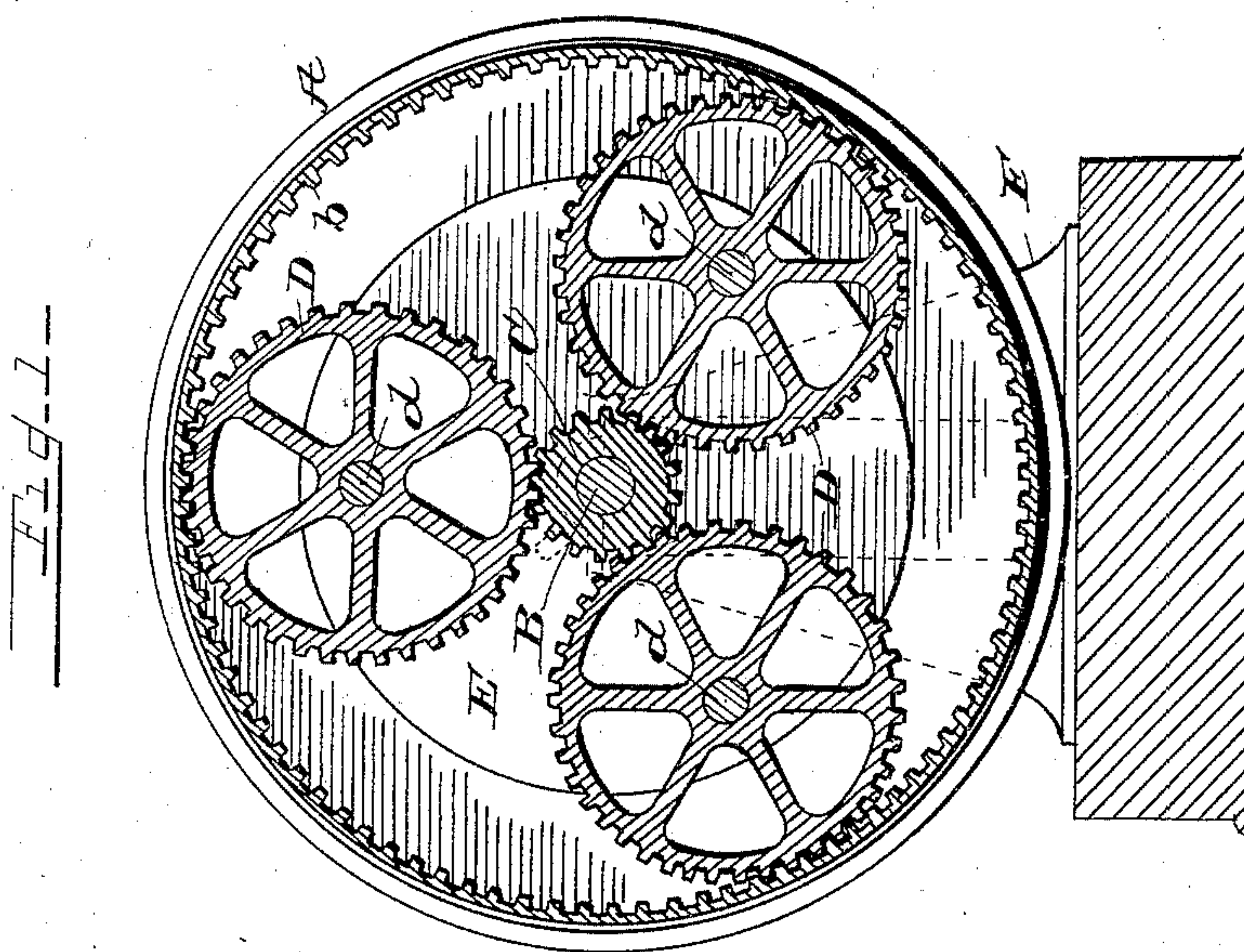
