

(No Model.)

2 Sheets—Sheet 1.

J. V. ERICSON.
CONVERTIBLE FREIGHT CAR.

No. 539,220.

Patented May 14, 1895.

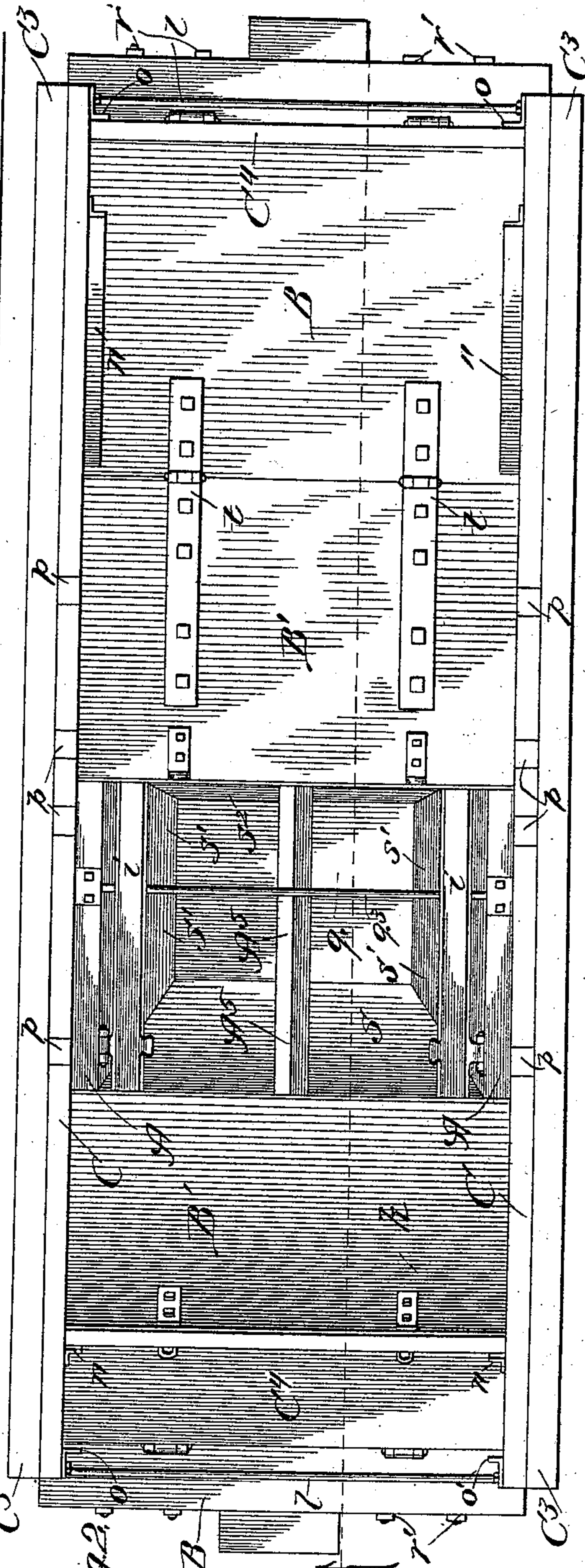
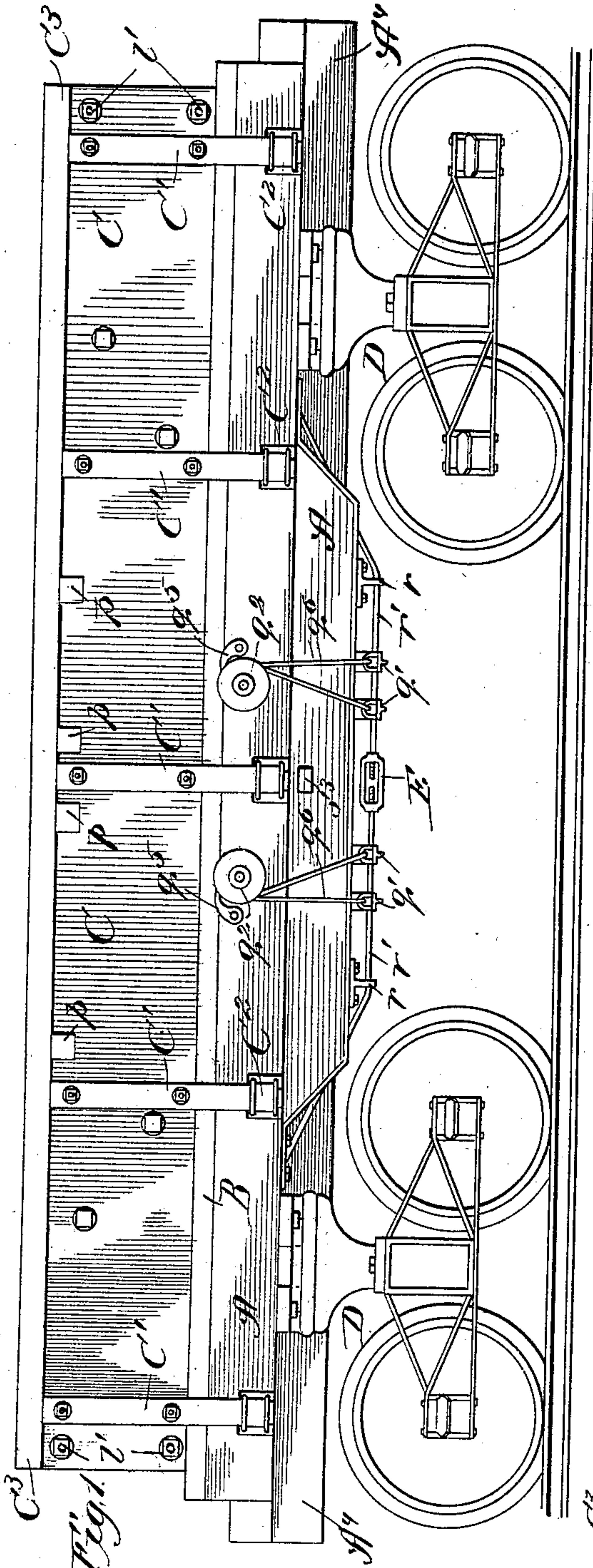


