No. 859,975. PATENTED JULY 16, 1907.

F. J. POND.

TRANSMISSION MECHANISM.

APPLICATION FILED FEB. 23, 1907.

Fig. 1.

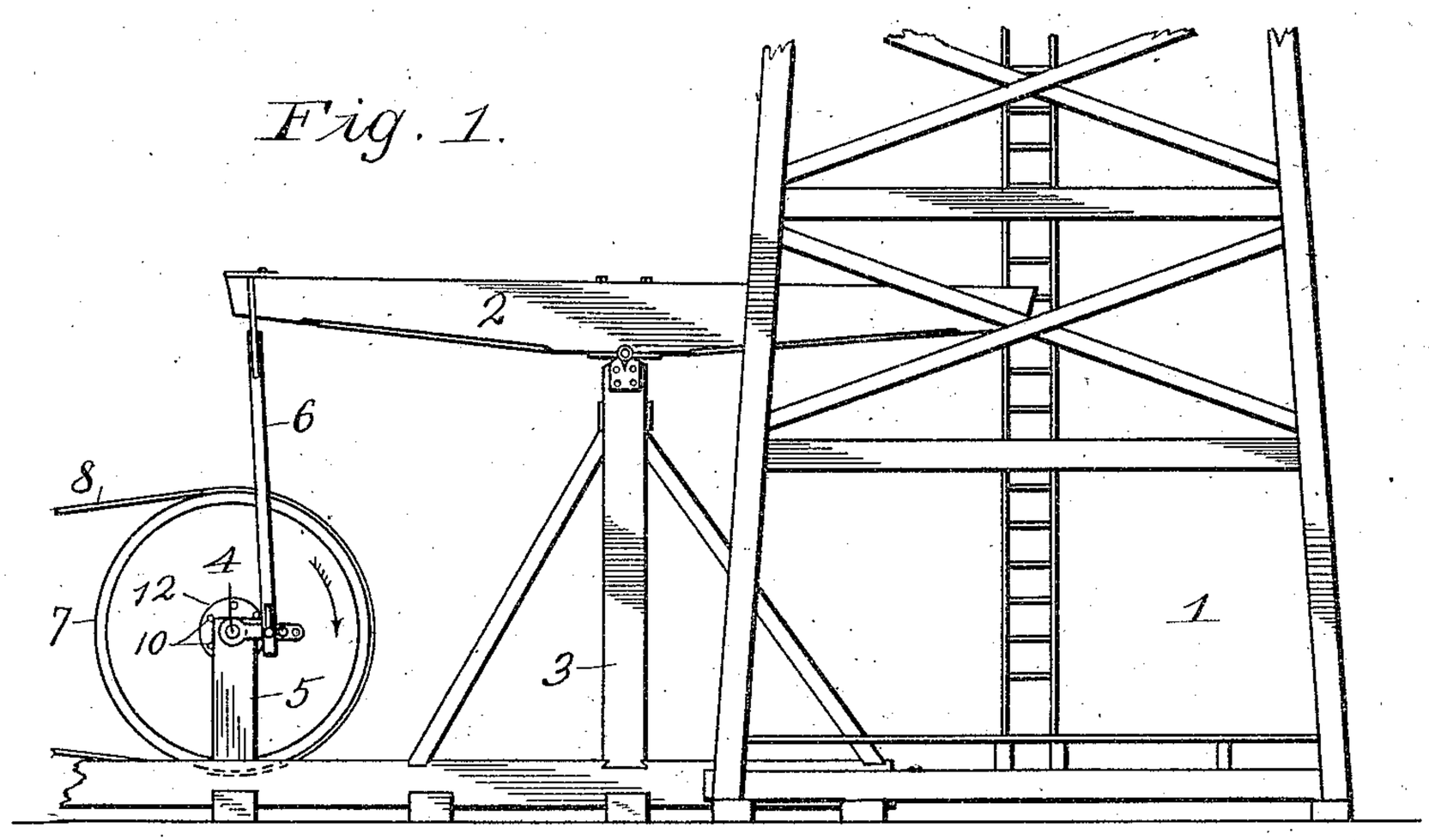


Fig. 2.

