Dec. 14, 1943. D. KELLEHER ET AL 2,336,989

STIRRUP PUMP

Filed Feb. 20, 1942 2 Sheets-Sheet 1

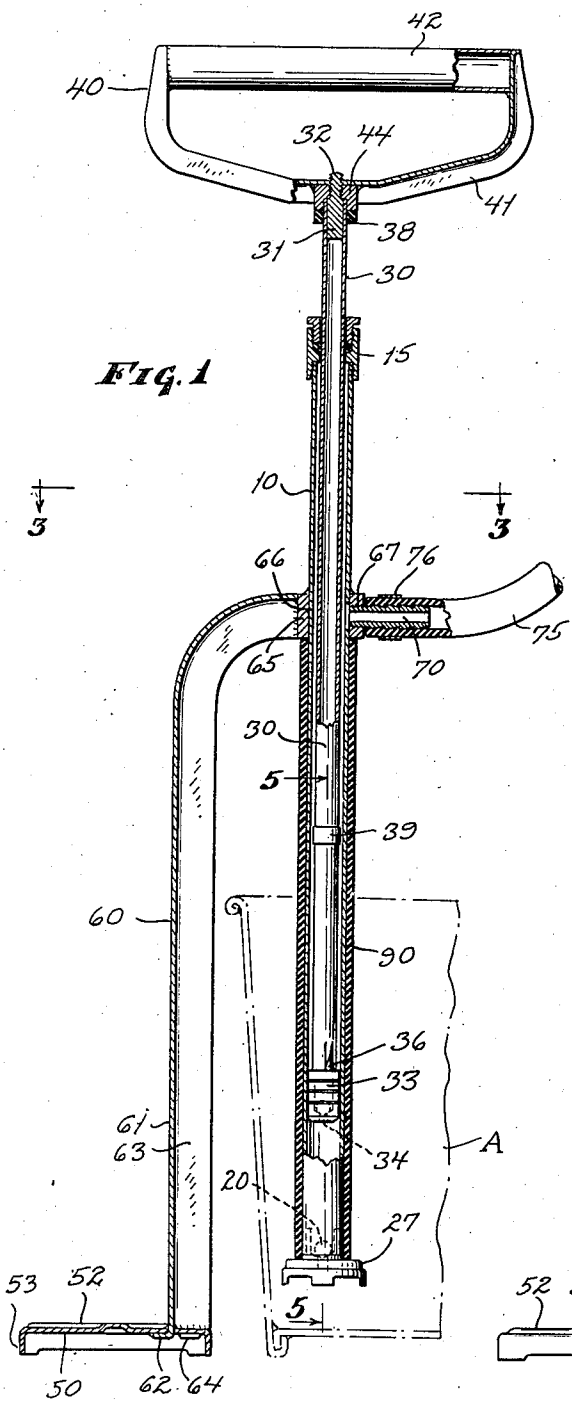


FIG. 1

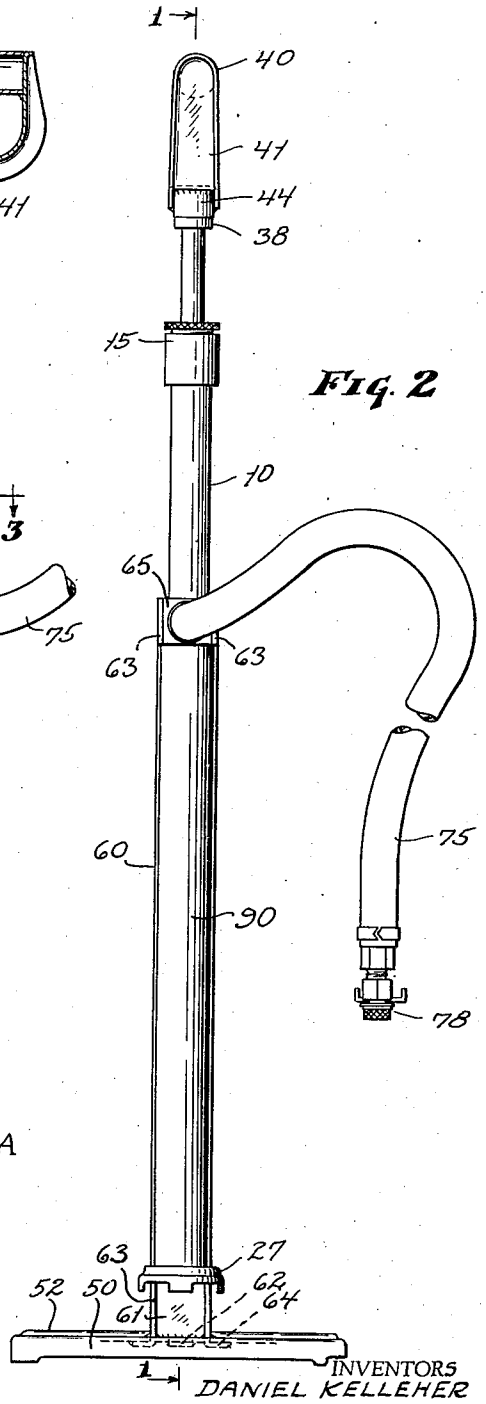


FIG. 2

INVENTORS
DANIEL KELLEHER
and HERMAN J. TROCHE
BY Bates, Peare & McBean,
Attorneys.

