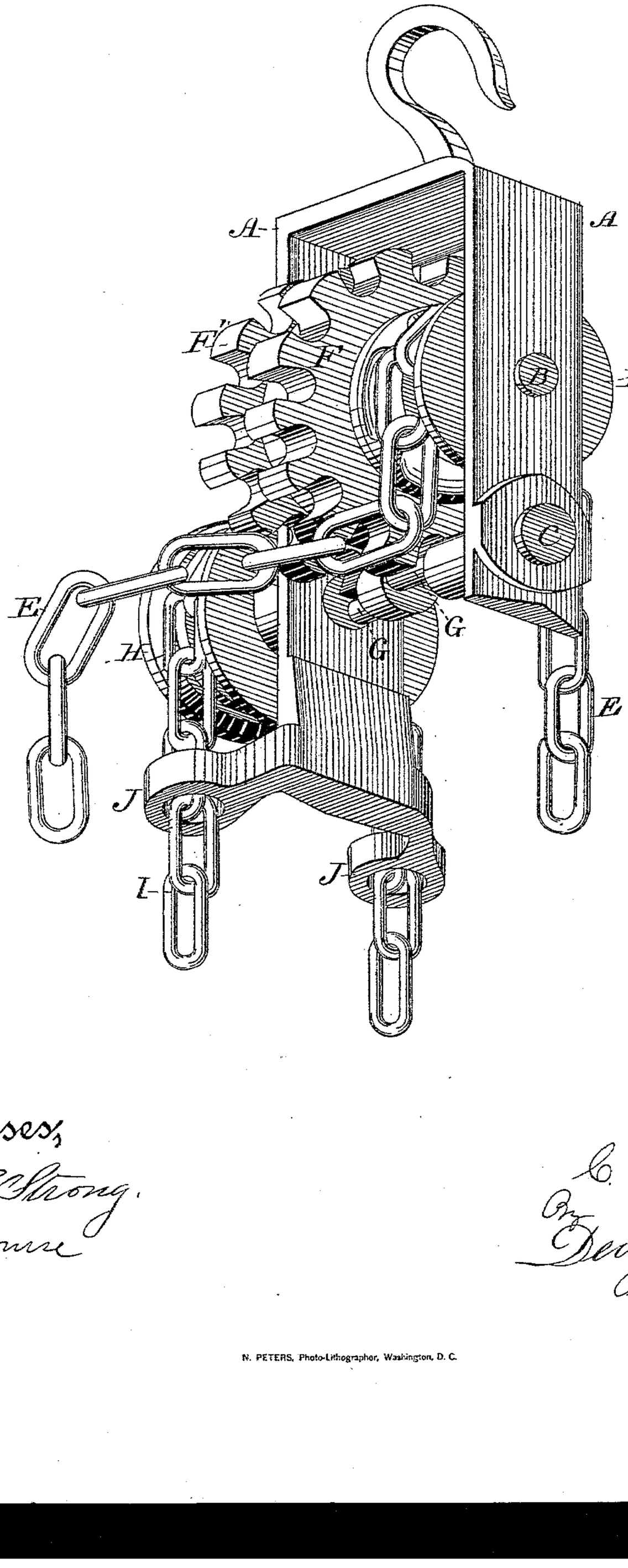
(No Model.) 2 Sheets—Sheet 1.

C. SANBORN.

LIFTING APPARATUS.

No. 319,132. Patented June 2, 1885.

Fig. 1.



Witnesses;
Geo. H. Strong.
J. A. Towne

Inventor,
C. Sanborn
By Dewey & Co.
Attorneys

(No Model.) 2 Sheets—Sheet 2.

C. SANBORN.

LIFTING APPARATUS.

No. 319,132. Patented June 2, 1885.

Fig. 2.