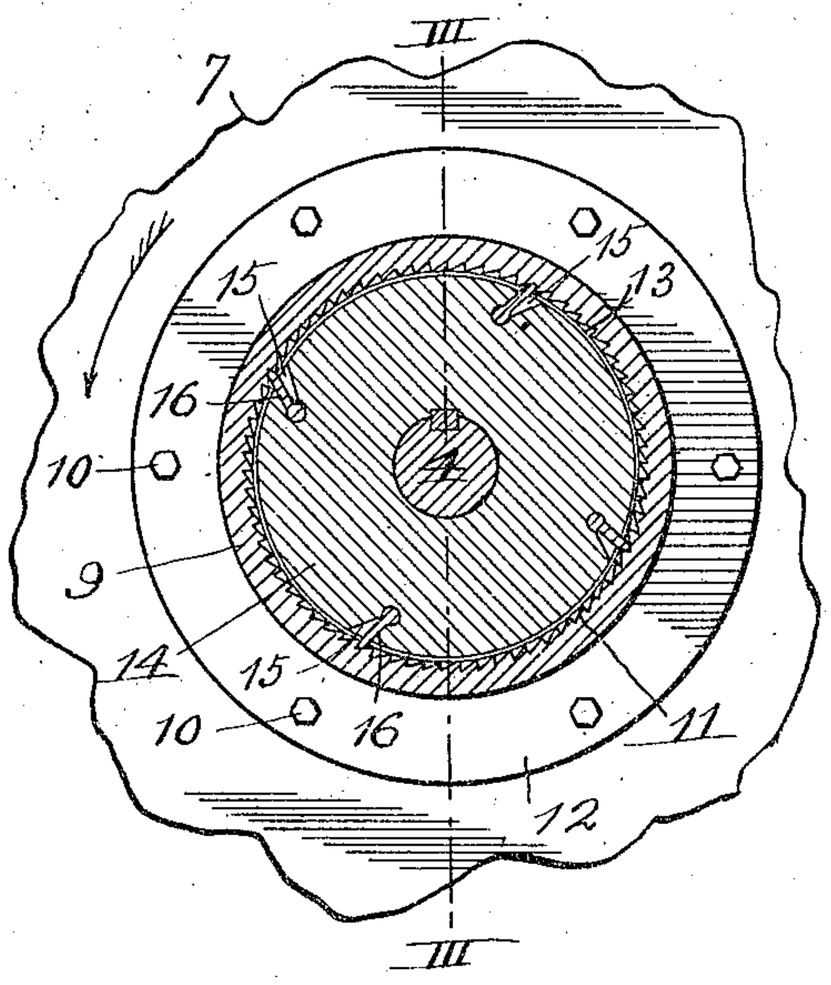
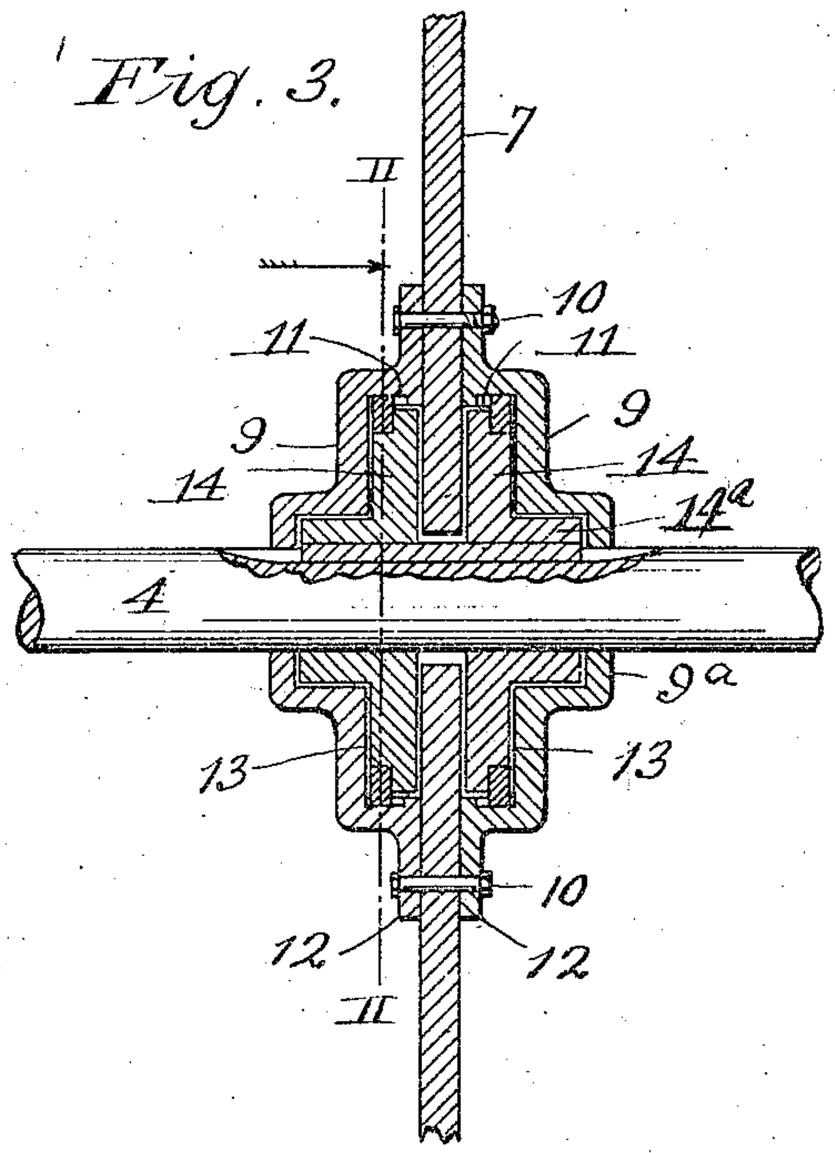


Fig. 3.



