

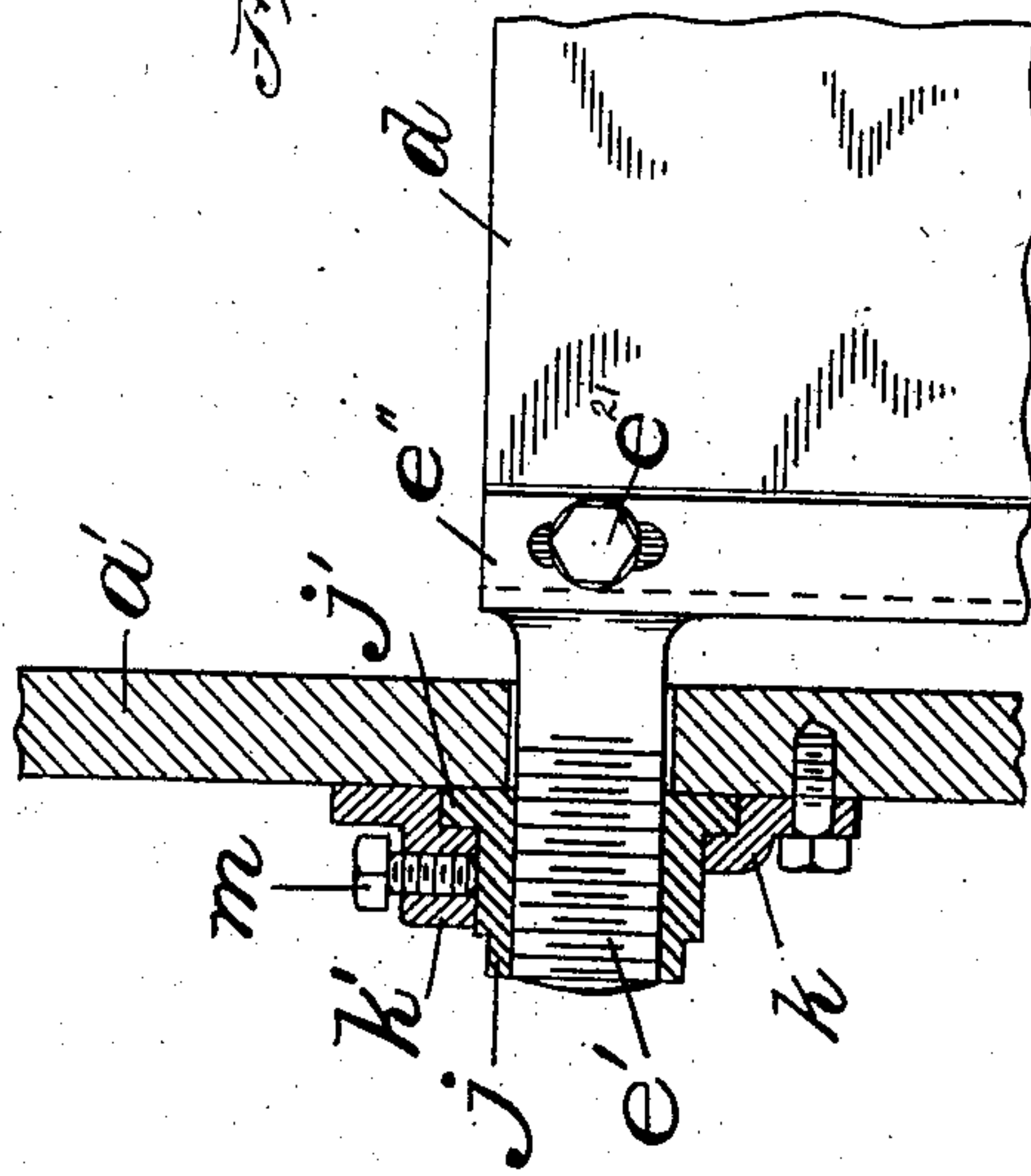
