July 18, 1961 M. TRACHTMAN ET AL 2,992,606

APPARATUS FOR CURING HAMS

Filed Nov. 13, 1956 2 Sheets-Sheet 1

Fig. 1

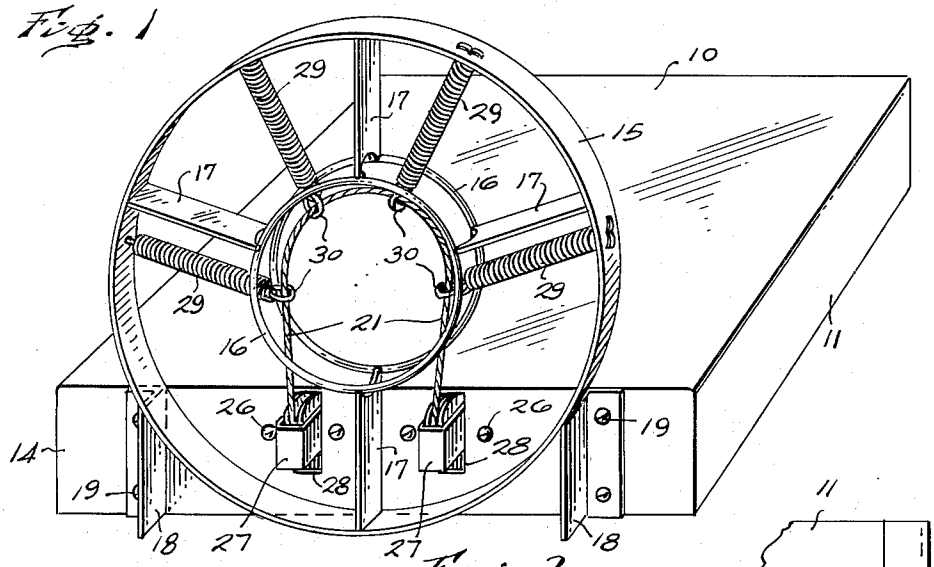
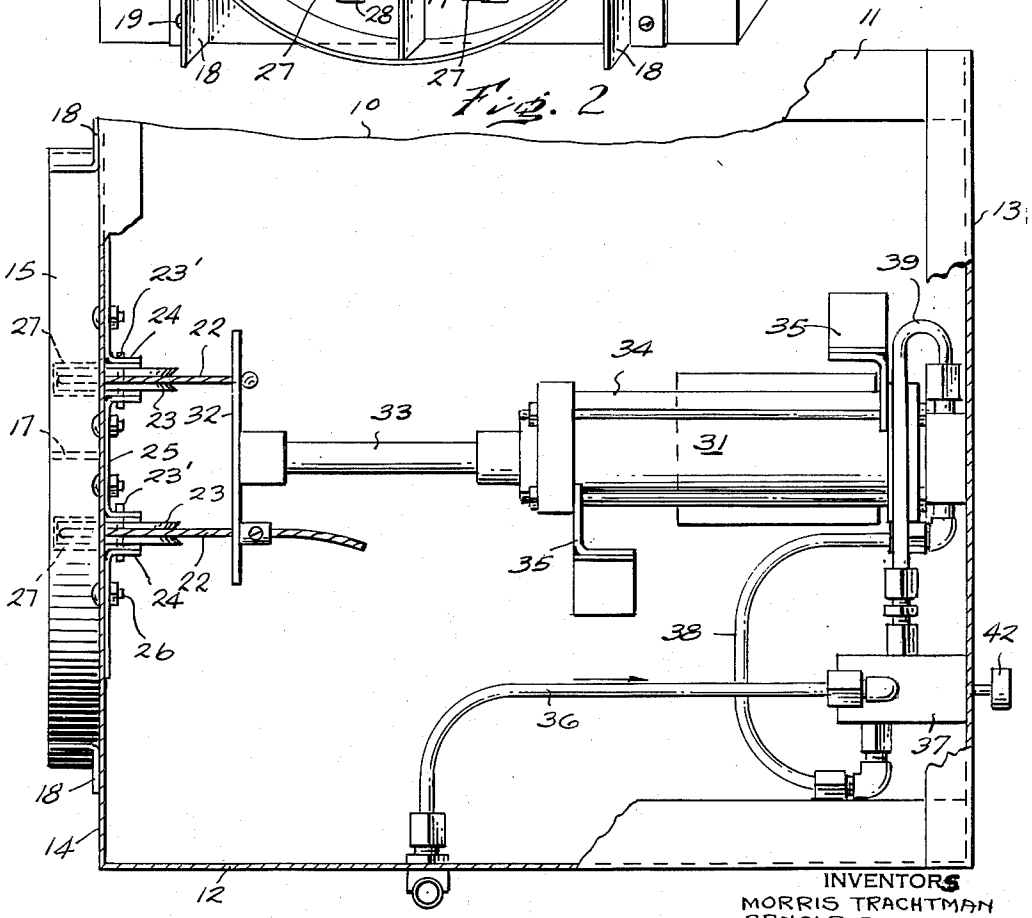


