

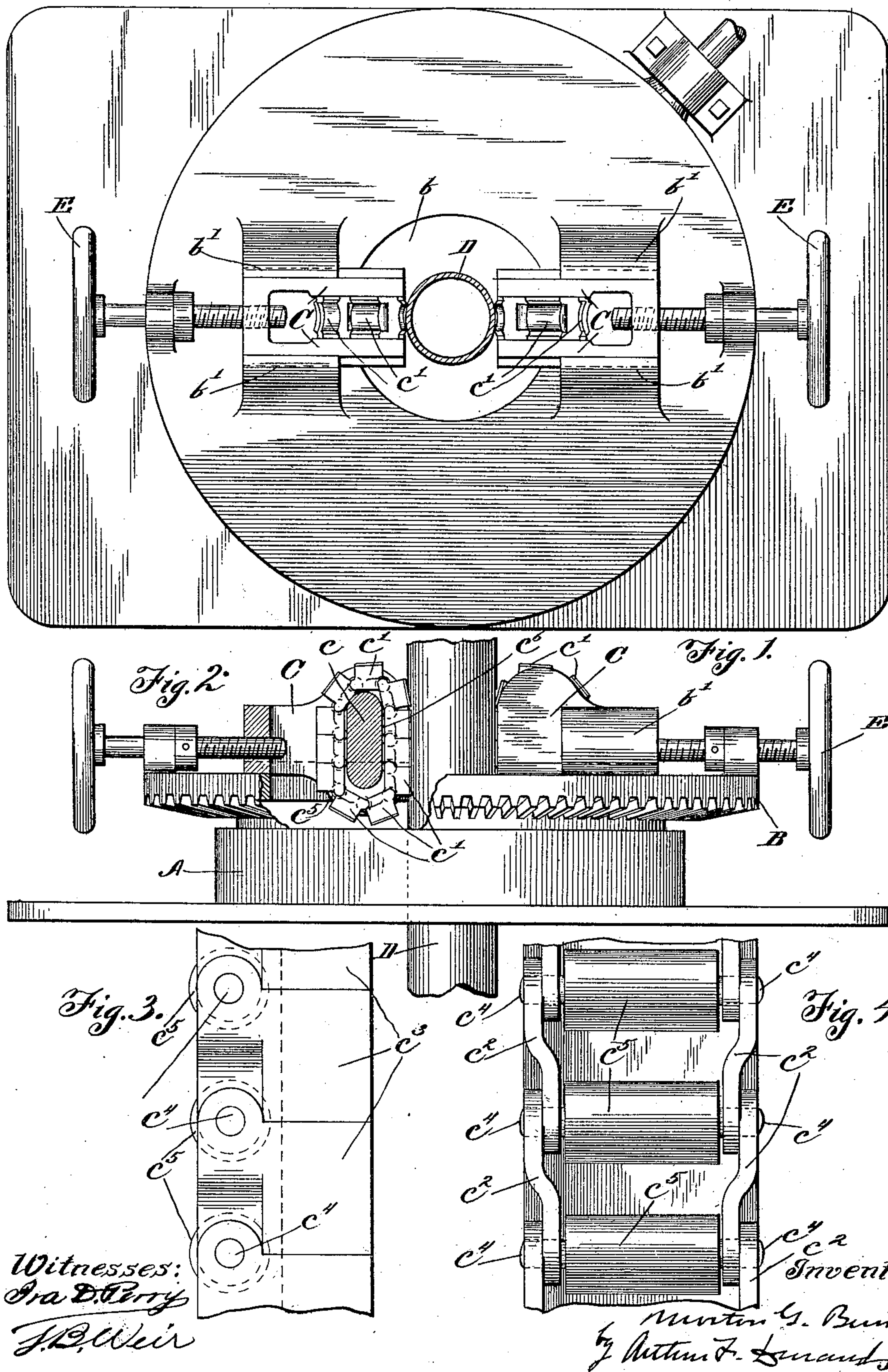
No. 763,255.

PATENTED JUNE 21, 1904.

M. G. BUNNELL.  
WELL MACHINE.

APPLICATION FILED FEB. 24, 1902.

NO MODEL.





# UNITED STATES PATENT OFFICE.

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## WELL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 763,255, dated June 21, 1904.

Application filed February 24, 1902. Serial No. 95,288. (No model.)

*To all whom it may concern:*

Be it known that I, MORTON G. BUNNELL, a citizen of the United States of America, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Well-Machines, of which the following is a specification.

My invention relates to that type of well-machine in which a pipe or well-tube is given a rotary motion by means of a rotary turntable upon which are mounted jaws for gripping and turning the pipe or tube and, at the same time, allowing the tube to sink gradually downward.

Generally stated, the object of my invention is to provide a simple and highly-efficient well-machine of the foregoing character.

A special object is to provide an improved form of pipe-grapple for rotating the well-tube.

