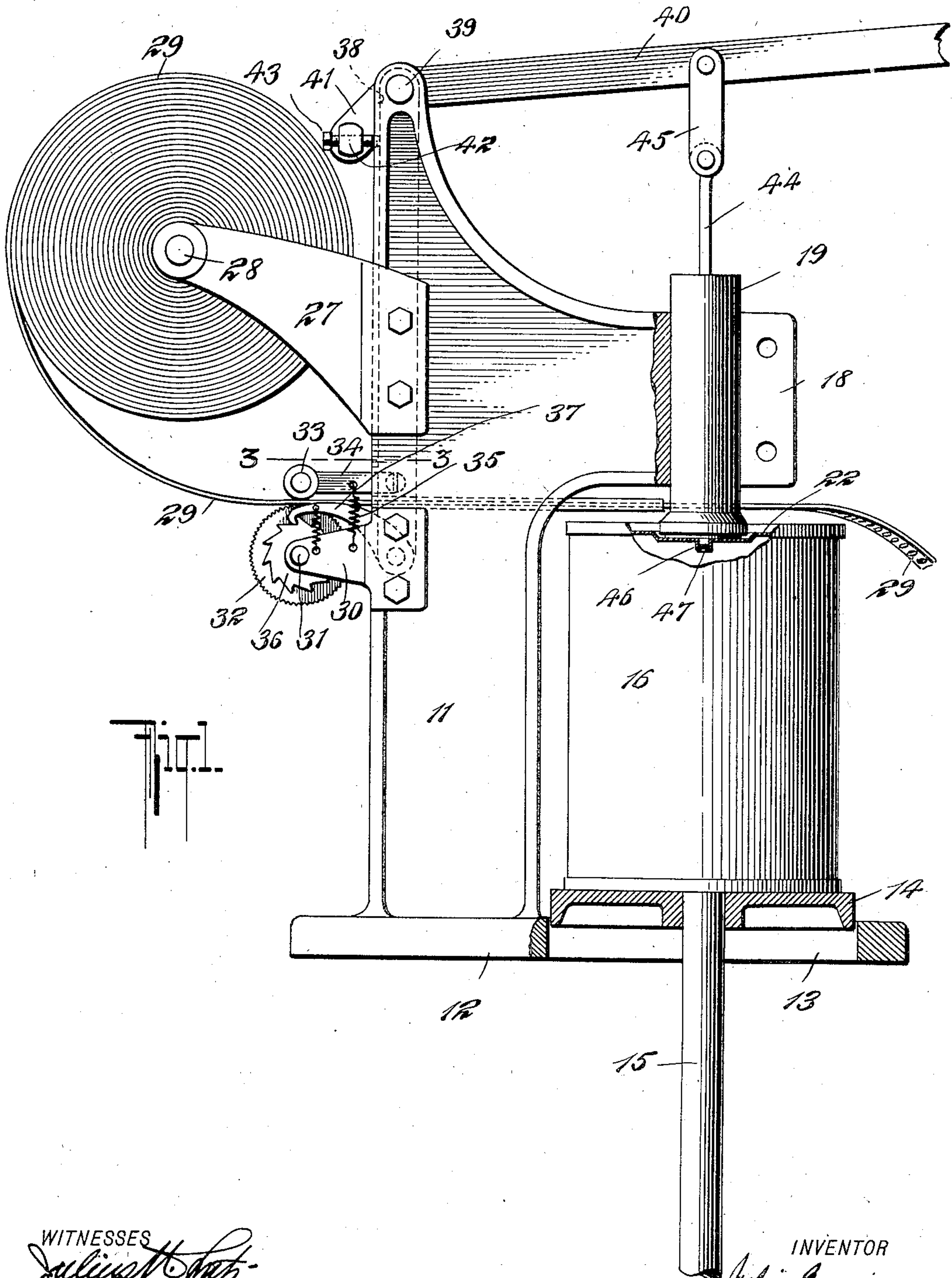


J. BRENZINGER.
VACUUM SEALING MACHINE FOR CONTAINERS.
APPLICATION FILED OCT. 28, 1907.

940,123.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.



