No. 819,576. PATENTED MAY 1, 1906.

W. L. McCABE.

SLING FOR HOISTING APPARATUS.

APPLICATION FILED MAR. 20, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

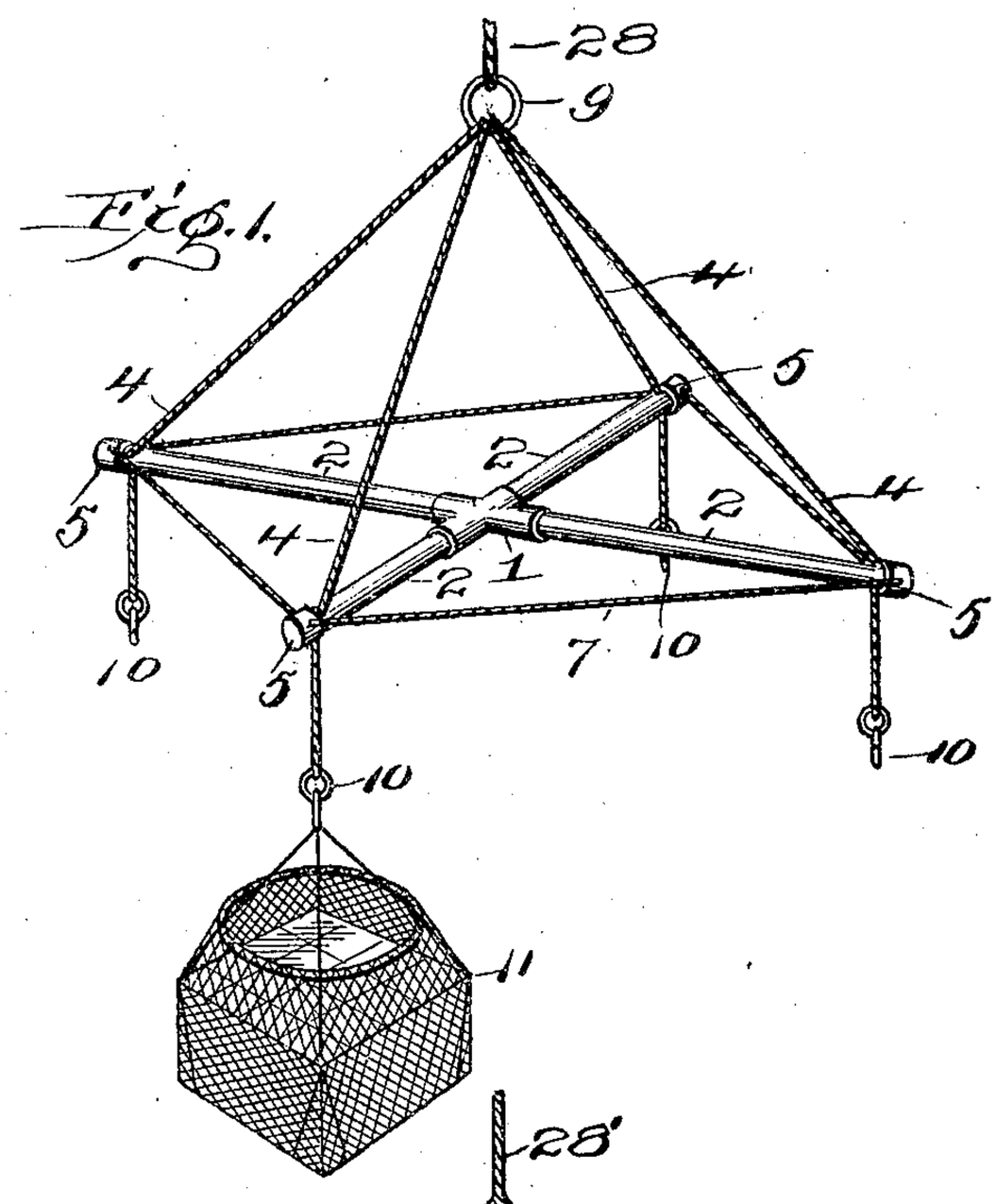


Fig. 8.

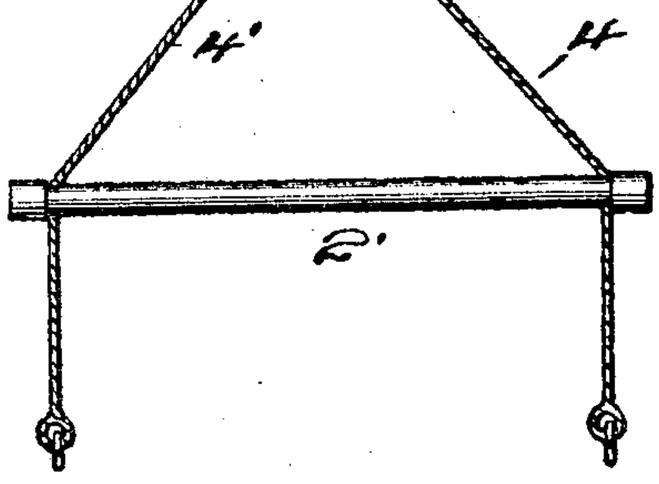


Fig. 6.

