

No. 625,635.

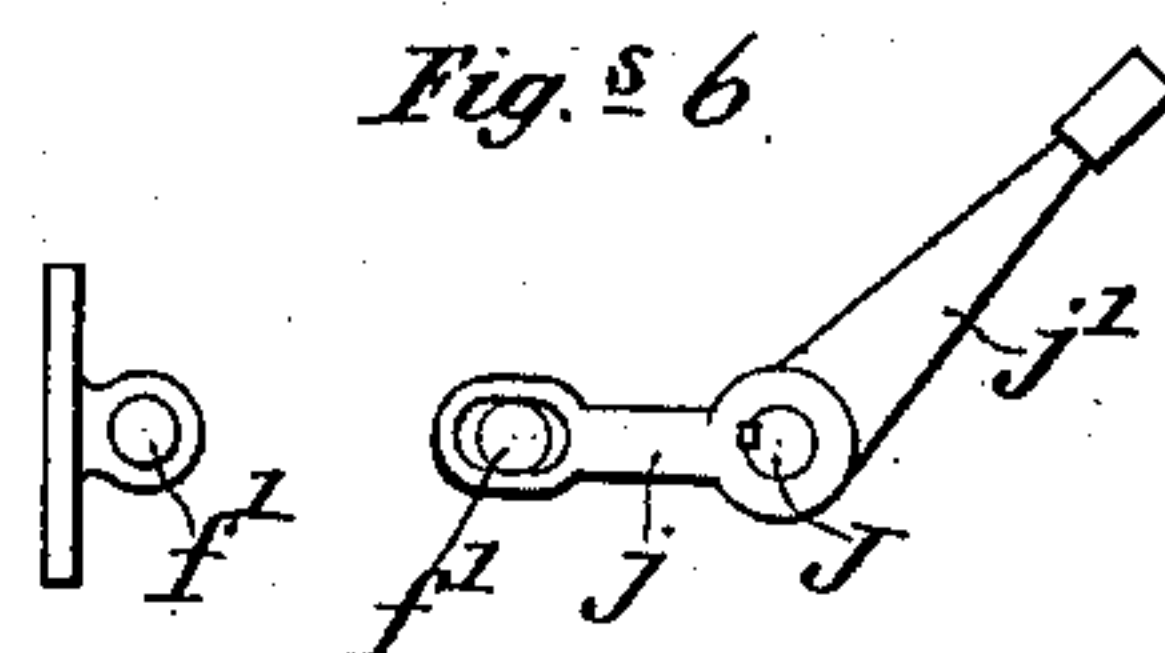