WITNESSES
Julius H. Katz
Jack Lewis

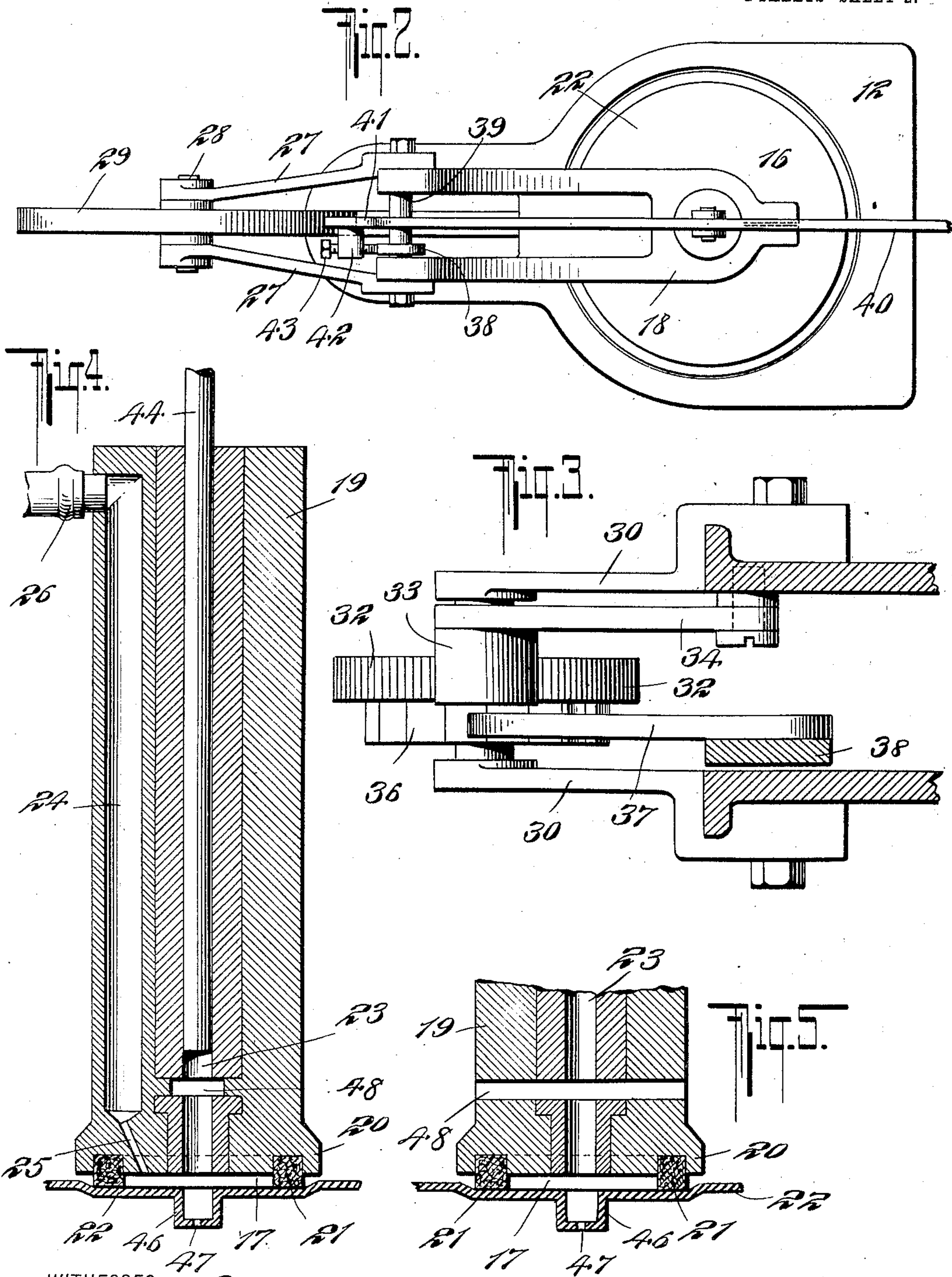
INVENTOR
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INVENTOR

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UNITED STATES PATENT OFFICE.

