

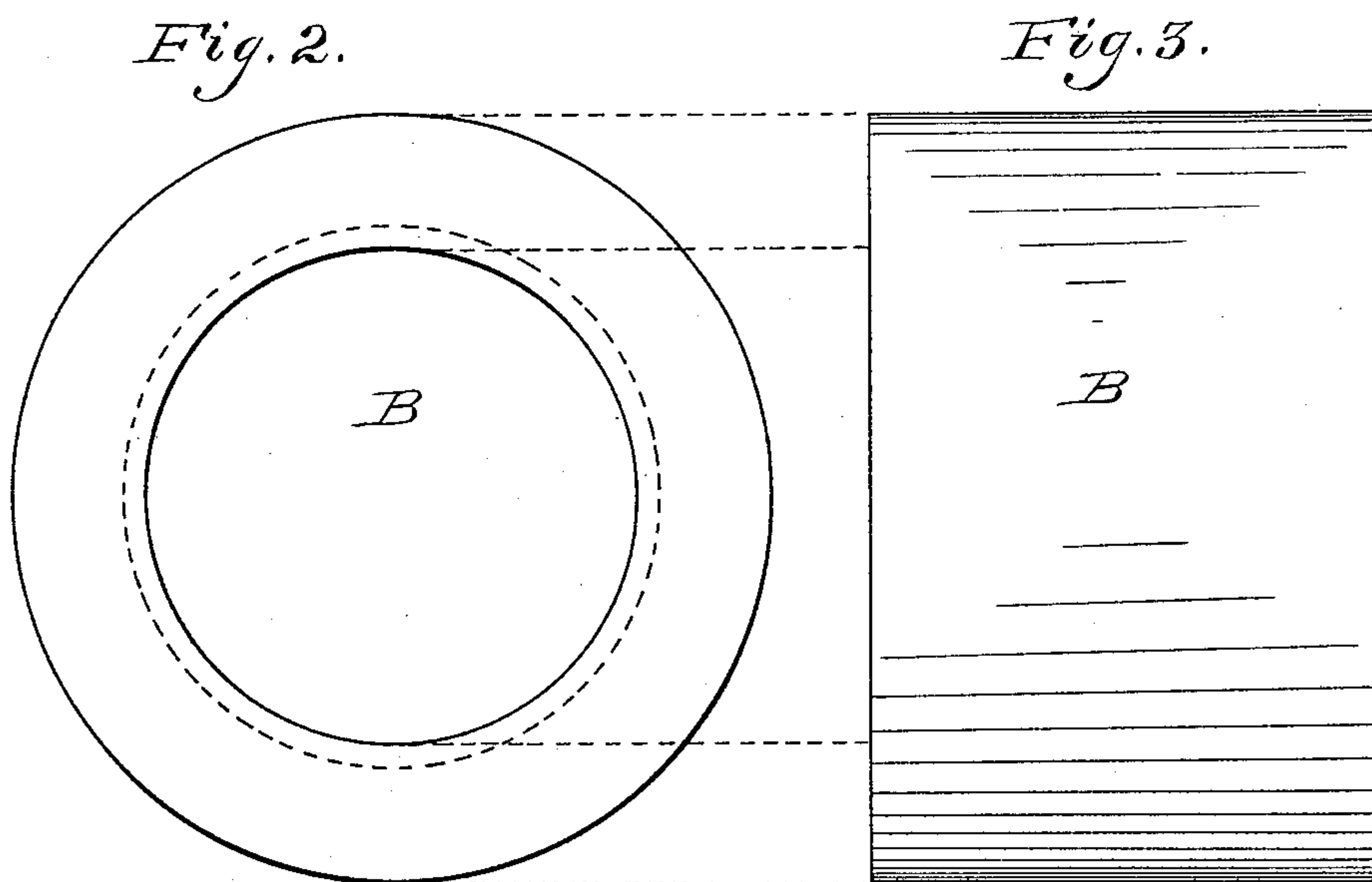
