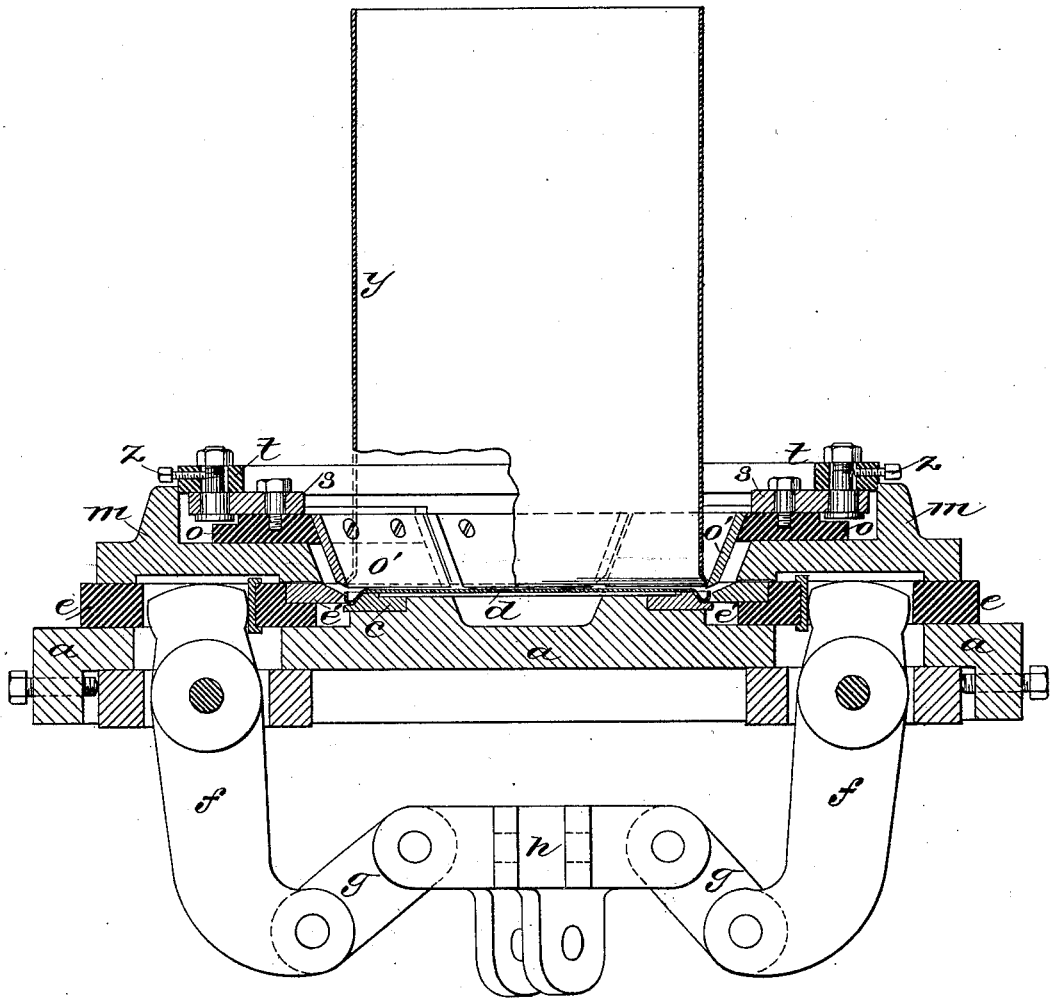
(No Model.) 3 Sheets—Sheet 1.

E. JORDAN.

CAN SEAMING MACHINERY.

No. 264,704. Patented Sept. 19, 1882.

Fig. 1.



