F. S. CLARKSON.

OYSTER OPENING MACHINE.

APPLICATION FILED DEC. 7, 1909.

969,246.

Patented Sept. 6, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

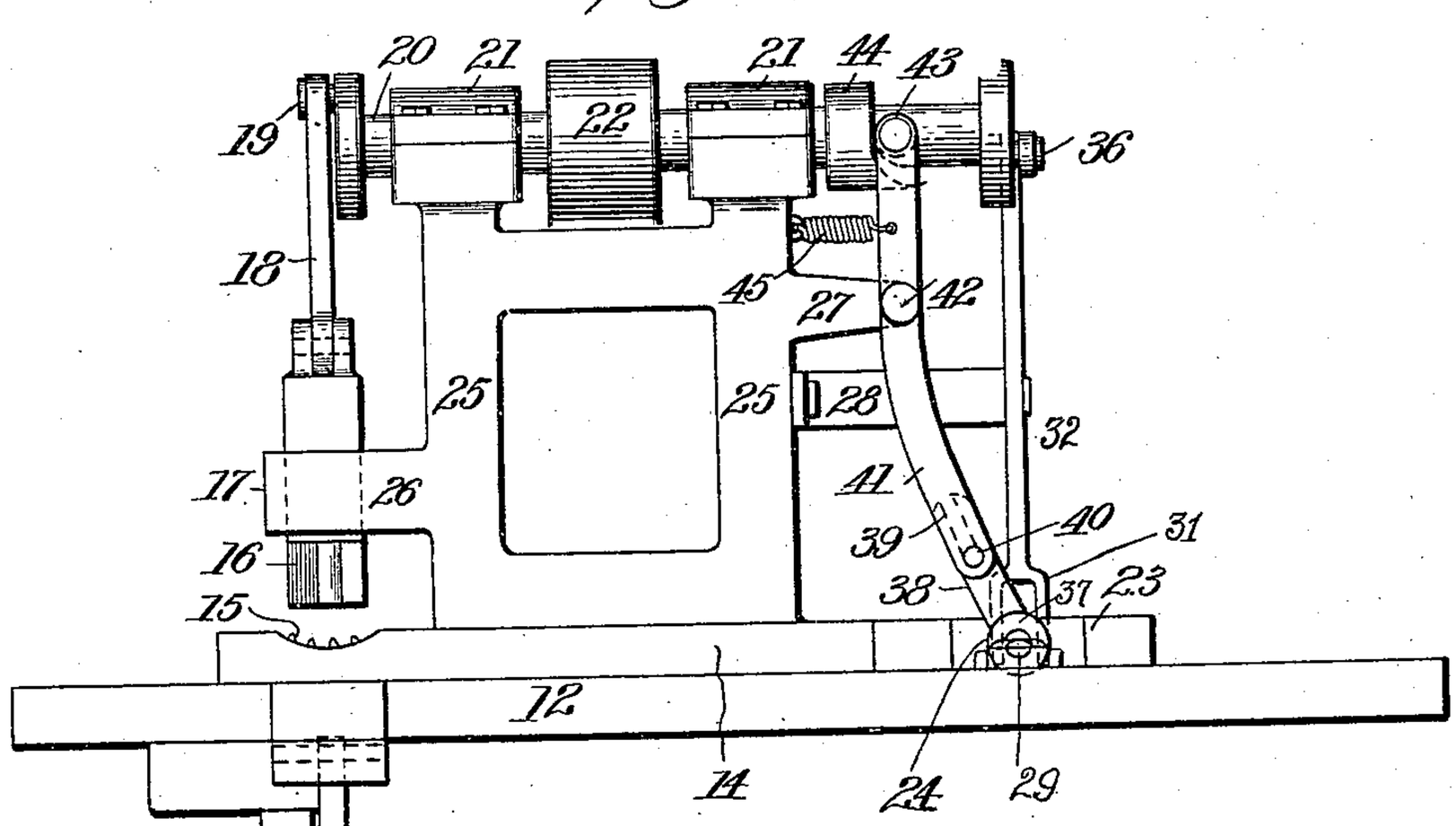


Fig. 3.

