

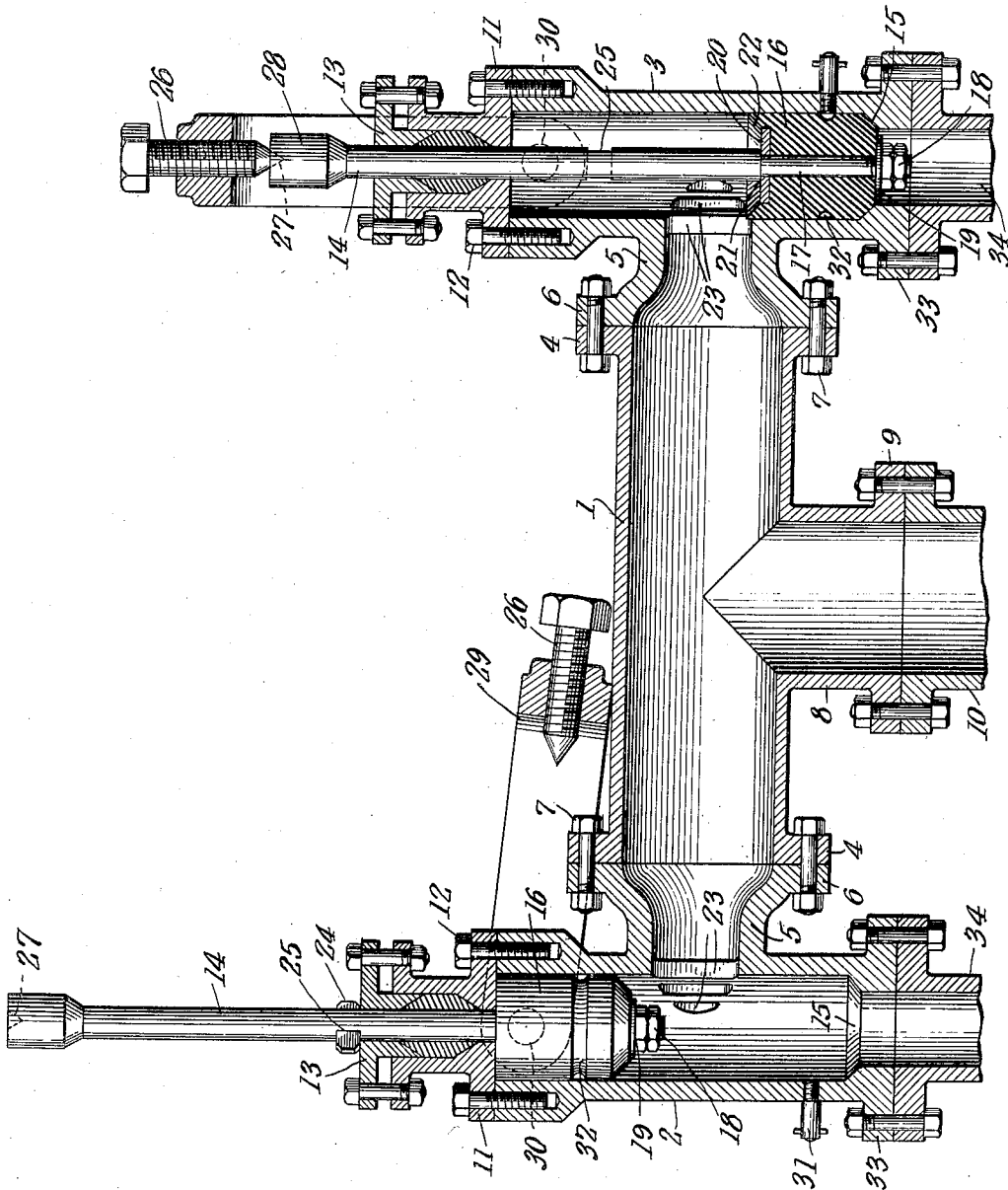
April 23, 1935.

E. M. BEEBE

1,998,830

MANIFOLD VALVE

Filed April 13, 1931



INVENTOR
Edward M. Beebe
BY *Philip J. McMan*
ATTORNEY

UNITED STATES PATENT OFFICE

1,998,830

MANIFOLD VALVE

Edward M. Beebe, Shawnee, Okla.

Application April 13, 1931, Serial No. 529,612

2 Claims. (Cl. 277—52)

The objects of the present invention are to provide simple and effective means for valving and manifolding the pumps, stand-pipes and other apparatus used in rotary drilling operations and to provide such means in a particularly durable, easily controlled and at the same time relatively inexpensive form, suited to all the requirements of the oil fields.

The attainment of such objects is effected by the novel features of construction, combinations and relations of parts illustrated in the accompanying drawing and described in the following specification.

As the drawing is primarily for purposes of disclosure, it will be appreciated that while the embodiment of the invention disclosed therein is a practical and commercial form, the structure may be modified in various ways, all within the true spirit and broad scope of the invention.

The single figure in the drawing is a longitudinal sectional view of the complete manifold, the pipe connections thereto being broken away.

The body of the device consists of an intermediate trunk portion 1, usually horizontally disposed and valve chambers 2, 3, usually vertically disposed and secured to opposite ends of the trunk portion.

