J. M. DE CÉLIS.

Crane.

No. 200,898. Patented March 5, 1878.

Fig: 1.

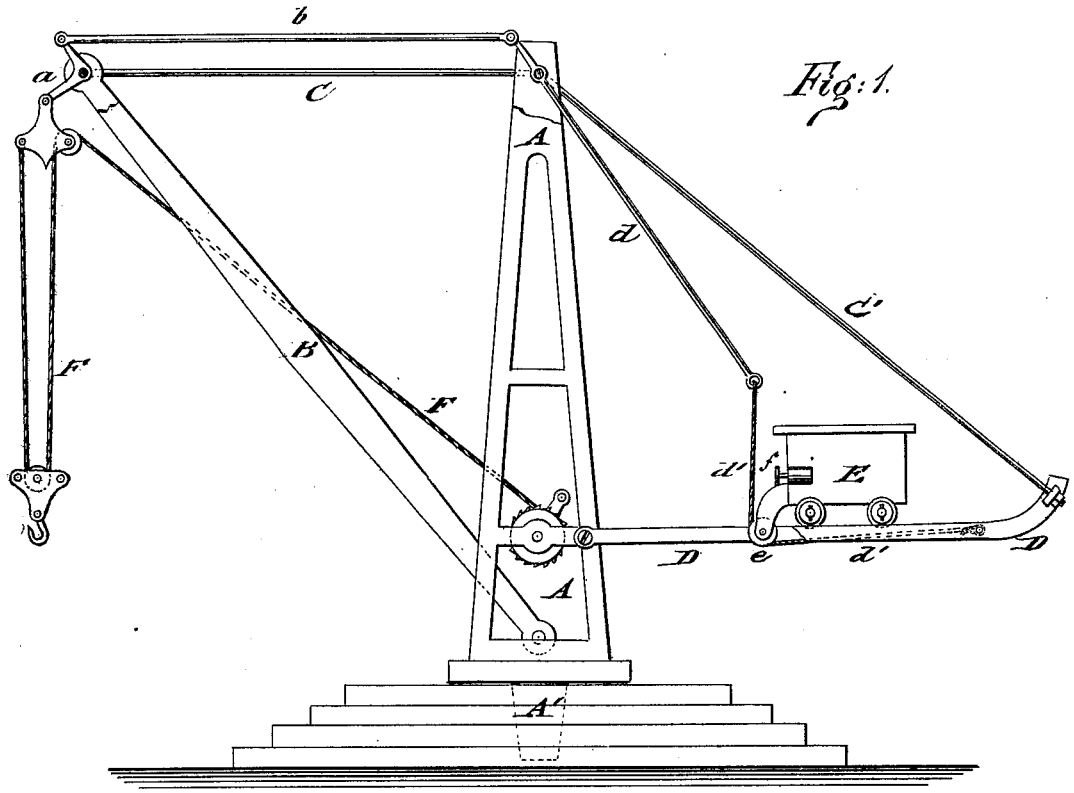
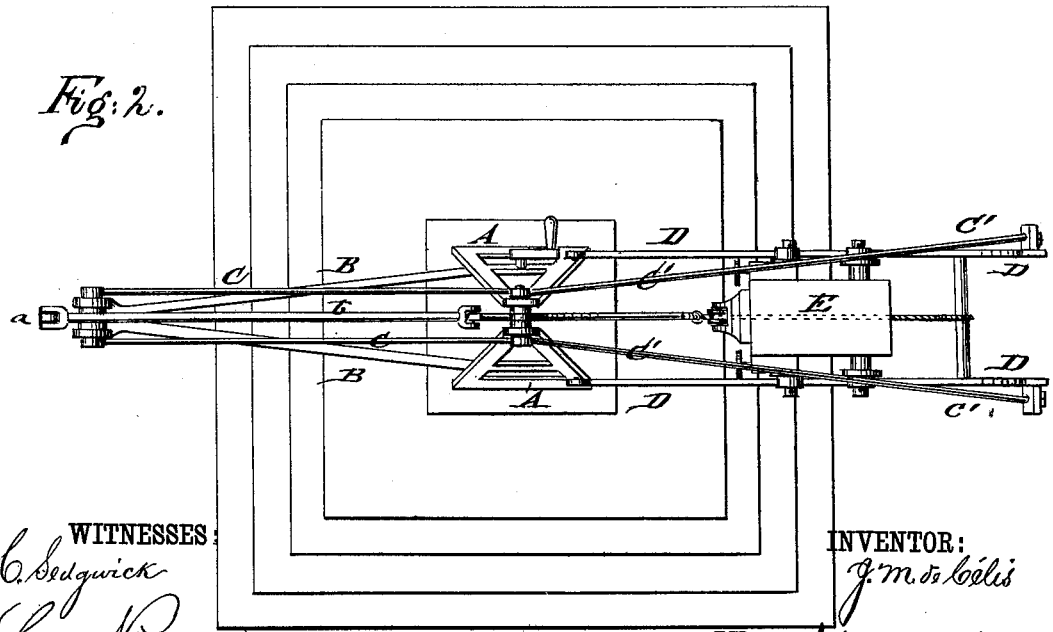


