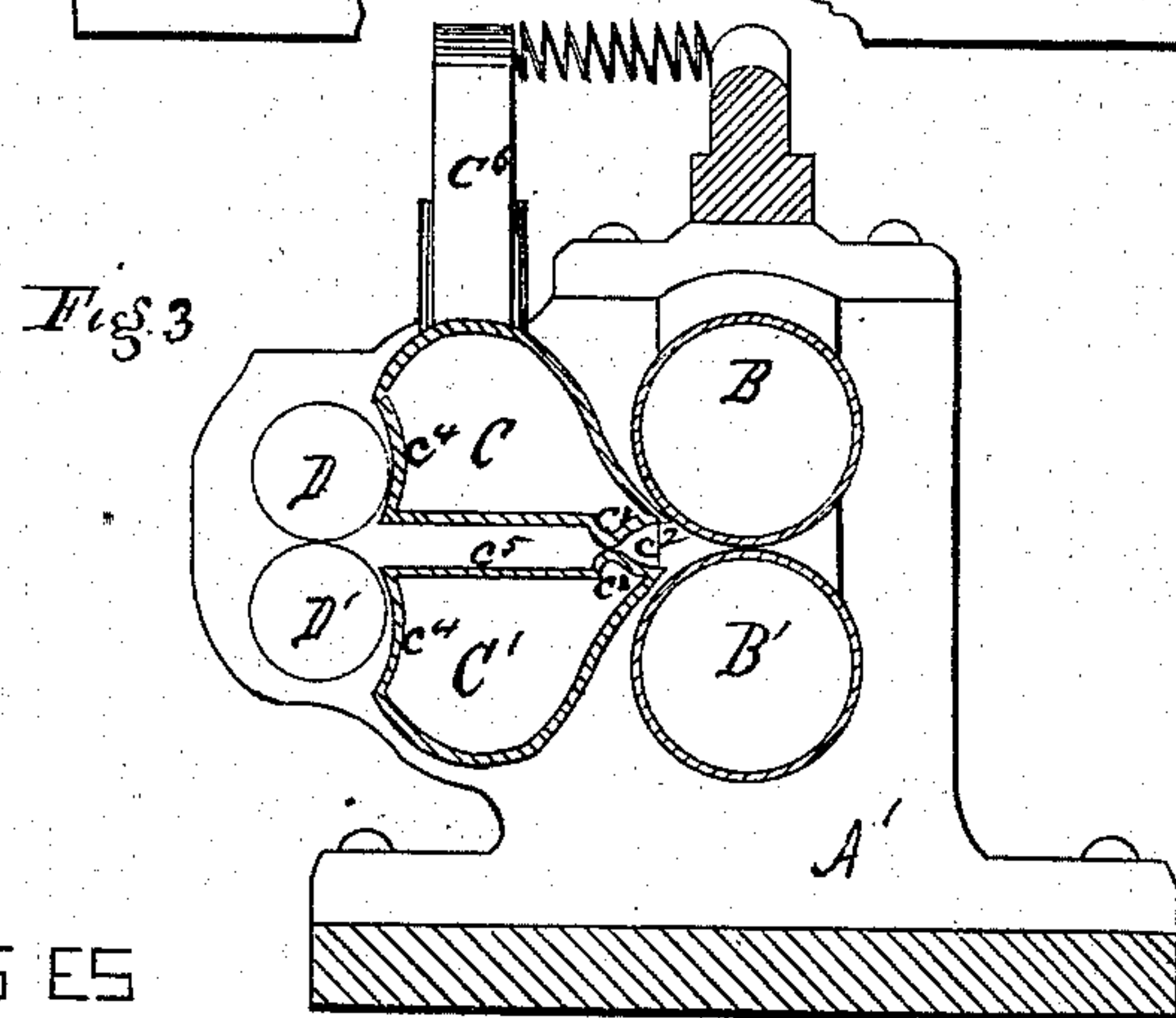
