No. 752,743. PATENTED FEB. 23, 1904.

R. D. YORK.

ROLLING MILL.

APPLICATION FILED MAR. 27, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

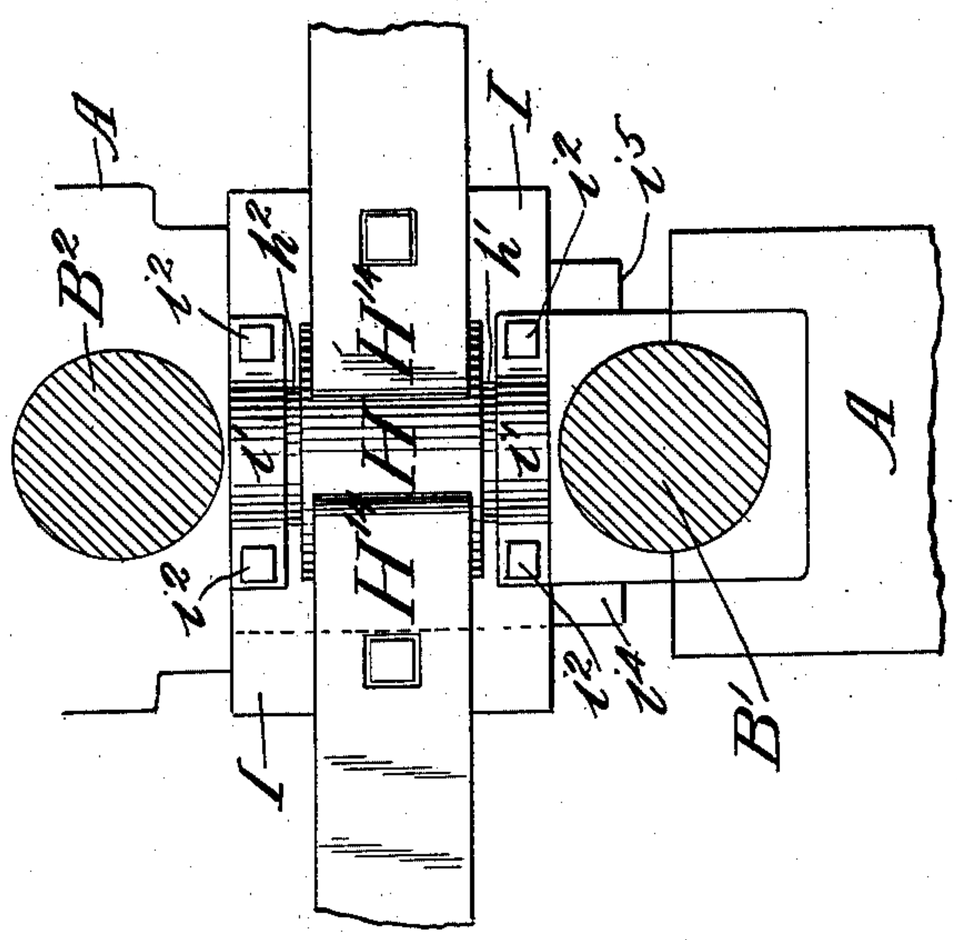



Fig. 3.

