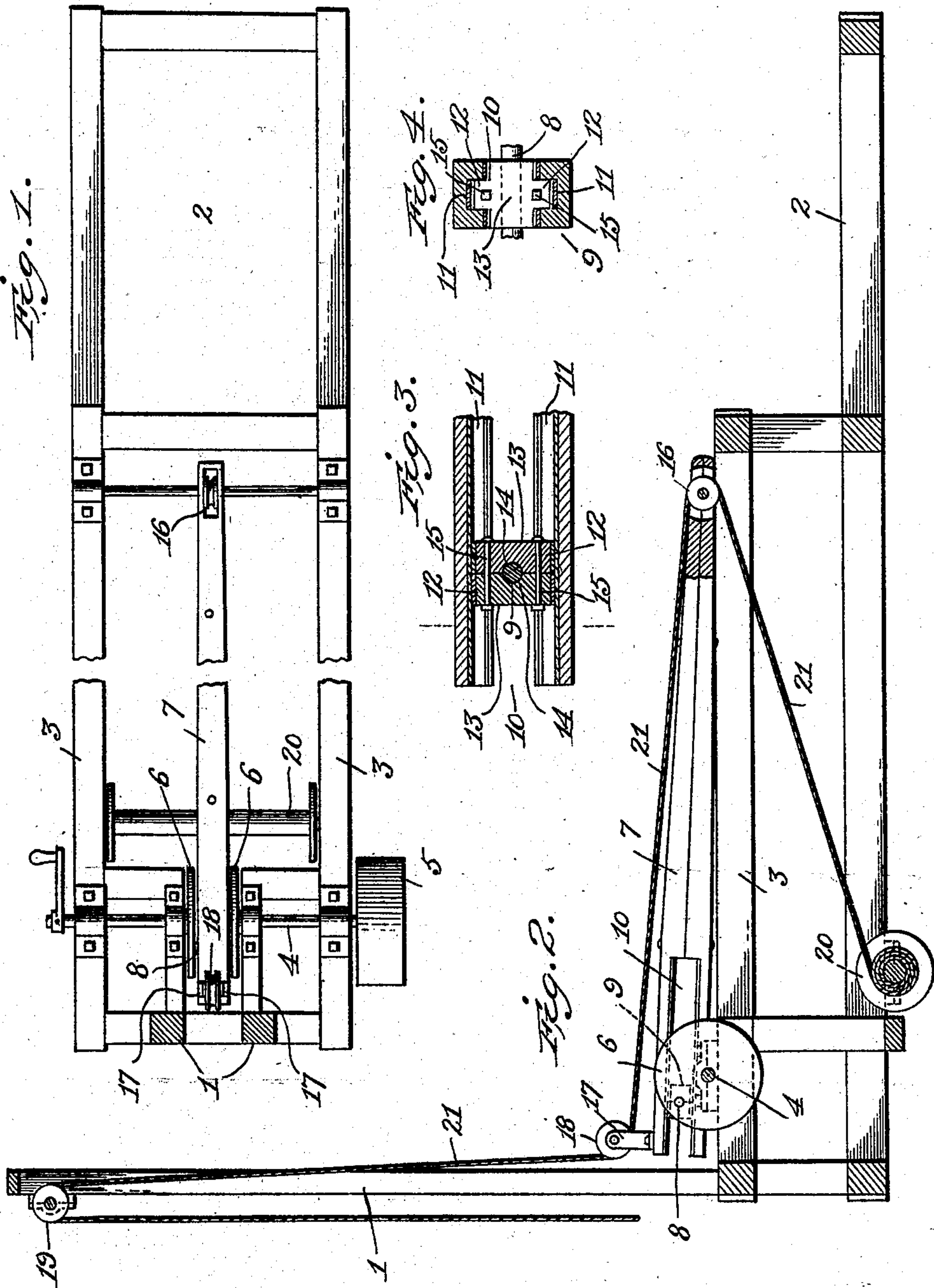


J. H. CLACK.
WELL DIGGING MACHINE.
APPLICATION FILED APR. 1, 1908.

905,147.

Patented Dec. 1, 1908.



Witnesses

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UNITED STATES PATENT OFFICE.

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WELL-DIGGING MACHINE.

No. 905,147.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed April 1, 1908. Serial No. 424,650.