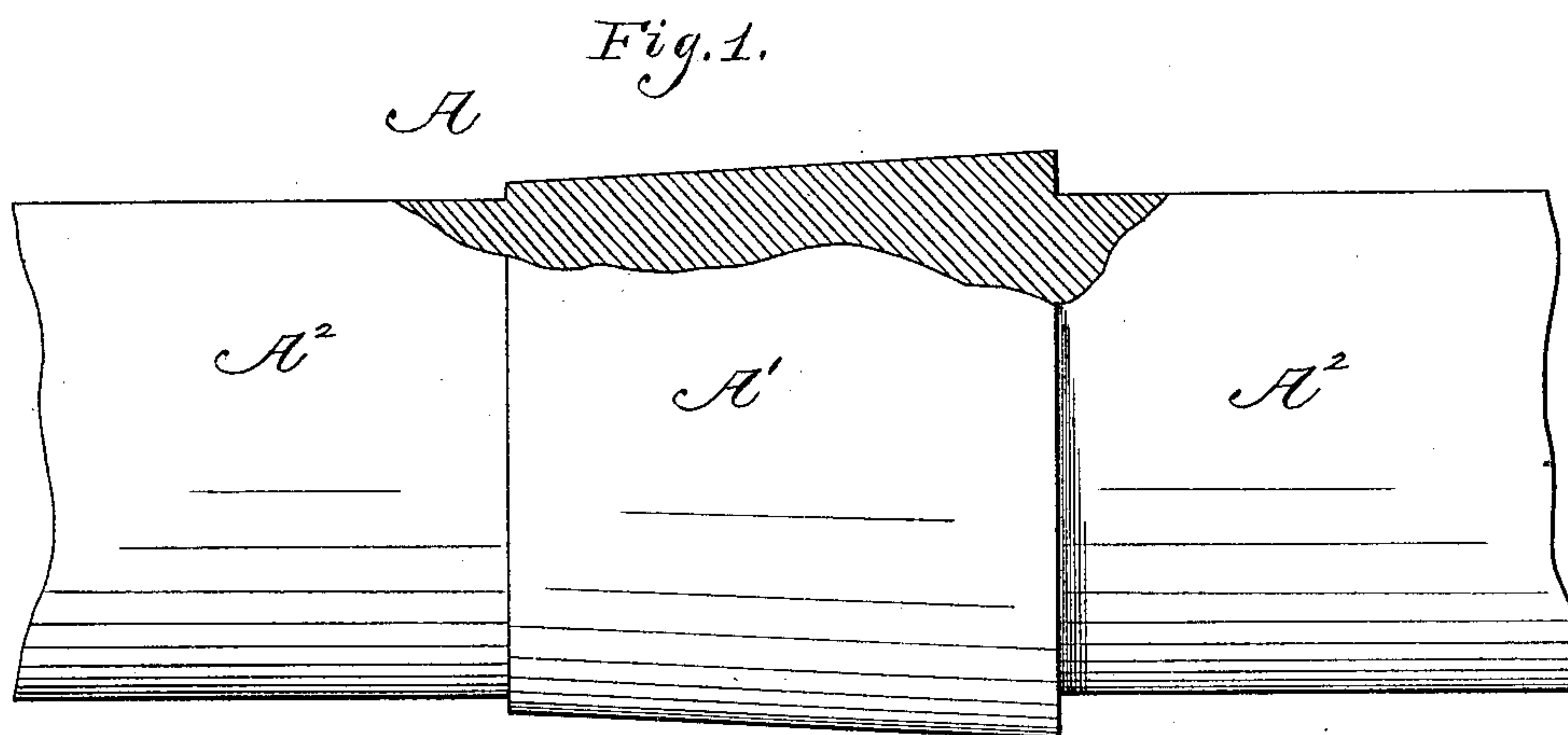
(No Model.)

