means for the transmission of the billet from the heating-furnace to the largest of the grooves in the reducing-rolls and at the same time leave the entire space in front of the rolls free and unencumbered to allow for the necessary shift-

ing of the billet during the successive passage of the reducing-rolls.

The purpose of my present invention is accomplished by means of a framework E at one side of the space in front of the reducing-rolls, extending from the reducing-rolls toward the heating-furnace, and provided with a series of journal-bearings F to receive the short horizontal shafts G, which carry upon one end the miter-gears H, engaging the miter-gears I, which are attached to the horizontal driving-shaft J.

To the opposite ends of the short shafts G are attached the scored feed-rolls K, arranged in a horizontal plane and in alinement with each other, and also having their grooves K', which are preferably V-shaped, in alinement with the largest groove *a* of the reducing-rolls.

A portion only of the framework E and scored feed-rolls K with their connected driving mechanism are represented in the accompanying drawings, the series of feed-rolls K being preferably extended sufficiently near the heating-furnace to allow the billet to be withdrawn from the furnace and loaded upon the first or nearest of the series of feed-rolls K, and by the feed-rolls K conducted to the reducing-rolls with the end of the billet presented to the groove *a* between the rolls B C. The heated billet is thus conducted from the furnace to the reducing-rolls and presented to the largest of the circumferential grooves in the reducing-rolls at the time when the operation of rolling the preceding billet is nearing completion, thereby enabling one billet to follow another through the reducing-rolls in immediate succession without the loss of time required to withdraw the billets from the heating-furnace and transfer them to the reducing-rolls, and avoiding the necessity of an increased number of operatives to attend to the passage of the billet through the reducing-rolls and to transfer the billets from the heating-furnace to the reducing-rolls.

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

An organized mechanism for rolling billets, consisting of a set of three reducing-rolls, one above the other, and provided with circum-

ferential grooves of varying size, whereby the
billet is reduced by successive passes alter-
nately between the central and upper rolls
and the central and lower rolls of said set of
5 rolls, a series of feed-rolls, each having a
groove adapted to receive a billet, said grooves
being in alinement with each other and with
the first or end groove of said circumferen-
tial grooves between the central and upper
10 rolls of said set of reducing-rolls, mechanism
for positively driving said feed-rolls, whereby
a billet is delivered to said first or end groove
in the reducing-rolls, housings for said feed-
rolls, said housings and said driving mech-
15 anism being arranged on one side of a line

extending through the grooves in said feed-
rolls and the said first or end groove of said
circumferential grooves, and with the remain-
ing grooves in said rolls upon the opposite
side of said line, whereby a clear space is pro- 20
vided in front of said reducing-rolls to allow
the billet to be raised or lowered vertically as
it is successively fed to said reducing-rolls,
substantially as described.

Dated this 29th day of March, 1894.

CHAS. H. MORGAN.

Witnesses:

T. M. MCFADDEN,
R. L. MORGAN.