

No. 776,330.

PATENTED NOV. 29, 1904.

O. J. JOHNSON.

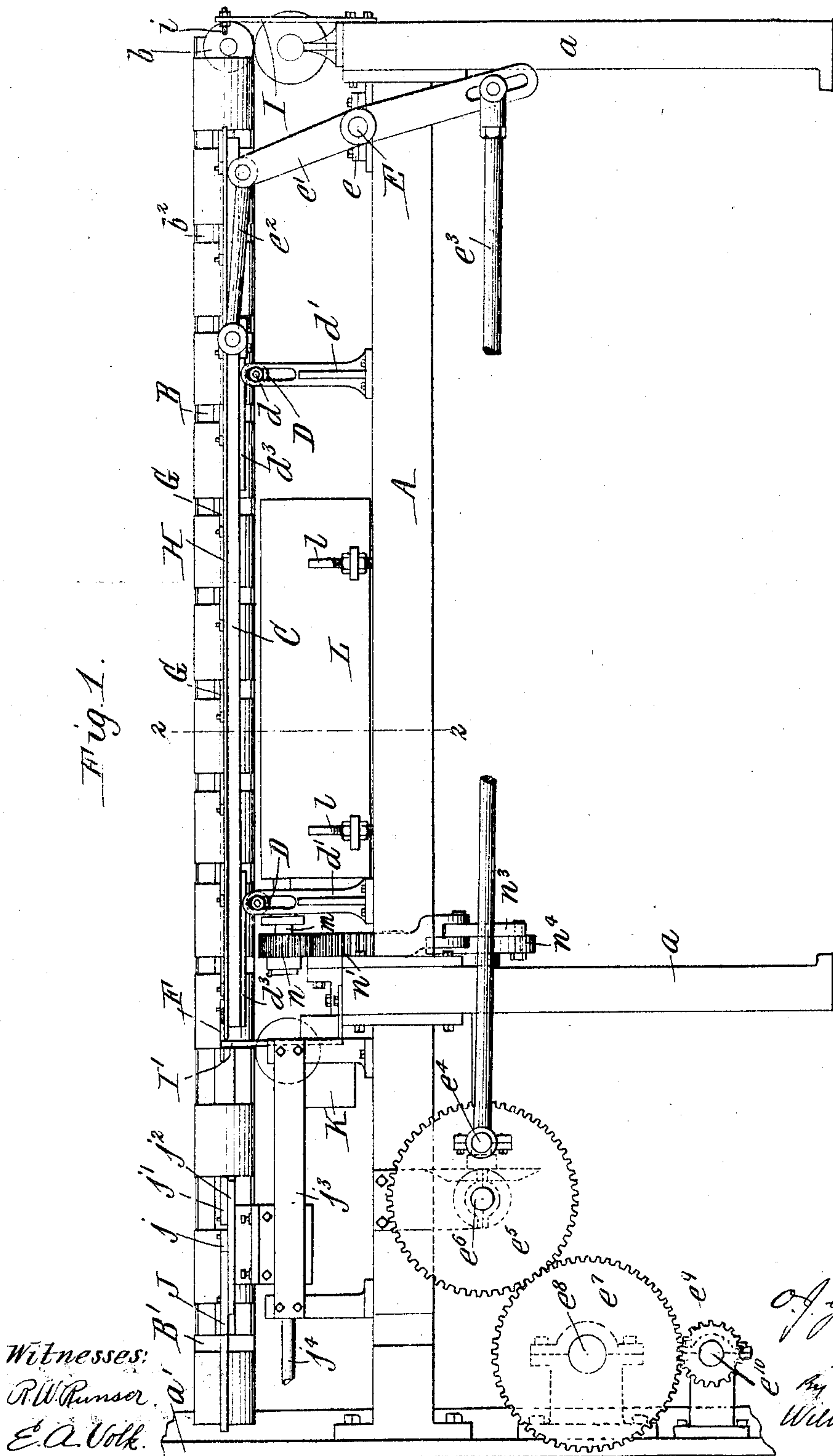
FEED MECHANISM FOR CAN SOLDERING MACHINES OR FOR OTHER PURPOSES

APPLICATION FILED APR. 15, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