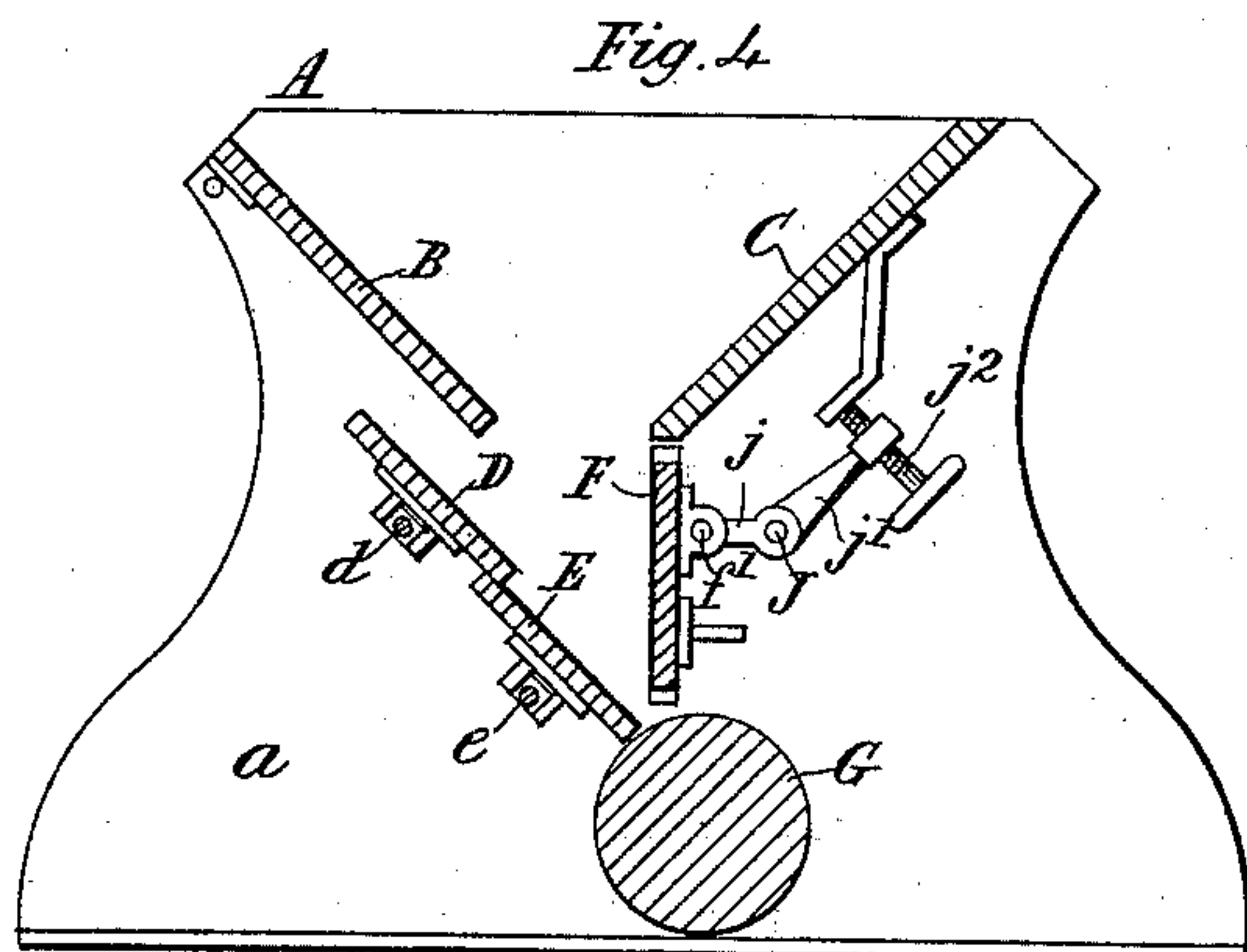
