

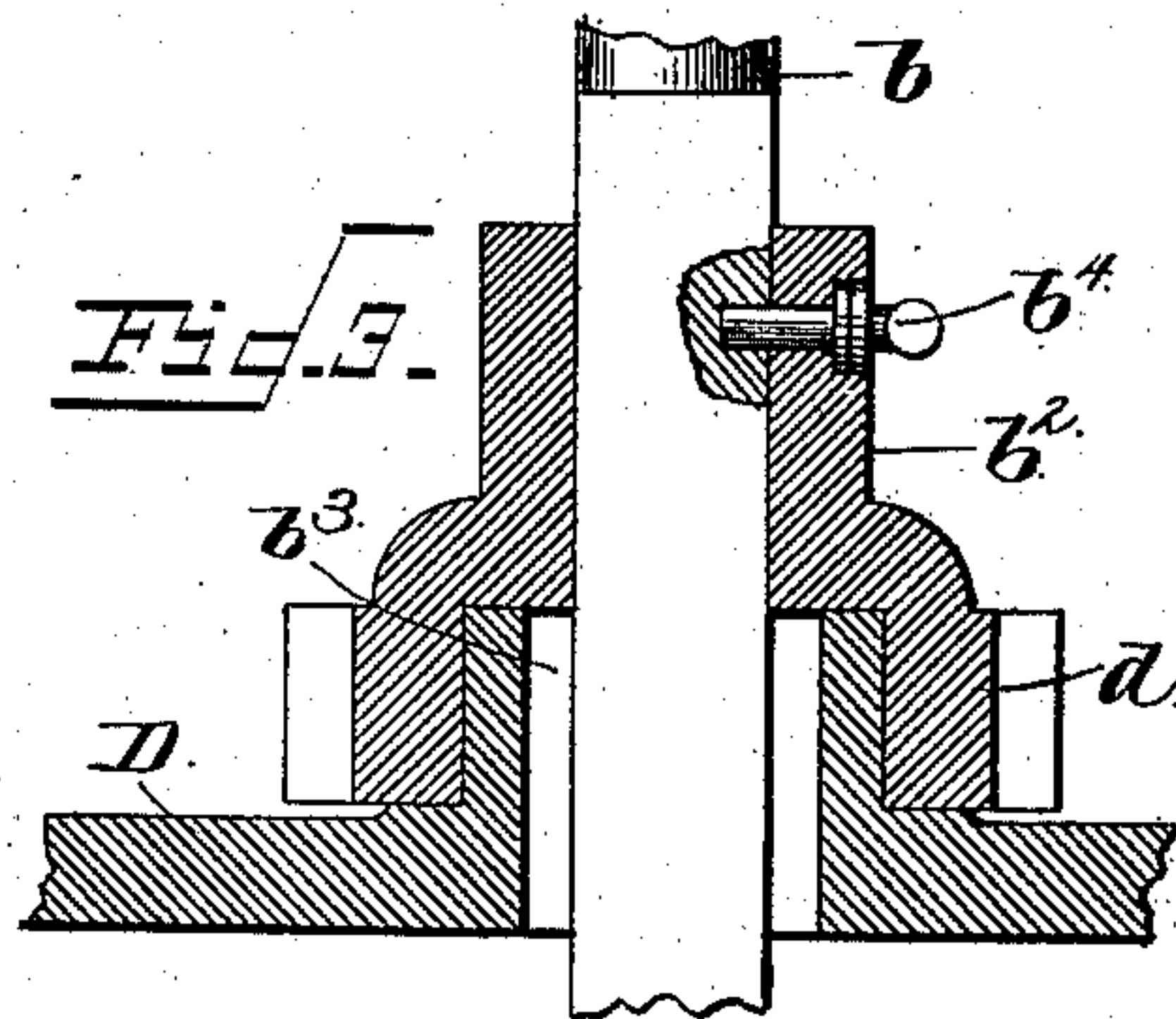
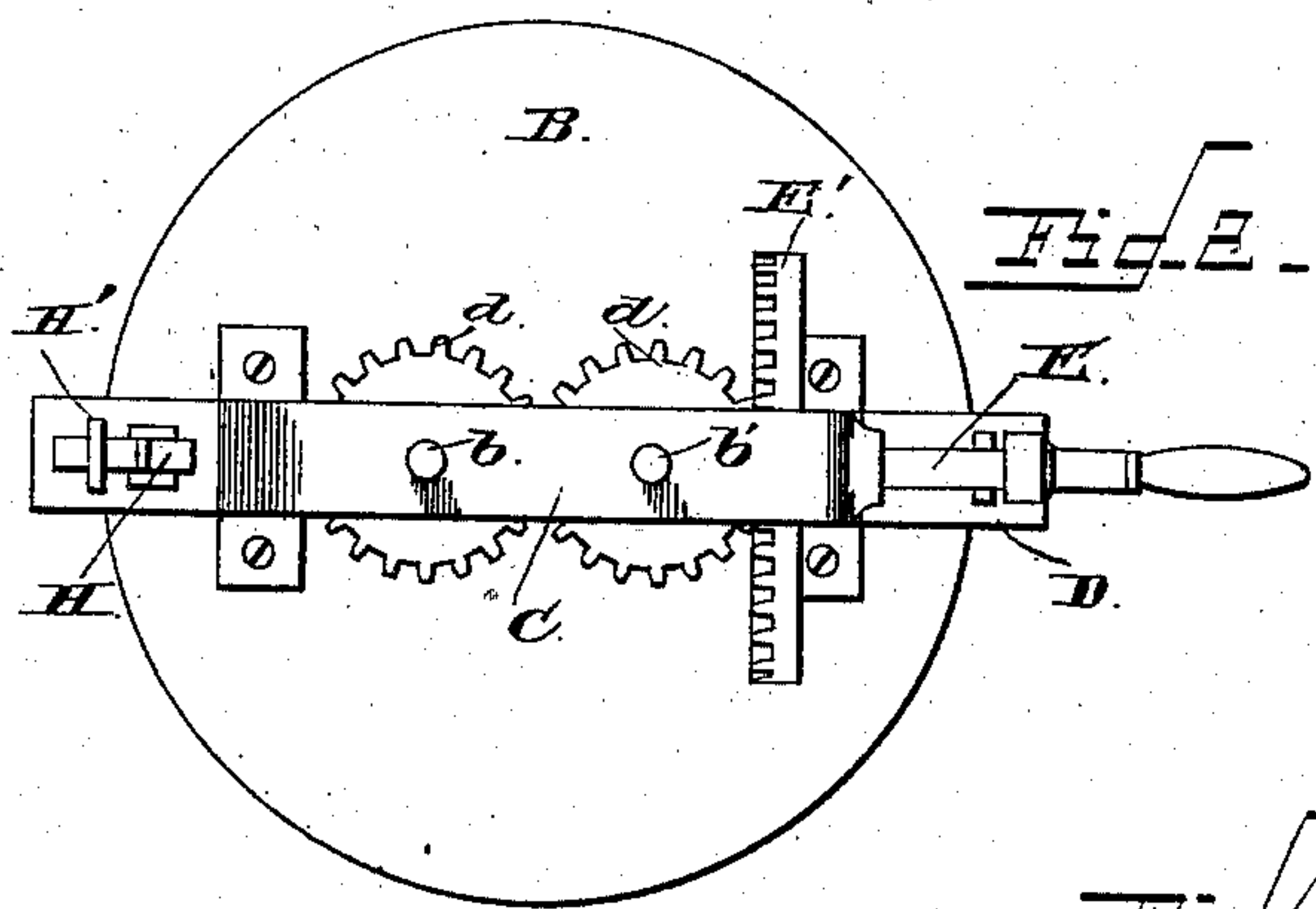
