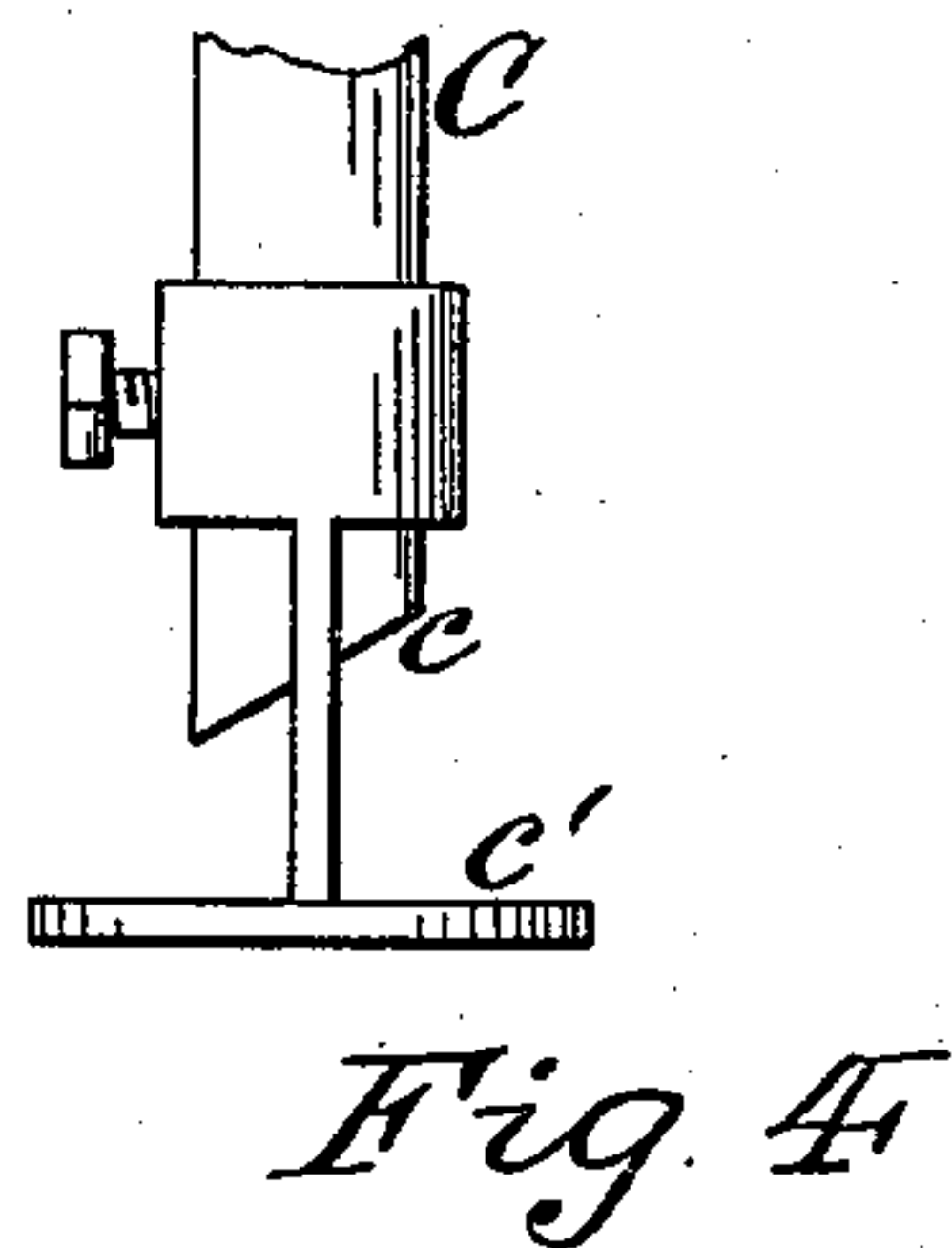