2 Sheets—Sheet 1.

A. NEWELL.
ROLL FOR ROLLING MILLS.

No. 379,595.

Patented Mar. 20, 1888.



Witnesses:

John T. Long,
C. M. Hutchinson.

Inventor:

Augustus Newell,
by Cyrus K. K. K.,
Att'y.

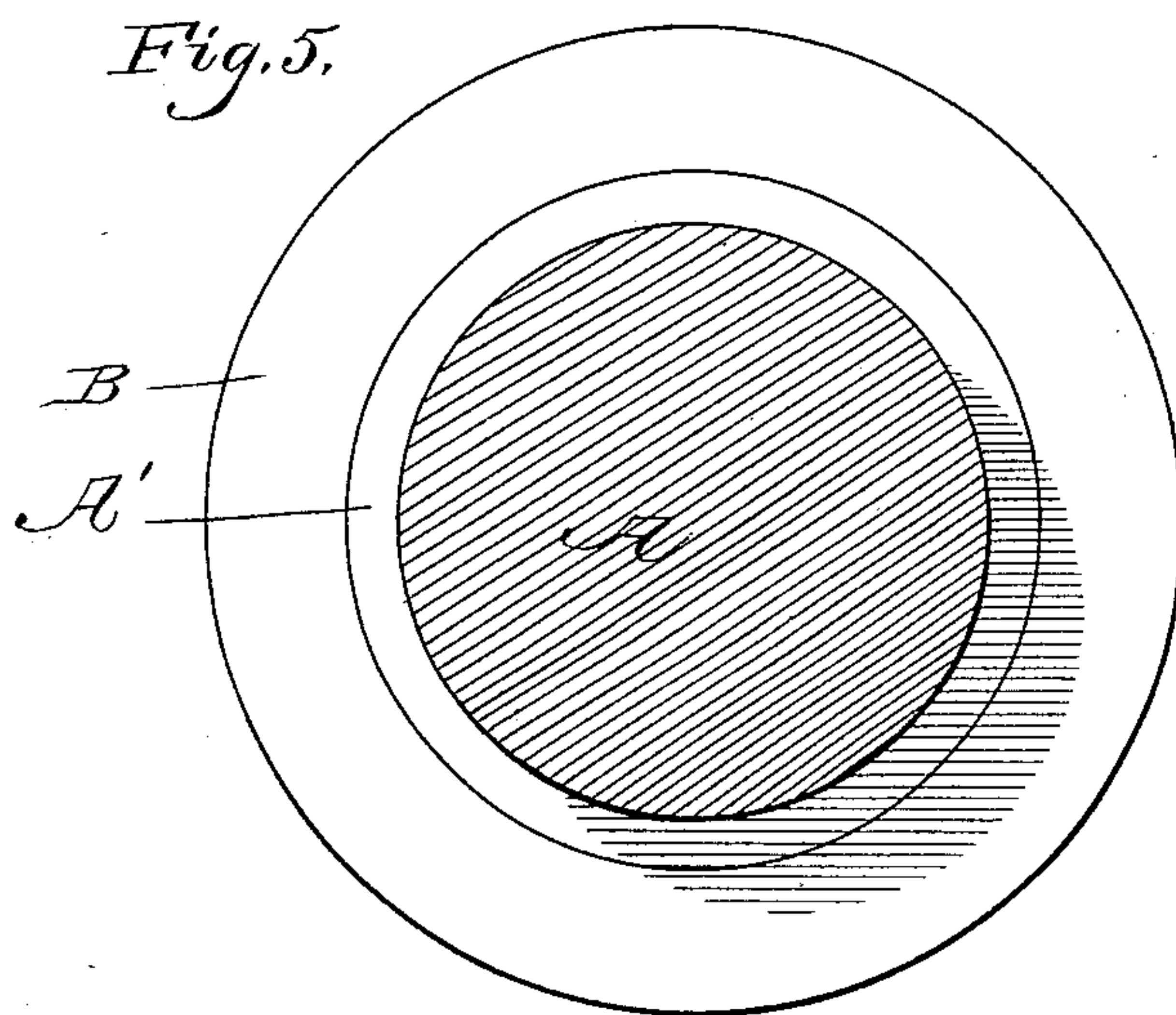
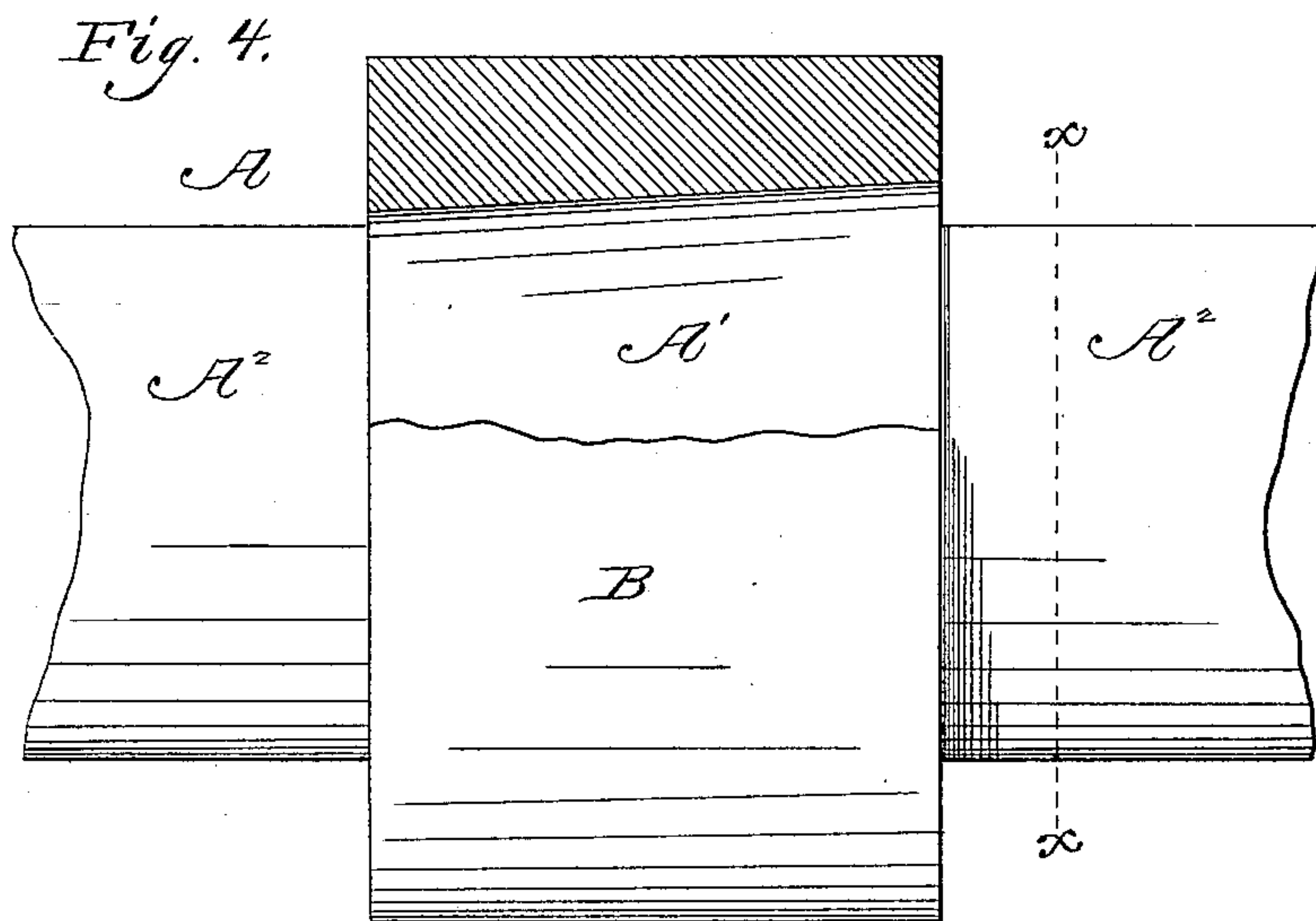
(No Model.)

