

(No Model.)

H. GREER.

ROLL FOR SLITTING IRON.

No. 281,184.

Patented July 10, 1883.

Fig. 1.

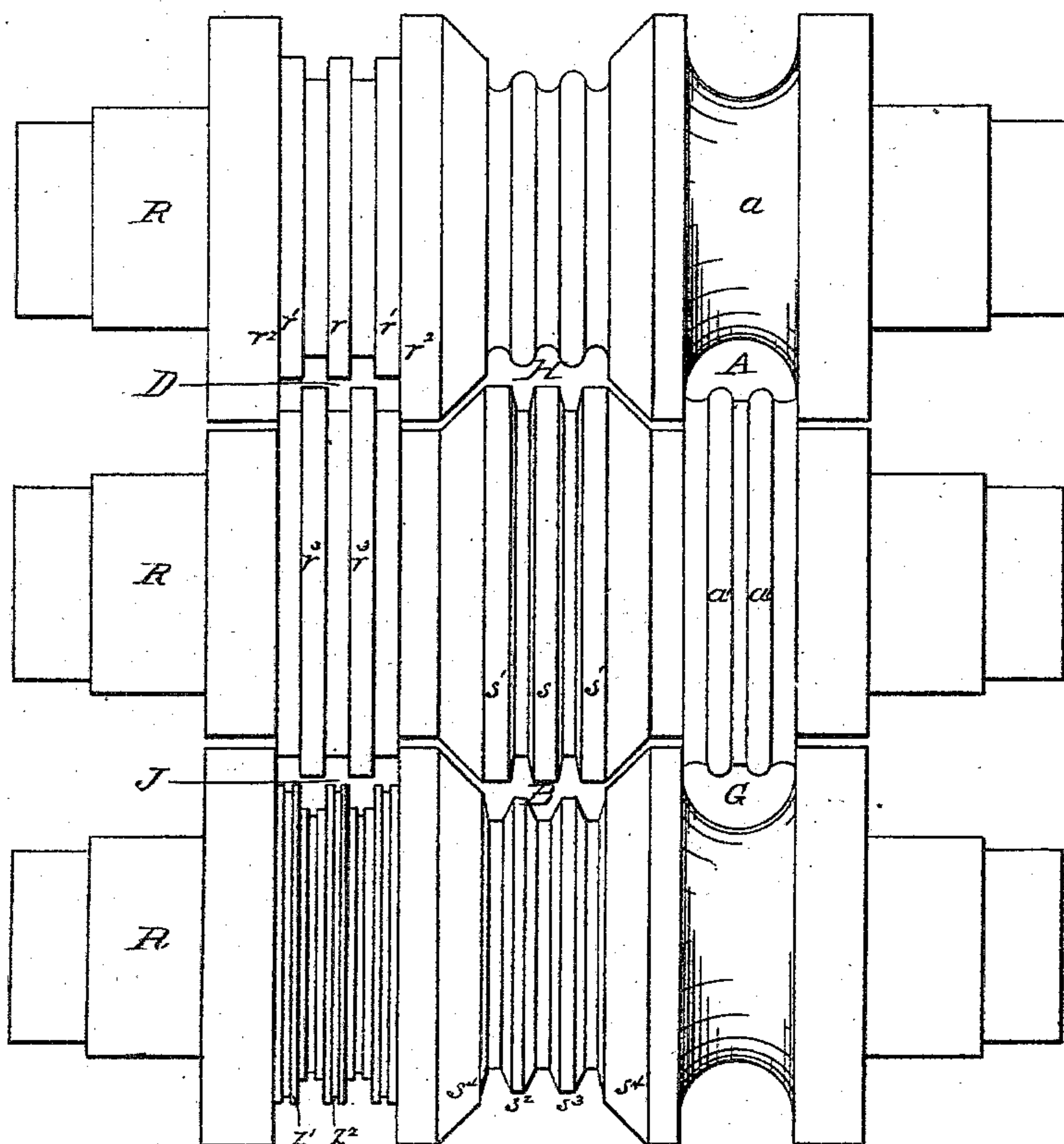


Fig. 2.

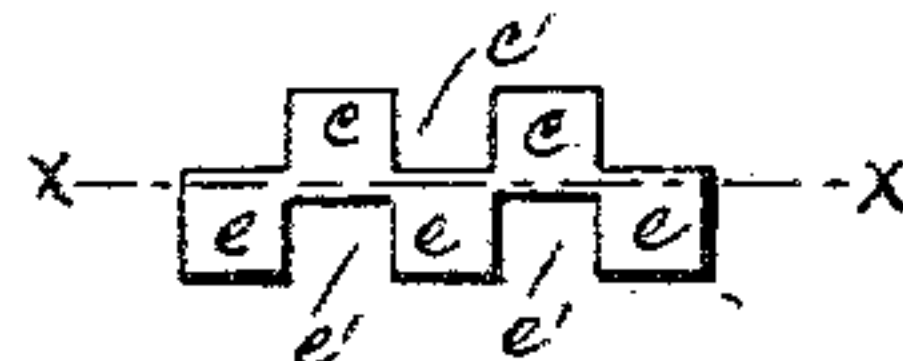


Fig. 3.