Fig. 2



INVENTORS
MORRIS TRACHTMAN
ARNOLD S. ZITIN
BY
Lear Edelson
ATTORNEY

July 18, 1961 M. TRACHTMAN ET AL 2,992,606

APPARATUS FOR CURING HAMS

Filed Nov. 13, 1956 2 Sheets-Sheet 2

Fig. 4

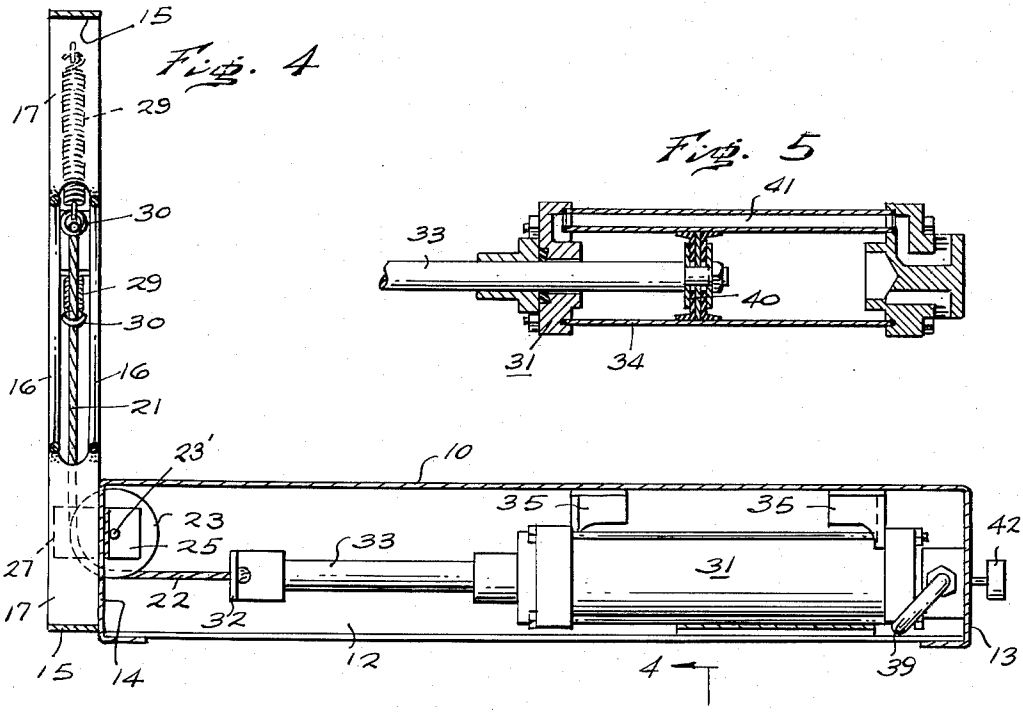
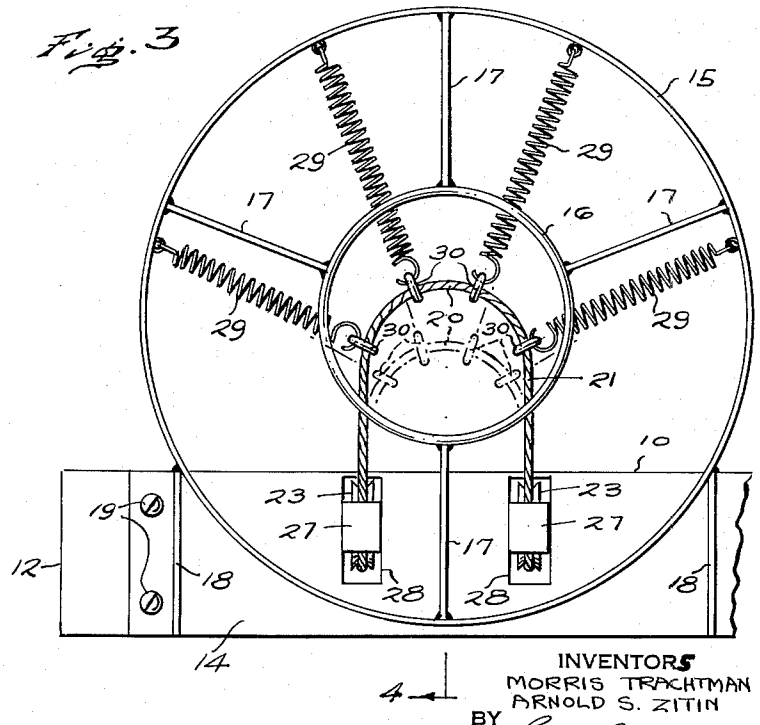


