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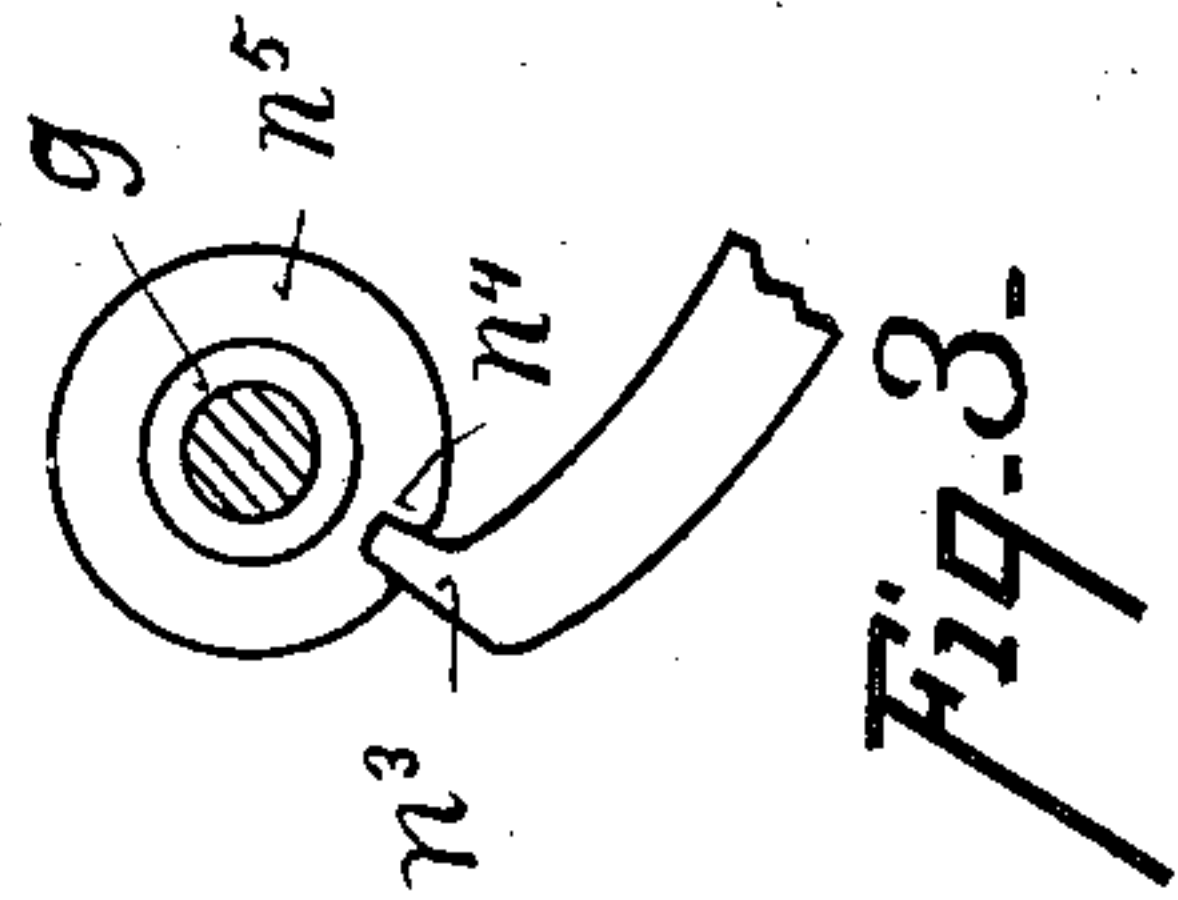
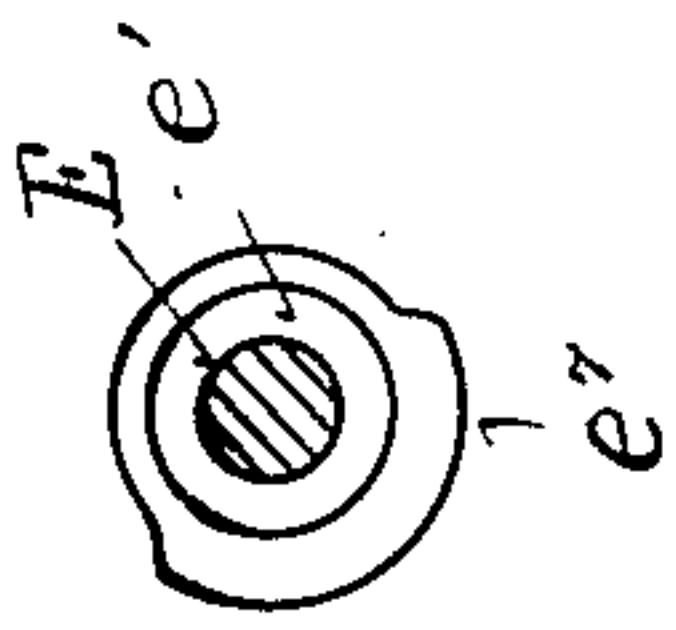
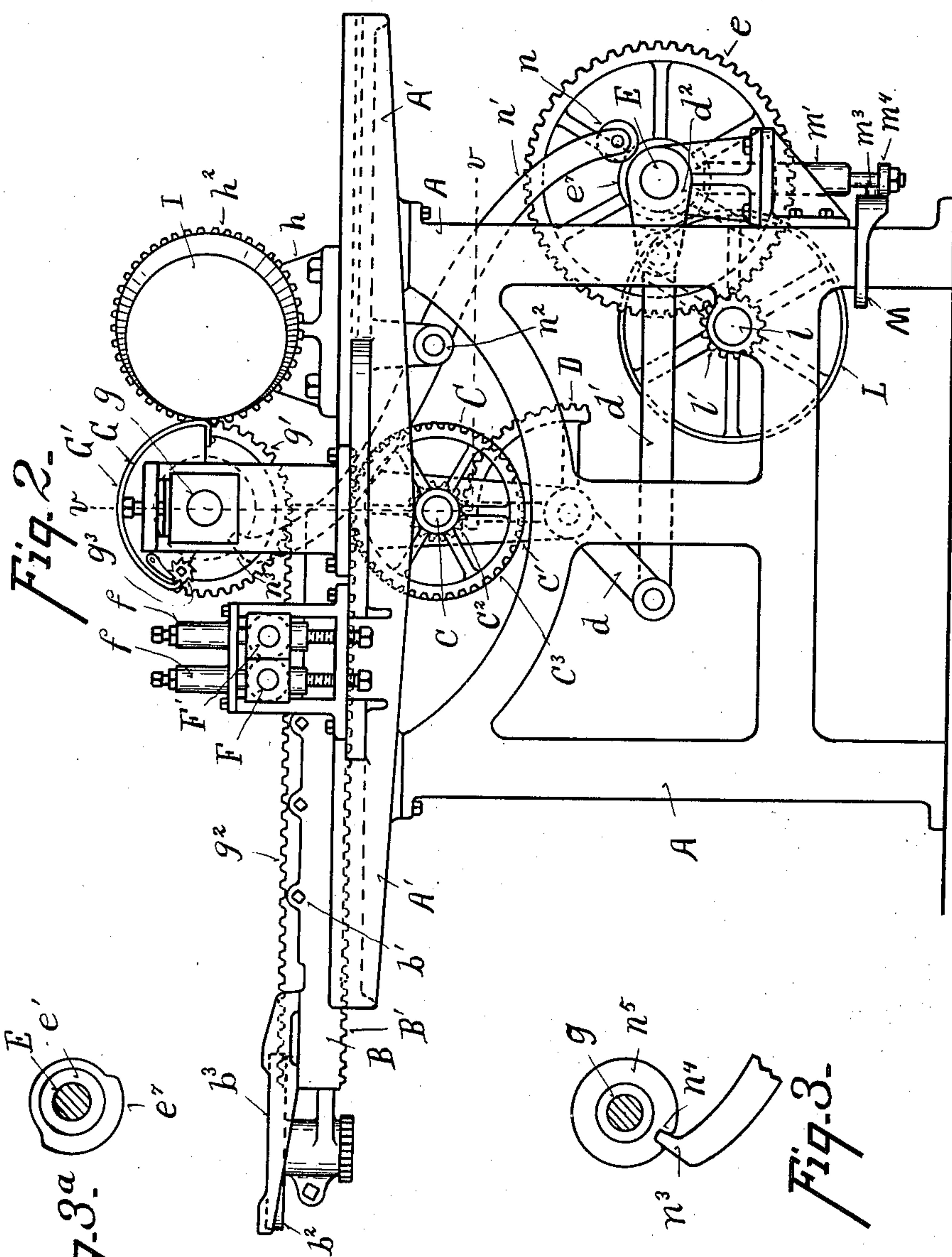
PATENTED AUG. 6, 1907.