It is also an object to provide certain details and features of improvement tending to reduce friction and improve the general working of a machine of this character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a plan of a rotary well-machine embodying the principles of my invention. Fig. 2 is a side elevation of the machine shown in Fig. 1, certain portions of the turn-table being broken away and one of the adjustable jaws being shown in vertical section. Figs. 3 and 4 are respectively side and rear elevations of a portion of one of the endless and free-traveling gripping-chains with which each jaw is preferably provided.

As thus illustrated the rotary well-machine may comprise a suitable bed or body A, adapted to afford a bearing for the rotary turn-table B. It will be understood that any suitable means can be employed for rotating this turn-table B. Upon the upper surface of said turn-table the jaws C are mounted for horizontal adjustment toward and away from the pipe or well-tube D. This pipe or well-tube,

it will be observed, is arranged to extend vertically through the opening *b* in the said turntable. The said jaws are preferably arranged for sliding adjustment in the ways *b'* and can be moved or adjusted by means of the horizontally-disposed hand-screws E. Each jaw, it will be seen, involves, preferably, a holder or chain-mounting *c*, adapted to support the endless or free-traveling chain or link belt *c'*. Each link belt or chain is preferably of a length to have more or less slack at its lower turn. As shown in Figs. 3 and 4, said chains preferably comprise links having side bars *c''*, cast integral with the blocks or bearing portions *c'''*. Referring to Fig. 4, it will be seen that the said side bars of the links are preferably offset at one end, so as to couple up with the ends of the adjoining links. Furthermore, it will be seen that the pivot or connecting pins *c<sup>4</sup>* of these chains are each preferably provided with rolls *c<sup>5</sup>*. These rolls are arranged to bear and travel upon the surfaces *c<sup>6</sup>*, with which each chain holder or mounting is provided. When the jaws are adjusted against the pipe or well-tube, these surfaces bear against the said rolls and cause the straightened or vertical portions of the free-traveling chains to bear against the cylindric surface of said tube. In this way the chains impinge upon the well-tube with sufficient force or pressure to turn the latter, but at the same time permit the tube to sink gradually downward, each chain traveling freely with the endwise movement of the said tube. Thus the rolls *c<sup>5</sup>* support the chain-links and prevent friction or binding. The jaws thus constructed and adjustably mounted to grip and rotate pipes and tubes of different sizes constitute a simple and thoroughly-efficient pipe-grapple for performing the desired work. It will be understood that the said chains can be made of any desired length and that the longer each chain is made the greater the effective bearing-surface of each jaw. By thus extending the bearing-surface of each jaw lengthwise of the tube a more effectual gripping action is secured, and at the same time the force or pres-



sure necessary for gripping the pipe is greatly reduced. In this way the pipe is effectually rotated with less pressure on the part of the jaws and consequently with less liability of  
5 being crushed or mutilated.

I claim as my invention—

1. In a machine for boring wells, the combination of an upright cylindric member, a rotary turn-table, a plurality of adjustable  
10 members mounted upon said turn-table and arranged to be moved toward and away from said cylindric member, an endless and free-traveling chain mounted upon each adjustable member and provided with bearing portions  
15 adapted to impinge upon the surface of said cylindric member, and rolls mounted upon said chains and arranged to travel upon the surfaces of the said adjustable members.

2. In a machine for boring wells, the combination of a rotary turn-table, a vertically-disposed pipe or well-tube extending through a central opening in said turn-table, a plurality of adjustable members mounted upon said  
20 turn-table and arranged for movement toward and from said pipe or tube, means for adjusting said members, means for rotating said turn-table, an endless and free-traveling link belt or chain mounted upon said adjustable member and provided with bearing portions  
25 adapted to impinge upon the cylindric surface of said pipe or tube, each link belt or chain consisting of links having side bars and bearing-blocks cast integral, pivot or connecting pins for connecting the said side bars of the  
30 links of each chain, and rolls mounted upon said pivot or connecting pins, said rolls being adapted to bear and travel upon the surfaces of said adjustable members, so as to allow the

said chains to travel or move freely with the downward or endwise movement of said tube. 40

3. A grapple for gripping and rotating a cylindric member, and at the same time allowing said member to have a free longitudinal or end movement, comprising a rotatable support, a plurality of adjustable members mounted upon said support, free-traveling endless  
45 chains mounted upon said members, and provided with bearing portions adapted to impinge upon the surface of said cylindric member, and rolls mounted upon and carried by  
50 said chains, said rolls being adapted to bear upon and travel along the surfaces of said adjustable members.

4. A well-machine comprising a rotary turn-table, a jaw mounted upon said turn-table and  
55 provided with an endless chain adapted to impinge upon a pipe or well-tube for the purpose of gripping and causing the latter to partake of the rotary motion of the said turn-table, a backing for forcing said chain into  
60 engagement with the pipe or tube, rolls carried by said chain and adapted to travel downwardly upon the face of said backing, power-operated means for rotating said turn-table, and another jaw mounted on said turn-table  
65 and adapted to cooperate with said first-mentioned jaw in rotating the said pipe or well-tube.

Signed by me at Chicago, county of Cook, State of Illinois, this 12th day of November, 70  
A. D. 1901.

MORTON G. BUNNELL.

Witnesses:

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