H. W. HILDEBRAND.

LOAD TRANSFERRING APPARATUS.

APPLICATION FILED DEC. 8, 1913.

1,101,438. **Patented June 23, 1914.**

2 SHEETS—SHEET 1.

Fig. 1.

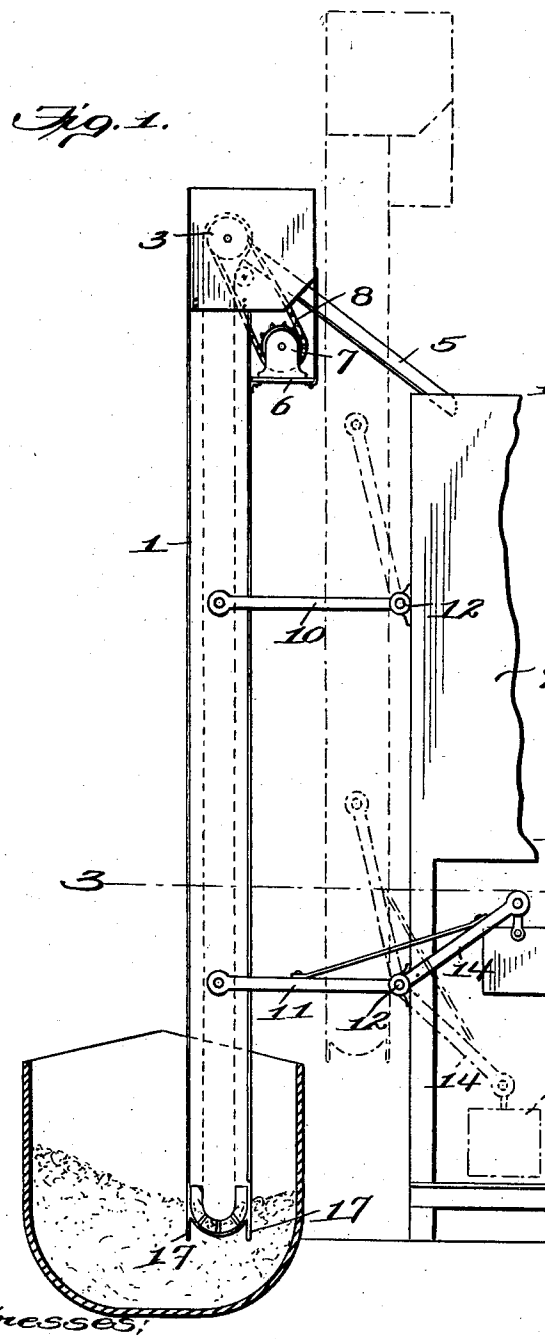
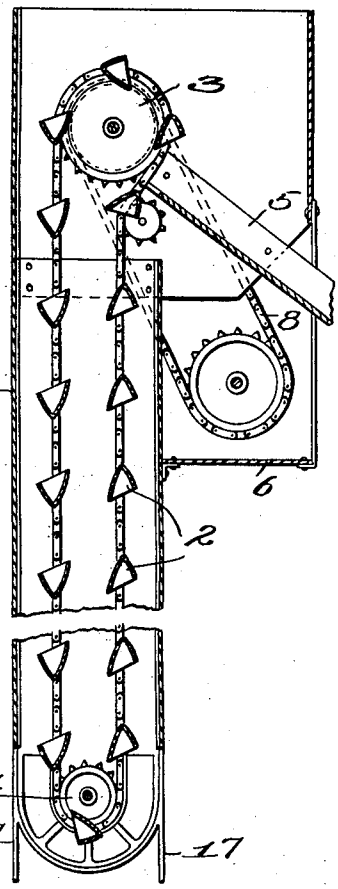


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

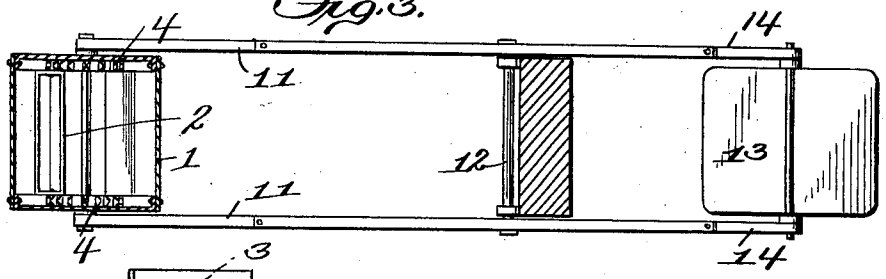

Fig. 4.

