

J. L. CHAPMAN.

ROLLING MILL.

No. 245,348.

Patented Aug. 9, 1881.

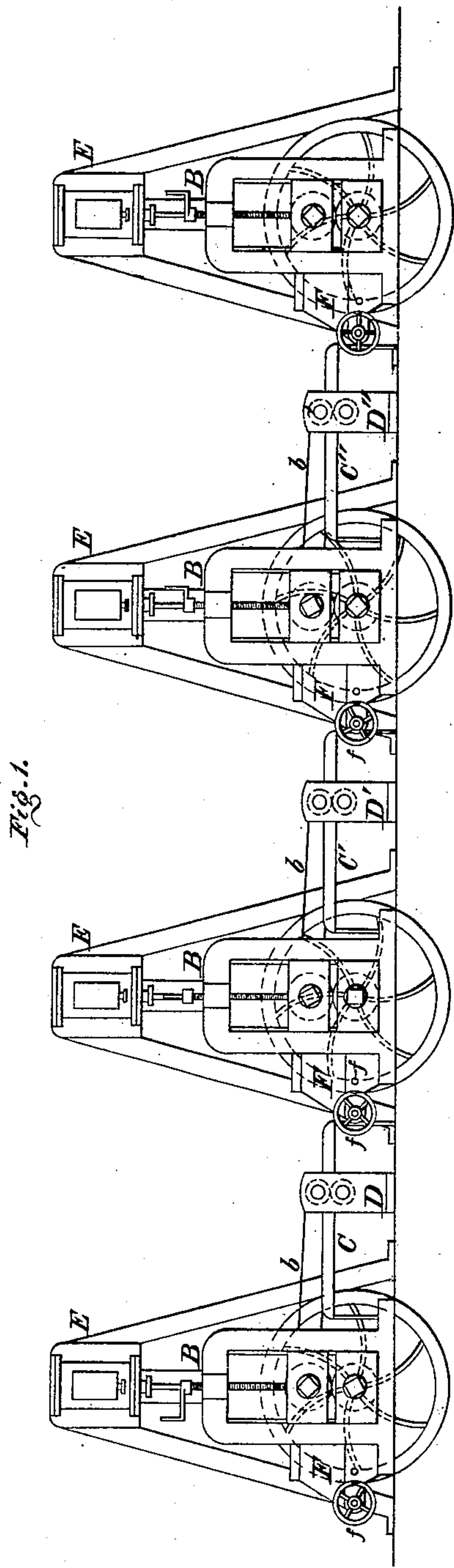


Fig. 1.