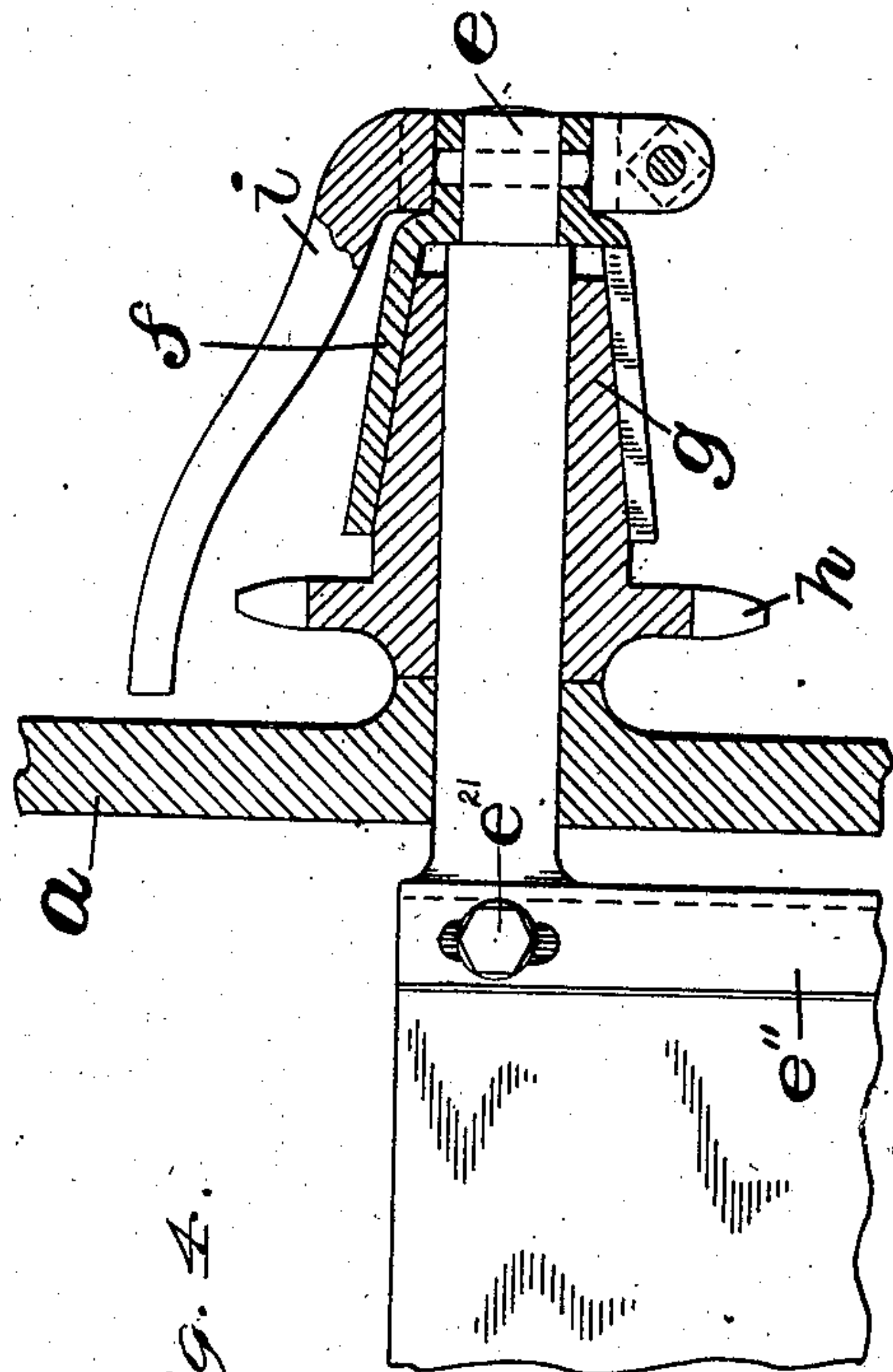
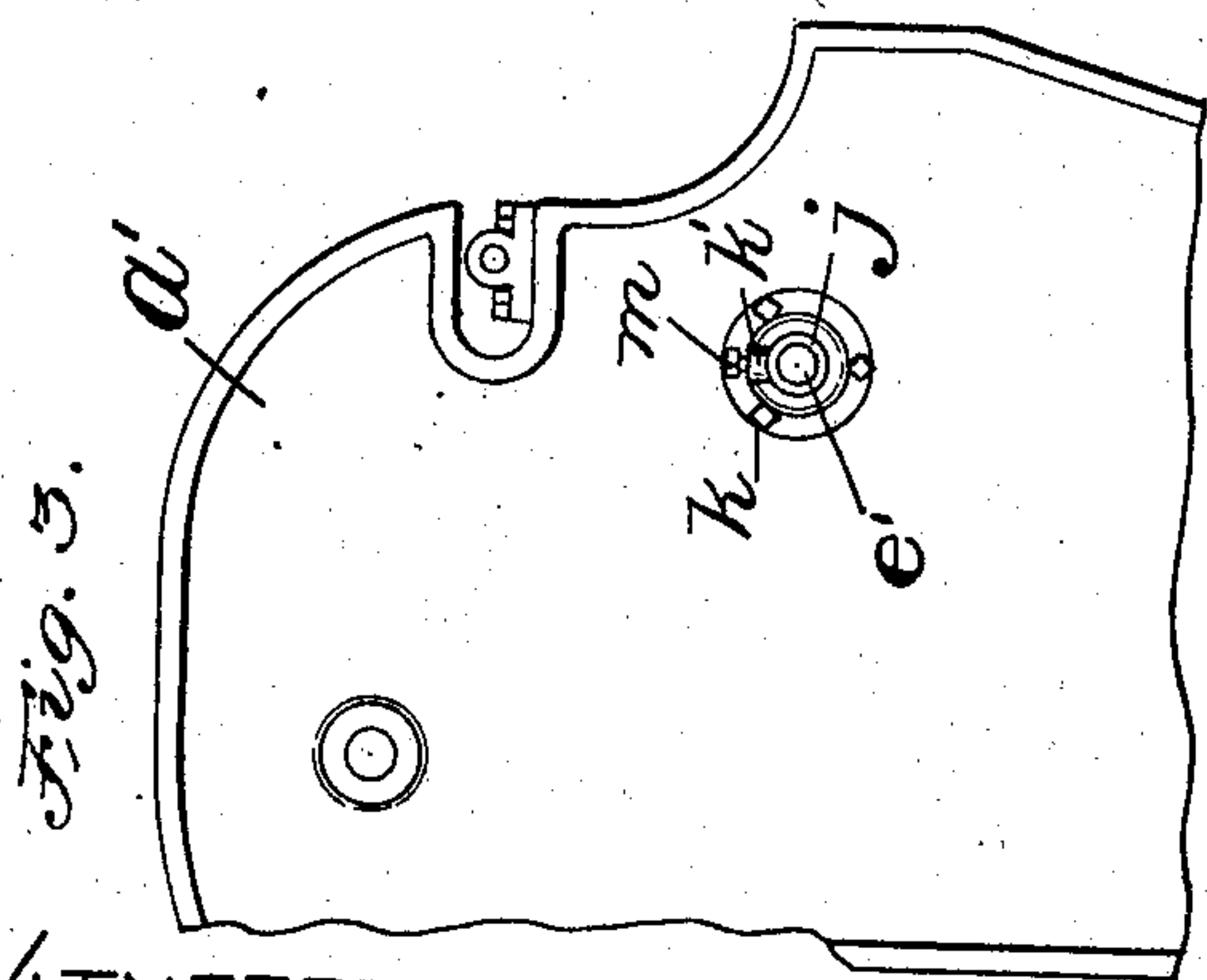
