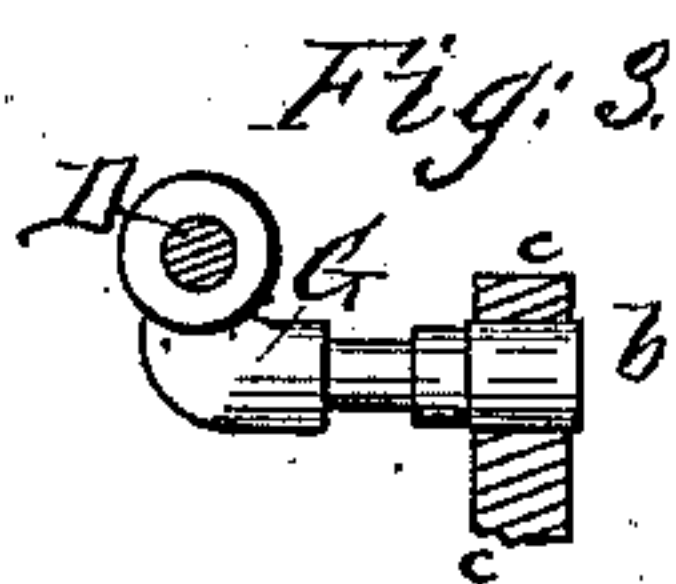
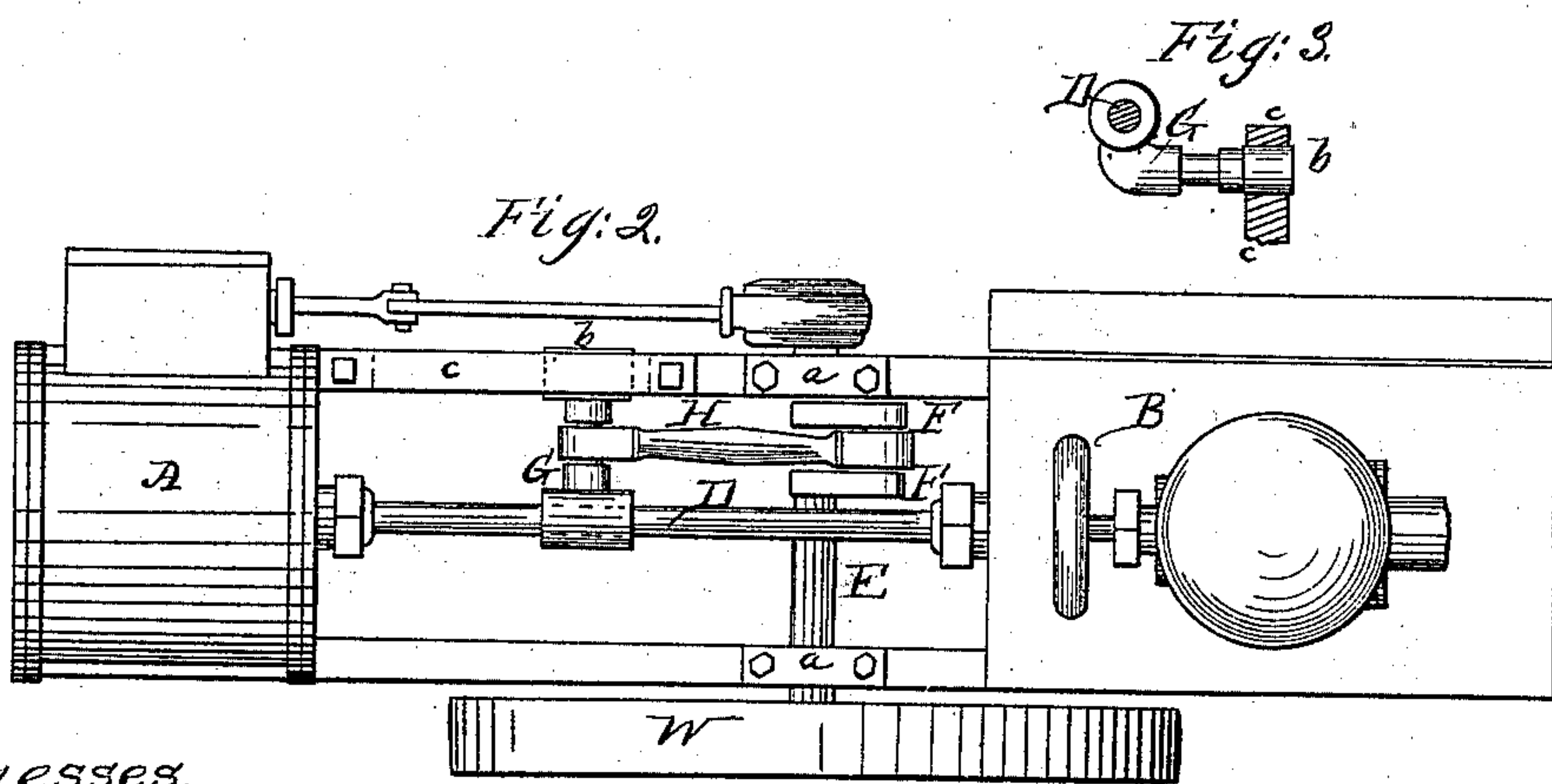
