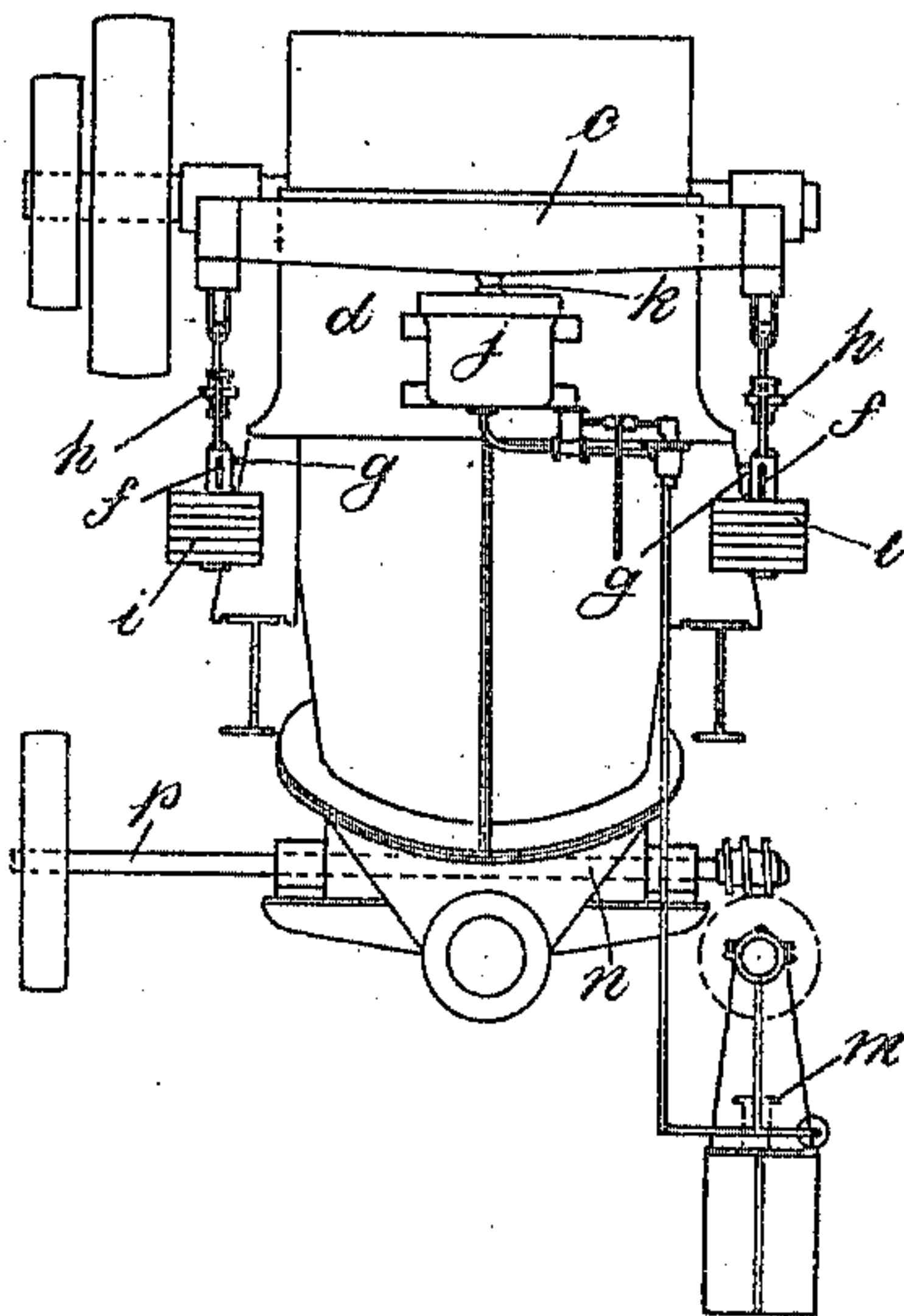
