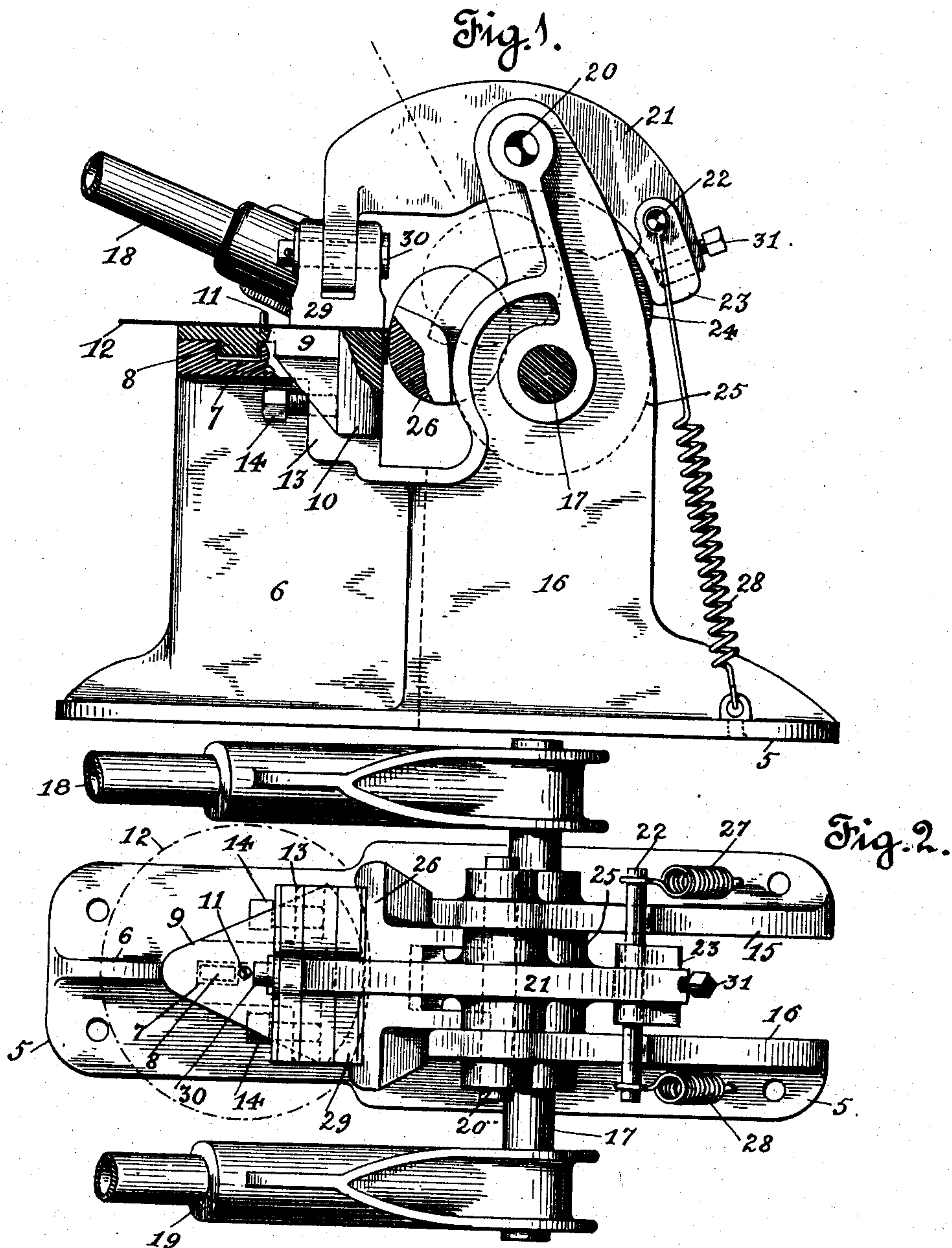


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FLANGING MACHINE.
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Patented Dec. 1, 1908.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES W. SIEVERT, OF LOS ANGELES, CALIFORNIA.

FLANGING-MACHINE.

No. 905,376.

Specification of Letters Patent.

Patented Dec. 1, 1908.

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To all whom it may concern:

Be it known that I, CHARLES W. SIEVERT, a citizen of the United States, residing at Los Angeles, county of Los Angeles, State of California, have invented new and useful Improvements in Flanging-Machines, of which the following is a specification.

My invention relates primarily to a machine for flanging the circular bottom plates of tanks or other circular receptacles, where a heavy grade of sheet iron is used for the bottom of such receptacles and the object thereof is to produce a machine in which a flange can be put upon a bottom plate of heavy material in a speedy and efficient manner. I accomplish this object by the machine described herein and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation and partly in section of my improved flanging machine. Fig. 2 is a plan of the same.