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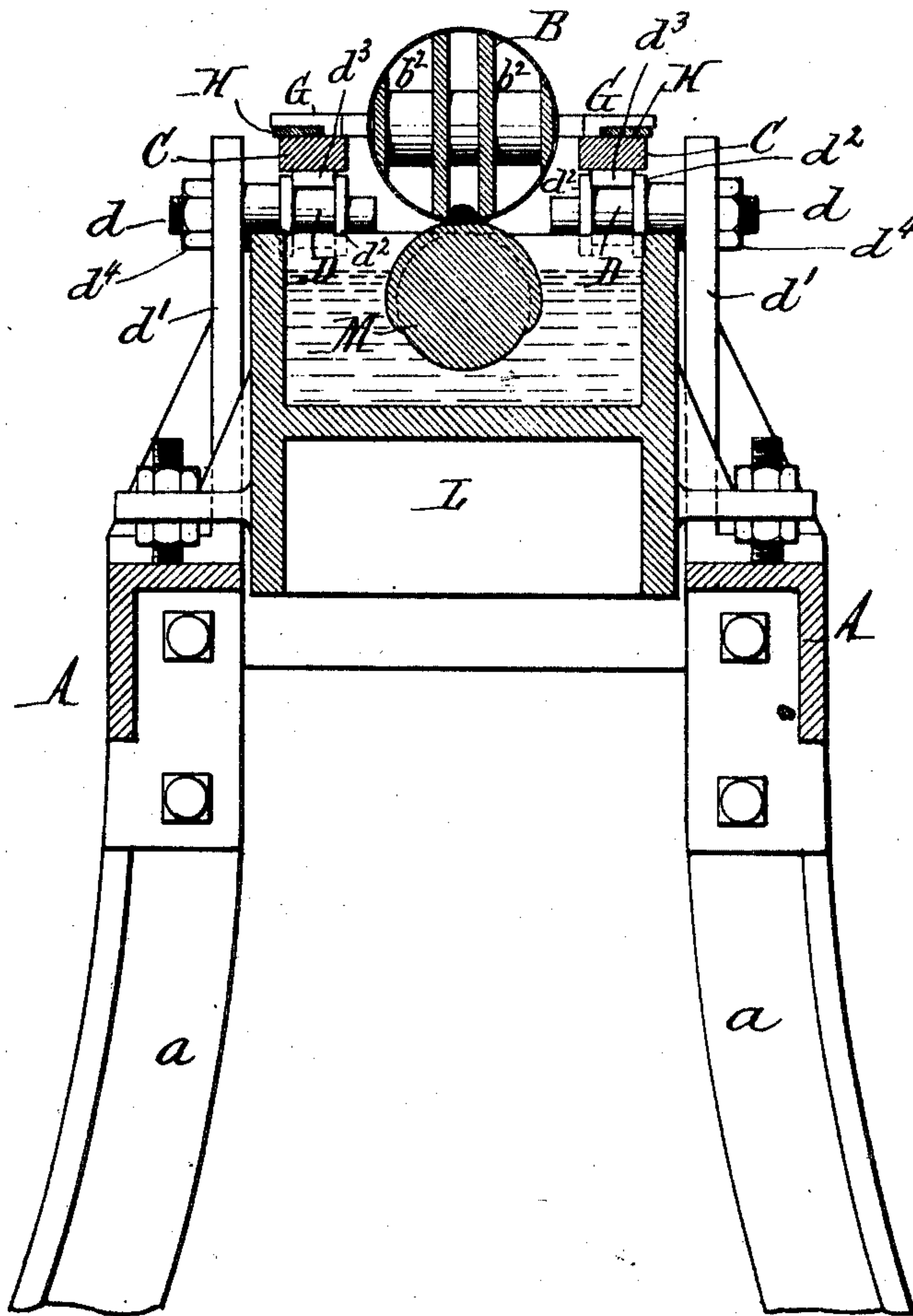
FEED MECHANISM FOR CAN SOLDERING MACHINES OR FOR OTHER PURPOSES.

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NO MODEL.

3 SHEETS—SHEET 2.

Fig. 2.