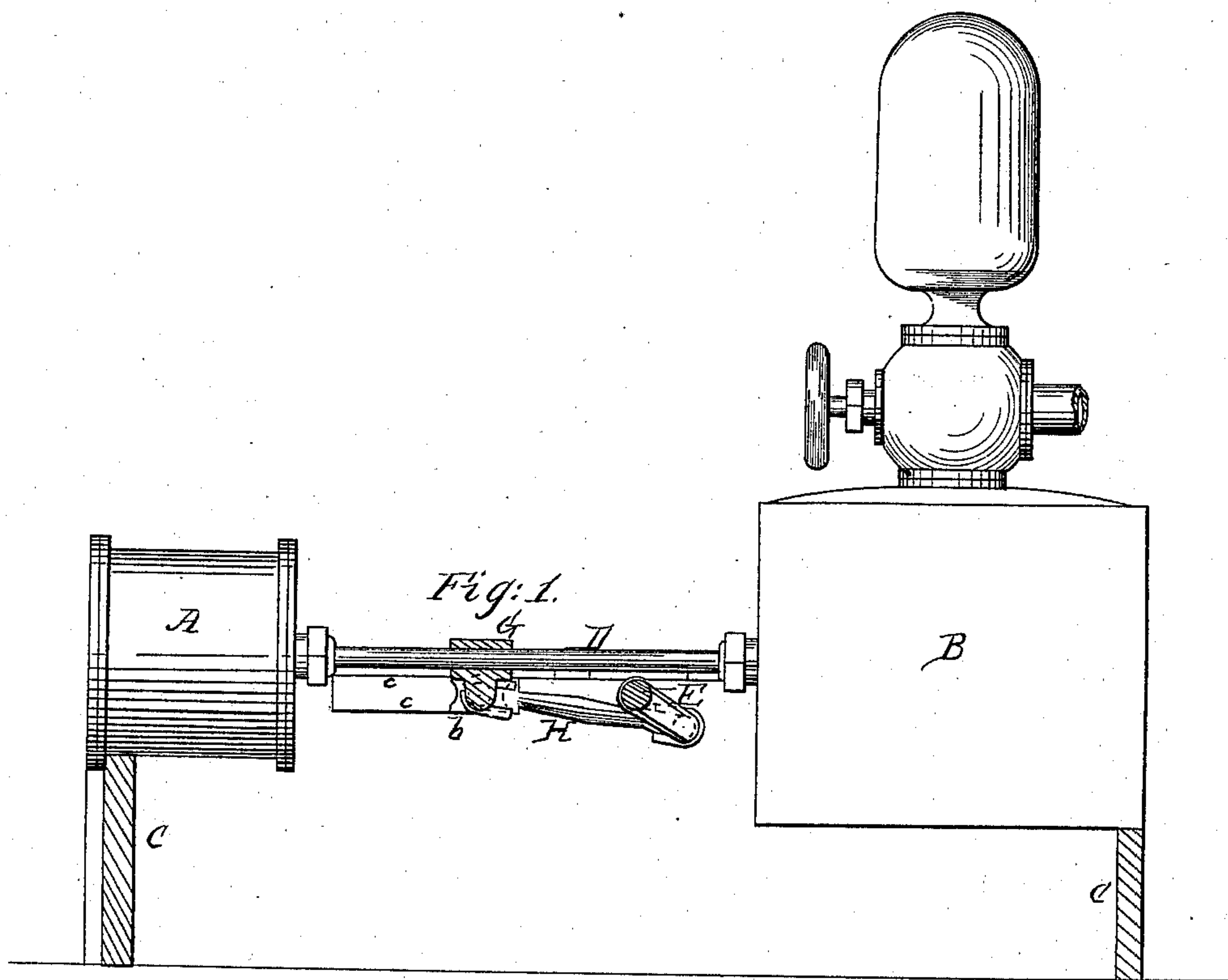


