Oct. 30, 1923.

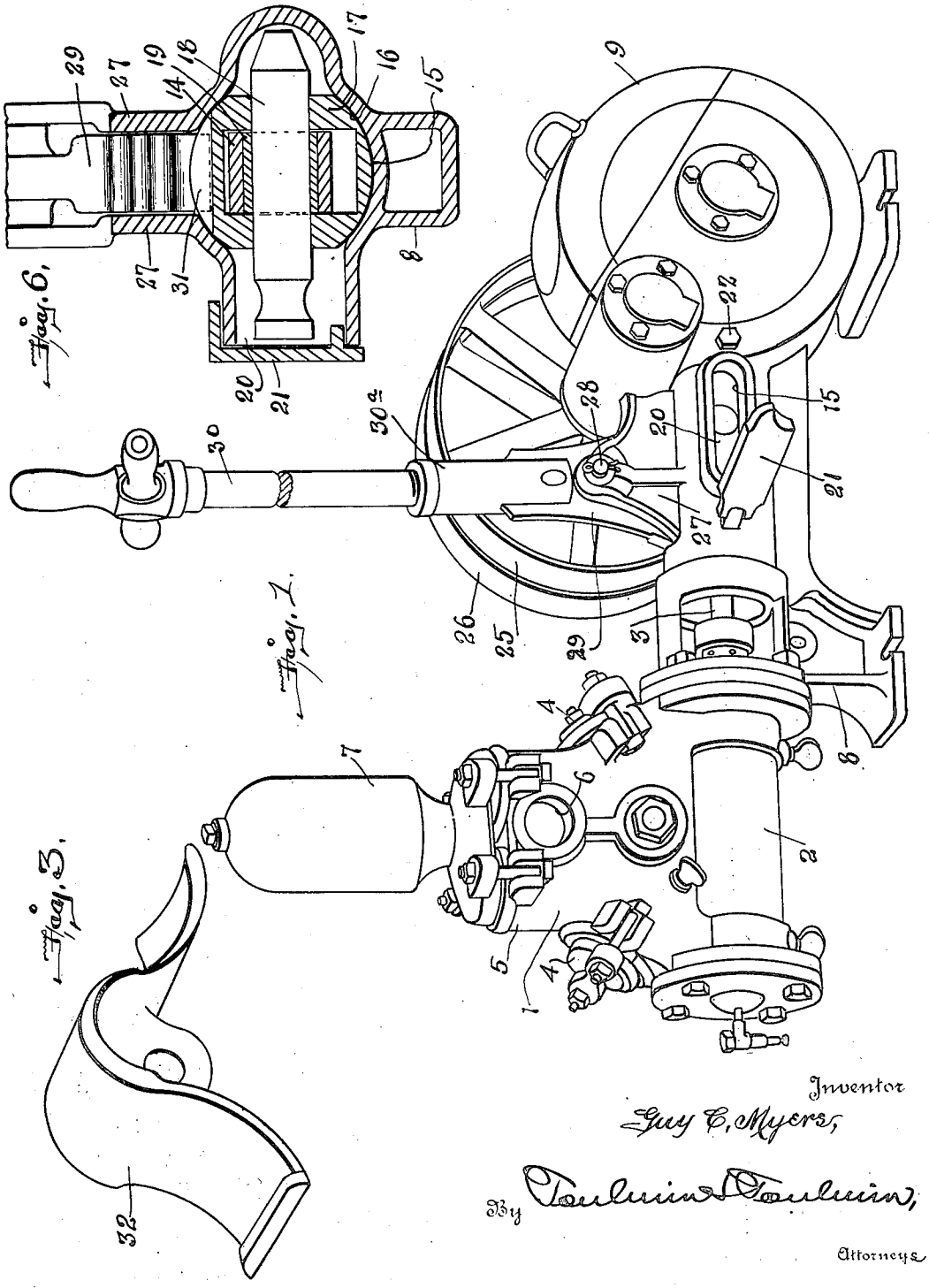
1,472,226

G. C. MYERS

POWER PUMP

Filed Dec. 19, 1921