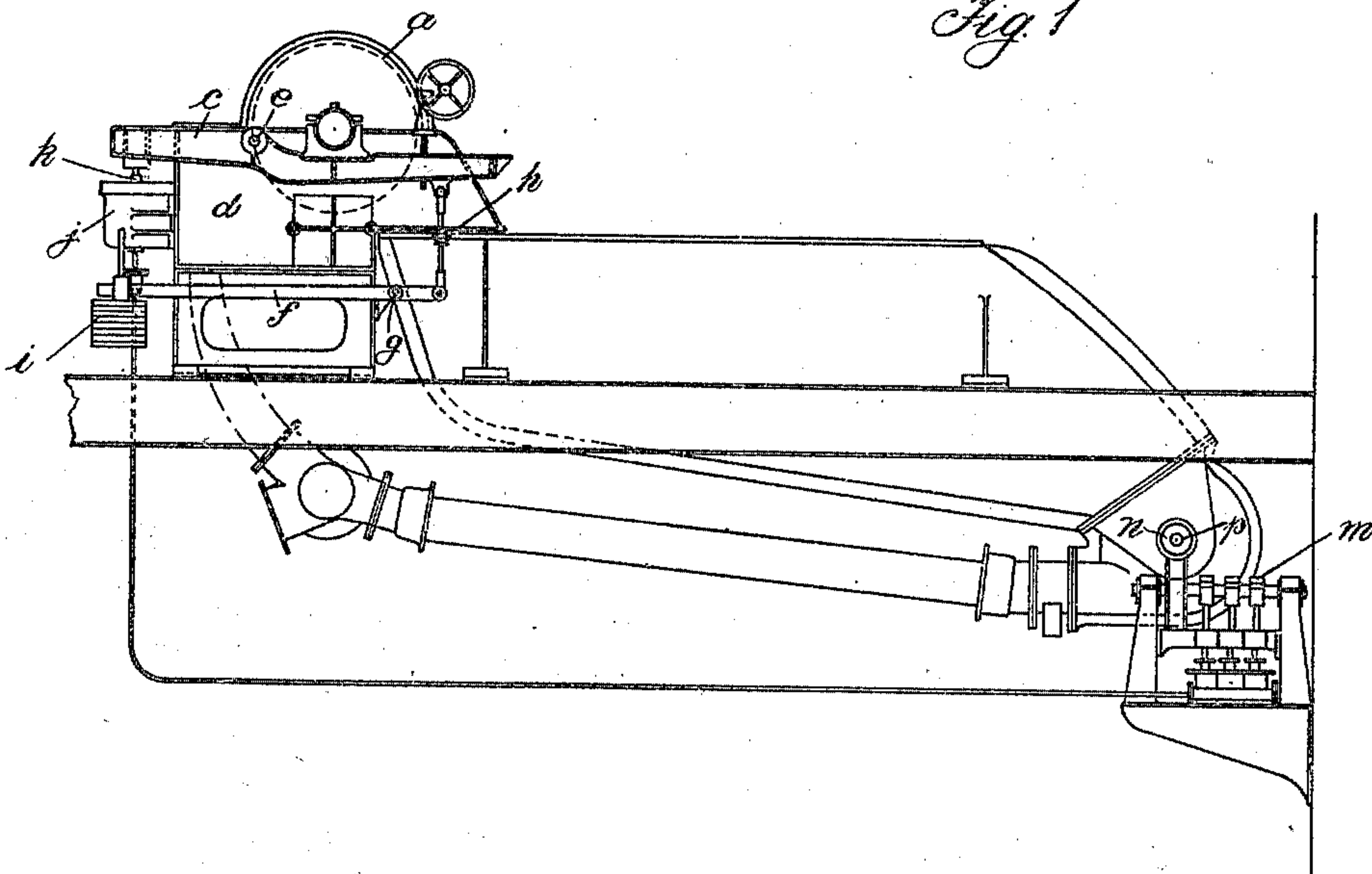