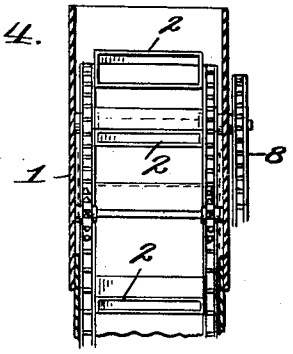

Fig. 5.

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LOAD-TRANSFERRING APPARATUS.

1,101,438. Specification of Letters Patent. Patented June 23, 1914.

Application filed December 8, 1913. Serial No. 805,356.

To all whom it may concern:

Be it known that I, HENRY W. HILDEBRAND, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented new and useful Improvements in Load-Transferring Apparatus, of which the following is a specification.

This invention relates to improvements in load transferring apparatus, and it proposes a machine which is especially applicable to the operation of unloading bulk material from boats or barges and of transferring said material to stationary bins or to ships at sea.

The improved apparatus is of that type which embodies a so-called marine leg, consisting of a bucket conveyer and a motor for operating the same, and a means of support for said leg whereby the leg is relatively movable, and during the operation of the apparatus, may take such positions as will insure the efficiency of the operation and as will compensate for the changes in the surface level of the load and in the elevation of the barge from which the load is being transferred.

The principal objects of the present invention are to provide a structure of the type identified which shall be of exceedingly compact nature, yet at once rugged and light; which, when not in use, may be elevated to a position wherein it will not interfere with the movement of passing barges or vessels; which may be quickly and readily moved into an operative position relatively to a barge or vessel from which the load is to be transferred; which, when in operation, shall have a substantially normal elevation, regardless of changes in the elevation of the barge or of the shrinkage of the load; and which includes a marine leg that may be moved with ease and facility into either of its operative or inoperative positions.

An embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation showing a machine in which the features of the invention are incorporated, in connection with the operation of transferring a load from a barge to a bin or other receiver mounted upon a wharf; Fig. 2 is a detail longitudinal sectional view showing the construction of the marine leg; Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1, looking downwardly; Fig. 4 is a detail cross sectional view showing the upper portion of the marine leg; and Fig. 5 is a side elevation of a slightly modified construction, wherein the apparatus, instead of being mounted upon a wharf, as in Fig. 1, is mounted upon a barge or boat.

Similar characters of reference designate corresponding parts throughout the several views.

The marine leg includes a casing 1 which is open at its lower end, and a bucket conveyer 2, which latter may be of any suitable endless construction and at its upper and lower ends traverses drums or sprocket wheels 3 and 4. The buckets of the conveyer 2 discharge into a chute or spout 5, by means of which the material is conducted to the bin or other receptacle in which it is to be stored. The casing 1 is provided below the chute or spout 5 with a platform 6 which supports a motor 7, indicated diagrammatically in Fig. 1, and by means of which the conveyer 2 is operated, said conveyer being driven from said motor by sprocket and chain gearing 8 or any other gearing suitable for the purpose in view. The marine leg is supported by a suitable stationary upright which may take any desired form; that is to say, said upright may be in the form of a post provided especially for the purpose, or it may be a part of the supporting frame of the bin 9 into which the chute or spout discharges.