Fig. 1.
Witnesses:
J. H. Dyrenforth
Lute L. Alter.

Fig. 2.
Inventor:
John V. Ericson
By Dyrenforth & Dyrenforth,
Attys.

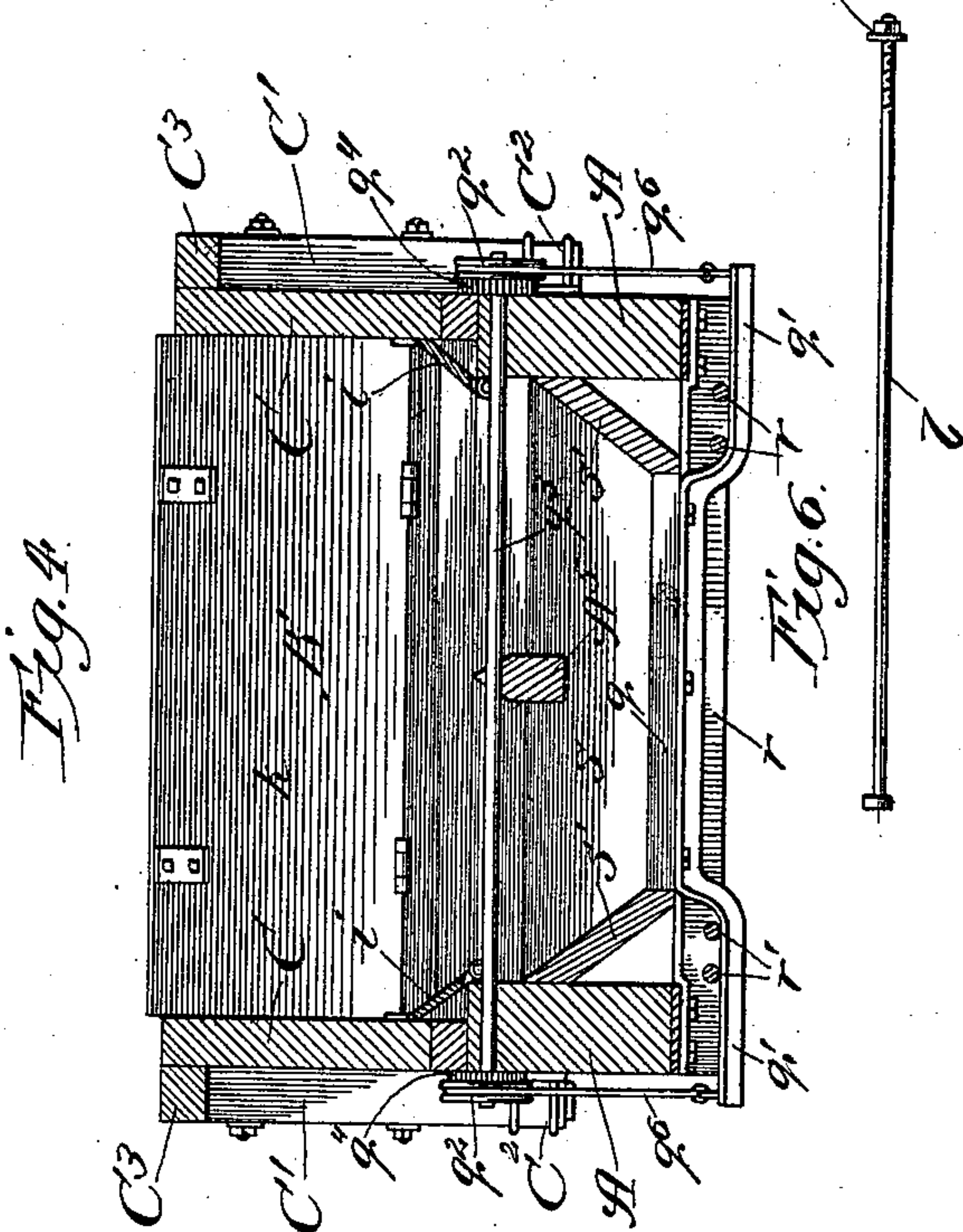
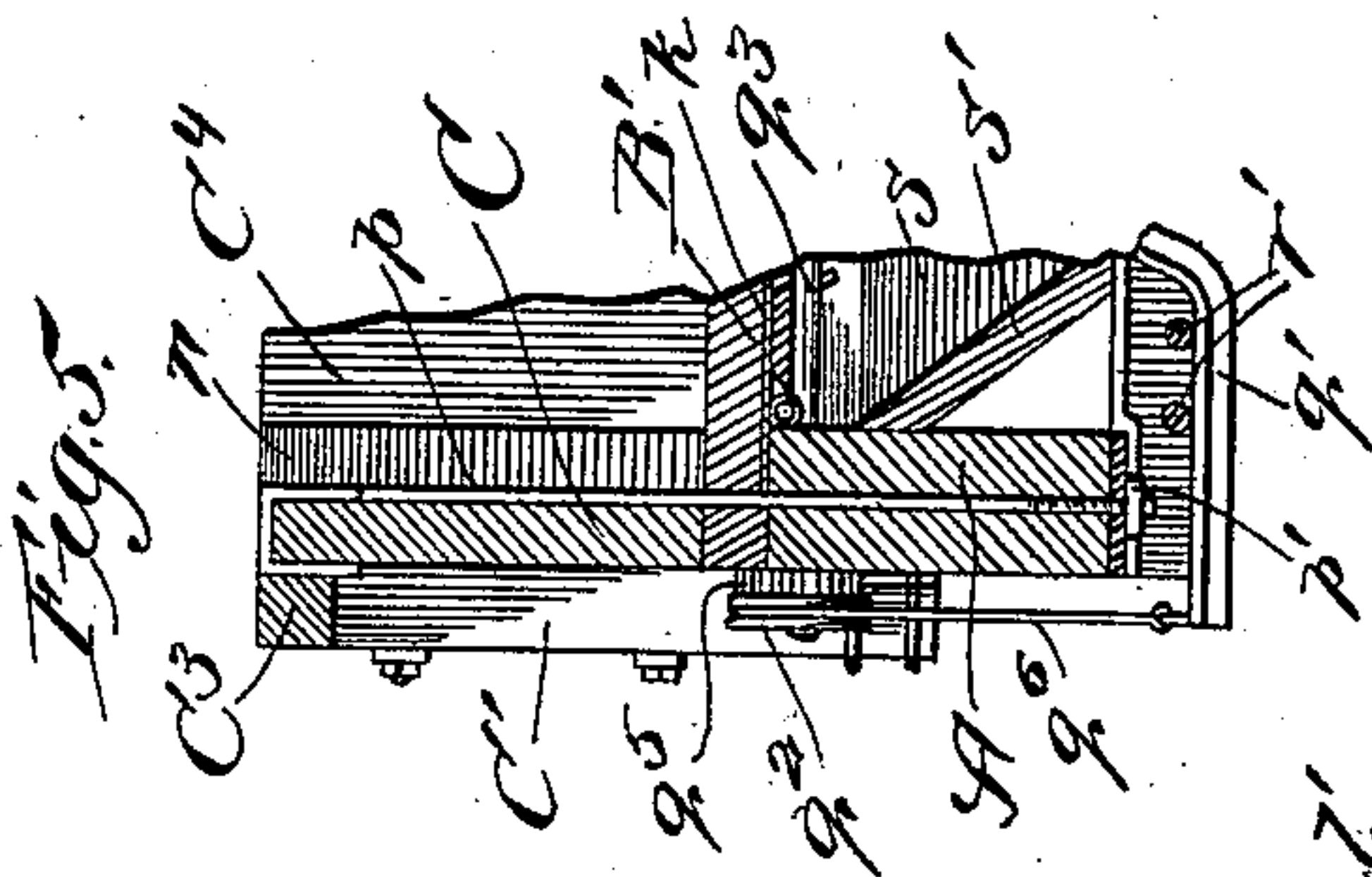
