B. F. FITCH.

DEVICE FOR CONNECTING LOADS TO ELEVATING CABLES.

APPLICATION FILED JUNE 26, 1920.

1,415,090. **Patented May 9, 1922.**

2 SHEETS—SHEET 1.

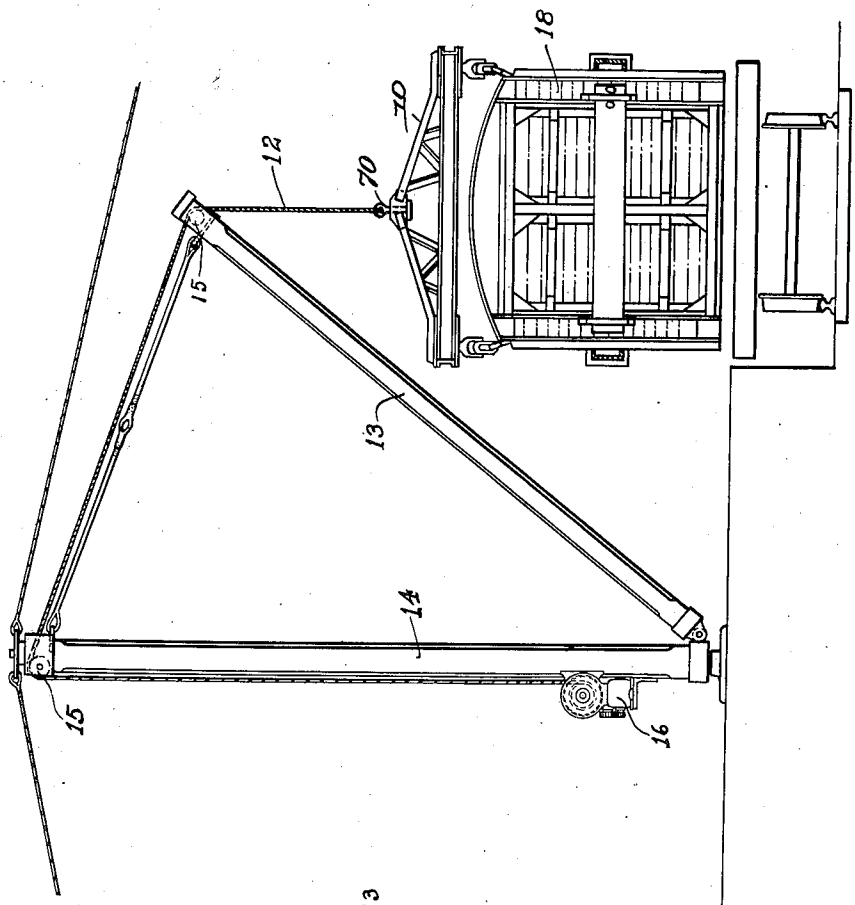


Fig. 1

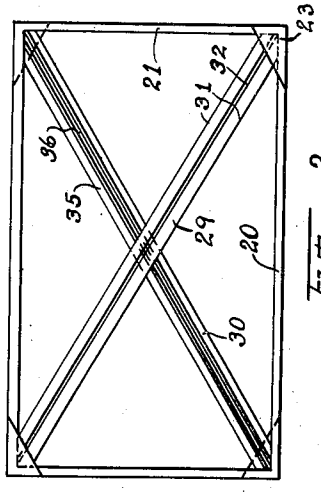
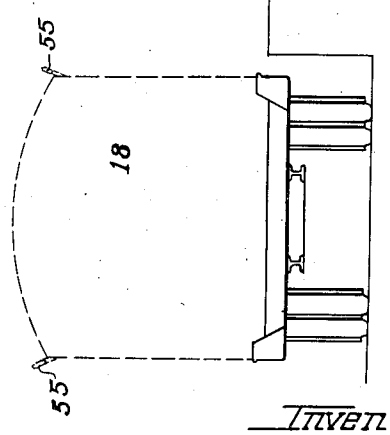


Fig. 2



Inventor
Benjamin F. Fitch.
By Baker & Macklin,
Attorneys

B. F. FITCH.

DEVICE FOR CONNECTING LOADS TO ELEVATING CABLES.

APPLICATION FILED JUNE 26, 1920.

1,415,090. Patented May 9, 1922.