3 Sheets-Sheet 1



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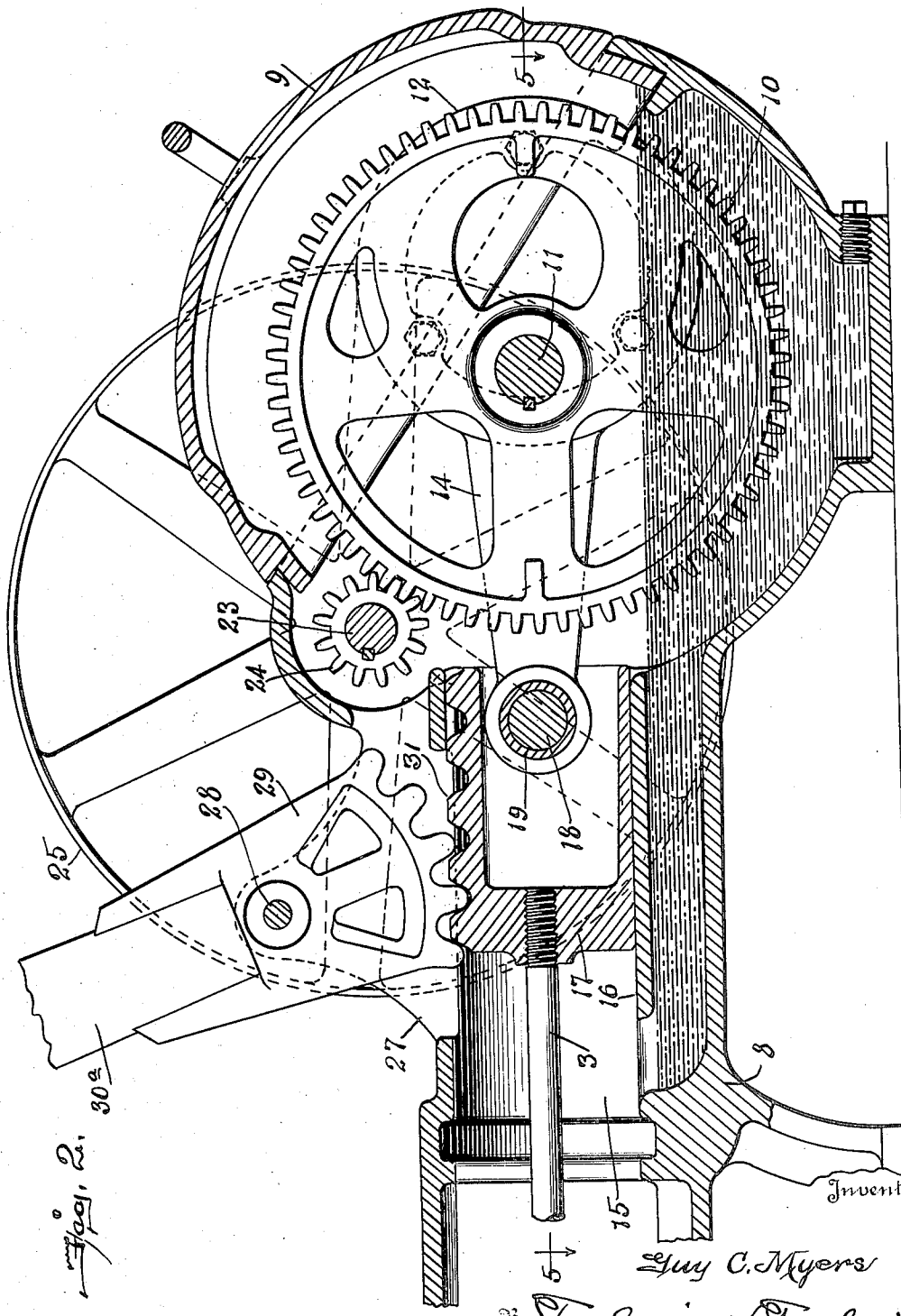

Fig. 2.

