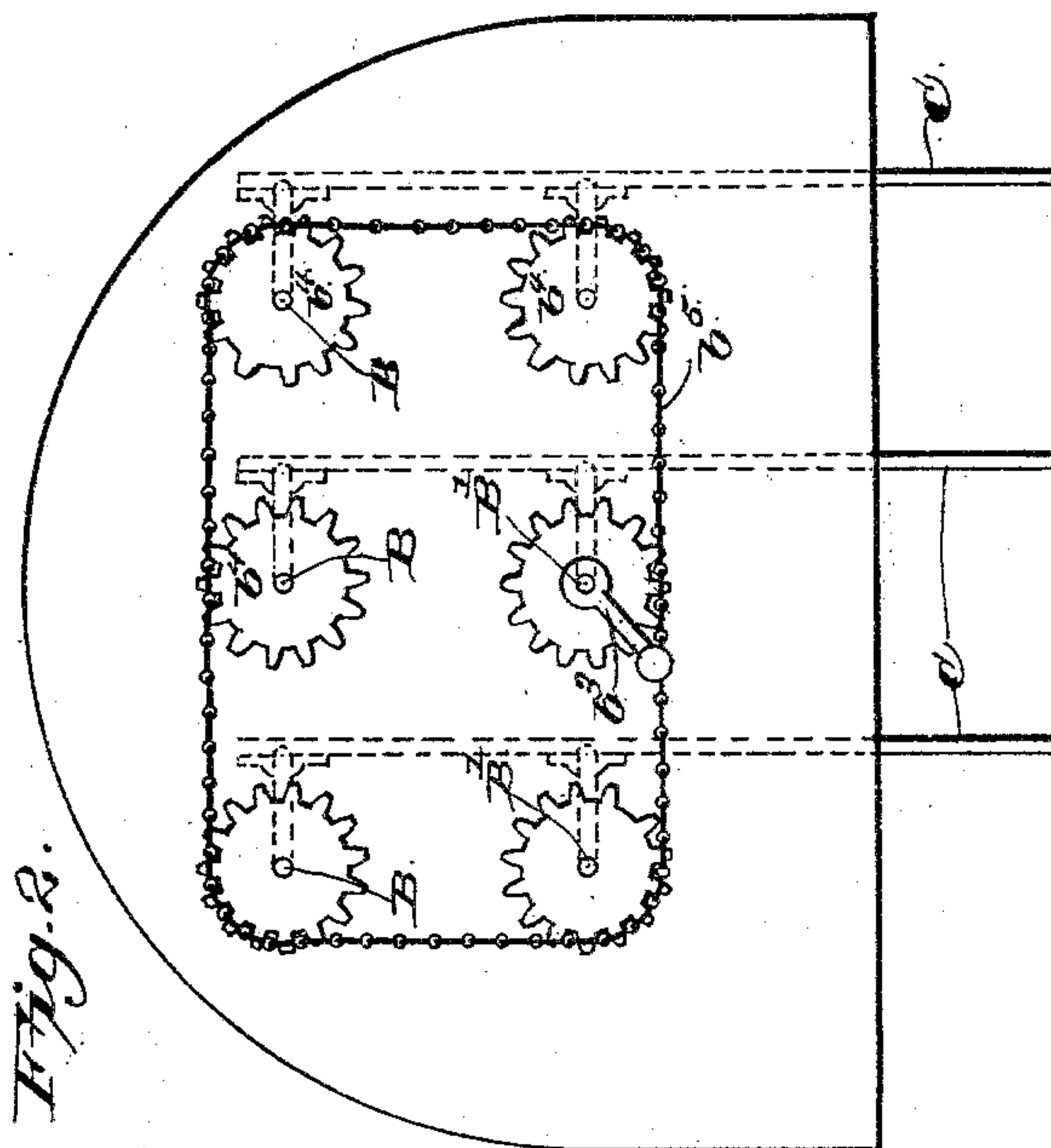
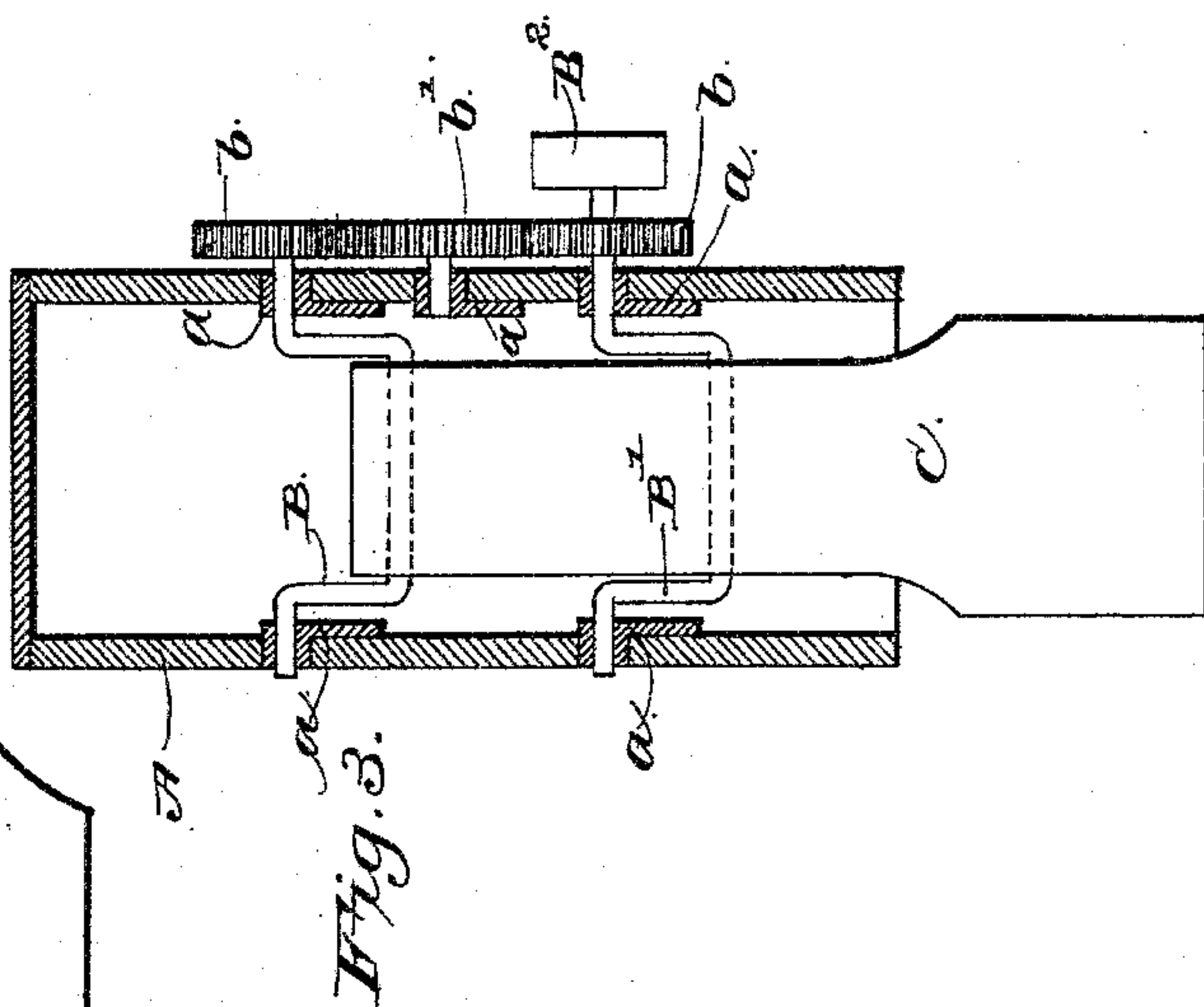