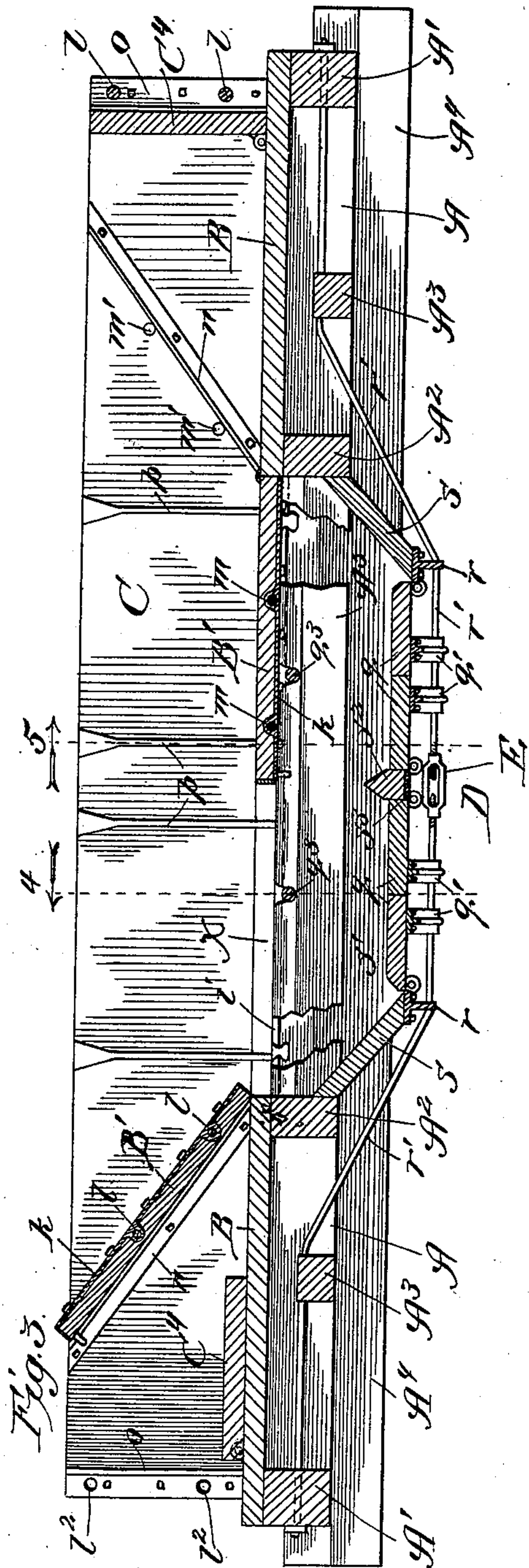
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2 Sheets—Sheet 2.

