

C. B. SAWYER.

Improvement in Mechanical Movements.

No. 131,566.

Patented Sep. 24, 1872.

Fig. 1. E

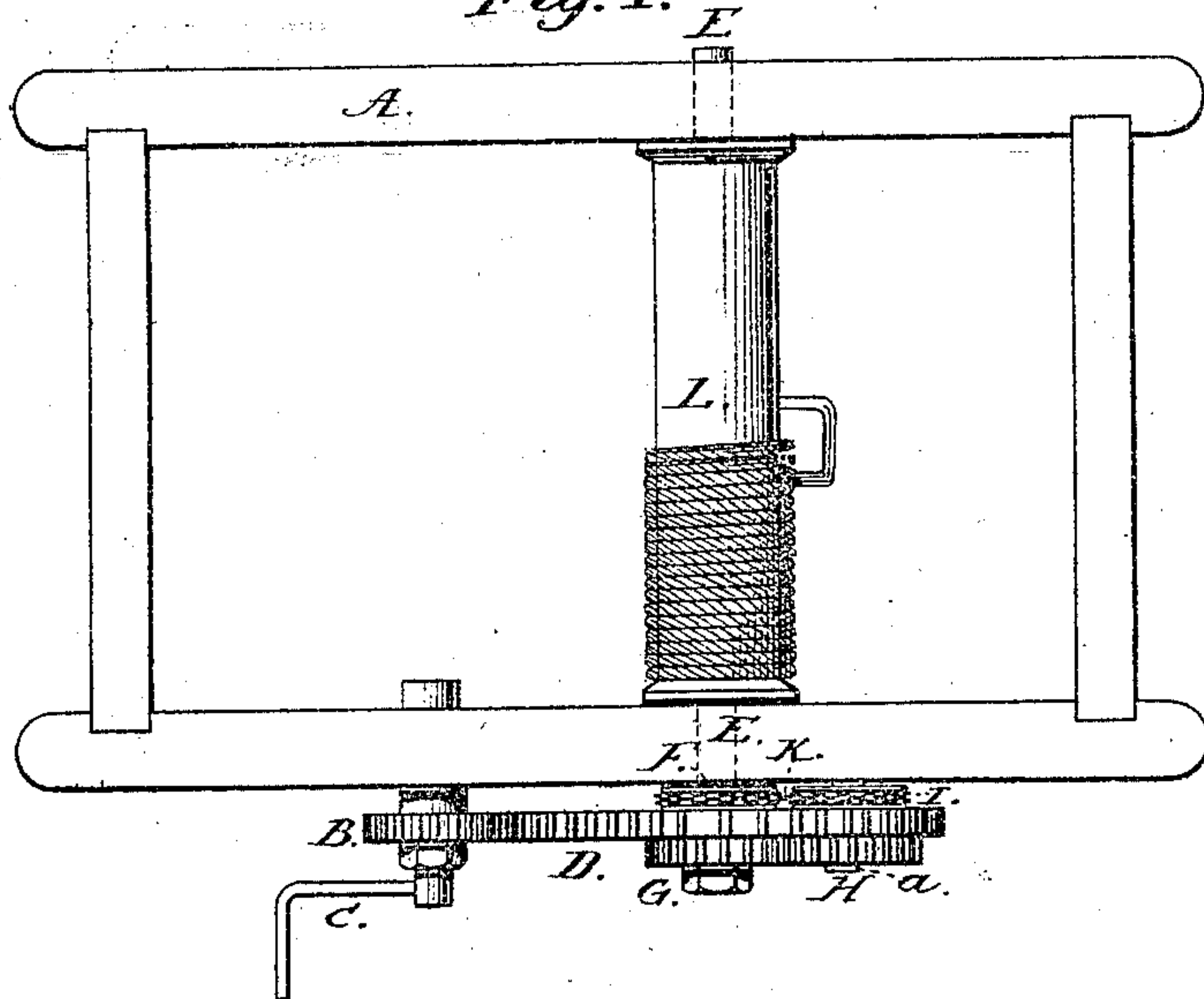
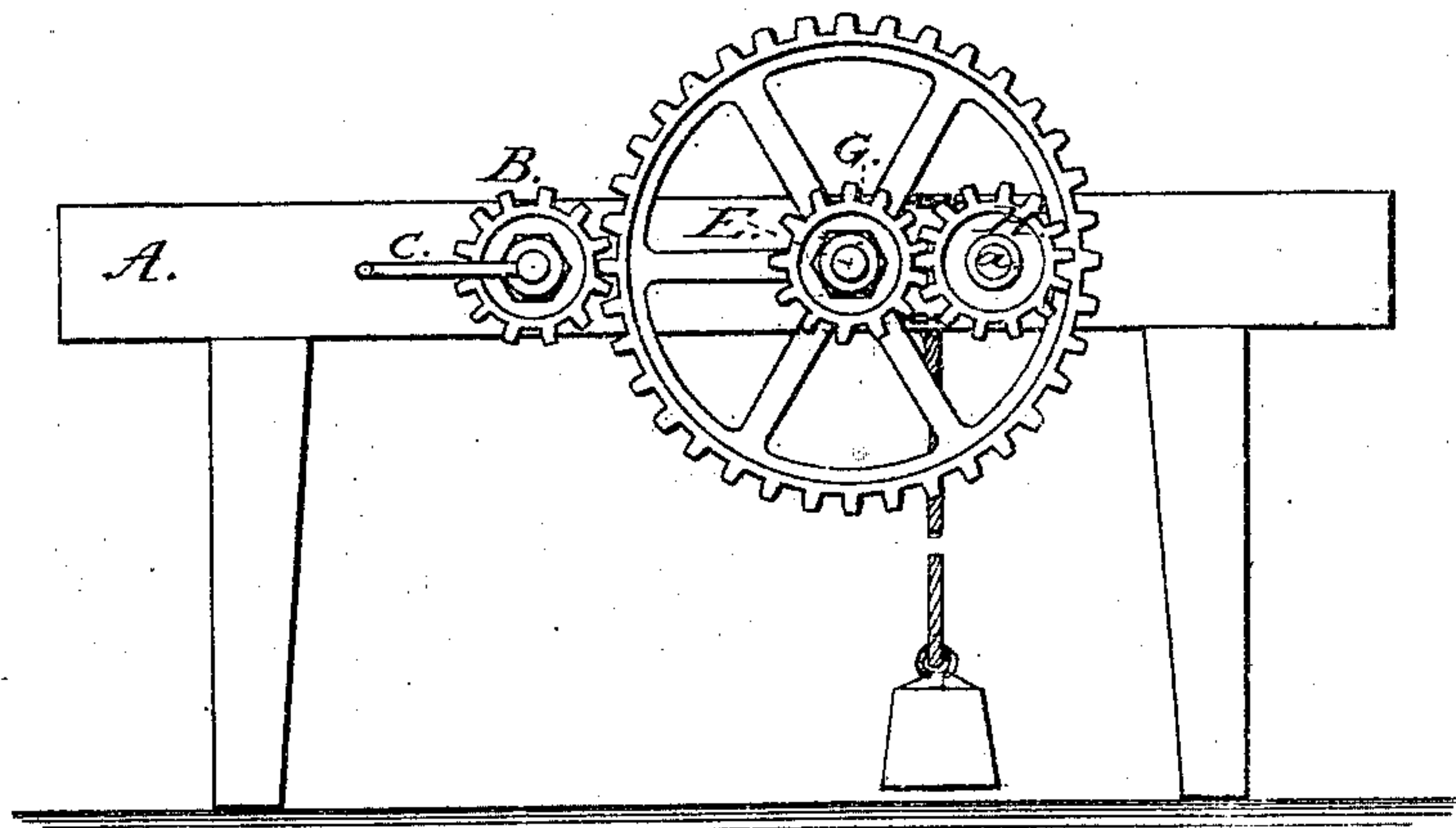


Fig. 2.