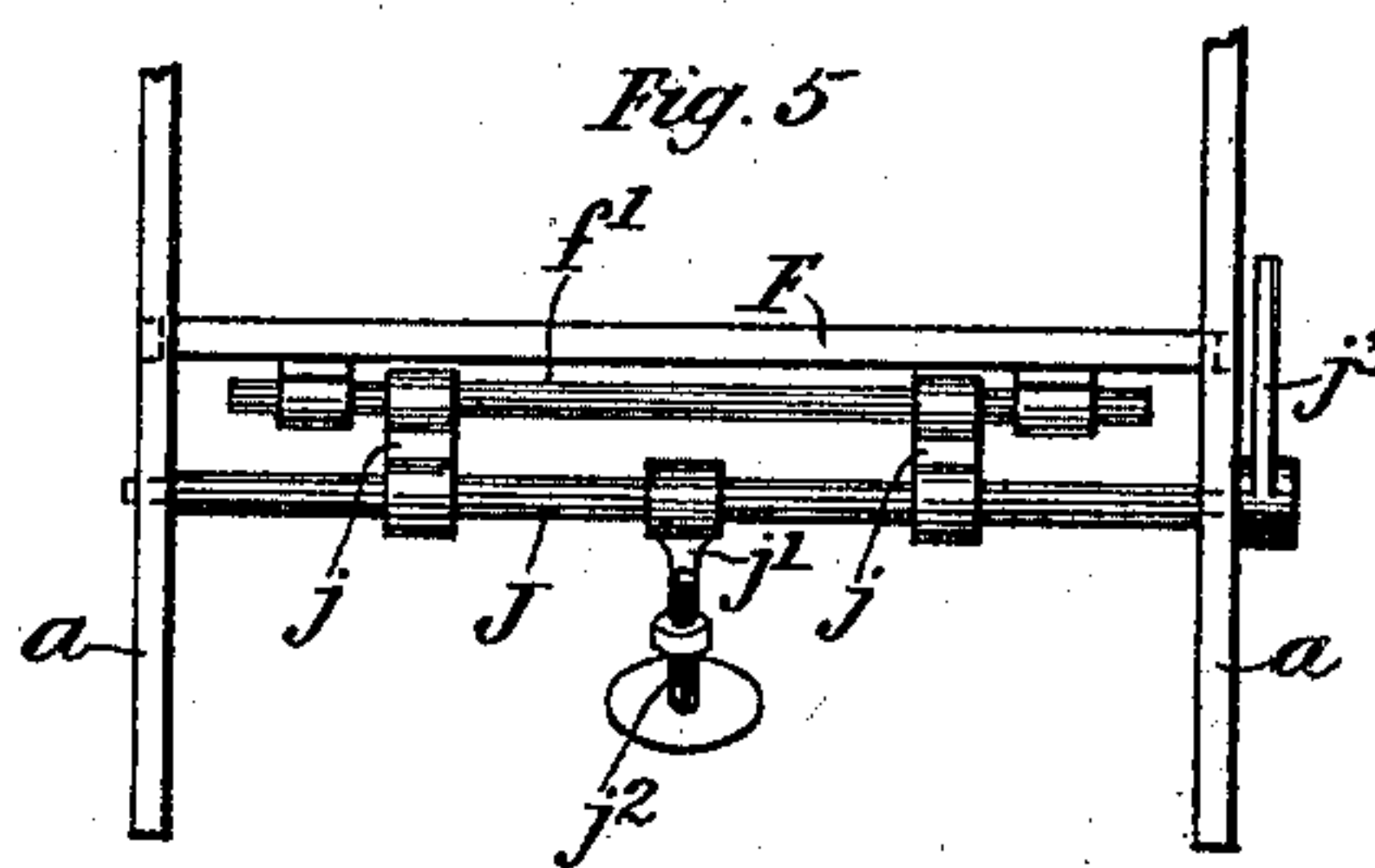
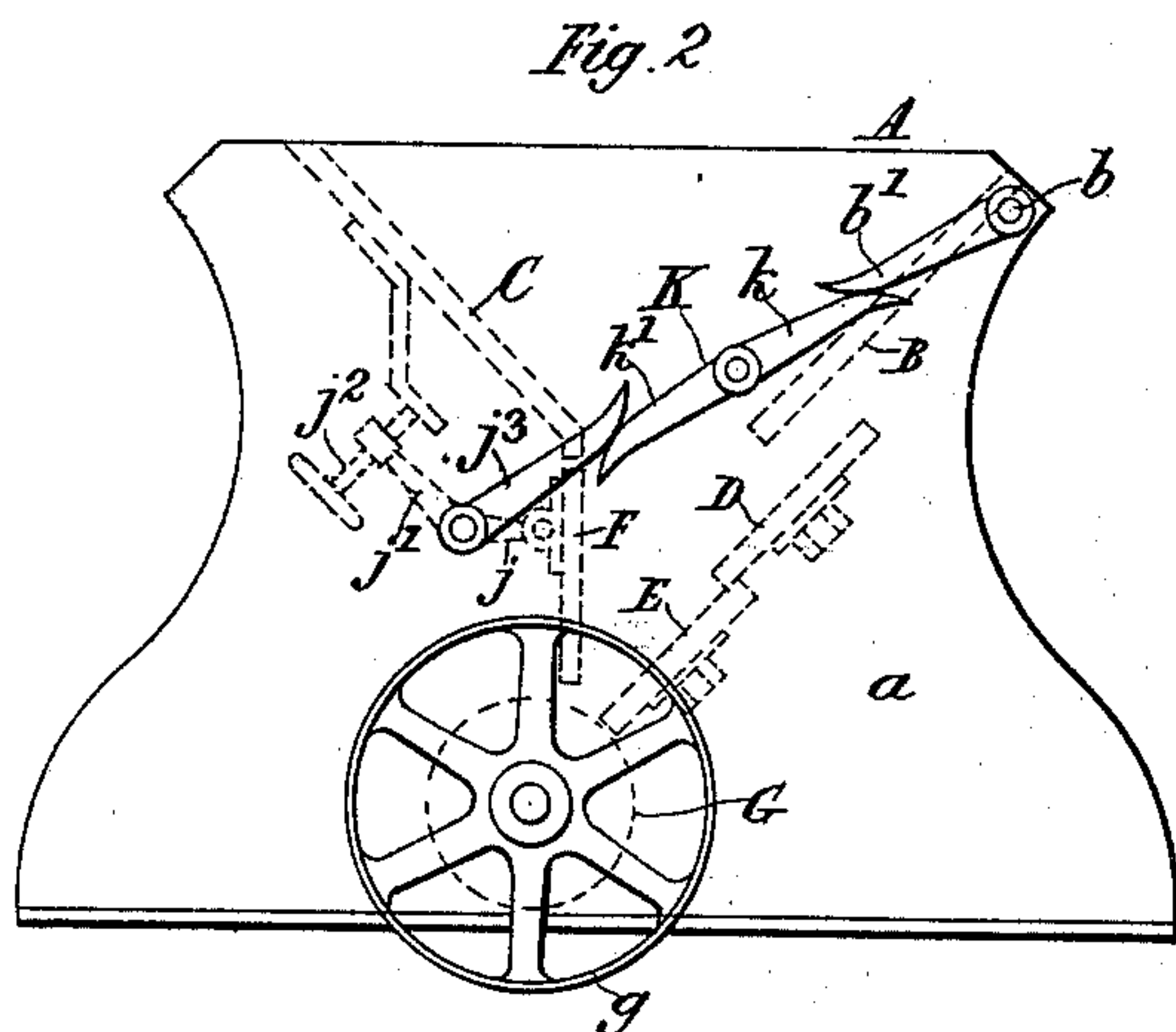