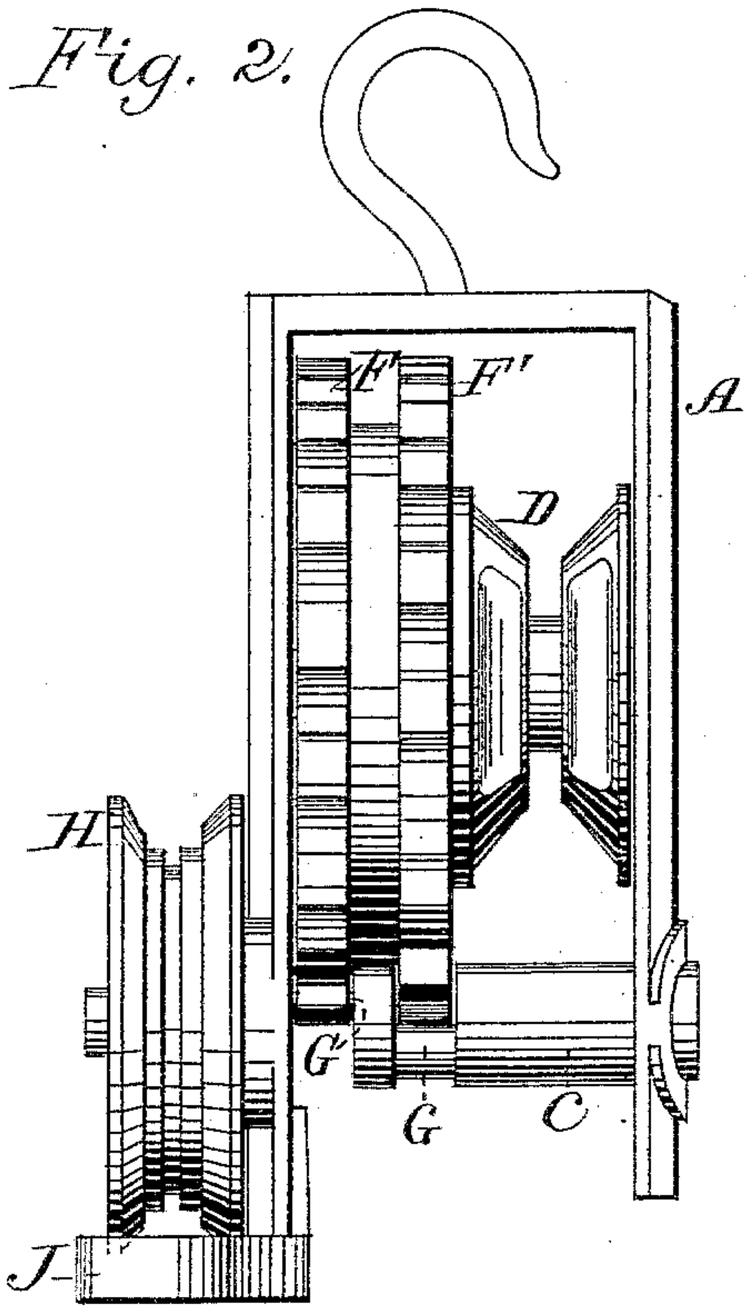
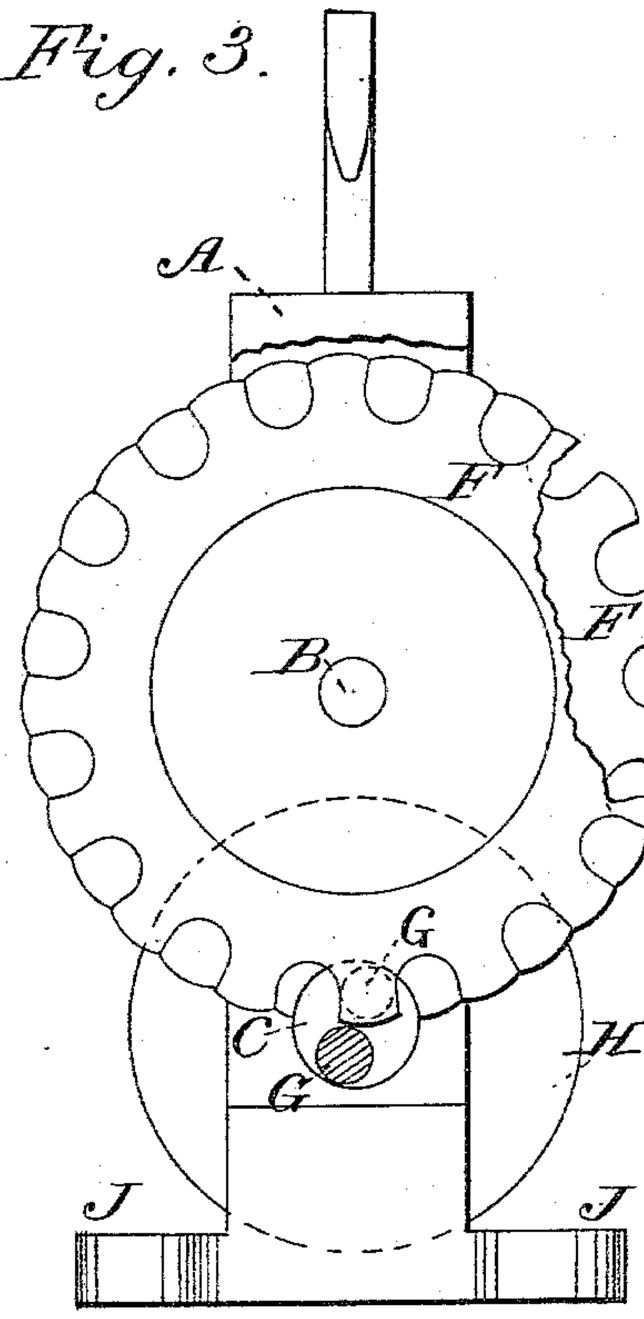


