Oct. 9, 1934. A. M. MATHERNE 1,976,241

CRANK ARM

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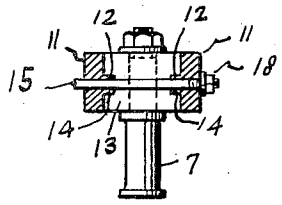


Fig. 2.

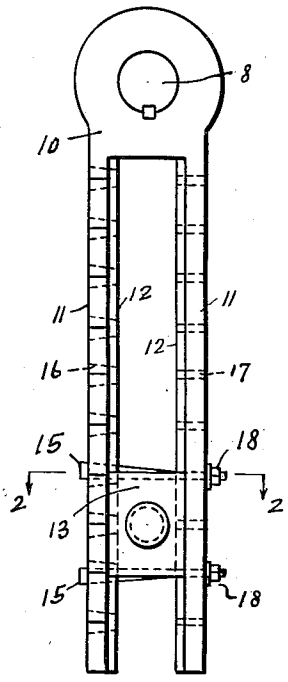


Fig. 1.

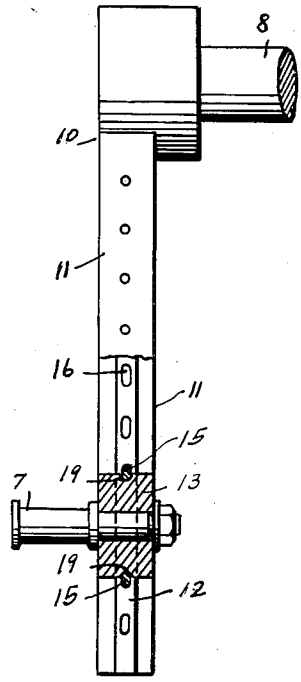


Fig. 3.

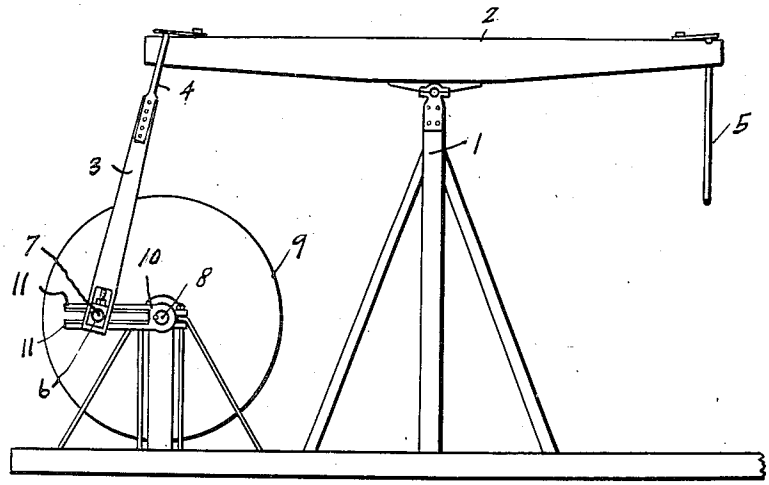


Fig. 4.