2 SHEETS—SHEET 2.

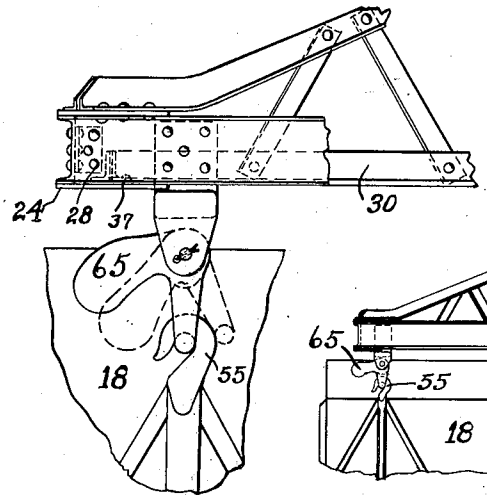


Fig- 5

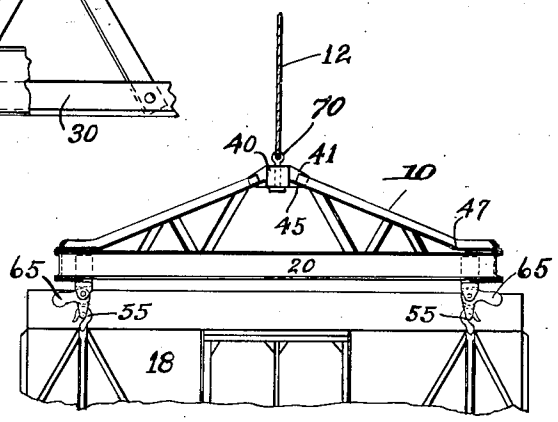


Fig- 4

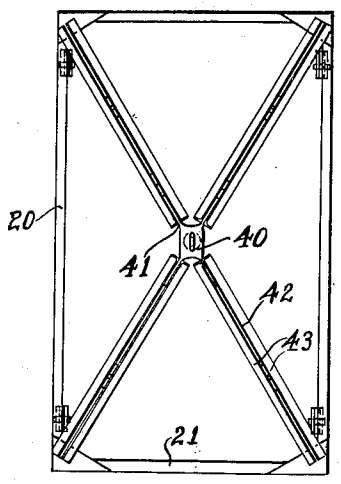


Fig- 3

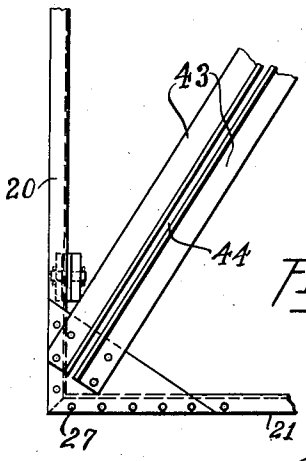


Fig- 7

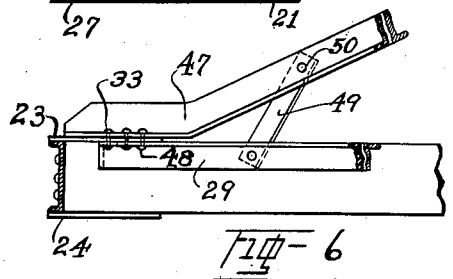


Fig- 6

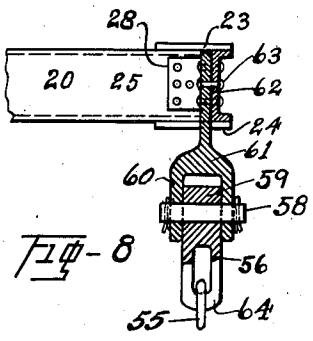


Fig- 8

Inventor

Benjamin F. Fitch,

By Bakewell & Macklin,

Attorneys

UNITED STATES PATENT OFFICE.

BENJAMIN F. FITCH, OF EVANSTON, ILLINOIS.

DEVICE FOR CONNECTING LOADS TO ELEVATING CABLES.

1,415,090. Specification of Letters Patent. Patented May 9, 1922.

Application filed June 26, 1920. Serial No. 392,002.