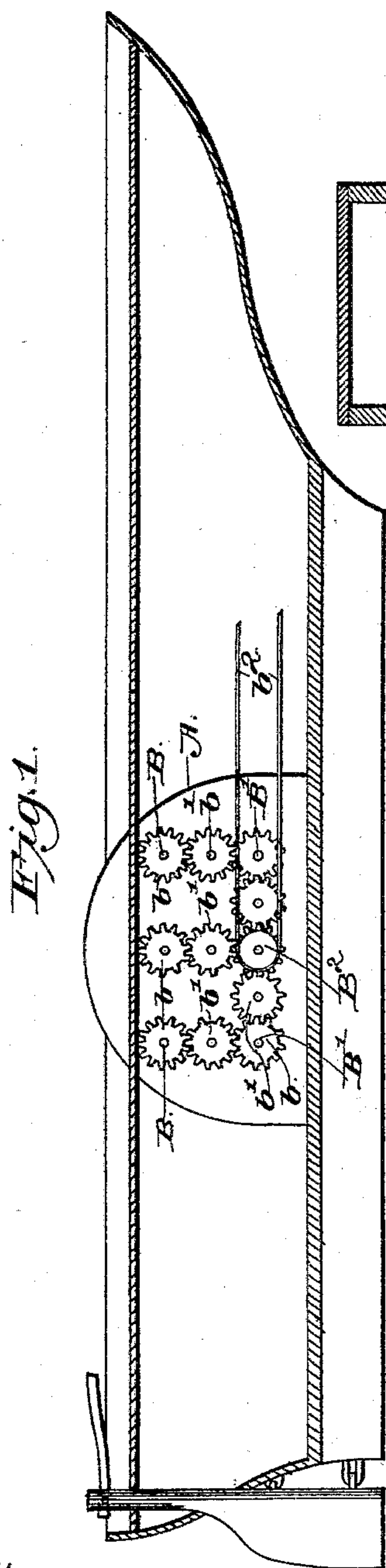