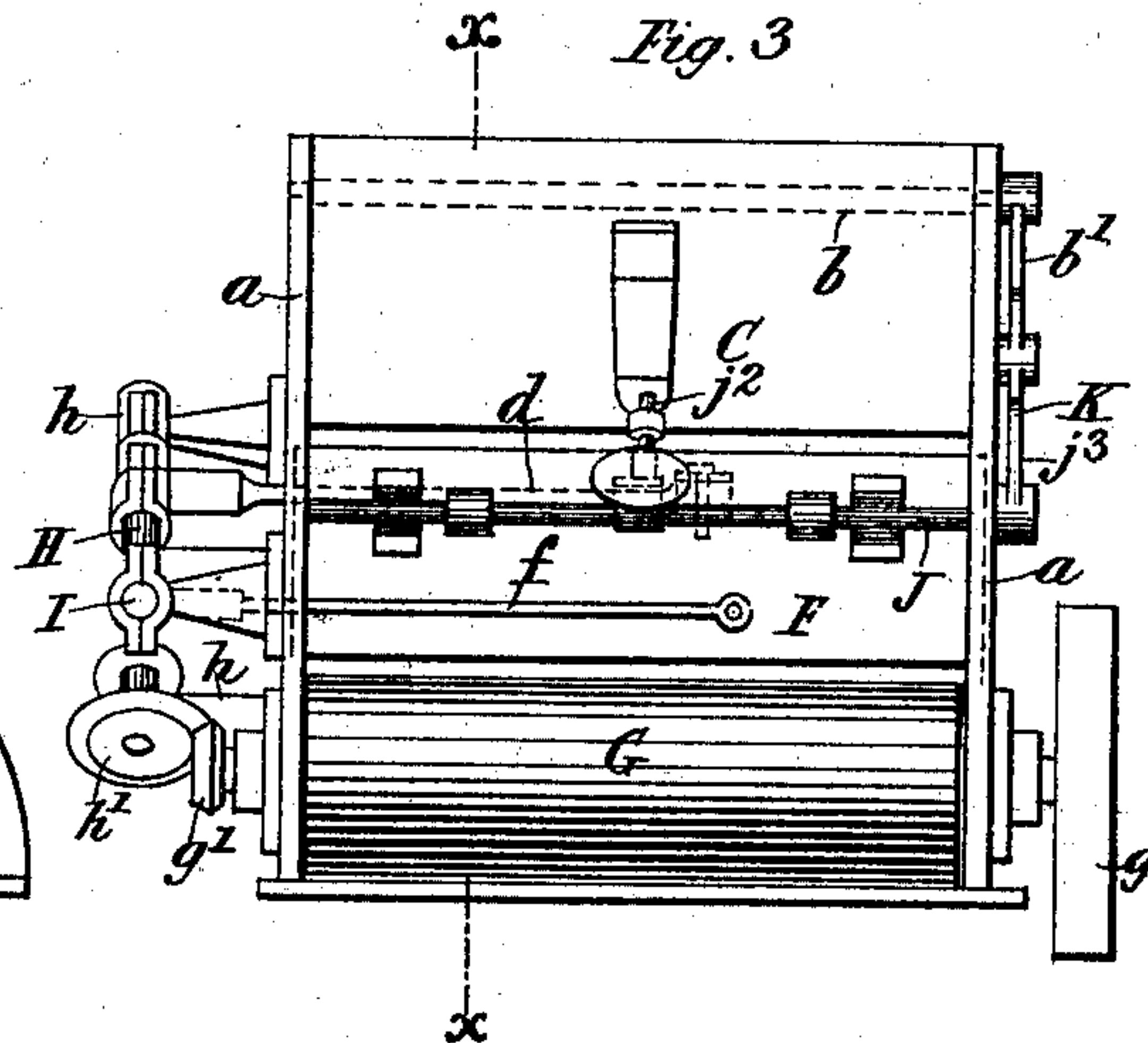