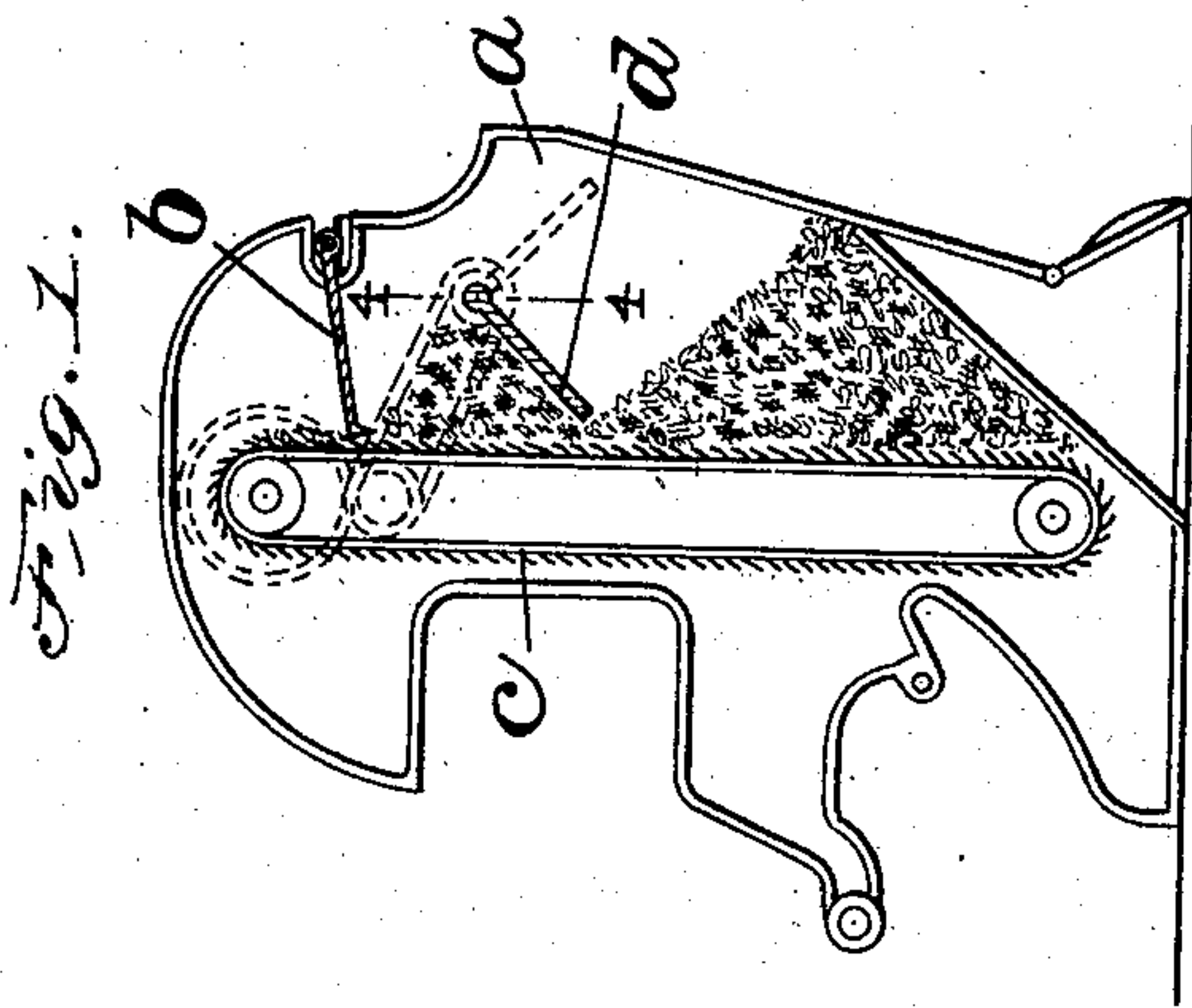