G. ACKERMANN.

PRESS FOR PRINTING FINISHED PAILS.

APPLICATION FILED OCT. 12, 1905.

4 SHEETS—SHEET 2.



Witnesses

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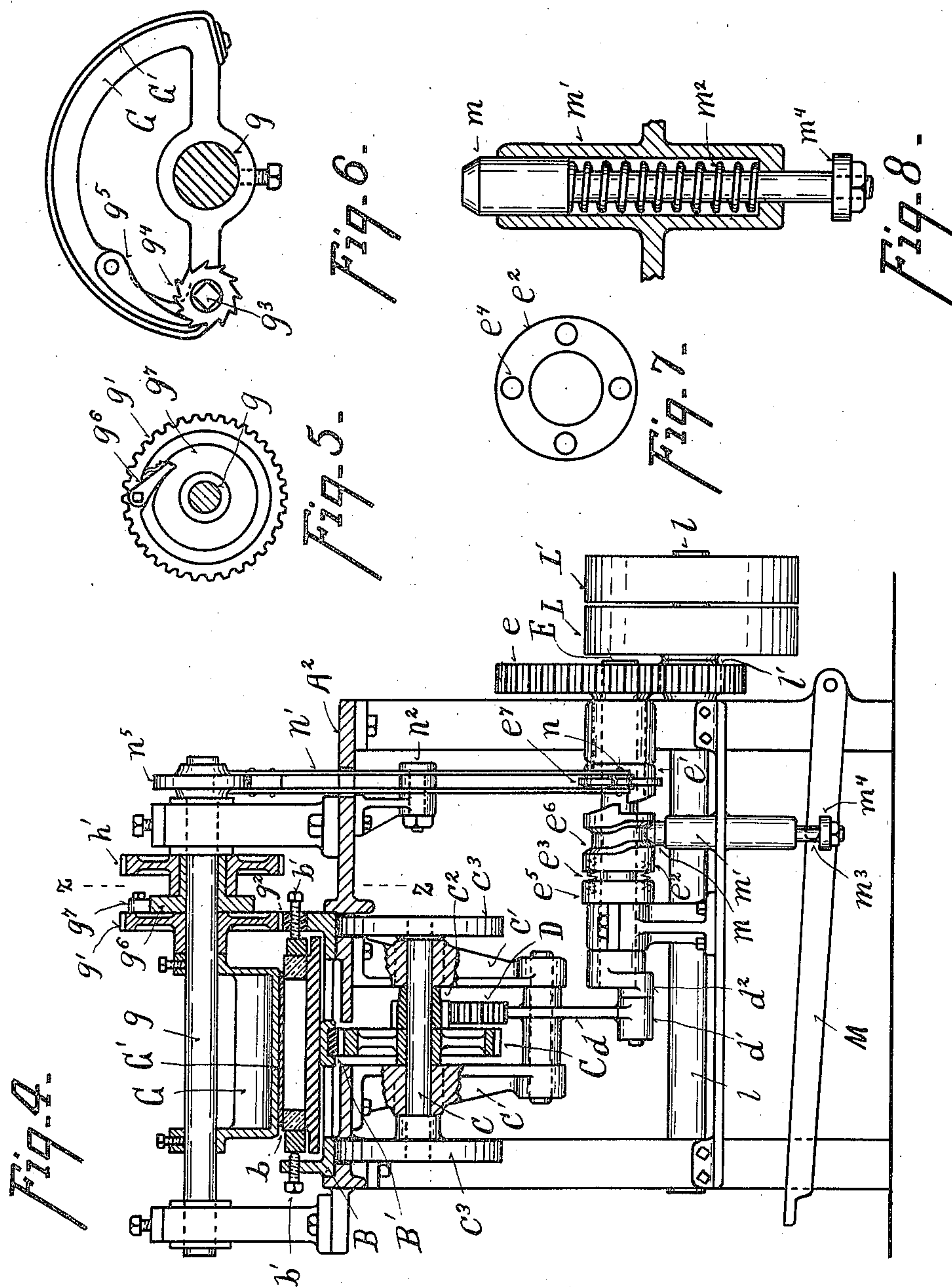
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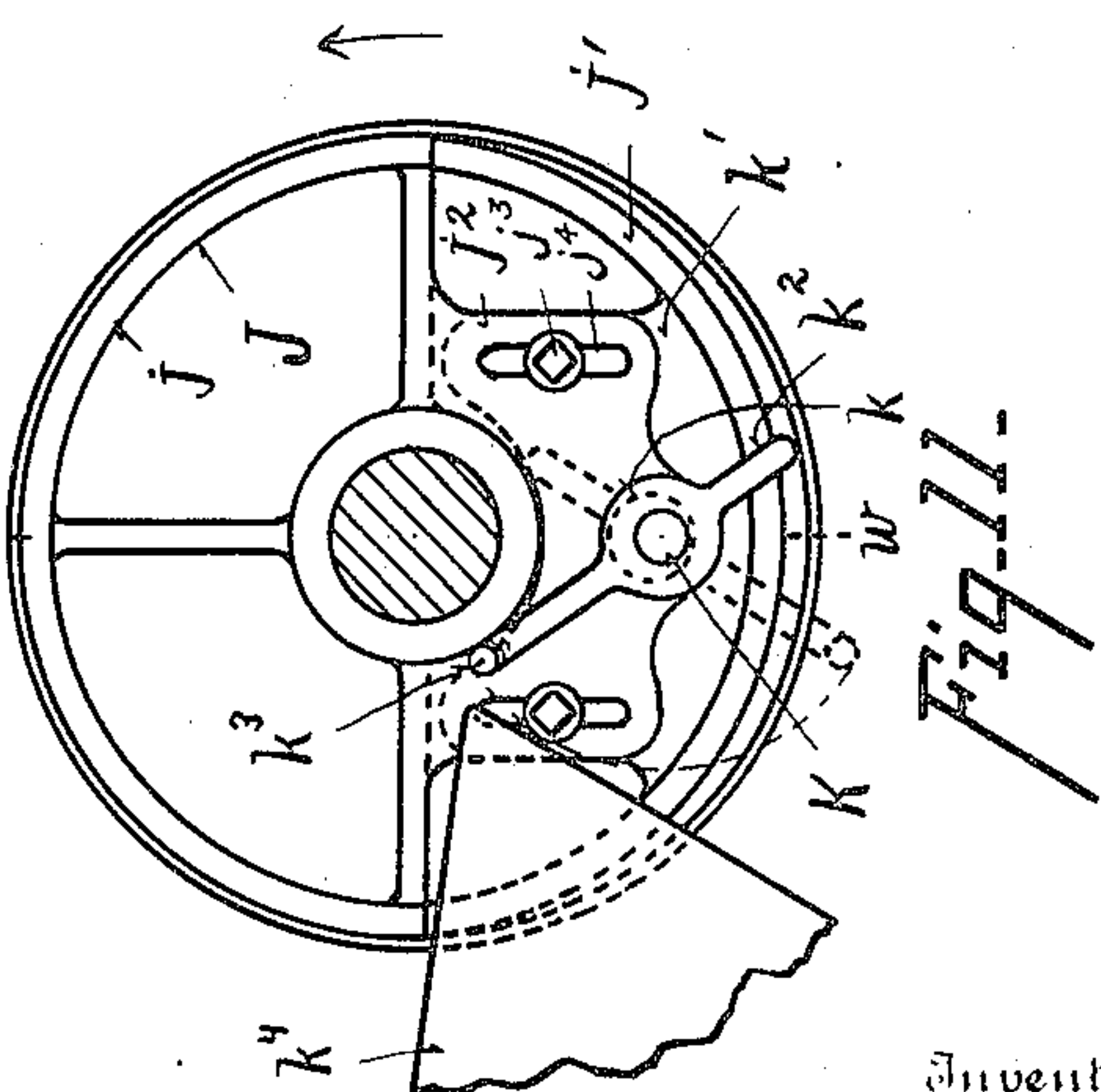
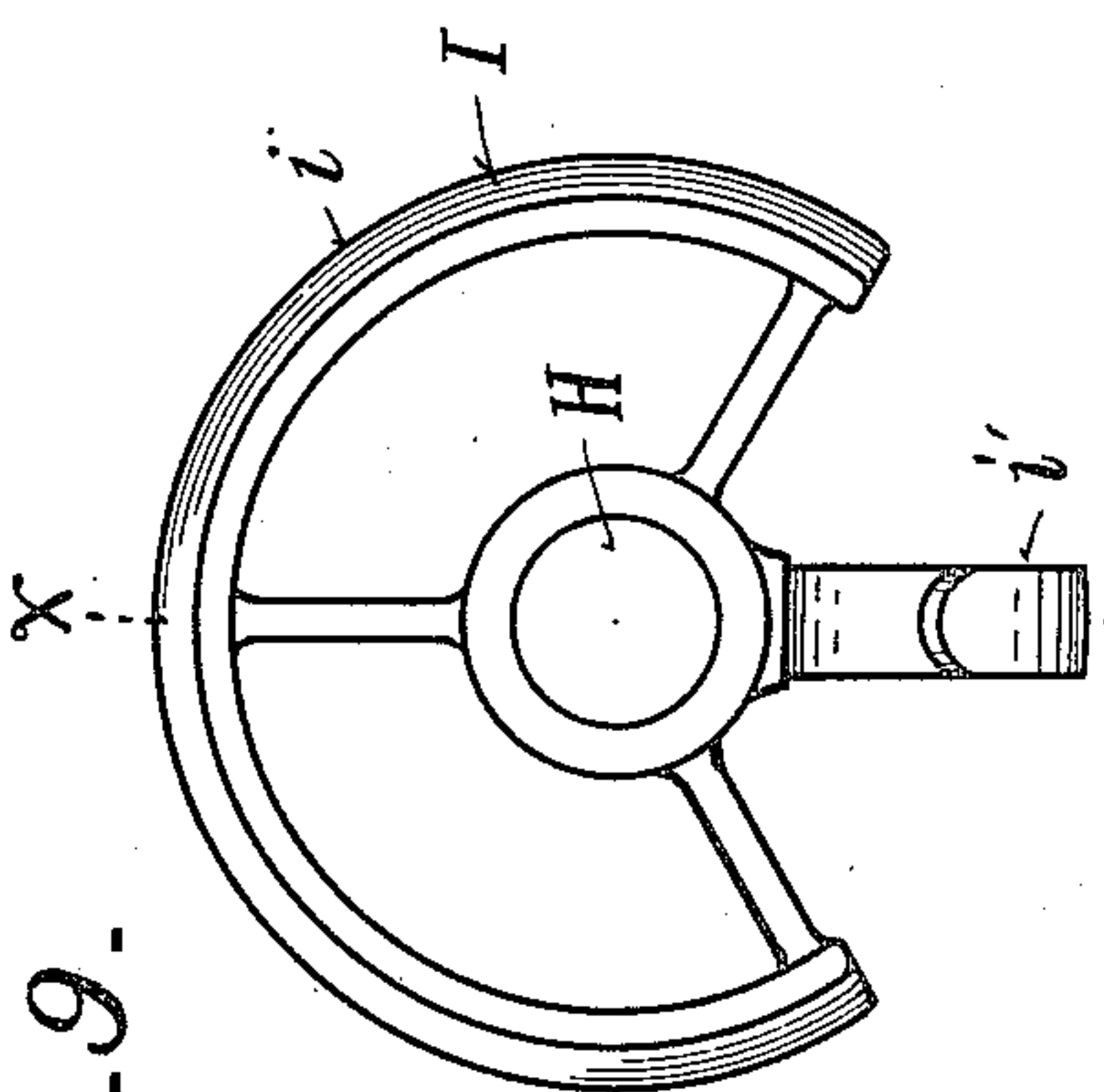