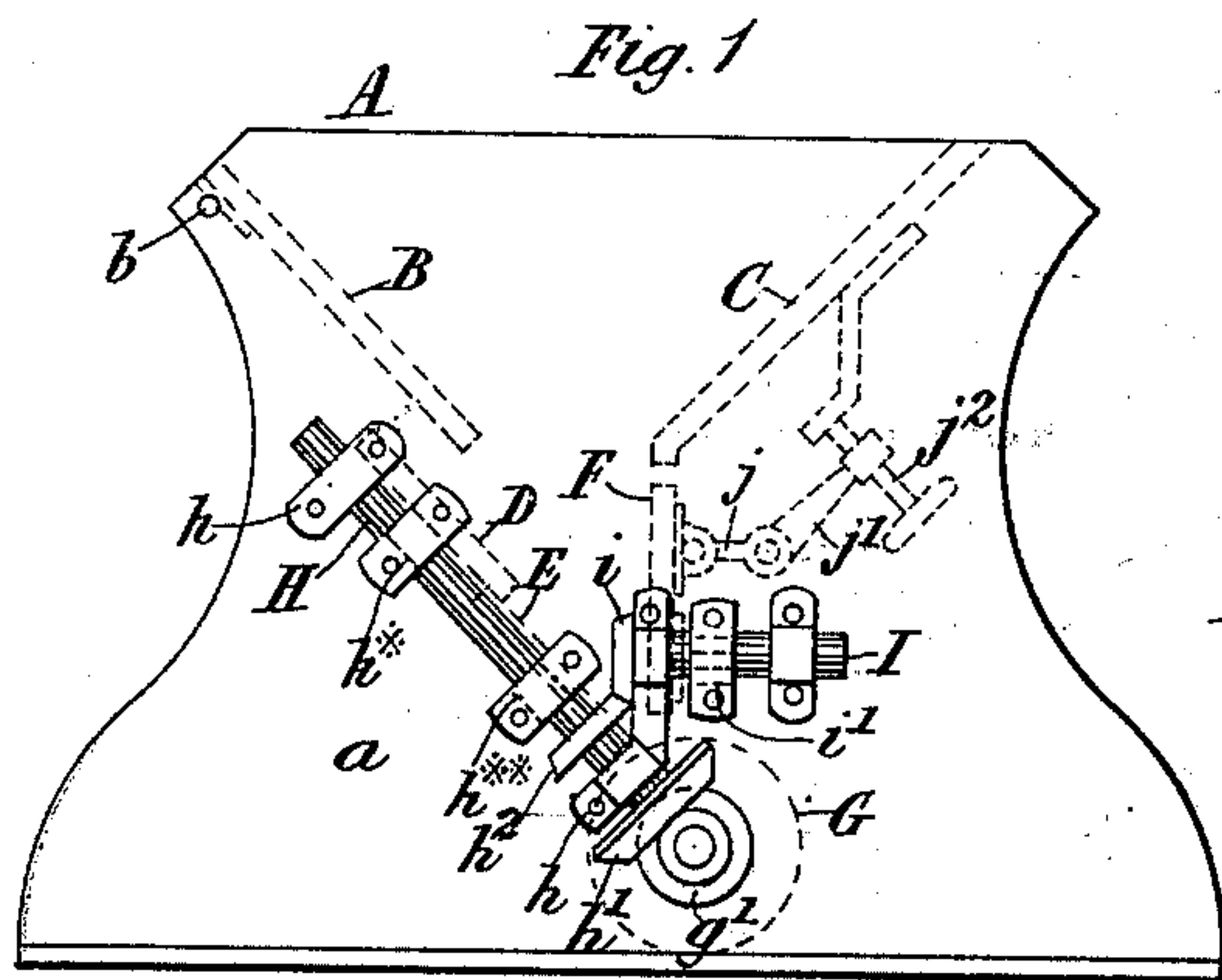
Patented May 23, 1899.