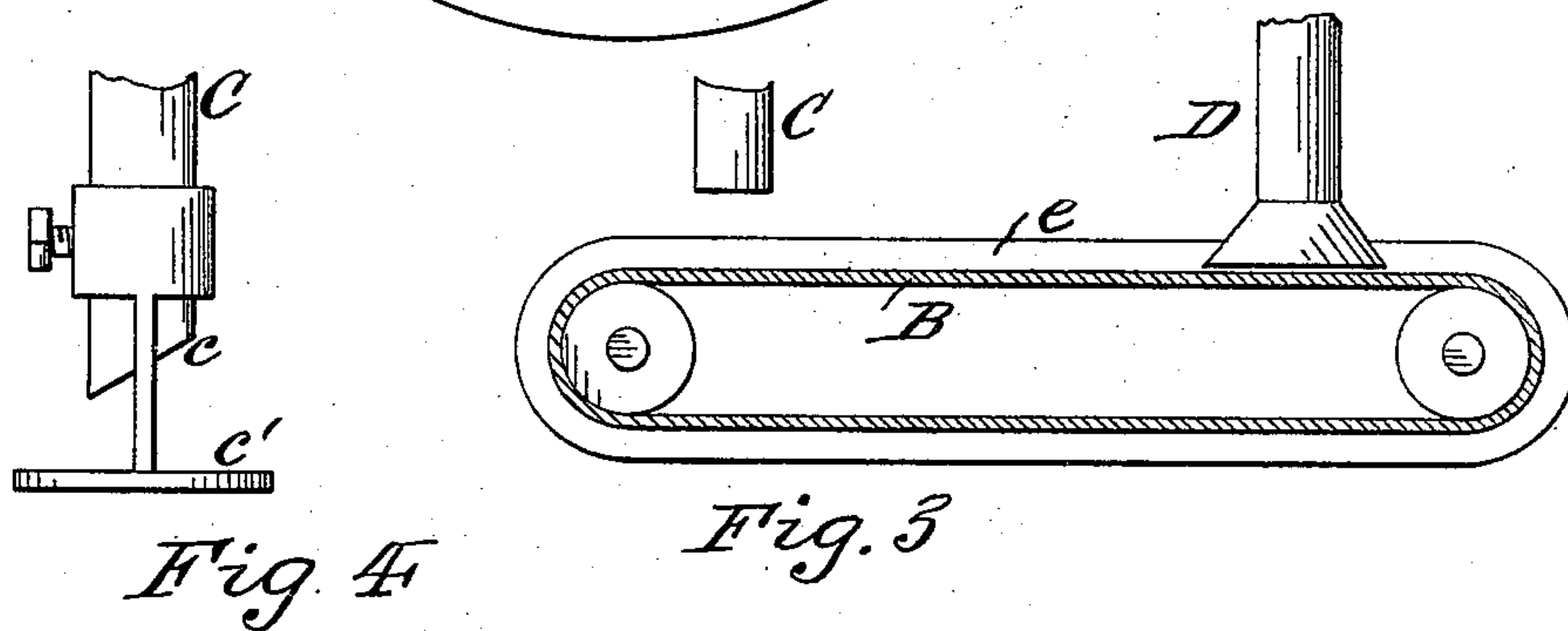
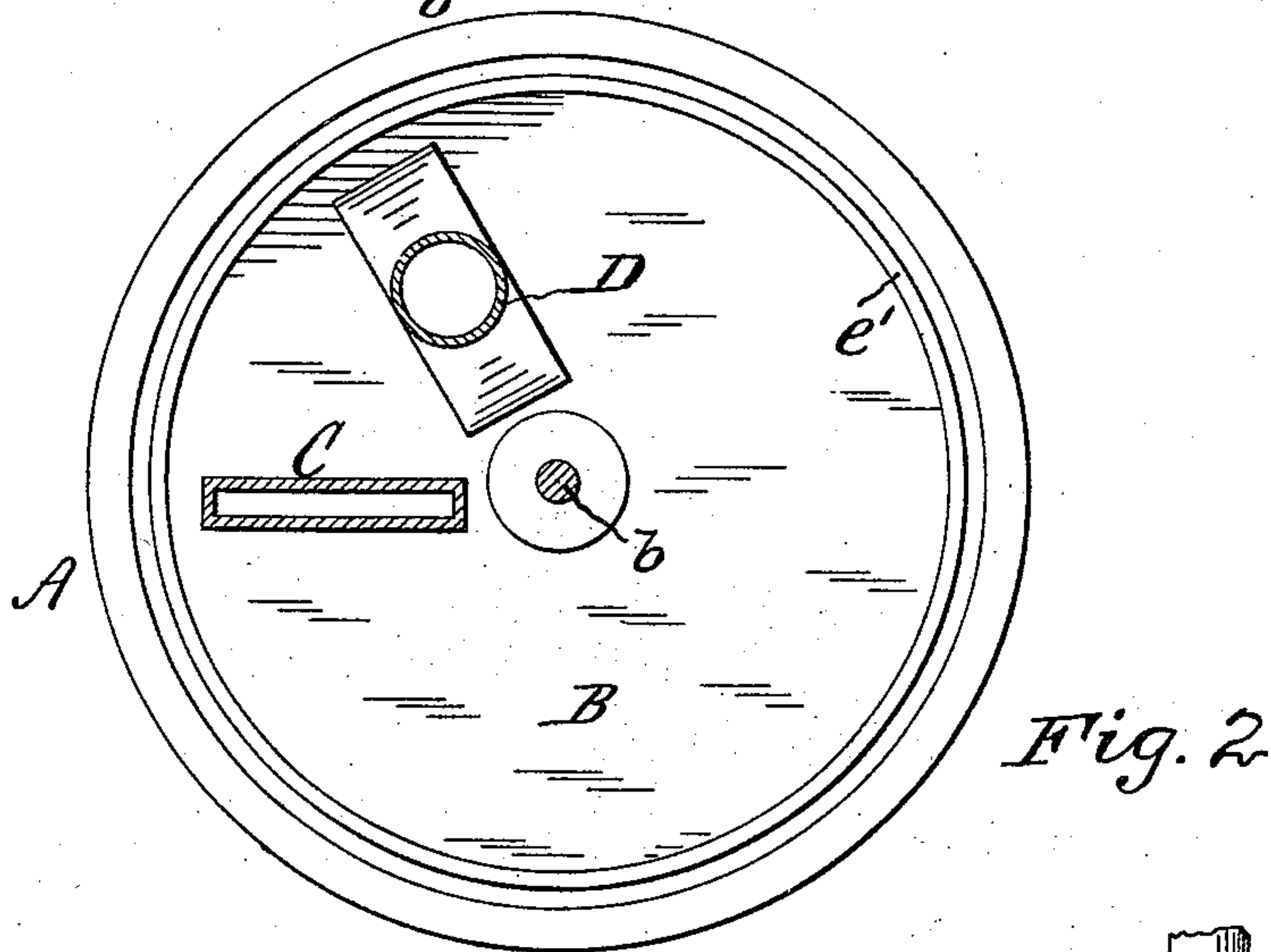