In the illustration, the main body or trunk portion is equipped with end flanges 4 and the two valve casings are constructed with lateral extensions 5, intermediate the ends of the same and provided with end flanges 6, detachably secured in the desired relations to the end flanges of the trunk by the bolts 7.

The central manifold portion has a lateral extension 8, intermediate the ends of the same, arranged in downwardly extended relation in the illustration and flanged at 9 for coupling of piping 10 therewith.

The generally cylindrical valve casings 2, 3, are shown as capped at the ends, the upper ends in the case illustrated, by covers 11, removably held by bolts 12 and as carrying adjustable glands 13, for packing the valve rods 14, extending through the same. The opposite or lower ends of these valve casings are shown as formed with conical valve seats 15 to take the lower conical ends of the valve plugs 16 on the lower ends of the valve rods. The valve plugs may be made of hard rubber or fiber to slide freely in the valve casings and to make tight self-seating engagement with the valve seats and they are shown as removably secured on the lower reduced end portions 17 of the valve rods by nuts 18, which clamp the plugs between washers 19, 20, against

the shoulders 21 on the rods. The upper ends of the valve plugs are indicated as cupped somewhat at 22, to seat the upper washers.

To insure smooth travel of the valve plugs over the lateral passes in the sides of the valve casings, said passes are indicated as bridged by spaced bars 23.

The valve plugs may be lifted and secured off their valve seats each as by means of a cross pin or key 24, passed through an opening 25 in the valve rod and resting on top of the gland or valve cap, as shown at the left in the drawing.

The closed or seated condition of the valve plug is illustrated at the right in the drawing, where the valve plug is shown positively held down to its seat by a set screw 26, having a pointed end engaging in a conical seat 27, in the enlarged end head portion 28 of the valve rod, said screw being carried at the end of a swinging yoke 29, hinging on pivot studs 30, projecting from opposite sides of the valve casings. These pivots for the swinging yokes are shown as arranged at right angles to the axis of the intermediate section of the manifold, so that when not in use, the yokes may swing inwardly down over and rest upon the intermediate portion of the manifold, as at the left in the figure, out of the way of other objects.

To lubricate the valve plugs and insure their free movement in the casings, grease or oil connections may be provided at 31, positioned adjacent the lower ends of the valve casings to discharge into the lubricating grooves 32, about the lower portions of the valve plugs.

The lower ends of the valve casings are illustrated as flanged at 33 for fastening of the pipe connections 34.

The pipe connections 10 and 34 with the intermediate trunk portion and the end or valve casing portions of the manifold depend upon and will vary according to the uses to which the invention is put. For example, when used as a manifold valve between pumps, the pipes 34 will lead from the two pumps and the pipe 10 will be connected with the stand-pipe.

When the device is used for manifolding stand-pipes, the end connections 34 will lead to the stand-pipes and the intermediate connection 10 will come from the pump or pumps.

In the various uses of the invention, the two valves are separately controllable and either one or both may be opened or closed and be secured in either relation. These valves furthermore are quickly shiftable from one position to the other and they are of simple, sturdy construction, not

liable to be injured or to get out of order. Either valve may be quickly seated after drawing out the pin which holds it from its seat, the valve stem may be rotated to clear the valve seat and
5 firm sealing of the valve is readily effected by throwing the yoke up into position and then turning down the valve closing screw. The valve plugs are easily lubricated whenever required and such lubrication, in addition to assuring easy
10 valve action, saves the valve plugs from undue wear. In addition to being of rugged design, the device is particularly compact for the service that it performs. It will be noted in particular, that the three lines of piping 34, 10, 34
15 are parallel and can be placed quite close together. The arrangement of the valve rods in substantial parallelism and both at the same side of the manifold body is a distinct advantage under circumstances which require prompt or im-
20 mediate operation of both valves, as they are particularly accessible and convenient for such control.

What is claimed is:

1. The combination of a manifold trunk open
25 at opposite ends and having an intermediate flow passage, valve casings having valve seats at the ends of the same and laterally opening side passages secured over the open ends of the manifold trunk, valves in the valve casings for cooperation

with the valve seats, valve rods operating through the ends of the valve casings for shifting the valves toward and away from the seats afore-
said, yokes mounted in swinging relation on the valve casings and screws carried by said yokes
5 for engagement with the valve rods.

2. A manifold valve of the character disclosed, comprising a manifolding trunk open at oppo-
site ends and having an intermediate flow pas-
10 sage, valve casings having ported side passages and secured with said passages in communica-
tion with the open ends of the trunk, said valve casings having cylindrical interiors into which
said side ports open and each having at one end
15 of the same a tapered valve seat of approximate-
ly the full internal dimensions of the cylindrical interior, the opposite ends of said valve casings
having upstanding yokes mounted thereon, cylin-
drical valve plugs shiftable in the cylindrical
20 interiors of the valve casings and having tapered
ends cooperable with the tapered valve seats, said
cylindrical valve plugs being shiftable from said
valve seats past said side ports in the valve cas-
ings, valve stems projecting from said valve plugs
and screw connecting means between said up-
25 standing yokes and the projecting portions of
said valve stems.

EDWARD M. BEEBE.