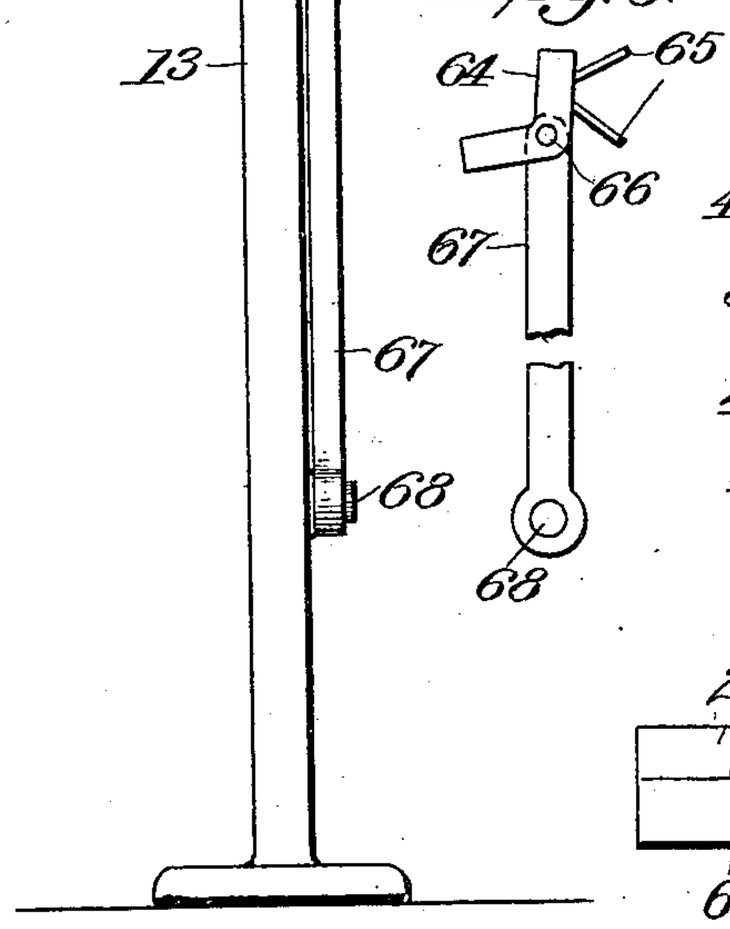
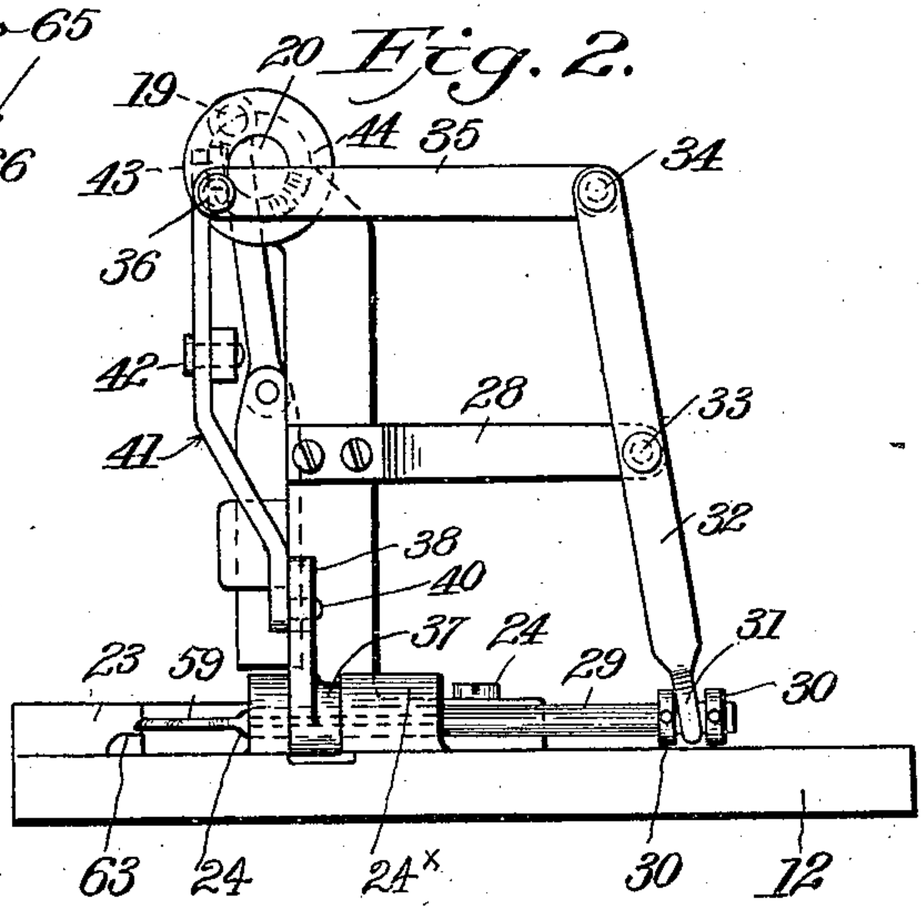


Fig. 2.



Witnesses.

C. M. Walker.

J. T. Walker.

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2 SHEETS—SHEET 2.

Fig. 4.