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3 Sheets-Sheet 3

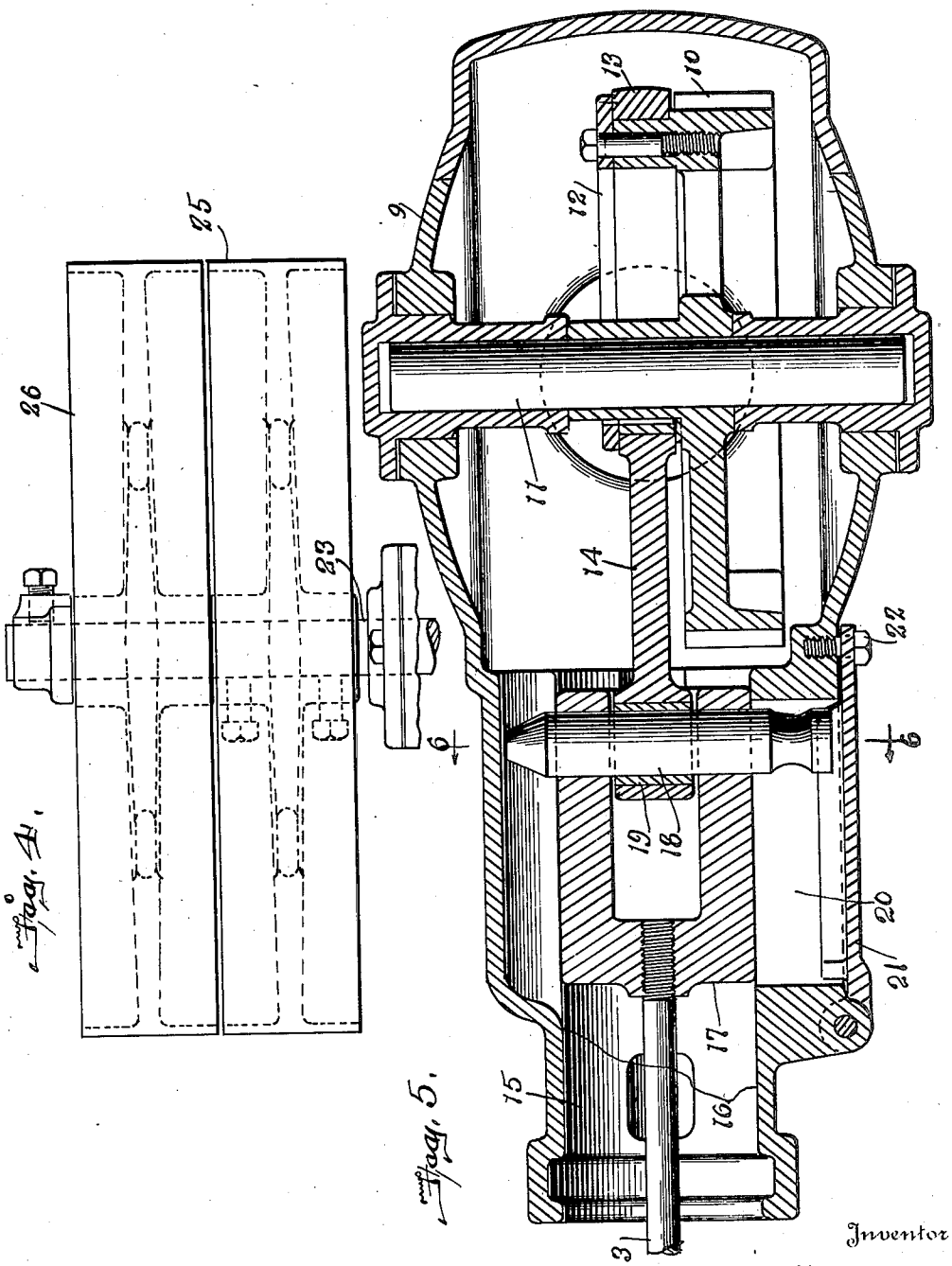

Fig. 4.