To all whom it may concern:

Be it known that I, BENJAMIN F. FITCH, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Devices for Connecting Loads to Elevating Cables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to hoisting mechanism, particularly adapted for use in the transfer of removable freight bodies. An object of the invention is the provision of a frame adapted to be connected at a plurality of separated points, to a load, and connected at a single point with a hoisting means, whereby the loads may be hoisted from a single supporting cable. More specifically, it is my object to provide such a frame, that may be readily manufactured or assembled largely from stock material, and that is light, strong and durable in use. Still another object is the provision of means for connecting such a frame to a load, such as a freight body, that is capable of being readily engaged and disengaged, yet secure against accidental disengagement. Other features and objects are hereinafter more fully described, and the essential characteristics of the invention are summarized in the claims.

In the drawings Fig. 1 is a view in elevation of a freight transfer station, showing an end elevation of the device constituting my invention in use; Fig. 2 is a plan of the base portion of the hoisting frame; Fig. 3 is a plan of the frame complete; Fig. 4 is a side elevation thereof, showing the frame attached to a freight body; Fig. 5 is an elevation of one corner of the frame showing more clearly its construction and that of the connecting members; Fig. 6 is an elevation of an adjacent corner; Fig. 7 is a plan of one corner of the frame, and Fig. 8 is a vertical section through one of the connecting members, depending from the frame.

My invention comprises a frame designated generally by the numeral 10, having connecting means adapted to be secured to the standardized lifting hooks on the removable freight bodies shown, described and claimed in my co-pending application, Serial No. 392,337, filed June 28, 1920. The frame 10 has a single point of support, whereby it may be connected to a hoisting cable 12, which cable is shown depending from a boom 13, pivoted to a rotatable mast 14, the cable passing over pulleys 15, and being connected to a suitable hoisting mechanism 16. It will be understood however, that the particular boom and hoisting mechanism constitutes no part of my invention, the means shown being for purposes of illustration only.

The frame 10 comprises a latticed member of rectangular shape, corresponding in length and width to a removable freight body, to which it is adapted to be separately connected, and is constructed preferably of structural shapes riveted together to form a relatively light, yet very strong, construction. I have found that a very satisfactory structure may be made as follows:—

The rectangular base of the frame 10, as illustrated particularly in Fig. 2, preferably comprises outwardly facing side and end channel bars, designated 20 and 21 respectively. The channels 20 and 21 are connected at the corners of the frame, formed by the top and bottom gusset plates 23 and 24, and by interior corner straps 25; the gusset plates 23 and 24 are right triangular in shape, and are riveted, as at 27, to the upper and lower flanges of the channels; the corner straps 25 comprise bars or plates bent at right angles and riveted as at 28 to the interior sides of the webs of the outwardly facing channels 20 and 21, as shown particularly in Figs. 2, 5 and 6; the corners of the channel bar frame are connected by upper and lower diagonal bracing members 29 and 30. The upper member 29 preferably comprises two downwardly, and outwardly, facing angle bars 31, spaced slightly as at 32, and having their upper horizontal flanges secured as by rivets 33 to the upper gusset plates 23, at two opposite corners of the frame. The lower diagonal member 30 comprises two upwardly and outwardly facing angle bars 35, spaced as at 36, and having their lower horizontal flanges riveted as at 37 to the lower gusset plates 24, in the other two opposite corners of the frame.

Above the rectangular base of the frame 10 I secure an arched lattice structure as illustrated most clearly in Figs. 3 and 4. A central casting 40 has four fins 41 radiating toward the corners of the frame and connected therewith by inclined bracing members 42. Each member 42 preferably comprises a pair of upwardly and outwardly facing angle bars 43, spaced as at 44. At their upper ends the vertical flanges of the

angle bars 43 embrace the fins 41 and are riveted thereto as at 45. Their lower ends are bent as at 47, and the horizontal flanges riveted as at 48, to the top gusset plates 23, some of the rivets also passing through the upper flange of the channel bars 20. The horizontal diagonal bracing members 29 and 30 and the inclined members 42 are preferably conected by suitable lattice work comprising inclined bars 49 spaced at intervals in the spaces 36 and 44, between the vertical flanges of the angle bars 31, 35, and 43 and riveted thereto as at 50.

