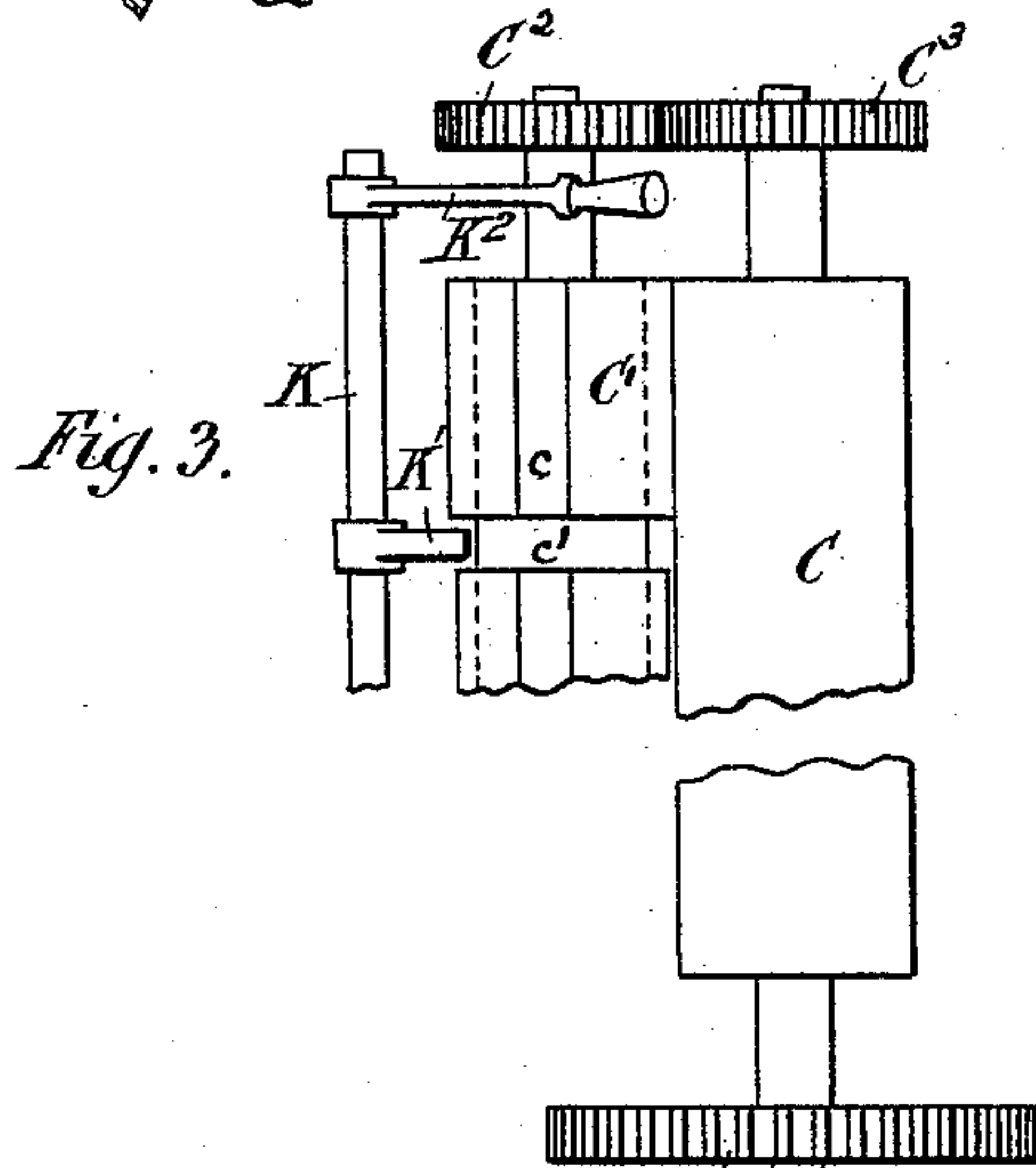
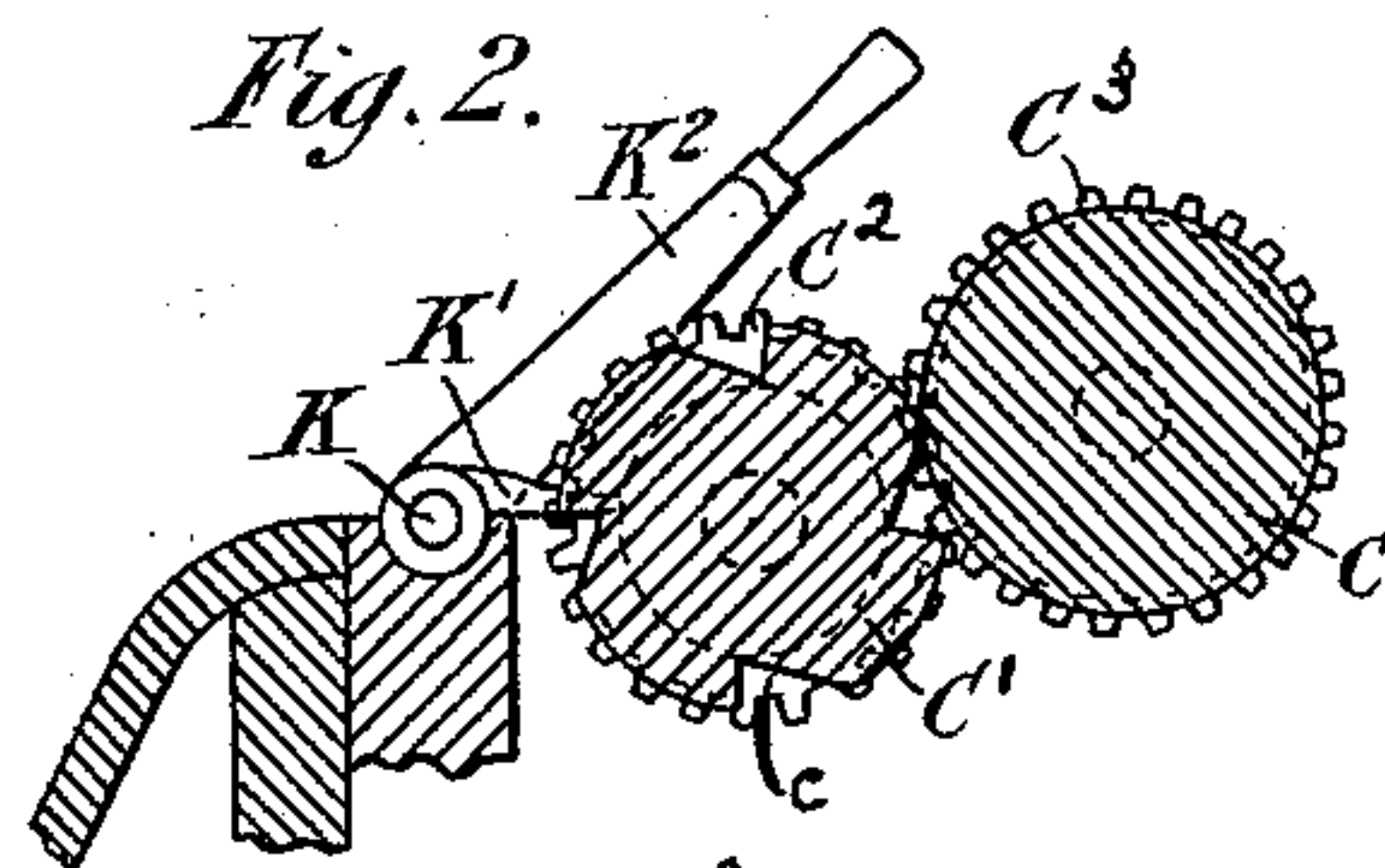
