(No Model.)

B. WATSON.

HOISTING MACHINE.

No. 356,807. Patented Feb. 1, 1887.

Fig. 1.

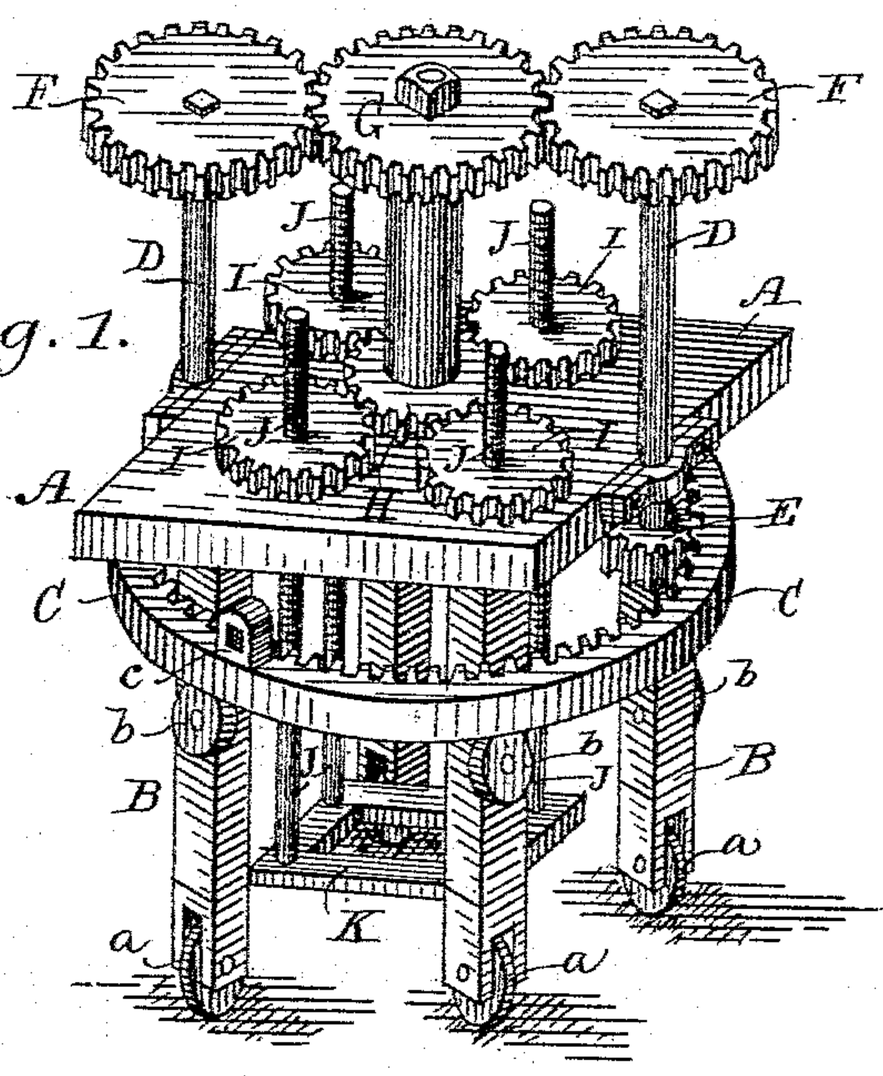


Fig. 2.