Dec. 14, 1943. D. KELLEHER ET AL 2,336,989

STIRRUP PUMP

Filed Feb. 20, 1942 2 Sheets-Sheet 2

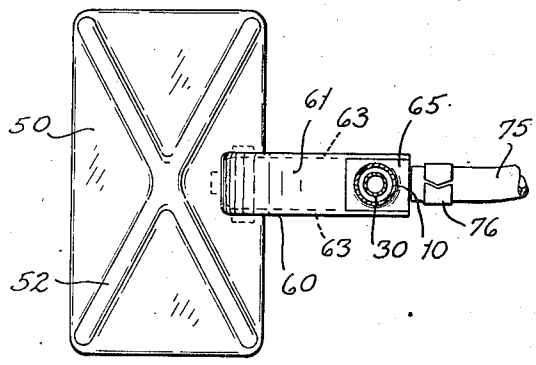


FIG. 3

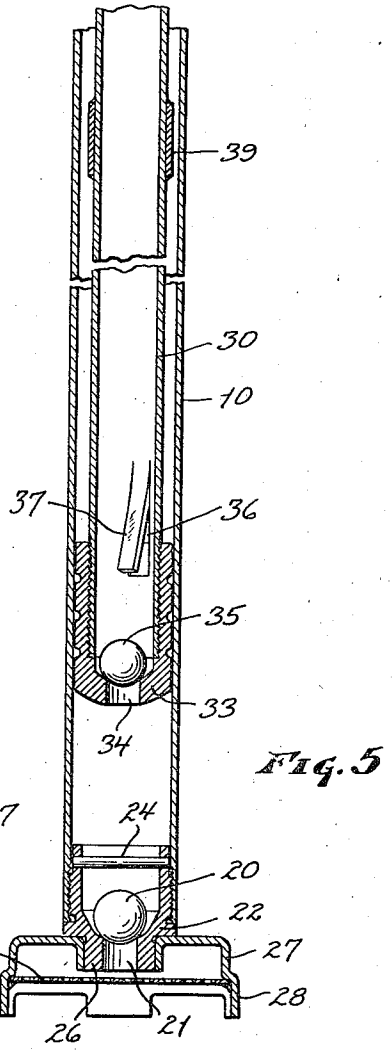


FIG. 5

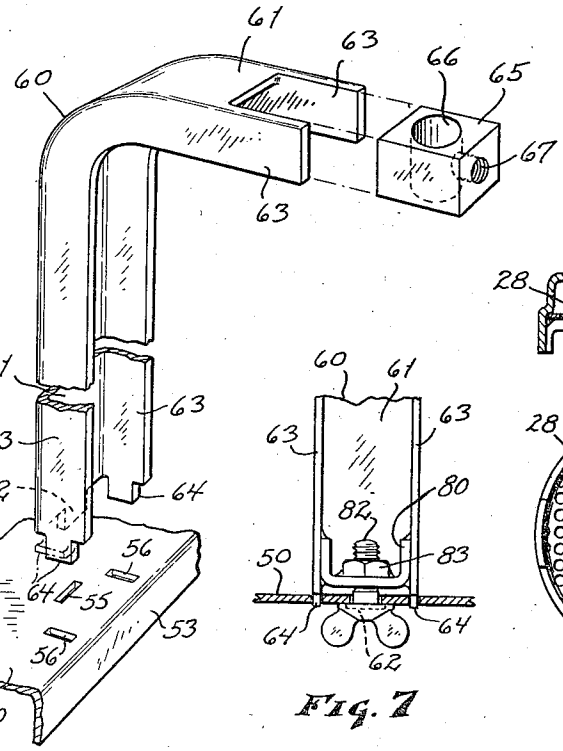


FIG. 4

FIG. 7

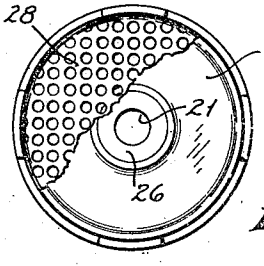


FIG. 6

INVENTORS
DANIEL KELLEHER and
HERMAN J. TROCHE
BY Dates, Geary & McBeau,
Attorneys

Patented Dec. 14, 1943 2,336,989

UNITED STATES PATENT OFFICE

2,336,989

STIRRUP PUMP

Daniel Kelleher, Strongsville, and Herman J. Troche, Cleveland Heights, Ohio, assignors to The American Coach & Body Company, Cleveland, Ohio, a corporation of Ohio

Application February 20, 1942, Serial No. 431,726

10 Claims. (Cl. 103—218)

This invention relates to a hand pump of the stirrup type, wherein there is a barrel to which is secured a bracket adapted to be pressed on the ground by the operator's foot to hold the barrel in vertical position within a bucket. This enables a plunger in the barrel to be readily reciprocated up and down by the operator to deliver a stream or spray through a discharge hose terminating in a suitable nozzle. Pumps of this type have been found very useful for combatting incendiary bombs, as well as for horticultural spraying.

Our invention is concerned particularly with the formation of the bracket and its attachment to the barrel, and the provision by which such bracket carries the nipple for the discharge hose, the primary object of the invention being to provide a very firm bracket effectively secured to the pump barrel.

Another feature of our invention is concerned with securing the upright of the bracket to the base thereof. An extended base provides means whereby the operator may place both feet on the bracket to hold it firmly on the ground, while the means for securing the upright to the base enables such parts to be separated for convenient shipping but rigidly held together in use.

Various advantages of our construction will be apparent from the following detailed description of a preferred embodiment shown in the drawings.