T. ASHLEY, JR.
FEED REGULATOR.

(Application filed Oct. 7, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 9

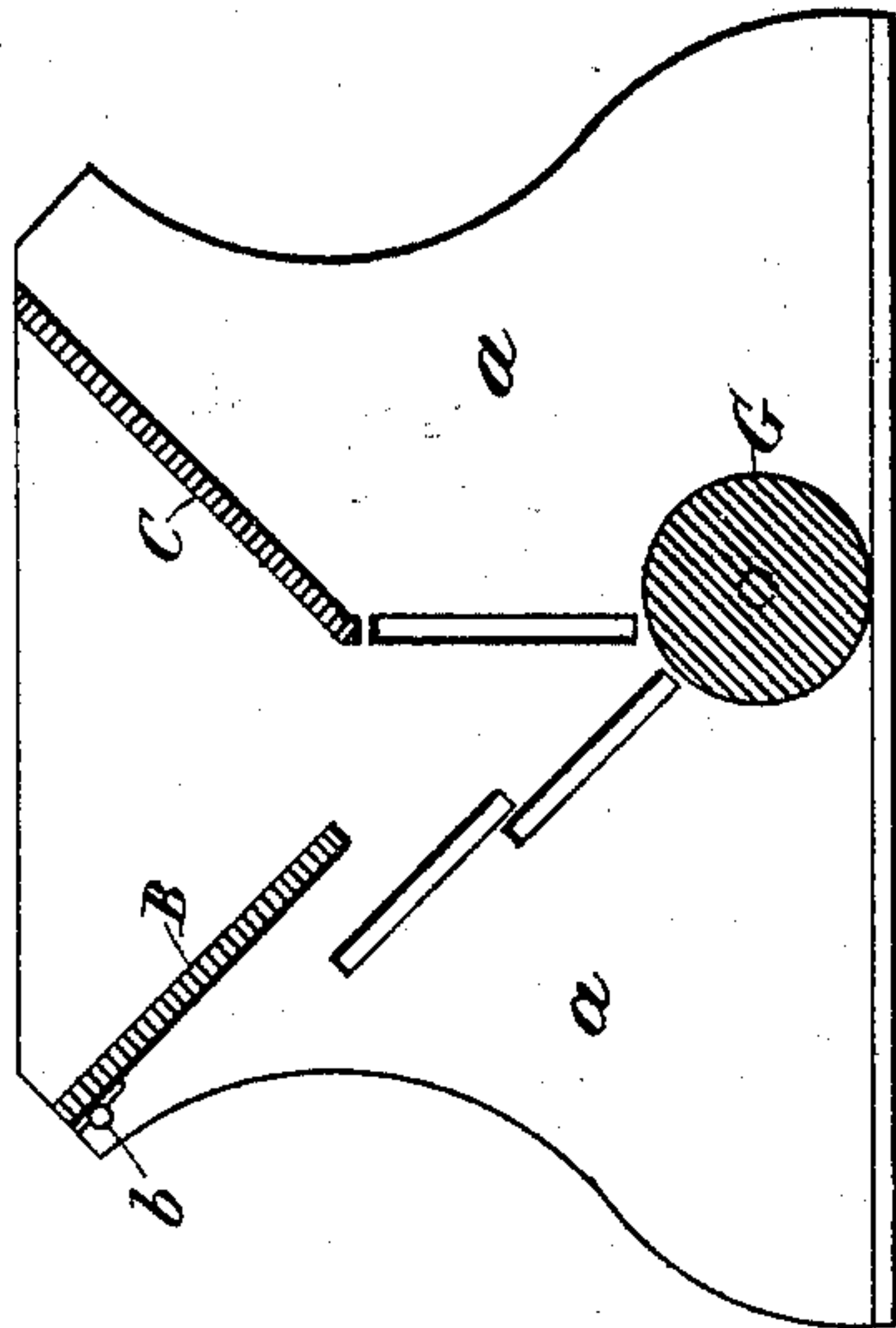


Fig. 7.