Witnesses:
Henry A. Parker
Geo. E. Gavin

Inventor:
Edmund Jordan
by Chas. M. Higgins
Attorney

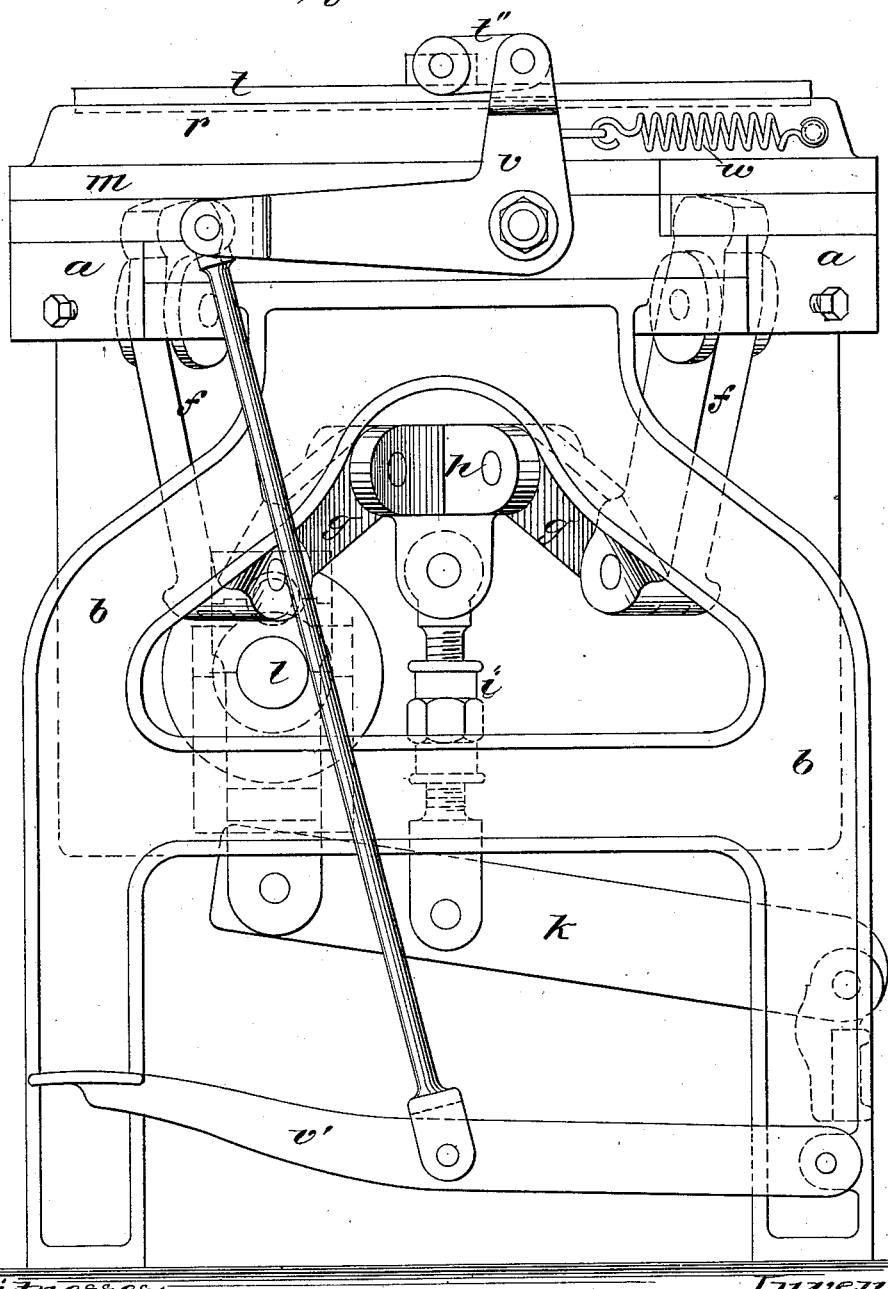
(No Model.) 3 Sheets—Sheet 2.

E. JORDAN.

CAN SEAMING MACHINERY.

No. 264,704. Patented Sept. 19, 1882.

Fig. 2.



Witnesses:
Henry F. Parker
Geo. E. Brown

Inventor:
Edmund Jordan,
by Chas. M. Higgins
Attorney

(No Model.) 3 Sheets—Sheet 3.

E. JORDAN.

CAN SEAMING MACHINERY.

No. 264,704. Patented Sept. 19, 1882.

Fig. 4.

