W. Field.

Rolling Metal Bars.

No. 3,693. Patented Aug. 7, 1844.

Fig. 2.

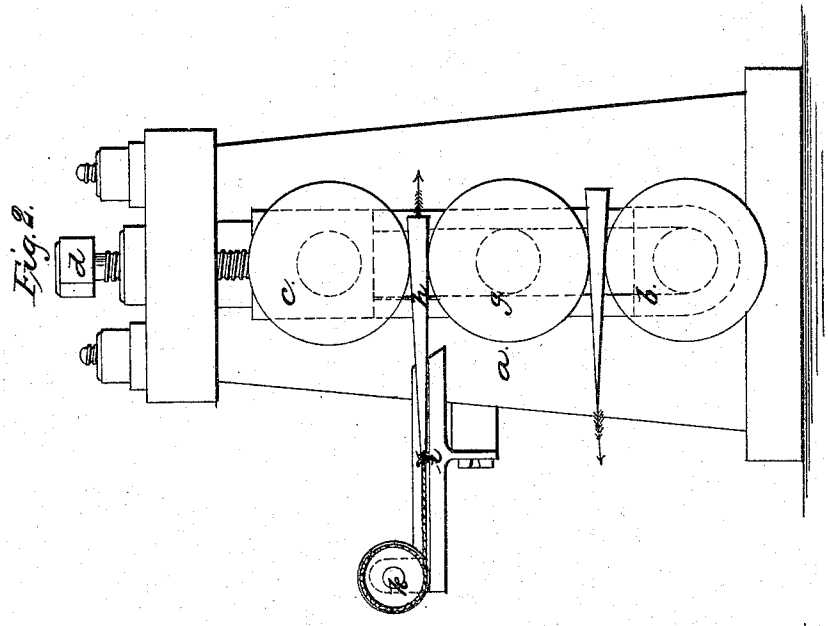
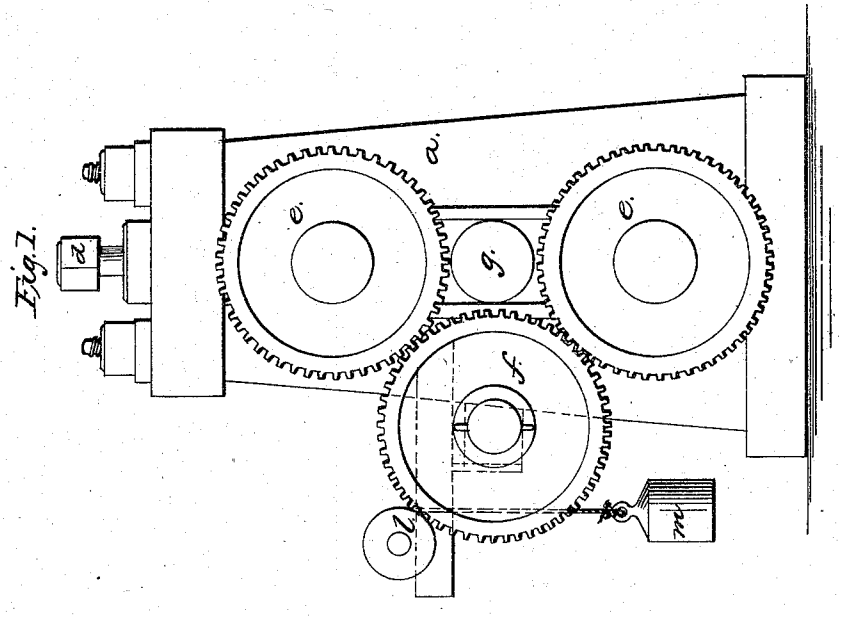


Fig. 1.



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UNITED STATES PATENT OFFICE.

WILLIAM FIELD, OF PAWTUCKET, RHODE ISLAND.

IMPROVEMENT IN MACHINES FOR ROLLING IRREGULAR FIGURES TO A PATTERN.

Specification forming part of Letters Patent No. **3,693**, dated August 7, 1844.

To all whom it may concern:

Be it known that I, WILLIAM FIELD, of Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Rolling-Mills for Rolling Bars of Unequal Thickness According to Pattern; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

Figure 1 is a geometrical elevation showing the gearing. All the cogs are not drawn on the wheels, but are indicated by dotted lines. Fig. 2 is a vertical section.

The nature of my invention consists in introducing a pattern between two rollers, which pattern varies in thickness, and consequently moves the roller a greater or less distance from the other, the movable roller having another stationary on the opposite side. Any substance that is introduced between them will partake of a form the reverse of the pattern.

The construction of my machine is as follows: A stout cast-iron frame *a a* is made similar to what is used for common rolling-mills and two rollers *b* and *c*, the lower one of which *b* is in stationary bearings, and those of the upper one are made adjustable by means of screws *d* in the usual way of tightening the rollers of common rolling-mills. These rollers are placed some distance apart, one above the other, and each has a spur-wheel *e* attached to its shaft outside the frame. These gear into another spur-wheel *f*, set a little back, and on a stud in the frame between the two rollers *b* and *c* there is a loose one *g*, that is at liberty to rise and fall between them. Over the roller *g* and between it and the upper one *c* there is put a pattern *h*. This is in the drawings a wedge-formed bar that is nearly as wide as the rollers are long and may be made as long as required for the purpose for which it is designed. On one side of the rollers there is attached to the frame a platform *i*, on which the pattern rests, with the large end between the rollers *c* and *g*. To the small end of the wedge a cord or chain is attached, that passes round and is fastened to a pulley *k*, which is stationed at the outer end of the platform *i*. On the same axis with the pulley *k* there is another *l*, from which a weight *m* depends. This draws the pattern onto the platform. If the rollers *b* and *c* are put in motion and a bar *o* of iron or other substance is inserted between the roller *g* and the lower roller *c* as it runs through, the pattern is drawn back and allows the center roller *g* to rise, by which means the bar *o* assumes a form the converse of the pattern.

It will be obvious that any other form than that of a wedge may be used for the pattern.

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

The employment of the rollers *b*, *c*, and *g*, combined and arranged in the manner and for the purpose herein set forth, in combination with the pattern, for the purpose described.

WILLIAM FIELD.

Witnesses:
JAMES HUTCHISON,
JAMES MORGAN.