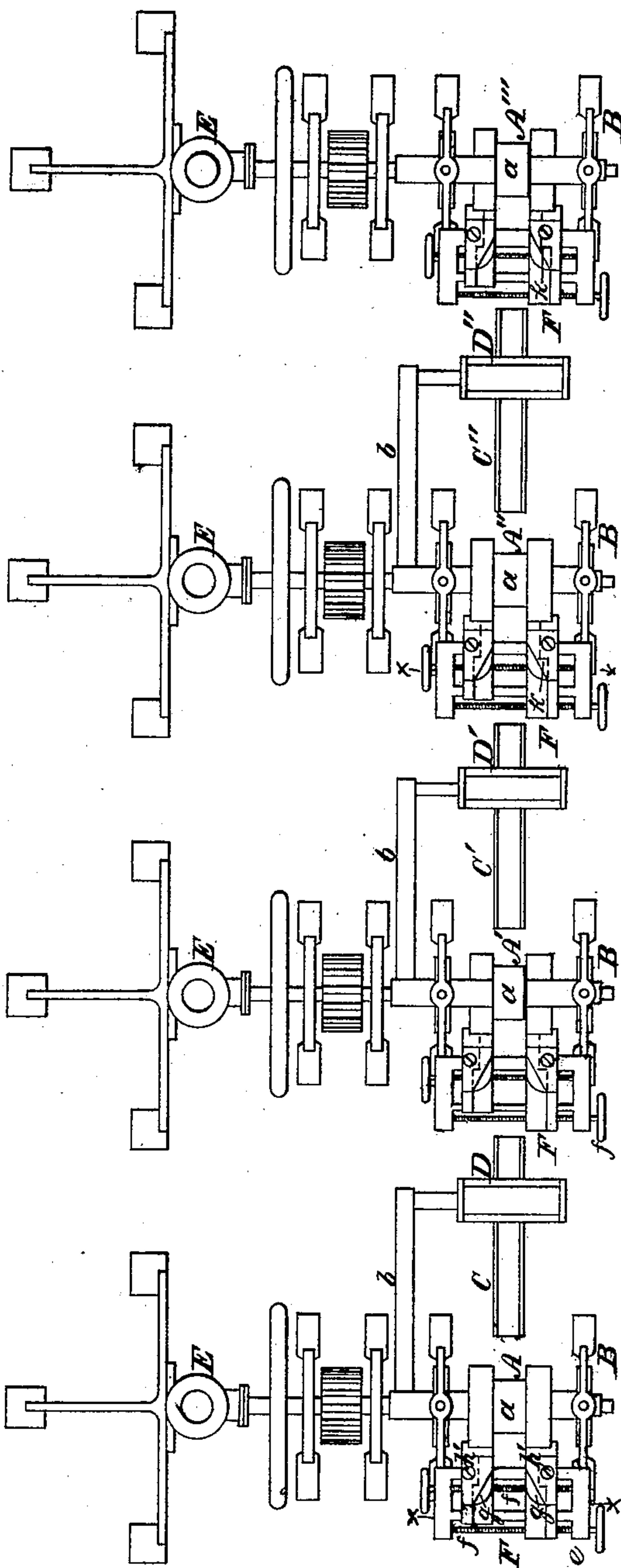


Fig. 2.

Witnesses:
J. A. Burth.
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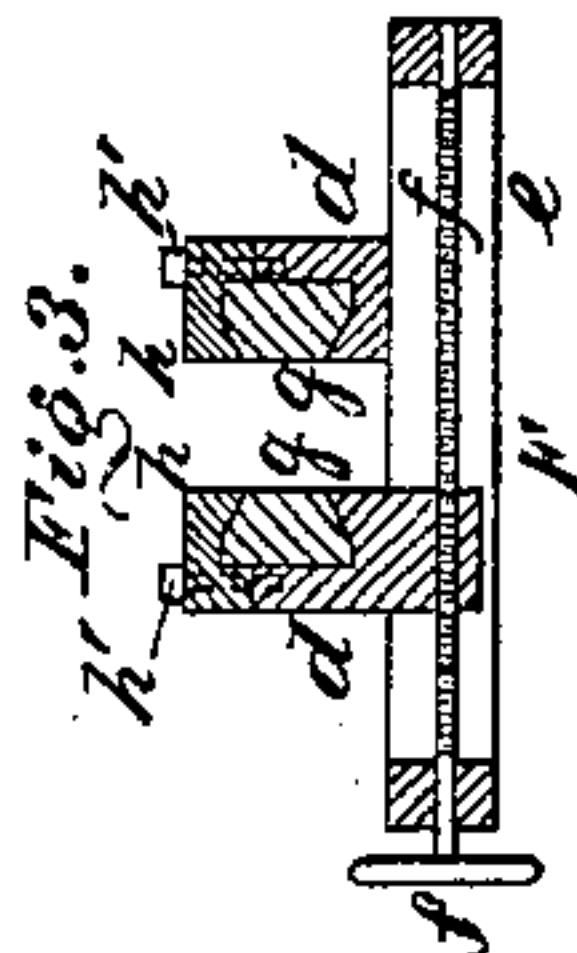


Fig. 3.

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ROLLING-MILL.

SPECIFICATION forming part of Letters Patent No. 245,348, dated August 9, 1881.

Application filed February 9, 1880.