Fig. 5

Fig. 3



INVENTORS
MORRIS TRACHTMAN
ARNOLD S. ZITIN
BY Lewis Edelson
ATTORNEY

United States Patent Office 2,992,606 Patented July 18, 1961

2,992,606

APPARATUS FOR CURING HAMS

Morris Trachtman, 4718 N. 7th St., Philadelphia, Pa., and Arnold S. Zitin, Thomas Wynne Apartments, Wynnewood, Pa., assignors to Morris Trachtman, Philadelphia, Arnold S. Zitin, Wynnewood, and Bernard C. Zitin, Merion, Pa., trustees

Filed Nov. 13, 1956, Ser. No. 621,925
7 Claims. (Cl. 100—212)

The present invention relates generally to apparatus for sealing the carcass of an animal against egress of a fluid medium injected into the carcass for preserving the same and particularly to an improved apparatus for constricting the small end or neck of a ham, shoulder or the like for closing the vascular tract to prevent egress of brine injected into the vascular tract at the large end or butt of the ham.

A principal object of the present invention is to provide improved fluid pressure operated apparatus for constricting the small end or neck of a ham, shoulder or the like for closing the vascular tract to prevent egress of brine injected into the vascular tract at the large end or butt of the ham.

Another important object of the present invention is to provide such apparatus wherein the constricting means is normally distended for receiving the neck or shank of the ham or shoulder and is effective to translate a minimum excursion of the piston of a fluid pressure motor into constricting movement of said means sufficient to draw the latter more or less tightly against the neck or shank of the ham or shoulder.

And still another important object of the present invention is to provide such apparatus wherein the fluid pressure motor operates to draw the constricting means against the neck or shank of the ham or shoulder to thereby clamp the same against a base structure, and to automatically maintain the same in such condition until the pressure is relieved by the operator after the operation of injecting the ham is completed.

A further object of the present invention is to provide such an apparatus which is comparatively simple in design and construction and relatively inexpensive to manufacture.

Other objects and advantages of the invention will appear more fully hereinafter, it being understood that the present invention consists substantially in the combination, construction, location and relative arrangement of parts, all as described in the accompanying drawings and as finally pointed out in the appended claims.

In the drawings:

FIGURE 1 is a perspective view of apparatus constructed in accordance with and embodying the present invention.

FIGURE 2 is a bottom view of the apparatus shown in FIGURE 1, parts being broken away to expose certain details.

FIGURE 3 is a rear elevation of the apparatus shown in FIGURE 1, but showing the neck receiving opening partially closed.

FIGURE 4 is a vertical section on line 4—4 of FIGURE 3, but showing the neck receiving opening fully open.

FIGURE 5 is a longitudinal section through the fluid pressure motor, shown alone.

The apparatus constructed in accordance with and embodying the principles of the present invention has a rigid frame structure that preferredly is made of metal. The base section of this structure has a flat horizontally extending rectangular top 10, flanges 11 and 12 that depend respectively from opposite sides of the top 10, and

flanges 13 and 14 that depend respectively from the front and rear of the top 10.

At the rear of this base section is an open annular frame assembly that has an outer annulus 15 which is formed of flat metal. Within this annulus is a spider that has a pair of central ring members 16—16 which are of equal diameter and secured in position by a plurality of radially extending arms 17. These rings 16—16, which are disposed in axially spaced parallel planes, are positioned concentrically relative to one another and relative to the outer annulus or rim 15. The annular frame section stands upright at the rear end of the base section, as shown, and is provided with a pair of laterally spaced depending legs 18—18 of right angle transverse section. The several component elements of the annular frame section are rigidly secured together, as by welding, and the entire assembly is rigidly secured to the base section of the frame structure, as by screws 19. When the annular frame section is mounted in the manner aforesaid, the side edge of the bottom portion of the annulus or rim 15 abuts the rear flange 14 of the base section so that the central rings 16—16 are entirely spaced above the level of the top 10 of the base section.