A. MASSON & W. M. WALLACE.  
BEATING ENGINE USED IN THE MANUFACTURE OF PAPER.  
APPLICATION FILED SEPT. 10, 1909.

957,894.

Patented May 17, 1910.

3 SHEETS—SHEET 1.



Witnesses

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Fig. 3

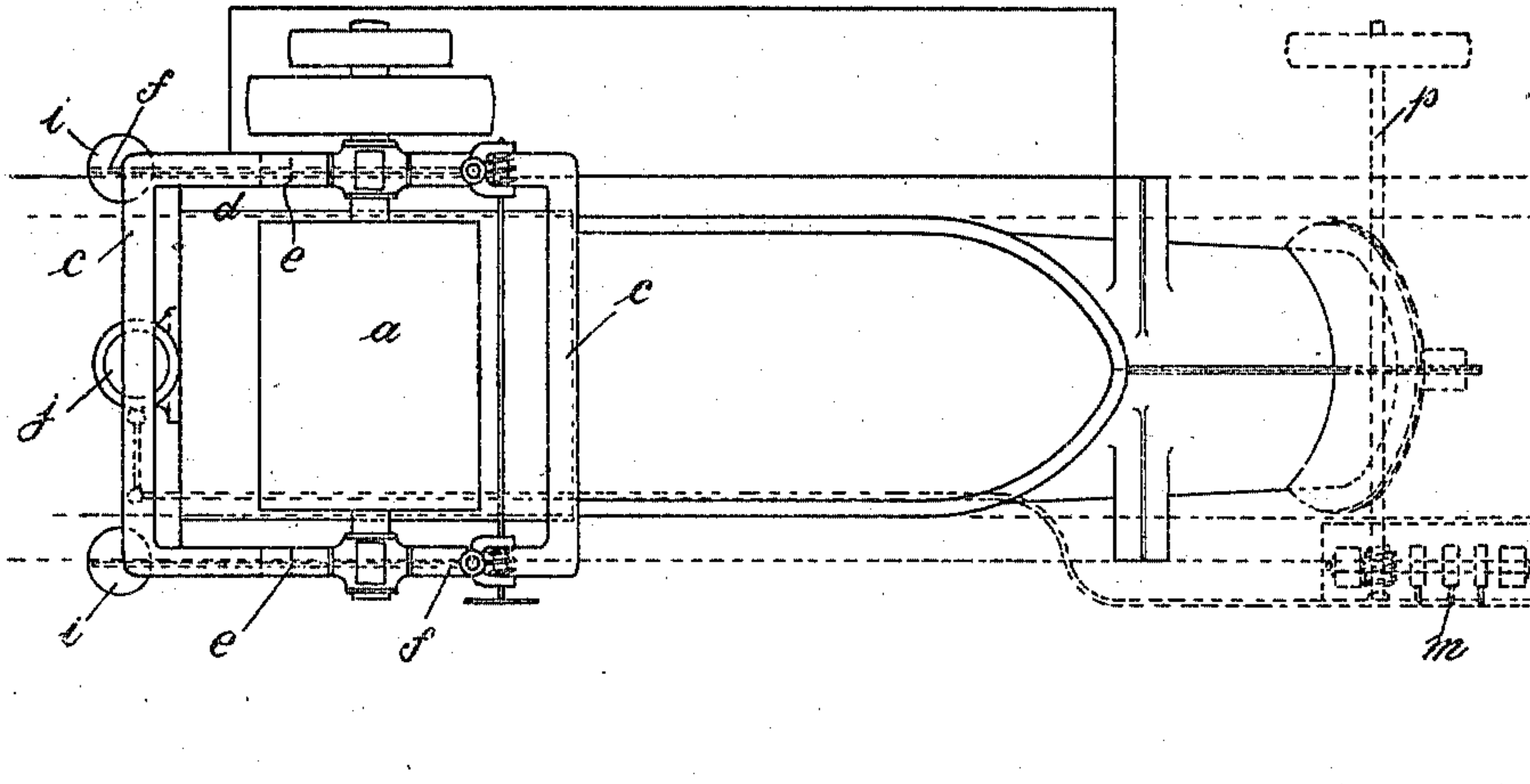


Fig. 4

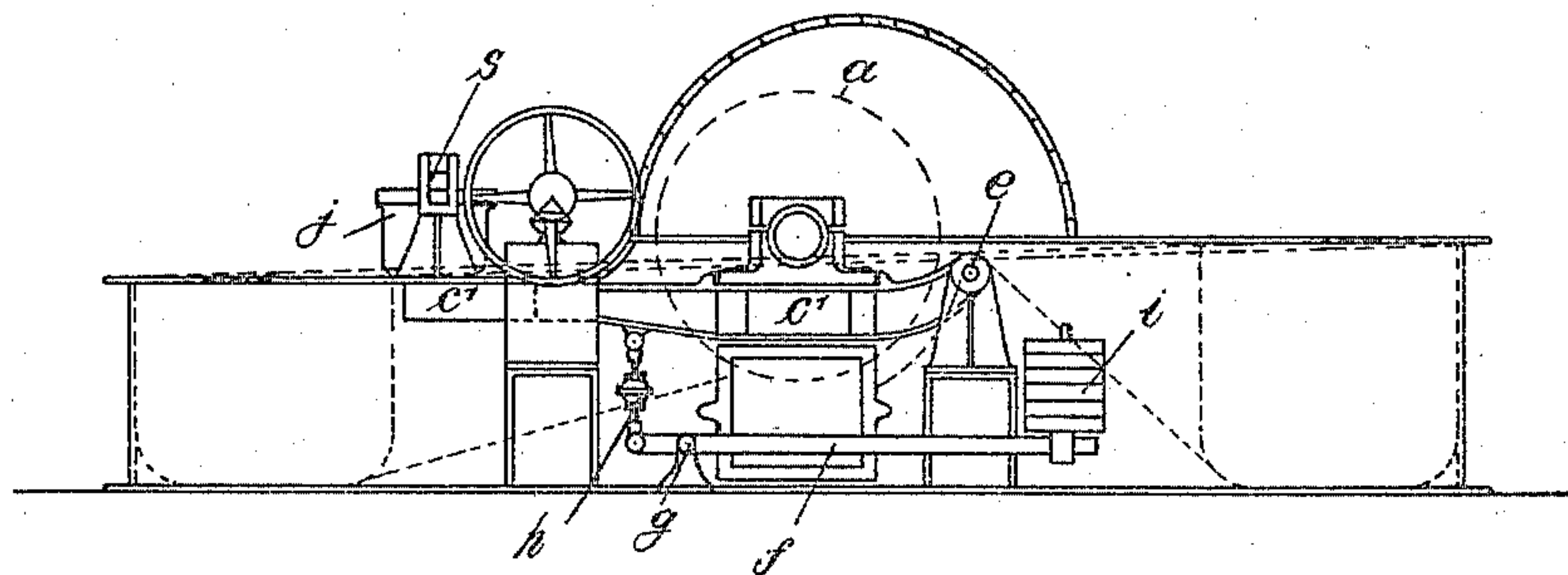
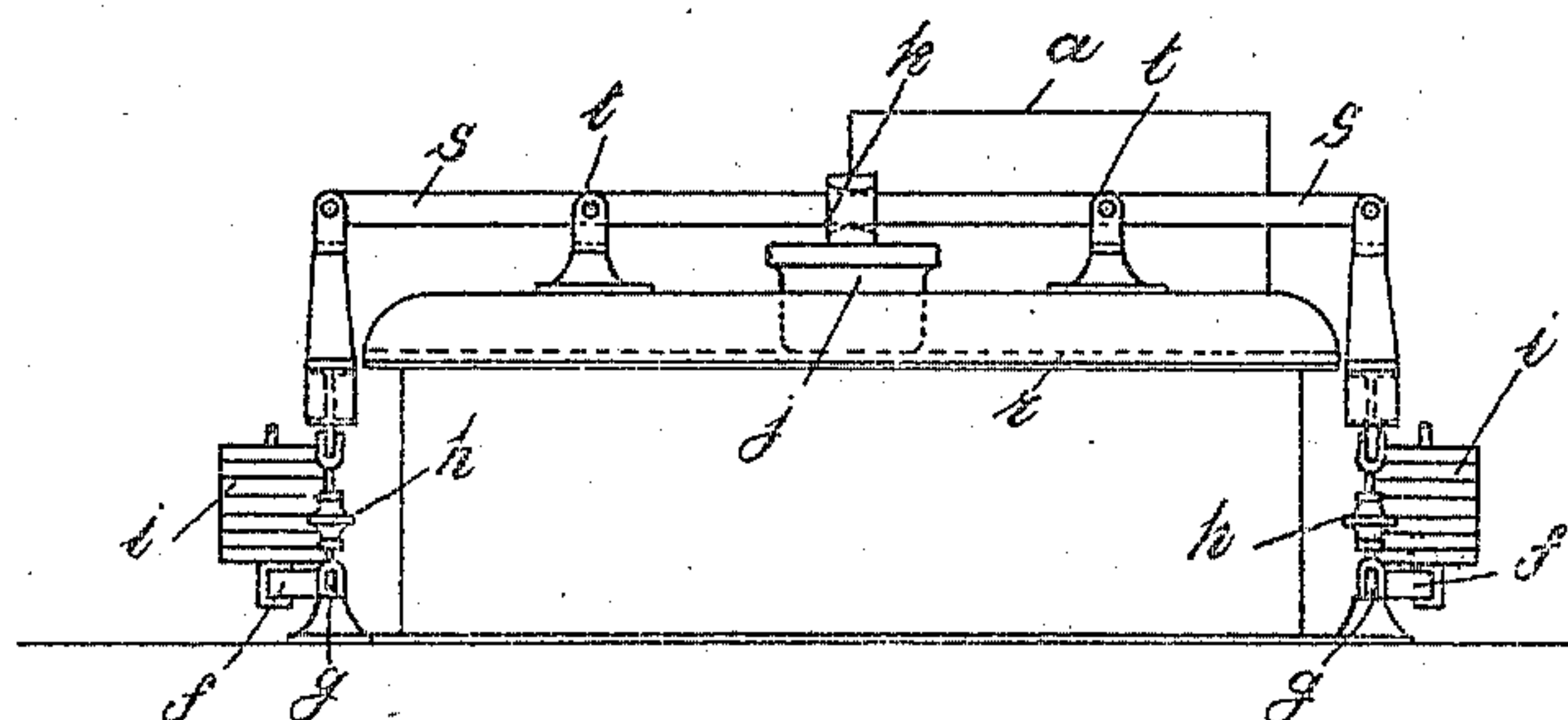