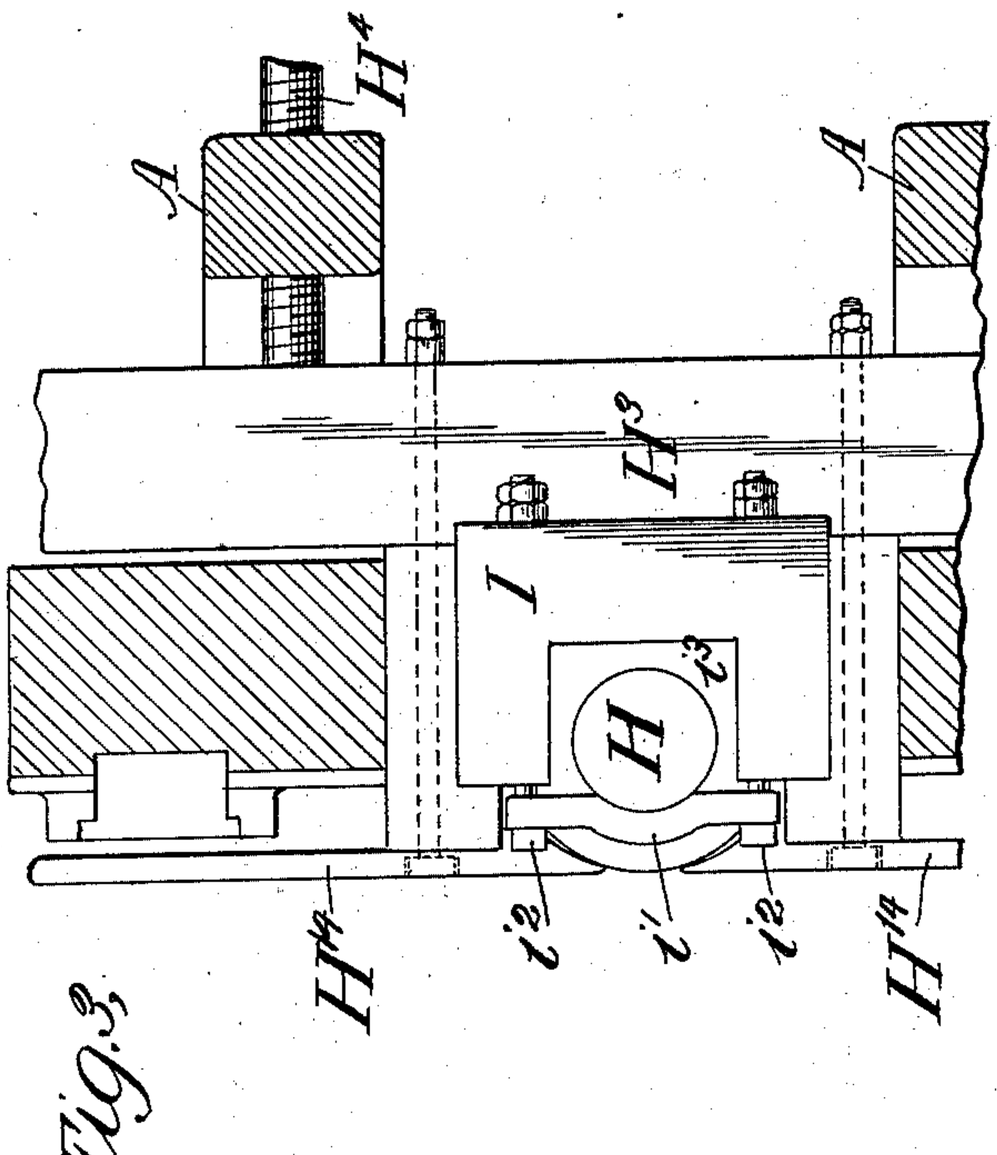
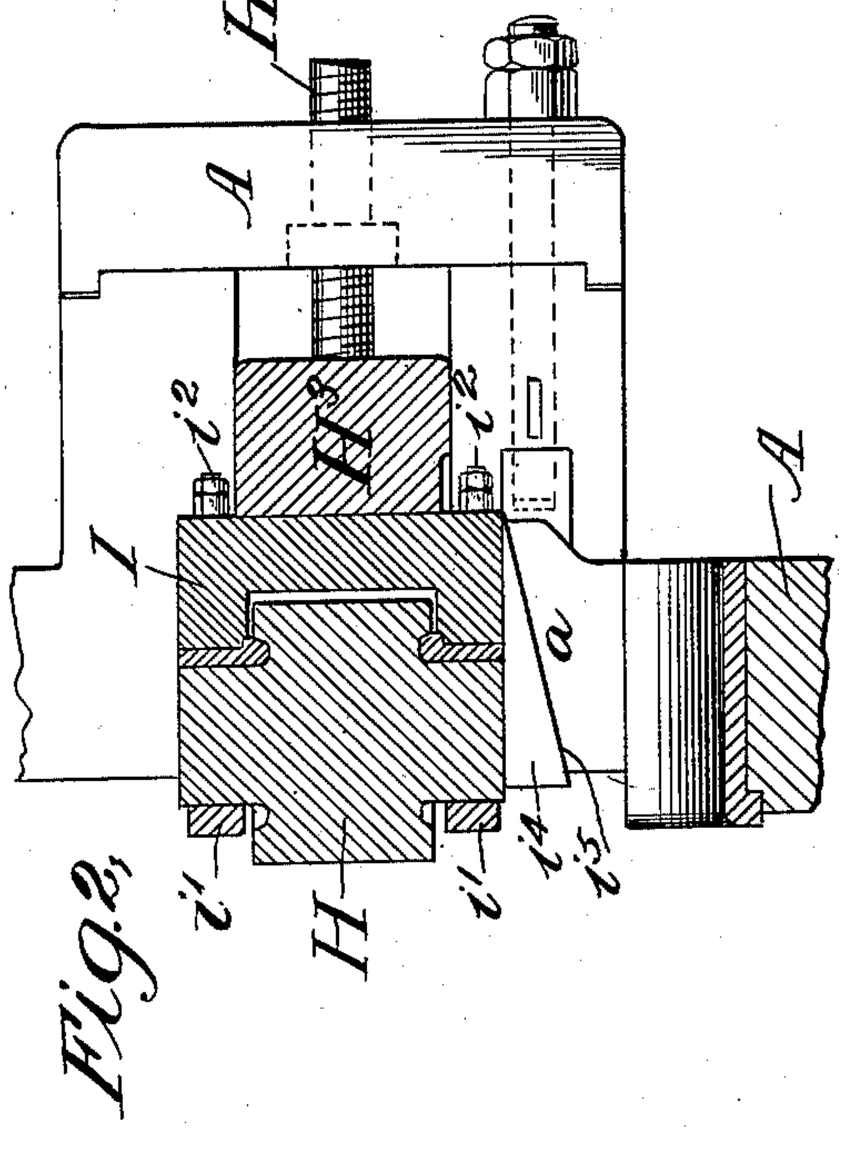