(No Model.)

B. KENOYER.
PROPELLING MECHANISM FOR BOATS.

No. 414,711.

Patented Nov. 12, 1889.



Witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

BENJAMIN KENOYER, OF HURON, CALIFORNIA.

PROPELLING MECHANISM FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 414,711, dated November 12, 1889.

Application filed April 26, 1889. Serial No. 308,644. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN KENOYER, a citizen of the United States, residing at Huron, in the county of Fresno and State of California, have invented a new and useful Propelling Mechanism for Boats, of which the following is a specification.

My invention relates to improvements in propelling mechanism for boats; and it consists in peculiarities of construction fully described hereinafter, and pointed out in the claims.

In the drawings, Figure 1 is a longitudinal section of a boat provided with my propelling device. Fig. 2 is a side elevation of the paddle-box, showing a modification of the driving appliances for the same. Fig. 3 is a transverse section of Fig. 1.

The object of my invention is to provide a simple and effective device by means of which the loss of power met with in the paddle-wheel in common use may be entirely avoided. In this form of propulsion the buckets come in contact with the water-line at an angle or flatwise, and as they are forced therein their motion tends as much to lift the boat out of the water as to move her forward until the revolution of the wheel has brought the paddles perpendicular to the water-line, when their propelling tendency is greatest, this latter, however, diminishing from that point as the angle of the paddles with the water-line returns, forcing them to lift a considerable volume of water, and thereby retard the boat. This loss of power is of course increased the more loaded the boat is—that is, just at the moment that more power is needed. In my improved device this material defect is entirely avoided. To this end my paddles are mounted in the paddle-box so as to be in a constantly-perpendicular position whether entering or leaving the water. I may use a series of paddles so mounted that one or more may always be at full-stroke. Each paddle works on a pair of double-crank shafts journaled in the sides of the paddle-box, and all of the paddles on one side are connected through suitable pinions or belting with each other and with the source of power.

As shown in the accompanying drawings, A is the paddle-box, in both sides of which are provided suitable bearings *a a* for the

double-crank shafts B B'. These shafts are provided on their inner wrists with toothed pinions *b b*, and all of these pinions are connected together through the idlers *b' b'*, and so as to receive the same motion from the source of power with which either of the said crank-shafts may be connected through the pulley B² and belt *b²*. For small boats run by hand-power a fly-wheel or hand-crank may be used, as shown at *b³*. The paddles C C are mounted each on a pair of the perpendicularly-opposite crank-shafts B B', as shown.

In Fig. 2 the pinions *b b* are replaced by sprocket-wheels *b⁴ b⁴*, and the idlers *b' b'* are dispensed with, the connection being effected between the several wheels through the chain-belt *b⁵*.

As can be easily seen from the above description, and as shown by the drawings, the paddles C C, at whatever point of their motion they may be, are constantly kept in a perpendicular position, and, as they can be mounted so as to reach nearly to the keel of the boat, the force with which they will act against the water will be constantly the same as that which is applied to them. This is very desirable, especially in sailing against the current in rapid streams, when, owing to defects of the paddle-wheel system, considerably more power than is necessary has to be used against the current, which runs the swifter at the surface. In case of my propeller, on the contrary, the action of the paddles being principally against the deeper and more solid portion of the stream, no waste of power will occur, and boats will be enabled through it to go up swift currents that cannot be navigated at all now unless by haulage by cable.

Having thus described my invention, I claim—

1. In a propelling mechanism for boats, the vertical paddles C, in combination with the vertically-opposite shafts B B', pinions *b* upon similar ends of each shaft, and the intermediate idlers *b'*, connecting the pinions *b* and paddle-box A, substantially as shown, and for the purpose set forth.

2. The combination, with the paddle-box A, of the horizontal series of crank-shafts B' and the superimposed and vertically-opposite

series B, a paddle C, journaled on each vertical pair of cranks, and pinions *b*, mounted on similar ends of the cranks, and idle pinions *b'*, alternating with and connecting the
5 pinions *b* of the lower series, and similar pinions *b'*, connecting each the vertically-opposite pair of pinions *b*, substantially as specified.

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

BENJAMIN KENOYER.

Witnesses:

STEPHEN C. WILKINSON,
JAMES M. WELLS.