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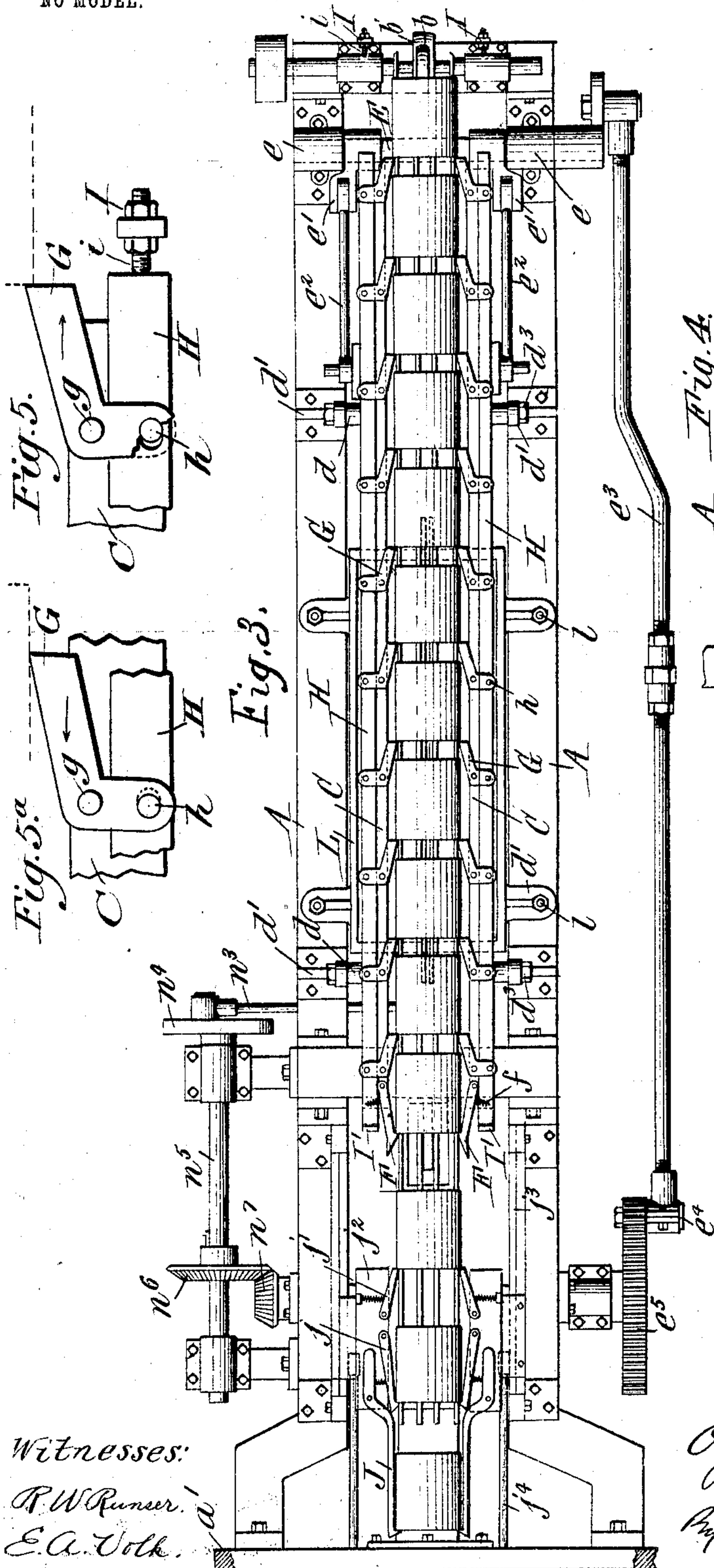
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