

Dec. 16, 1924.

1,519,815

C. E. VANCE

GASKET CUTTER

Filed Dec. 14, 1920

2 Sheets-Sheet 1

FIG. 1.

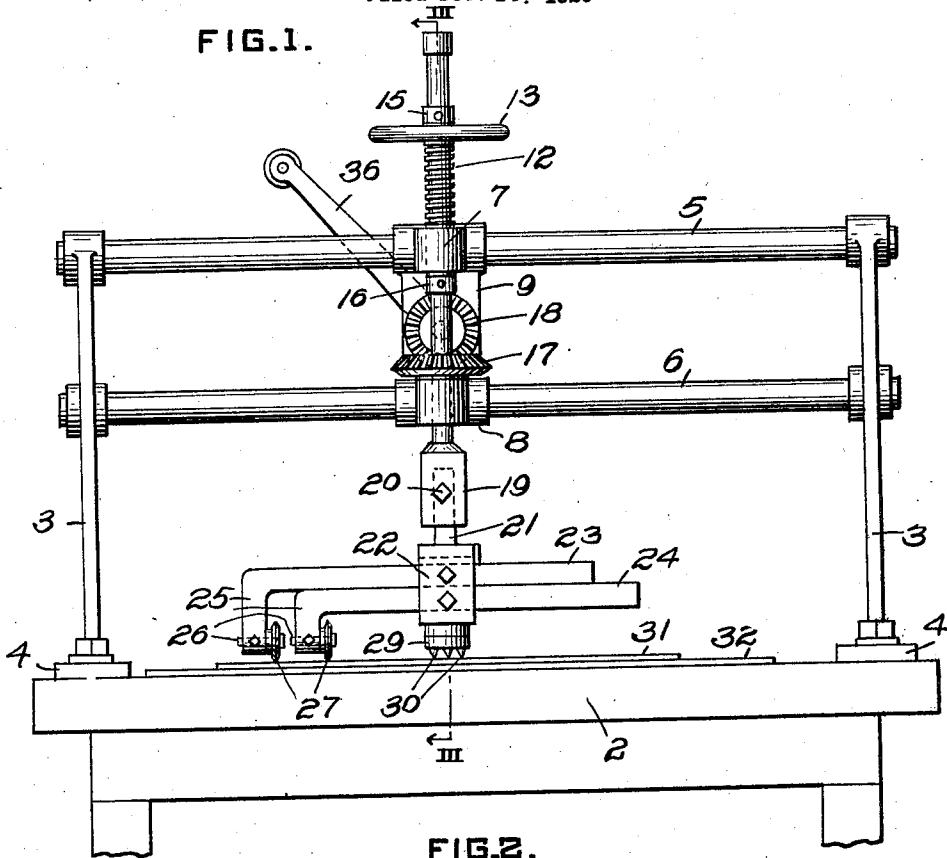
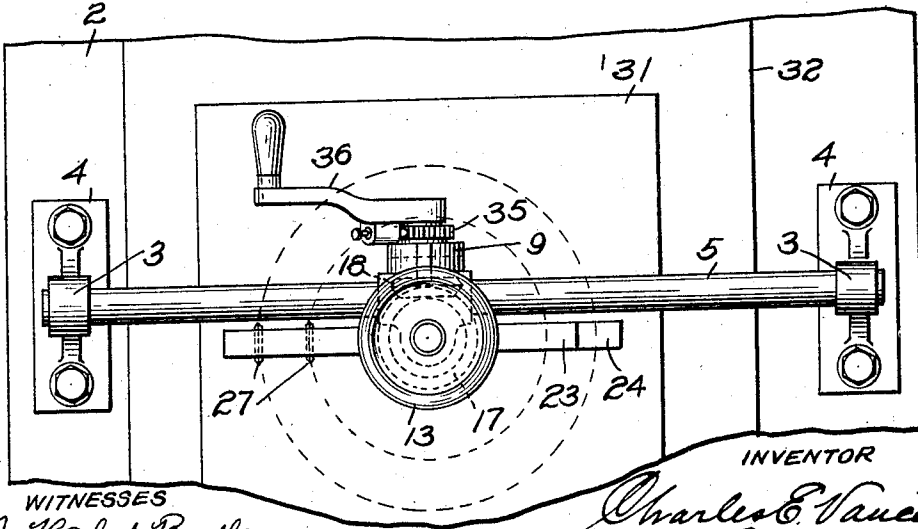


FIG. 2.