Fig. 5



Witnesses

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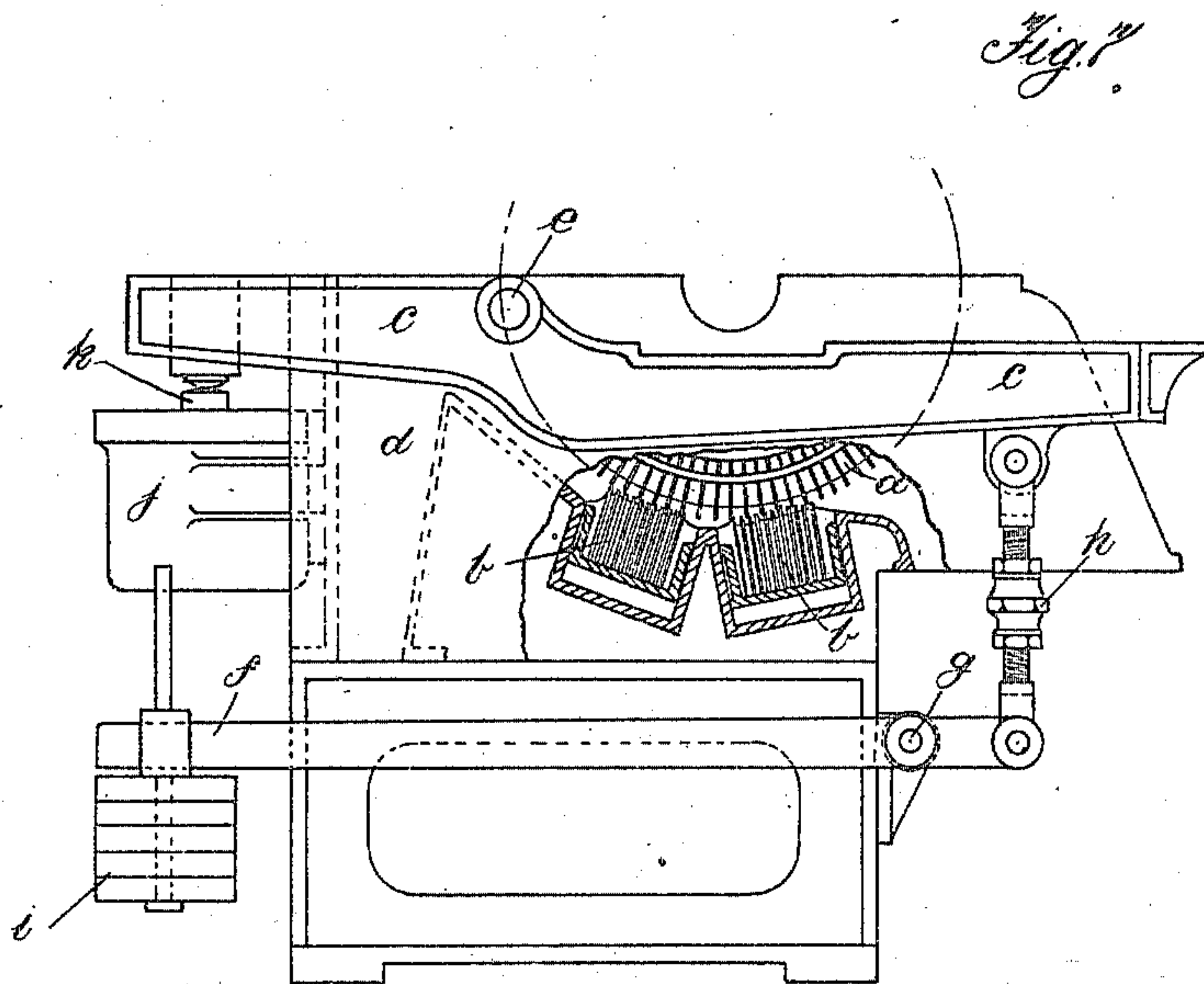