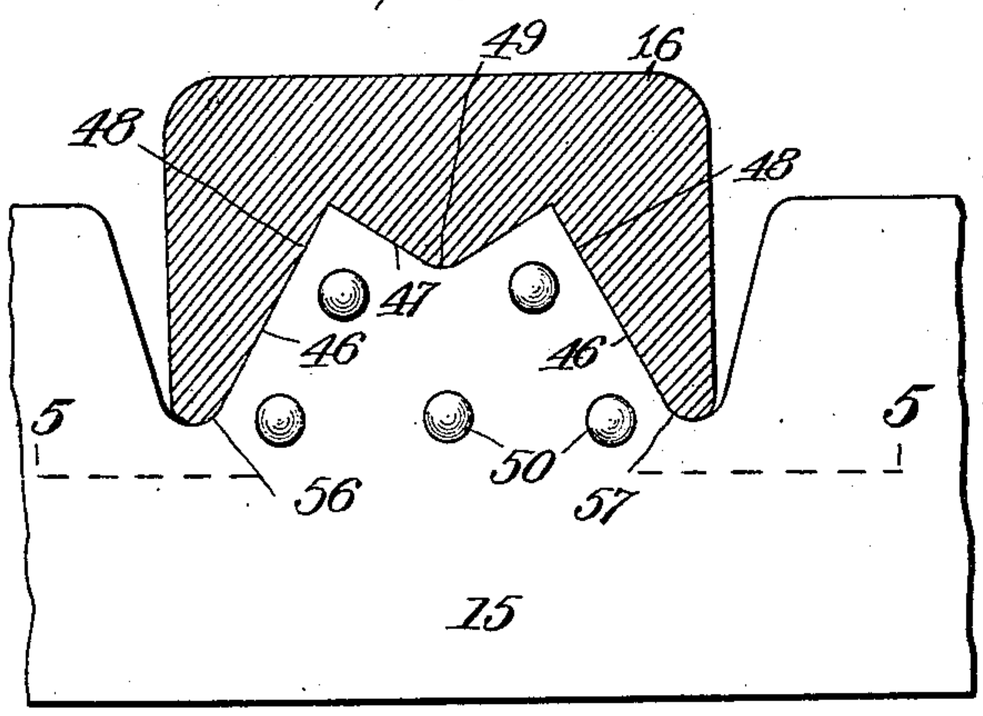


Fig. 5.

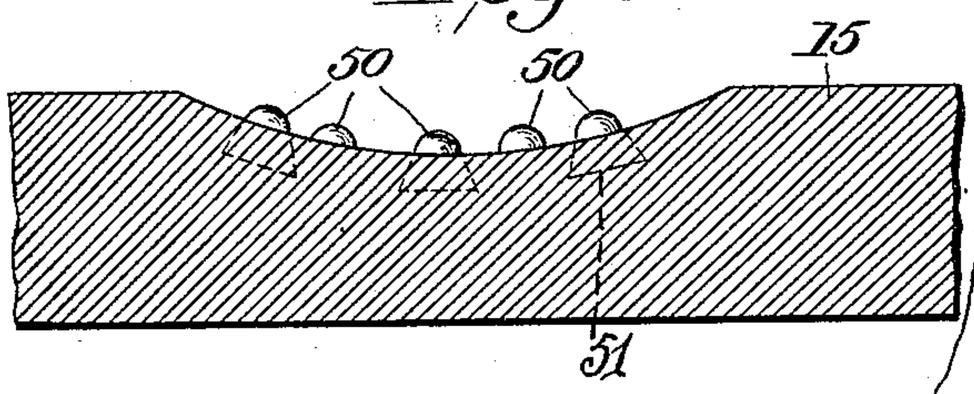


Fig. 6.

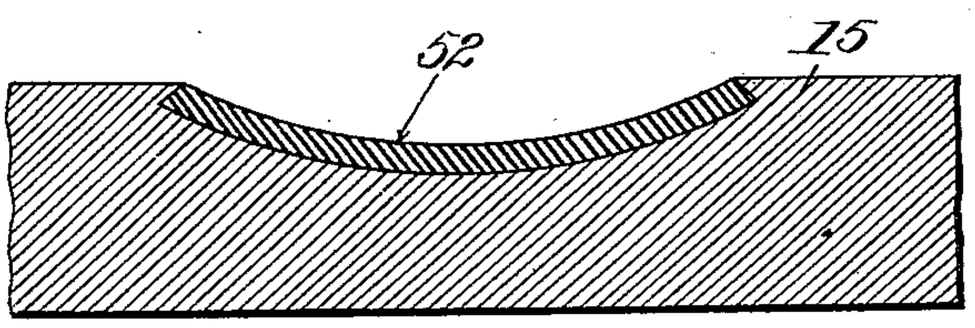
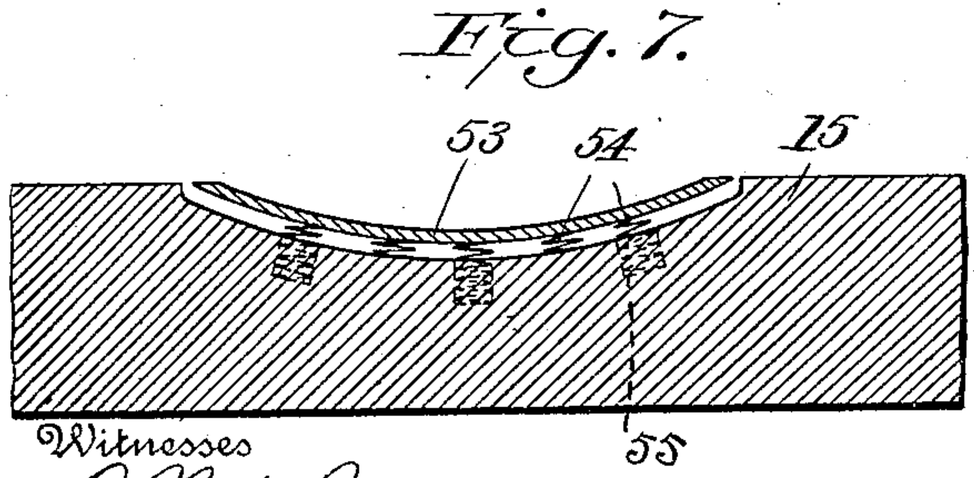