To all whom it may concern:

Be it known that I, JUDGE H. CLACK, a citizen of the United States of America, residing at Memphis, in the county of Hall and State of Texas, have invented certain new and useful Improvements in Well-Digging Machines, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improved machine for drilling wells and consists in certain novel features hereinafter first fully described and then particularly pointed out in the claims.

In the accompanying drawings, which fully illustrate the invention, Figure 1 is a plan view, partly in section, of an oil-well-drilling machine embodying the improvements; Fig. 2 is a longitudinal section of the same; Fig. 3 is a detail section through the cross-head and spudding beam, and Fig. 4 is a detail view of the cross-head.

The machine comprises a suitable frame provided with a mast, 1, at one end and having a space, 2, at the opposite end for the operating engine. Adjacent the mast, the frame is provided with upper supporting beams, 3, upon which is journaled the driving shaft, 4, having at one end a band pulley, 5, which is connected with the operating engine by a suitable belt. The driving shaft is formed in two alined members having concentric crank disks, 6, on their inner ends between which the spudding beam, 7, plays. These crank disks are connected by a wrist pin, 8, which passes through a cross-head, 9, the cross-head being mounted in a longitudinal slot, 10, in the free end of the spudding beam. Grooves or ways, 11, are formed in the upper and lower walls of the slot 10 and the cross-head is provided on its upper and lower sides with ribs, 12, adapted to engage said grooves or ways and thereby prevent lateral displacement of the cross-head. The ribs and grooves are preferably provided with metallic wearing surfaces in order to prolong the life of the parts but the body of the beam as well as of the cross-head is preferably formed of a cheaper material, such as wood, for the sake of economy. The cross-head is constructed in two members, 13, having registering recesses, 14, in their opposing faces to engage the wrist pin and are held together by bolts, 15, inserted longi-

tudinally through the members. This construction permits the parts to be tightened at will in order to compensate for the wear from the wrist pin. The spudding beam is fulcrumed near its inner end upon the upper portion of the supporting frame and carries a pulley, 16, at its inner end. Upon the upper side of the spudding beam, at the free end of the same, is a bracket, 17, in which is journaled a pulley, 18, while a similar pulley, 19, is provided at the upper end of the mast 1. The rope drum 20 is situated on the frame below the spudding beam and the driving shaft and the drill rope, 21, passes from the drum to and over the pulley 16, thence to and under the pulley 18 and thence to and over the pulley, 19 from which it depends, carrying the usual drill at its lower end.

When motion is imparted to the driving shaft from the engine, the wrist pin will be carried around by the crank disks and the spudding beam will consequently be vibrated. As the free end of the beam is carried downward by the wrist pin, the drill rope will be drawn upward in the well so as to raise the drill while when the beam moves in the opposite direction the rope will be slackened and the weight of the drill will cause it to fall and perform its work of deepening the well. As the well is deepened the drum is rotated slightly so as to increase the working length of the drill rope in the usual manner.

It will be readily observed that I have produced a very simple and compactly arranged machine. The crank disks will lie close to the opposite sides of the beam and thereby serve to resist the tendency of the beam to move laterally so that the liability of twisting the driving shaft and the several journals is overcome. The construction of the cross-head and the slotted portion of the spudding beam is such that these parts are laterally interlocked so that the cross-head can not be displaced, the result being that the drill rope is not thrown off the pulleys and the work is expedited.

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

1. In a well-drilling machine, the combination of a supporting frame, a spudding beam fulcrumed thereon and provided with a longitudinal slot at its free end, a divided driving shaft mounted on the frame, crank

disks on the inner ends of the members of the driving shaft close to the sides of the spudding beam, a cross-head mounted in the longitudinal slot of the spudding beam, and
5 a wrist pin connecting the crank disks and passing through the cross-head.

2. In a well-drilling machine, the combination of a supporting frame, a spudding beam fulcrumed thereon and constructed
10 with a longitudinal slot at its free end and longitudinal grooves in the upper and lower walls of the said slot, a two-part driving shaft mounted on the frame, disks on the inner ends of the members of the said shaft
15 at the opposite sides of the spudding beam,

a wrist pin connecting the disks and passing through the longitudinal slot in the spudding beam, and a cross-head consisting of two members clamped on the wrist pin and provided with ribs on its upper and lower
20 sides to engage the grooves in the upper and lower walls of the slot in the beam.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

JUDGE H. CLACK.

Witnesses:

CHARLES NELSON,
C. L. Woods.