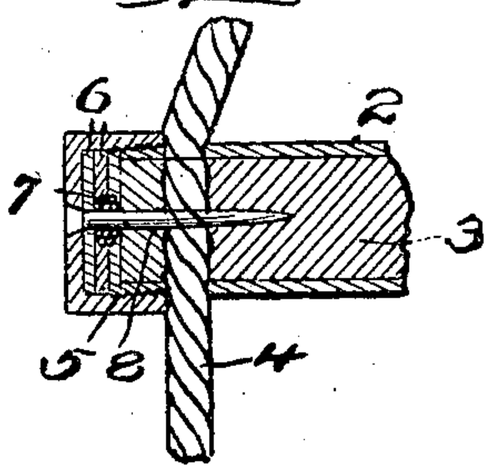
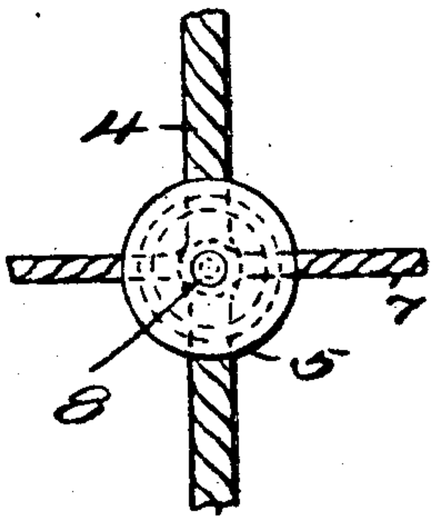


Fig. 5.



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3 SHEETS—SHEET 2.