Fig. 7.



Witnesses

C. M. Walker.

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Fig. 8.

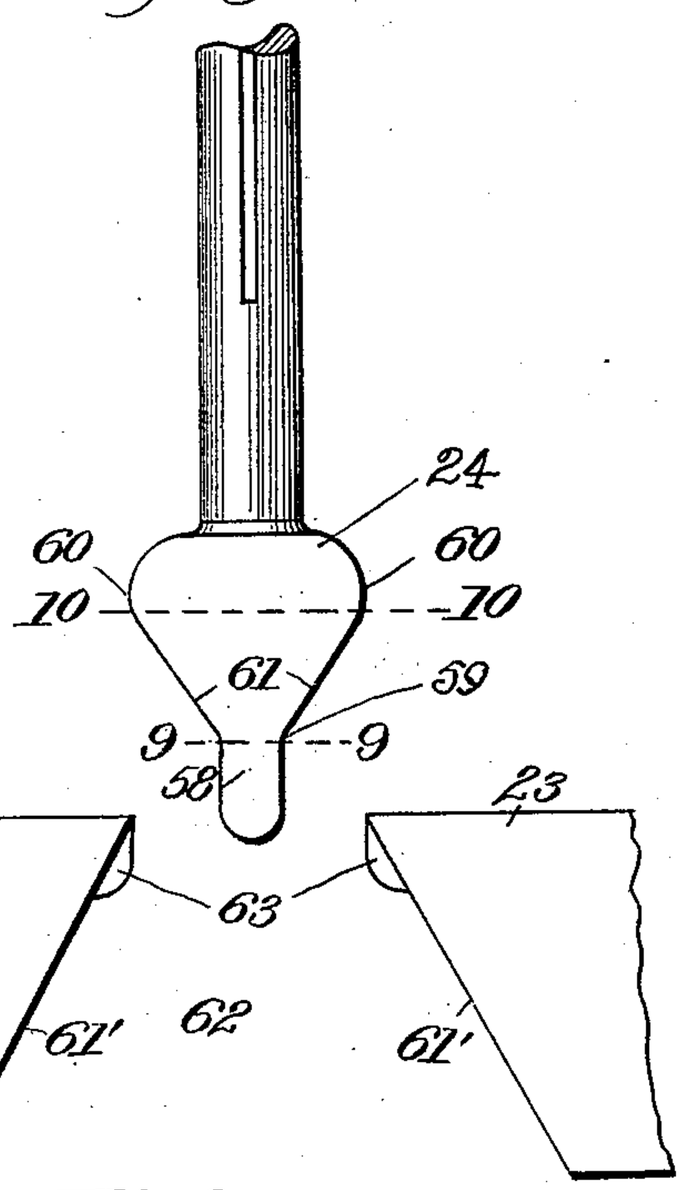
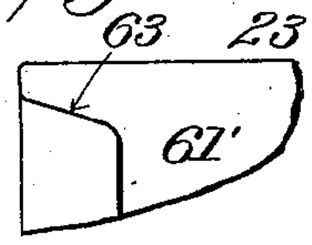


Fig. 9.

Fig. 10.

Fig. 11.



Inventor

Frank S. Clarkson

By S. Brashears

Attorney

UNITED STATES PATENT OFFICE.

FRANK S. CLARKSON, OF BALTIMORE, MARYLAND.

OYSTER-OPENING MACHINE.

969,246. Specification of Letters Patent. **Patented Sept. 6, 1910.**

Application filed December 7, 1909. Serial No. 531,810.

To all whom it may concern:

Be it known that I, FRANK S. CLARKSON, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Oyster-Opening Machines, of which the following is a specification.