The means for constricting the neck or shoulder of the ham essentially comprises a flexible cable 20 that has an intermediate section 21 which is disposed in an upright plane extending through the annular frame section, between the spider rings 16—16. The opposite end portions of the cable 20 designated 22—22, are trained under a pair of axially spaced pulleys 23—23 that are journalled as at 23'—23', in a pair of brackets 24—24 and a bracket 25. These brackets are secured to the inner side of the rear flange 14 of the base section, as by bolts 26. Each pulley 23 is provided with a U-shaped cable keeper element 27 that extends outwardly through an opening 28 which is formed in the rear flange 14 of the base section, and that embraces the cable portion which is in contact with the pulley.

For supporting the intermediate cable section 21 arranged in the manner aforesaid, a set of four tension coil springs 29 are anchored to circumferentially spaced portions of the annulus 15, at the top of the latter, between the spider arms 17. These springs converge inwardly and downwardly and pass freely between the spider rings 16—16 for connection respectively to a set of four anchor rings 30 that are spaced as shown and which are free to shift relative to the uppermost portion of the cable, which latter is disposed within the spider rings 16—16, a substantial distance from the bottom of the spider rings. These spider rings 16—16 are axially spaced apart a distance sufficient for suitably restricting lateral movement, fore and aft, of the intermediate cable section 21.

The opposite end portions 22—22 of the cable extend horizontally forwardly in parallel laterally spaced relation from under the pulleys 23—23 to a pneumatic motor 31, being anchored to the opposite end portions respectively of a cross head 32 of a piston 33, which latter operates in a cylinder 34 that is mounted under the top 10 of the base section, as by a pair of brackets 35—35. In addition to the pneumatic motor 31, the pneumatic circuit includes a conduit 36 that is adapted for connection to a source of pressurized air (not shown) and which is connected to a control valve 37 mounted on the front flange 13 of the base section, and a pair of conduits 38 and 39 that connect the valve 37 with the fore end of the cylinder 34. The conduit 38 communicates directly with the section of the cylinder 34 fore of the head of the piston, designated 40, while the conduit 39 communicates indirectly, through a passage 41, with the section of the cylinder 34 aft of the piston head 40.

In order to operate the cable 20, a knob 42 of the valve 37 is turned to a suitable position, whereupon fluid pres-

sure from the conduit 36 is introduced through the valve 37 into the conduit 38, from whence it passes through the passage 41 and into the portion of the cylinder 34 aft of the piston head 40, in consequence of which the piston 33 retracts and draws the cable 20 forwardly, the intermediate cable section 21 being drawn downwardly against the influence of the several tension springs 29. Simultaneously, of course, fluid pressure in the portion of the cylinder 34 fore of the piston head 40 is relieved through the conduit 39 and the valve 37.

In order to return the cable 20 to its initial condition, the knob 42 is turned to a different suitable position, whereupon fluid pressure from the conduit 36 is introduced through the valve 37 into the conduit 39, from whence it passes directly into the portion of the cylinder 34 fore of the piston head 40, in consequence of which the piston 33 is extended and the cable 20 is released for movement rearwardly, the intermediate cable section 21 being drawn upwardly under the influence of the several tension springs 29. Simultaneously, of course, fluid pressure in the portion of the cylinder 34 aft of the piston head 40 is relieved through the passage 41, conduit 38 and the valve 37.

In the use of the apparatus, an untreated ham is placed on the top 10 of the base section with its neck extending through the spider rings 16—16, under the cable 20. The latter is now drawn forwardly, in the manner described hereinbefore, whereupon the cable section 21 moves downwardly and bears down upon the neck of the ham and clamps it against the bottom portions of the spider rings 16—16. Brine solution may now be injected into the vascular tract, at the free or butt end of the ham. After a suitable lapse of time, the cable 20 is released, in the manner described hereinbefore, whereupon the cable section 21 moves upwardly out of engagement with the neck of the ham, permitting the operator to remove the treated ham and replace it with another untreated ham. It will be observed that, apart from manipulating the control valve 37, the operator is not required to exert himself physically in the operations of clamping the neck of the untreated ham in place, maintaining the neck of the untreated ham clamped in place while the ham is being treated, and releasing the neck of the ham after the ham has been treated.

It will be observed that the distance about the opening through which the neck of the ham is projected is reduced by a distance equal to twice the excursion of the piston 33, in consequence of which the apparatus is comparatively quick acting. In addition, since only a short piston excursion is required, the fluid pressure motor can be made short and conveniently fitted under the base section, which latter need not be made unduly large. Furthermore, the apparatus of the present invention requires a minimum number of parts and is comparatively simple and easy to keep clean, which latter feature is essential in this type of apparatus.

It will be understood, of course, that the present invention as hereinbefore described and shown in the accompanying drawings is susceptible of various changes and modifications which may be made from time to time without departing from the general principles or real spirit of the invention, and accordingly, it is intended to claim the same broadly, as well as specifically, as indicated by the appended claims.