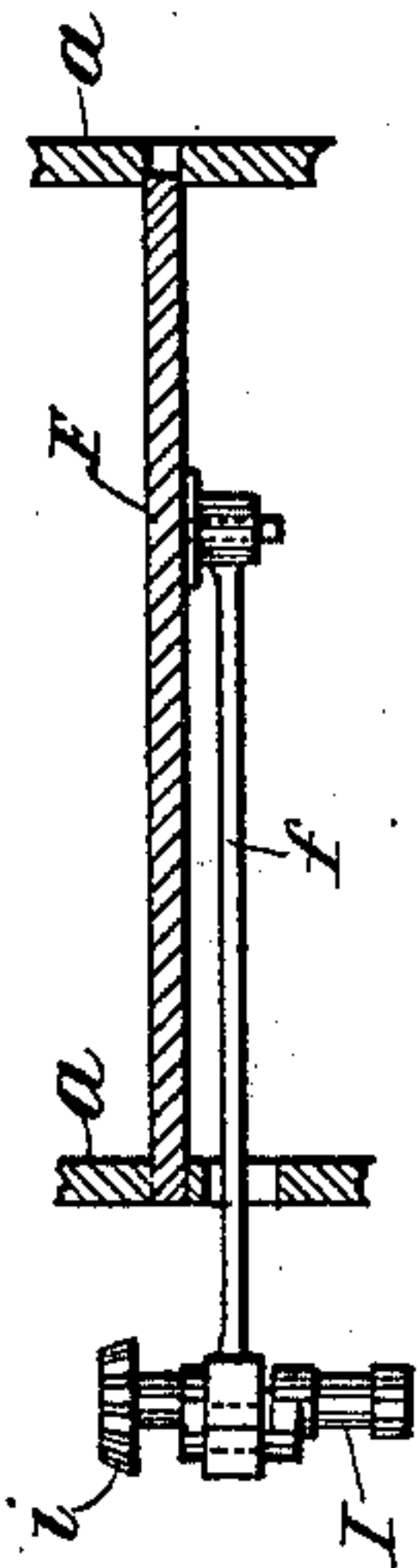
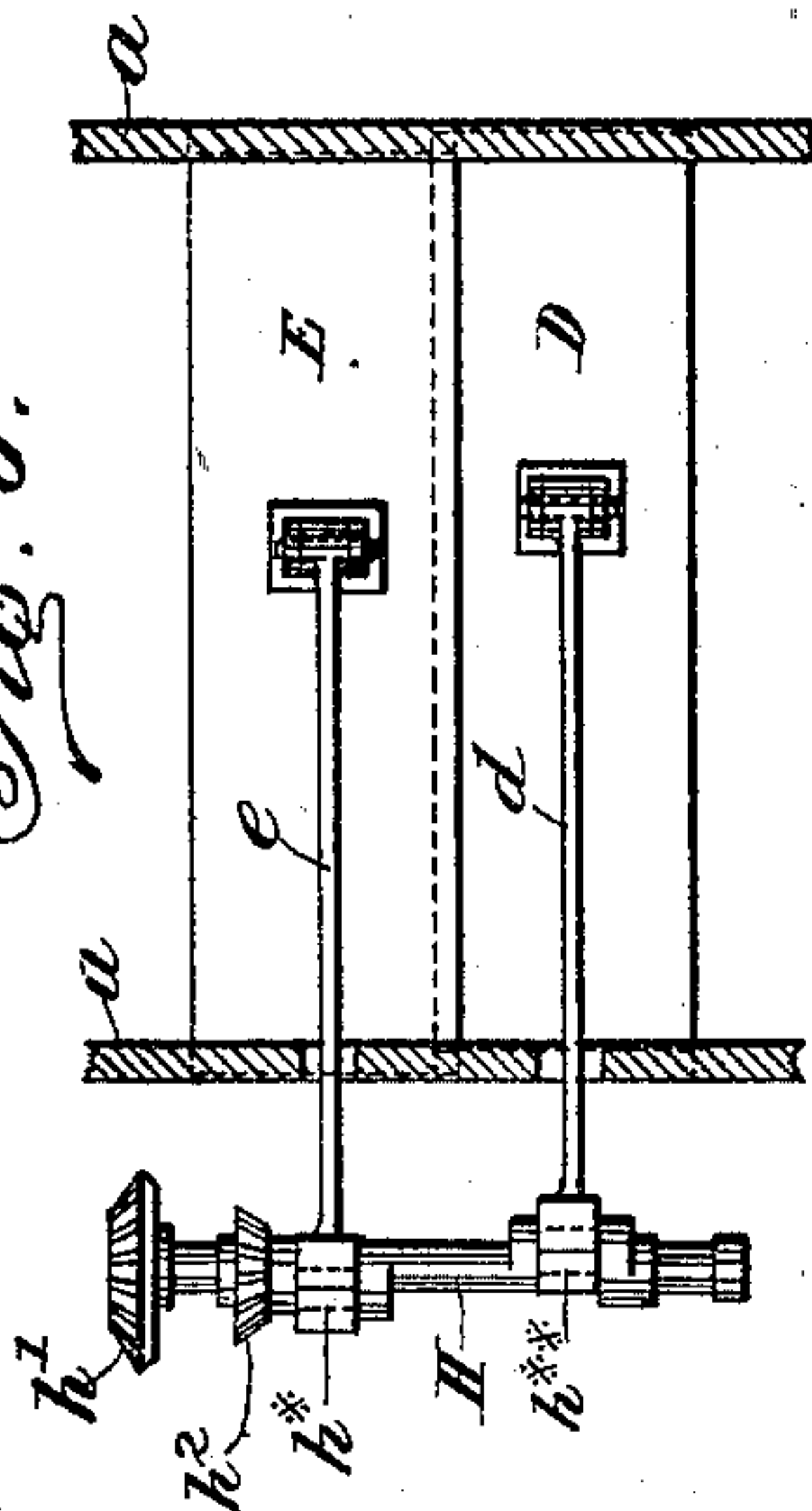


Fig. 8.



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UNITED STATES PATENT OFFICE,

THOMAS ASHLEY, JR., OF LOUTH, ENGLAND.

FEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 625,635, dated May 23, 1899.

Application filed October 7, 1898. Serial No. 692,912. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ASHLEY, Jr., a subject of the Queen of Great Britain, and a resident of Louth, in the county of Lincoln, England, have invented certain new and useful Feed-Regulators, of which the following is a specification.

The present invention has reference to feed-hoppers for meal, grain, and other materials, which are furnished with reciprocating portions whereby the contents are kept in a constant state of agitation, and thereby prevented from caking or "bridging" in the hopper, so as to interrupt the feed.

The invention relates more particularly to the operation of moving the reciprocating parts from the feed-delivery roll, which rotates at the hopper's mouth at such a speed as is most desirable for the delivery of the materials from the hopper.

The invention also comprises an automatic adjustment for the feed-delivery.

In the accompanying drawings, which show a hopper specially constructed to suit roller flour-mills, Figure 1 is an end view of the hopper embodying these improvements. Fig. 2 is a view of the opposite end. Fig. 3 is a back view. Fig. 4 is a section on the line *xx* of Fig. 3. Fig. 5 is a plan of a detail detached. Fig. 6 shows detached portions in side view. Fig. 7 is a detail horizontal section showing the back slide. Fig. 8 is a detail sectional view through a portion of the hopper, showing the front slides; and Fig. 9 is a vertical section through the hopper, the slides being removed to reveal the slots.