This invention is in the nature of an oyster opening machine which has for its object to provide means for preparing the front end of an oyster for receiving a knife or stabber, also operated by other portions of the machine, the feeding of the oyster to the machine and the delivery of the oyster off the shell after the operation of the machine being preferably performed by hand, the mechanism for feeding oysters to the machine not being shown or described inasmuch as they are reserved for the subject matter of a separate application.

The principal difficulty heretofore encountered in attempting to make a successful oyster opening machine was due to the variation in the size and shape of the oyster and the primary object of my invention is to overcome this difficulty which I do by first trimming the forward end of the oysters to one given size before submitting them to the opening knife.

In carrying out my object, I provide a compact, simple, economical and rapidly operating machine of this class in which an oyster presented to the operation of a die and punch, or cutter, will have its forward end crushed or cut off in a manner hereinafter to be described, the shape of the oyster at its forward end after such operation, being such, as hereinafter described, as will prepare it to accurately fit in a second die or gage to receive the knife or stabber, no matter what the size of the oyster itself may be.

With this object in view my invention consists in the improved construction, arrangement and combination of parts hereinafter fully described and afterward specifically claimed.

In the accompanying drawings in which I have illustrated one embodiment of my invention: Figure 1 represents a view in front elevation of a machine embodying my invention. Fig. 2 represents a view in side elevation thereof. Fig. 3 represents a view in side elevation of an oyster support, which may be used to present the oyster to the punch and die, detached from the machine. Fig. 4 is a view on a larger scale than that of Figs. 1 to 3, representing the punch in horizontal section and the die in plan view. Fig. 5 represents a view in section, of the die taken on the plane indicated by the broken line 5—5 of Fig. 4. Figs. 6 and 7 represent views of slight modifications of the construction of the bed of the die, on the same plane as that of Fig. 5. Fig. 8 represents a top plan view of the knife or stabber and its cooperating die or gage. Fig. 9 represents a transverse sectional view through the knife on the plane indicated by the broken line 9—9, Fig. 8. Fig. 10, represents a similar view of the knife on the plane indicated by the broken line 10—10 of Fig. 8. Fig. 11 represents a view of the inside of a portion of one side of the die or gage illustrated in Fig. 8, looking in the direction of the arrow 11.

Like letters of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring specifically to the drawings, 12 indicates a bed, support or table which is supported by any suitable legs 13 and which serves to support a bed 14 in which is formed near the left hand end, as seen in Fig. 1, a die 15 to coöperate with a punch 16 which is caused to reciprocate vertically in a bearing 17, by means of a pitman 18 connecting it with a crank pin 19 on the main shaft 20 of the machine, mounted in bearings 21 and lying parallel with the front of the table, said shaft being provided with a pulley 22 or other means for receiving motion from any suitable power source.

At the left hand end of the machine is formed a die or gage 23 to receive an oyster to be operated upon by a knife or stabber 24, shown in detail in Fig. 8, said knife being mounted in bearings $24^{\times}$ and reciprocated by any suitable means in a direction to, or from the front of the table.

The framework of the machine may be made of any suitable form to accommodate its various parts, being shown in this instance as provided with uprights 25—25, upon which the bearings 21 are mounted, a projection or arm 26 which carries the bearing 17, a projecting arm 27 which will be hereinafter described, and also a bracket 28.

The stem 29 of the knife or stabber is provided with adjustable collars 30 between which collars the stem is engaged by a fork 31 on the lower end of a lever 32 pivoted at 33 to the arms 28 and pivotally con-

nected at its upper end at 34 by means of a pitman 35 with a crank pin 36 on the shaft 20.

Keyed, or otherwise secured upon the stem 29 of the knife or stabber so as to permit its turning therein, is a short sleeve 37 from which projects a crank-like arm 38, the upper end of which is forked, as at 39, to receive a pin 40 on the lower end of an arm 41 pivoted at 42 to the arm 27 of the frame and carrying at its upper end a roller 43 which engages a cam 44 on the shaft 20, the arm 41 being normally held against the operating face of the cam by means of a spring 45.

The general operation of the parts of the machine hereinbefore mentioned may be described as follows: The operator seizes an oyster and lays it in the die 15, the punch 16 descending cuts or crushes off the front end of the oyster to a uniform size and shape, leaving an opening to receive the point of the knife. The movement of the parts is so timed that as soon as this is done and the oyster released, the operator, still holding the oyster in his hand, presents it to the gage or die 23 where the knife or stabber 24 is forced into the oyster by means of the crank pin 36, pitman 35 and lever 32, the knife being turned on its axis while the blade is within the oyster, to force the shells of the oyster apart, by the turning of the sleeve 37 by means of the lever 41 and cam 44. One shell of the oyster being removed and the other in the hand of the operator, with the body of the oyster thereon, the latter is scraped into a suitable receptacle.