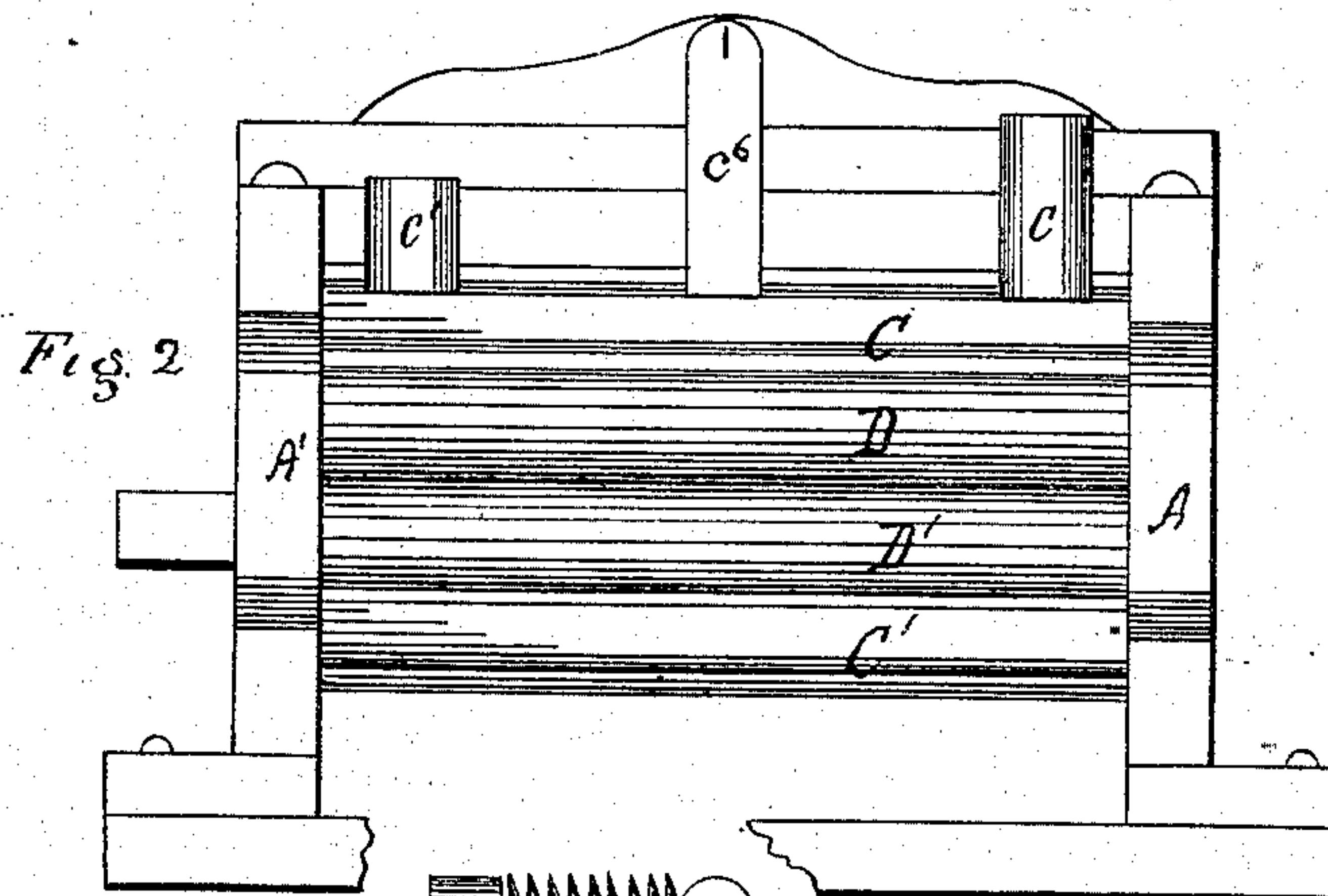
