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P. L. GAMBLE

2,337,236

BUTCHERING APPARATUS

Filed May 4, 1943

2 Sheets-Sheet 1

*Fig. 1.*

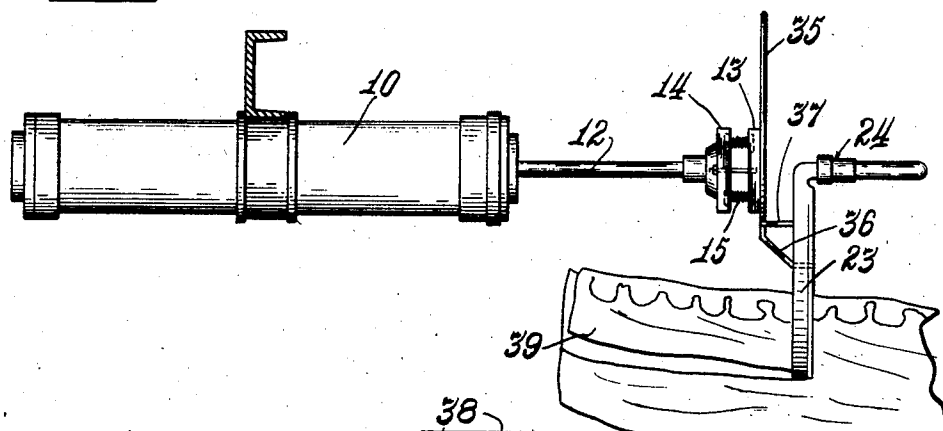
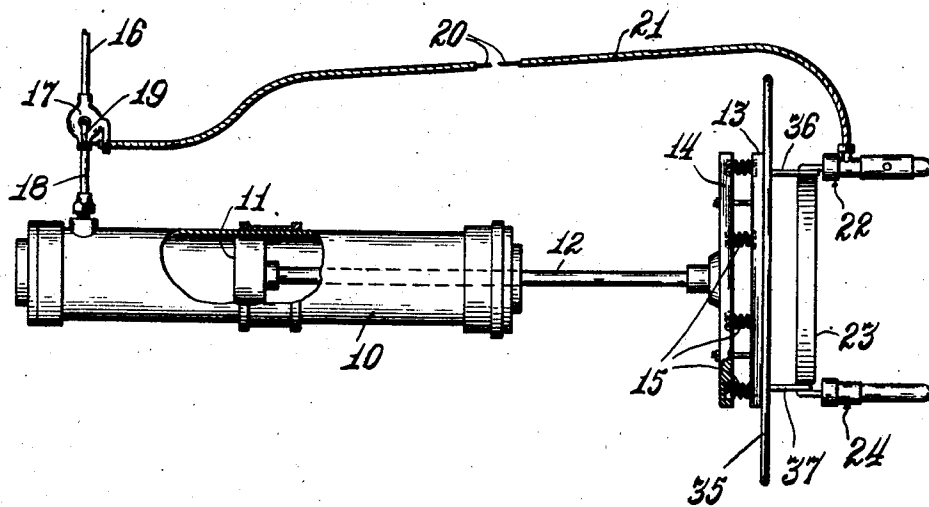