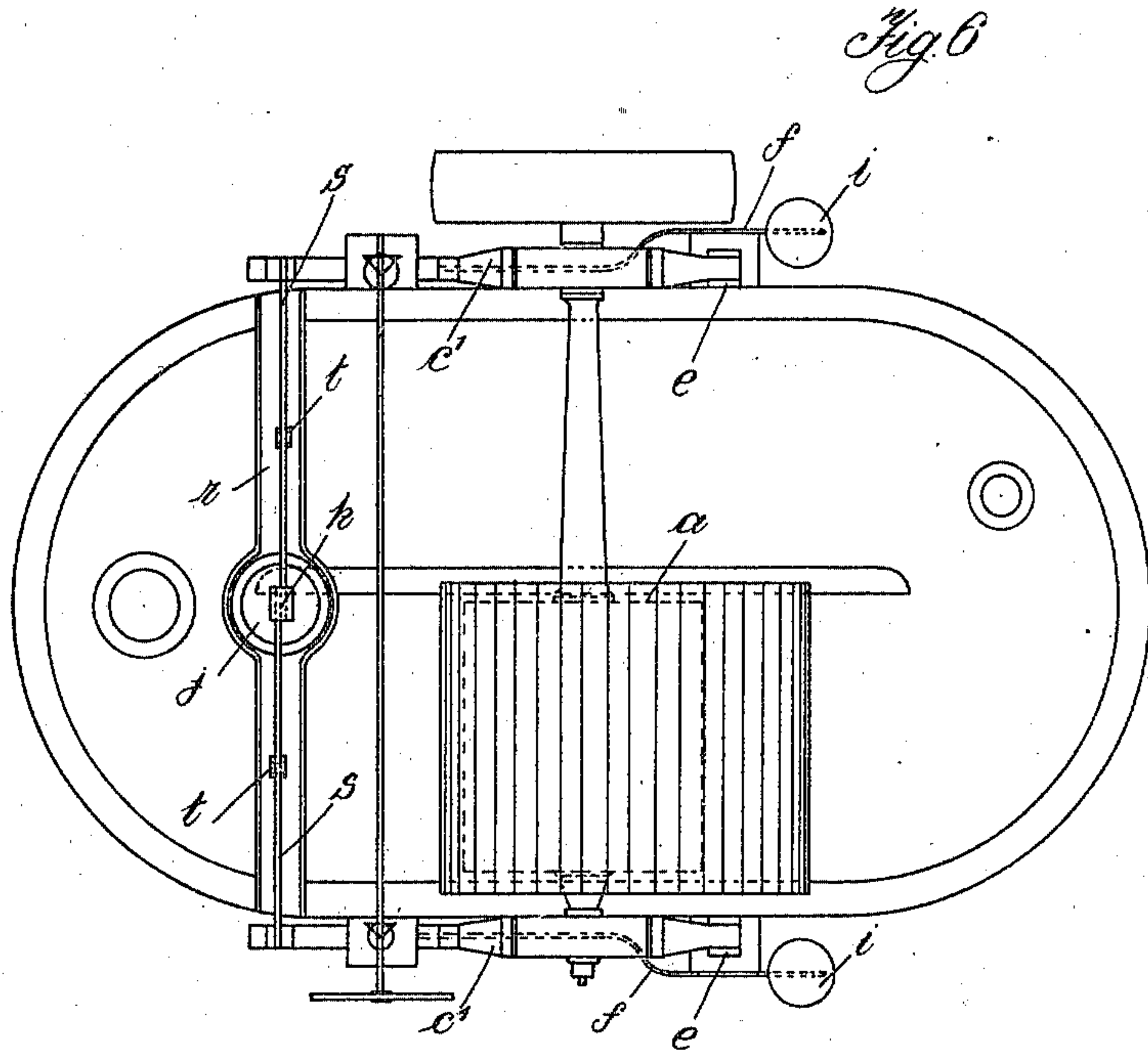
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