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE

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IMPROVEMENT IN CRANES.

Specification forming part of Letters Patent No. **200,898**, dated March 5, 1878; application filed January 12, 1878.

To all whom it may concern:

Be it known that I, JOSÉ MIGUEL DE CÉLIS, of the city, county, and State of New York, have invented a new and Improved Crane, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a side elevation of my improved crane, and Fig. 2 a top view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved crane that balances the weight hoisted in automatic manner, and is thereby always in a state of equilibrium by means of the counter-weight, leaving the crane free from danger of upsetting, and admitting the easy swinging upon its pivot with the weight suspended therefrom.

The invention consists of a crane with a fulcrumed lever-system, connected to the hoisting pulley and chain and to a balancing-counterpoise moving on rails of braced and slightly-inclined rear arms.

Referring to the drawings, A represents the uprights of the supporting-frame of my improve crane, that turns by a crane-post, A′, in a suitable foundation. B is a double jib, that is braced by tension-rods C, connecting the upper ends of the jib and frame A, as customary in cranes.

From the uprights of frame A extend parallel rear arms D, of suitable length, that are braced by adjustable tension-rods C′, and provided with rails for a movable counterpoise, E. These arms have a slight downward inclination, sufficient to carry the counter-weight down by its own gravity as soon as it has done its duty.

The hoisting chain or rope F passes over the usual pulleys to the windlass on frame A, the windlass being operated by hand or other power, as in other cranes.

To the upper end of the jib B is fulcrumed a bell-crank lever, *a*, to the lower arm of which the pulley-block of the hoisting-chain is hung, while the upper arm is connected by a lever-rod, *b*, to the upper shorter arm of a lever, *d*, that is fulcrumed to the top part of the supporting-frame.

The lower end of the lever *d* is attached by a chain or rope, *d′*, to a cross-bar near the outer end of the rear arms D, and passed over a fixed pulley, *e*, of the wheeled counterpoise E. The counterpoise has buffers *f* to take up the force of the concussion with frame A.

When the crane is in a state of rest, the levers are in equilibrium and the counterpoise is close to the supporting-frame.

As soon as a weight is suspended from the jib the bell-crank lever is depressed and the rear lever moved up, so that its leverage is increased. This carries the counterpoise back by means of the chain and pulley. The greater the weight the greater will be the distance the counterpoise is carried back on the arms.

By graduating the rails and providing the counter-weight with a pointer, the weight of the load hoisted may be instantly measured and noted.

The counter-weight has also the advantage of balancing the crane, so that it requires less material in the foundation, swings smoothly and easily on the pivot-post as it is held in vertical position, and is protected against any chances of upsetting.

By pivoting the rear arms D to frame A, and setting them to a greater or less inclination by means of the adjustable tension-rods C′, the capacity of the crane to measure weights may thus be proportionately increased or decreased, according to the degree of inclination given to the arms D, on account of the greater or less resistance of the movable counter-weight.

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

1. In a balancing-crane, the combination of the usual crane, having braced and adjustable rear arms and movable self-acting counterpoise, with a fulcrumed lever-system operated by the weight suspended from the hoisting-chain, so as to set the counterpoise, substantially as and for the purpose described.

2. The combination of a crane, having braced double front jib and adjustable inclined rear arms, with a transmitting lever-system fulcrumed to top of crane, and connecting the pulley-block of the hoisting-chain

with the rear arms and with a movable counterpoise of the rear arms, substantially as shown and described.

3. The combination of crane A B C, having braced rear arms D and wheeled counterpoise E, with the hoisting-tackle F, fulcrum bell-crank lever *a*, lever-rod *b*, fulcrumed lever *d*, chain *d'*, and pulley *e* of counterpoise E, substantially as specified.

JOSÉ MIGUEL DE CÉLIS.

Witnesses:
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