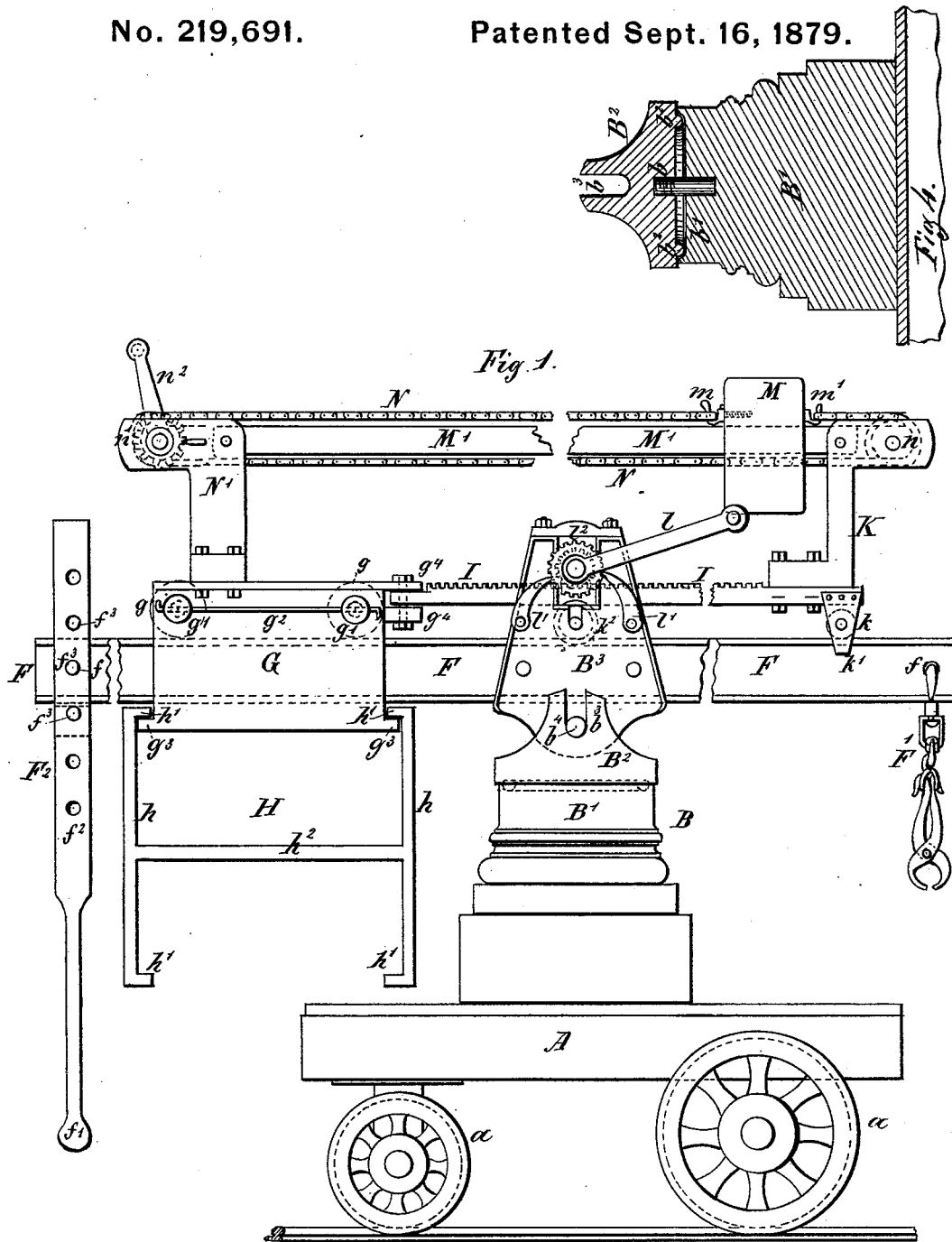


J. B. COUDOINT-GOUGEUL.
Traveling-Crane.

No. 219,691.

Patented Sept. 16, 1879.