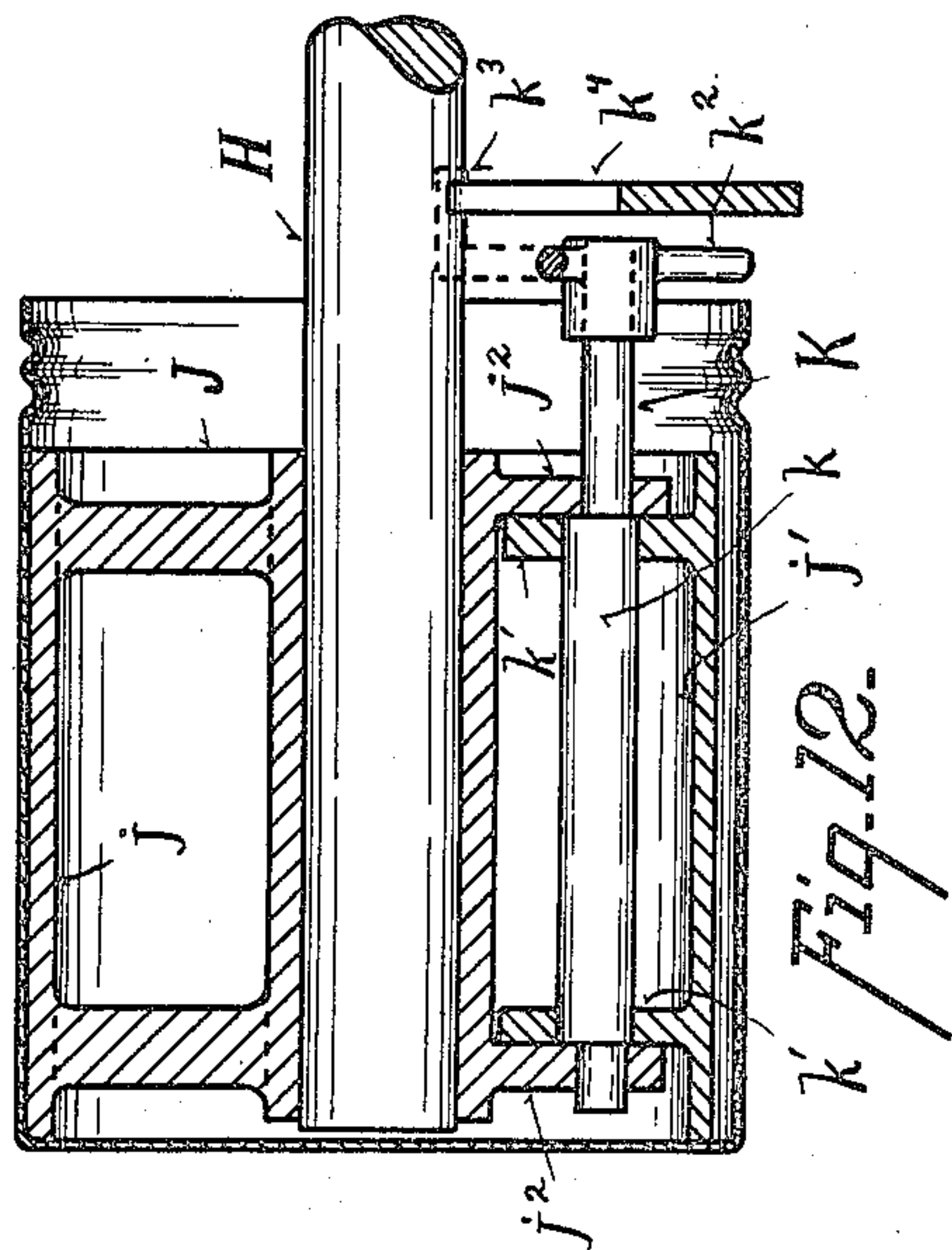
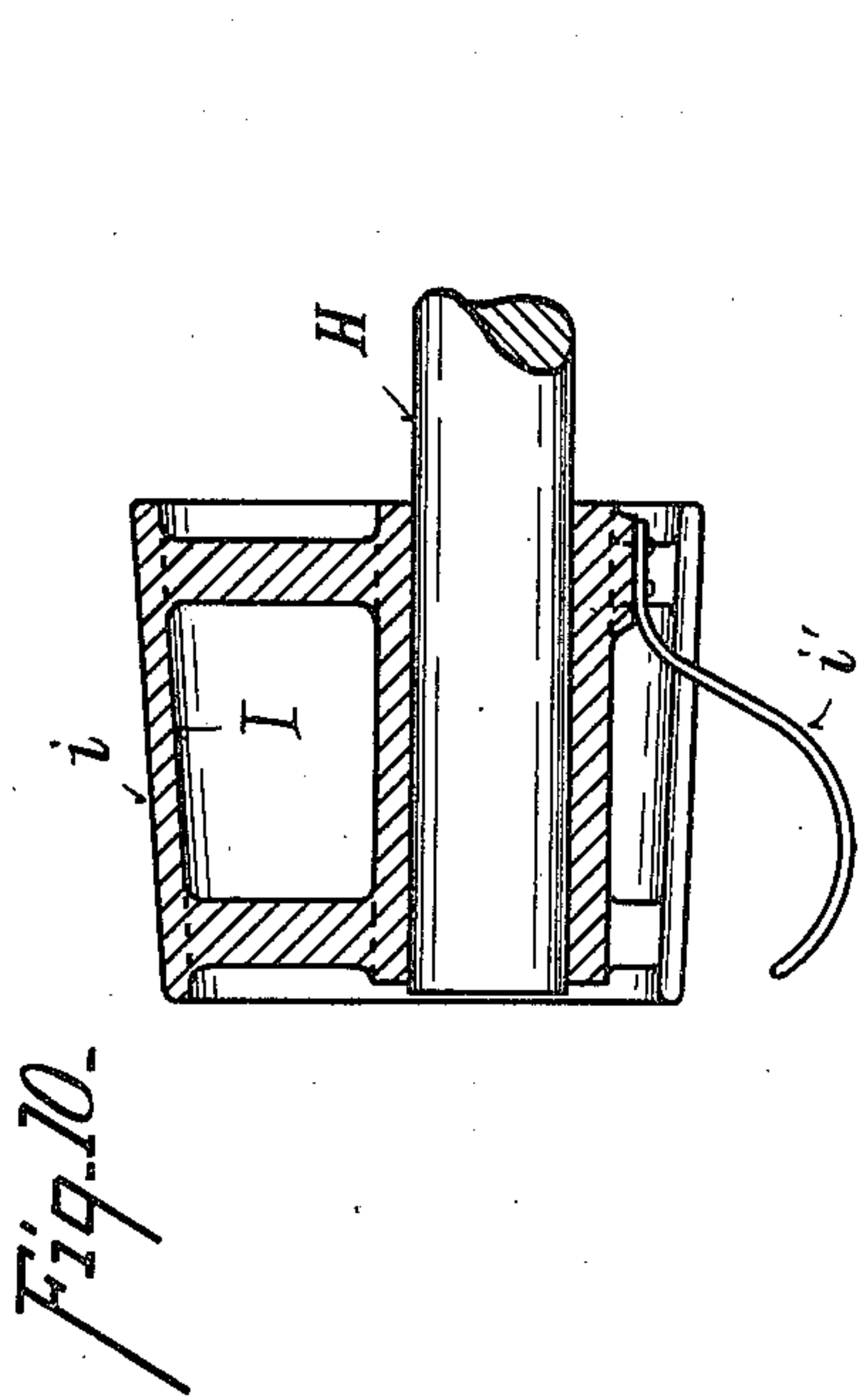
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4 SHEETS—SHEET 4.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE ACKERMANN, OF CINCINNATI, OHIO, ASSIGNOR TO THE HEEKIN CAN COMPANY,
OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