Referring specifically to Figs. 4 and 5, it will be seen that the die 15 is hollowed out on a substantially circular line, transversely, and that its forward edge is formed with two inclined cutting edges 46 and a substantially wide opened reëntrant V-shaped front edge 47. The cutting edge of the punch is also inclined, as at 48, at the same angle and to correspond with the inclined edges 46 of the die, and is also shaped, as at 49, to fit the forward V-shaped end 47 of the punch as before described. The curvature in the bed of the die would preferably be made upon an arc which would be of an average size and curvature to fit the general run of oysters, but as is well known, the shells of oysters are of very irregular curves transversely, and of very irregular form, any shape of a bed of a die which was absolutely rigid, such as a metal bed would be, would not form such a support for the shell of an oyster as would prevent wabbling or moving from side to side or endwise. I therefore deem it desirable to provide the bed with yielding bearing surfaces to receive the shell of the oyster which may be of various forms. Perhaps the preferable form would be rubber pins 50, such as shown in Figs. 4 and 5, which would be secured in the face of the curved bed of the die, a very convenient manner of securing them being to dovetail them, as it were, in suitable holes in the die, as shown at 51 in Fig. 5. As before stated this yielding bed may be of various forms and I have shown two modified forms, that of Fig. 6 being a solid rubber bed 52 resting in the die, while that of Fig. 7 is shown as having a curved top 53, of metal or other rigid material, supported upon springs 54 secured in holes 55 in the die 15. An oyster resting upon any of these forms of support and receiving the impact of the punch 16, would be pressed downward upon the yielding bed and cause the bed to conform to the shape of the lower shell. The oyster being seated in the die and projecting beyond the inclined edges 46 thereof, the punch descends and cuts or crushes off the sides and front of the forward end of the oyster giving it the form in plan of the edge of the die, a V-shaped notch being formed in its forward end by the V-shaped portion 49 of the punch, and the side edges of the front end being cut off at an inclination by the inclined portions 48 of the die. The shaped edge of the punch 15 and punch 16 will be of a size say in a direct line from the point 56 to the point 57 in Fig. 4, to accommodate the forward end of the largest oyster to be usually encountered and when the said largest oyster is operated upon by the punch 16, the sides of its forward edge will be cut off at an inclination which will extend from the sides of the middle V-shaped portion 47 down the inclines 46 to the points 56 and 57, while smaller oysters will present the same change at their forward ends being cut away in a V-form, as before stated, and having the sides of their front ends cut away on the same inclination as the larger oyster, said inclined edges or sides, however, being not sufficiently long to extend back to the points 56 and 57. By this means the die and punch will properly accommodate and operate upon from the largest to the smallest sizes and prepare any and all of them for the stabbing operation.

In the machine illustrated I have shown the front edge of the die and cutter of V-shape but this is only a choice of shapes. This part of the die and cutter may be made of any desired form to cut off the end of the oyster ranging from a straight edge to a very acute angled V or a very deep U form, so that the lateral limits are at a distance apart to suit the various sizes of oysters, the outer ends of this part of the punch and die being near enough together to have the whole central part of the die operate on the smallest oyster operated upon.

The knife or stabber to be used with this machine might be of an ordinary shape, or of many different shapes, the preferable form which suggests itself to me now, being

shown in Figs. 8, 9 and 10, in which the forward end of the blade, as at 58, is perhaps half an inch wide and somewhat longer, probably up to one inch in length, the blade increasing in width rearwardly from the points 59, to the points 60, the inclined edges 61 and the edges and point of the narrow portion 58 of the blade being all sharpened, the narrow part of the blade being formed in transverse section flat on the bottom and curved on the top, as shown in Fig. 9, and the wider portion of the blade being comparatively of the same form, as shown in Fig. 10.

At 61^1 in Figs. 8 and 11, are shown inclined edges of the die or gage 23 which is located opposite the path of movement of the knife or stabber. This die or gage may consist simply of the two inclined sides 61′ or it may be provided at a sufficient distance below the top with a bottom 62 to admit of the entrance of the oyster and the fingers of the operator holding the oyster in his hand, it being understood however, that at no time is the oyster to rest upon this bottom.