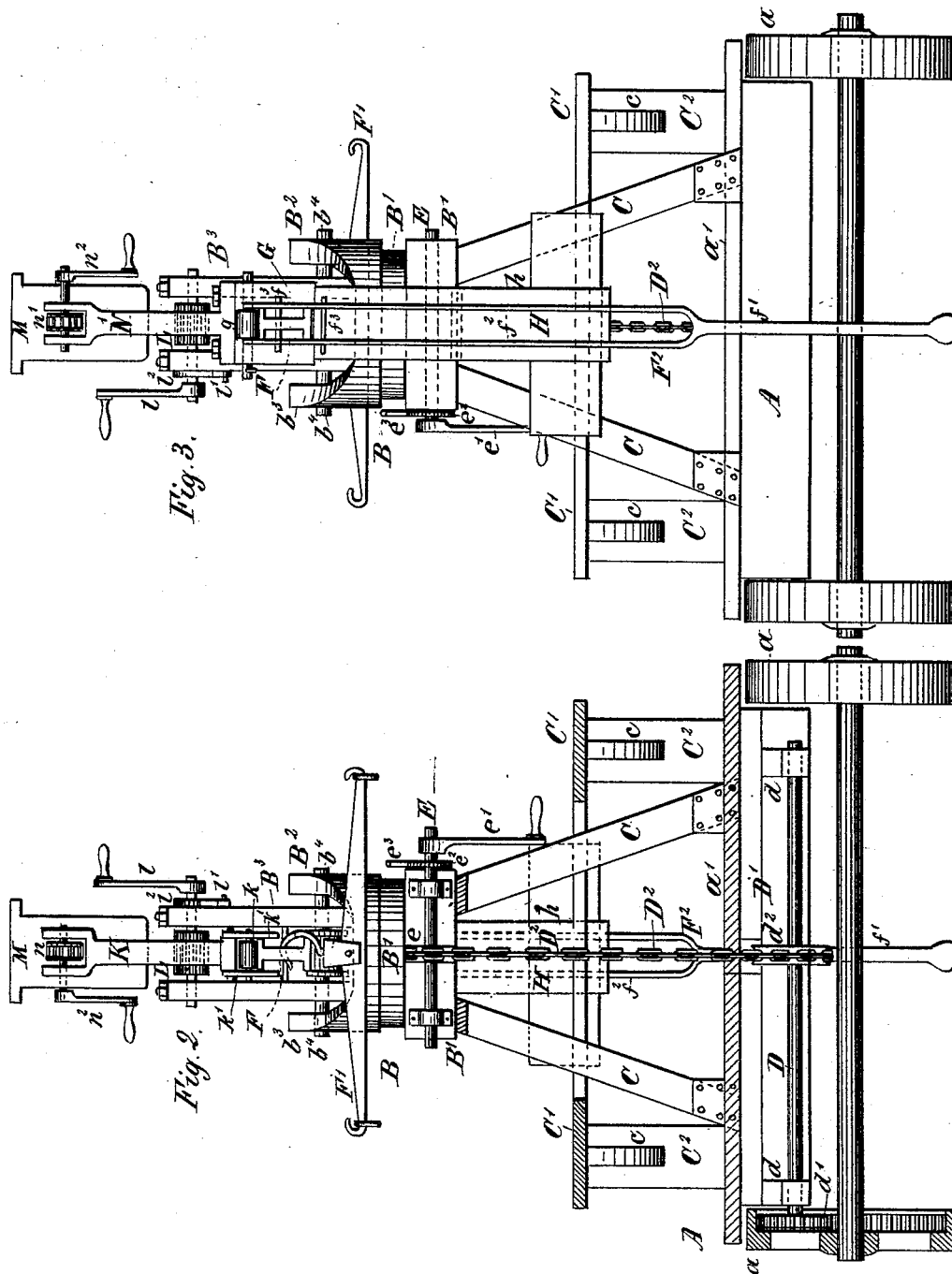
Witnesses
Alf. (Leonard)
Henri Guillaumie

Inventor
Jean Baptiste Coudoint-Gougoul
J. H. Orth atty

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UNITED STATES PATENT OFFICE.

JEAN BAPTISTE COUDOINT-GOUGEUL, OF MONTMORILLON, FRANCE.

IMPROVEMENT IN TRAVELING CRANES.

Specification forming part of Letters Patent No. **219,691**, dated September 16, 1879; application filed June 21, 1879.