Fig. 3.



Witnesses;
Geo. H. Strong.
J. A. Towne

Inventor,
C. Sanborn
By Dewey & Co.
Attorneys

UNITED STATES PATENT OFFICE.

CLARENCE SANBORN, OF SACRAMENTO, ASSIGNOR OF ONE-HALF TO A. T. DEWEY, OF SAN FRANCISCO, CALIFORNIA.

LIFTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 319,132, dated June 2, 1885.

Application filed April 30, 1883. Renewed May 6, 1885. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE SANBORN, of Sacramento, county of Sacramento, State of California, have invented an Improved Lifting Apparatus; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in that class of lifting apparatus known as "lock-pulleys;" and it consists in certain details of construction hereinafter described and claimed.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1, Sheet 1, is a perspective view of my apparatus. Fig. 2, Sheet 2, is an edge view with chains removed. Fig. 3, Sheet 2, is a vertical section through one of the crank arms or pins and the main axle, showing a side view of the gear-wheels, the nearest one having a portion broken away.

A is a frame of any suitable form and size, in which the gear and pulley-shaft B is supported, while below this the cranked driving-shaft C is journaled. Upon the shaft B is fixed the chain-pulley D, having its periphery formed to receive, in the usual or any suitable form, the links of the hoisting-chain E and prevent them from slipping. Upon the same shaft are fixed the two gear-wheels F F'. In the present case I have shown these two wheels placed side by side, with a small intervening space; but they may be cast in one piece, if desired. It will also be seen that they might be fixed one upon each side of the chain-pulley D; but I prefer the present arrangement as being stronger and more compact. These gears are so fixed that the teeth of one stand opposite the spaces of the other. The shaft C has formed in it two eccentric pins or short crank-arms, G, which stand upon opposite sides of the axis of the shaft, and are of a diameter less than half the diameter of shaft C. The throw of these pins is fixed by the distance between the teeth of the gear-wheels, with which they correspond, so that as the shaft is revolved the pins enter the spaces between the teeth alternately, and thus advance them and turn the shaft and hoisting-chain pulley. The form of the teeth of the gear-wheels and the spaces between them is shown in Fig. 3, and is such that the pins G in their revolution pass over the points of the teeth and enter the spaces between them without slip or lost motion, and with the least possible friction. When allowed to stand with a weight suspended from the chain E, the pins G will lie in the spaces between the teeth, so as to form a perfect lock and prevent the shaft from turning back.

Upon the end of the shaft C is fixed a pulley, H, which is usually a chain-pulley, with an endless chain, I, passing over it and depending to a point within easy reach of the operator. Guides J depend from the frame A, and the chain I passes through them, and is thus kept in position upon the pulley when running rapidly. When used with pulleys, as here shown, the frame A is suspended by a hook or otherwise, so as to be properly balanced. It will be manifest that this method of advancing a toothed surface is not confined to circular gears, but may also be applied to straight rack-bars, which would be placed with their teeth alternating in the same manner, and the shaft with the eccentric pins would engage these teeth, so as to advance them in a similar manner with the gears.

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

In a lifting apparatus, gears or racks having toothed surfaces placed side by side, so that the teeth of one are opposite the spaces of the other, in combination with a shaft having eccentric pins upon opposite sides of the center and within the diameter of the shaft, one of said pins engaging the teeth of each wheel, so that said teeth may pass beyond the center of the shaft, substantially as herein shown and described.

In witness whereof I hereunto set my hand.

CLARENCE SANBORN.

Witnesses:

S. H. NOURSE,

JOSEPH A. BAYLESS.