E. L. WALKER.

SEALING MACHINE.

APPLICATION FILED JULY 16, 1919.

1,410,352.

Patented Mar. 21, 1922.

2 SHEETS—SHEET 1.

Fig. 1

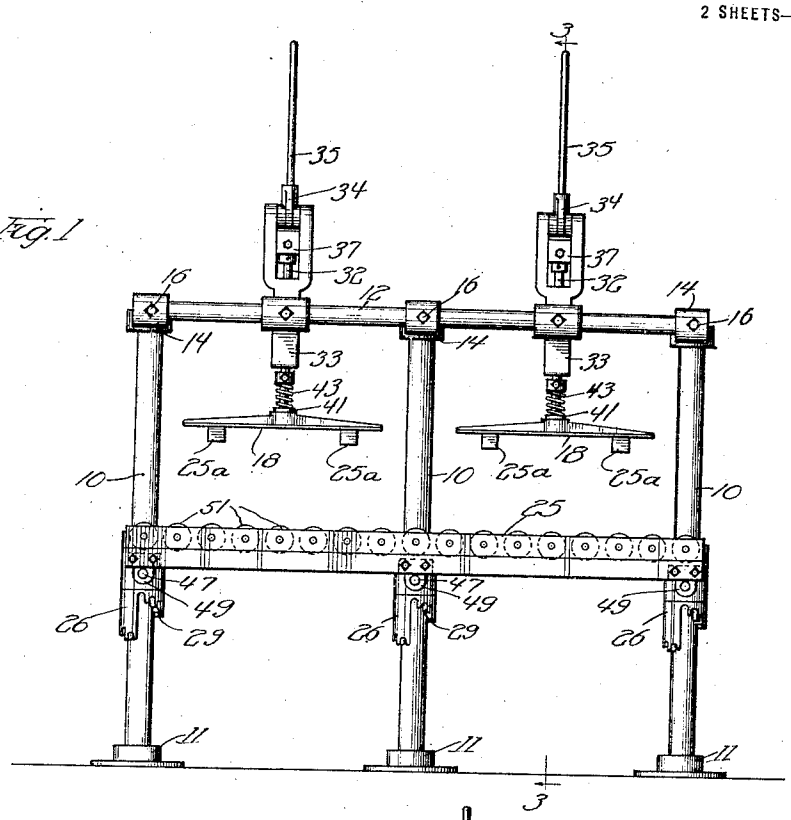
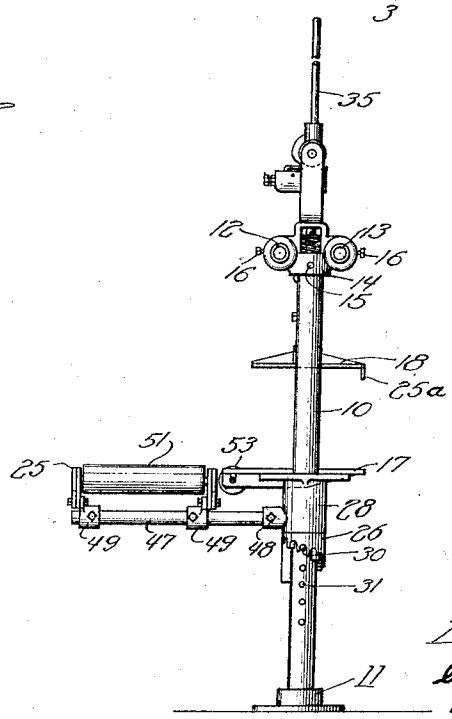


Fig. 2



Inventor
Emery L. Walker
by Zabel & Mueller
Attys.

E. L. WALKER.

SEALING MACHINE.

APPLICATION FILED JULY 16, 1919.

1,410,352.

Patented Mar. 21, 1922.