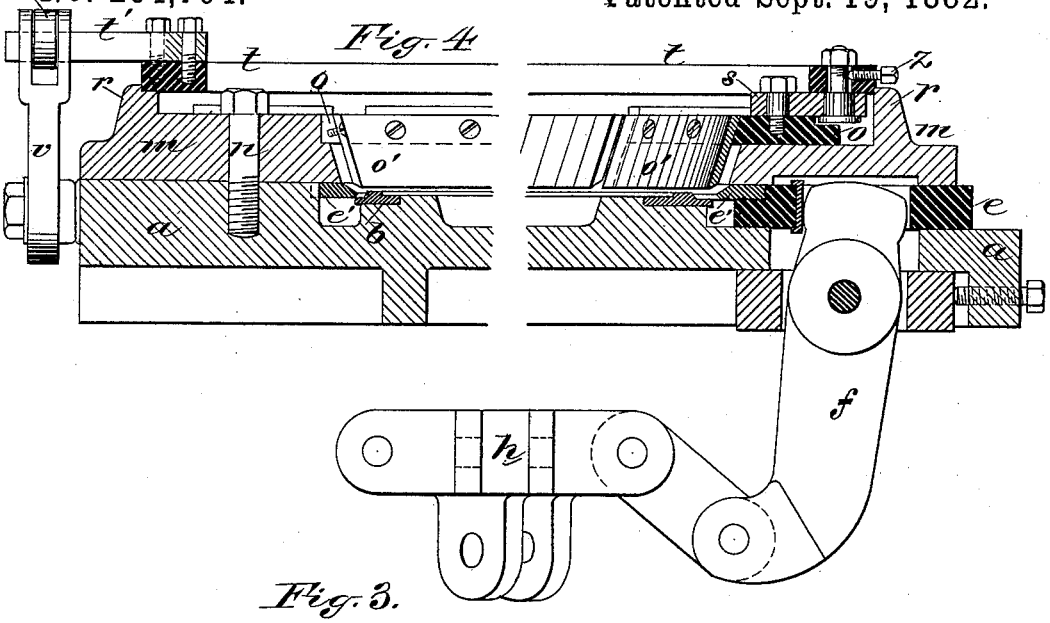
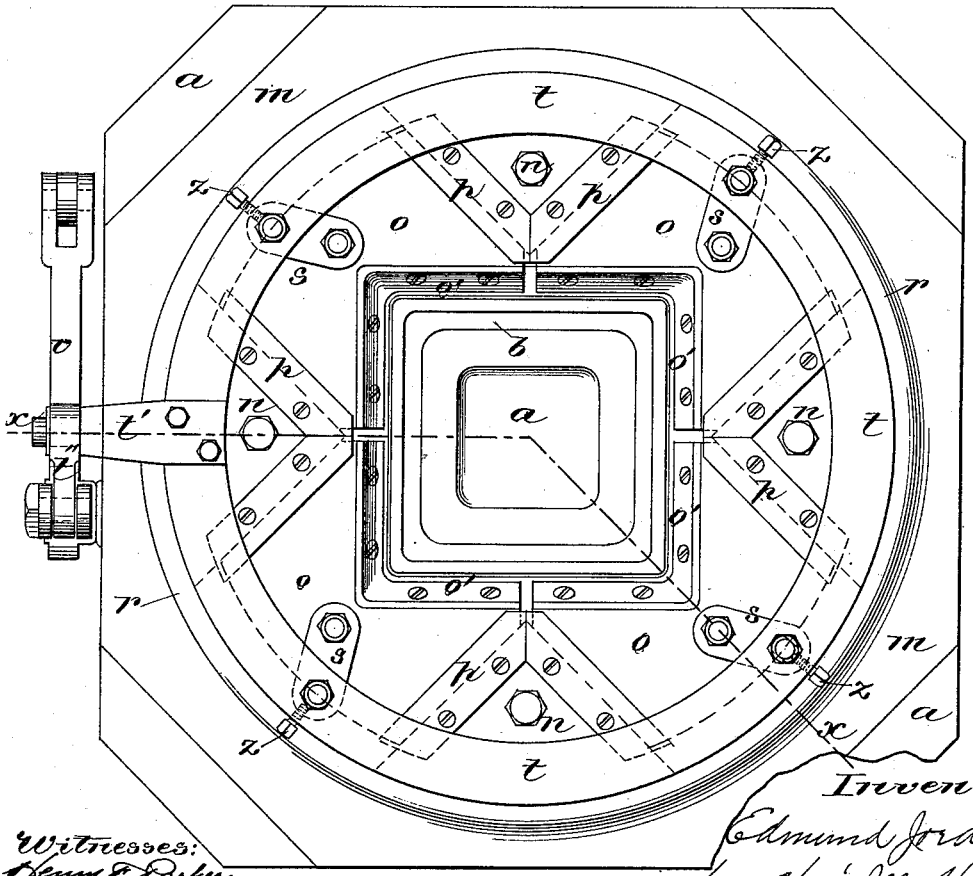


Fig. 3.