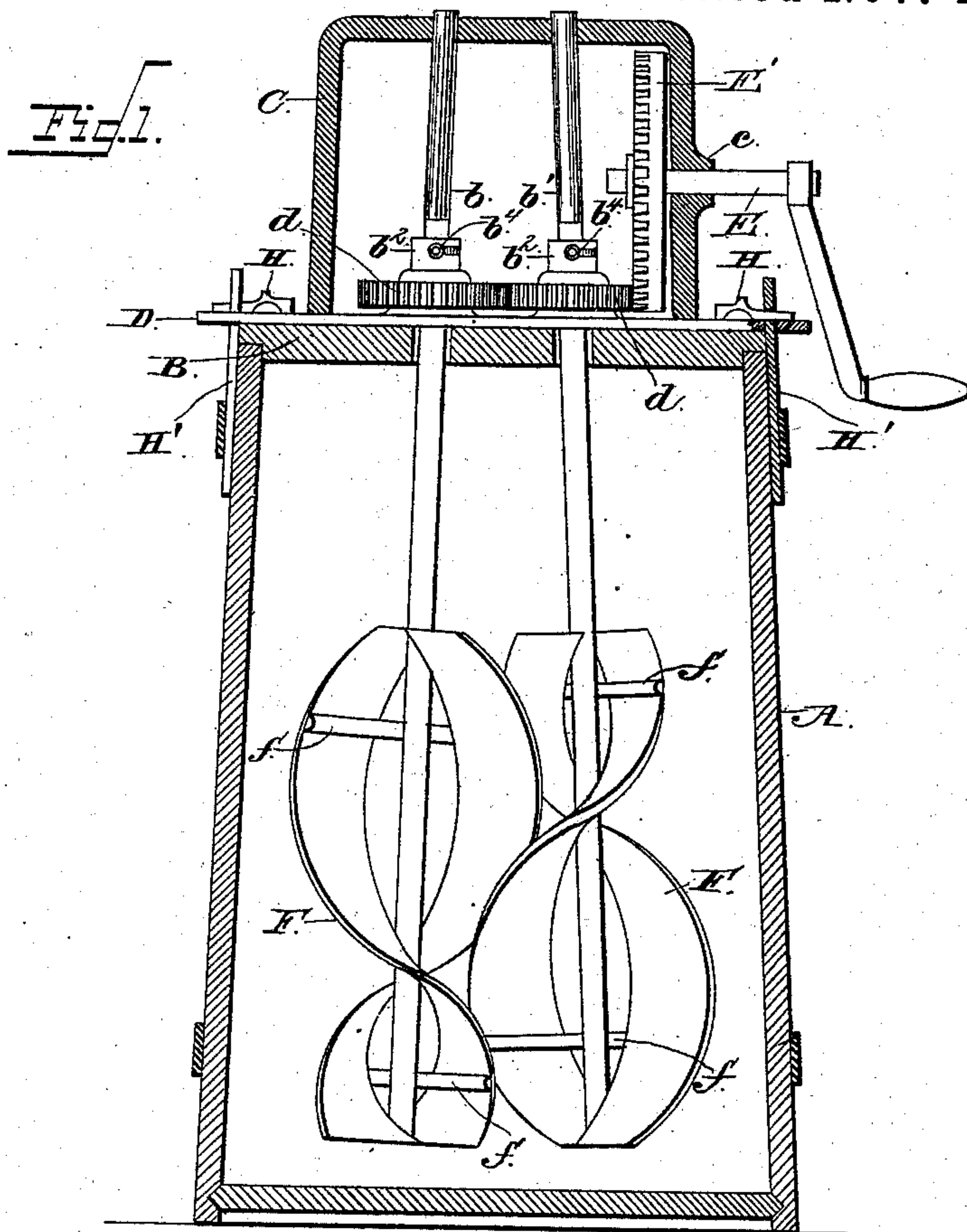
(No Model.)