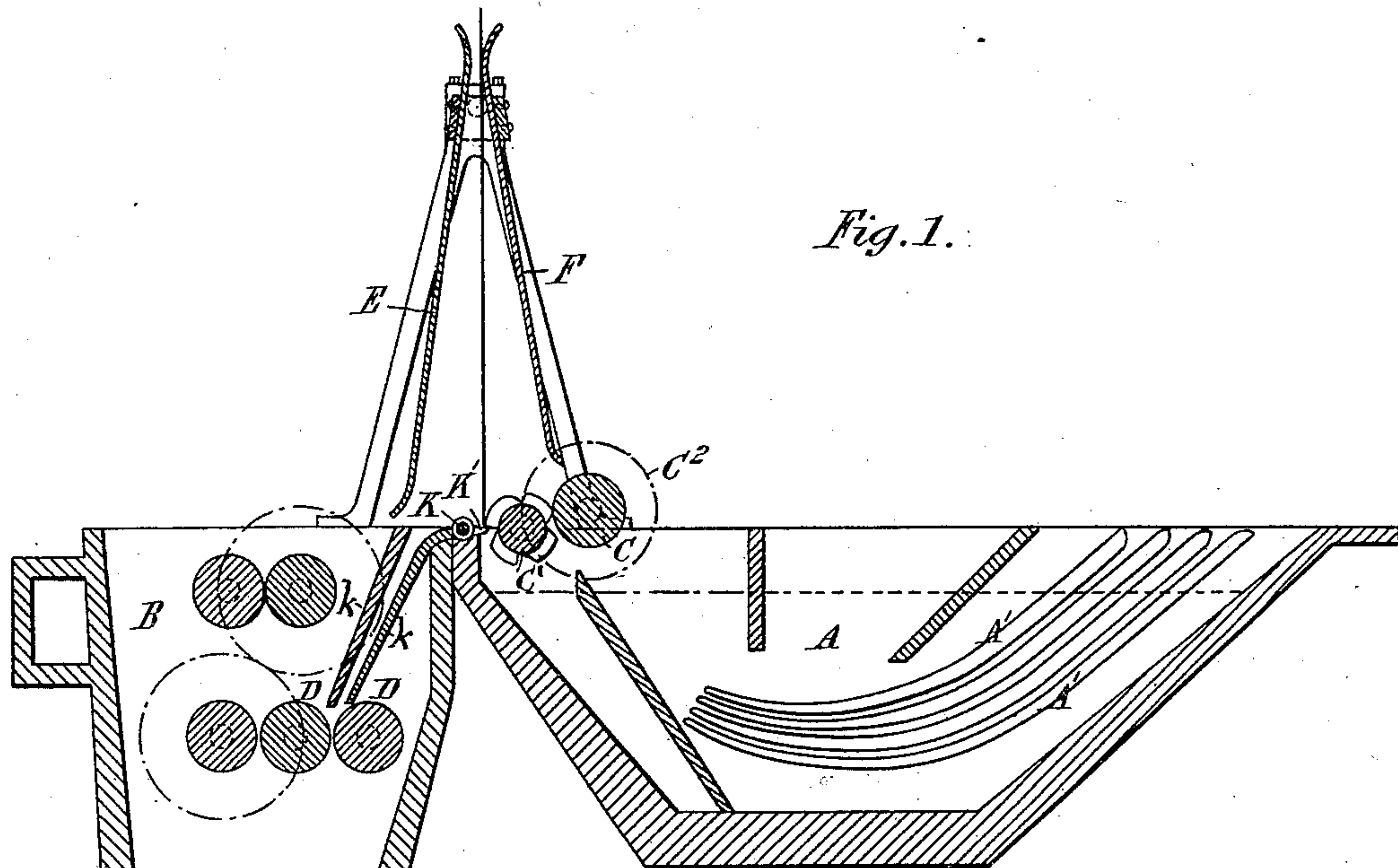


