

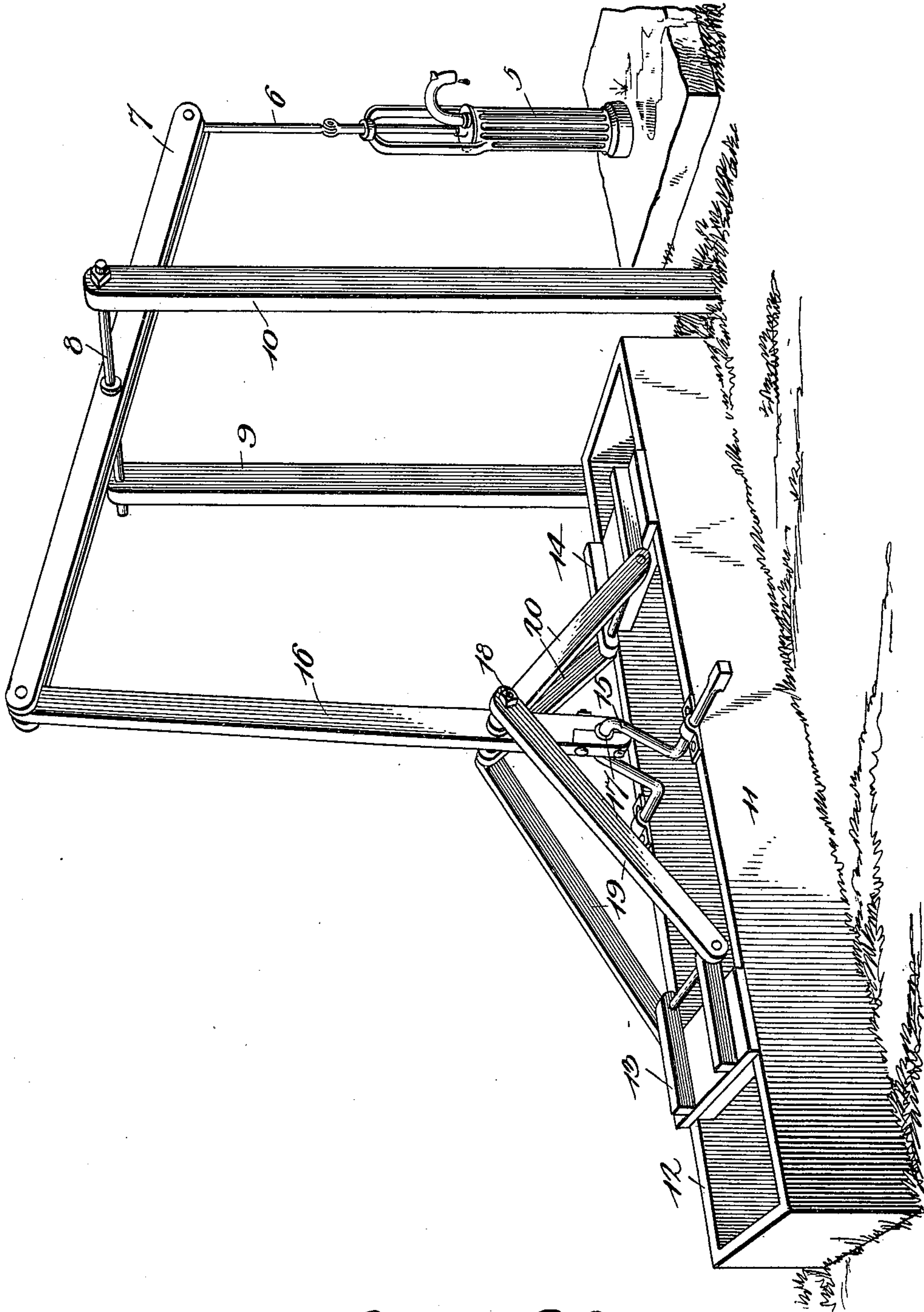
No. 675,267.

