

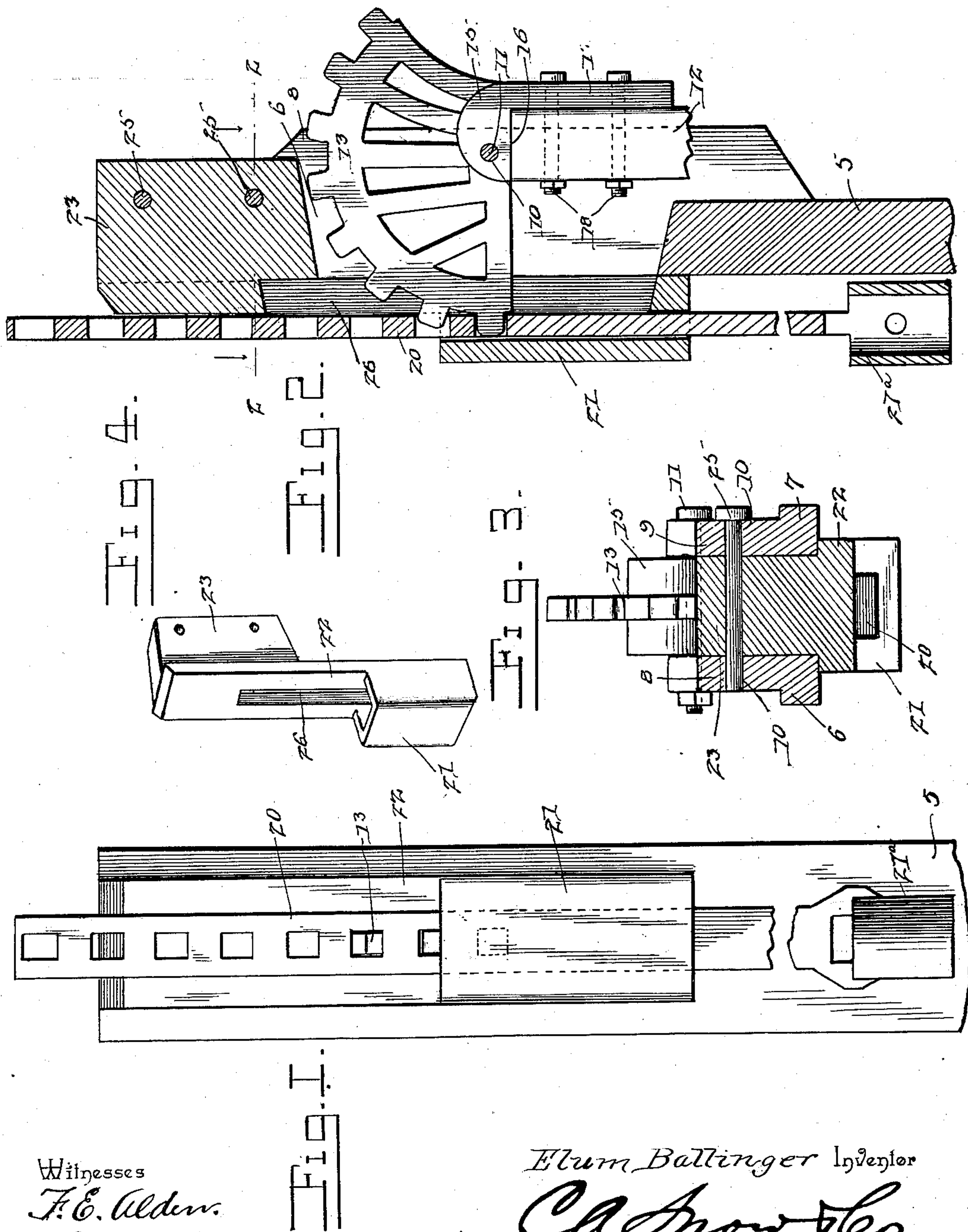
No. 654,868.

Patented July 31, 1900.

E. BALLINGER.
PUMP.

(Application filed Apr. 27, 1900.)

(No Model.)



Witnesses
F. E. Alden.
Geo. H. Charable.

Etum Ballinger Inventor
C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ELUM BALLINGER, OF LARAMIE, OHIO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 654,868, dated July 31, 1900.

Application filed April 27, 1900. Serial No. 14,614. (No model.)

To all whom it may concern:

Be it known that I, ELUM BALLINGER, a citizen of the United States, residing in Laramie township, in the county of Shelby and State of Ohio, have invented a new and useful Pump, of which the following is a specification.