Witnesses:
Henry F. Parker
Draftsman.
Jno. C. Davis

Inventor:
Edmund Jordan
by Chas. M. Higgins
Attorney

UNITED STATES PATENT OFFICE.

EDMUND JORDAN, OF BROOKLYN, ASSIGNOR TO HERMAN MILLER, OF NEW YORK, N. Y.

CAN-SEAMING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 264,704, dated September 19, 1882.

Application filed August 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDMUND JORDAN, of Brooklyn, Kings county, New York, have invented certain new and useful Improvements in Machines for Seaming Cans, of which the following is a specification.

My invention relates to machines for closing the seams which join the heads to the bodies of cans, more particularly cans of square shape; but it is not necessarily confined to cans of this shape. These machines are now generally termed "squeezers," as they act to squeeze the channeled and upturned edge of the can-heads onto the flared edge of the can-bodies. In these machines the bed-plate is formed with a recessed socket or die-plate, in which the square can-head is placed with its channeled edge uppermost. The flaring edge of the can-body is then placed in this channel around the head, and by the action of the machine the four radial squeezer-jaws are then forced inward on all four sides of the can-head, so as to close or squeeze the channeled edge of the head tightly onto the embraced edge of the body, thus closing the joint preparatory to soldering the same. Now, in order to secure the quick and accurate insertion of the flaring edge of the can-body in the channeled edge of the can-head, it has been found necessary to provide some guide or gage which would prevent the flared edge of the body, which is somewhat irregular, from becoming caught or fouled on the upturned edge of the can-head, and which would act to direct it accurately into the channel around the head. This has been done heretofore by providing a series of converging and diverging wedges arranged like the four sides of a square hopper just over the squeezer-jaws, and forming a flaring throat leading to the socket in which the can-head is placed. These wedges are converged together after the can-head is placed in position, so that their points just overlie the upturned edge of the can-head, leaving the channel around the head exposed, so that by simply pressing the can-body down into the converging throat formed by said wedges the edge of the can-body is guided easily into the channel of the can-head without any chance of catching on the upturned edge of the head. After the body is thus inserted the guiding-wedges are diverged to permit the subsequent removal of the can, and the squeezer-jaws are then forced inward to close the channeled head on the body, after which the can is removed to receive the other head in the same way or to give place to the next can.

My present improvement relates entirely to an improved form of guide for the aforesaid purpose, and does not concern the squeezer-jaws or other portions of the squeezing-machine, which are presumed to be of the usual construction.

According to my invention, instead of employing a series of downwardly-converging and upwardly-diverging wedges, I provide a radial series of horizontally-sliding jaws having a motion similar to the squeezer-jaws, but provided with inclined depending edges to project over the edge of the can-head and form a flaring throat leading to the channel thereof, and these jaws are operated from a partly rotary ring which surrounds them, and to which the several jaws are connected by inclined or toggle links, so that a partial rotation of the ring will close or open the jaws. The construction here outlined indicates the main features of my invention, and has the advantage of being simple and strong, and insures a very accurate movement and adjustment of the guide-jaws, and allows of easy regulation for any wear which may occur, as hereinafter fully set forth.

In the annexed drawings, Figure 1 represents a vertical section through the bed-plate or table of a squeezing-machine provided with my improved guides. Fig. 2 is a side elevation of the machine. Fig. 3 is a plan view of the table of the machine, showing my improved guide-jaws and mechanism for operating the same. Fig. 4 is a vertical section on line *x x* of Fig. 3.

In the drawings, *a* indicates the table of the machine, which is supported on the usual frame or stand, *b*, Fig. 2. The table, as shown best in Figs. 1, 3, and 4, is provided at the center with a die or socket plate, *c*, on which the can head *d* is placed, as seen best in Fig. 1. The can-head in this case is presumed to be square, as the machine here illustrated is

specially adapted for square cans, (see Fig. 3,) and the head is stamped with the usual channeled margin, as shown in Fig. 1.

e e indicate the squeezer-jaws, which are arranged in a radial series, as usual, around the several sides of the can-head, and are provided with the usual angular steel edges or faces, *e'*, on their inner ends, which approach the channeled margins of the can head, as shown in Fig. 1. These squeezer-jaws *e* are fitted to slide horizontally in radial recesses or ways sunk in the top of the table, as seen in Figs. 1 and 4, and they are operated by the levers *f*, (see Figs. 1, 2, and 4,) which connect by toggle-links *g* to the toggle-head *h*, which latter connects by the adjustable rod *i* to the lever *k*, the outer end of which is actuated by a crank on the clutch or power shaft *l*, in the usual manner. As, however, these squeezing-jaws and their operating mechanism are presumed to be of the ordinary construction, a detailed description of the same is unnecessary, and the general idea of their arrangement and operation above given will be here sufficient.