ANDREW MASSON, OF PUTNEY, ENGLAND, AND WILLIAM MORGAN WALLACE, OF DENNY, SCOTLAND.

BEATING-ENGINE USED IN THE MANUFACTURE OF PAPER.

957,894.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed September 10, 1909. Serial No. 517,126.

*To all whom it may concern:*

Be it known that we, ANDREW MASSON and WILLIAM MORGAN WALLACE, subjects of the King of England, and residents of Putney, England, and Denny, Stirlingshire, Scotland, respectively, have invented Improvements in Beating-Engines Used in the Manufacture of Paper, of which the following is a specification.

This invention relates to an improvement in beating engines used in the manufacture of paper, and has for its object to enable the roll to be more conveniently adjusted and set in relation to the beater bed plate or plates, so as to operate with desired pressure on the stuff being treated, than is obtainable with existing means, and to enable such pressure to be more readily and more exactly determined, and, to this end, the improvement is characterized by so mounting the roll that it is subject to oppositely acting means, one of which counter-balances the roll, and, when acting alone, serves to support the roll clear of the bed plate, and the other of which, when brought into operation, serves, by the application of readily controlled and exactly-indicated fluid pressure, to cause the roll to operate on the stuff with any desired and known-to-be-correct pressure, up to or exceeding its weight according to the measure of the application of the fluid pressure.