Fig. 2.




Witnesses:-
Fred E. Crane.
Chas. H. Shaw

Inventor
Raymond Dee York
By Dickerson, Brown & Baldwin
His Attys

No. 752,743. PATENTED FEB. 23, 1904.

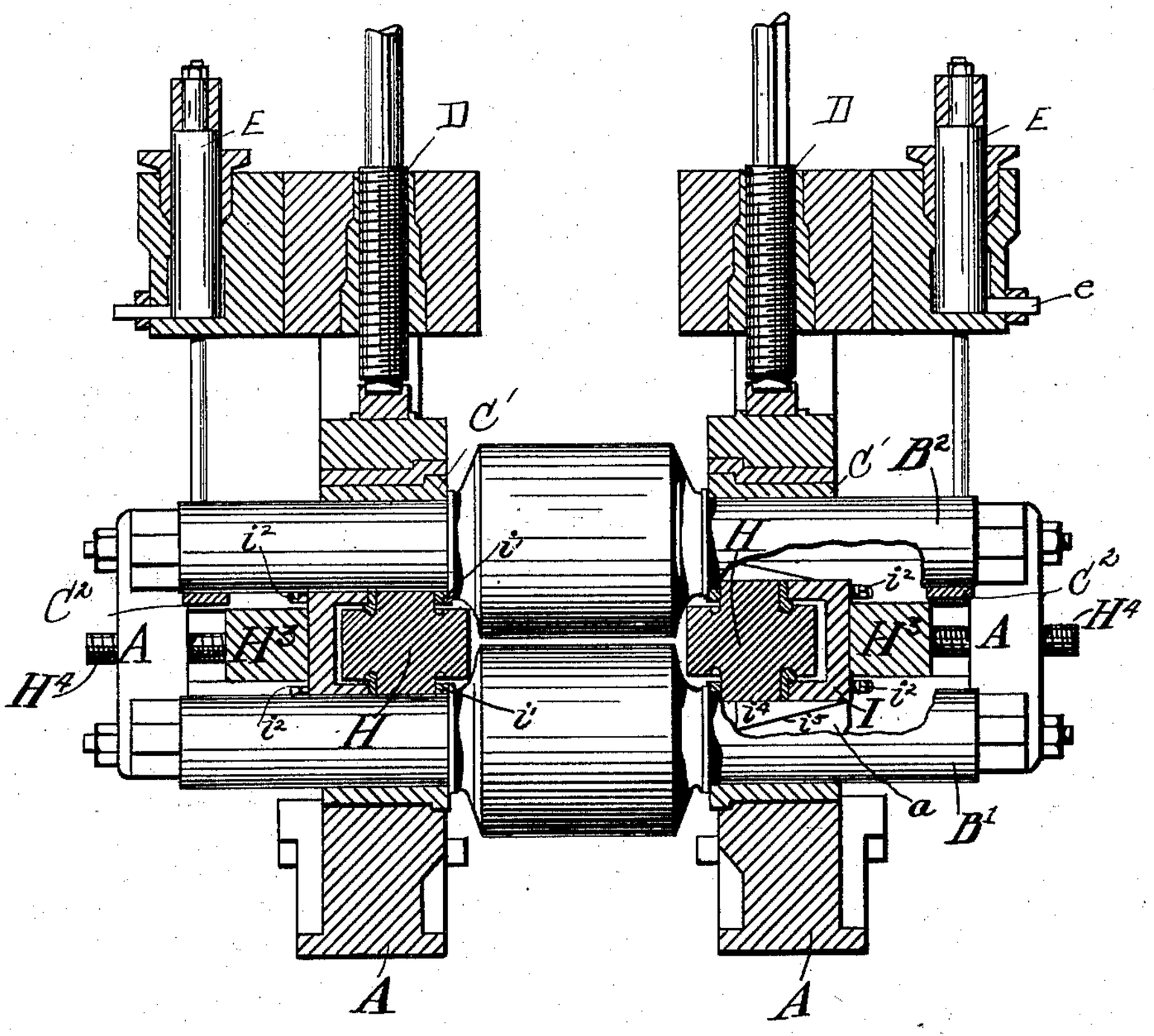
# R. D. YORK.