In the drawings 5 is the base plate of the machine and is preferably made of cast material. Secured thereto, preferably by being cast integral therewith, at the front end is a central supporting rib 6 which extends to nearly the center of the machine. In the top of said rib is a socket 7 into which is received a lug 8 which is secured to the lower flanging die 9, preferably by being cast integral therewith. This die has a circular front face shown in dotted lines in Fig. 2 and the front face is provided with a downwardly projecting lip 10 which bears against the inner face of supporting rib 6. The lower flanging die is provided with a centering pin 11 which projects upwardly through a center hole in the sheet of metal 12 which is designed for the bottom of the tank. The central rib is cut away at its inner top portion to receive the lip of the die as shown in Fig. 1. Rib 6 is provided with a cross rib 13 which extends from the top downwardly a short distance below the lip of the die. At each side the cross rib is tapped for the reception of set screws 14, the ends of which bear against the lip of the die, when the larger sized plate is placed upon rib as hereafter explained. At the rear end of the base plate and secured thereto preferably by being cast integral therewith are bearing plates 15 and 16. In these bearing plates is mounted the operating shaft 17, to the outer end of which are secured the operating levers 18 and 19. If desired only one operating lever need be used, but I prefer two

as thereby all side draft on the operating shaft is avoided. In the extreme upper end of the bearing plates is mounted a shaft 20 on which is mounted a gripper bar 21. On the rear end of the gripper bar and pivotally secured thereto by a bolt 22 is a bearing shoe 23, which is adapted to be engaged by cam lug 24 on the rear end of the upper flanging die 25, which die is mounted upon shaft 17. The front face of the upper flanging die is reversely curved to that of the lower flanging die and on a curve of a circle whose diameter is a little greater than that of the diameter of the circle on which the face of the lower die is curved, as best shown in dotted lines in Fig. 2. The front portion of the upper die consists of a removable shoe 26 so that the same can be removed when desired and a different shoe of different curvature substituted to adapt the machine for flanging bottom plates of different sizes. Secured to the ends of bolt 22 are springs 27 and 28, the other ends of which are secured to the base plate. The front end of the gripper bar is provided with a gripper shoe 29 which is secured thereto by bolt 30 so that it bears equally on the plate being flanged. The rear end of the gripper bar is provided with a set screw 31 so that the bearing shoe can be adjusted to compensate for the different thicknesses of iron.

In the operation of my machine a circular sheet of metal is cut of the required size for the bottom of the tank in which it is to be used and a center hole is punched therein and the same is placed upon the lower forming die with the center pin thereof projecting through the hole in the plate. At this time the gripper bar and upper flanging die are elevated so that the edge of the sheet metal projects over the curved edge of the forming die the distance of the width of the flange to be turned thereon. The operator then seizes the operating levers and bears down on their outer end thereby causing the operating shaft to rock. The first movement of the parts is to cause the shoe of the gripping lever to rest upon the metal sheet to be flanged. The cam lug at the rear end of the upper die then engages slidingly the bearing shoe on the end of the gripper bar, so as to hold the gripper shoe pressing upon the sheet of metal. The further movement of the operating levers causes the face of the upper die to engage the projecting portion of the sheet of metal that is to form the bot-

tom and to turn the same downwardly as shown in Fig. 1, thereby forming so much of the flange as is engaged by the upper die. The operator then lifts up on the lever until
 5 the upper die is above the metal being flanged which releases the pressure of the gripper shoe thereon. He then moves the projecting edge of the sheet being flanged, by rotating the same upon the central pin of the
 10 lower die a short distance so that when the upper die is again brought down it will turn that part of the metal adjacent to the part that was first turned down, and thereafter he repeats the operation until the whole flange
 15 is turned.

When a machine is desired to be operated by power the gripper bar would be preferably U-shaped and would be mounted on the
 20 outer ends of the operating shaft so as to straddle the upper die. The upper die would be provided with a plurality of shoes and the gripper cam which is now provided on the rear end of the upper die would be formed on separate cam plates mounted on the oper-
 25 ating shaft, and the movement of the operating shaft would then be rotary, and suitable provision would be made to automatically feed the sheet being flanged each time a shoe of the upper die passed below the lower die.
 30 The base plate, bearing plates and central supporting rib comprise the frame of the machine.

Having described my invention what I claim is:

35 1. A flanging machine comprising a frame; an operating shaft pivotally mounted in said frame; a lower die mounted in said frame; an upper die mounted on said operating shaft, said upper and lower dies having
 40 curved faces, the face of one being curved reversely to that of the other, the face of the lower die being curved outwardly; a gripper bar pivotally mounted in the upper portion

of the frame; means to cause said gripper bar to hold a sheet of metal on the lower die; 45 and means to operate the operating shaft to cause the upper die to pass downwardly in front of the lower die.

2. A frame; an operating shaft revolubly mounted therein; an upper forming die 50 mounted upon said shaft; a gripper bar mounted in said frame; a lower forming die mounted in said frame; said upper and lower dies having reversely curved faces, the face of the lower die being curved outwardly; a 55 centering pin secured to said lower die; means to cause the gripper bar to hold a sheet of metal upon the lower die; and means to operate the operating shaft to cause the upper die to pass downwardly in front of the 60 lower die.

3. A flanging machine comprising a frame; an operating shaft revolubly mounted therein; an upper forming die mounted on said shaft; said die having a cam face at its rear 65 end and a removable shoe on its front end; a lower forming die mounted in said frame, said upper and lower dies having reversely curved faces; a centering pin secured to said lower die; a gripper bar pivotally mounted 70 in said frame above the upper die, said gripper bar having a tilting shoe on its front end, and a bearing shoe on its rear end, said bearing shoe being adapted to be engaged by the cam face of the upper die to hold the gripper 75 shoe in contact with a sheet of metal on the lower die; and means to operate the lower shaft.

In witness that I claim the foregoing I have hereunto subscribed my name this 31st 80 day of March, 1908.

CHAS. W. SIEVERT.

Witnesses:

G. E. HARPHAM,
 S. B. AUSTIN.