What is claimed as new and useful is:

1. In apparatus for supporting the main body of a ham and constricting the shank portion thereof to close the vascular tract preparatory to injecting the ham with curing liquid, a rigid structure comprising a base section having a horizontally disposed supporting surface for the ham, a flexible member having a section disposed upright at one end of said structure, arranged in generally inverted U-shape and conjointly forming with an underlying narrow edged arcuately curved portion of said structure an opening disposed above the supporting surface of said base section through which the ham shank may be projected while the main body portion of the ham rests upon said base section, means positioned between said upright section of the flexible member and said rigid structure and operating to yieldably support said upright section of the flexible member, the latter being bodily shiftable against the influence of said yieldable means for clamping the ham shank against the underlying narrow edged arcuately curved portion of said structure while the ham body is supported upon said base section, and means for drawing said upright section of the flexible member into constrictive engagement with said ham shank against the influence of said yieldable means to thereby close the vascular tract thereof.

2. In apparatus for constricting the shank portion of a ham preparatory to injecting the ham with curing liquid as defined in claim 1 wherein the yieldable means comprises a plurality of laterally spaced coil springs outwardly fanning upwardly from the uppermost portion of the upright section of the flexible member.

3. In apparatus for constricting the shank portion of a a ham preparatory to injecting the ham with curing liquid as defined in claim 1 wherein the yieldable means comprises a plurality of laterally spaced coil springs outwardly fanning upwardly from the uppermost portion of the upright section of the flexible member, the inner ends of said coil springs are slidably engaged with said member, and the outer ends of said coil springs are anchored to the rigid structure.

4. In an apparatus for constricting the shank portion of a ham to close the vascular track thereof preparatory to injecting the ham with curing liquid, a base member having a horizontally disposed surface for supporting the relatively large body portion or butt end of the ham in position for injection of the curing liquid, an upstanding frame fixedly mounted upon said base member, said frame including at least one vertically disposed member having an opening therethrough, said opening having an arcuately shaped narrow edge portion elevated above the ham supporting surface of said base member, a clamping member operatively associated with said vertically disposed member to conjointly provide with the narrow edge portion of the opening therethrough a clamp for the ham shank, said clamping member having an arcuately shaped bight portion shiftable in a plane closely adjacent and parallel to the plane of said vertically disposed member and normally positioned in opposed relation to the arcuately shaped narrow edge of said last-mentioned member to provide therewith a circumferentially complete embrasure for the ham shank, said frame being provided with guide means for restricting said bight portion of the coacting clamping member to its aforesaid plane of shiftable movement, and fluid pressure operated means for shifting the bight portion of said clamping member toward said arcuately shaped narrow edge to reduce the area of said embrasure and thereby apply compressional forces circumambiently about the body of the ham shank to effectively close the vascular tract of the ham against the passage of curing liquid therethrough while the ham shank is secured within said embrasure.

5. The apparatus according to claim 4 wherein the said arcuately shaped narrow edge portion of said at least one vertically disposed member is a rigid structure, and said clamping member is a flexible cable.

6. The apparatus according to claim 4 wherein the said arcuately shaped narrow edge portion of said at least one vertically disposed member is a rigid structure which defines the upward curving bottom edge of the said opening through said vertically disposed member, said clamping member is a flexible cable having substantially vertically extending parallel side portions which turn inwardly to merge with one another to define the downwardly facing open side of said arcuately shaped bight portion, said

bight being spaced vertically above the upward curving narrow bottom edge of said opening, and said fluid pressure operated means for shifting said bight portion is effective when operated to shift said bight downward toward said narrow bottom edge of said opening.

7. The apparatus according to claim 6 wherein said guide means comprise resiliently extensible means coupled to said cable bight portion and anchored to said upstanding frame, said fluid pressure operated means extending said extensible means when actuated for shifting said bight portion, and said extensible means resiliently vertically retracting said bight portion when said fluid pressure operated means is deactuated.

References Cited in the file of this patent

UNITED STATES PATENTS

501,973	Umbenhauer	July 25, 1893
1,026,036	Hewitt	May 14, 1912
1,277,759	Schebler	Sept. 3, 1918
1,994,459	Beisser	Mar. 19, 1935
2,088,257	Beisser	July 27, 1937
2,284,119	Boehm	May 26, 1942
2,401,470	Faubion	June 4, 1946
2,425,430	Heaton	Aug. 12, 1947
2,685,394	Rabinowity	Aug. 3, 1954

FOREIGN PATENTS

76,043	Sweden	Dec. 6, 1932