In the drawings, Fig. 1 is a vertical section of the pump and bracket, the plane of the section being indicated by the line 1—1 of Fig. 2; Fig. 2 is a front elevation of the pump; Fig. 3 is a horizontal section in the plane indicated by the line 3—3 on Fig. 1; Fig. 4 is a perspective of different members of the bracket detached from each other; Fig. 5 is a vertical section of the lower portion of the pump barrel and the plunger therein; Fig. 6 is a bottom plan of the pump; Fig. 7 is a detail of a modification having a different means for securing the upright of the bracket to its base.

As shown in Figs. 1, 2 and 5, 10 indicates the pump barrel adapted to receive water at its lower end past a check valve 20. Within the barrel is a vertically reciprocable plunger 30, to the upper end of which is secured a handle 40 by which the plunger is reciprocated. The details of these pump parts will be hereinafter described.

The bracket of this invention comprises a base 50, an upright 60 rising from the base and a barrel engaging block 65 carried by a bent-over top portion of the upright. The base is preferably a sheet metal platform stiffened by crossing pressed-in ribs 52 and has a down-turned edge flange 53. The upright 60 is channel-shaped in cross section, as shown in Figs. 1 and 4 and has its lower end abutting and secured to the base. As shown in Fig. 4, the web 61 of the upright is provided at its lower end with a downwardly extended tongue 62 and each of the flanges 63 with a tongue 64. These tongues extend through openings 55 and 56 in the base. After insertion the lower ends of the tongues may be bent transversely as shown in Figs. 1 and 2 to lock the tongues to the base.

The member of the bracket which embraces the pump barrel is the block 65 which lies between the flanges 63 of a horizontally turned-over top portion of the upright. The web 61 is cut away in this region so that the top of the block 65 may be flush with the top of the web. This block is welded in place, to the flanges and web.