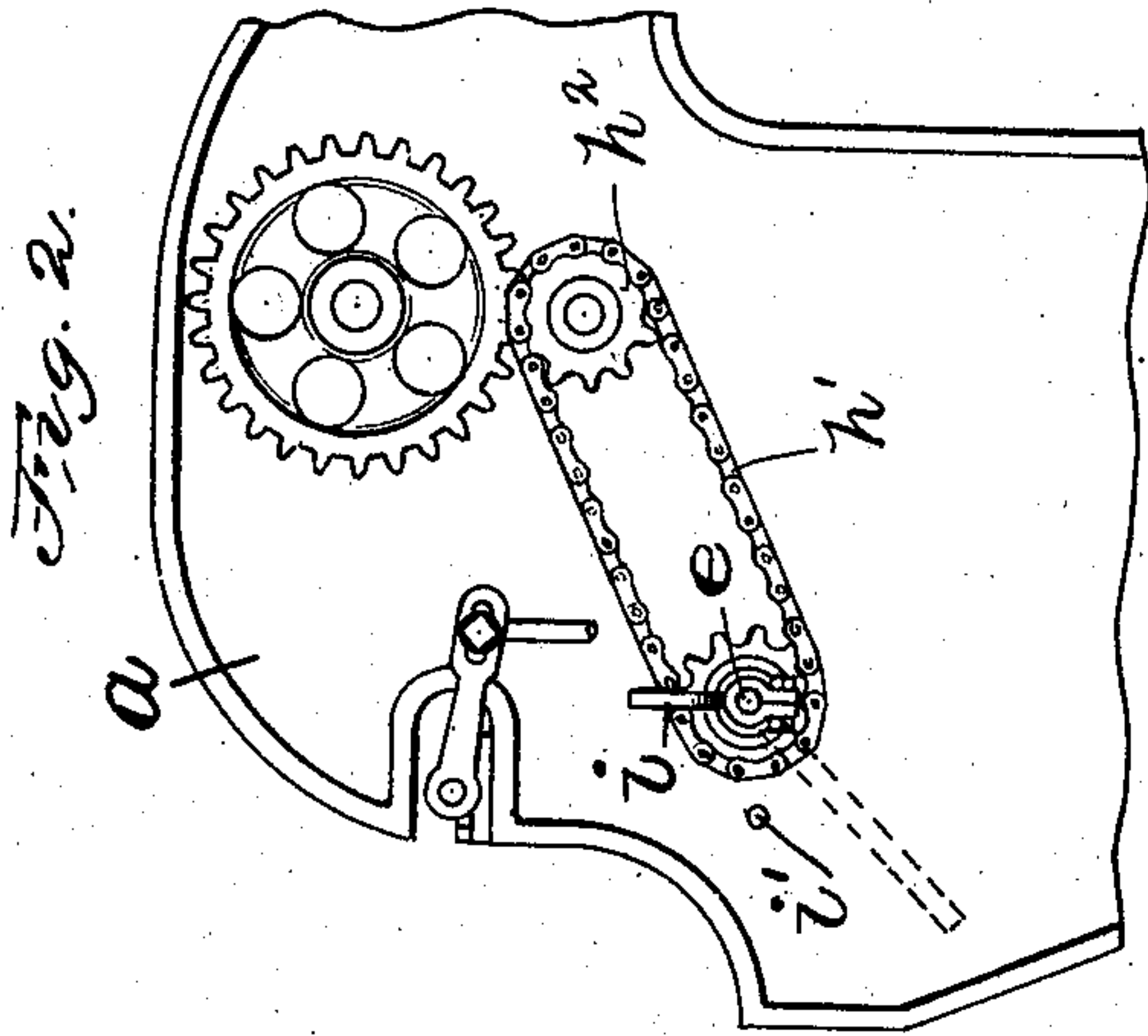
No. 827,359.