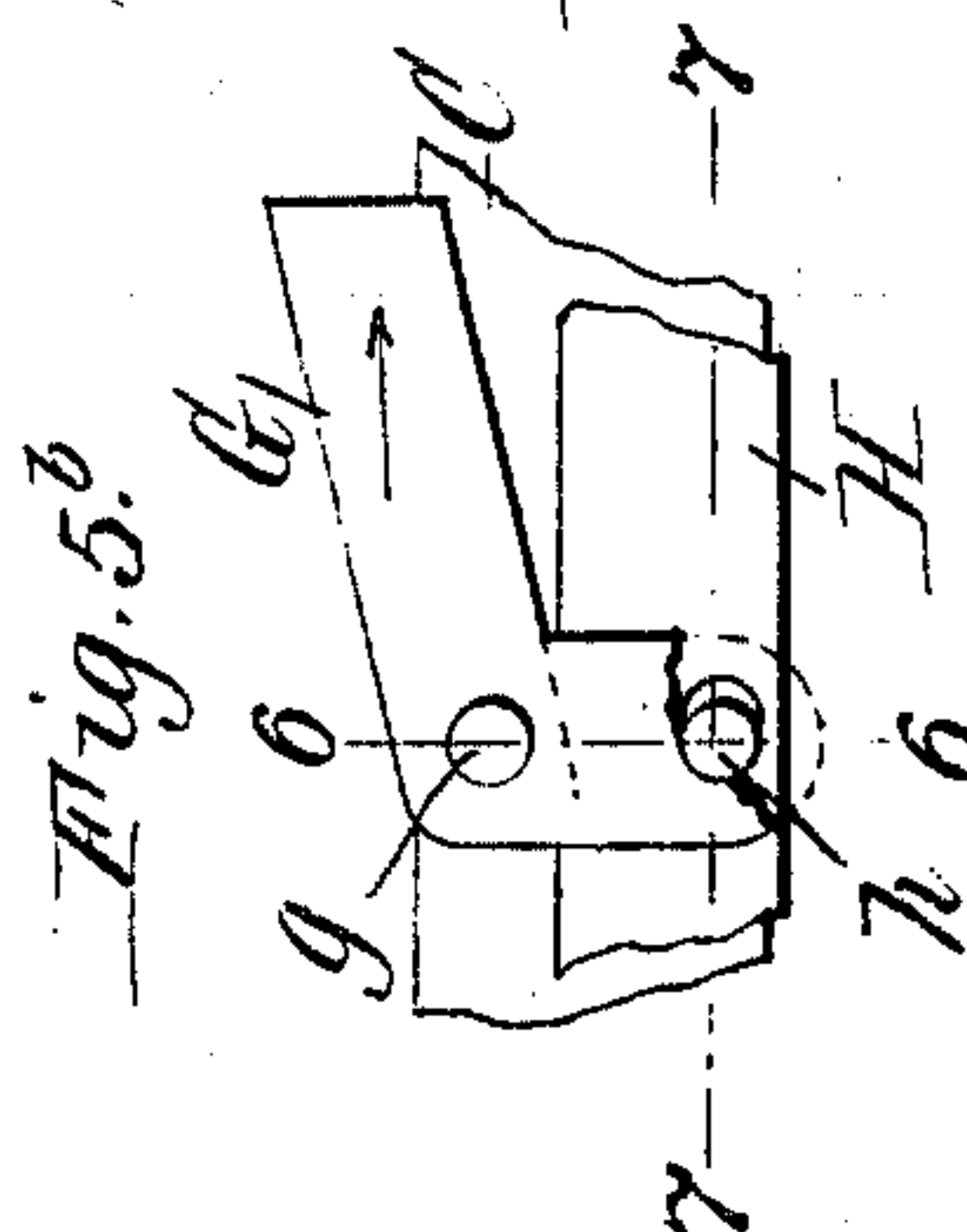
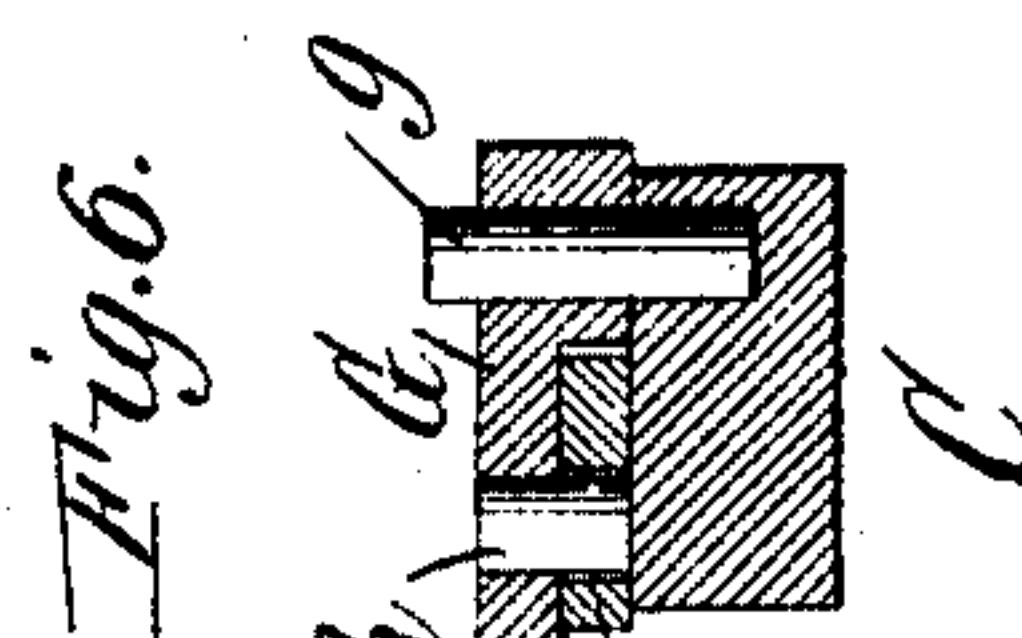
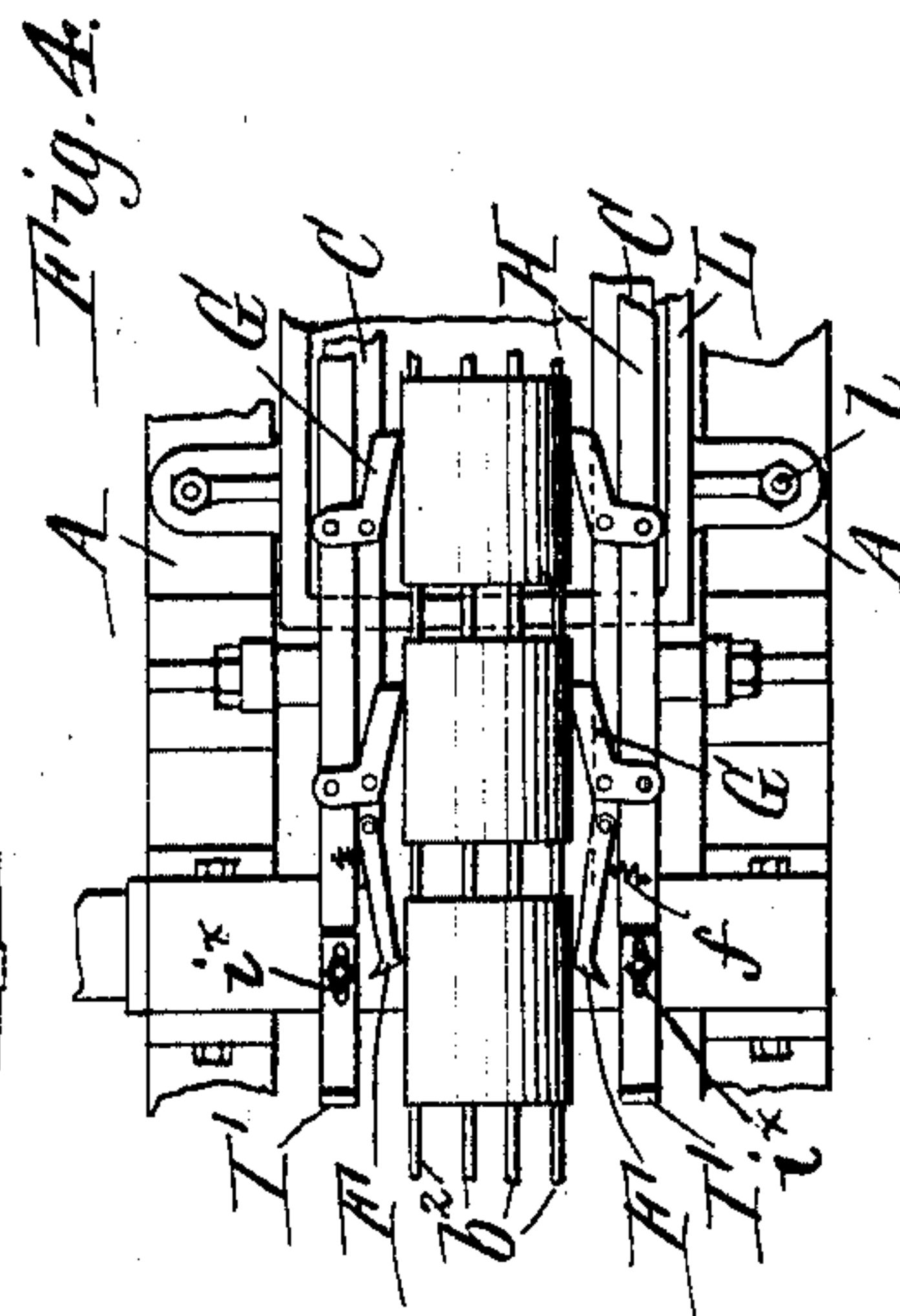