PRESS FOR PRINTING FINISHED PAILS.

No. 862,122.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed October 12, 1905. Serial No. 282,366.

To all whom it may concern:

Be it known that I, GEORGE ACKERMANN, a citizen of the United States of America, and a resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Presses for Printing Finished Pails, of which the following is a specification.

My invention relates to improved mechanism for printing trade-marks and other matter upon the exterior of cans and buckets.

One of its objects is to provide mechanism which will print upon the exteriors of cans or buckets after the same are completed, thereby avoiding any liability to injure the printed matter by subsequent operations.

Another object is to provide improved mechanism for transferring the ink from the type to the cans and insuring a uniform movement thereof.

Another object is to provide improved means for stopping and starting the printing mechanism.

Another object is to provide improved mechanism for receiving and holding the can, or bucket during the operation.

It further consists in certain details of form, combination and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which,

Figure 1 is a top plan view of my improved mechanism. Fig. 2 is a side elevation of the same. Fig. 3 is a detail of one of the ratchet wheels and its pawl. Fig. 3^a is a detail of the cam for actuating said pawl. Fig. 4 is an end view partially in section on line *v-v* of Fig. 2. Fig. 5 is a detail of the ratchet wheel and pawl for locking the impression transmitting cylinder to its driving gear. Fig. 6 is an enlarged detail end view of the transmitting cylinder. Fig. 7 is a detail end view of one of the starting clutch members. Fig. 8 is an enlarged detail view of the clutch releasing mechanism. Fig. 9 is an end view of the bucket supporting drum. Fig. 10 is a section through the same on line *x-x* of Fig. 9. Fig. 11 is a view similar to Fig. 9 showing a modified form of drum or cylinder. Fig. 12 is a section through the same on line *w-w* of Fig. 11.

In the accompanying drawings, A, represents the frame of the machine, the table, A', of which is provided with horizontal ways, *a*, upon which travels a frame, B, which carries a type-frame, *b*, which is clamped thereon by means of set-screws, *b'*. This frame also carries an inking disk, *b*², and cam plates, *b*³, at the sides of said disk.

The frame, B, is provided on its underside with a rack, B', which is engaged by a gear, C, on the shaft, *c*, which shaft is journaled in brackets, *c'*, secured to the underside of the table, A'. On the shaft, *c*, is also mounted a gear, *c*², which is engaged by a segmental gear, D. This segmental gear is reciprocated by means

of a crank-arm, *d*, projecting from the hub of the segmental gear, a pitman, *d'*, and a crank-arm, *d*², mounted on the shaft, E, by which mechanism the frame, B, is reciprocated backward and forward upon the ways, *a*, of the table, A'. *c*³, represents rollers carried by the shaft, *c*, and supporting the frame, B, at opposite sides of the gear, C.