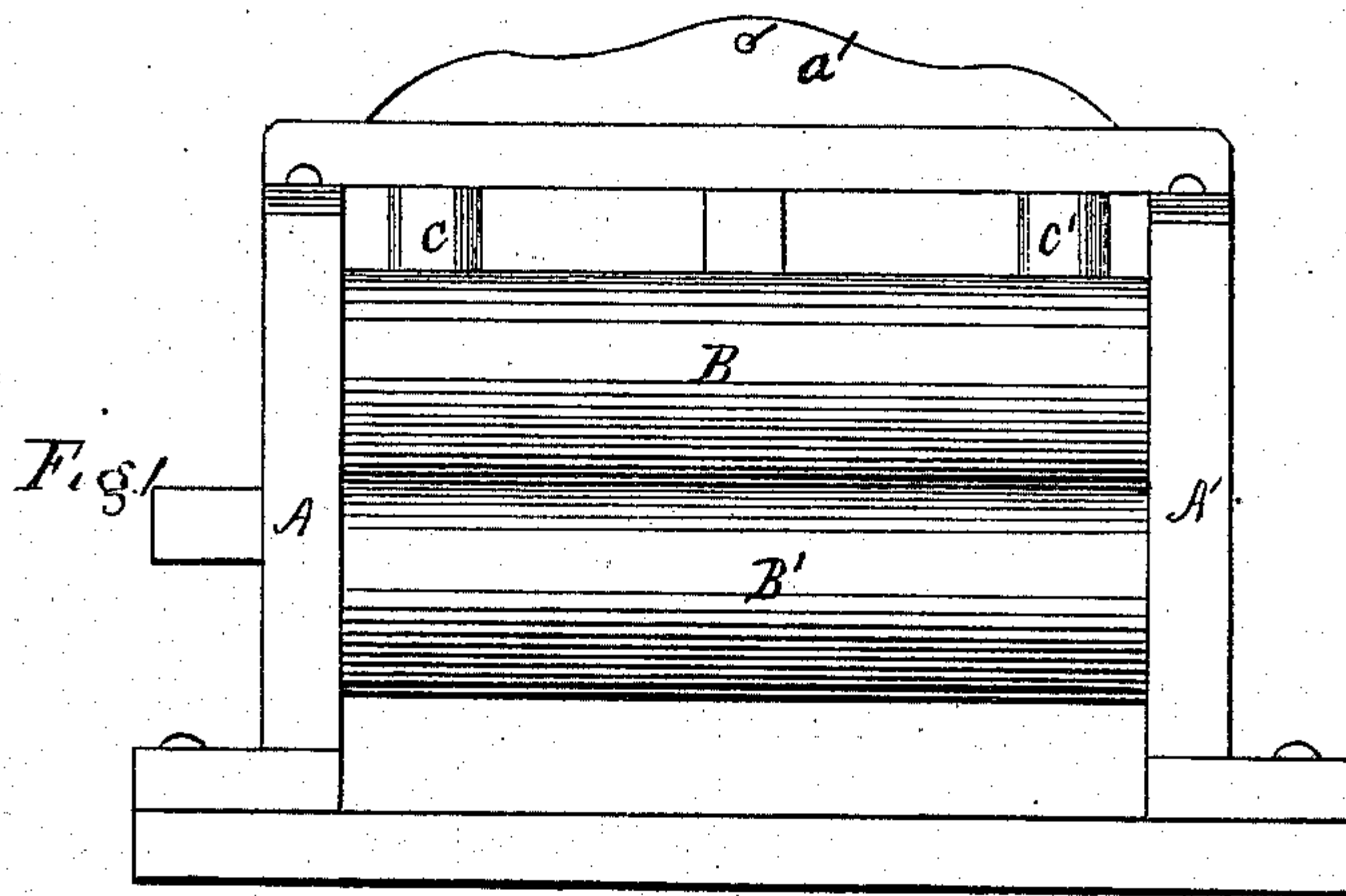