The block 65 has a vertical cylindrical opening 66 through it by which it snugly compresses the barrel 10 of the pump and the block and barrel are effectively secured together by welding. Thus the upright of the bracket and the barrel of the pump constitute a single rigid unit.

The block 65 also has a transverse opening 67 which communicates with the opening 66. This transverse opening is threaded and receives the threaded extension of a nipple 70 to which the discharge hose is secured. There is an opening through the pump barrel 10 in registration with the opening 67 so that the nipple communicates with the interior of the barrel.

The nipple 70 is roughened or corrugated on its exterior for tight attachment of a discharge hose 75 thereon which hose may be clamped about the nipple by a suitable band 76. The hose is provided at its free end with a suitable nozzle 78 preferably of the type which may be readily changed to deliver either a spray or a solid stream as desired.

The handle 40 on the plunger 30 is preferably made large so as to accommodate both hands of the operator. Accordingly, if the nozzle is manipulated by another person, the operator standing with both feet on a platform 52 may use both hands on the handle of a plunger and readily effect a vigorous pumping action. As shown in Fig. 1, the plunger which is hollow has a plug 31 at its upper end with a screw threaded extension 32 rising therefrom. The handle is of the spade type, the bail thereof comprising a channel member 41 between the upright arms of which is

welded a tube 42 constituting the hand grip. Between the flanges of the bail at the intermediate region of the bail is welded an internally threaded boss 44 into which the plug 31 screws.

It will be seen that my pump-holding bracket may be constructed of comparatively light material and still be very rigid and be firmly attached to the pump. Thus the operator may stand with one or both feet on the platform and by his weight to retain the pump in vertical position with its lower end projecting into the source of supply, indicated in Fig. 1, as a bucket A, and may employ both of his hands on the handle.

The bending of the tongues 62 and 64 to secure the upright to the base may be readily effected by blows of a hammer after the parts are brought together and hence it is quite feasible in shipping to have the base separate from the upright of the bracket, the parts being joined at destination.

In place of bending transversely the tongues 62 and 64 on the upright of the bracket to secure it to the base, we may provide the construction illustrated in Fig. 7. In this modification, we have welded a transverse clip 80 between the flanges 63 of the upright, and I provide a wing bolt 82 adapted to pass upwardly through the platform of the base, through an opening in the clip, into a nut 83 on the clip. The tightening of the wing bolt holds the upright down tight onto the base while the projecting tongues prevent shifting of the upright on the base, so that in this case it is unnecessary to bend the tongues transversely thereof after the upright and base are assembled. The wings of the wing nut do not extend down as far as the flange of the base and are thus entirely out of the way beneath the platform of the base.

We will now describe the specific pump shown in Figs. 1 and 5. As heretofore stated, the intake into the lower end of the pump barrel is controlled by a check valve 20. This check valve may comprise a ball seating over an opening 21 in a fitting 22, screw threaded into the lower end of the barrel and having an enlargement above the opening to provide a seat for the ball. The upward movement of the ball is limited by a transverse pin 24.

The fitting 22 has a reduced downward extension 26 which is embraced by central tubular flange of a foot member 27. This member has a downward flange 28 at its outer edge with an internal shoulder therein. Bearing against this shoulder on the underside thereof and held in place by welding is a transverse screen 28. This prevents improper matter passing into the pump barrel on the suction stroke of the pump.

As shown, the plunger 30 is a hollow tube closed at its upper end by the plug 31. At its lower end the plunger carries a head 33 engaging the inner wall of the barrel. This head has an axial opening 34 in its bottom portion which may be closed by an internal ball 35. Above the ball there is an opening 36 into the annular space between the plunger and barrel. This opening is preferably made by partially severing a portion of the plunger with a U-shaped slit and turning the severed portion inwardly in the form of a tongue 37, as shown in Fig. 5. This tongue forms an upward stop for the ball 35.

A stuffing box 15 on the upper end of the barrel 10, having the usual packing nut, prevents leakage of water between the plunger and barrel. A thick rubber washer 38 preferably surrounds the plunger just under the handle and by abutting the top of the stuffing box on the downstroke of the plunger makes a cushioned abutment. The plunger is provided with a collar 39 to engage the underside of the stuffing box on the upstroke of the plunger and limits its movement in that direction.