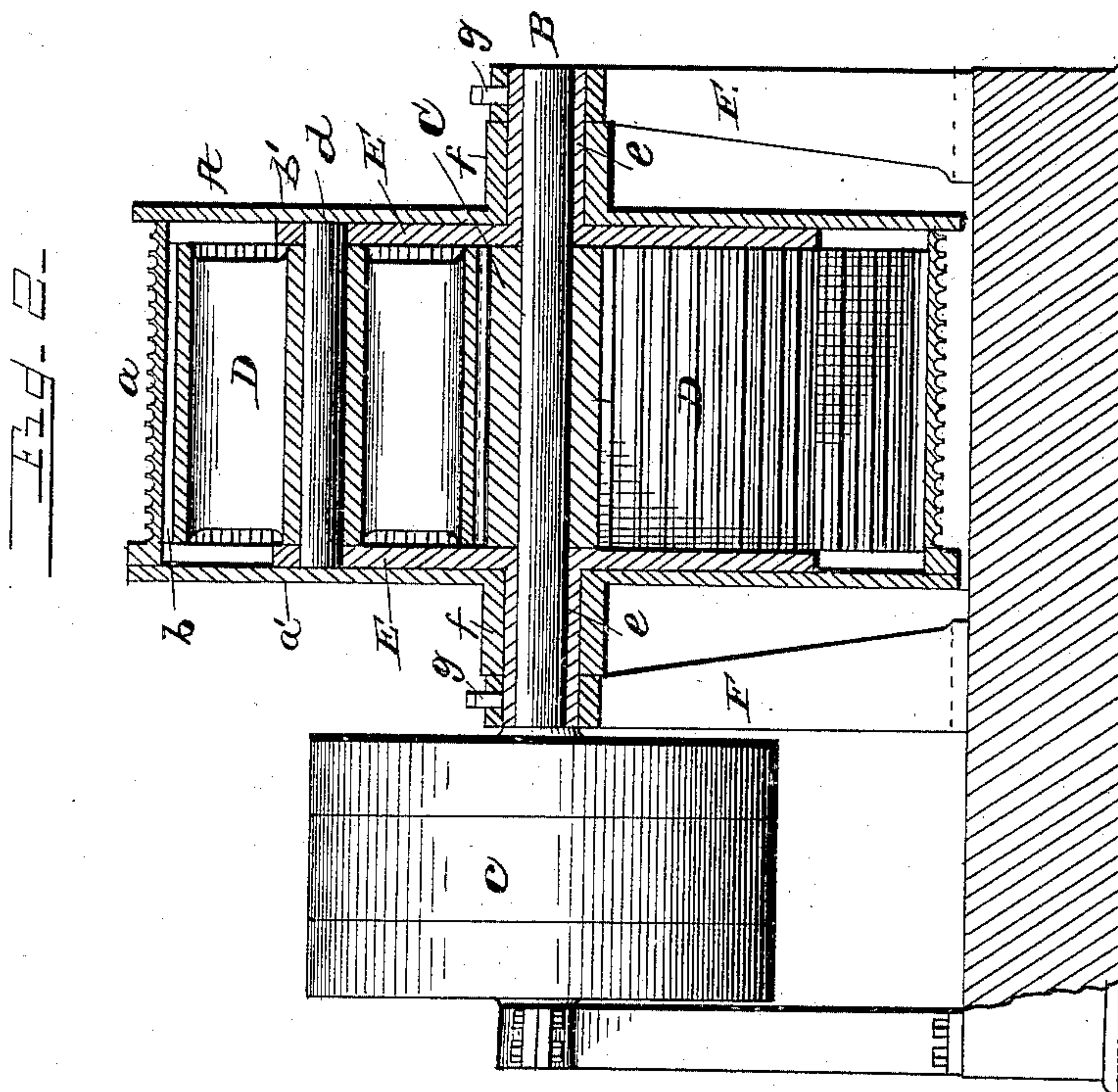