T. H. JOHNS.

Apparatus for the Manufacture of Tin-Plates.

No. 157,687.

Patented Dec. 15, 1874.



WITNESSES

E. C. Fidler
Frederick Standish

INVENTOR

Thomas H. Johns
by Bakewell & Ken
Atty

UNITED STATES PATENT OFFICE.

THOMAS H. JOHNS, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF TIN-PLATE.

Specification forming part of Letters Patent No. **157,687**, dated December 15, 1874; application filed August 18, 1874.

To all whom it may concern:

Be it known that I, THOMAS H. JOHNS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Manufacturing Tin-Plate; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a front elevation of my machine. Fig. 2 is a rear elevation; and Fig. 3 is a vertical section.

Like letters indicate like parts in the several figures.

My invention relates to improvements in apparatus for the manufacture of tin-plate; and it consists, first, in the combination of a set of steam or similarly heated hollow rolls and scrapers for maintaining the heated condition of the coating upon the plate as it comes from the bath, and for removing the surplus metal; and, secondly, in the combination of steam or similarly heated hollow scrapers and a set of drawing and finishing rolls, for drawing the sheet through the scrapers, smoothing the surface of the tin-plate as it comes from the scraper, so that a smoothly-finished article is obtained without the use of the grease-bath and the listing-bath, heretofore employed.

Heretofore, in the manufacture of tinned sheet-iron and similar articles, the process has been a long and tedious one, consisting in subjecting the metal to the first or tinning bath; the second, called the washing-bath; then to a bath of boiling grease, to remove any superfluous tin; after which it was removed and the lower edges of the plate dipped in melted tin to remove any thick metal remaining upon the edges—this bath being called the listing-bath; and finally the plate was rubbed and cleaned with bran of several grades before the article was finally completed and ready for market.

The object of my invention is to provide means for finishing the plate directly from the first tin-bath, and avoiding the several steps above cited.

In the drawings referred to in this specification, A A' represent the housings, in which are mounted hollow rolls, hollow scrapers, and

the solid drawing and finishing rolls, as hereinafter specified. B B' are hollow rolls, placed one above the other in the housings A A', to which hot air or steam is admitted through the hollow journals. These rolls are intended to receive the plate from the bath, and to equalize the tin surface, and it is desirable that they should be heated to such a temperature, either by hot air or in other suitable manner, as will preserve the tin-coating of the plate in a plastic condition. C C' indicate two scrapers, which are also journaled in the housing A, and are hollow, for the circulation of hot air or steam, as specified, for the rolls, being provided with the pipe c^1 for that purpose. These scrapers are preferably of the form shown in cross-section in the drawing—that is, grooved at c^2 , where the plate passes from the heated roller to the scraper, and having the lips c^3 , which press upon the plate, removing the surplus material. The rear faces of the scraper may be made concave, as shown at c^4 , to receive the drawing and finishing rolls D D', the scrapers being recessed at c^5 , so as to allow a clearance to prevent the plate from contact with the heating-surface of the scraper. c^6 represents standards attached to the scraper, from which a spring, or equivalent device, passes to a cross-bar, a' , the object of which is to cause an even pressure upon the plate passing between the scrapers. D represents a pair of solid drawing and finishing rolls, which receive the plate from the scraper and draw the plate forward as well, and smooths the surface, completing the article. These rollers may be solid rollers, and are also mounted in the housing. The main rolls B B' and the rolls D D' may be geared in any suitable manner, so as to be driven from the same motor, and should be so geared as to run at an equal speed.

The operation of my machine is as follows: The sheet, having been pickled, put through the usual sal-ammonia solution, and submitted to the tinning-bath, is at once passed between the heated rollers A A', which spread the metal evenly over the surface of the sheet and preserve it at such a temperature as when passed through the scraper the surplus metal shall be removed by them. After passing through the scraping-lips, the sheet is seized

B B

and drawn forward by the drawing or finishing rollers D, which smooth and finish the surface of the sheet, and from which is delivered an article equal to that now manufactured by the tedious process heretofore mentioned.

The advantages of this apparatus are, that the dipping, which has heretofore required much care, and the time lost in allowing the dripping of the sheet, the use of the grease-bath to remove the surplus metal, and the tedious operation of finishing by the bran process are avoided, and the thickness of the coat is easily regulated by the scrapers C C', which may be set to any thickness required in the finished article.

Having thus described my invention, what I claim is—

1. In a machine for finishing tin-plate, the combination of the hollow steam-heated rolls

B B', substantially as and for the purpose specified.

2. In combination with the heated rollers B B', scrapers C C', substantially as and for the purpose specified.

3. In combination with the hollow steam-heated scrapers C C', the drawing and finishing rolls D D', substantially as and for the purpose specified.

4. The combination of the heated rolls B B', scrapers C C', and the drawing and finishing rolls D D', substantially as and for the purpose specified.

In testimony whereof I, the said THOMAS H. JOHNS, have hereunto set my hand.

THOMAS H. JOHNS.

Witnesses:

T. B. KERR,

F. W. RITTER, Jr.