H. J. WAGNER.

CHURN.

No. 373,113.

Patented Nov. 15, 1887.



Witnesses

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# UNITED STATES PATENT OFFICE.

HENRY J. WAGNER, OF DAYTON, MISSOURI.

## CHURN.

SPECIFICATION forming part of Letters Patent No. 373,113, dated November 15, 1887.

Application filed June 24, 1887. Serial No. 242,412. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY J. WAGNER, a citizen of the United States, residing at Dayton, in the county of Cass and State of Missouri, have invented a new and useful Improvement in Churns, of which the following is a specification.

My invention relates to churns; and it consists in the construction and arrangement of parts of the same, which will be more fully set forth hereinafter, and pointed out in the claim.

My present invention relates to an improvement on Patent No. 347,978, granted to me August 24, 1886.

The object of my present invention is to vary the construction of the mechanism shown and described in my patent above mentioned, so as to advantageously provide a churn more positive in its results, cleanly in its operation, simple and effective in its construction, and comparatively inexpensive in its manufacture.

The essential feature of my present invention is the use of suspended dashers devoid of bearing-surface at their lower portions and operated to revolve in reverse directions upon vertically-inclined shafts.

In the accompanying drawings, wherein like letters of reference indicate similar parts in the several views, Figure 1 is a vertical section of my improved churn. Fig. 2 is a top plan view of my improved churn. Fig. 3 is a sectional elevation of a portion of one of the dasher-shafts and its gearing. Fig. 4 is a top plan view of the top bearing-plate.

A indicates the churn-vessel, of suitable size and shape, which is provided with a detachable cover, B, situated on the upper portion of the churn-vessel and having a transversely-arranged metallic plate, D, slotted at its ends to receive the upwardly-projecting spring-plates H', secured to the vessel A and engaged by the locking-bolts H on the ends of the said plate D. The construction as thus described is common to my patented device aforesaid, and I will now proceed to describe my improvement upon said device.