PATENTED JULY 31, 1906.

G. GEB.

AUTOMATIC STOCK COMPENSATING DEVICE FOR CARD FEEDERS.

APPLICATION FILED APR. 21, 1902.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE GEB, OF PROVIDENCE, RHODE ISLAND.

AUTOMATIC STOCK-COMPENSATING DEVICE FOR CARD-FEEDERS.

No. 827,359.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed April 21, 1902. Serial No. 103,901.

To all whom it may concern:

Be it known that I, GEORGE GEB, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Automatic Stock-Compensating Devices for Card-Feeders, of which the following is a specification.

The object of the present invention is to provide an improved form of means for keeping uniform the amount of stock carried over to the scale-pan by the spike-apron in a card-feeder notwithstanding variations in the amount of stock in the feed-box.

In a prior patent, No. 667,213, granted to me February 5, 1901, a form of means is shown for accomplishing this object, wherein a board pivotally mounted between the sides of the feed-box is power-connected through frictional means constantly tending to impel it upward and toward the spike-apron, so that when the stock runs low in the feed-box the pressure supplied by the board against the stock thrown down by the evening-comb will compensate for the lessening of amount of stock in the box and keep uniform the quantity carried over by the spike-apron.

By the present invention I propose to so arrange the pressure-board as to have it disconnected from any driving means when its services are not required—i. e., when the feed-box is well supplied with stock—and to have it automatically connect itself with driving means when the stock runs so low as to require pressing against the spike-apron at the upper part of the box. My present arrangement allows for perfect adjustment to suit varying conditions and obviates any defective action due to displacement of the board by a downward stroke of the evening-comb when the feeder is running low. My invention provides a form of device which when once adjusted to the work in hand requires no attention, but can be thoroughly relied upon to perform its functions automatically and insure accurate weighing in the scale-pan whatever may be the quantity of stock in the feed-box.