The operator grasping the oyster in his hand with the front end trimmed, as before described, presses the front end, whose inclined sides are at the same angle as the inclined sides 61′, between said sides 61′ pressing the oyster forward until the inclined sides of its forward end are seated against the inclined sides 61′ of the die, the inclination of the sides 61′ causing the oyster to seat itself in the proper position to receive the knife. When in this position the front ends of the inclined sides of the oyster rest upon the shoulders 63 formed on the inside of the inclined side 61′ near the front edges thereof, said shoulders being inclined on their upper faces downwardly and rearwardly, as shown in Fig. 11, whereby they assist in properly seating the oyster, by causing its forward end to ride upward into the proper position to receive the knife. These shoulders 63 however, do not project any farther toward the central line of motion of the knife than do the points or forward edges of the inclined sides 61′ of the die. This provision permits of the entrance of the wider portion of the knife, which is at the point 60 in Fig. 5, to enter between the dies, and also permits the knife to be rocked on its axis by means of the cam 44, no matter how far the knife is projected between the front edges of the inclined sides 61′ and into the oyster. Ordinarily the operator will hold the oyster in his hand when seating it in the die 15, but in some instances it might be preferable to provide a carrier to present the oyster to this die. For this purpose I may provide an elbow shaped bar, as at 64, in Fig. 3, having on its forward side a suitably formed cup or support 65 to receive an oyster, this elbow shaped bar being attached by means of a pivot 66 to the upper end of an arm 67 pivoted at 68 to the leg 13 of the machine, its upper end with the cup 65, passing the entrance to the die 15 so that the operator may place each oyster in the cup 65 if desired and press it forward in the die, the pivotal connection 66 permitting of the proper adjustment of the position of the oyster to correctly seat it in the die and the metallic plate itself serving to afford a better bearing to press the oyster forward.

While I have described specifically the construction of the various parts of the machine and the manner in which they operate to perform the various movements, I desire it to be understood that I do not limit myself to any particular construction of the ordinary elements, or to any specific mechanical means or movement for performing the various operations and producing the various necessary movements, as it will be obvious to any one skilled in the art, that variations within a wide range might be made in the construction and operation of the parts, without departing from the spirit and scope of the invention.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the character described, a die having a hollowed out oyster seat and a reëntrant V-shaped front cutting edge, in combination with a punch having a correspondingly formed cutting edge.

2. In a machine of the character described, a horizontal die having a front cutting edge to sever the front edges of the oysters, and converging cutting edges at the ends of the front cutting edges and at angles thereto to trim the sides of the oysters, in combination with a vertically movable die having similarly shaped cutting edges coacting with the cutting edges of the die.

3. In a machine of the character described, the combination of a reciprocating punch, having a reëntrant V-shaped front cutting edge and converging side cutting edges, and a die having a similar front cutting edge and converging side cutting edges.

4. In a machine of the character described, a die having a curvilinear resilient oyster-seat and a V-shaped front cutting edge, in combination with a die with a correspondingly formed cutting edge.

5. In a machine of the character described, a die having a curvilinear resilient oyster-seat and a V-shaped front cutting edge and inclined cutting sides, in combination with a die with a correspondingly formed cutting edge and inclined cutting sides.

6. In a machine of the character described, a die hollowed out to form a seat for an oyster, and provided with a yielding support for the oyster.

7. In a machine of the character described, a die hollowed out to form a seat for an oyster, and provided with a plurality of yielding supports for the oyster.

8. In a machine of the character described, a die hollowed out to form a seat for an oyster, and a plurality of yielding plugs projecting beyond the surface of the die.

9. In a machine of the character described, a die hollowed out to form a seat for an oyster, and a plurality of rubber plugs projecting into its interior.

10. In a machine of the character described, a die hollowed out to form a seat for an oyster, and a plurality of yielding plugs seated in undercut holes and projecting into its interior.

11. In a machine of the character described, a die hollowed out to form a seat for an oyster, and a plurality of rubber plugs seated in undercut holes and projecting into its interior forming a support adapted to accommodate itself to the irregular surface of the oyster shell.

12. In a machine of the character described, a die provided with a resilient bed in which to seat an oyster, in combination with a punch co-acting with the die to cut off the front edge of the oyster, a gage die to receive the oyster, and a stabbing knife adapted to enter the oyster in said gage die.

13. In a machine of the character described, a die provided with a resilient bed in which to seat an oyster, in combination with a punch co-acting with the die to cut off the front edge of the oyster and to trim the sides thereof to a uniform shape, a gage die to receive the oyster, and a stabbing knife adapted to enter the oyster in said gage die.

14. In a machine of the character described, a die provided with a resilient bed in which to seat an oyster, in combination with a punch co-acting with the die to cut off the front edge of the oyster and to trim the sides thereof to a uniform shape, a gage die to receive the oyster, and a stabbing knife adapted to enter the oyster in said gage die, the gage die having forwardly converging inclined sides.

15. In a machine of the character described, a die provided with a resilient bed in which to seat an oyster, in combination with a punch co-acting with the die to cut off the front edge of the oyster, and to trim the sides thereof to a uniform shape, a gage die to receive the oyster, and a stabbing knife adapted to enter the oyster in said gage die, the gage die having forwardly converging inclined sides with oyster supporting lugs projecting inwardly near their forward edges.

16. In a machine of the character described, a die provided with a resilient bed in which to seat an oyster, in combination with a punch co-acting with the die to cut off the front edge of the oyster and to trim the sides thereof to a uniform shape, a gage die to receive the oyster, and a stabbing knife adapted to enter the oyster in said gage die, the gage die having forwardly converging inclined sides with oyster supporting lugs projecting inwardly near their forward edges.