Patented May 28, 1901.

C. B. CRAWFORD.
PUMP OPERATING DEVICE.

(Application filed Feb. 25, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES BUCHANAN CRAWFORD, OF HUNTER, TEXAS.

PUMP-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 675,267, dated May 28, 1901.

Application filed February 25, 1901. Serial No. 48,839. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BUCHANAN CRAWFORD, a citizen of the United States, residing at Hunter, in the county of Comal and State of Texas, have invented a new and useful Pump-Operating Device, of which the following is a specification.

This invention relates to pump-operating mechanisms; and it has for its object to provide, in combination with a pump-operating crank-shaft and a walking-beam operatively connected with the pump-rod, means for preventing sudden movements of the pump-rod at the ends of its strokes and for assisting in starting the rod in its reciprocations.

In the drawing forming a portion of this specification there is shown a perspective view of the apparatus connected with a pump.

Referring now to the drawing, 5 represents a pump of common form and having a rod 6, to which is connected one end of a walking-beam 7, which in the present instance is shown as rockingly mounted upon a shaft 8 at the upper ends of uprights 9 and 10, which are erected adjacent to the well in which the pump is placed. If a windmill is connected for actuating the pump at times, this walking-beam may of course be supported by the tower of the mill.

Beneath the outer end of the walking-beam are disposed horizontal and parallel guides 11 and 12, forming a slideway for two cross-heads 13 and 14, and midway of the ends of the guides is rotatably mounted a crank-shaft 15, the crank of which operates between the guides.

From the adjacent end of the walking-beam there depends a connecting-rod 16, having a bearing 17 at its lower end, in which is received the crank of the shaft 15, and the crank-shaft is adapted for attachment thereto of the tumbling-rod of a horse-power or any other means for rotating it.

Passed laterally through the connecting-rod 16 at a point above its connection with the crank-shaft is a pin 18, and on this pin are pivoted the ends of connecting-rods 19 and 20, which are connected at their outer ends with the cross-heads, so that as the connecting-rod 16 moves downwardly the cross-heads will be moved in one direction, and when said rod is moved upwardly said heads will be moved in an opposite direction, owing to the crank motion given to the end of the connecting-rod 16 by the crank.

In the operation of a pump the maximum energy is required in starting the strokes, which of course in the present construction are at the time the crank first moves down and when it starts up. With the present construction and arrangement the momentum of the cross-heads is such that they move the crank laterally, thus urging it upwardly or downwardly, as the case may be, and assist in starting the strokes after the manner of a fly-wheel. With this arrangement, however, the momentum of the cross-heads is greatest at the time needed, for the reason that they are traveling at their maximum speeds, while when the cross-heads start back from either end of their movement the crank is moving upwardly or downwardly and the pump-rod is at the middle of its stroke and does not require the assistance of the momentum of the cross-heads.

What is claimed is—

1. The combination with a crank-shaft and a walking-beam connected therewith for operation thereby, of a body slidably disposed for movement in a plane at an angle to the plane including the crank when the walking-beam is at one limit of its movement and connected between the walking-beam and crank.

2. The combination with a walking-beam and a crank-shaft having a connecting-rod operatively connecting them, of a guideway disposed at an angle to a line connecting the axis of the shaft with the connected end of the walking-beam, cross-heads slidably mounted upon the guideway at opposite sides of the shaft, and connections between the cross-heads and the connecting-rod.

3. The combination with a pump and the rod thereof, of a walking-beam connected with the rod, a crank-shaft connected with the walking-beam for operating it, guideways, and cross-heads slidably mounted upon the guideways for movement in a plane at an angle to the line connecting the axis of the shaft with the point of connection of the walking-beam, and connected between the shaft and walking-beam.

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

CHARLES BUCHANAN CRAWFORD.

Witnesses:

CHAS. CONRADS,
EDWIN WALLHOEFER.