For connecting the frame 10 to the freight bodies designated by the numeral 18, I provide the following:—Each frame body has adjacent to its corners the standard equipment hooks 55 at the corners of the frame 10. Positioned to engage with the hooks 55, I provide engaging members or loops 56. These loops are preferably mounted on horizontal transverse pivots 58, with their upper pivots engaging portions 59 embraced by the arms 60 of clevice-like members 61, having shanked portions 62, riveted as at 63, to the inner faces of the channel bar webs 20 and 21 at points above the hooks 55. The lower loop portions 64 of the members 56 are adapted to be readily engaged and disengaged from the hooks 55, and to hold them in engaged position against accidental displacement. Each loop member 56 has a weighted arm 65 constituting therewith a bell crank and tending to cause the member 56 to assume the dotted line position in Fig. 5, thus securely holding the loop in engagement with the hook even when the frame and loop are not in load supporting position.

For connecting the frame 10 to the cable 12, a swivel pin or eye bolt 70 may be provided through the casting 40.

Having thus described my invention, I claim:—

1. A cradle for connecting loads to hoisting cables, comprising a four sided frame having load engaging members carried thereby, said members being arranged to swing in parallel planes, means associated with said members for normally urging them into engagement with a load, and diagonal members extending above the plane of said load engaging members and meeting at a common point whereby the cradle may be raised by a single hoisting cable.

2. A cradle for connecting loads to hoisting cables comprising a substantially rectangular frame having a plurality of members depending therefrom and rigidly secured thereto, and load engaging elements comprising counterweighted arms, pivoted to said members and adjacent the corners thereof.

3. In a device of the character described, a substantially rectangular frame having means for connecting a hoisting cable to the frame, intermediate the four corners thereof, and load engaging means adjacent the four corners and pivoted to the frame, all of said load engaging means being arranged to swing in a vertical plane extending longitudinally of the frame.

4. In a device of the character described, the combination with a substantially rectangular frame, of load engaging members positioned adjacent the corners of said frame and arranged to engage a load on opposite sides thereof, diagonal members leading from the corners of the frame and meeting at a common point, said diagonal members being positioned above the plane of the frame.

5. In a device of the character described, the combination with a substantially rectangular frame, of bell cranks pivoted on each corner of the frame, one arm of each bell crank comprising a load engaging member, and the other arm comprising a gravitational member, each of said cranks being so positioned that the arm having a gravitational member extends away from the center of the frame.

6. In a device of the character described, the combination with a rectangular frame, of four load engaging elements positioned adjacent the corners thereof, and carried by the longitudinal members of the frame, each of said elements being arranged to swing in a plane longitudinally of the frame, for engaging and disengaging a load, inclined bracing members leading from the corners of the frame to a common point, and means for attaching a hoisting cable to the common point.

7. In a device of the character described, the combination of a substantially rectangular fabricated frame, having a swivel cable connection centered in its upper portion, four load connecting members adjacent the corners thereof, adapted to separately coact with four complementary members on a load, and means associated with the load connecting members for normally holding them in engagement with the coacting members on the load.

8. A device of the character described, comprising a substantially rectangular base of outwardly facing channel beams connected at the corners by upper and lower gusset plates, diagonal angle bar bracing members therefor, and an arched frame above said base comprising a central casting connected with each corner of the base by angle bar braces, said braces being connected by inclined lattice bars with said first mentioned diagonal braces.

9. A device of the character described, comprising a substantially rectangular base, of outwardly facing channel beams connected at the corners by upper and lower gusset plates, diagonal angle bar bracing members

therefor, and an arched frame above said base comprising a central casting connected with each corner of the base by angle bar braces, said braces being connected by inclined lattice bars with said first mentioned diagonal braces, said casting having a swivel connection adapted for a single hoisting cable and said base having load engaging loops depending therefrom adjacent the four corners.

10. A device of the character described, comprising a substantially rectangular base of channel beams connected at the corners by gusset plates, diagonal bracing members therefor, and an arched frame above said diagonal bracing members comprising a central member connected with each corner of the base, said central member comprising a swivel connection adapted for a single hoisting cable and said base having load engaging means depending therefrom adjacent the four corners.

11. A cradle adapted to connect a single hoisting cable with a load at four points, comprising a hollow substantially rectangular base, having its opposite corners connected by horizontal braces and a central member above the plane of the base connected with the four corners thereof by inclined braces, said inclined braces being also positioned above the plane of the horizontal braces.