The support for the marine leg consists of upper and lower arms 10 and 11 which are preferably arranged in pairs; that is to say, there are a pair of arms 10 and a pair of arms 11. The said arms 10 and 11 are, at their outer ends, pivotally connected to the side walls of the casing 1, and at their inner ends are mounted upon stationary pivots 12. At least one pair of said arms carries a counter-balance weight 13. As shown, the weight 13 is carried by the arms 11, the latter having suitable extensions 14 beyond their pivot 12, from which the weight 13 is suspended. The extensions 14 are positioned within easy reach of the operator, and may be used as levers to effect the movement of the marine leg into the inoperative position shown by dotted lines in Fig. 1, and into the operative position shown by full lines in said figure. The length of the arms 10 and 11 is selected to cause the marine leg,

when in operative position, to stand out at a suitable distance from its stationary support, and when in inoperative position, to lie closely adjacent said support. The length of the arms 14 and the weight of the counter-balance 13 are selected to provide for easy movements of the marine leg to operative or inoperative positions, and to provide for suitable retention of the marine leg in inoperative position, even in the absence of any positive means for holding said leg in said inoperative position.

When the apparatus is in use, the marine leg may assume various elevations, depending on the surface level of the load which is to be transferred, and as the level of the load changes, due to the shrinkage of the load and to the rising of the barge in the water, consequent to the reduction of the weight of the load, said leg will automatically take a position which will compensate for changes in the level of the load. Thus, the marine leg will always take a position, regardless of the surface level of the load, in which the conveyer 2 will "eat into" the material which is to be transferred, its action in this respect being promoted not only by the weight of the marine leg itself but also by the weight of the motor and its appurtenances which are supported at the upper end of said leg.

When the apparatus is not in use, the marine leg may, as above stated, be positioned as shown by dotted lines in Fig. 1, in which case said leg has an elevation which is substantially greater than the deck elevation of the passing barges, and also lies closely adjacent and parallel to its stationary support. By virtue of this relation, the movement of passing barges or vessels will not be interfered with, but on the contrary, said barges or vessels may pass in close proximity to the wharf and to the stationary means by which the marine leg is supported. Furthermore, the positioning of a barge adjacent the wharf, for the purpose of unloading, is greatly facilitated, since said barge may be brought close to the wharf, and the marine leg, when in its inoperative position, will be at one side of the customary masts, smoke stacks, derricks, guys, and other appurtenances. In this way the barge may be conveniently brought to a position wherein the hatch through which the marine leg will move when said leg is assuming its operative position can be precisely alined with said leg.

Fig. 5 shows a slightly modified construction which is especially adapted for the operation of coaling ships. In this case the stationary support for the marine leg consists of a suitably braced upright frame or skeleton tower 15, which is mounted upon a barge or boat 16. In using this modified construction, the barge or boat 16 will be brought to a position between the barge or vessel A from which the load is to be taken, and the ship B, to which the load is to be transferred. In respects other than that noted, the construction shown in Fig. 5 is similar to the construction shown in Fig. 1.

The chute or spout 8 may be of any suitable construction and if desired, may be made in folding or telescoping sections. The casing 1 is preferably provided at its lower end and at its corners with legs 17, which ultimately engage upon the floor or base of the compartment from which the load is being taken, and take up the weight of the suspended marine leg, thereby protecting the elevator boot at the lower end of the marine leg against any damage, as is obvious.

Having fully described my invention, I claim:

In an apparatus of the type set forth, a marine leg consisting of a vertical casing open at its lower end and an endless conveyer working through said casing, a discharge chute projecting from the upper end of the casing, a stationary upright support, upper and lower parallel arms pivoted at their ends to said leg and said support respectively, the arms being movable whereby to lower the leg and simultaneously cause it to stand out from the support or to raise the leg and simultaneously cause it to lie substantially against the support in parallel relation thereto, the arms supporting the leg at such an elevation relative to the support that when folded against the support its lower end is a substantial distance above the base of the support, the leg when extended being free to adjust itself vertically by gravity to compensate for changes in the level of the load and the elevation of the boat from which the load is being taken, and a counter-balance means associated with at least one of said arms and serving to normally hold the marine leg in elevated position against the support.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY W. HILDEBRAND.

Witnesses:
Z. L. WHITE,
CHAS. V. BURGESS.