This invention relates to pumps in general and more particularly to the mechanism thereof for operating the piston-rod; and it has for its object to provide a construction in which there will be an even leverage applied from the handle to the piston-rod and a greater rise in the piston per unit of movement of the handle, thus giving a greater quantity of water at each stroke of the pump.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is an elevation showing the upper portion of the body of a pump and illustrating the reciprocatory rack carried thereby and through the medium of which the piston is operated. Fig. 2 is a central longitudinal section of the structure shown in Fig. 1 and showing the end of the pump-handle and the segmental gear thereof in elevation. Fig. 3 is a transverse section of Fig. 2 on line 2 2 thereof.

Referring now to the drawings, the present invention has relation to the piston-operating mechanism, in which 5 is the body of the pump and which body is of the usual construction at its lower portion and carries the pump-barrel. The upper end of the body of the pump is bifurcated to form two parallel legs 6 and 7, and upon the rear faces of the legs are formed ears 8 and 9, which extend longitudinally of the body of the pump, from the upper end thereof to a point below the lower end of the slot of the bifurcation, and through these ears are formed perforations 10, which aline in pairs. Through the lowermost of the alining perforations is passed a pin 11, which forms the pivot for the handle of the pump, this handle 12 having at its end a segmental gear 13, through the axis of which is formed a perforation which receives directly the pivot-pin. The handle of the pump is not formed integral with the segmental gear, but instead is bolted thereto, the gear having a block 15 at its center having a

bearing face or shoulder 16, from which there extends at right angles a lug 17, the handle proper being disposed with its end against the shoulder and with one side face against the adjacent face of the lug, in which position it is held by the bolts above referred to and which are shown at 18 passed through alining perforations through the handle and lug.

The segmental gear 13 engages a rack 20 in the form of a plate having rectangular openings therethrough and with which the teeth of the gear engage. This rack has a socket 21 at its lower end which receives the upper end of the piston-rod of the pump, so that as the gear is oscillated by a corresponding movement of the pump-handle the rack will be raised and lowered to raise and lower the piston-rod and therewith the piston.

In order to hold the rack 20 slidable in proper relation to the pump-body, a guideway is provided therefor. This guideway is in the form of a loop 21 on the front face of a plate 22, which is adapted to lie snugly against the face of the pump-body, at the opposite side thereof from the pump-handle, and on the opposite side of the plate 22 from the loop there is formed a block 23, of such size as to fit snugly between the legs 6 and 7 of the body, the block 23 having transverse perforations there-through which are adapted to aline with the upper perforations in the ears 8 and 9 to receive pins 25, which act to hold the block, and therewith the plate and loop, in proper position.

The slot 26, which is formed longitudinally of the plate 22, opens into the slot of bifurcation of the body of the pump, and through the slot 26 the segmental gear projects into engagement with the rack.

With this construction it will be seen that the leverage upon the piston-rod is constant, so that the piston-rod is moved upwardly to a maximum degree at each downward stroke of the pump-handle, and thus a maximum amount of water must be lifted at each stroke of the handle. Furthermore, with the method shown for attachment of the handle to the segmental gear there is a longitudinal strain upon the lug of the gear as well as a transverse strain, the transverse strain being only slight, and a much stronger structure is se-

cured than is usual. The guideway is held firmly in its operative position, and yet when it is desired to remove it to permit removal of the rack and piston-rod the securing-pins thereof may be readily withdrawn, and the rack may be removed either with or without removing the guide-loop therefrom.

It will be understood that in practice any suitable materials may be used for the various parts of the structure and that any desired proportions may be employed without departing from the spirit of the invention.

What is claimed is—

1. In a pump the combination with the body portion having a bifurcated upper end, of a handle having a segmental gear journaled between the legs of the bifurcated portion, a plate disposed against the body, said plate having a block disposed between the legs of the body and having a slot opening into the slot of the bifurcation of the body to receive the periphery of the gear, a guide upon the plate and a rack slidably disposed in the guide and engaging the gear, said rack being adapted for attachment of a piston thereto.

2. In a pump, the combination with the body portion having a bifurcated upper end, and ears at the sides of the slot of bifurcation and

provided with alining perforations, a pivot-pin engaging one pair of perforations, a segmental gear pivoted on the pin and having a rearwardly-extending lug and a bearing-face at the base thereof, a handle resting with its end against the face and a side against the lug, means for holding the handle against the lug, a plate disposed against the bifurcated portion of the body at the opposite side thereof from the ears said plate having a slot communicating with that of the body and through which the gear projects, a block upon the plate lying between the legs of the body and having perforations for alinement with the perforations of the ears, pins passed through said alining perforations, a loop upon the outer face of the plate, and a rack slidably engaged with the loop and engaged with the teeth of the gear, said rack being adapted for the attachment of a piston-rod to its lower end.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ELUM BALLINGER.

Witnesses:

JNO. B. BALLINGER,
F. P. HAWK.