JULIUS BRENZINGER, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO MAX AMS MACHINE COMPANY, OF MOUNT VERNON, NEW YORK, A CORPORATION OF NEW YORK.

VACUUM-SEALING MACHINE FOR CONTAINERS.

940,123.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed October 28, 1907. Serial No. 399,540.

To all whom it may concern:

Be it known that I, JULIUS BRENZINGER, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Vacuum-Sealing Machines for Containers, of which the following is a specification.

This invention relates to machines for exhausting the remaining air from and finally hermetically sealing a container for food products and the like, after the same has been packed and covered, with particular reference to tin or other sheet-metal cans.

As is well known, it is impossible, for practical purposes, to completely fill a container of this character, there almost invariably remaining a greater or less proportion of empty space within the closed or sealed package. Contents such as fruit and other food products are, as is well known, often subjected to one or another form of preserving process prior to packing, which tends to keep them free from the composition or deterioration if they are not exposed to or subject to the action of the air. A very small quantity of air inside the container, while possibly not sufficient to cause decomposition of the whole mass of a perishable product stored within such container, will nevertheless affect a sufficient quantity thereof to unfit the whole for use as food. It has, therefore, been the practice to exhaust the remaining air from the interior of the filled container in any one of various ways and to hermetically seal the container after the air has been exhausted therefrom. This is sometimes done by heating the open container and its contents to the boiling point, which drives out the air with vapor which, upon condensing after hermetic sealing, leaves a vacuum. With some kinds of products, this heating operation is objectionable, as the flavor or character of such product may be changed to its disadvantage by the application of heat. It has also been the practice to place one or more of the can bodies, each with its top or cover adjusted thereon, within a large chamber from which the air is subsequently exhausted, thereby exhausting the air from the container, and effect the final sealing operation by suitable mechanism within said chamber.

It will be apparent that such sealing operation as that last mentioned is necessarily expensive and requires elaborate and complicated machinery to carry it out.

This invention has in view a machine in which the container itself is made to replace otherwise essential parts of the device, thereby greatly simplifying the construction and reducing the cost thereof. The invention further contemplates a machine to which the closed containers may be fed and which will, with a minimum of operations, exhaust the remaining air from each can and finally seal the same hermetically.

My improved machine has particularly in view rapidity in operation and effectiveness in results.

My invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a partly sectional side elevation of the material parts of a can-sealing device embodying my invention; Fig. 2 is a top plan view thereof; Fig. 3 is an enlarged fragmentary section, taken substantially on the line 3—3 of Fig. 1; Fig. 4 is an enlarged central section of the exhausting and sealing mechanism, and Fig. 5 is a transverse central section of the lower portion of Fig. 4.

Referring now to the drawings in detail, numeral 11 refers to a suitable supporting frame which may be mounted upon standards or in any other desired manner at a convenient height. This frame 11 includes a horizontal plate 12 having an aperture 13 therein to provide for the vertical reciprocation therethrough of the table 14. This table 14 is fixed upon the end of the vertical rod 15 which is manually raised and lowered, at will, by the operator, in any desired manner, such as by a treadle or foot-lever. The table 14 is of suitable size to support any standard size of can body, such as the can 16, and may be preferably provided with an annular groove to receive the downwardly projecting edge or rim, with which such cans are usually provided, in order to similarly position each can placed thereon and firmly hold the same in its adjusted position. Obviously, the can may be raised and lowered through vertical reciprocation of the rod 15.