To all whom it may concern:

Be it known that I, JEAN BAPTISTE COUDOINT-GOUGEUL, of the city of Montmorillon, in the Department of the Vienne and Republic of France, have invented new and useful Improvements in Traveling Cranes, of which the following is a specification.

My invention has for its object certain new improvements in traveling cranes, as hereinafter fully described, and shown in the accompanying two sheets of drawings, in which—

Figure 1 is a side elevation; Figs. 2 and 3 opposite end elevations, the former partly in section, of a traveling crane constructed according to my invention; and Fig. 4 is a sectional view of the support or turn-table.

Similar letters of reference are employed in the above figures of drawings to indicate like parts wherever such may occur.

A represents a truck, of suitable construction to support the crane and the weight hoisted thereby. It is mounted upon wheels *a*, which, when the truck is intended to be run upon rails, are flanged, as shown in dotted lines, Fig. 1; and when so mounted upon rails the truck may be pushed by hand; but when run upon the ground, as shown by Figs. 2 and 3, I prefer to propel it by mechanism of any suitable or well-known construction, such, for example, as will be more fully described hereinafter.

Upon the platform of the truck, when the latter is designed to be propelled by pushing it along a track, is mounted the crane-post B, made in three sections, and constructed of any suitable material, such as wood or metal.

The lower section, B¹, of the post has an annular groove, *b*¹, formed in its upper face, in which fits an annular rib, *b*², of the section B², which latter is also provided with a central pivot-pin, *b*, fitting a central recess in the section B³ of the post, thus forming a turn-table upon which the crane may be revolved.

The section B² is provided with standards *b*³, forming bearings for the section B³ of the post B, the latter section having suitable trunnions or a shaft, *b*⁴, upon which it is free to oscillate.

By this means the crane may be revolved upon the post B, as well as oscillated to shift a load and raise or lower it.

The arrangement of annular groove and rib

and pivot may be reversed—that is to say, the groove *b*¹ may be formed in the under face of section B², which may also be provided with a central recess to receive the pivot attached to the section B³, as will be readily understood.

When it is designed to run the truck upon the ground I preferably employ a suitable mechanism for propelling it, and in this case I mount the post B upon four uprights, C, secured to the platform of the truck A, and surround said elevated post with gang-planks C¹, supported by standards C² and suitable braces *c*.

Any well-known devices for propelling the truck and crane may be applied; and in Figs. 2 and 3 I have illustrated one mode of propelling the truck, which consists of a counter-shaft, D, hung in bearings *d* from a cross-piece, D¹, secured to the under side of the platform *a*¹ of the truck A, in proper proximity to one of the axles of the ground-wheels *a*.

The shaft D carries at its outer end a pinion, *d*¹, gearing with the toothed inner periphery of one of the ground-wheels, as shown in Fig. 2, and upon its center said shaft carries a pinion or sprocket wheel, *d*², which is geared by means of a suitable driving-chain, D², with a pinion or sprocket wheel, *e*, upon a shaft, E, which has its bearings upon the section B¹ of the post B.

The shaft E carries at its outer end a crank, *e*¹, by means of which it is rotated, and a ratchet-wheel, *e*², and pawl *e*³, by means of which the propelling mechanism is locked in position, as will be readily understood.

It is evident that when the crank is operated to revolve the shaft E, and with it the sprocket-wheel *e*, the chain D² will revolve the shaft D through the medium of its sprocket-wheel *d*², and with it the pinion *d*¹, which latter, meshing with the inner toothed periphery of one of the ground-wheels, will revolve the latter, and so propel the truck and crane either forward or backward, according to the direction in which the handle is turned.

Two pinions, *d*¹, may be mounted on opposite ends of the counter-shaft and made to gear with the toothed inner periphery of the two drive-wheels upon the same axle, as will be readily understood.

Upon the upper part or section, B³, of the post B are mounted the crane and its mech-

anism, said section, as already stated, oscillating freely upon section B², and the two revolving upon section B¹.