To this end the invention consists in certain novel features of construction and combinations of parts, the essential elements of which are recited in the appended claims and a preferred form of embodiment of which is specifically described hereinafter, and illus-

trated in detail in the accompanying drawings, whereof—

Figure 1 shows the general outline of a card-feeder with its spike-apron and evening-comb and my improved compensating device positioned as when in action, broken lines indicating its retracted position. Fig. 2 is a fragmentary side elevation of the card-feeder. Fig. 3 is a fragmentary elevation thereof viewed from the opposite side; and Fig. 4 is a cross-sectional view, on an enlarged scale, taken on line 4 4 of Fig. 1.

The reference-letters *a* and *a'* designate the sides of the feed-box of a card-feeder of the Bramwell type, *c* the spike-apron, and *b* the evening-comb. At a point a comparatively short distance below the latter I locate a pressure-board *d*, which extends across the box throughout practically the full width thereof and is pivotally suspended therein from the upper edge, so that it can swing toward and from the spike-apron. The board is pivoted a sufficient distance from the latter to allow for forming therewith a trough or pocket of considerable size when its lower edge approaches the apron. The pivoting of the board is effected by journaling a pair of studs or short shafts *e e'* in the sides of the box, said studs being formed on their inner ends with radially-projecting holders *e''* for the board, grooved to receive the end edges thereof and equipped with clamping devices *e²¹* for securing the board at the desired radial adjustment.

The shaft or stud *e* protrudes some distance outside the box and carries affixed to it a split conical shell *f*, and there is loosely mounted on the same shaft a conical block *g* for frictional engagement with said shell, these two parts constituting a clutch for conveying power to turn the board on its pivots. Any suitable materials may be employed for the clutch members; but I prefer to use hard wood for the block and metal for the shell, because of elimination of wear in frictional contact of these materials. The block is compounded with a sprocket-wheel *h*, and a chain *h'* runs therefrom to a sprocket-wheel *h²*, geared to a driven shaft of the machine, preferably the upper spike-apron shaft. An angular arm *i*, secured to the stud *e*, serves to limit the turning of the latter by encountering a stop-lug *i'* on the side of the machine,

thus preventing the lower edge of the board approaching too close to the spike-apron.

The board and its studs are laterally movable a sufficient extent to provide for the proper operation of the clutch, said studs being slidable in their bearings and clearance being allowed between the arms e'' and the side walls of the feed-box. The stud e' is screw-threaded and engaged with a nut j , having a flanged base j' bearing against the outer side of the feed-box and confined there-against by a flanged collar k , which is bolted to the box and formed with a radial boss k' , receiving a set-screw m to engage the nut j and secure it at different adjustments. With said nut fixed in position it will be seen that turning of the stud or shaft will effect movement thereof in the direction of its length, which movement is accompanied by corresponding movement of the broad and the stud e , and hence will effect a closing of the clutch on the latter. The parts are so adjusted that when the board extends toward the back of the feed-box and away from the spike-apron the clutch is open; but when free to gravitate from such a position the weight of the board is sufficient to turn the studs and draw the cone-shell into frictional engagement with the cone-block. Hence whenever the board is unsupported in its rearwardly-extending position it instantly connects itself with power and is pressed toward the spike-apron.

When the feed-box is well supplied with stock, the board is constrained to assume and maintain the rearward position above mentioned, and so long as this condition obtains the board lies idle, being disconnected from its driving means and its weight of itself not having any appreciable effect to press stock against the spike-apron. The moment, however, that the stock becomes so low in the box as to no longer sustain the board in its rearward position the board drops, and the consequent turning of the stud e' in the fixed nut produces longitudinal movement of said stud, the board, and the stud e , so that the conical shell on the latter is closed upon the rotating conical block, and the board is then frictionally impelled toward the apron and caused to assume a position where it inclines toward the latter and provides a pocket to hold the stock thrown back by the evening-comb. Thus the upper part of the apron is supplied with stock as though the feed-box were still filled, and uniformity in delivering to the scale-pan is assured. It will be seen that as the stock lessens in the feed-box the pressure of the board increases, for the farther forward the board moves the tighter the clutch closes, and while the pressure of the board against the stock increases gradually as the board moves toward the spike-apron, yet the pressure of the stock against

the spike-apron remains constant irrespective of the volume of stock between the spike-apron and the board—that is to say, while the pressure of the board against the stock increases gradually as the board moves toward the apron, yet a diminution in the volume of stock and the increase in pressure of the board against the stock do not vary the pressure of the stock against the apron in the plane of contact.