Over the table, and over the squeezer-jaws which slide therein, is placed a strong foundation-plate, *m*, which is bolted to the table *a* at four points by bolts *n*, as seen in Figs. 3 and 4, and this foundation-plate is provided with a central opening over and corresponding to the socket-plate *c*, as seen in Figs. 1 and 4, and with four broad radial recesses or ways extending from said opening, in which ways are fitted the guide-jaws *o o*, which are in the form of broad flat plates, free to slide back and forth in the said recesses or ways of the foundation-plate, as seen best in Fig. 3. These guide-jaws, as shown in Fig. 3, are four in number, arranged diagonally to the square can-head, and each controls one corner of the can-head, the face or edge of each jaw being recessed in an L-form to span the corner of the can up to the middle of its two adjacent sides, as will be understood. These guide-jaws have therefore the same form and the same arrangement as the squeezer-jaws which directly underlie them, and by reference to Fig. 3, which shows the guide-jaws in plan view, the position of the squeezer-jaws beneath them will be readily understood in connection with Figs. 1 and 4. Marginal plates *p p* are screwed to the foundation-plate *m*, at the edges of the recesses, in which the guide-jaws *o o* slide and project over the edges of the guide-jaws, as seen in Fig. 3, and thus hold the jaws in place, yet permit of their removal when necessary, as will be understood.

By referring to Figs. 1 and 4 it will be noted that the guide-jaws *o* are arranged to slide in a horizontal plane parallel with the squeezer-jaws *e*, but on a higher level than said squeezer-jaws, and considerably above the socket-plate *c*, on which the channeled can-head is placed. Now, the inner ends of the said guide-jaws are provided with an inclined pendent edging, *o'*, preferably of tempered steel, which overhangs the space between the guide-jaws and squeezer-jaws, and terminates with a beveled edge just above the socket-plate *c*, and on a level with the squeezer-jaws and with the upturned edge of the channeled can-head *d*, as seen in Fig. 1. Hence the inclined pendent edges on the several guide-jaws form, when grouped as seen in Figs. 1, 3, and 4, an inclined hopper or flaring throat leading to the edge of the socket-plate, on which the can-head is placed, as shown best in Figs. 1 and 3.

The top of the foundation-plate *m* is formed with a raised or projecting rim, *r*, of circular form, which surrounds or circumscribes the series of guide jaws *o*, as seen in Figs. 1, 3, and 4, and on the top of this rim is turned a circular shoulder or bearing, in which a strong cast-iron ring, *t*, is mounted so as to be free to turn in one direction or the other. This ring is connected by the short links *s s* with the several guide-jaws, *o*, as seen best in Fig. 3, the links being so connected that when the ring is moved in one direction the links will be inclined, as seen in Fig. 3, and the jaws hence drawn out or diverged, while, when the ring is turned in the opposite way, the links will be straightened in the manner of toggles, and the jaws forced inward or converged with great power. An arm, *t'*, projects from one side of the ring, and is connected by a short link, *t''*, with one arm of an elbow-lever, *v*, the opposite arm of which connects to a treadle, *v'*, at the side of the machine, (see Fig. 2,) so that by depressing said treadle the ring will be turned in a direction to straighten the toggles and close or converge the guide-jaws *o o'*, while a spring, *w*, will restore the parts to their original position when the treadle is released.