*Fig. 2.*



INVENTOR  
PAUL L. GAMBLE  
*Brayton Richards*  
ATTORNEY

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*Fig. 3.*

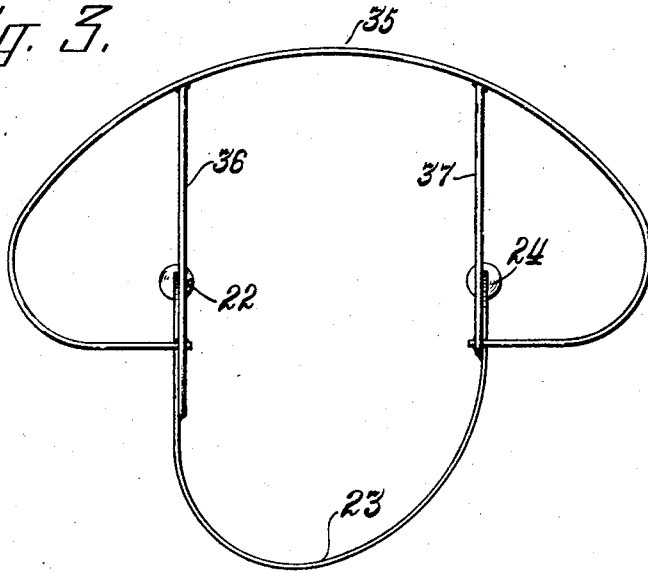


*Fig. 4.*

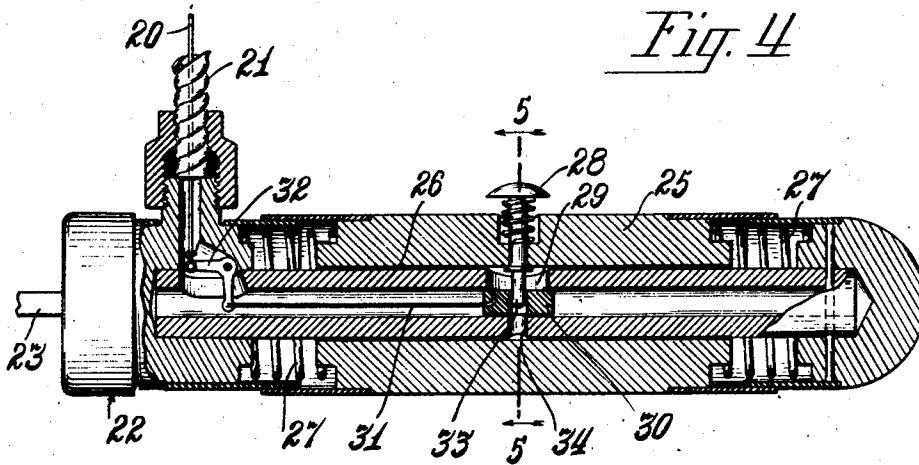
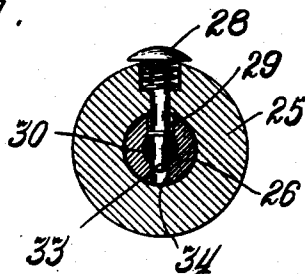


*Fig. 5.*



INVENTOR  
PAUL L. GAMBLE  
Brayton W. Richards  
ATTORNEY

## UNITED STATES PATENT OFFICE

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## BUTCHERING APPARATUS

Paul L. Gamble, Chicago, Ill.

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12 Claims. (Cl. 30—272)

The invention relates to improvements in butchering apparatus especially adapted for the removal of loins from the sides of butchered hogs, the primary object of the invention being the provision of apparatus of the character indicated, which is of simple construction and highly efficient in use.

Other objects will appear hereinafter.

The invention consists of the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a partial side view of apparatus embodying the invention;

Fig. 2, a top plan view of the apparatus shown in Fig. 1;

Fig. 3, an end view of a knife employed in the construction;

Fig. 4, an enlarged detail longitudinal section taken through one of the handles of said knife; and

Fig. 5, a section taken substantially on line 5—5 of Fig. 4, but showing the parts in a slightly different position.

The embodiment of the invention illustrated in the drawings comprises an operating cylinder 10 having a piston 11 reciprocating therein and operating a piston rod 12. At its outer end, the piston rod 12 carries an abutment plate 13 which is yieldably mounted on a pressure head 14 by means of compression springs 15, whereby said abutment plate will yield slightly under pressure. The cylinder 10 is operated by compressed air or other fluid under pressure flowing thereto through a three-way valve 17 and pipe 18. The valve 17 is operated by means of a rocker arm 19 as indicated. The arrangement is such that by shifting the rocker arm 19 the valve 17 may be shifted to supply and exhaust cylinder 10 and cause reciprocation to the piston 11 and abutment plate 13, as will be readily understood by those skilled in this art.

The rocker arm 19 is connected with a wire 20 operating in a flexible sheath 21 connected at its other end with the handle 22 of a downwardly arched butcher knife 23, commonly known in the meat packing industry as a "loin knife." As shown, said knife is also provided with another and similar handle 24 so that the same is capable of operation in the usual way for removing loins from the sides of slaughtered hogs, as will be readily understood by those skilled in this art.

The knife handle 22 is provided with an outer shell 25 capable of reciprocation on a tubular extension 26 of said handle, as indicated. Compression springs 27 are arranged at each end of the sleeve 25 to hold the same normally in its central position. A depressible spring-held plunger 28 is mounted centrally in the top of the sleeve 25 and projects freely through an elongated slot 29 in the tubular extension 26 to engage and operate head 30 which slides freely in the bore of the extension 26. The head 30 is connected by a wire 31 with a bell crank lever 32 which, in turn, is connected with the wire 20. By this arrangement the sleeve 25 is normally locked to the head 30 so as to permit of reciprocations of said head within the bore of the handle extension 26. These reciprocations of the head 30 are communicated by the wires 31 and 20 to the rocker arm 19 of the valve 17 for controlling the operation of the cylinder 10, the arrangement being such that when a longitudinal pull is exerted on the sleeve 25, the cylinder 10 will be operated to force the abutment plate 13 forwardly and toward the operator, thereby assisting the operator in pulling the knife 23 by means of the handles 22 and 24; and reversing the movement of said abutment plate when the operator pushes rearwardly on said handles, as will be readily understood. The plunger 28 is provided with an extension 33 passing into and through a central perforation in the head 30, and a notch 34 is provided in extension 26 so that when plunger 23 is depressed the extension 33 will engage said notch and thus lock the sleeve 25 against movement, when the operator so desires, which locking will prevent operation of the abutment plate 35 as described above.