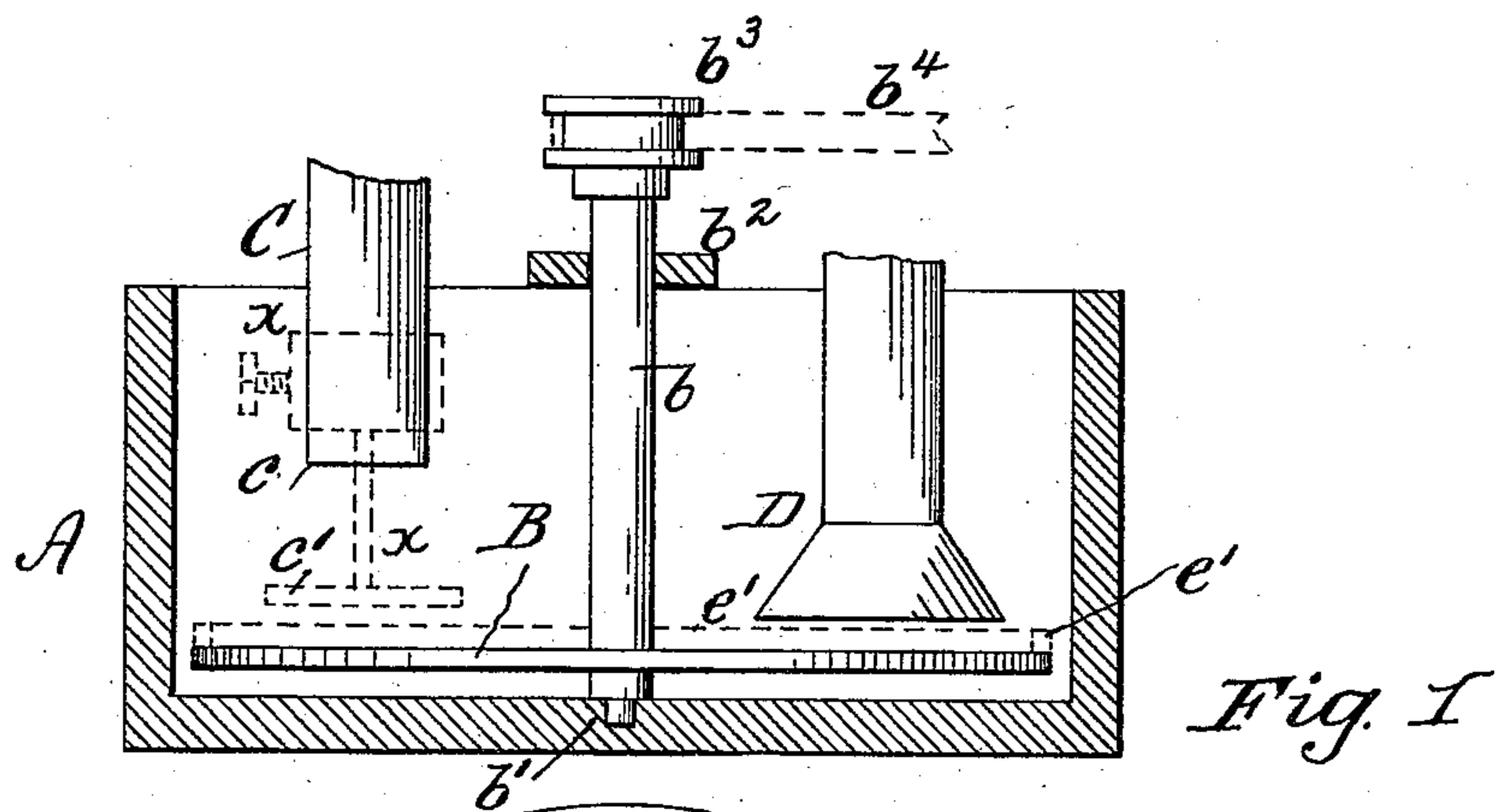