2 SHEETS—SHEET 2.

Fig. 3

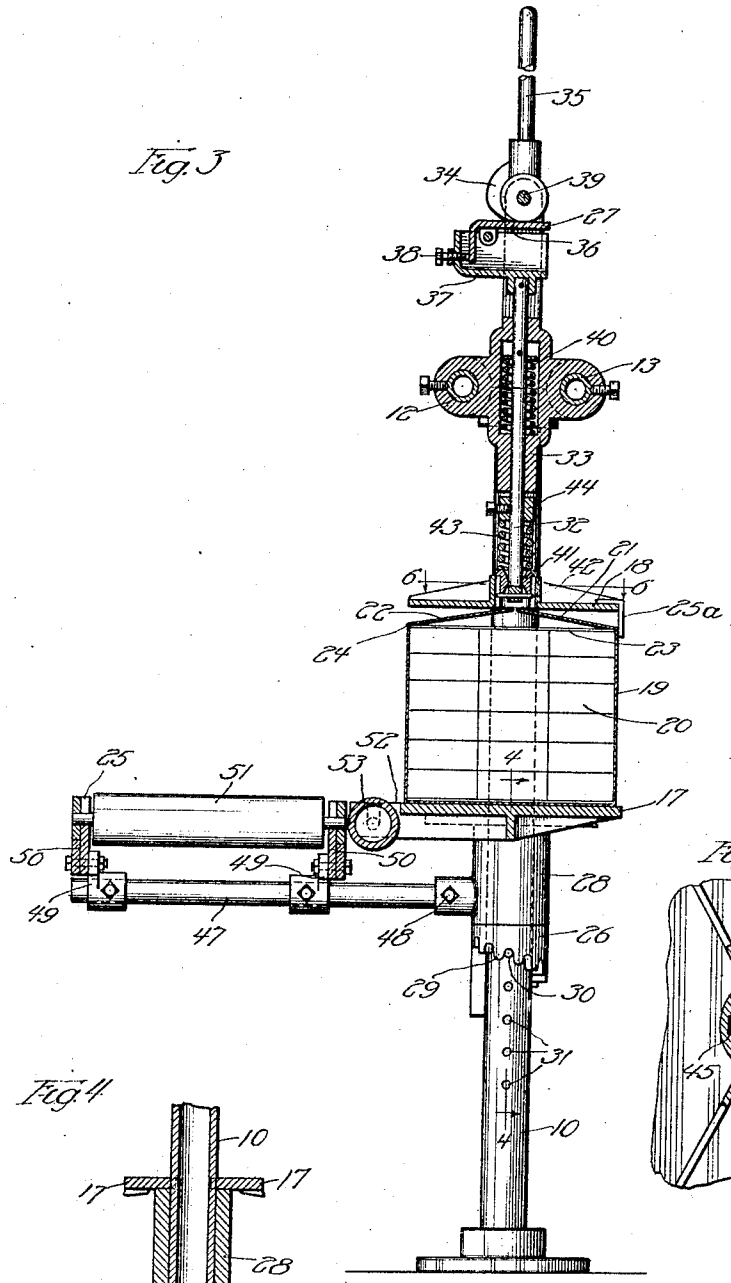


Fig. 6

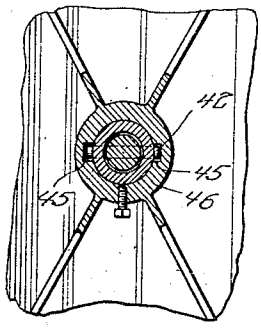
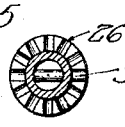


Fig. 4

Fig. 5



Inventor

Emery L. Walker

by Fabel & Mueller

Attys.

UNITED STATES PATENT OFFICE.

EMERY L. WALKER, OF MILWAUKEE, WISCONSIN.

SEALING MACHINE.

1,410,352. Specification of Letters Patent. Patented Mar. 21, 1922.

Application filed July 16, 1919. Serial No. 311,170.