Witnesses:—
E. C. Sudelman.
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UNITED STATES PATENT OFFICE.

FRANK J. POND, OF OCHELATA, INDIAN TERRITORY.

TRANSMISSION MECHANISM.

No. 859,975. Specification of Letters Patent. Patented July 16, 1907.

Application filed February 23, 1907. Serial No. 358,843.

To all whom it may concern:

Be it known that I, FRANK J. POND, a citizen of the United States, residing at Ochelata, in District No. 3, Indian Territory, have invented certain new and useful Improvements in Transmission Mechanism, of which the following is a specification.

My invention relates to improvements in transmission mechanism, and my object is to provide such mechanism whereby the driven object or machinery may travel at different speeds while the motor furnishing the power travels at a uniform rate of speed.

While the invention is applicable to a variety of machinery, it is particularly adapted for use in connection with well-boring or drilling machinery where it is desirable to permit the drill to move downward with increased speed, through force of gravity, so that its blows may prove effective upon the material being penetrated.

Referring now to the accompanying drawing,—Figure 1 represents my invention applied to a drilling machine. Fig. 2 is an enlarged vertical section of the invention on line II—II of Fig. 3. Fig. 3 is a vertical section on line III—III of Fig. 2.

1 designates a tower of the drilling machine in position for boring a well.

2 designates a walking-beam for raising the drill (not shown) after each downward stroke of the latter.

3 designates a standard upon which the walking-beam is fulcrumed.

4 designates a crank shaft journaled in standards 5.

6 designates a connecting rod pivoted at its ends to the crank shaft and one end of the walking-beam.

7 designates a drive pulley loosely mounted upon the crank shaft and driven by a suitable motor (not shown) through the medium of a belt 8.

9 designates a pair of drive members having cup-shaped centers 9^a loosely mounted upon the crank shaft and peripheral flanges 12 secured to the opposite sides of pulley 7 by bolts 10. Between the cups and the flanges the members are upset to produce annular recesses 13 concentric with and located next within the flanges, and in the outer edges of these recesses are formed rings or internal ratchet wheels 11. The recesses receive a pair of driven members consisting of disks 14 having axially elongated hubs 14^a extending out into the cups 9^a and keyed or otherwise fixed to the shaft 4. These disks have a plurality of peripheral recesses 15 for the reception of a plurality of pawls 16, pivotally mounted therein and adapted to engage the internal teeth of the drive members 9.

In practice pulley 7 drives the crank shaft through the medium of the intervening members, a part of each revolution, and causes said shaft, through rod 6 and walking-beam 2, to lift the drill until the crank member on shaft 4 passes slightly to the rear of a perpendicular line drawn through the center of said shaft. The weight of the drill, through the force of gravity, will then cause it to rapidly descend and the crank shaft to complete the remainder of the revolution at a higher rate of speed than that traveled by pulley 7, with the result that pawls 16 will slide idly over the ratchet teeth until the drill reaches the end of its downward stroke. The weight of the drill will then retard the speed of the crank shaft and permit the ratchet teeth to again positively engage the pawls and thereby turn the crank shaft until the drill is raised and again descends. The above operation is repeated until the motor is shut down.

By permitting the crank shaft to turn more rapidly than the pulley during the descent of the drill, it is obvious that the speed of said pulley will be substantially uniform, and it may be driven by a gas engine, which so far as I can learn, has heretofore been impracticable for this class of work, owing to the variable speed of the crank shaft, which is necessary to obtain an effective blow with the drill.

Having thus described my invention, what I claim is:—

1. In a transmission mechanism, the combination with the shaft, a drive pulley loosely mounted on the shaft, a pair of drive members having peripheral flanges bolted to opposite sides of said pulley and offset to form recesses next inside the flanges, the offset portions being provided with internal ratchet teeth, and hubs for said members; of a pair of driven disks fitting within said recesses and secured to said shaft, and pawls carried by the driven members and adapted to engage the ratchet teeth, for the purpose set forth.

2. In a transmission mechanism, the combination with the shaft, a drive pulley loosely mounted on the shaft, a pair of drive members having peripheral flanges bolted to opposite sides of said pulley and offset to form recesses next inside the flanges, the offset portions being provided with internal ratchet teeth, and cup shaped centers for said members; of a pair of driven disks fitting loosely within said recesses and having axially elongated hubs fitting within said cups and secured to said shaft, and pawls carried by the driven members and adapted to engage the ratchet teeth, for the purpose set forth.

In testimony whereof I affix my signature, in the presence of two witnesses.

FRANK J. POND.

Witnesses:
FRED P. SPRAUL,
GRACE G. SHERWOOD.