J. V. ERICSON.
CONVERTIBLE FREIGHT CAR.

No. 539,220.

Patented May 14, 1895.



Witnesses:
J. H. Dymond
Lute J. Allen

Inventor;
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UNITED STATES PATENT OFFICE.

JOHN V. ERICSON, OF AURORA, ILLINOIS.

CONVERTIBLE FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 539,220, dated May 14, 1895.

Application filed June 18, 1894. Serial No. 514,929. (No model.)

To all whom it may concern:

Be it known that I, JOHN V. ERICSON, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Convertible Freight-Cars, of which the following is a specification.

My object is to provide a freight car of improved construction, whereby it may be readily converted into and employed as an ore car, gondola car, or lumber car.

My object is further to provide a convertible car of the class described which may be quickly and easily changed from an ore car to a gondola or lumber car without the necessity of removing and storing any of the parts.

Referring to the drawings, Figure 1 is a side elevation of a car of my improved construction; Fig. 2, a top plan view showing the hopper at one end opened for the shipment of ore and the other half of the car converted to the gondola form; Fig. 3, a longitudinal section taken on line 3 of Fig. 4; Fig. 4, a cross-section on line 4 of Fig. 3 and showing the ore-car form; Fig. 5, a broken section on line 5 of Fig. 3 and showing the gondola form, and Fig. 6 one of the removable and replaceable bolts or tie-rods of which several are employed.

The stationary body portion of the car comprises the usual side-sills A, end-sills A', cross beams A², intermediate braces A³, and draw-timbers A⁴.

B B are stationary end platforms which are fastened rigidly upon the frame. The body-portion rests at the draw-timbers upon trucks D. The stationary portions B of the platform terminate at the inner sides of the cross-beams A², and between the cross-beams is an open space X closed by trap-doors B' B', which form the upper inclined end floors of the hopper, as hereinafter explained. Stretching across the opening X between the cross-beams is a central longitudinally extending sill A⁵ beveled at its upper edge to a V-shape, as shown. The doors B' are preferably fastened by hinges *t* to the platform B, and when closed they rest upon shelves formed by the side-sills A and upon the intermediate sill A⁵.

E is a hopper formed with inclined end-plates *s s* and side plates *s' s'* all fastened at their upper sides to the cross-beams A² and side-sills A, and strengthened from beneath

by iron braces *r r* bolted at their ends to the side-sills and braced by the body truss-rods *r'*, which, as shown, are fastened at their opposite ends to the end-sills A', and pass over the intermediate cross-braces A³, and beneath the braces *r*.

In the lower part of the hopper is a central cross-beam *s*² fastened at opposite ends to the side-plates *s'*, and held securely in position by a brace-plate *s*³, which is fastened at opposite ends to the side-sills, and passes longitudinally along the under side of the cross-beam *s*². The bottom of the hopper is closed by drop doors *q* hinged to the lower edges of the end-plates *s* and to the cross-beam *s*², as shown.

Bolted to the free end portions of the drop doors *q*, and extending across their under sides, are door sustaining bars *q'* which extend at opposite ends beyond the side-sills A. On the side-sills above the bars *q'* are pulleys *q*² on shafts *q*³ provided with ratchets *q*⁴, with which pawls *q*⁵, also on the side-sills, engage. Cables or chains *q*⁶ are fastened at opposite ends respectively to the pulleys, and to the free ends of the bars *q'*. The doors *q* are raised to close the base of the hopper by turning the shafts *q*³ to wind the chains or cables *q*⁶ upon the pulleys; and, when the doors are closed they are held against opening by engagement of the pawls *q*⁵ with the ratchets *q*⁴. On disengaging the pawls from the ratchets the doors will be released and swing down, to open, of their own weight.