As is usual in this type of pump the construction shown is double acting, being a displacement pump on the downstroke and a lift pump on the upstroke. That is to say, on the upstroke the ball 35 closes the opening in the plunger, a vacuum is created beneath it and water is drawn by suction past the check valve 20 into the barrel. On the downstroke this water is displaced through the opening 34 into the interior of the barrel against the air in the upper portion thereof (which is thereby compressed) and also flows through the opening 36 into the annular space between the plunger and barrel, against the air which is compressed in the upper portion of the barrel. On the succeeding upstroke the water in the annular space is lifted by the head on the plunger. Thus on either stroke the water passes a continuous stream out through the discharge nipple and the discharge hose 75 to the controlling nozzle.

To prevent accidental distortion of that portion of the barrel in which the plunger head 30 operates, I provide a rubber sleeve 90 embracing the barrel and adhering to it from the foot member 27 to the block 65 of the bracket.

We claim:

1. In a stirrup pump, the combination with a pump barrel and plunger of a bracket comprising a base and an upright adapted to be rigidly secured thereto, the upright being bent over at the top into a substantially horizontal portion which is permanently and rigidly attached to the barrel, and a discharge nipple carried by the horizontal portion of the upright and communicating with the interior of the barrel.

2. In a stirrup pump, the combination with a pump barrel of a bracket comprising a sheet metal base and a flanged sheet metal upright extending therefrom and bent over at the top and a block embracing the barrel and permanently attached to it and to a flange of the upright.

3. In a stirrup pump, the combination with a pump barrel of a bracket having a base and an upright portion, the upright portion being bent over at the top into a substantially horizontal extension, a block surrounding the barrel and attached thereto, said block being welded to the horizontal extension of the bracket, and a discharge nipple mounted in the block in registration with an opening in the barrel.

4. In a stirrup pump, the combination with a pump barrel of a bracket comprising a base and an upright in the form of a channel beam, said upright being bent over at the top into a substantially horizontal extension with its flanges lying in vertical planes, a block mounted in the space between the flanges of the horizontal extension of the channel, and welded to such flanges, said block having a vertical hole through it occupied by the pump barrel.

5. In a stirrup pump, the combination with a pump barrel of a bracket having a base and a flanged metal upright adapted to be secured thereto, said upright being bent over at the top and secured to the barrel, the base comprising a horizontal platform with downward flanges at opposite edges adapted to engage the floor and firmly support the platform thereon, the upright

abutting the top of the platform adjacent that edge thereof which is nearest to the barrel.

6. In a stirrup pump, the combination of a pump barrel, a bracket for holding the pump barrel comprising a base presenting an extended horizontal platform, a flanged upright abutting the top of the platform, said upright having tongues at the lower end passing through openings in the platform of the base, the upper end of the upright being adapted to be attached to the barrel of the pump.

7. In a stirrup pump, the combination of a pump barrel, a bracket for holding the pump barrel comprising a sheet metal base downwardly flanged at its edges, a channel-shaped upright having tongues at the lower end passing through openings in the platform of the base, the upper end of the upright being adapted to be attached to the barrel of the pump, the tongues which pass through the base being bent laterally to lock the upright to the base.

8. In a stirrup pump, the combination of a pump barrel, a bracket for holding the pump barrel comprising a base, a channel-shaped upright having its upper end formed for attachment to the barrel of the pump, a transverse clip secured to the flanges of the upright a short distance above the base, and a bolt passing through the base and engaging a nut to lock the upright removably to the base.

9. In a stirrup pump, the combination of a pump barrel and a bracket for holding such barrel comprising a base and a channel-shaped upright, the upper portion of the upright being bent to present a substantially horizontal web and downwardly extending flanges in vertical planes, said web being cut away adjacent the end of the flanges, a block occupying the cut away portion of the web and substantially filling the space between the flanges and welded thereto, said block having an opening to embrace the pump barrel and a communicating opening to receive a discharge nipple.

10. A stirrup pump comprising a flat base downwardly flanged at opposite edges, and an upright comprising a single integral bar secured to the base adjacent one edge thereof, the upper portion of the bar being bent to present substantially horizontal web and flanges lying in vertical planes, a block between the flanges and rigidly secured thereto, said block having an opening, a pump barrel extending through said opening in the block, a discharge nipple mounted in the block in communication with the interior of the pump barrel.

DANIEL KELLEHER.
HERMAN J. TROCHE.