To all whom it may concern:

Be it known that I, JOSEPH L. CHAPMAN, a citizen of the United States, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Rolling-Mills, which Improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the rolling-mill embodying my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a transverse vertical section in line *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to rolling-mills; and it consists in the combination of internally-beveled guide-blocks, having detachable similarly beveled caps, with beveled chills held by said blocks and caps, substantially as set forth.

Referring to the drawings, *A A' A'' A'''* represent a series of rolls, each mounted in housings *B*, which are arranged parallel to each other, or one behind the other, so that the working-faces *a* of the several rolls extend in the same right line.

C C' C'' represent troughs or tables located between the rolls; and *D D' D''* represent carriers or feed-rolls, which are mounted in housings between the rolls *A*, located between the sections composing the respective tables *C C' C''*—that is, each table *C*, *C'*, or *C''* is formed in two sections, one on each side of its feed-roll or carrier, so that said table constitutes a trough leading to, and also leading from, said carrier, said devices being so arranged in series that said carriers and tables extend in a right line with the working-faces of the rolls *A*, the carriers receiving rotation or power from the axes of the respective rolls *A* by means of belts *b*, or other suitable gearing or mechanism. Each set of rolls is operated by a steam or other engine, *E*, the power whereof is communicated to the shaft of one of the rolls, and thus by proper gearing to the shaft of the other roll, the several sets or series of rolls thus having power, and being rotated independently of each other.

It will be seen that when the several engines are started the several rolls are set in motion. The iron is passed through the first set of rolls,

A, and then directed by the tables *C*, and conveyed by the carrier *D* to the second set of rolls, *A'*, from which it is successively passed to and through the other rolls, *A'' A'''*, &c., the location of the carriers being such that when the iron has cleared one set of rolls it is taken by a carrier and passed to the next set of rolls, the pressure on the rolls increasing throughout the series, so that the metal will be properly reduced.

By this provision of parallel rolls operated by independent power the work of rolling metal may be easily and conveniently performed, as I avoid the tedious and severe labor of passing the metal from one roll to another, or from groove to groove, and avoid the loss of time thereof, thus accomplishing the work in an expeditious manner. Furthermore, the speed of each roll may be adjusted independently of the others, so that the passage of iron through the series may be properly accomplished under all circumstances, for, should the speed of one series be too high or too low in relation to that of the other series, or the power of either series require to be increased or decreased, it is evident that the independent engines provide for such contingencies or requirements without disturbing or interfering with the other engines or rolls performing proper work. I also avoid the use of belts for communicating motion from one set of rolls to another, and as such belts, if employed, must be necessarily long, the great expense of the same is entirely avoided, and there is reliability in the employment of independent engines, owing to the positive motions they impart to the rolls.

In front of the working-faces of the rolls are located guides *F*, each consisting of two blocks, *d*, fitted to and sliding on a bed, *e*, suitably supported near the housing, and adapted to be moved to and from each other, and independently of each other by means of screws *f*, which are swiveled to the bed *e*, whereby the blocks may be adjusted, according to the size of the iron, &c., relatively to each other and to the working-faces of the rolls.

The chills or faces *g* of the guide-blocks are readily removable from the blocks *d*, when required, and their upper and lower sides are beveled. Said chills *g* are rested on beveled

faces in the blocks *d*, and caps *h*, having their under faces beveled, are screwed to the blocks *d* and placed against the upper beveled faces of the chills. By tightening the screws *h'* the
5 chills are firmly and securely connected to the blocks, and being, as it were, centered in said blocks, owing to the bevel form thereof, they remain true in position. Shoulders *k* (shown by dotted lines) are formed on the chills and
10 blocks for preventing forward motions or shifting of the chills by the passage of the iron, thus increasing the reliability of chills and guide-blocks.

Having thus described my invention, what I claim as new, and desire to secure by Letters 15 Patent of the United States, is—

The internally-beveled guide-blocks *d*, provided with detachable similarly beveled caps *h*, jointly with the beveled chills *g*, substantially as set forth.

JOSEPH L. CHAPMAN.

Witnesses:

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