17. In a machine of the character described, the combination of an open front gage die to receive the forward end of an oyster the opposing walls of the gage die being provided with shoulders a knife centered with relation to the gage die, and means for reciprocating the knife longitudinally.

18. In a machine of the character described, the combination of an open front gage die to receive the forward end of an oyster the opposing walls of the gage die being provided with shoulders a knife centered with relation to the gage die, and means for reciprocating the knife longitudinally and rocking it on its axis.

19. In a machine of the character described, the combination of an open front gage die to receive the forward end of an oyster the opposing walls of the gage die being provided with shoulders a knife centered with relation to the gage die, and means for rocking the knife on its axis.

20. In a machine of the character described, the combination of an open front gage die to receive the forward end of an oyster, a knife centered with relation to the gage die and including a stem, and means for rocking the knife on its axis comprising an overhead shaft, a crank pin thereon, a pitman connected with the crank pin, and a pivoted lever connecting the pitman with the knife, a sleeve mounted upon the stem and a pivoted lever connected with the sleeve.

21. In a machine of the character described, the combination of an open front gage die to receive the forward end of an oyster, a knife centered with relation to the gage die and including a stem, and means for reciprocating the knife longitudinally and rocking it on its axis, comprising an over head shaft, a cam thereon, and a pivoted lever co-acting with the cam and connected with the knife, a sleeve mounted upon the stem and a pivoted lever connected with the sleeve.

22. In a machine of the character described, the combination of an open front gage die to receive the forward end of an oyster, a knife centered with relation to the gage die and including a stem, and means for reciprocating the knife longitudinally and rocking it on its axis, comprising an

over head shaft, a cam thereon, a sleeve slidable but non-rotatable on the knife, a lateral arm on said sleeve, and a pivoted lever co-acting with the cam and pivotally connected to said lateral arm.

23. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, an oyster supporting die on the bed, an oyster gaging die having a reëntrant V-shaped front edge an over head shaft, a punch co-acting with the die to cut off the forward edge of the oyster, a knife mounted on a horizontal stem in front of the gaging die, and a crank on the shaft for reciprocating the punch.

24. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, an oyster supporting die on the bed, an oyster gaging die having a reëntrant V-shaped front edge an over head shaft, a punch co-acting with the die to cut off the forward edge of the oyster, a knife mounted on a horizontal stem in front of the gaging die and a cam on the shaft for rocking the knife stem.

25. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, an oyster supporting die on the bed, an oyster gaging die, an over head shaft, a punch co-acting with the die to cut off the forward edge of the oyster, a knife mounted on a horizontal stem in front of the gaging die, and a crank on the shaft for reciprocating the knife stem.

26. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, an oyster supporting die on the bed, an oyster gaging die, an over head shaft, a punch co-acting with the die to cut off the forward edge of the oyster, a knife mounted on a horizontal stem in front of the gaging die, a crank on the shaft for reciprocating the punch and a cam on the shaft for rocking the knife stem.

27. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, an oyster supporting die on the bed, an oyster gaging die, an over head shaft, a punch co-acting with the die to cut off the forward edge of the oyster, a knife mounted on a horizontal stem in front of the gaging die, a crank on the shaft for reciprocating the punch, and a crank on the shaft for reciprocating the knife stem.

28. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, an oyster supporting die on the bed, an oyster gaging die, an over head shaft, a punch co-acting with the die to cut off the forward edge of the oyster, a knife mounted on a horizontal stem in front of the gaging die, a crank on the shaft for reciprocating the punch, a cam on the shaft for rocking the knife stem, and a crank on the shaft for reciprocating the knife stem.

29. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, a resilient oyster supporting die on the bed, a punch co-acting with the die to cut off the forward edge of the oyster, and a carrier in front of the die to feed an oyster thereto.

30. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, a resilient oyster supporting die on the bed, a punch co-acting with the die to cut off the forward edge of the oyster, a bar pivoted to a standard with its upper end in line with the die, and a carrier mounted on the upper end of the arm to feed an oyster to the die.

31. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, a resilient oyster supporting die on the bed, a punch co-acting with the die to cut off the forward edge of the oyster, a bar pivoted to a standard with its upper end in line with the die, and a carrier mounted on the upper end of the arm to feed an oyster to the die, comprising a right angled bar pivoted to the standard.

32. In a machine of the character described, the combination of a suitable bed, standards arising therefrom, a resilient oyster supporting die on the bed, a punch co-acting with the die to cut off the forward edge of the oyster, a bar pivoted to a standard with its upper end in line with the die, and a carrier mounted on the upper end of the arm to feed an oyster to the die comprising a right angled bar pivoted to the standard carrying a receptacle to support an oyster.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK S. CLARKSON.

Witnesses:

JOHN H. SIGGERS,

ANNIE COOPER.