The frame 11 is provided with the forwardly projecting arms 18 18 carrying the

cylinder 19. This cylinder 19 preferably terminates at its lower end in an enlarged portion or head 20, the lower face of which is provided with an annular groove for the reception and retention of a ring 21 of elastically yielding material, preferably soft rubber. When the table 14 with the can 16 thereon is raised, the cover or top 22 of said can is uniformly pressed against said ring 21 and forms therewith and with the bottom face of the head 20 an hermetically closed chamber.

The cylinder 19 is provided with a central bore 23 of uniform diameter extending longitudinally completely through the same. Said cylinder is also provided with a longitudinal bore 24, the lower end of which communicates with the space underneath the head 20 and within the ring 21, preferably by means of the duct 25, and the upper end of which communicates with a plug or coupling 26 to which any suitable form of tube or pipe leading to an exhaust pump (not shown in the drawing) may be attached.

Projecting rearwardly from the frame 11 are the brackets 27, 27, journaled in the ends of which is a spool or axle 28 upon which is wound or rolled a strip 29 of material such as thick paper or thin pasteboard, which combines the properties of being flexible, atmospherically impervious, and sufficiently elastic to provide a plug disk which, when forced into an apertured pocket of slightly less diameter of said disk, will form an air-tight seal.

Journaled in the ends of brackets 30, 30, secured to the frame 11, is an axle 31 upon which is fixed the disk-wheel 32 having a notched or milled periphery. Immediately above this wheel and located to cooperate therewith is the roller 33 at the end of the swinging arm 34 and pressed in the direction of the wheel 32 by means of the spring 35 in tension between said arm 34 and the bracket 30. Fixed upon the axle 31 or to the disk-wheel 32 is the ratchet 36 with which cooperates the pawl 37 suitably mounted at the end of the swinging bar 38. This bar 38 is mounted upon a short shaft or axle 39 in the upper end of the frame 11, and normally remains in a vertical position under action of gravity. When in such position the pawl 37 has engaged a tooth of the ratchet 36.

The shaft or axle 39 provides a fulcrum for the operating lever 40, the arm 41 of which projects rearwardly and has at its end a lug 42 or other support for the adjusting screw 43. These parts are so located and adjusted that the bar 38 is in the path of movement of the end of the screw 43, so that when the operating lever 40 is in its normal and uppermost position, the end of the screw 43 has impinged against said bar and swung the same to the right (referring to Fig. 1) which has operated through the pawl 37 to

rotate said ratchet 36 one step and therewith the disk-wheel 32. In this manner, through the cooperation between said wheel 32 and roller 33, the end of the strip 29 is advanced a regulated distance through the machine.

Slidable within the central bore 23 of the cylinder 19 is the plunger rod 44, the upper end of which is connected by means of a suitable link 45 to the lever 40, and the lower end of which is provided with a sharpened annular edge to provide both a punch and a press. Intersecting the vertical bore 23, near the lower end thereof, is the lateral bore 48 so directed as to receive and provide guide for the intermittently advanced strip 29.

The particular form or character of container which my machine is best adapted to first vacuumize and then hermetically seal need not be described in detail here other than to state that the cover thereof is provided with the central depression 46, forming a pocket slightly less in diameter than the diameter of the disk-plug which is punched from the strip 29, which pocket is provided with a lower or bottom aperture 47. The pocket 46 is so located that when the can 16 is properly adjusted upon the platform 14, and raised by elevation of the rod 15 to the point where the cover 22 is firmly pressed against the yielding ring 21, said pocket 46 is immediately below the lower mouth of the bore 23 and adapted to receive the disk-plug which is punched from the strip 29. It will therefore be apparent, considering that the strip 29 has been properly adjusted and extends through the bore 48, that depression of the lever 40 will operate, through the rod 44, to punch a disk from said strip and, upon further depression of said lever 40, force the disk-plug down through and out of the bore 23 and into the pocket 46 in the cover 22, where, through continued pressure, it is firmly seated and through its own resiliency closes the aperture 47 and firmly seals the container. When the rod 44, which now projects through an aperture in the strip 29, is withdrawn, through elevation of the lever 40, the lower end of said rod 44 will first clear the bore 45 and immediately thereafter the end of the screw 43 will impinge against the bar 38, movement of which, as explained, rotates the wheel 32 and advances the strip 29 proper distance for the next succeeding punching operation.