(No Model.)

C. F. PIKE.  
ORE WASHER OR CONCENTRATOR.

No. 528,970

Patented Nov. 13, 1894.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

## ORE WASHER OR CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 528,970, dated November 13, 1894.

Application filed April 6, 1894. Serial No. 506,648. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. PIKE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ore Washers or Concentrators; 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.

My invention has relation generally to amalgamators, and particularly to that type of the same, in which amalgamating-plates are employed for recovering the metal from the ore; and it has for its object a more efficient form of amalgamator of the kind described, and further to so feed the ore into the amalgamator, deposit it upon the amalgam-plate and discharge the gangue or waste from the plate and the amalgamator, that scratching or rubbing of the amalgam from the plate by the ore or its waste-matters is avoided, or in other words, the ore has no sliding movement of its own upon or over the amalgam-plate to deteriorate the latter, but is deposited vertically on the plate and is carried by said plate to the discharge end of the amalgamator and at such end the waste matters are raised vertically from the plate and removed from the amalgamator by suction-discharge.

My invention accordingly consists of the method of feeding ore upon and discharging it from an amalgam-plate and of the combinations, constructions and arrangements of parts, as hereinafter more fully described in the specification and pointed out in the claims.

Reference is had to the accompanying drawings wherein—

Figure 1, is a vertical section of a form of amalgamator embodying my invention. Fig. 2, is a plan of the same, with the section pipe in a different location. Fig. 3, is a vertical section of another form of amalgamator embodying my improvements, and Fig. 4, is an elevation of a form of feed-tube for the amalgamator having a form of adjustable arresting plate at its exit end.

