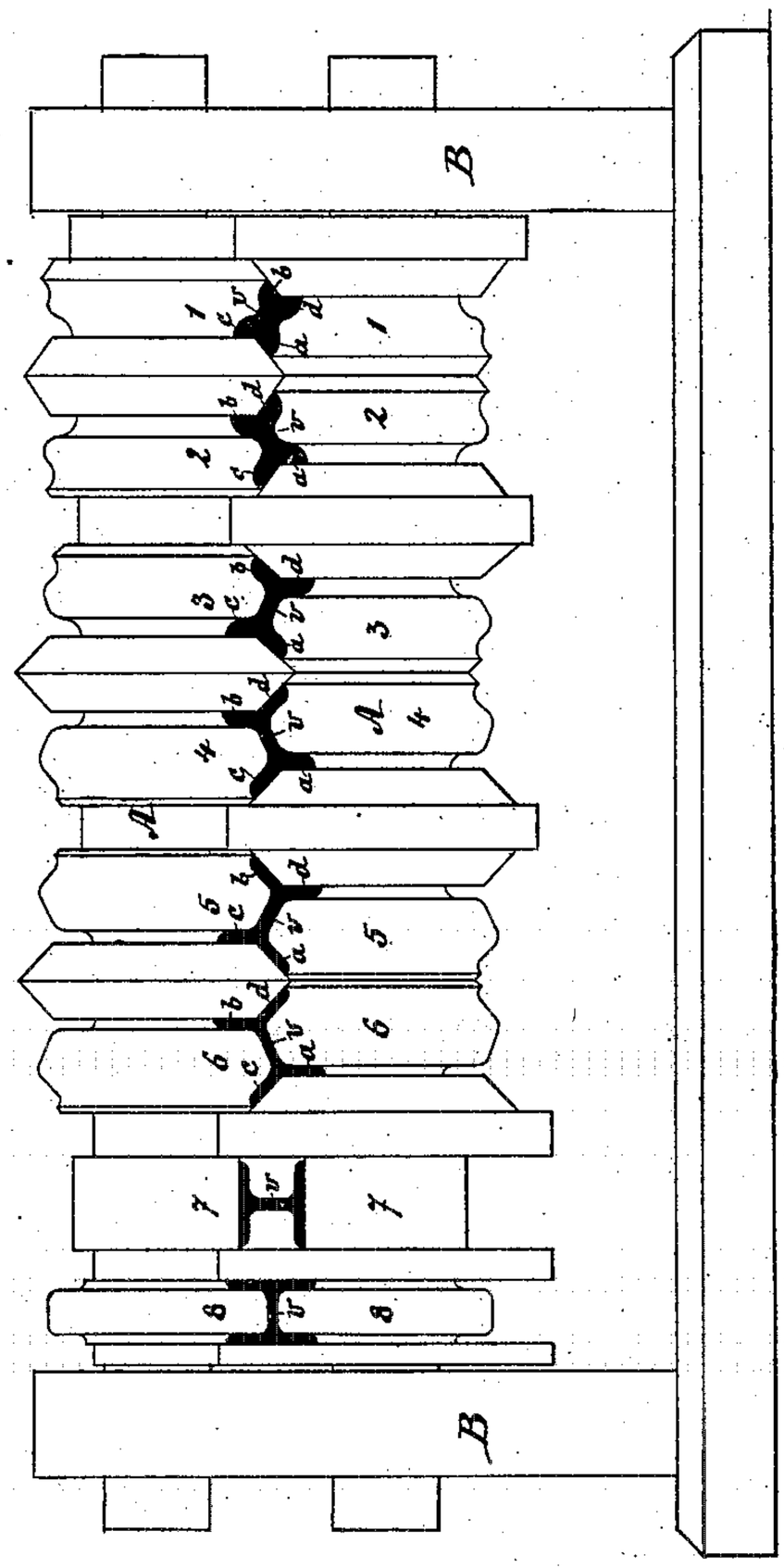
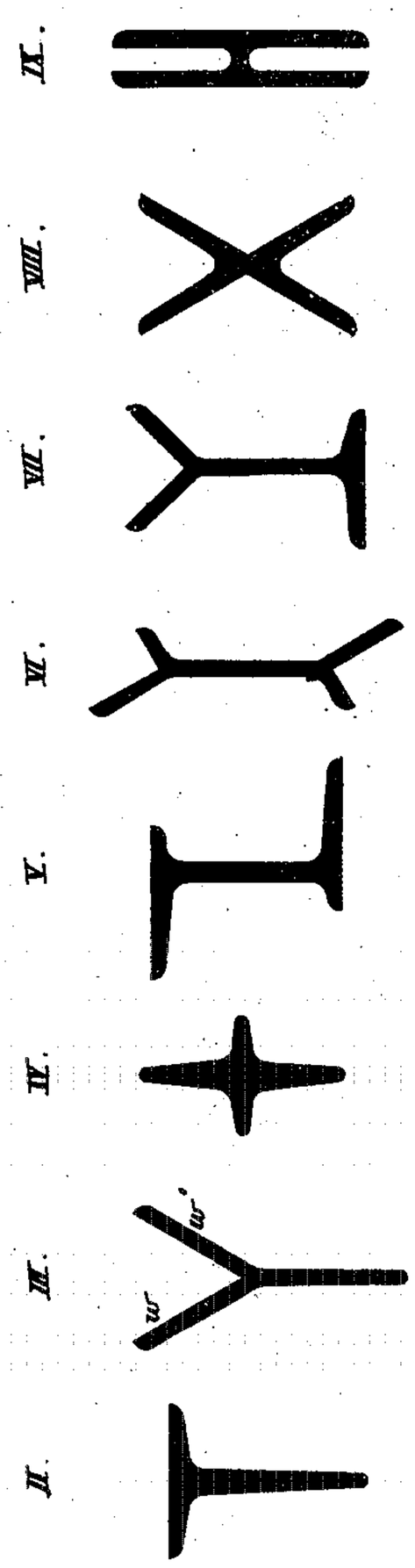
J. F. DeBUIGNÉ.