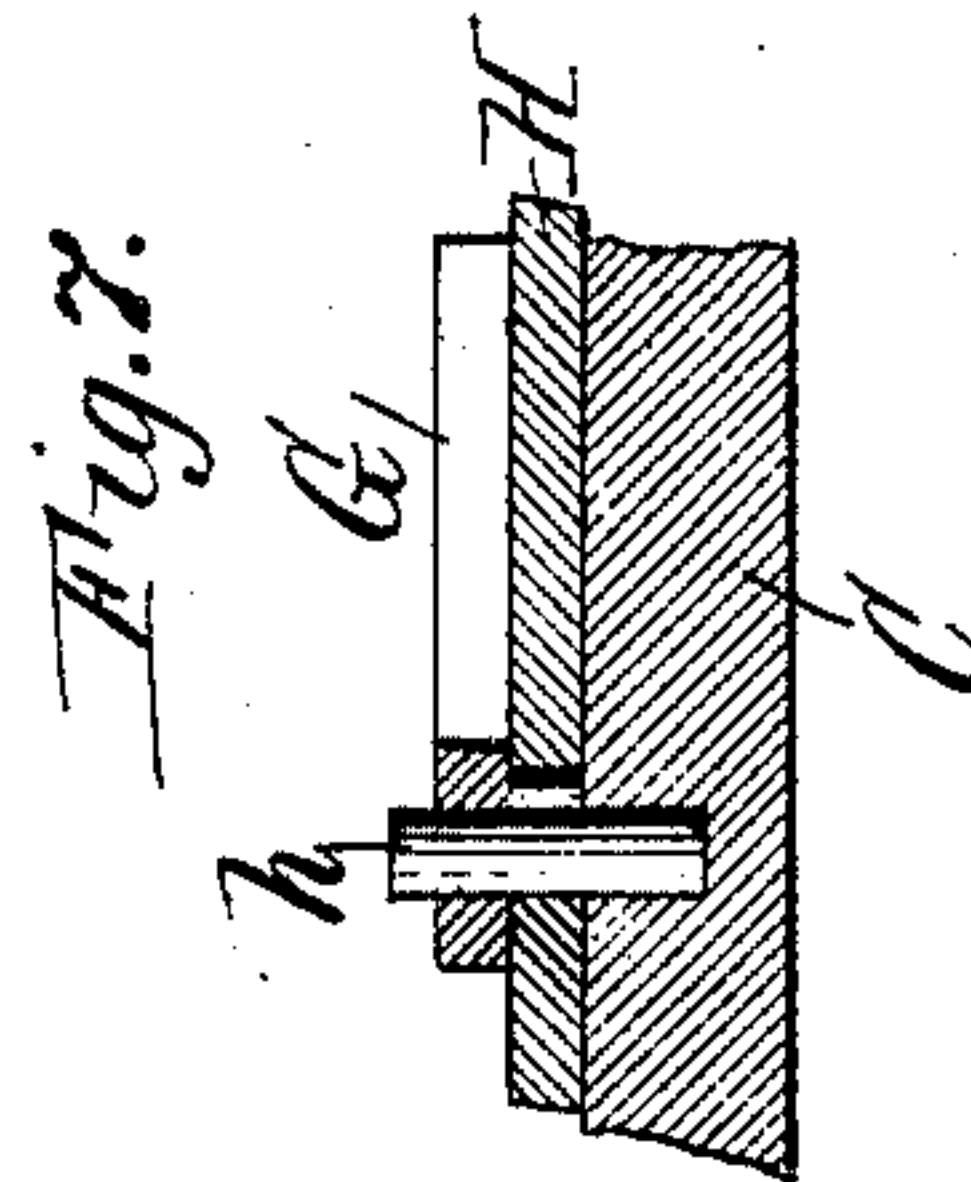
3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR CAN-SOLDERING MACHINES OR FOR OTHER PURPOSES.