A represents an amalgamator which may be of any suitable or desired form of con-

struction having an amalgam-plate B suitably arranged or constructed to correspond with the form of the amalgamator A, or, as the demands of service require. Such plate as shown is provided with mechanism for rotating or moving it so that all its parts or surface will successively move from the feed end of the amalgamator to its discharge end.

In Fig. 1, the plate B is represented as circular in outline and is mounted upon a vertically arranged shaft  $b$  in bearings  $b'$   $b^2$  in the amalgamator, which shaft is provided with a pulley and belt or other power transmitting mechanism  $b^3$  and  $b^4$  or as the demands of service require.

C is the feed tube or inlet end of the amalgamator, which may consist of a plain tube having an open end  $c$  as shown in Fig. 1, or it may be provided with a sliding adjustable arresting plate  $c'$  as indicated by dotted lines  $x$  in Fig. 1 and in detail in Fig. 4.

The exit end of tube or feed C may be adjacent to the plate so as to obtain a drop-feed for the ore from tube C to plate B.

D represents the discharge for the amalgamator which may consist of any suitable form of suction-device, preferably a suction-pump, but as it is well known, it is not illustrated in the drawings.

In Fig. 3, the amalgam-plate B is in the form of an endless belt which may have raised edges  $e$  if desired, or such edges may be dispensed with.

The circular form of plate B shown in Fig. 1 may, if desired, have a raised edge  $e'$  as indicated by dotted lines in said figure or by full lines in Fig. 2 so as to make such plate dish-shaped.

From the foregoing it will be noted that the feed device C is relatively located distantly from the discharge-device, and the former deposits the ore upon the amalgam-plate B, which ore while it is on the plate has no motion of its own but is in a quiescent state and is conveyed by the plate to the discharge device D which lifts the waste-matters from the plate and discharges them from the amalgamator.

The feed is preferably dropped upon the amalgam plate B in a dispersed condition or spreading stream so that the particles of metal



therein tend to descend to the plate B in advance of the waste matters. By so feeding the ore upon the amalgam plate B and using the latter as a vehicle for carrying or moving the waste material to the discharge device which is preferably a suction discharge, a large volume or body of ore may be rapidly passed through the machine or in other words, the output of the machine is increased to a maximum with corresponding efficient concentration of the metal in the ore.

By feeding the ore vertically upon the plate B and correspondingly discharging it therefrom, the waste-matters of the ore do not rub or scratch the amalgam from the plate B and hence its efficiency and life are materially increased.

From the foregoing it is also evident that the construction and arrangements of parts for practicing my invention may be greatly varied without departing from the spirit of the invention and hence I do not limit myself to the construction and arrangement of parts as herein shown and described.

What I claim is—

1. In an amalgamator having amalgam plates, the method of preventing the ore or its waste-matters scratching or rubbing the amalgam from the plates, which consists of feeding the ore upon the plate, then causing the plate to convey the ore or its waste-matters to the discharge end of the amalgamator, and then removing the waste-matters from the plate by suction discharge, substantially as set forth.

2. In an amalgamator having amalgam plates, the method of preventing the ore or its waste matters rubbing or scratching the amalgam from the amalgam plates, which consists in feeding the ore vertically upon the plate, then causing the plate to convey the ore or its waste-matters to the discharge-end of the amalgamator, and then discharging such waste matters vertically from the plate by suction discharge, substantially as set forth.

3. In an amalgamator the combination of a movable amalgam plate, a feed device and a suction discharge device, substantially as set forth.

4. In an amalgamator, the combination with a distantly located feed-device and a suction-discharge device of a movable amalgamated conveyer-plate, substantially as set forth.

5. In an amalgamator, the combination of a movable amalgam plate, a feed-device having at its lower-end an adjustable arresting plate, and a suction discharge, substantially as set forth.

6. In an amalgamator, the combination of a rotating amalgam-plate, a feed-device having at its exit-end an arresting-plate, adjusting mechanism for said plate, and a suction discharge, substantially as set forth.

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

CHARLES F. PIKE.

Witnesses:

THOS. S. RODGERS,  
S. J. VAN STAVOREN.