Mounted on the table, A', above the frame, B, are a pair of ink rolls, F, F'. These rolls are permitted to yield upward by means of springs mounted in the housings, *f*. The ink is spread upon the disk, *b*², and as the disk passes beneath the rolls, F, F', the cams, *b*³, lift the rolls until they reach the central portion of the disk, *b*², when they are allowed to rest upon the face thereof and again lifted when the disk is moved in the opposite direction. The rolls, then by contact with each other, distribute the ink over their surfaces and also upon the face of the type in the type-frame, *b*. Also mounted upon the table, A', is a semi-cylindrical transfer plate, G, the shaft, *g*, of which carries a gear, *g'*, which engages a rack, *g*², mounted on the frame, B. The plate G, is faced by an elastic pad, G', which pad is secured at one edge of the segment and is drawn over a shaft, or roller, *g*³, at the opposite edge, where it is strained or locked in place by means of a ratchet wheel, *g*⁴, and pawl, *g*⁵. The gear, *g'*, is loosely mounted upon the shaft, *g*, and carries a spring actuated pawl, *g*⁶, which engages a single-toothed wheel, *g*⁷, rigidly mounted on the shaft. Thus, the gear, *g'*, is free to rotate, while the cylinder, G, moves in one direction only, with a step by step movement through the engagement of the pawl, *g*⁶, with the wheel, *g*⁷, this movement being timed with the forward movement of the frame, B.

H, represents a shaft mounted in bearing, *h*, and carrying at one end a drum, or cylinder, I, upon which the cans or buckets, are mounted to be printed. This shaft receives motion through gear, *h'*, on the shaft, *g*, which meshes with a gear, *h*², on shaft, H, the bearings, *h*, being adjustable upon the shelf, A², of the table, A', so that different sized and shaped cylinders, or drums, I, may be mounted on the shaft, H, to suit the style of bucket or can to be printed. The shaft, H, will thus receive an intermittent movement in one direction to correspond with the movement of the transfer cylinder, G. Thus the impression from the type will be transferred to the face, G', of the cylinder, G, and from thence to the face of the can, which is supported on the cylinder, I, after which the parts move to a position so that the segment, G, is clear of the face of the bucket and the bucket may be removed and a fresh one substituted.

Where it is desired to print upon the face of a tapered bucket, I preferably employ a drum, I, of the form shown in Figs. 9 and 10, having a segmental tapered face, *i*, to support that portion of the can to be printed and

a spring-arm, i' , which serves to strain the bucket in place upon the drum, I, and permits the same to be readily pushed into place and removed.

Where it is desired to print upon cylindrical cans or 5 buckets, or those having a reduced neck, such as shown in Fig. 12, I preferably provide a cylindrical drum, J, having a section, j , rigidly mounted on the shaft, H, and a movable or collapsible section, j' , to permit the straining or clamping and removal of the can or 10 bucket. The movable section, j' , may be variously operated to effect the desired purpose.

As shown in Figs. 11 and 12, K, represents a shaft mounted in bearings in ears, j^2 , on the frame, j , and provided with an eccentric portion, k , which engages 15 the ears, k' , of the section, j' , so that the partial rotation of shaft, K, serves to expand or retract the movable section, j' . j^3 , represents bolts projecting from ears, k' , through guide slots, j^4 , in ears, j^2 . The adjustment of section j , is preferably effected by means 20 of a cross-arm, j^2 , carried by the shaft, K. One end of this cross-arm is provided with a stud, k^3 , which may be conveniently grasped by hand to expand the section, j' after the can has been set in place and may be automatically thrown to retract section, j' , by projecting 25 arm, k^4 , carried by the bracket, h , the opposite end of the cross arm, k^2 , serving by engagement with the shaft, H, to limit the movement of the shaft, K.

The various operative parts are driven in the following manner: L, L', represent tight and loose pulleys on 30 the main driving shaft, l . l' , represents a gear on the shaft, l , which in turn drives a gear, e , loosely mounted on the shaft, E. e' , represents a clutch member carried on the sleeve forming the hub of the gear, e , and is continuously rotated thereby. e^2 , represents a clutch 35 member splined to the shaft, E, and normally pressed into engagement with the clutch member, e' , by means of coiled springs, e^3 , engaging recesses, e^4 , in said clutch member, and also in a collar, e^5 . e^6 , represents a cam-groove in the face of the clutch member, e^2 , which is engaged by a stud, or pin, m , seated in the housing, m' , 40 and actuated by a spring, m^2 , to hold the pin, m , in the cam-groove, e^6 . m^3 , represents a pin on the treadle or starting lever, M, which engages the collar, m^4 , at the lower end of the pin, m , so that the depression of the 45 lever, M, by the foot of the operator, will force the pin, m , from the groove, e^6 , and allow the spring, e^3 , to force the clutch members, e' , e^2 , into engagement with each other, causing the shaft, E, to revolve. As soon as the lever, M, is released, the pin, m , springs upward, entering the cam-groove, e^6 , and upon passing the diagonal 50 portion thereof, throws the clutch member, e^2 , towards the collar, e^5 , and stops the movement of the machine until the can has been removed and another one substituted, when the lever, M, is again depressed. 55 e^7 , represents a cam carried by the clutch member, e' , which is engaged by a roller, n , pivoted at the lower end of the lever, n' , which lever is pivoted at n^2 , to a bracket on the underside of the table, A'. The upper end n^3 , of the lever, n' , serves as a pawl, or dog, to enter 60 a notch, n^4 , in the wheel, n^5 , rigidly mounted on the shaft, g . Thus the movement of the cam, e^7 , retracts the dog, n^3 , from the notch, n^4 , of the wheel, n^5 , unlocking and permitting the revolution of the shaft, g , which is again locked as soon as the notch, n^4 , comes 65 into position to receive the dog, n^3 , which serves to in-