SPECIFICATION forming part of Letters Patent No. 776,330, dated November 29, 1904.

Application filed April 15, 1903. Serial No. 152,733. (No model.)

To all whom it may concern:

Be it known that I, OLIVER J. JOHNSON, a citizen of the United States, residing at Wheeling, in the county of Ohio, in the State of West Virginia, have invented new and useful Improvements in Feed Mechanism for Can-Soldering Machines or for other Purposes, of which the following is a specification.

This invention relates more particularly to a feed mechanism for machines for soldering the longitudinal side seams of can-bodies. The improvements are not, however, limited to soldering-machines, but may be used in any connection for conveying can-bodies or analogous articles.

The primary object of the invention is to provide a simple, efficient, and desirable conveyor mechanism for moving the can-bodies intermittently along a supporting-horn.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of a can-soldering machine embodying the invention. Fig. 2 is a transverse section thereof, on an enlarged scale, in line 2 2, Fig. 1. Fig. 3 is a plan view of the machine. Fig. 4 is a fragmentary plan view showing the position of the feed-dogs in the rearward movement of the feed-bars. Figs. 5, 5^a, and 5^b are broken detail plan views, on an enlarged scale, showing one of the feed-dogs and a portion of the feed-bar in different positions of these parts. Fig. 6 is a transverse section in line 6 6, Fig. 5^b. Fig. 7 is a longitudinal section in line 7 7, Fig. 5^b.

Like letters of reference refer to like parts in the several figures.

In the accompanying drawings a soldering-machine is shown which is designed so that it can be connected with and form part of a can-body-forming machine of the character disclosed in my application for United States Letters Patent filed November 28, 1902, Serial No. 133,031.

The main supporting-frame for the several operative parts of the machine may be of any suitable construction, that shown consisting of longitudinal horizontal rails A, which are supported by vertical transverse standards or legs *a* and by a frame or standard *a'*, which constitutes a part of the main frame of the

can-body-forming machine to which the soldering-machine is applied.

B represents the soldering horn or support along which the can-bodies are conveyed over the solder-applying device. The horn shown is connected at its rear end to the front end of a part B', secured to the frame *a'* and which constitutes the forming horn or mandrel of the can-body-forming machine and is supported at its front end preferably by a roller *b*, which is journaled in the end of the soldering-horn and rests upon a second roller, *b'*, journaled in suitable bearings at the front end of the main frame of the soldering-machine. The soldering-horn may be of any suitable construction, but preferably consists of four separated longitudinal bars *b²*, which are arranged on edge and are connected by suitable transverse bolts, the bars being held in their proper spaced relation by spacing-sleeves or the like.