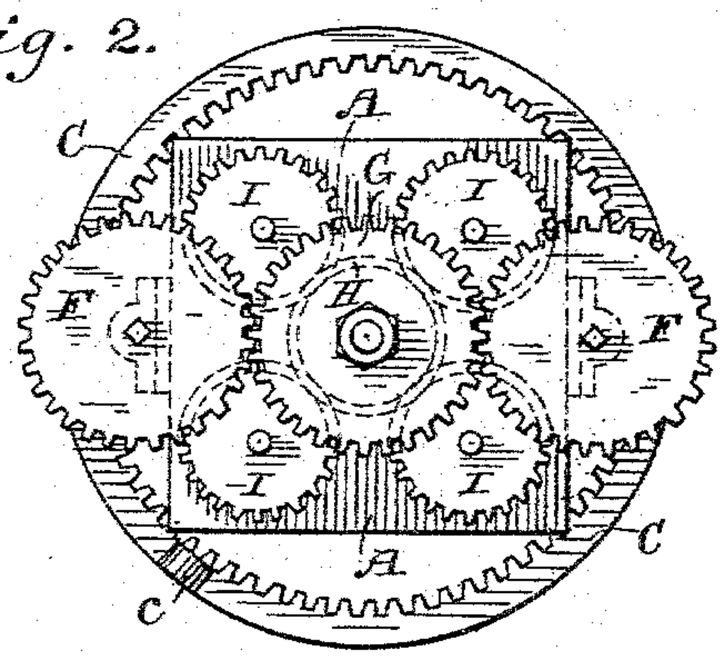
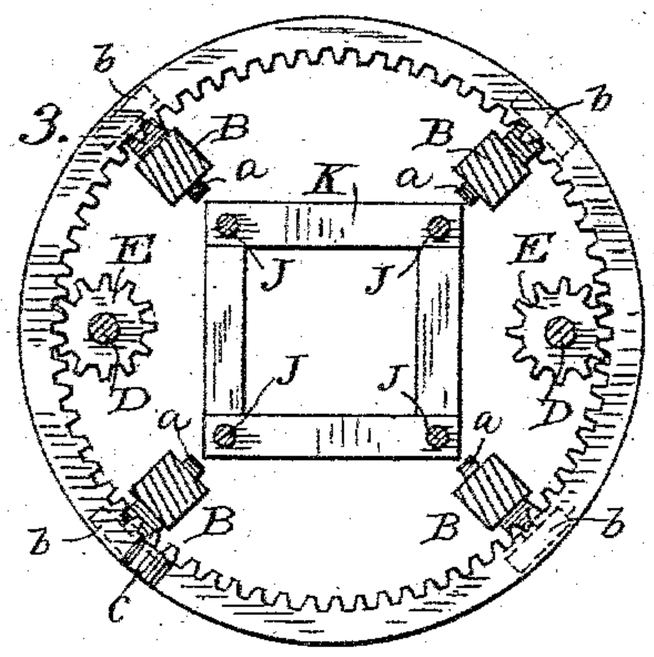


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

BENJAMIN WATSON, OF WILMINGTON, DELAWARE.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 356,807, dated February 1, 1887.

Application filed September 14, 1886. Serial No. 213,475. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN WATSON, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Hoisting-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This hoisting-machine is intended more particularly for the hoisting or lifting of heavy weights; and it consists in the combination of gearing which does this with small expenditure of power and with even and uniform strain.

The improved machine is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a top view, and Fig. 3 is a horizontal section taken just above the drive-wheel and looking down.

The frame-work of the machine consists of an elevated platform, A, supported by posts or legs B B, the latter being suitably braced and carried on casters *a a*. Surrounding the supporting-legs below the platform, and resting upon anti-friction rollers *b b*, mounted in suitable bearings in the frame-work, is the drive-wheel C. This drive-wheel is a circular rim having rack-teeth on its inner periphery. This wheel may be rotated by any convenient mechanism, provision being shown at *c* for attaching an operating-lever thereto. Rotatively mounted on the opposite sides of the frame-work are two vertical shafts, D D, each of which carries on its lower end a small pinion, E, meshing with the drive-wheel, and on its upper end above the platform a large cog-wheel, F. Upon the center of the platform A is rotatively mounted a shaft, which on its upper end carries a cog-wheel, G, which meshes with the two cog-wheels F F. On the same shaft with the wheel G is a second cog-wheel, H. This wheel H rotates just above the surface of the platform, and it meshes with four other cog-wheels, I I, which rotate in the same horizontal plane therewith. The three cog-wheels F F G are of substantially the same size, and the five wheels H H I, smaller than them, are equal in size to each other. Each of the wheels I I has a central screw-threaded aperture, through which passes a vertical exteriorly screw-threaded rod, J. The four rods J J extend beneath the platform, and to their lower ends is secured a rectangular frame, K. Upon this frame are placed, or to it are secured, the weights to be raised or lowered. The rotation of the drive-wheel, acting through the intermediate gearing, raises or lowers the screw-rods and the weight carried thereby. By the employment of a large drive-wheel inclosing the other parts of the machine a large leverage is obtained, and by the employment of the double and quadruple gearing the motion is rendered uniform and steady.

With the exception of the supporting-legs and the lifting-frame K, which are preferably wood, all of the parts are preferably made of metal. The machines are usually constructed from ten to twelve feet in height, and the drive-wheel located at about the vertical center. Among the purposes for which this machine may be used may be mentioned raising buildings and extracting stumps.

I claim as my invention—

In a hoisting-machine, the supporting frame-work, the rotatively-mounted drive-wheel C, composed of a circular rim having rack-teeth on its inner periphery, said wheel surrounding the supporting frame-work, and the vertical shafts D, having pinions E E on their lower ends, meshing with the drive-wheel, and cog-wheels F F on their upper ends, in combination with the cog-wheel G, meshing with the wheels F F, the cog-wheel H on the same shaft with the wheel G, the cog-wheels I I, meshing with the wheel H, said wheels I I having central screw-threaded apertures, and the vertical exteriorly screw-threaded rods J J, extending through the apertures in said wheels I I, substantially as set forth.

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

his
BENJAMIN × WATSON.
mark.

Witnesses:
GEO. W. BRIGHT,
HENRY C. CONRAD.