12. A cradle adapted to connect a single hoisting cable with a load at a plurality of separated points, comprising a hollow substantially rectangular base, having its corners connected by diagonal braces and a central member above the plane of the base connected with the four corners thereof by inclined angle bar braces, the inclined braces being in substantially the same plane as the diagonal braces.

13. In a device of the character described, the combination of a substantially rectangular hollow base, comprising channel beams secured together by corner straps and upper and lower gusset plates, one pair of diagonally opposite corners being connected by a pair of spaced downwardly and outwardly facing angle bars having their horizontal flanges riveted to the corresponding gusset plates and the other two diagonally opposite corners being connected by a pair of spaced upwardly and outwardly facing angle bars, and their horizontal flanges riveted to the corresponding gusset plates, a casting having four radial fins centrally positioned above said base, each of said fins being embraced by the ends of a pair of spaced inclined upwardly and outwardly facing angle bars, the other end of each pair of bars being riveted to the four upper gusset plates at the corners of said base, and a plurality of inclined lattice bars connecting the inclined braces with the diagonal braces below them, the ends of said lattice bars being positioned within the spaces between each pair of angle bars constituting such braces and riveted to the vertical flanges thereof.

14. In a device of the character described, the combination of a substantially rectangular hollow base comprising beams secured together by corner straps and gusset plates, one pair of diagonally opposite corners being connected by a pair of spaced bars, and the other two diagonally opposite corners being connected by a pair of bars, a member centrally positioned above said base, inclined braces connecting the central members with the base, and means connecting the inclined braces with the diagonal braces.

15. In a device of the character described, the combination of a base, comprising channel beams secured together by corner straps and upper and lower gusset plates, means connecting one pair of diagonally opposite corners, said means being secured to the lower gusset plates, means secured to the upper gusset plates for connecting the said diagonally opposite corners, a member centrally positioned above said base, means connecting the member to the base comprising a pair of spaced inclined upwardly and outwardly facing angle bars, and a plurality of inclined lattice bars, connecting the inclined with the diagonal bracing means, the ends of said lattice bars being positioned within the spaces between each pair of angle bars constituting such braces.

16. In a device of the character described, the combination of a substantially rectangular hollow base, comprising channel beams secured together by corner straps and upper and lower gusset plates, one pair of diagonally opposite corners being connected by a pair of spaced downwardly and outwardly facing angle bars having their horizontal flanges riveted to the corresponding gusset plates, a member centrally positioned above said base, and having a passageway therethrough for securing a hoisting cable, means connecting the central member with each corner of the base comprising bars secured to the four upper gusset plates at the corners of said base, and a plurality of inclined lattice bars connecting the inclined braces with the diagonal braces below them.

17. In a device of the character described, a skeleton frame of structural steel shapes, comprising a diagonally braced substantially rectangular base, having weighted bell crank loops adjacent the corners thereof, adapted to engage correspondingly positioned hooks on a load to be hoisted, and an arched upper portion of said frame comprising a central cable engaging member connected by inclined braces with the corners of said base.

18. In a device of the character described, a fabricated frame comprising a rectangular base, having weighted load engaging mem-

bers pivoted adjacent the corners thereof, said members being adapted to engage a load to be hoisted, said frame having a central cable engaging member connected with said base.

19. In a device of the character described, a cradle adapted to be secured to a single hoisting cable and to a load at four points, said load connections comprising pivoted bell crank members, one arm of each member comprising a loop adapted to engage a hook fixed to a load body, and the other arm comprising a gravitational member adapted to maintain said loop engaged with said hooks.

20. In a device of the character described, a fabricated frame adapted to be connected centrally with a hoisting cable and at spaced peripheral points with a load, said frame having a substantially rectangular base, depending yokes secured to the four corners thereof, and load engaging members pivoted to the arms of said yokes, said members comprising weighted bell crank loops.

21. In a device of the character described, a fabricated frame adapted to be connected centrally with a hoisting cable and at spaced peripheral points with a load, said frame having a substantially rectangular base, depending yokes secured to the four corners thereof, and load engaging members pivoted within the arms of said yokes, said members comprising weighted bell crank loops.

22. In combination a body comprising a portable container rectangular in form, a rectangular cradle adapted to be brought into engagement with said body, four hooks on one of said members, four eyes on the other, a hoisting cable, and means for connecting the cable with the cradle.

In testimony whereof, I hereunto affix my signature.

BENJAMIN F. FITCH.