(No Model.)

D. EDWARDS, R. LEWIS & P. JONES.
APPARATUS FOR TINNING PLATES.

No. 428,080.

Patented May 20, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

DANIEL EDWARDS, RICHARD LEWIS, AND PHILIP JONES, OF MORRISTON,
SWANSEA, ENGLAND.

APPARATUS FOR TINNING PLATES.

SPECIFICATION forming part of Letters Patent No. 428,080, dated May 20, 1890.

Application filed October 26, 1889. Serial No. 328,334. (No model.) Patented in England December 13, 1887, No. 17,169.

To all whom it may concern:

Be it known that we, DANIEL EDWARDS, tin-plate manufacturer, RICHARD LEWIS, foreman, and PHILIP JONES, mechanic, subjects of the Queen of Great Britain, all residing at the Dyffryn Iron and Tin Plate Works, Morriston, Swansea, England, jointly have invented certain new and useful Improvements in Apparatus for Coating Metal Plates with Tin or other Metal, (for which we have received Letters Patent in Great Britain, No. 17,169, dated December 13, 1887,) of which the following is a specification.

In the specification of a former United States Patent granted to us April 17, 1888, No. 381,226, we described means whereby with a "tinning" pot or bath of suitable dimensions we were able to allow each plate which was to be coated to dwell for a time in the melted coating-metal, and yet to carry on the coating continuously and uniformly. We also described using with such apparatus a "dipping-pot" containing finishing coating-metal, the plates being introduced into such dipping-pot by hand after coming from the tinning-pot.