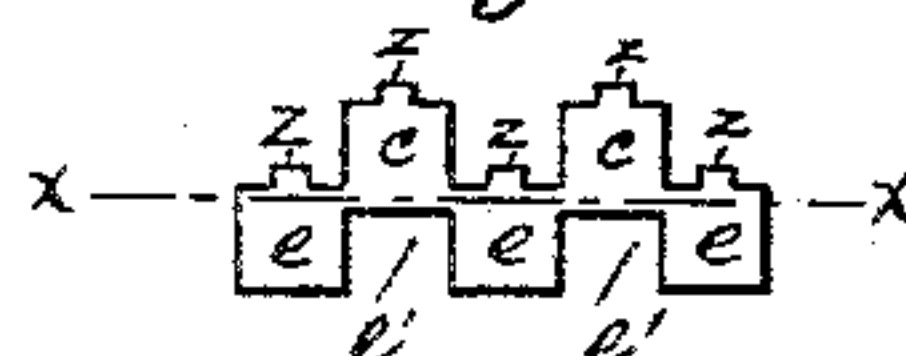


Fig. 4.

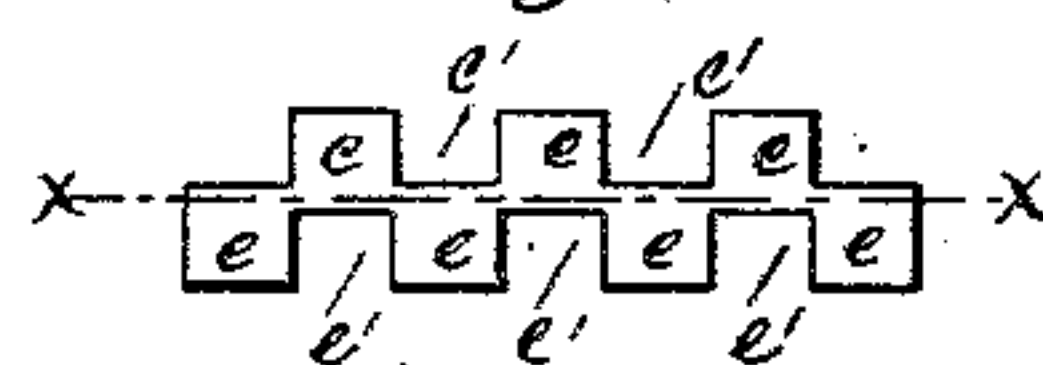


Fig. 6.