To all whom it may concern:

Be it known that I, EMERY L. WALKER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Sealing Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to sealing machines and more particularly to machines of this character which are used for sealing the folded ends of knock down shipping containers or boxes. Such shipping containers are manufactured by the box manufacturer in large quantities of suitable material such as fibre board, box board or corrugated board, and are shipped in a collapsed condition to the user, who fills the container with materials which are to be transported. The collapsed containers prior to their filling must have the unfolded box flaps at one extremity thereof sealed, whereupon the articles to be shipped are placed therein, and thereupon the box flaps at the opposite extremity must be sealed, whereupon the shipping container with its contents is ready for shipment. The initial sealing of the box flaps at one extremity prior to the introduction of the articles to be shipped is taken care of by machines such as shown in reissue patent to Morton No. 14,267, dated March 6, 1917, and is called bottom sealing. The shipping container with one end sealed is then filled with the contents which it is to carry and the other extremity is sealed, which is known as top sealing.

My present invention concerns itself with the provision of a machine for effecting this top sealing operation of the folded flaps of the shipping container after the articles which it is to carry have been introduced therein.

My invention concerns itself particularly with the provision of a machine of this character which is enabled to effect the operations outlined in connection with shipping containers of the class specified using the heavier grades of material such as card board, box board, corrugated board or the like. The use of such material presents peculiar difficulties due to irregularities and dissimilarities of the various containers. As stated, my present invention concerns itself primarily with the provision of a machine capable of sealing the tops of filled shipping containers.

I will explain one form which my invention may take more in detail by referring to the accompanying drawings, in which—

Fig. 1 is a front view of a machine constructed in accordance with my invention;

Fig. 2 is a side view thereof;

Fig. 3 is a transverse sectional view thereof on line 3—3 of Fig. 1;

Fig. 4 is a sectional view on line 4—4 of Fig. 3;

Fig. 5 is a sectional view on line 5—5 of Fig. 4, and

Fig. 6 is a sectional view on line 6—6 of Fig. 3.

Referring to the figures, I show in Fig. 1 a two unit sealing machine. It will of course be understood that my invention contemplates the duplicating of units to any desirable amount so as to accommodate the necessities of the user. In general it is desirable to have a number of units sufficient that an operator may operate the sealing machine No. 1 and then pass to sealing machine No. 2 so that by the time he is through with the series he can come back to sealing machine No. 1, the elapsed time having been sufficient to permit thorough sealing of the shipping container placed in sealing machine No. 1.

The two unit machine as illustrated in the figures comprises standards 10, 10, 10, which are suitably provided with feet 11 which may be desirably bolted to the floor, these standards at their upper extremities having cross rods 12 and 13. These cross rods 12 and 13 tie the standards 10 together so as to provide a rigid structure. The cross rods 12 and 13 and standards 10 are held together at their meeting points by couplings 14, set screws 15 and 16 serving the customary purpose of fastening the parts together. The standards support a lower platen 17 which co-operates with an upper platen 18 movably arranged so as to travel upwardly and downwardly.

By referring more particularly to Fig. 3, it will be seen that the filled shipping container 19 filled with suitable packages 20 and having its bottom already sealed, preferably upon a sealing machine such as disclosed in the aforementioned Morton patent, is placed upon the lower platen 17 after the unfolded flaps 21, 22 and 23 have been provided with the necessary adhesive in the

manner presently to be explained. Thereupon, the upper platen 18 is moved downwardly into sealing position to seal the flaps 21, 22, and 23 together, the operator at the same time exerting a pressure against the front edge 24 of the shipping container to press it against the rearwardly arranged stops 25[a] so that the abutting ends of the flaps 21 and 22 are brought tightly together. The mechanism which holds the platen 18 downwardly is of such character as will be presently explained that it holds the plunger 18 in its lowermost or sealing position until such time as again released by the operator. The plunger 18 is held in its sealing position while the operator passes to the next unit and so on, until the operator returns to the first unit to release the plunger 18, at which time the sealed shipping container may be withdrawn from the platen 17 and moved upon the conveyor 25 toward its destination.