The accompanying drawings represent, by way of example, two applications of the invention to known constructions of beaters. Figures 1 to 3, representing, in side and end elevations and plan, what is known as the Taylor beater, and Figs. 4 to 6, representing, in side and end elevations and plan, what is known as the Hollander beater. Fig. 7, represents in side elevation detached and on an enlarged scale, the combination of counterbalancing and counterbalance counteracting or pressure giving means represented in Figs. 1 to 3.

In the arrangement represented in Figs. 1 to 3 and 7, the roll, *a* is mounted, in proper relation to the bed-plate or plates, *b* on the sides of a frame, *c* which surrounds the beater casing *d*, and is centered at *e*, on the casing sides at points between the roll and one end of the casing, and is connected to or adapted to be operated on by the counterbalancing means and the pressure giving means, respectively, on opposite sides of said

centers. The counterbalancing means consist of levers *f*, centered at *g*, one at each side of the beater casing, and respectively linked, at one end, as at *h*, to the adjacent end of the frame, *c*, and carrying counterbalance weights *i*, at its other end. The pressure giving means is shown as consisting of a hydraulic cylinder *j*, having a ram *k*, adapted on the admission of pressure to the cylinder, to act on the end of the frame *c*, opposite to that on which the counterbalance is adapted to operate, so as to cause the roll to bear on the bed plate *q*, with any desired pressure up to or exceeding its weight, as may be required, the fluid pressure means being fitted with a pressure indicator (not shown) to enable the pressure of the roll to be exactly and easily determined.

Pressure for operating the ram may be derived from a pump *m*, coupled to the pulp circulator *n*, of the beater and to a suitable fluid supply, so that, in the event of the pulp circulator failing to operate through, say, the breaking of the driving belt, connecting the pulleys on the beater and circulator shafts or of its shaft *p*, the pressure in the cylinder *j* will at once fall off and allow the counterbalancing means, uncounteracted by the pressure giving means, to support the roll clear of the bed plates.

In the arrangement represented in Figs. 4 to 6, the respective counterbalancing and pressure giving means are adapted to operate oppositely, on the same end of roll carrying levers *c*<sup>1</sup>, which at the other end are centered at *e*, to the beater casing sides, the cylinder *j*, being carried by a cross bar *r*, supported by the casing sides, and its ram *k*, operating on the levers *c*<sup>1</sup>, by means of levers *s*, which are centered at *t*, to the bar, so that pressure by the ram causes the levers *s*, to operate, in counteraction to the operation of the levers *f*, on the roll carrying levers *c*<sup>1</sup>.

The invention is also of advantage in enabling the bed plates to be rigidly secured in position, thus also obviating the disadvantages incidental to the employment of hydraulic cushions or other means for adjusting the bed plate in relation to the roll.

Having now fully described our invention, what we claim and desire to secure by Letters Patent is:—

1. Improvements in beating engines used in the manufacture of paper, comprising in combination, a frame carrying the roll and



being entered on the casing sides, levers linked to one end of said casing, counterbalance weights carried by said levers, a ram acting on the other end of said frame, a hydraulic cylinder containing said ram and a pump, said pump being coupled to the pump circulator and furnishing the pressure for operating the ram, substantially as described and shown, and for the purpose set forth.

- 10 2. Improvements in beating engines used in the manufacture of paper, comprising in combination, levers  $c^1$ , said levers carrying the roll, a second pair of levers  $f$ , counterbalance weights carried by the latter, said  
15 levers  $f$  being linked to said levers  $c^1$ , a third pair of levers  $s$ , the latter being linked to the levers  $c^1$ , a ram acting on the former, a cylinder carrying said ram and a cross bar

supported by the casing sides, the pressure of the ram causing the levers  $s$  to operate 20 in counteraction to the levers  $f$ , on the roll carrying levers  $c^1$ , substantially as described and shown, and for the purpose set forth.

In testimony whereof we have hereunto set our hands in the presence of the sub- 25 scribing witnesses.

ANDREW MASSON.

WILLIAM MORGAN WALLACE.

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J. N. McCUNN.