sure that the shaft, g , and its transfer cylinder, G', shall come to a stop always at the same position. The cam e^7 , is so shaped that it causes the pawl, n^3 , to engage the notch, n^4 , immediately after the end of the forward 70 movement of the type plate, b , and just at the time it is making its return movement, so that the transfer cylinder is always held in the same relative position to the type-plate, to insure that the impression made by the type upon the transfer cylinder shall always come 75 at the same place.

The mechanism herein shown and described is capable of considerable modification without departing from the principle of my invention.

Having described my invention, what I claim is:

1. In a press for printing cans the combination of a 80 type-plate, a curved transfer plate, means for actuating the two plates to make their surfaces intermittently contact each other, a curved platen conforming to the contour of the interior of the can to be printed, means for locking a can upon the platen and positive means for rotating 85 both the transfer plate and the platen to cause their respective surfaces to move over each other.
2. In a press for printing cans the combination of a type-plate, a cylindrical transfer plate, means for actuating the two plates to make their surfaces intermittently 90 contact each other, a tapering curved platen conforming to the contour of the interior of the can to be printed, means for locking a can upon the platen and positive means for rotating both the transfer plate and the platen 95 in contact with each other.
3. In a press for printing cans the combination of a type-plate, a curved transfer plate, means for actuating the two plates to make their surfaces intermittently contact each other, a curved platen conforming to the contour 100 of the interior of the can to be printed, means for locking a can upon the platen, a gear wheel secured to the transfer plate, and a gear wheel secured to the platen and intermeshing with the gear wheel on the transfer plate.
4. In a press for printing cans the combination of a reciprocating type-plate, a cylindrical transfer plate contacting 105 the type plate, a curved platen contacting the transfer plate, means for locking a can upon the platen, gear wheels upon the transfer plate and upon the platen intermeshing with each other, a rack upon the type-plate engaging a gear wheel upon the transfer plate and means for reciprocating the type-plate. 110
5. In a press for printing cans the combination of a type-plate, a curved transfer plate, means for actuating the two plates to make their surfaces intermittently contact each other, a curved platen conforming to the contour 115 of the interior of the can to be printed, a movable member carried by the platen for varying its size to facilitate the placing of a can upon and locking it to the platen.
6. In a press for printing cans the combination of a reciprocating type-plate, a cylindrical transfer plate mounted 120 upon a shaft and contacting the type-plate, a loose gear wheel mounted upon the shaft, a rack secured to the type-plate and in mesh with said loose gear wheel, a wheel fixed upon the shaft of the transfer plate, a spring pawl mounted upon the loose gear wheel and engaging the fixed wheel, 125 a curved platen contacting the transfer plate, and means for locking a can thereon.
7. In a press for printing cans the combination of a reciprocating type-plate, a cylindrical transfer plate mounted 130 upon a shaft and contacting the type-plate, a loose gear wheel mounted upon the shaft, a rack secured to the type-plate and meshing with said loose gear wheel, a wheel fixed upon the shaft of the transfer plate, a spring pawl mounted upon the loose gear wheel and engaging the fixed wheel upon the forward movement of the type-plate, a 135 curved platen contacting the transfer plate, means for locking a can thereon, and an automatic means for holding the transfer cylinder in a constant relation to the type-plate after the forward movement of the type-plate.
8. In a press for printing cans the combination of a 140 curved platen for receiving the cans to be printed, a semi-

5 cylindrical transfer-plate, intermeshing gears for rotating the transfer plate and the platen, a reciprocating type plate for contacting the transfer plate, gears coupling the type plate and the said intermeshing gears whereby the movement of the type-plate in one direction only is communicated to the intermeshing gears, and means for conveying ink to the type-plate.

10 9. In a press for printing cans the combination of a curved platen for receiving the cans to be printed, a semi-cylindrical transfer plate, intermeshing gears for rotating the transfer plate and the platen, a reciprocating type-plate for contacting the transfer plate, gears coupling the type-plate and the said intermeshing gears whereby the movement of the type-plate in one direction only is communicated to the intermeshing gears, means for conveying the ink to the type-plate, and an automatic means for

checking the rotating of the transfer cylinder at a certain point.

10. In a press for printing cans the combination of a curved platen for receiving a completed can, a transfer 20 cylinder to contact the curved platen, a type-plate reciprocating beneath the transfer cylinder, inking rolls above the reciprocating type-plate and mounted so as to yield upwardly, an inking plate carried by the type-plate and cans mounted on the type-plate at the side of the inking 25 plate so as to raise the inking rolls and cause them to contact the central part of the inking plate and means for reciprocating the type-plate.

GEORGE ACKERMANN.

Witnesses:

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AGNES MCCORMACK.