*W. Serrell,
Steam Pump.*

N^o 36,862.

Patented Nov. 4, 1862.



*Witnesses.
M. M. Livingston
Timothy Kane*

*Inventor.
William Serrell*

UNITED STATES PATENT OFFICE.

WILLIAM SEWELL, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. 36,862, dated November 4, 1862.

To all whom it may concern:

Be it known that I, WILLIAM SEWELL, of the city, county, and State of New York, have invented a new and useful Improvement in Steam-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal elevation, partly in section, of a steam-pump with my improvement. Fig. 2 is a plan view of the same, and Fig. 3 is a front view of the cross-head.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to combine a crank and fly-wheel with a direct-connection steam-pump in a very simple manner, and without materially increasing the room occupied; and it consists in a novel arrangement of the crank-shaft, crank or cranks, cross-head, and connecting rod or rods, whereby those results are obtained.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the steam-cylinder, and B the pump-cylinder, arranged in line with each other upon the bed-plate C, and having their pistons directly connected by the piston-rod D, which serves as the means of transmitting motion from the steam-piston to the pump-piston.

E is the crank-shaft, and W the fly-wheel. The crank-shaft is arranged transversely to the piston-rod in bearings *aa* on the bed-plate, below and almost close to the piston-rod, and just far enough from the pump-cylinder to permit the revolution of the crank. The crank F is arranged to work between the piston-rod and one side of the bed-plate, where it will neither interfere with nor be interfered with by the piston-rod. The fly-wheel is secured to the shaft outside of the bed-plate.

G is the cross-head secured to the piston-rod, and H is the connecting-rod connecting the said cross-head with the crank-wrist, and serving to transmit rotary motion to the crank,

and through it to the shaft and fly-wheel. The cross-head has its arm set down from the piston-rod, as shown in Fig. 3, to bring the axis of its journal at the same distance from the piston-rod as the axis of the crank-shaft, that when the crank is on the centers the said rod may be parallel with the piston-rod, and that the power to turn the crank may be applied as directly as possible. The end of the cross-head is fitted with a block, *b*, to slide in straight ways *cc*, provided in one side of the bed-plate, the said ways serving to guide the cross-head and to receive a considerable proportion of the upward and downward thrust of the connecting-rod, relieving the piston-rod to that extent of the said thrust.

By the arrangement of the crank-shaft close under the piston-rod and the depression of the cross-head the power is enabled to be transmitted to the crank-shaft as directly as is possible without placing the shaft beyond one of the cylinders, and so making the pump occupy much more room, and by the arrangement of the crank on one side of the piston-rod room is provided for a crank of any length of stroke.

Two cranks and connecting-rods may be employed, arranged in the same manner, one on each side of the piston-rod, and in that case the cross-head will require no guides.

It is obvious that the crank-shaft might be arranged above the piston-rod, and the cross-head be set upward with the same effect, and I consider such arrangement, though perhaps less convenient, to be mechanically equivalent to that represented in the drawings, and fully described.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combined arrangement of the crank-shaft, crank or cranks, cross-heads, and connecting rod or rods, substantially as and for the purpose herein specified.

WILLIAM SEWELL.

Witnesses:

M. M. LIVINGSTON,
TIMOTHY SHINE.