(No Model.)

P. L. & A. A. WEIMER.
HOISTING DRUM FOR ELEVATORS.

No. 446,044.

Patented Feb. 10, 1891.



Witnesses

E. W. Fairbenschmidt
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UNITED STATES PATENT OFFICE.

PETER L. WEIMER AND ASA A. WEIMER, OF LEBANON, PENNSYLVANIA.

HOISTING-DRUM FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 446,044, dated February 10, 1891.

Application filed June 12, 1890. Serial No. 355,215. (No model.)

To all whom it may concern:

Be it known that we, PETER L. WEIMER and ASA A. WEIMER, citizens of the United States, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Hoisting-Drums for Elevators; and we do hereby 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.

Our invention relates to hoisting-drums for elevators, and has for its object certain improvements in construction, which will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents a vertical transverse section of our improved hoisting-drum, and Fig. 2 a side elevation with the drum in longitudinal section.

Reference being had to the drawings and the letters thereon, A indicates the drum, which is provided with a groove *a* to receive the rope or cable of an elevator, and an internal gear *b*, whose length of teeth is equal to nearly the length of the drum-heads *a' b'*, the former being detachably secured to the drum.

B indicates the shaft upon which the drum is mounted, and through which power is communicated thereto by a belt from a source of power applied to the pulley *c*, or by attaching an engine directly to the shaft, as is commonly practiced. Upon the shaft B is secured a pinion C, the length of which is nearly equal to that of the interior of the drum.

D indicates an idle gear-wheel whose length is the same as the gear *b* and the pinion C, and is supported upon a shaft *d*, the ends of which enter and are secured to disks or spiders E E on both sides and within the drum. The disks or spiders are provided with hubs or sleeves *e*, which extend through the hubs *f* of the heads *a' b'* of the drum, and are secured to the pedals F F by screws *g*, which prevent the disks revolving with the shaft or the drum. Two or more of the idle gear-wheels D may be employed, as found desirable in large drums.

The operation is as follows: Power being

applied to the shaft B, the pinion C is revolved and communicates motion to the idle wheel or wheels D, which in turn communicate the motion and power of the pinion to the drum A through the internal gear *b*.

In the ordinary construction of hoisting-drums a pinion of from six to eight inches wide, secured to a shaft, engages directly with an external circumferential gear on the drum, which gear is of the same width as the pinion. This construction requires the teeth of the gear to be of high pitch, usually two inches, in order to get the requisite strength; but while the necessary strength is obtained the duty or work of the gear-teeth is so severe that the pinion must be frequently renewed. This rapid wear of the teeth is due to the excessive duty thrown on the teeth of the gears, which they are unable to resist in consequence of the narrow face of the teeth exposed to duty. The pitch being coarse, the wear rapid, produces in a short time sufficient play to give a great noise to the action of the gears.

By our construction we provide a great length of face of the gear, thus distributing the load or duty over a great surface or contact. We are thus able to secure a finer pitch of tooth and the necessary accuracy of construction to prevent any appreciable wear of the teeth. In practice we make this pitch from one and one-fourth to one and one-half inch.

The gearing in our construction being all contained within the drum, may be submerged in oil, and is free from dust or other foreign matter which may be accidentally dropped into the gear, and the gear may be of any desired length from twenty-four to forty-eight inches.

Having thus fully described our invention, what we claim is—

1. A hoisting-drum having an external grooved surface to receive a rope or cable, an internal circumferential gear of substantially the length of the drum, and heads closing the drum, in combination with a main shaft supporting the drum, a pinion of substantially the length of the drum and secured to said shaft, and an idle-wheel interposed between the drum and the pinion and supported at both its ends upon disks or spiders secured against revolving with the drum or shaft.

2. A hoisting-drum having an internal circumferential gear of a length nearly equal to the width of the drum, a shaft having a pinion secured thereto, and an idle-wheel between the pinion and the gearing, in combination with disks or spiders supporting the idle-wheel and having hub extending through the ends of the drum and secured against revolving with the drum or the shaft, substantially as described.

3. A hoisting-drum having heads provided with hubs supported to revolve upon a shaft and having internal circumferential gear-teeth the length of the drum, in combination

with a pinion secured to the shaft and having gear-teeth the length of the teeth on the drum, and an interposed idle-wheel between the pinion and the drum and supported upon a fixed shaft secured to disks or spiders within the drum and secured to the main shaft, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

P. L. WEIMER.
ASA A. WEIMER.

Witnesses:

SHIRK BOYER,
ALFRED HOUCK.