F is the jib. It consists of a double I-rail rigidly connected at its center between the cheeks of the oscillating section B³ of the post. It is provided at each of its extremities with a hole, *f*, for connecting to one extremity of the jib any suitable hoisting device, F¹, such as a yard and ropes and tackle or grappling-tongs, or both, and to the other extremity of said jib an adjustable rest, F², composed of the foot *f*¹ and the fork or cheeks *f*², the latter provided with a series of pin-holes, so that said rest may be raised or lowered upon the jib and secured in position by means of the pin or pins *f*³, to regulate the extent of the oscillation of the jib in one direction when raising a load, as will be further explained hereinafter.

G represents an adjustable counter-weight, hung from rollers *g*, revolving freely upon their shafts *g*¹, which are rigidly connected by means of stay-rods *g*² or other suitable means; or said shafts may be made to revolve together with the rollers *g*, which are mounted in suitable recesses in the upper part of the counter-weight G, through which the jib passes and upon which latter the former rides freely.

In order to provide means for increasing the gravity of the weight G independently of its adjustment on the jib and relatively to the load the other extremity of said jib is to raise, I construct the counter-weight in such a manner as to permit of its being further weighted, and to that end its opposite under sides form ledges or shoulders *g*³, from which may be hung a weight frame or cage, H, composed of two uprights, *h*, having rectangular inwardly-projecting flanges *h*¹, adapted to fit the shoulders *g*³ upon the front and rear lower edges of the counter-weight G. These uprights are connected by a central partition or transverse shelf, *h*², upon which the weights may be placed.

When it is designed to shift light goods from one place to another, the foot or rest F² is detached and attached to the opposite end of the jib F in place of the hoisting devices, and the counter-weight is then employed, by means of its weight-frame, to shift such goods, which are placed in baskets or boxes adapted to be slipped between the uprights *h*, one resting upon the transverse shelf *h*², the other upon the flanges *h*¹, at the lower extremities of said uprights, as plainly shown by Fig. 1, the rest F² then serving as part counter-weight, the load being further balanced by an additional or auxiliary adjustable counter-weight, hereinafter described.

The counter-weight G and its attached frame are adjusted upon the jib F by means of a rack-bar, I, one end of which is bolted between ears *g*⁴ formed on the rear face of the counter-weight, the other end of the bar being attached to a standard, K, carrying at its lower end a roller, *k*, which bears upon and

travels along the jib F. The roller is mounted between two guide-plates or cheeks, *k*¹, bolted to the opposite sides of the standard, and projecting downward below the upper face of the jib. These plates serve to guide the standard and its mechanism properly upon the jib, as plainly shown in Figs. 1 and 2.

The rack-bar rests upon a roller, *k*², mounted between the cheeks of the upper or oscillating section, B³, of the post, and is reciprocated, together with the counter-weight, or the latter and its attached weight or hoisting-frame and the standard K, by means of a pinion, L, mounted (above the rack-bar and meshing therewith) between the cheeks of the oscillating section B³ and in the same vertical plane with the roller *k*², so that the bar is held by and travels between said roller and pinion. The latter is rotated by means of the crank *l*, and when the counter-weight is properly adjusted is locked in position by means of the pawls *l*¹ engaging the ratchet wheel or pinion *l*², Fig. 1, or by any other suitable means.

In this manner the counter-weight may be adjusted upon the jib relatively to the burden to be raised by the latter; but when it is desired to raise or shift light goods, or for the purpose of tilting the burden when attached to the hoisting devices or placed in the counter-weight-frame, I employ an auxiliary or tilting counter-weight, M, mounted and sliding freely upon a supporting-bar, M'. The weight is provided with two hooks, *m m'*, the former being a hooked screw-bolt, by the screwing of which the chain N may be tightened, or both hooks may be made adjustable. To these hooks *m m'*—one in the front the other in the rear face, near the upper edge of the weight M—are attached the ends of the driving-chain N, which passes around sprocket-wheels *n n'* mounted, respectively, in the upper end of the standard K, and that of a standard, N', bolted to the counter-weight G.