The reciprocating conveyor for moving the can-bodies intermittently along the supporting-horn over the soldering device is constructed as follows: C represents two horizontal reciprocating feed-bars which are arranged on opposite sides of the supporting-horn somewhat below the center line of the latter. The bars are supported and guided by any suitable means, preferably rollers D, journaled on horizontal studs *d*, projecting inwardly from the upper ends of standards *d'*, rising from the horizontal rails of the main frame. The rollers are preferably provided with separated flanges *d²*, between which engage ribs *d³* on the bottoms of the feed-bars to hold the latter from lateral movement on the rollers. The bearing-studs for the rollers are preferably adjustably secured in vertical slots in the standards *d'* by clamping-nuts *d⁴*, so that the rollers can be adjusted vertically to properly position the feed-bars relative to the horn. The feed-bars are reciprocated horizontally by the following means, (see Figs. 1 and 3:) E represents a horizontal rock-shaft journaled transversely of the frame in suitable bearings *e* at the front end of the frame. The shaft is provided at its opposite ends with upwardly-extending rock-arms *e'*, which are connected at their upper ends to the

adjacent ends of the reciprocating feed-bars by links or rods e^2 . The rock-shaft is also provided at one end with a depending rock-arm which is adjustably connected to the front
 5 end of a pitman or connecting-rod e^3 , connected at its rear end to a wrist-pin e^4 on a gear-wheel e^5 , secured to a horizontal transversely-arranged shaft e^6 , journaled in suitable bearings depending from the horizontal
 10 rails of the main frame. The shaft e^6 may constitute the drive-shaft for the soldering-machine, but is shown as driven by an idler gear-wheel e^7 , journaled on a shaft e^8 and driven in turn by a pinion e^9 , secured to a
 15 shaft e^{10} , which is one of the shafts of the body-forming machine. Any other suitable means for supporting and reciprocating the feed-bars may be employed.

F represents feed-fingers which are pivoted on the rear ends of the feed-bars and project rearwardly therefrom. The fingers are provided at their free ends with hooks which are pressed toward the horn and caused to engage with the rear end of the can-bodies by
 25 suitable springs f . Each of the feed-bars is also provided with a series of feed-dogs G, Figs. 3 to 7, which are in the form of bent levers and are pivoted intermediate of their ends to the reciprocating feed-bars by pins g .
 30 Each of the feed-dogs has a forwardly-projecting arm, which inclines toward the supporting-horn and is adapted to engage the rear ends of the cans, and an outwardly-projecting arm. The outwardly-projecting arms
 35 of the feed-dogs are of less thickness than the forwardly-projecting arms and overhang dog-operating bars or strips H, which rest upon the upper faces of the reciprocating feed-bars and are free to slide longitudinally thereon.
 40 The outwardly-projecting arms of the feed-dogs are provided with depending pins h , which engage in longitudinal elongated slots in the dog-operating bars H. The latter are longer than the feed-bars supporting the
 45 same and project beyond the ends of said feed-bars and in the forward and rearward movements of the feed-bars strike against stationary stops I and I', arranged, respectively, in front and in rear of the dog-operating bars.
 50 The stops I' are preferably adjustably secured to the rear standard a by securing-bolts passing through elongated slots i^x in the angular feet of the stops, (see Fig. 4,) while the stops I are provided with adjustable screws i , which
 55 contact with the ends of the dog-operating bars.

J represents pivoted stripping-fingers for removing the can-bodies from the can-body-forming horn, and j and j' rearwardly and forwardly projecting conveying-fingers. These
 60 fingers are pivoted on a reciprocating head or slide j^2 , which is mounted to move horizontally beneath the supporting-horn on suitable horizontal guides j^3 , supported on the main
 65 frame. The head is reciprocated by rods j^4 ,

connected to and operated by any suitable part (not shown) of the can-body-forming machine. The stripping-fingers engage the rear end of the can-body and pull it off of the forming-horn. At the next forward movement of
 70 head the fingers j take hold of the can-body and move it another step forward, and at the next forward movement of the head the fingers j' engage the rear end of the can-body and shove it still farther forward. This feed
 75 device forms no part of the present invention and may be of any suitable construction and operate in any suitable manner. It is simply intended for taking the can-bodies from the
 80 forming-horn and moving the same into a position to be engaged by the conveyer of the soldering-machine.

The operation of the reciprocating conveyer is as follows: When the parts are in the position shown in Fig. 3 and the feed-bars are
 85 moved forwardly, the feed-dogs and operating-bars are carried forwardly with the feed-bars and the inner ends of the feed-dogs engage the can-bodies and move the latter forwardly on the supporting-horn. In the forward
 90 movement of the feed-bars the pins secured to the outwardly-projecting arms of the feed-dogs bear against the rear ends of the slots in the dog-operating bars, as shown in Fig. 5^b. When the latter strike the stationary
 95 stops I at the front end of the machine, the operating-bars are held from movement during the last portion of the forward movement of the feed-bars and the pins on the outwardly-projecting arms of the feed-dogs are
 100 moved into engagement with the front ends of the slots in the dog-operating bars, as shown in Fig. 5. When the feed-bars are moved rearwardly, the dogs and dog-operating bars are carried therewith, and when the
 105 inner arms of the dogs strike the front ends of the can-bodies the dogs are thereby swung on their pivots. In this swinging movement of the dogs the pins in their outer arms are moved to the rear ends of the slots in the dog-operating bars, as shown in Fig. 5^a, so that
 110 the only resistance to the outward movement of each dog is due to its weight and friction and the dogs only exert an inconsiderable pressure on the can-bodies, so that there is
 115 little or no danger of the can-bodies being moved rearwardly on the horn in the rearward movement of the feed-dogs. Just before the feed-bars reach the limit of their rearward movement the dog-operating bars
 120 strike the rear stationary stops I' and are held from movement while the feed-bars complete their rearward movement, which causes the operating-bars to swing the dogs inwardly to carry the front ends of their forwardly-projecting
 125 arms in rear of the rear ends of the can-bodies ready to move the latter forwardly at the next forward movement of the feed-bars.