C, C, are side-planks, which rest at their edges upon the side-sills and are bolted to stakes C', held in stake pockets C². Secured to the upper outer sides of the side-planks are top side-rails C³, and the side-planks are fastened securely down to the sills by rods *p*, flattened at their upper end-portions and bent over the upper edges of the side-planks. The rods *p* at the ends of their bent portions extend down between the side-planks and top side-rails, as shown in Fig. 5. The rods *p* extend down the inner sides of the side-planks in grooves formed in the latter; and at their lower ends the rods extend through openings in the side-sills and are threaded to receive nuts *p'*, which bear against the under surfaces of the sills. At opposite ends of the side-planks on their inner sides are vertical angle-iron stops *o*; and hinged to the platform

are end-gates C^4 , adapted to swing from a horizontal position against the surface of the platform to a vertical position against the stops o . On the inner surfaces of the side-planks are angle-iron stops n , which extend in an upward inclined direction from the edges of the opening X . When the doors B' are raised on their hinges they rest against the stops n , and form the upper inclined end-floors of the hopper.

Extending longitudinally through the doors B' are openings m which, when the doors rest against the stops n , register with openings m' in the side planks. Tie rods l , headed at one end, and threaded at their opposite ends to receive nuts l' , are passed through the said openings and the side planks and doors B' are thereby held together with great security. Rods l are also passed through openings l^2 in the side-planks at the stops o to tie the side-planks together when the end-gates are raised. The doors B' are faced, preferably, with metal plates k .

Extending between the cross-beams A^2 and hinged to the inner edges of the side-sills A , are narrow metal side-sill projecting plates or flaps i which may be turned down, when the doors B' are closed, or raised when the doors are opened to rest against the side-planks and shield the inner edges of the side-sills from the ore. The flaps also serve to prevent the ore from being caught, in the dumping operation, by the inward projecting surfaces of the sills.

To convert the car into a flat-car, for the shipment of lumber, all the tie-rods l should be removed and placed in the hopper E where they will not be lost, the doors B' closed, to afford a continuous platform, and the end-gates lowered. To convert the car into the gondola form, the end-gates are raised, and tie rods l passed across the ends through the openings l^2 to tie the side planks securely together. To convert the car into an ore-car, the doors B' are raised to rest against the inclined stops n and secured in their opened condition by the rods l as described; and the flaps i are raised against the side-planks, as shown in Fig. 4, to form upper side-floors for the hopper. Thus the operations of converting the car from one into another form, may be quickly and easily accomplished, and without the necessity of removing and storing parts. Furthermore, none of the features necessary in one form of the car present any obstructions to the use of the car when converted into either of the other forms, and whether the car is converted into an ore-car, gondola-car or lumber-car, it

will present all the advantages of cars built expressly for the particular purpose, besides possessing exceptional strength and durability due to the construction described.

Convertible cars of my improved construction are particularly desirable upon those railroads whose main freight during the season of navigation is ore, and in winter lumber; because they tend to greatly reduce the rolling stock which would be necessary were the ore-cars and lumber-cars only adapted to their particular classes of freight. The gondola form is most desirable for the transportation of shingles, lath and other comparatively small articles which do not require the protection from the elements afforded by box-cars.

While I prefer to construct my improvements as shown and described, they may be modified in the matter of details without departing from the spirit of my invention as defined by the claims.

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

1. In a convertible freight-car, the combination of the end-platforms, side-planks, ore-hopper between said platforms, side-sills presenting shelves at the inner sides of the side-planks between said platforms, trap-doors to rest, when closed, upon said shelves and form a continuation of the platforms over the hopper, and affording, when opened, inclined upper end-floors of the hopper, and sill-projecting flaps extending between the end-platforms and hinged at the side-sills to extend over said shelves against the side-planks when the trap-doors are opened, and form the upper side-floors of the hopper, and be swung downward out of the way when the trap-doors are closed, substantially as described.

2. In a convertible freight-car, the combination of the side-sills, stationary end-platforms, ore-hopper between said platforms, doors hinged at said platforms to rest when closed upon the sills and form a continuation of the platforms, side-planks, inclined stops on the side-planks for the doors to rest upon when opened and thereby form upper end-floors of the hopper, end-gates hinged at the said platforms and vertical stops on the side-planks for the end-gates, the said end-gates being movable upon their hinges to lie flat upon the platforms or rest vertically against their stops, substantially as described.

JOHN V. ERICSON.

In presence of—

WALTER ANGUS,
JOSEPH DESSTELL.