Fig. 5.

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Patented Oct. 30, 1923. 1,472,226

UNITED STATES PATENT OFFICE.

GUY C. MYERS, OF ASHLAND, OHIO, ASSIGNOR TO THE F. E. MYERS & BROTHER COMPANY, OF ASHLAND, OHIO, A CORPORATION OF OHIO.

POWER PUMP.

Application filed December 19, 1921. Serial No. 523,480.

To all whom it may concern:

Be it known that I, GUY C. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Power Pumps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in power pumps, particularly to self-oiling power pumps in which the pump operating mechanism is enclosed in a casing which contains lubricant.

The particular object I have in view is to provide means for readily operating the pump proper selectively by power and by hand. In cases where but a small quantity of water is to be drawn from the pump it is not desirable to start the motor which is used to drive the pump operating mechanism. In such cases it is very desirable and useful to be able to convert the pump into a hand operated one for the purpose of drawing off such small quantities of water, and then to readily restore it to a condition for power operation. It is also important to be able to hand-operate the pump in cases of emergency, as when the motor breaks down or is temporarily inoperable.

With these ends in view my invention consists, essentially, in combining the cross head of the piston rod with both power driven and hand driven operating mechanism, with adaptability to disconnect one of these mechanisms when the other is to be used.

A further object of my invention is to detachably connect such cross head with a power operative mechanism and to detachably connect it with a hand operative mechanism, a removable connecting pin between the cross head and the power driven mechanism and a removable gear segment adapted to mesh with rack teeth in the cross head being the preferred instrumentalities by which this object is carried into practical effect.

In the accompanying drawings:

Fig. 1 is a perspective view of a combined pump and power head comprising what is known as a power pump with my improvements applied thereto;

Fig. 2 is a vertical sectional view on an enlarged scale of the operating mechanism and of the cross head and a part of the casing of such a pump;

Fig. 3 is a detail perspective view of a certain cover plate;

Fig. 4 is a plan view of a part of the driving shaft and the belt pulleys;

Fig. 5 is a horizontal sectional view of the part shown in Fig. 2, the section being taken on the line 5—5 of said figure;

Fig. 6 is a transverse sectional view taken on the line 6—6 of Fig. 5.

My assignee, The F. E. Myers & Brother Co., are manufacturers of power pumps of the character to which my invention is applied. Such a pump is shown in its entirety in Fig. 1, with my improvements added thereto. Generally speaking such pump consists of a pump proper designated at 1 comprising the usual cylinder 2, piston rod 3 with its piston (not necessary to show), its valves indicated at 4, its water chamber indicated at 5 with its water discharge 6 and an air chamber 7.

And such pump further consists of a base 8 on which is mounted the pump structure at one end and a casing 9 at the other end. The casing forms an interior chamber for containing a lubricant, such as oil, and for containing the power driven operating mechanism consisting of a driven gear wheel 10 mounted on a shaft 11 having bearings in the side walls of the casing, as best seen in Fig. 5, and of an eccentric 12, usually fashioned on and forming a part of the gear wheel 10, the eccentric having the usual eccentric band 13 and connected pitman 14 for operating the pump piston rod 3. The base portion 8 of the structure includes a hollow body portion 15 within which are formed ways 16 on which travels a cross head 17 connected with the pump piston 3 and with the pitman 4 by a removable coupling pin 18 with a bearing sleeve 19. This pin is insertable through the cross head and the pitman and removable therefrom so as to connect the power driven mechanism with the pump piston or to disconnect it. To permit of this manipulation of the coupling pin the body portion 15 of the structure is constructed with an opening 20 in the nature of a slot substantially equal in length to the stroke of the cross head so that the coupling pin may be removed or inserted at whatever point the cross head may be within limits of its travel. To close or open the

slot 20 a hinged or other form of door 21 is connected with the body 15 and adapted to be held closed by the overlapping of it by the head 22 of a bolt or to be opened by first removing the bolt, which is screwed into the structure. This is one form of door and fastening I have found to be satisfactory in use.