Witnesses.

Edw. W. Dorn

J. C. Comroe.

Inventor:

Charles B. Sawyer

UNITED STATES PATENT OFFICE.

CHARLES B. SAWYER, OF FITCHBURG, MASSACHUSETTS.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. 131,566, dated September 24, 1872.

To all whom it may concern:

Be it known that I, CHARLES B. SAWYER, of Fitchburg, Worcester county, State of Massachusetts, have invented certain Improvements in Mechanical Movements, of which the following is a specification:

My invention relates to an improvement in the manner of arranging certain known mechanical devices so as to economize time in lifting weights or driving machinery. It consists of a large spur-wheel attached loosely to the shaft to be driven, near its end. This large spur-wheel is driven by a pinion of any desired size, which is fixed on a shaft secured to the frame-work of the machine. This pinion is under the direct influence of a crank or other leverage, operated by the applied power.

On a frame of ordinary construction I support an axle running through it, and having about its axis a drum about which is wound the rope or chain which lifts, or assists in lifting, the weight to be raised. About the shaft I fix permanently to the side of the frame a pulley, over which passes an endless chain, which pulley communicates with a loose pulley fixed to a shaft, which passes through a large spur-wheel at a distance from the main shaft sufficient to allow play to the aforesaid pulleys. The large spur-wheel has near it, on the end of the main shaft, a cog-wheel, which is engaged by the cog-wheel of the same size fixed on the same shaft with and opposite to the loose pulley. The large spur-wheel, which is moved by the pinion, carries with it the loose pulley and gives to said pulley its motion. While the loose pulley is being revolved about the axis of the large spur-wheel it receives the influence communicated by the chain revolving about the fixed pulley, and is caused to revolve about its own axis independently of the large spur-wheel. The cog-wheel opposite to the loose pulley being fixed to the same shaft revolves with it and moves the small spur-wheel fixed to the end of the main shaft, which, in turn, moves the main shaft and drum, which winds the rope attached to the weight to be raised.

In my device I do not pretend to gain any power more than the difference in leverage between the driving-pinion and large spur-wheel, which involves no new principle and may be varied to suit circumstances; but I claim to gain an increased speed through the influence of the fixed and loose pulleys and endless chain, operating independently of the large spur-wheel, to drive the two spur-wheels

co-operating to move the main shaft and lift the weight or drive the machinery.

According to the arrangement of my invention the speed given to the large spur-wheel, added to the independent movement of the loose pulley, increases the speed of the main shaft to about twice that which it would have without the device for which I claim novelty.

In my model and drawing I have shown the pulleys and rope or endless chain; but with the same effect I could use the ordinary belting, friction-gearing, or triple cog-wheels.

Description of Drawing.

Figure 1 is a plan or top view of my device. Fig. 2 is a side elevation of same.

Similar letters of reference represent corresponding parts in all the figures.

General Description.

A is the frame which supports the mechanical device. B is the pinion, secured on a shaft passing transversely through the frame. C is the crank, operated upon directly by the applied power. D is the large spur-wheel, which is engaged by the pinion B. E is the main shaft, passing through the pulley F, fixed permanently to the frame, to which the large spur-wheel D is loosely, and the small spur-wheel G is tightly, attached. H is a second spur-wheel, secured tightly to a small shaft, *a*, which passes loosely through the large spur-wheel D. K is the endless chain, which revolves with the fixed pulley F and gives motion to the pulley I independently of the wheel D, about the axis of which it revolves. L is the drum or axle fixed to the main shaft E, upon which the rope or chain is wound as the weight is lifted.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

The fixed and loose pulleys F and I and endless chain K, or their mechanical equivalents, in combination with the shaft *a*, spur-wheels H and G, large spur-wheel D, pinion B, and crank C or its equivalent, all arranged to move the main shaft E, as and for the purpose set forth.

C. B. SAWYER.

Witnesses:

EDW. W. DONN,
T. C. CONNOLLY.