Secured to the cover B is a U-shaped bracket, C, closed at its upper side, and at its ends being firmly secured to said cover in any

suitable manner. A boss, *c*, is formed in one side of the bracket C, and provides a bearing for a shaft, E, arranged horizontally therein, and having an operating-handle on its outer side; and on its inner end a face-gear, E', is secured, and arranged in a plane at right angles to the plane of the shaft upon which it is mounted, as will be readily understood.

Two shafts, *b b'*, are vertically mounted in the said frame and at a slight incline to the perpendicular, being loosely secured at their upper ends in the top portion of the bracket C, and having bearing in the boxes *b<sup>2</sup> b<sup>2</sup>*, adapted to fit over flanged openings *b<sup>3</sup>* in the transverse plate D. The boxes *b<sup>2</sup>* are formed with apertures, through which spring-pins *b<sup>4</sup>* engage the shafts, the said shafts being thereby retained in a suspended position. The boxes *b<sup>2</sup>* are integrally formed with horizontally-arranged spurs or gears *d d*, which rest on the top surface of the transverse plate D and are in mesh with each other and with the vertically-arranged wheel E' at all times. The shafts *b b'* pass vertically through the blocks *b<sup>2</sup>* at an incline to the perpendicular and the gears *d*, and are locked in connection therewith, to suspend the same, as desired, by means of the pins *b<sup>4</sup>*, secured to said boxes *b<sup>2</sup>*, and adapted to engage openings formed in the shafts *b b'*, for securing the said shafts, as hereinbefore set forth.

On the lower ends of each of the shafts *b b'* spirally-arranged dashers F F are secured. These spiral blades are mounted in connection with said shafts *b* and *b'* by means of transversely-arranged arms *f*, which extend outwardly and are secured to the back sides of each of the blades or dashers, having the shafts for their centers in connection with each dasher. As seen in Fig. 1, the lower ends of the shafts *b b'* do not touch the bottom of the churn body or vessel A, and have no bearing-points at the lower ends thereof, being braced and supported in the cover B and the bracket C, and having a free suspension within the body of the churn, the lower ends of the dashers being farther apart than the upper ends. These dasher-blades and their shafts *b b'* are adapted to have a reverse revolution. This is accomplished by means of the gear E' meshing



with the gears  $d$ , the gear  $d$  nearest the gear-wheel  $E'$  being revolved in one direction, while the gear  $d$  on the other side of the first gear  $d$  is revolved in a reverse direction, as will be readily understood by those skilled in the art.

As hereinbefore set forth, the dasher-blades are formed spirally on two perpendicular shafts turning in opposite directions, giving a slightly angular horizontal circular motion to the dashers, which, crossing each other's circles, the lower ends moving in advance, lift the cream from the bottom, throwing it upward and outward, giving it a semicircular motion, which is continually intercepted in every direction by counter-currents from the oppositely-revolving dashers, causing thorough and equal agitation of the whole mass. In this movement air follows behind and under the blades, and oxygen of the air comes in contact and freely combines with every particle of cream. Thus oxygen combines with sugar of milk, producing lactic acid, which curds the caseine, thus separating it from the butter when the butter-globules are ruptured by agitation. This advantage will be readily appreciable to those skilled in the art of butter-making; and the advantageous action of the spirally-arranged dashers will be readily apparent in respect to the valuable infusion of oxygen.

In the operation of my improved churn no jarring or plunging motion is heard or felt, the operation being in a measure noiseless.

By the arrangement of the driving mechanism and dashers on the cover  $B$ , on removing the said cover to introduce hot or cold water

for cleaning purposes all the operating parts are removed at one operation, and on replacing the cover the dasher-shafts will be in adjustment and in proper position without the necessity of any connection or manipulation.

The novelty and utility of my improved churn are apparent, and need not be further enlarged upon herein.

Having thus described my invention, I claim—

In a churn, the body  $A$ , having its cover or top provided with a plate,  $D$ , the latter having openings  $b^3$  therein, and annular upwardly-extending flanges around the said openings, combined with the shafts  $b$ , carrying the dashers, the lower ends of the dasher-shafts being entirely disconnected from the body, the upper ends of the shafts being passed through the openings  $b^3$ , the gears  $d$ , recessed in the under side to fit over the flanges of the openings  $b^3$  and turn around the same, said gears being separate from the shafts, boxes  $b^2$ , formed integral with the gears, a spring locking-pin,  $b^4$ , carried by the boxes to lock the boxes and gears to the shafts, a bracket,  $C$ , above the cover to receive the upper ends of the shafts  $b$ , and the gears  $d$  meshing with each other and the gear  $E'$  with driving-shaft  $E$ , for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HENRY J. WAGNER.

Witnesses:

LUCY M. WAGNER,  
R. D. RAMEY.