The passage 24 may lead to an exhaust pump, constantly or intermittently operating, or to a relatively large vacuum chamber. When the container 16 is raised and the cover 22 thereof firmly pressed against the ring 21, the passage 24 is open or opened to said pump or chamber, and the rod 44 is depressed and with the punched disk closes the portion of the bore 23 below

the passage 45, whereby a vacuum is created within the inclosed space or chamber 17 above the can-cover and below the cylinder 19. Thus the air remaining in the container 5 will be exhausted through the aperture 47, and immediately thereafter the sealing operation is effected, as explained. Obviously, the initial downward movement of the lever 40 may be made to serve to open a valve, 10 or the passage 24 may remain constantly open to an exhaust pump. It will thus be apparent that by means of my invention filled cans, each suitably apertured, may be fed in succession to the machine; the re- 15 maining air exhausted and the aperture finally sealed in a rapid, simple, efficient and inexpensive manner.

While the pasteboard or paper disk cut from the strip 29 may of itself provide a 20 satisfactorily permanent seal, it will be noted that inasmuch as the principal difficulties of vacuumizing and sealing reside in preserving the vacuum during the final seal- ing operation, my seal may be augmented, 25 and made of a more universally dependable character, by dropping a bit of melted solder or wax (or any self-hardening liquid or semi-liquid matter) into the pocket 46 after the disk has been compressed therein—read- 30 ily and rapidly accomplished by hand or machine.

While I have shown and described, in connection with the vacuum sealing mechanism, an ordinary cylindrical or so-called 35 "round" can, it will be apparent that this invention is equally applicable to bottles, jars and the like, if provided with a suitable top or cover, or to sheet-metal containers of any other configuration than the 40 one shown herein.

Many modifications of minor details of my improved can sealing machine will doubtless readily suggest themselves to those skilled in the art to which it apper- 45 tains, and I therefore do not desire to limit my invention to the specific construction and operation herein shown and described.

I claim as my invention:

1. The combination, with means for form- 50 ing a sealed chamber with and exterior of an apertured container, of means for ex-

hausting air from said chamber, and means for successively forming a stopper and delivering the same through said chamber to seal said aperture.

2. The combination, with means for forming a sealed chamber with and exterior of an apertured container, of means for ex- 55 hausting air from said chamber, and means adapted at one operation to form a stopper 60 and deliver the same through said chamber to seal said aperture.

3. The combination, with means for forming a sealed chamber with and exterior of an apertured container, of means for ex- 65 hausting air from said chamber, means for advancing a strip of stopper-forming material, and means for successively punching a stopper therefrom and delivering the same through said chamber to seal said aperture. 70

4. The combination, with a body having a projecting yielding ring in the lower face thereof and means for applying the aper- 75 tured flat face of a container to said ring to form therewith and with said body a chamber open through said aperture to the interior of said container, of an exhaust passage leading through said body from said chamber, and means for successively forming a stopper and delivering the same through 80 said chamber to seal said aperture.

5. The combination, with a body having a projecting yielding ring in the lower face thereof and means for applying the aper- 85 tured flat face of a container to said ring to form therewith and with said body a chamber open through said aperture to the interior of said container, of an exhaust passage leading through said body from said chamber, means for advancing a strip 90 of stopper-forming material, and means for successively punching a stopper therefrom and delivering the same through said chamber to seal said aperture.

In testimony of the foregoing, I have 95 hereunto set my hand in the presence of two witnesses.

JULIUS BRENZINGER.

Witnesses:

B. SHEPARD,
JOSEPH PEIPER.