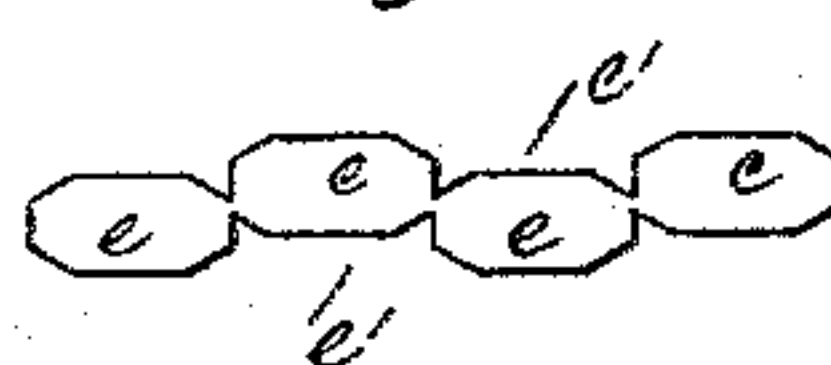
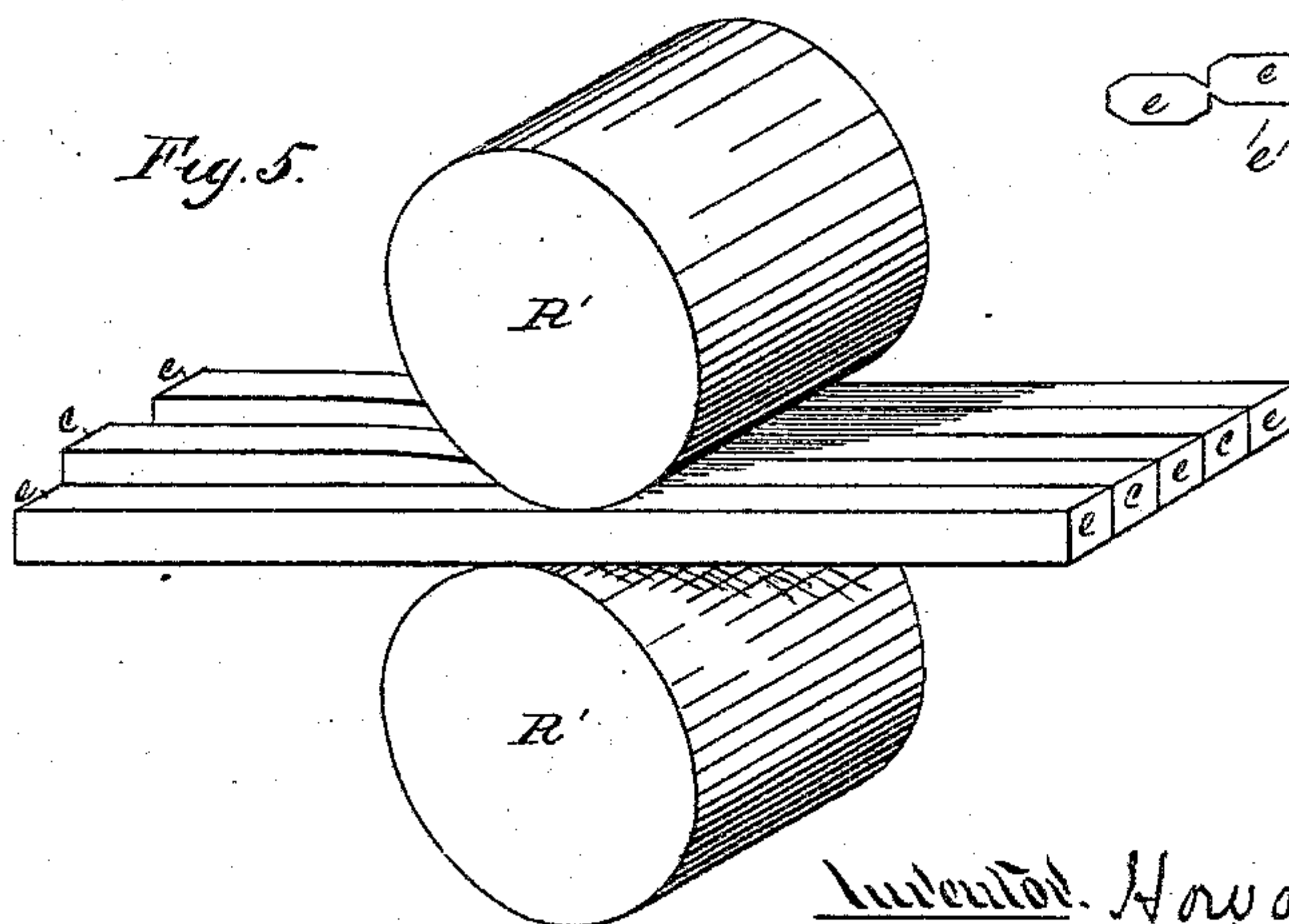


Fig. 5.



Witnesses  
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# UNITED STATES PATENT OFFICE.

HOWARD GREER, OF CHICAGO, ILLINOIS.

## ROLL FOR SLITTING IRON.

SPECIFICATION forming part of Letters Patent No. 281,184, dated July 10, 1883.

Application filed March 26, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HOWARD GREER, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented or discovered a new and useful Improvement in Rolling and Slitting Iron; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a view in elevation of a three-high set of rolls, such as I employ in my present invention, and illustrative of the construction of two sets of grooves for doing the work in view. Fig. 2 is an end view of a bar showing the product of one set of grooves. Fig. 3 is an end view of a bar showing the product of the other set of grooves. Fig. 4 is an end view of a bar showing a broader product, or one containing a greater number of sections; and Fig. 5 illustrates in outline perspective the manner of dividing the bar of Fig. 2 into sections, or of separating the sections.

My present invention relates to an improved mode of producing a series of two or more bars or rods of iron or steel simultaneously from a single billet, pile, or fagot. Such bars or rods have heretofore been made by rolling each one separately, or by rolling to a plate or bar of suitable width and thickness to be severed into two or more bars or rods, each of the desired width, and then slitting them apart, the bar or plate before slitting being plain-faced, or, if corrugated, having at all points a practically uniform thickness.