It will be seen that the construction here shown and described is well calculated to thoroughly fulfil all the objects primarily stated; but it is to be understood that the invention is capable of embodiment otherwise than as here shown.

It will be particularly noted that the employment of the cone-clutch and the means of closing it by forward movement of the board entirely obviates any defective action due to a retreat of the board upon a downward stroke of the evening-comb, allowing the accumulation of stock above the board to fall through and the function of the board to be defeated, as happens when weights are relied upon to supply the pressure.

Having thus described my invention, what I claim as new is as follows:

1. In a card-feeder the combination with the spike-apron, of a stock-sustaining board mounted to swing toward and from the spike-apron, power connections for impelling the board toward the latter, and means for regulating the operation of said connections by movement of the board, substantially as described.

2. In a card-feeder the combination with the spike-apron, of a pendent stock-sustaining board movable toward and from the spike-apron, power connections for impelling the board toward the latter, and means for controlling the operativeness of such connections by the position of the board.

3. In a card-feeder the combination with the spike-apron, of a pendent stock-sustaining board movable toward and from the spike-apron, power connections for impelling the board toward the latter, and means for controlling the operativeness of such connections by the position of the board and for increasing the power transmission to the latter by its own movement toward the apron.

4. In a card-feeder the combination with the spike-apron, of a board pivotally mounted in the feed-box so as to be movable toward and from the spike-apron, a power-connected clutch for impelling said board toward the latter, and means for opening and closing the clutch by movement of the board, substantially as and for the purpose described.

5. In a card-feeder the combination with the spike-apron, of a board pivotally mounted in the feed-box so as to be movable toward and from the spike-apron, a power-connected

clutch for impelling said board toward the latter, and a screw-and-nut structure for opening and closing the clutch by movement of the board.

5 6. In a card-feeder the combination with the spike-apron, of a board pivotally mounted in the feed-box so as to be movable toward and from the spike-apron; a cone-clutch, one member of which is affixed to a journal of the
10 board, and the other member of which is loose therein; driving connections to said loose member; and means for forcing the two clutch members together by the movement of the board toward the spike-apron.

15 7. In a card-feeder, the combination of a stock-sustaining board journaled in the feed-box; screw-threads on one of its journals; a stationary nut with which said screw-threads are engaged; a conical clutch member affixed
20 to the other journal; a coacting clutch member loosely mounted on the latter; and power connections for driving the loose clutch member, substantially as and for the purpose described.

25 8. In a card-feeder the combination with the spike-apron, of a pendent stock-sustaining board movable toward and from the spike-apron, and automatic means for impelling it toward the latter with increasing
30 pressure as the stock decreases in volume, substantially as and for the purpose described.

9. In a card-feeder, the combination with the spike-apron, of a pendent stock-sustaining
35 board movable toward and from the

spike-apron, and power connections including a rotating shaft for impelling said board toward the apron with increasing pressure as it approaches the spike-apron, substantially
40 as and for the purpose described.

10. A card-feeder comprising a spike-apron, a stock-pressure board, and means for automatically moving said board with a constantly-increasing pressure toward the apron to press the stock against the apron with a
45 consequent constant degree of pressure in the plane of contact irrespective of the volume of stock between the board and the spike-apron.

11. A card-feeder comprising a spike-apron and means for engaging the stock with
50 a constantly-increasing pressure and thereby pressing the stock against the spike-apron with a constant pressure as the stock decreases in volume.

12. A card-feeder comprising a spike-
55 apron, a pivoted stock-sustaining board having its free end movable toward and from the spike-apron, and automatic means for gradually increasing the pressure of the board on the stock as the end of the board approaches
60 said spike-apron.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 14th day of April, A. D. 1902.

GEORGE GEB.

Witnesses:

JAMES DONAHUE,
PATRICK PURCELL.