ROLLS FOR BEAMS AND GIRDERS.

No. 195,207. Patented Sept. 18, 1877.

Fig. I.





Witnesses.

S. H. Maschanzik

Wm. Ekret.

Inventor.

Josef F. de Buigne

per Henry E. Roeder

Attorney

UNITED STATES PATENT OFFICE.

JOSEF F. DE BUIGNE, OF VIENNA, AUSTRIA.

IMPROVEMENT IN ROLLS FOR BEAMS AND GIRDERS.

Specification forming part of Letters Patent No. **195,207,** dated September 18, 1877; application filed February 20, 1877.

To all whom it may concern:

Be it known that I, JOSEF F. DE BUIGNE, of Vienna, in the Empire of Austria, have invented a new and Improved Method of Rolling Iron, Steel, and other Metals, which improvement is fully set forth in the following specification and accompanying drawing.

My invention consists in the construction and arrangement of the grooves in the rolls, whereby bars or beams, with two or more flanges of any desired shape or dimensions, can be rolled by the use of horizontal rolls only, without the necessity of vertical rolls.

By my improved construction of the rolls, beams having sectional shapes, similar to those represented in Figs. II to IX, can be rolled.

The nature of my invention consists in the manner of grooving the rolls, so that the groove forming the web of the beam or bar shall form an obtuse angle with the axes of the roll and with the grooves forming the flanges to be formed on said web, whereby a vertical pressure is exerted at each pass at the same time upon the web and upon two of the opposite flanges.

Iron having a sectional shape, as shown in Fig. II, has been formed by rolling the same similar to the shape shown in Fig. III, and then flattening or straightening the flanges *w w'*; but the combination of these sections, as represented in Figs. IV to IX, has never been produced without the application and combination of horizontal and vertical rolls, and then only in limited dimensions.

In Fig. I a set of rolls having grooves or passes constructed in accordance with my invention are represented.

The rolls A are journaled in metallic boxes, in iron standards or cheeks B B, and capable of being set toward or from each other in the usual manner.

The groove forming the web *v* of the beam is arranged in the rolls A A in such a manner and at such an inclination that the grooves for two diagonal opposite flanges shall be vertical to the axes of the rolls, bringing thereby the other two diagonal opposite flanges in a diagonal direction with the axes of the rolls, whereby a vertical pressure can be produced upon the metal while passing through these diagonal grooves.

The metal is first passed through the groove 1, where the web *v* and the flanges *a* and *b* receive pressure. In the second pass, through grooves 2, vertical pressure is given to the web *v* and the flanges *c* and *d*, while the flanges *a* and *b* pass through their corresponding grooves vertical to the axes of the rolls. In passing through grooves 3, pressure is again exerted upon the web *v* and the flanges *a* and *b*, while the flanges *c* and *d* pass in grooves vertical to the axes.

These grooves or passes decrease in the usual manner to the last groove, marked in the drawing 6, which has the exact shape and dimensions of the web and of the several flanges.

The beam, after passing through the last pass, marked 6 in the drawing, has its web and flanges of the desired sectional shape and dimensions; but its flanges form obtuse angles with its web.

This beam is then passed between surface-rolls 7, by which operation the flanges are bent square to its web, and may then be passed through the finishing-grooves 8, where the exact, desired, and finished shape is given.

It will readily be understood that by this method any desired sectional shape may be rolled by the use of horizontal rolls only, independent of the relative dimensions between the web and the flanges, even if the flanges should be considerably longer than the web, as represented in Fig. IX.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The rolls A A, provided with a series of grooves for forming the web and flanges for beams or girders to be rolled, said grooves being arranged in relation to each other and to the axis of the rolls in the manner substantially as described, and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand.

JOSEF F. DE BUIGNE.

Witnesses:
HENRY E. ROEDER,
WILLIAM EHRET.