The shaft of the sprocket-wheel *n'* on standard N' carries a crank, *n*², by means of which it is rotated, together with its sprocket-wheel, and, through the medium of the chain N and sprocket-wheel *n*, the weight is drawn either forward or backward upon its supporting-bar M'. Thus when a burden is to be shifted by means of the hoisting-tackle, to which it is attached, the counter-weight G is first adjusted or moved close up to the post to facilitate the tilting forward of the jib, and, when the burden is securely attached to the hoisting devices, said weight is moved back until the jib is tilted, and if this cannot be done by the counter-weight G the counter-weight M is moved back until the jib is tilted or the load is counterbalanced to rotate the crane upon its post or propel it to some place where the goods are deposited, the same operation taking place when goods are shifted by means of the basket or frame H, the counterbalancing being effected by the rest and the weight M, as will be readily understood.

The rest F² performs an important function,

as it is difficult to move the weight G when operating rapidly so as to bring it in the exact position to counterbalance the load, and hence would cause the jib to be tilted in an opposite direction and necessitate the moving of the weight up an incline; but if the foot or rest is properly adjusted, the tilting of the weight-side of the jib may be limited, and the weight G then moved to counterbalance the load exactly.

Having now described my invention, what I claim is—

1. A traveling crane consisting of a truck, A, and suitable mechanism for propelling the same, a post, B, composed of the sections B¹, B², B³, and a jib mounted like a scale-beam upon said post and adapted to revolve and oscillate on its support, substantially as described.

2. The combination, with the jib of a crane, mounted as set forth, of an adjustable counterbalancing-weight adapted to be moved toward or from its central pivot, substantially as described, for the purpose specified.

3. The combination, with the jib of a crane, mounted as set forth, of an adjustable rest, F², substantially as described, for the purpose specified.

4. The combination, with the jib of a crane and its adjustable counter-weight, of an auxiliary counter-weight adapted to be adjusted independently of the former on a line with the jib, substantially as and for the purpose specified.

5. The combination, with the jib of a crane, mounted as set forth, of an adjustable counter-weight, G, upon one end of said jib, an adjustable auxiliary counter-weight located at some point above said jib, and adapted to be adjusted independently of the counter-weight G, and a rest, F², operating together substantially as described, for the purpose specified.

6. In a traveling crane, the combination of the section B¹ of the post, provided with an annular groove, b¹, and a central recess, of the section B², provided with an annular rib, b², and a central pivot-pin, b, fitting the groove and recess, respectively, and the section B³, supporting the jib mounted thereon like a scale-beam, whereby said jib may be oscillated on its bearings and revolved upon the post, substantially as described, for the purpose specified.

7. The combination, in a crane, with the rotating section B² of the post B, of the oscillating section B³, provided with trunnions b⁴, mounted in suitable bearings in said section B², and the jib or beam F, rigidly secured in its center between the cheeks of said section B³, whereby the jib is made to oscillate upon the post like a scale-beam, substantially as described, for the purpose specified.

8. The combination, with the jib F, of the counter-weight G, hung upon rollers g traveling upon said jib, and the rack-bar I, pinion L, standard K, and suitable means to revolve said pinion and lock it into position when the counter-weight is adjusted upon the jib, substantially as described.

9. The combination, in a crane, of a jib, mounted as described, an adjustable counter-weight, G, the rack-bar I, the standard K, carrying the roller k and the guide-plates k¹, the roller k², pinion L, and suitable means to revolve said pinion and lock the parts in position when the counter-weight G is adjusted, all combined and operating substantially as described, for the purpose specified.

10. In a crane, the combination, with the oscillating and revolving jib and its adjustable counter-weight G, of an auxiliary counter-weight, M, its supporting rail or bar M', the propelling-chain N, sprocket-wheels n n¹, standards K N', and suitable means to revolve either of the sprocket-wheels to adjust the weight M longitudinally of the beam and independently of the weight G, substantially as described, for the purpose specified.

11. The combination, in a crane, of an oscillating and revolving jib, F, and a counter-weight, G, adjustable upon one end of said jib, with a detachable weight or hoisting frame or cage, H, and an auxiliary adjustable counter-weight, M, above said jib, and adapted to be adjusted longitudinally thereof, and independently of the weight G and frame H, and a rest, F², substantially as described, and operating as and for the purposes specified.

In witness that I claim the foregoing I have hereunto set my hand this 16th day of January, 1879.

J. B. COUDONT-GOUGEUL.

Witnesses:

VOR. PORCIN,

ROBT. M. HOOPER.