A driving shaft 23 is also mounted in the casing 9 and equipped on the inside of the casing with a pinion 24 which meshes with and transmits motion to the gear 10 and on the outside with a pair of belt pulleys, a fixed pulley 25 and a loose pulley 26. A power driven belt applied to these pulleys will operate the driving shaft or not as it may be placed on the tight or loose pulley.

In this way the pump is power driven.

But to also drive the pump by hand, as is often desirable, when small quantities of water are to be delivered, I further equip the pump with flanges 27 cast with or extending from the base 15 and adapted to support a pivot pin 28 and to receive between them a gear segment 29 with which is connected a handle or lever 30.

The cross head is constructed with rack teeth 31 with which meshes the toothed segment 29 so that when the handle 30 is worked back and forth on the pivot 28 the segment operating in the rack will reciprocate the cross head and operate the pump piston 3 by hand.

The pump is so equipped in manufacture and goes out on the market in this form. When in use and to be driven by power the pivot pin 28 is withdrawn and the handle and segment removed and a cover plate 32 applied over the flanges 27 to close the opening in which the segment works when in place. In this form the interior mechanism is entirely enclosed while being power driven.

To operate the pump by hand, as when small quantities of water are to be drawn, the door 21 is opened, the coupling pin 18 removed, the cover plate 32 lifted off and the handle and segment remounted within the flanges 27 by the insertion of the pin 28. In this form the pump may be readily operated by hand.

Thus it will be seen that by disconnecting from the piston rod the power mechanism it may be hand operated and by disconnecting from it the hand operative mechanism it may be power operated. Of course, it may be power operated without removing the segment 29 and the handle 30, but to prevent rocking and shaking them their removal is preferred. In some instances I prefer to removably secure the handle 30 in the socket portion 30^a of the segment, as by using a screw-threaded connection. In such cases, I may remove the handle but allow the segment to remain. I prefer, however, to entirely remove the segment and to close the opening by the cover plate 32.

In commercial use a pump so organized and constructed has proved to be useful, convenient and highly satisfactory to the users.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a pump of the character described, the combination with a base, a pump at one end comprising a cylinder, a piston and a piston rod extending into the base, a gear casing at the other end adapted with the base to contain a lubricant, a driving pinion and a driven gear in said casing, a pitman operated by the driven gear, a cross head operable in the base and detachably connected to the pitman, and a handle adapted to operate the cross head and detachably mounted, whereby the cross head may be operated either by the pitman or by the handle.

2. In a pump of the character described, a base, a cross head mounted therein, a pitman detachably connected to the cross head, a handle adapted to operate the cross head and detachably mounted, the base having an opening through which to insert or remove the connection between the cross head and the pitman and another opening for the insertion and removal of the portion of the handle which engages with the cross head.

3. In a pump of the character described, a base having a closable opening, a coupling pin removably positioned in said opening, and having another opening, an operating handle insertable into said latter opening, such latter opening being bordered by flanges, and a removable cover adapted to fit on said flanges to close the opening.

4. In a pump of the character described, a base having an opening bordered by flanges, a handle and toothed segment, the latter adapted to enter said opening, a removable pin adapted to extend through the segment and said flanges and a removable cover adapted to fit over said flanges to close the opening when the pin, handle and segment are removed.

In testimony whereof, I affix my signature.

GUY C. MYERS.