WITNESSES
J. Herbert Bradley
Eric Weinman

INVENTOR
Charles E. Vance
by C. M. Clark

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FIG. 3.

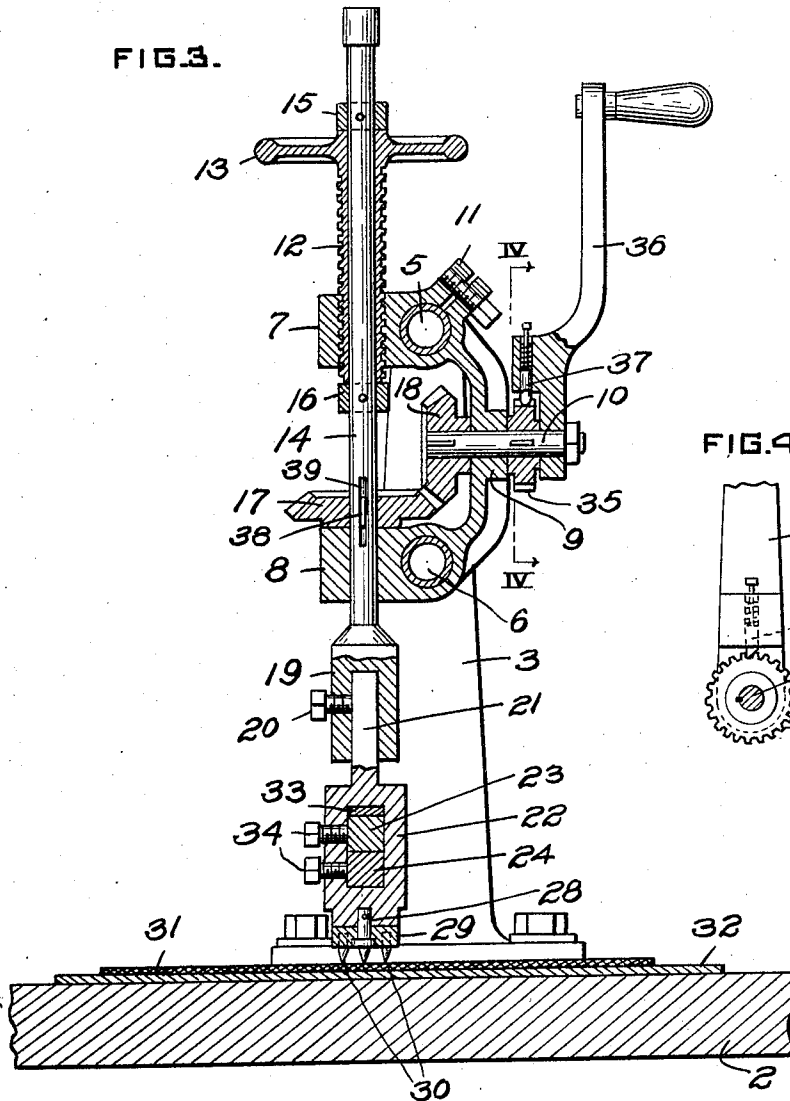


FIG. 4.

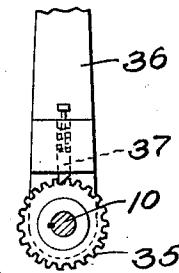


FIG. 5.

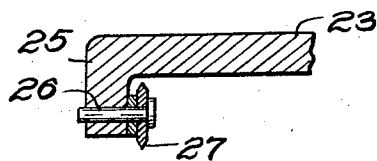
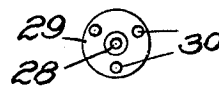


FIG. 6.