## ROLLING MILL.

APPLICATION FILED MAR. 27, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

*Fig. 4.*




Witnesses
E. Mitchell.
H. G. Ogden.

Raymond Dee York
Inventor
By
Richardson, Brown & Poegener
Attorneys

No. 752,743. Patented February 23, 1904.

# UNITED STATES PATENT OFFICE.

RAYMOND DEE YORK, OF PORTSMOUTH, OHIO.

## ROLLING-MILL.

SPECIFICATION forming part of Letters Patent No. 752,743, dated February 23, 1904.

Application filed March 27, 1902. Serial No. 100,301. (No model.)

*To all whom it may concern:*

Be it known that I, RAYMOND DEE YORK, of Portsmouth, Ohio, have invented a new and useful Improvement in Rolling-Mills, of which the following is a specification.

My improvement relates to rolling-mills having horizontal rolls arranged one above the other and commonly called "top" and "bottom" rolls, and side rolls operating in conjunction therewith. The present improvement particularly relates to the side rolls.

This improvement may be embodied in the rolling-mill of my application for Letters Patent of the United States, filed January 18, 1902, Serial No. 90,293.

Figure 1 is a vertical section of a rolling-mill, taken transversely to the top and bottom rolls and including parts embodying my improvement. Fig. 2 is a vertical section taken at right angles to Fig. 1. Fig. 3 is a horizontal section showing certain parts of the mill. Fig. 4 is a transverse sectional view of the machine, showing the means for adjusting the rollers.

Similar letters of reference designate corresponding parts in all the figures.

A designates the framework of the mill. It may be of any desired form.

B′ $B^2$ designate what may be termed the "main" rolls, or otherwise termed the "top" and "bottom" rolls, one being arranged above the other and supported in suitable bearings provided in the framework A. The bearings for the top roll $B^2$ are fitted to housings so as to be vertically adjustable for the purpose of varying the position of the top roll with reference to the bottom roll. Any well-known means for adjusting these housings and main rolls may be used. The upper bearings C′ have combined with them screws D by which they may be forced downwardly or secured against upward movement. The lower bearings $C^2$ are connected with engines E, which may be hydraulic, for the purpose of raising the roll $B^2$ when permitted by the screws D. The engines E, as shown, are supplied with motive power through pipes *e*.

H designates a side roll. There are to be two such rolls, and they may be similarly supported and operated. I have illustrated but one of these rolls and its appurtenances. It is of cylindric form and is provided with journals $h'$ $h^2$, extending from it in reverse directions and fitting in a suitable bearing-block I. This bearing-block may be provided with removable caps $i'$, secured by bolts $i^2$. Bushings $i^3$, of Babbitt metal or any other suitable material, may be used to reduce friction. The bearing-block I fits in a block $H^3$, which is capable of moving horizontally in the framework A for the purpose of adjusting the side roll into different positions for the different widths of material to be rolled. Side guides $H^{14}$ are attached to the block $H^3$ and project over portions of the circumference of the roll H.

Any suitable means may be employed for adjusting the roll H with the guides $H^{14}$—as, for instance, screws $H^4$, journaled in the framework A, engaging with nuts in the block $H^3$ and driven by any suitable mechanism.

The bearing-block I has on its lower surface one or more downward extensions $i^4$, provided with an inclined lower surface $i^5$. This inclined surface bears upon an inclined surface *a*, comprised in the framework A, so that as each roll H is moved outwardly or away from the other roll H it will be raised, and as it is moved inwardly or toward the other roll H it will be lowered. As the side rolls will be moved outwardly when the top roll is raised and inwardly when the top roll is lowered, the side rolls will by virtue of the inclined surfaces $i^5$ *a* be adjusted into proper position relatively to the center of the space between the top and bottom rolls.

I do not wish to be confined to the use of inclined surfaces, as other means may be employed for raising and lowering the side rolls.

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

1. In a rolling-mill the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls, a bearing-block for said side roll and means mounted independently of the top and bottom rolls and coöper-

ating directly with said block for raising and lowering the said roll.

2. In a rolling-mill, the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls and means mounted independently of the top and bottom rolls for raising and lowering the side roll relatively to the center of the space between the top and bottom rolls.

3. In a rolling-mill, the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls, and means mounted independently of the top and bottom rolls comprising parts having inclined surfaces for raising and lowering the side roll.

4. In a rolling-mill, the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls, a bearing-block for said side roll having an inclined surface, and means mounted independently of the top and bottom rolls comprising parts having an inclined surface coacting with said inclined surface of the bearing-block.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RAYMOND DEE YORK.

Witnesses:

GEO. E. CRUSE,

CHAS. H. SHAW.