The knife 23 carries a rearwardly extending, upwardly arched contact frame 35 secured thereto by means of rods 36 and 37 as indicated. The cylinder 10 and the abutment plate 13 are arranged as indicated in co-operative relationship with the usual support 38 for a side 39 of a hog carcass and so that abutment plate 23 will be caused to reciprocate over said carcass when the cylinder 10 is operated, as explained above.

In use and in operation for removing pork loins from hog carcass sides, the carcass side is laid upon and secured to the support 38 in the usual way. The knife 23 is then positioned against the carcass side in the usual way for removal of the loin therefrom with frame 35 resting against the face of the abutment plate 13 and pulling force exerted by the operator upon the handles of the knife. This force exerted on

the sleeve 25 will cause the movement of said sleeve to operate the cylinder 10 to exert push and pressure against the rear of the knife to aid the operator in pulling the knife through the carcass side, the contact between the frame 35 and the plate 13 being such as to permit free manipulation and guiding of the knife by the operator during this operation. In this way all that the operator has to do is to exert a very slight pulling force upon the knife while properly guiding the same, thus greatly reducing the necessary effort of the operator and thereby permitting him to devote practically his entire attention to the proper guiding of the knife. In this way the work of the operator is greatly facilitated and the results thereof augmented. When it is desired to return the knife to inoperative position, all that is necessary is for the operator to exert slight pushing force upon the sleeve 25 which will result in the manipulation of the valve 17 to reverse the action of the piston 11 in the cylinder 10 and thus return the abutment plate 13 to its inoperative position. When it is desired to operate the knife entirely by hand and without any aid from the abutment plate 13, all that is necessary is for the operator to depress the plunger 23, thereby locking the sleeve 25 to the extension 26 and thus throwing the cylinder 10 entirely out of operation and permitting the free use of the knife in the usual way.

While I have illustrated and described the preferred construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details disclosed, but desire to avail myself of such variations and modifications as fall within the scope of the appended claims.

I claim:

1. An apparatus of the class described comprising a knife; and an abutment having a surface against which said knife may abut and over which it may shift freely during the operation; a support for a body to be cut; and power-operable means for effecting relative movement between said abutment and said support.

2. The apparatus specified in claim 1 in which means are provided on the knife for controlling the means for effecting the relative movement between the abutment and support.

3. The apparatus specified in claim 1 in which the knife comprising a downwardly arched blade and an upwardly arched frame adapted and arranged to make operative contact with the abutment.

4. The apparatus specified in claim 1 in which the abutment is moved relatively to the support.

5. The apparatus of the class described comprising a downwardly arched knife having a horizontally extending edge; handles at the upper ends of its sides and extending horizontally; a horizontally reciprocating abutment having a surface against which said knife may abut and over which it may shift freely during the operation; a support for the body to be cut located under the path of said abutment; and means for reciprocating said abutment.

6. The apparatus specified in claim 5 in which means are provided on one of the knife handles for controlling the abutment-reciprocating means.

7. The apparatus specified in claim 5 in which means are provided on one of the knife handles for rendering the abutment-reciprocating means operative or inoperative, as desired.

8. The apparatus specified in claim 5 in which the knife comprising a downwardly arched blade and is an upwardly arched frame adapted and arranged to make operative contact with the abutment.

9. The apparatus specified in claim 5 in which the abutment is spring-held to yield under pressure from said knife.

10. The apparatus specified in claim 5 in which one of the handles is provided with a reciprocatory outer spring-held shell having operative controlling connection with the abutment-reciprocating means.

11. The apparatus specified in claim 5 in which one of the handles is provided with a reciprocatory outer spring-held shell having operative controlling connection with the abutment-reciprocating means, and means are provided for locking said shell against movement on said handle.

12. The apparatus specified in claim 5 in which one of the handles is provided with a reciprocatory outer shell and springs arranged to hold said shell in its medial position on said handle; a spring-held plunger carried by said shell; an operating head perforated to permit the passage of said plunger, there being a notch in said handle to engage said plunger end when protruded from said head to lock said head and shell against movement on said handle; and an operative connection between said head and said means for reciprocating said abutment.