It is a prime object of my invention to provide suitable means co-operating with the sealing portion of the machine thus far described which support the filled shipping container during the process of applying the adhesive to the top flaps, and which means may preferably at the same time be of advantage in moving the sealed shipping container toward its destination. The plunger or upper platen 18 is also universally and resiliently mounted so that it conforms itself to the top surface of the shipping container and so that it exerts a yielding pressure against the top of the shipping container whereby proper sealing action between the flaps is secured.

It is also a prime object of my invention to provide means of adjustment of the platens 17 and 18 relatively toward each other so as to accommodate shipping containers of different heights, and the preferred form of making this adjustment, as disclosed herein, consists of means in connection with the collar 26 which will presently be explained whereby a "rough" adjustment is secured and in addition, the means shown at 27, which will presently be explained in detail, whereby a more delicate or "fine" adjustment is secured. I have thus outlined in general the functions to be performed by a machine of this class and those elements which are desirable in attaining successful operation thereof.

I will now explain more in detail the various structural features as embodied herein which indicate by way of illustration the specific embodiment which I have chosen for illustration herein. The lower platen 17 rests upon suitable collars or sleeves 28 which are slidable up and down upon the standards 10. These sleeves 28 rest upon collars 26, which collars have teeth 29 arranged at different heights, which teeth cooperate with pins 30. The pins 30 are adapted for insertion within holes 31 at the appropriate height and the collars 26 are held in a given position depending upon the position occupied by the pins 30. The collar 26 together with the pins 30 provide the "rough" adjustment between the platens 17 and 18. The upper platen 18 is universally mounted upon a spindle 32, which spindle is slidable up and down within a bearing 33 slidably secured in place upon the cross strips 12 and 13. The spindle 32 is movable upwardly and downwardly through the agency of a cam 34, this cam being controlled by the handle 35. The cam engages an adjustable plate 36 which is mounted upon and forms part of the spindle structure 32. Whenever the arm 35 (Fig. 3) is moved contraclockwise, the plate 36 together with the spindle 32 and plunger 18 are moved downwardly, the construction of the cam 34 being such that the plunger 18 is locked in its lowermost position until the operator exerts an upward pressure against the handle 35. The "fine" adjustment between the plungers is provided at the upper extremity of the spindle 32 and consists of a cap plate 37 rigidly secured to the upper extremity of the spindle 32, which cap plate pivotally supports the plate 36. A set screw 38 controls the position of the plate 36 relatively to the cap plate 37 and thus controls the distance between the platen or plunger 18 and the cam shaft 39. A spring 40 mounted within the bearing structure 33 normally forces the spindle 32 and the parts carried by it upwardly against the cam 34. The platen 18, as before stated, is universally mounted relatively to the spindle 32 and this is brought about by having the platen provided with an annular bearing sleeve 41 surrounding the spindle, the arrangement of the bearing sleeve 41 by reason of its cut away portions being such that the plunger is permitted a slight but universal movement relatively to the said spindle. A pin 42 prevents the platen from moving downwardly off from the spindle 32 under the pressure of the spring 43 which backs up the platen. The strength of this spring is adjusted by means of the collar 44. By reason of the spring 43 I have what may be called a spring backed plunger or platen whereby the plunger 18 is resiliently or yieldingly mounted in addition to its universal mounting as above explained. The pin 42 rides in slots 45 formed in the hub portion 46 of the platen, thereby preventing a rotational movement of the platen 18. A set screw 46[a] holds the platen in position on the sleeve 41.

In order to provide proper facilities for supporting the container 19 during the process of applying adhesive to the top flap, and to provide means for properly moving

said shipping container from said position, I employ the structure which I will now describe and which is mounted forwardly of the lower platen 17. The structure broadly contemplates a work table and the particular form which this work table takes in this application gives the added facility whereby the container may be moved thereon from place to place and away from the sealing machine.