The feed-dogs require no springs, and they 130

are all moved simultaneously by the movement of the dog-operating bars. When it is necessary to remove the soldering-horn for any reason—for instance, to clean the latter or replace it by another horn—it is lifted off of its supports and the feed-dogs all remain in the position in which they are left by the dog-operating bars, and when the dogs are in the way of the horn they can be simultaneously swung outwardly by moving their operating-bars longitudinally. This saves a great deal of time and trouble in removing and replacing the soldering-horn and is a great advantage over constructions employing a separate spring for each dog, as in such a construction it is necessary when the horn has been removed and is to be replaced to swing each dog out separately against the action of its spring, and this is often very troublesome.

K represents an acidizing device consisting of an acid-pot and a wheel which dips into the acid or flux in the pot and applies the same to the seams of the can-bodies as the latter are moved along the horn with their seams lowermost.

L represents a solder box or receptacle which is arranged beneath the soldering-horn in front of the acidizing device and contains a bath of molten solder, which is maintained in a molten condition by a flame from gas-jets (not shown) or other suitable heating means.

M represents a soldering device which is arranged beneath the horn in the solder-box and is operated to carry solder up from the solder-box and apply it to the seams of the can-bodies. The soldering device forms no part of the present invention, but is described and claimed in a copending application, Serial No. 166,003, filed July 17, 1903. Any suitable soldering mechanism may be employed.

I claim as my invention—

1. The combination of a movable feed-bar, actuating means therefor, pivoted dogs carried by said feed-bar, a dog-operating bar movable relative to said feed-bar and connected to said dogs, and means for automatically shifting said dog-operating bar to positively move said dogs to engage the part or parts to be fed thereby, substantially as set forth.

2. The combination of a movable feed-bar, actuating means therefor, pivoted dogs carried by said feed-bar, a dog-operating bar movable relative to said feed-bar and connected to said dogs, and means for automatically shifting said dog-operating bar to positively move said dogs to engage the part to be fed thereby, said dogs being movable in the opposite direction independently of said dog-operating bar, substantially as set forth.

3. The combination of a support for the can-body, a feed-bar, means for actuating the same, pivoted dogs carried by said feed-bar and adapted to engage the can-body, a dog-operating bar movable with said feed-bar and also movable relative thereto, and means for shifting said dog-operating bar to positively move said dogs to engage the can-body, substantially as set forth.

4. The combination of a support for the can-body, a reciprocating feed-bar arranged adjacent to said support, means for actuating said feed-bar, a series of dogs pivoted on said feed-bar, a dog-operating bar mounted on said feed-bar and movable therewith and also independently thereof and connected to said dogs, and means for shifting said dog-operating bar to positively move said dogs to engage the can-body, substantially as set forth.

5. The combination of a reciprocating feed-bar, actuating means therefor, dogs pivoted on said feed-bar, a dog-operating bar supported by and movable with said feed-bar and also movable longitudinally relative to said feed-bar, pin-and-slot connections between said dogs and said dog-operating bar and means for shifting said dog-operating bar to move said dogs to engage the part or parts to be fed thereby, said dogs being movable in the opposite direction independently of said dog-operating bar, substantially as set forth.

6. The combination of a support for the can-bodies, a reciprocating feed-bar arranged adjacent to said support, a series of feed-dogs pivoted on said feed-bar and adapted to engage the can-bodies, an operating-bar movable longitudinally on said feed-bar and connected to said dogs, and a stationary stop which engages said operating-bar to shift the latter on said feed-bar and cause the dogs to engage the can-bodies, substantially as set forth.

7. The combination of a support for the can-bodies, reciprocating feed-bars arranged adjacent to said support, feed-dogs pivoted on said feed-bars and adapted to engage the can-bodies, dog-operating bars movable longitudinally on said feed-bars and provided with slots, pins secured to said dogs and entering said slots in said dog-operating bars, and stationary stops against which said dog-operating bars strike to shift the latter and throw the dogs into engagement with the can-bodies, substantially as set forth.

Witness my hand this 7th day of April, 1903.

OLIVER J. JOHNSON.

Witnesses:

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