WITNESSES

J. Herbert Bradley
Louis Weinman

INVENTOR

Charles E. Vance
by V. C. McClure
att'y

Patented Dec. 16, 1924.

UNITED STATES PATENT OFFICE.

CHARLES E. VANCE, OF PITTSBURGH, PENNSYLVANIA.

GASKET CUTTER.

Application filed December 14, 1920. Serial No. 430,612.

To all whom it may concern:

Be it known that I, CHARLES E. VANCE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gasket Cutters, of which the following is a specification.

My invention consists of an improvement in machines for cutting gaskets or the like, and has for its object to provide a machine by which the sheet of material from which the gasket is to be cut is fixedly held in position, and an inner or outer cutter may be rotated around such center to produce a finished ring or gasket.

One of the objects in view is to provide such a machine which is capable of adjustment within a considerable range as to the interior and outer diameter of the gasket, and to accomplish the cutting of the same from a blank or sheet in an accurate and rapid manner.

In the drawings showing one preferred embodiment of the invention,

Fig. 1 is a view of the machine in side elevation and in position for operation;

Fig. 2 is a plan view of Fig. 1, partly broken away;

Fig. 3 is a vertical sectional view on the line III—III of Fig. 1;

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

Fig. 5 is a detail sectional view of one of the cutter arms and cutters detached; and

Fig. 6 is an under plan view of the centering clamp holder for the bit shank.

The machine is mounted upon any suitable flat base 2, which may be of wood, by means of vertical framing members 3—3 having attaching bases 4 for rigidly bolting to base 2. Uprights 3 are connected by cross bar members 5 and 6 respectively which may be of pipe or other suitable material and which provide supports for the spindle bearings 7 and 8 respectively of a one-piece casting slidable on the cross bars and having at one side the middle bearing 9 for the driving shaft 10.

The upper bearing 7, which may be provided with a clamping extension 11 for fixedly securing it upon the cross bar 5, is interiorly threaded for reception of the threaded shank 12 of the spindle feed hand wheel 13. The main spindle 14 extends through the threaded extension 12 and

handle 13, as shown, and is connected therewith for vertical adjustment either upwardly or downwardly, as in a drill press, by upper and lower collars 15 and 16 secured to the shaft by any suitable means, as set screws. Spindle 14 is thus mounted in the vertically adjusting screw 12 in a manner providing for independent rotation within the adjusting screw, and extends downwardly through lower bearing 8. It is provided with a driven bevel wheel 17 in sliding rotatable engagement with the spindle by a key or feather 38 and keyway 39, and bevel 17 is in driving engagement with bevel 18 of drive shaft 10. At its lower end, spindle 14 is provided with a socket 19 into which extends and is secured by set screw 20 the stub shaft 21 of the bit shank 22.

The bit shank is provided with a transverse socket or opening in which are mounted the two relatively adjustable cutter arms 23—24 respectively. Each of such arms is provided at one end with a downwardly turned terminal 25 in which is fixedly carried and secured by a set screw or otherwise, the stud 26 of cutter wheel 27. As shown, arms 25 are of proper length to correspond as to their mounting of the cutter wheels and their studs on the same horizontal plane so as to locate the cutting edge of each cutter 27 on a similar corresponding plane, to effect simultaneous cutting action by each cutter, as the cutters are rotated and advanced downwardly.

The lower end of bit shank 22 is swiveled upon a stud or opening 28 of a supporting shoe 29 which is provided with a plurality, as three, of downwardly extending sharpened pins 30. Such pins are adapted to be lowered upon the surface of the material from which the gasket is to be cut, as a sheet 31 of rubber, fibre, or the like, which is laid upon the upper side of base 2, preferably with an intervening blanket or cushion of suitable material 32, as beaver-board or the like. As shown, arms 23 and 24 are squared in cross section or of other suitable shape, whereby they will have a neat sliding fit within the receiving socket or aperture of bit shank 2, one or more liners or filling pieces 33 being utilized if desired. Set screws 34 extend inwardly from one side wall of the bit shank and bear against said arms when properly located to fixedly hold them in position.