Inventor
Albert M. Matherne

By Hawdrey Rathey
Attorneys

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CRANK ARM

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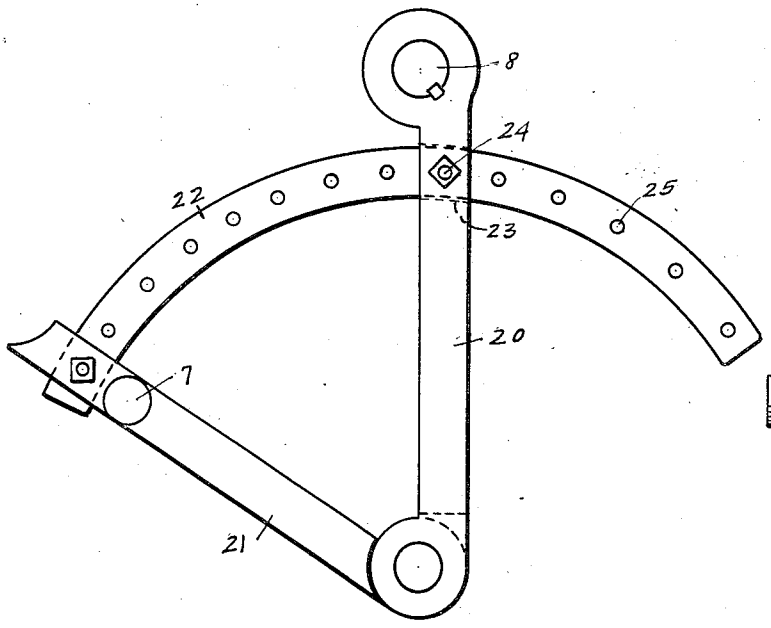


Fig. 5.

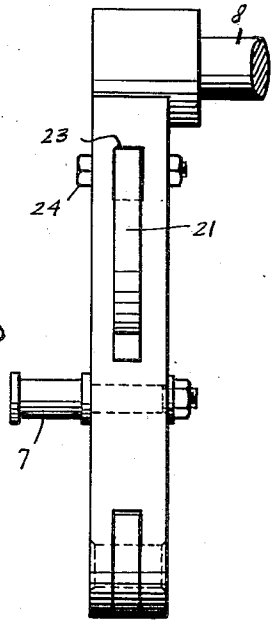


Fig. 6.

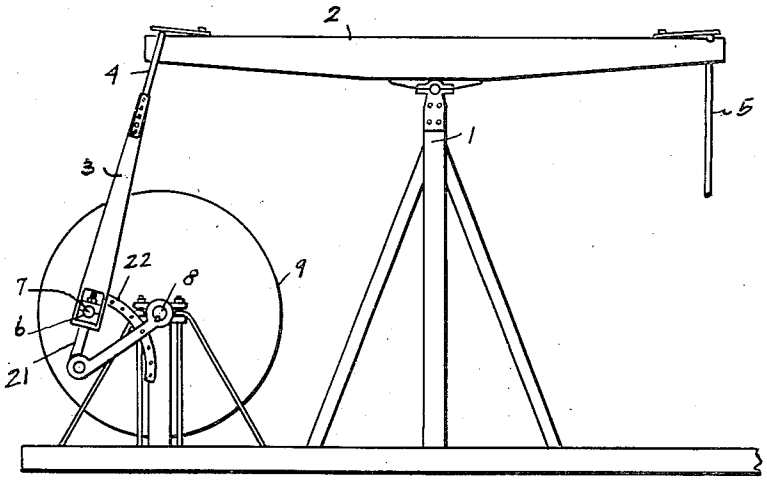


Fig. 7.

Inventor
Albert M. Matherne,

By Hardway & Esther
Attorneys

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UNITED STATES PATENT OFFICE

1,976,241

CRANK ARM

Albert M. Matherne, Goose Creek, Tex.

Application July 15, 1933, Serial No. 680,610

3 Claims. (Cl. 74—38)

This invention relates to a crank arm and has particular relation to a crank arm having an adjustable connection for connecting a pitman to said crank arm.

An object of the invention is to provide a crank arm having a wrist pin adjustably mounted thereon and provided for the purpose of connecting a pitman to the crank arm whereby the stroke delivered through the pitman may be readily varied. The crank arm has been particularly designed for use on the driving shaft of a pump operating mechanism to provide for the easy adjustment of the stroke of the walking beam whereby the length of the stroke of the pump operated by the walking beam may be readily varied.

Another object of the invention is to provide in pump operating mechanism means for accurately varying the length or distance of the stroke of the pump.

With the above and other objects in view, the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:

Figure 1 shows a plan view of one form of the crank arm.

Figure 2 shows a cross sectional view thereon taken on the line 2—2 of Figure 1.

Figure 3 shows an edge view partly in section.