The hopper selected for illustrating this invention comprises three endwise-reciprocating portions or slides—two at the front of the hopper and one at the back. It will be obvious, however, that the number of movable parts may be varied without departing from the spirit of the invention.

A is the hopper, comprising end portions *aa*. B is the front of the hopper, hinged between the ends *a*.

C is the hopper-back, fixed in an inclined position.

D and E are endwise-reciprocating front boards or slides, and F is an endwise-reciprocating back portion or slide, which is also ad-

justable vertically to regulate the feed either automatically or by hand.

G is the delivery-roll, rotated at the mouth of the hopper by means of a pulley *g* or other device.

The endwise reciprocation of the boards D E is effected as follows: H is a crank-shaft mounted in bearings *h* on the hopper end *a*. (See Figs. 1 and 3.) On the end of the shaft H is a bevel-pinion *h'*, engaging with a pinion *g'* on the axle of the roller G. In the drawings the shaft H is shown with two cranks *h** and *h***, oppositely arranged, so as to work the crank-rods *d* and *e*, to which they are respectively connected, in opposite directions. The rods *d* and *e* are attached to the boards D and E, so that the reciprocating movement given to the former by the cranks is imparted to the latter, which are thereby caused to move to and fro endwise in opposite directions in the guiding-slots with which the end portions *aa* of the hopper are provided.

The pinions *h'* and *g'* are of different sizes, so as to provide for driving the shaft H at a lower rate of speed than the roller G, which in delivering and distributing some materials from the hopper has to be driven tolerably fast.

Upon the shaft H is a second pinion *h²*, which engages a pinion *i* on a short shaft I, which is mounted in a bearing (see Fig. 1) and is provided with a crank *i'*. The rotation which the crank-shaft I receives through the pinions *h²* and *i* is utilized to reciprocate the rod *f*, which is connected at one end to the crank *i'* and at the other to the board F of the hopper, which board F is thereby also caused to reciprocate. This board F is carried by a rod *f'* at its back, (see Fig. 5,) which rod is loosely threaded through the ends of lever-arms *j j*, (see Figs. 5 and 6,) fast on the rod J. This rod J is mounted between the ends *aa* of the hopper and is capable of being rocked by means of the lever-arm *j'*, carrying the set-screw *j²*. It will thus be seen that the portion F of the hopper is capable of sliding endwise on the supporting-levers *j j* and is also capable of adjustment vertically to regulate the space between its lower edge and the distributing-roll G through which the material from the hopper is delivered.

The board or slide F is kept from falling below the elevation desired by means of the set-screw j^2 , which is arranged to bear against a projection on the fixed portion C of the hopper.

The automatic adjustment of the height of the slide F to increase the discharge is effected by the hinged portion B of the hopper, to the hinge-rod b of which is fixed the lever-arm b' . (See Figs. 2 and 3.) This lever b' bears against the end k of a double-armed lever K, pivoted near its middle to the hopper end, and the other end k' of the lever K underlies the arm j^3 , which is fast on the end of the rock-shaft. It will thus be seen that the depression of the lever b' tips the lever K on its pivot, and thereby lifts the arm j^3 on the rod or shaft J and by means of the latter lifts the slide F. The depression of the lever b' is in practice effected when the hinged hopper-front B becomes overweighted by the contents of the hopper, so that by this means the discharge may be automatically increased immediately the hopper becomes overfull.

I claim—

1. A feed-hopper comprising in its construction, mechanism for automatically increasing the discharge, embracing a hinged portion of the hopper on one side, and upon the opposite side a vertically-adjustable and endwise-reciprocating slide which controls the discharge-opening, and means for connecting

the said hinged side and the said vertically-moving slide so that the depression of the hinged portion by the excessive weight of the contents causes the slide to lift and increase the discharge, substantially as described.

2. In a feed mechanism, the combination with a feed-roller of a hopper having movable sides, one of said sides comprising two longitudinally-moving slides, the other side of the hopper having one longitudinally-moving slide, shafting geared together and connected with the feed-roller, and cranks upon the said shafting engaging the three slides, whereby a longitudinal movement is imparted to them simultaneously for feeding the contents of the hopper.

3. In a feed-hopper, the combination with a delivery-roller, of a hopper having longitudinally-moving sides, one of said longitudinally-moving sides being mounted upon a guide-rod so as to be adjustable vertically, an arm also mounted upon the said guide-rod outside the hopper, and means for connecting the said arm with the opposite pivoted side of the hopper, whereby the weight of the contents will raise or lower the said longitudinally-moving side according to the fullness of the hopper, substantially as described.

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