This structure primarily contemplates the arms 47 fixedly mounted in the sleeves 28 preferably by means of the set screws 48, as shown. These arms support lugs 49, which lugs in turn carry the longitudinal strips 50 between which suitable rollers 51 are mounted. These rollers serve in the dual capacity of work table and conveyor. The structure also contemplates forwardly extending arms 52 between which the roller 53 is rotatably carried. A shipping container whose bottom is sealed and which is filled with the articles of merchandise is placed upon the rollers 51, which, as before stated, serve as the work table. The adhesive is applied to the flaps 23 and all of the flaps are folded approximately into the position shown in Fig. 3. Thereupon, the shipping container is moved into the position shown in Fig. 3, being aided in its passage by the roller 53. The lever 35 is then operated contra-clockwise to bring the overlapping flaps together, whereupon the flaps are sealed.

It will be noted that my improved device is of particular utility in connection with the sealing of shipping containers as outlined herein, consisting of the heavier material of which such containers are made as distinguished from cartons of light thin paper.

In my co-pending application Serial No. 311,171, filed July 16, 1919, I show a machine of this general character which is convertible so that it may be used both for top and bottom sealing.

In my co-pending application Serial No. 311,172, filed July 16, 1919, I show a machine of this general character provided with conveyors and such conveyors are claimed in the said co-pending application.

While I have herein shown and particularly described one form which my invention may take, it will of course be obvious that many modifications may be made within the scope of the appended claims without departing from its spirit.

What I claim as new and desire to secure by Letters Patent is:

1. A sealing machine of the character described for sealing the top flaps of filled shipping containers, comprising a framework, a lower platen adapted to receive the container associated with said framework, rough adjusting means for the platen, an upper platen, fine adjusting means for the upper platen, and means for moving said upper platen toward said lower platen whereby to clamp said container between said platens to thereby seal said top flaps together.

2. A sealing machine of the character described for sealing the top flaps of filled shipping containers, comprising a framework, a lower platen adapted to receive the filled container associated with said framework, an upper platen, an adjustable plate connected therewith, and means engaging said plate for effecting relative movement of said platens toward each other whereby to seal said top flaps together, one of said platens having a universal and yielding mounting.

3. A sealing machine of the character described for sealing the top flaps of filled shiping containers, comprising a framework, a lower platen adapted to receive the container associated with said framework, an upper platen, means for effecting relative movement of said platens toward each other whereby to seal said top flaps together, and means to adjust the normal relative position of said platens, said means including mechanism for effecting a "rough" adjustment and mechanism for effecting a "fine" adjustment.

4. A sealing machine of the character described for sealing the top flaps of filled shipping containers, comprising a framework, a lower platen adapted to receive the container associated with said framework, an upper platen, means for effecting relative movement of said platens toward each other whereby to seal said top flaps together, and means to adjust the normal relative position of said platens, said means including mechanism for effecting a "rough" adjustment and mechanism for effecting a "fine" adjustment, said "rough" adjustment mechanism including a serrated sleeve.

5. A sealing machine of the character described for sealing the top flaps of filled shipping containers, comprising a framework, a lower platen adapted to receive the container associated with said framework, an upper platen, means for moving said upper platen toward said lower platen whereby to clamp said container between said platens to thereby seal said top flaps together, an adjustable plate carried by said upper platen and engaged by said moving means for varying the movement of said upper platen.

6. A sealing machine of the character described for sealing the top flaps of filled shipping containers, comprising a framework, a lower platen adapted to receive the container associated with said framework, an upper platen, means for effecting relative movement of said platens toward each other whereby to seal said top flaps together, means along one edge of said upper platen against which the container may be pressed to force abutting container flaps together, and an adjustable plate carried by said upper platen and engaged by said moving

means for varying the movement of said upper platen.

7. A sealing machine of the character described for sealing the top flaps of filled shipping containers, comprising a framework, a lower platen adapted to receive the container, said lower platen having a socket portion, said framework having a fixed stem extending within said socket portion, said socket portion being provided with stepped recesses and said stem being provided with a pin adapted to cooperate with any one of said recesses to adjust said platen relatively to said framework, an upper platen slidable in said framework and means for moving said upper platen toward said lower platen to clamp said container between said platens to seal said top flaps together.

In witness whereof, I hereunto subscribe my name this 2nd day of July, A. D., 1919.

EMERY L. WALKER.