Figure 4 shows a side elevation of the walking beam showing the pitman connecting one end of the walking beam with the crank arm.

Figure 5 shows a side view of another form of the crank arm.

Figure 6 shows an edge view thereof, and

Figure 7 shows a side view of a walking beam and the pitman connecting one end of the walking beam within this type of crank arm.

In the drawings the numeral 1 designates an upstanding post on which the walking beam 2 is mounted to pivot. The numeral 3 designates the pitman, one end of which has the stirrup 4 which receives one end of the walking beam. The pump rod 5 to be reciprocated is connected to the other end of said walking beam. As the walking beam 2 is rocked back and forth, the pump rod 5 will be reciprocated and the pump in the well operated in the usual and well known manner. The other end of the pitman 3 has a suitable bearing 6 to receive the wrist pin 7.

The numeral 8 designates a crank shaft which is driven by any suitable power and has the momentum wheel 9 fixed thereon.

Fixed on one end of the shaft 8 there is a crank arm 10. In the form shown in Figures 1 to 4 this arm is bifurcated forming the spaced tracks 11, 11, having the inside longitudinal ribs 12, 12. Between the tracks there is an anchor block 13 having the side grooves 14, 14, to receive said tracks and the wrist pin 7 is secured to said anchor block 13. As is obvious the block 13 may be adjusted toward and from the crank shaft 8 and the length of the stroke of the pitman thus varied correspondingly varying the stroke of the pump. The anchor block is maintained at any point of adjustment by the keys 15, 15. These keys, as shown in Figure 1, are wedge shaped in form and are fitted through the aligned keyways 16, 17 of the tracks 11, 11, on opposite sides of the block 13, said keys being maintained in place by the nuts 18 which are threaded onto the small ends thereof. The keys 15 are fitted into grooves 19 in the block 13 to secure the block more firmly in place. The keys may be removed in an obvious manner and the block 13 adjusted to the desired position and the keys then replaced.

In the form shown in Figures 5 to 7 inclusive there is a crank arm 20 fixed on the crank shaft 8, and an anchor arm 21 has one end pivoted to the free end of the crank arm 20.

A segmental bar 22 is pivoted, at one end, to the free end of the anchor arm 21 and this bar works through a bearing 23 in the crank arm 20 and may be secured therein by means of a suitable bolt 24. The segmental bar 22 has a plurality of bearings 25 spaced apart therealong to receive said bolt 24 providing for the adjustment of the segmental bar 22 relative to the crank arm 20. In this form the wrist pin 7 is attached to the outer end of the anchor arm 21 and the pitman 3 is connected to said wrist pin as hereinabove explained.

It is obvious that by adjusting the bar 22 relative to the crank arm 20 the wrist pin 7, carried by the anchor arm 21, will be adjusted toward and from the crank shaft 8 and the stroke will be correspondingly shortened or lengthened.

The drawings and description disclose what is now considered to be preferred forms of the invention by way of illustration only, while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. The combination of a crank arm having a slot and adapted to be connected rigidly to a crank shaft, an anchor arm pivoted on said crank arm, a wrist pin on said anchor arm, a segmental

bar rigidly secured to the anchor arm and slidable through said slot and means for releasably connecting the segmental bar to the crank arm.

2. The combination of crank arm adapted to be rigidly secured to a crank shaft, an anchor arm pivoted on said crank arm, a wrist pin on said anchor arm, a segmental bar secured to the anchor arm and having a slidable connection with said crank arm and means for releasably connecting said segmental bar to the crank arm.

3. The combination of a crank arm adapted to be rigidly secured to a crank shaft and having a bearing, an anchor arm pivoted to the crank arm, a pitman, a wrist pin on the anchor arm on which the pitman has a bearing, a segmental bar secured to the anchor arm and slidable in the bearing for adjusting the wrist pin toward and from the axis of said shaft to vary the stroke of the pitman and means for releasably connecting the segmental bar to the crank arm.

ALBERT M. MATHERNE.