My improved bar as produced for slitting or for severance into separate bars or rods (and which latter for convenience I herein term "sections") is made with all or the greater part of the material which is to form the successive sections alternately above and below a horizontal plane passing through the plate about midway between its upper and lower faces, as illustrated in Figs. 2, 3, and 4, where the dotted lines  $x x$  indicate line of plane referred to. The bar or plate thus formed will then consist of one or more ribs or sections,  $e$ , above such transverse horizontal plane, and one or more sections,  $e$ , below such horizontal

plane, but all connected together at adjacent corners by a thin portion of metal or material; or, in other words, the several sections slightly lap onto each other along their adjacent corners, so that the plate so formed is not up to that point completely severed into separate sections. Such bar is then passed through between a pair of plain-faced rolls, or between rolls otherwise so formed that the several sections will be forced up and down into a common plane, or so nearly into a common plane that one moving across the adjacent face of the other on one or either side thereof will produce a severance of the sections one from another along the vertical planes of junction. This step is more particularly illustrated in Fig. 5, where only enough of the rolls  $R' R'$  are shown to illustrate their action in bringing the sections to the same plane, and so effecting their separation.

In working this invention any suitable rolls may be employed; but in Fig. 1 I have for illustration shown a set from which and the following description the skilled mechanic will have no difficulty in making and operating such rolls, and a set or train of rolls having substantially such a system of grooves as is represented is included herein as a part of the present invention. A billet, pile, or fagot suitably prepared is passed through between the topmost rolls  $R R$  through the space  $A$ . One roll has a concave groove,  $a$ , and the other has one, two, or more collars,  $a'$ , one for each of the grooves  $e'$ , Fig. 2, to be made in the product of these rolls. The bar or billet is then passed between the two lower rolls through the space  $B$ . The upper roll of this pass has a central collar,  $s$ , and two side collars,  $s'$ , between which the sections  $e e$ , Fig. 2, are partly formed, and the lower roll has central and end collars,  $s^2 s^3 s^4$ , between which the sections  $e$ , Fig. 2, are partly formed, and the central collars of one roll are opposite the grooves between the collars of the other roll. The bar or billet then goes through the pass  $D$ , where the collars  $r r' r^2$  of the upper roll and the collars  $r^3$  of the lower roll are arranged substantially as shown and properly proportioned to produce or shape the bar shown in end view in Fig. 2. If a larger number of sections be



desired, as in Fig. 4, the rolls should be correspondingly lengthened and the proper number of collars be added.

For some purposes in the arts a rib,  $z$ , Fig. 3, of some regular or irregular shape may be desired along each section. For the purpose of rolling such section I use the passes through G, H, and J in the order named. The arrangement and action of the collars employed will be readily understood from the drawings and the previous description; but the lower collars,  $z'$ , in the last pass are each grooved, as at  $z''$ , so as to provide for the formation of the rib  $z$  on each section. In this way I make the bar of Fig. 3, which, however, is shown in inverted position, as compared with the delivery position in leaving the rolls; but the grooves  $z''$  may be made in the collars of the other roll and in the bottoms of the intermediate grooves, but the arrangement shown is believed to be the best.

The sections are severed wholly or partially by passing them between suitable rolls, as at R' R', so as to force them into or nearly into a common plane. This work will ordinarily be done while the sections are below a welding-heat, or with steel or like unweldable metal it may be done at any heat or even down to cold. The shape and size of the sections  $c e$  are immaterial, as also their number, the only essential feature being the working of the metal in sections mostly above and below an intermediate plane preliminary to their severance by being thereafter forced past each other into or approximately into a common plane. Guide-iron, as illustrated in Fig. 6, or other regular or irregular forms may be made in like manner.

It will be also understood that the grooves and collars for the successive passes A, B, and D, or G, H, and J may be made in the successive pairs of rolls of a train.

I claim herein as my invention—

1. The method of preparing wrought metals for slitting or severance longitudinally by working the metal in longitudinal sections alternately above and below an intermediate plane, but with the several sections adhering along adjacent corners, substantially as set forth.

2. The method of making rod or bar iron or steel by working the metal in longitudinal sections alternately above and below an intermediate plane, but with the several sections adhering along adjacent corners, and then forcing the sections into or approximately into a common plane, substantially as set forth.

3. A pair or train of rolls having a series of grooves and collars, substantially as set forth, for the working of the metal of a bar or billet into longitudinal sections alternately above and below an intermediate plane, substantially as set forth.

4. In a pair or train of rolls having a series of grooves and collars, substantially as set forth, for working the metal of a bar or billet alternately above and below an intermediate plane, the grooves  $z''$ , for forming ribs  $z$ , substantially as described.

In testimony whereof I have hereunto set my hand.

HOWARD GREER.

Witnesses:

MORRIS SELLERS,  
FRANK J. LOESCH.