In an application filed simultaneously herewith, Serial No. 328,333, we have described a way in which the plates as they emerge from the tinning-pot might be guided downward into the dipping-pot. The way described in that application is well adapted for coating thin plates.

The object of our present invention is to facilitate the passing of thicker plates from the first or tinning pot to the second or dipping pot. For this purpose we cause each plate as it is raised by withdrawing-rolls from the first pot to pass up between two sets of arms or guides, and while it is between these arms or guides we cause the lower end of the plate to be carried by carrying mechanism from over the tinning-pot where it emerged to a position above the rollers in the dipping-pot, between which rollers the plate is then allowed to descend.

The subject-matter claimed will hereinafter specifically be designated.

Figure 1 of the drawings annexed is a vertical section of apparatus arranged in accordance with our invention. Fig. 2 is a trans-

verse vertical section, to a larger scale, of a part of the apparatus. Fig. 3 is a plan of the parts shown by Fig. 2.

A is the tinning-pot.

A' A' are fixed guides in the tinning-pot, between which the plates are placed and allowed to remain for a time before they are pushed forward in succession.

B is the dipping-pot; C C', the rolls by which plates are lifted up from the tinning-pot.

E and F are fixed arms or guides between which the plates rise.

K is a rock-shaft, mounted above the edges of the two pots where they meet together, on which are fingers K'. When the shaft is in the position shown in the drawings, the ends of these fingers pass into grooves c', formed around the roll C', which is next to them. Longitudinal grooves c are also formed in this roller, as shown more clearly on a larger scale at Figs. 2 and 3. Preferably the central part of this roll is of slightly-less diameter than the ends of the roll, so that the plates are only nipped at their edges between the rolls C C', and the central part of the plate is not liable to be marked by the grooves in the roll C'. The rolls C C' may be driven by gears C² C³ C⁴, Fig. 4, or in other well-known ways, from any suitable prime-mover.

When a plate has been drawn up from the tinning-pot by the rolls C C', the lower edge of the plate drops into one or other of the longitudinal grooves in the roll C', and as the roll revolves it carries the bottom edge of the plate onto the top of the fingers K'. The workman then gives a half-turn, or thereabout, to this shaft K by a lever-arm K² upon it, and thereby causes the fingers to carry the bottom edge of the plate over the tinning-pot and the plate slides off the fingers into the pot between guides h and rollers D. The workman then rocks back the fingers to their former position to bring them into position for receiving another plate from the tinning-pot.

It is old to carry a plate upward between rollers into the forks of a spring-clip arm rocking on an axis which rises, rocks, drops the plate into a second pot, and then resumes its normal position, and we do not, therefore,

broadly claim a rocking clamping-carrier. In our improved apparatus, on the contrary, neither the guides nor the transferring mechanism rise and fall, but move in fixed bearings, thus enabling us to dispense with mechanism for raising or lowering the carrier.

Having thus fully described the organization and operation of our improved apparatus for coating metal plates with tin or other metals, what we claim therein as new and of our own invention is—

1. The combination, substantially as hereinbefore set forth, of a tinning-pot, its withdrawing-rollers, a dipping or finishing pot, and a carrier between the pots constructed and arranged to receive the lower edge of the plate and carry it over from one pot to the other.

2. The combination, substantially as hereinbefore set forth, of a tinning-pot, its withdrawing-rollers, one of which is longitudinally grooved, a rock-shaft, its fingers, and guides for the plate above the rock-shaft, these parts so operating that the lower edge of the plate is conducted into one of the longitudinal grooves of the roller, by the rotation of which it is deposited on the fingers and by the rocking of which it is discharged into the dipping-pot.

3. The combination, substantially as hereinbefore set forth, of a tinning-pot, its withdrawing-rollers, a dipping-pot, its rollers and guides, guides above the pots, longitudinal and annular grooves in one of the withdrawing-rollers, a rock-shaft turning in bearings between the pots, and fingers on the rock-shaft adapted to work in the annular grooves so as to receive the lower edge of the plate from the longitudinal grooves and transfer it to the guides of the finishing-pot.

DANL. EDWARDS.

RICHID. LEWIS.

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Witnesses to the signatures of the said Daniel Edwards and Philip Jones:

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