2 Sheets—Sheet 2.

A. NEWELL.
ROLL FOR ROLLING MILLS.

No. 379,595.

Patented Mar. 20, 1888.



Witnesses:
John T. Long,
P. M. Hutchinson.

Inventor:
Augustus Newell,
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UNITED STATES PATENT OFFICE.

AUGUSTUS NEWELL, OF CHICAGO, ILLINOIS.

ROLL FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 379,595, dated March 20, 1888.

Application filed January 12, 1888. Serial No. 260,470. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS NEWELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rolls for Rolling-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates more particularly to rolls for rolling sheet metal, and has special reference to a construction designed to facilitate the tempering, grinding, and polishing and the regrinding and repolishing of the rolls.

For many purposes it is essential that sheet metal be of superior quality as to uniformity in thickness, smoothness, and density, and it is impossible to roll metal of such quality unless the rolls used are perfectly even as to density and smoothness throughout their surfaces. As the rolls used in this work are large and very heavy, it is difficult to temper them properly, and from the same cause it is difficult to grind and polish the surfaces of the rolls when manufactured and to regrind and repolish them when needed after use. I accomplish the result in view by forming the rolls of an arbor and shell, as hereinafter described.

In the accompanying drawings, Figure 1 is a view of the arbor. Fig. 2 is an end view of the shell. Fig. 3 is a side view of the shell. Fig. 4 is a side view of the arbor and shell combined. Fig. 5 is an end view of the arbor and shell combined.

A is an arbor, having formed upon its middle the core A'. The ends A² A² of the arbor are turned to any desired form to constitute journals. The core A' is a little thicker than the rest of the arbor, and has the form of the frustum of a cone whose sides are but a little converging, so that it is almost a cylinder. It may therefore be termed "cylindro-conical."

B is the shell. This surrounds the core of the arbor and is concentric therewith. Its exterior is cylindric, while its interior is formed to exactly fit upon said core.

The arbor may be cast and then turned upon

a lathe and used without tempering; or it may be made by turning a piece of ordinary steel or iron in a lathe and using the same without tempering.

The relatively small and light shell which I have described may be readily tempered to a superior degree, and it may be easily mounted in a lathe and the working-surface finished or refinished.

The surface of the core A' and the interior of the shell B are to be smooth, and said shell is to be pressed upon and removed from said core by some great force—as, for example, hydraulic pressure. Said core is to be so nearly cylindric as that it may be wedged so tightly into the shell as to prevent the loosening of the latter under the heaviest strains to which it is subjected in use.

The shell B is to be made of a superior quality of steel and tempered in the best manner possible and the exterior surface evened and polished in the highest degree.

It is apparent that the arbor in this separate form may be much more economically and easily made than it is possible to make the entire roll in a single piece. Furthermore, the entire roll forms a body so massive and ponderous that it cannot be properly tempered to produce the superior quality of surface needed, and this massiveness and weight make it extremely difficult to handle the roll while imparting to its working-surface the required finish.

I claim as my invention—

1. In a roll for rolling sheet metal, an arbor having at its middle a cylindro-conical core and a removable shell closely surrounding said core, concentric therewith, and whose exterior is cylindric, substantially as shown and described.

2. In a roll for rolling sheet metal, an arbor made of relatively inferior metal and having at its middle a cylindro-conical core, and a removable shell of superior steel closely surrounding said core, concentric therewith, and whose exterior is cylindric, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUSTUS NEWELL.

Witnesses:

CHARLES H. ROBERTS,
CYRUS KEHR.