Driving shaft 10 is operated by any suit-

able lever or handle mechanism, but is preferably of the construction shown, utilizing a ratchet engagement with the shaft to permit of continued partial operation of the lever without necessity of one or more complete revolutions. For such purpose, I provide a toothed ratchet wheel 35 fixedly connected with shaft 10 by key or otherwise, and lever 36 is provided with a spring pressed pawl 37 beveled at one side, and capable of being reversed, if necessary, whereby to drive the gears 18 continuously in the same direction, for a corresponding series of rotated movements of cutters 27.

The construction and operation of the invention will be readily understood and appreciated from the foregoing description. The blank 31 having been placed in position, spindle 14 is lowered by operation of hand wheel 13 and points 30 are brought into holding engagement with the upper surface of the blank. At the same time, cutter wheels 27 will rest upon the surface of the blank with a pressure dependent upon the feed of the screw 12, whereupon, gears 18, 17, are rotated. By having the casting in which are formed spindle bearings 7 and 8 slidable on bars 5 and 6, the entire cutter may be shifted transversely of the table. This enables the operator to cut small gaskets from the sides of a sheet of given width and large ones from the center, or to cut gasket of the same size from all parts of the sheet, without first cutting the sheet into pieces.

The annular movement thus imparted to cutters 27 effects an initial cut in the surface of the gasket and part way through its thickness. The lowering of the cutters is gradually effected by feed of the screw and continuation of the rotative movement will effect a deeper incision of the cutters until the material is entirely severed on the two annular lines corresponding to the path of the cutters. At the same time, pins 30 will be forced downwardly and through the thickness of the blank engaging it more firmly as the cutting proceeds, so that when finished, the central blank will be completely severed from the finished ring or gasket, which will also be similarly severed from the surrounding material. Thereupon, screw 12 is reversed, raising the spindle 14 and its attached parts when the finished gasket and its cut-out center may be removed and the blank shifted for the next operations, repeating the steps just described.

The advantages of the device lie in its simple and durable construction, great accuracy and facility for rapid adjustment, and its continued efficiency without any tendency to breakage or delay incident to necessity for making any adjustment, except in the case of varying the size of the article

to be cut. The machine may be variously changed and modified in detail construction, design, size of parts, or in various other respects or details by the skilled mechanic, but all such changes are to be considered as within the scope of the following claims.

What I claim is:

1. A gasket cutter comprising a table, a vertical standard on the table having a horizontally extending frame structure carried thereby above the top of the table, a carriage slidable on the frame and slidable therealong, whereby it may be manually adjusted to various positions along the frame, a vertical bearing in the carriage, a shaft in the bearings, means for rotating the shaft while the carriage remains stationary, and cutting means carried by the shaft and revolved about the axis of rotation of the shaft upon rotation of the shaft.

2. A gasket cutter comprising a table, a fixed horizontal supporting structure extending across the table above the top thereof, a vertical shaft having cutters at its lower end, said cutters being movable in a circular path concentric with the axis of the shaft upon rotation of the shaft, a shaft supporting means in which the shaft is rotatably carried on the supporting structure and movable transversely across the table along the fixed supporting structure, whereby it may be manually adjusted to different positions with respect to the table, and means carried by the movable support for rotating the shaft while the movable support remains stationary.

3. A gasket cutter comprising a table, a standard at each side of the table, a pair of rods above the table and extending thereacross connecting the two standards, a shaft supporting member slidably mounted on the rods whereby it may be moved transversely across the table, a vertical shaft rotatably carried in said member, means mounted on the shaft supporting member for rotating the shaft, means for adjusting the shaft vertically, and adjustable cutters carried by the shaft.

4. A gasket cutter comprising a table, a standard at each side of the table, a pair of rods connecting the two standards, a shaft supporting member slidably mounted on the rods, means for adjustably clamping said member in position, a vertical shaft rotatably carried by said member, means for rotating the shaft, means for adjusting the shaft vertically, a terminal bearing loosely fixed to the lower end of said shaft and arranged for vertical movement therewith, and cutting means carried by the shaft.

In testimony whereof I hereunto affix my signature.

CHARLES E. VANCE.