When the machine is in repose it will be understood that both the squeezer-jaws *e e'* and and guide-jaws *o o'* will be diverged or withdrawn, as shown in Figs. 3 and 4, and the several parts will be in the position shown in said figures. To prepare the machine for action, however, a can-head is placed on the socket-plate *c*, as seen in Fig. 1, and the treadle *v'*, Fig. 2, is then depressed, which will of course partly rotate the ring *t*, straighten the toggle-links *s*, and converge the guide-jaws *o o'* over or toward the can-head, as seen in Fig. 1. The parts are so proportioned or adjusted that when the guide-jaws are thus converged the beveled edges of their inclined faces *o'* will just overlie the upturned edge of the can-head, leaving the channel freely exposed, as shown in Fig. 1. The can-body *y* (see Fig. 1) may now be inserted in the machine, when its flaring edge will be safely guided by the inclined faces *o'* of the guide-jaws directly into the channel of the can-head, as will be understood, thereby rendering the insertion of the edge of the body in the channel of the head quick and easy, and obviating the necessity of any special care or pains in the operation, for accurate and rapid insertion is by this means rendered certain. When the body is thus inserted the

treadle may be released, allowing the guide-jaws to again spring open, after which the clutch on the shaft *l* may be thrown in gear and the mechanism *f h i k* thereby operated to converge the squeezer-jaws, and thus squeeze or close up the channeled edge of the head onto the edge of the can-body in the usual manner, as will be understood. As soon as the squeezer-jaws again open the can may be removed, and the same operation repeated to put on the opposite head or to head other cans.

By the described construction and arrangement of the guide-jaws it will be seen that the jaws have a broad, flat, and firm bearing, and move in a true horizontal plane in or out. By this movement the edges of the inclined pendent faces *o'* are projected in a straight horizontal line directly over the upturned edge of the can-head, as seen in Fig. 1, while the inclined sides of said faces, which never alter their vertical position, act to guide the can-body directly into the channel of the head, as before described. It is therefore obvious that this construction is simple and very substantial, and renders the movement of the jaws easy, accurate, and direct, and the parts are not liable to become displaced or twisted out of position by constant strain or wear, as is likely to occur with a wedging motion. Furthermore, the inward adjustment of the jaws, in order to overlap the edge of the can-head to the desired extent, is easily effected and in a very direct and accurate manner, for, as the motion of the edge of the jaws is directly horizontal over the can-head, it is only necessary to alter the inward stroke of the jaws or change the length of their operative connection by an adjusting-screw or similar device, which will thus not only effect the desired projection of the jaws, but also allow of taking up any wear that may take place during constant use. By referring to Figs. 1, 3, and 4 the special means for thus adjusting the jaws will be readily understood. The toggle-links *s*, as will be noted, are connected at one end by a stud with the jaws *o* and at the opposite end by another stud with the ring *t*. The holes in the ring, through which the latter studs project, as seen in Fig. 4, are slightly elongated in a radial direction, and through the periphery of the ring radial adjusting-screws *z* project and bear upon the said studs, as shown. These screws *z* screw very tightly through the ring, and it will be readily seen that by turning them one way or the other the jaws will be projected inward more or less, thus effecting the desired adjustment in a very simple, sensitive, and positive manner.

I do not of course confine myself to the precise mechanism of the rotary ring and toggle-links for operating the guide-jaws, although I consider this preferable; but any other suitable mechanism may be adopted.

Instead of using the toggle-links the jaws might be operated from the rotary ring by having oblique slots in one part engaged by projecting pins on the other parts. I do not, however, recommend such modification in preference to the precise construction shown.

What I claim is—

1. In a seaming or squeezing machine for square or angular cans, the combination, with a series of squeezer-jaws, of a radial series of horizontally-sliding guide-jaws, *o*, arranged to slide in a common plane above the squeezer-jaws on lines radial with the corners of the can and having their inner or converging ends formed with recessed angular faces to span the corners or angles of the can, and with inclined pendent guiding-edges terminating above the edge of the squeezer-jaws, substantially as and for the purpose set forth.

2. In a seaming-machine, the radially and horizontally sliding guide-jaws *o o'*, in combination with a rotary operating ring, *t*, and connections between said ring and the several jaws, whereby the jaws are converged or diverged by a partial rotation of the ring, substantially as herein set forth.

3. The combination, with the horizontally-sliding guide-jaws *o o'*, of the rotary operating ring *t* and connecting toggle-links *s*, arranged and operating substantially as and for the purpose set forth.

4. The combination, with the radially-sliding jaws *o*, of the toggle-links *s* and the operating ring *t*, connecting with said links by the engagement of studs on said links in elongated holes in said ring, with the adjusting-screw *z*, bearing on said studs, substantially as and for the purpose set forth.

EDMUND JORDAN.

Witnesses:
CHAS. M. HIGGINS,
JNO. E. GAVIN.