Fig. 2

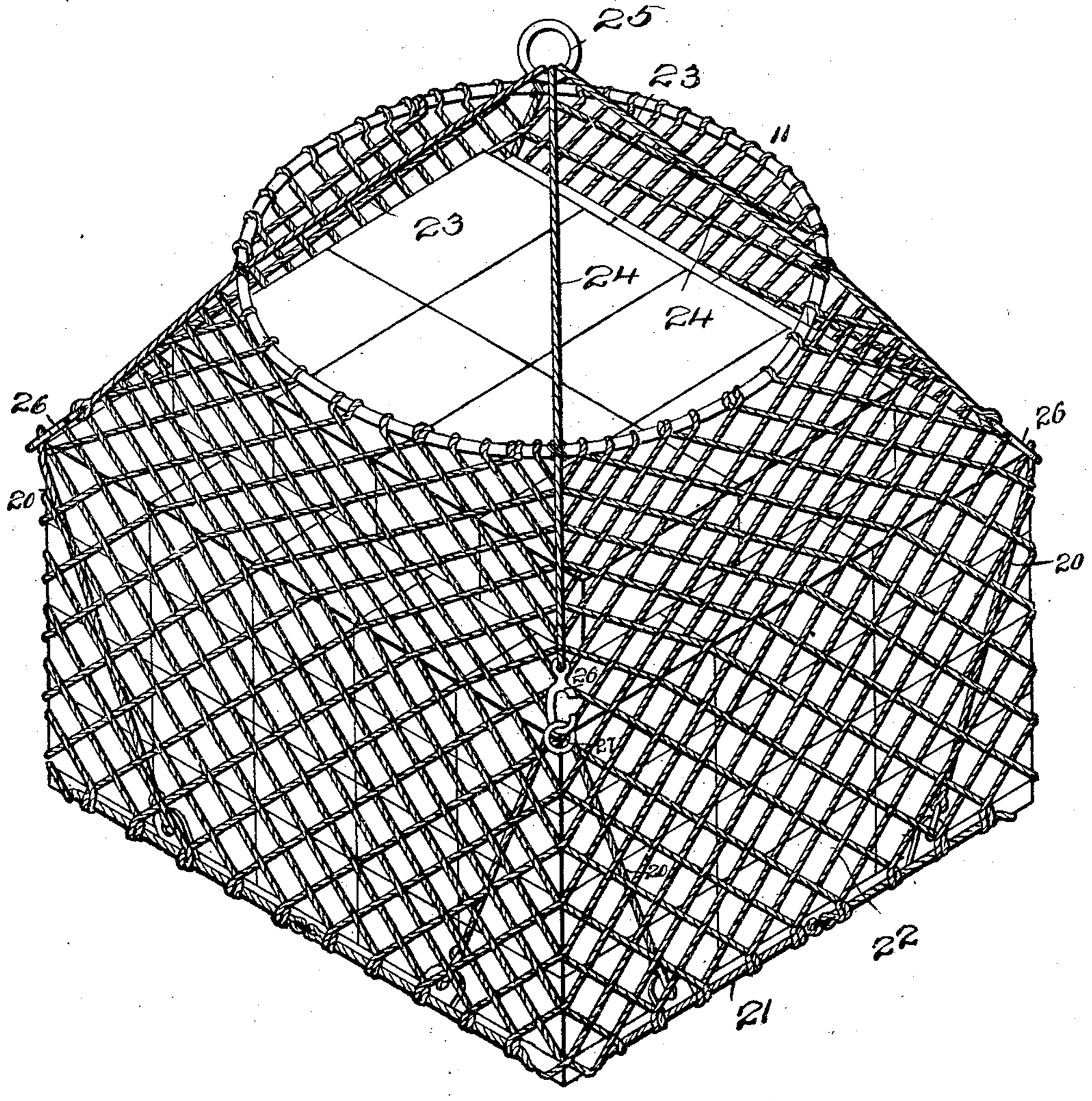

Fig. 7.

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3 SHEETS—SHEET 3.

Fig. 3.

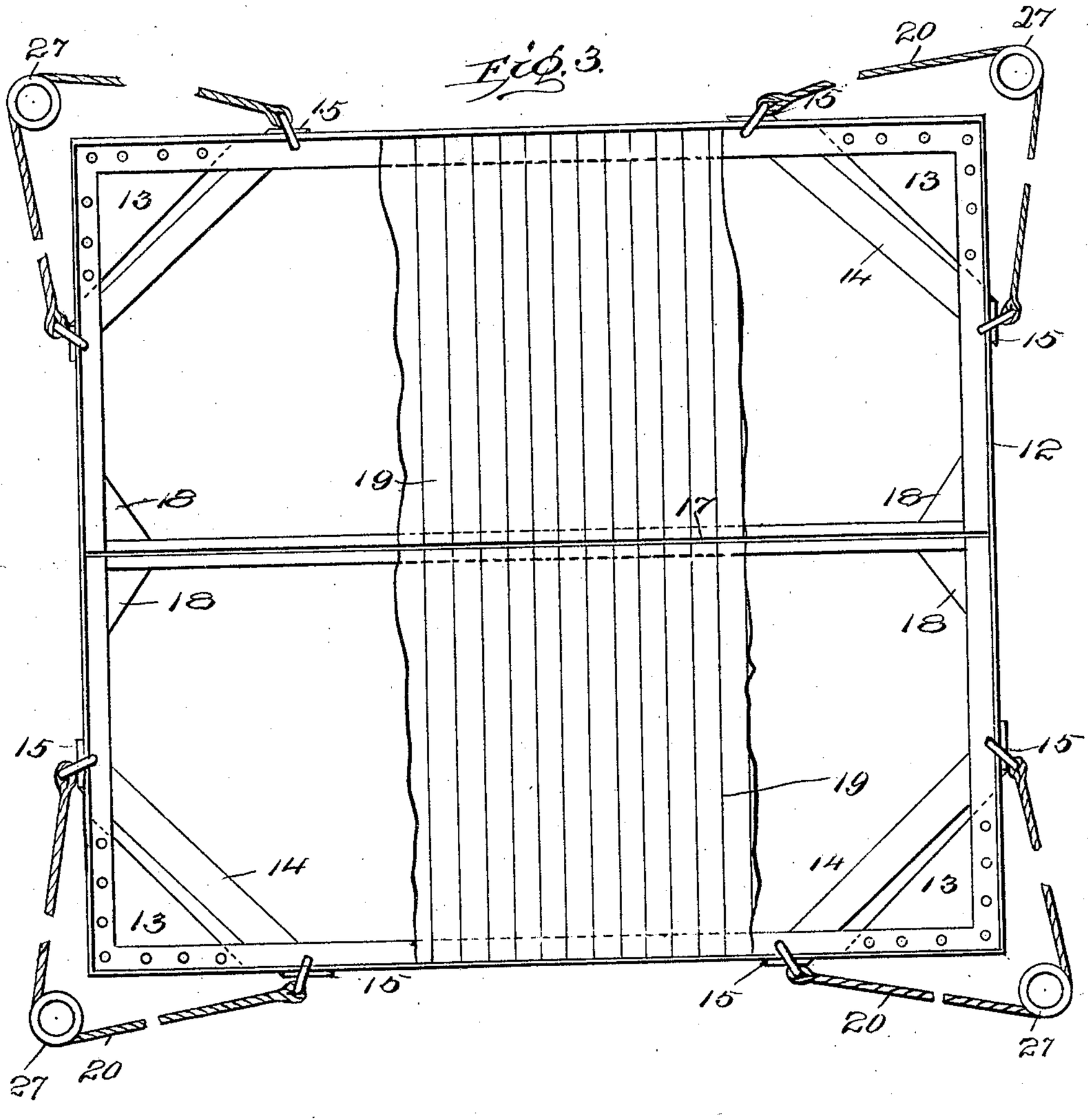
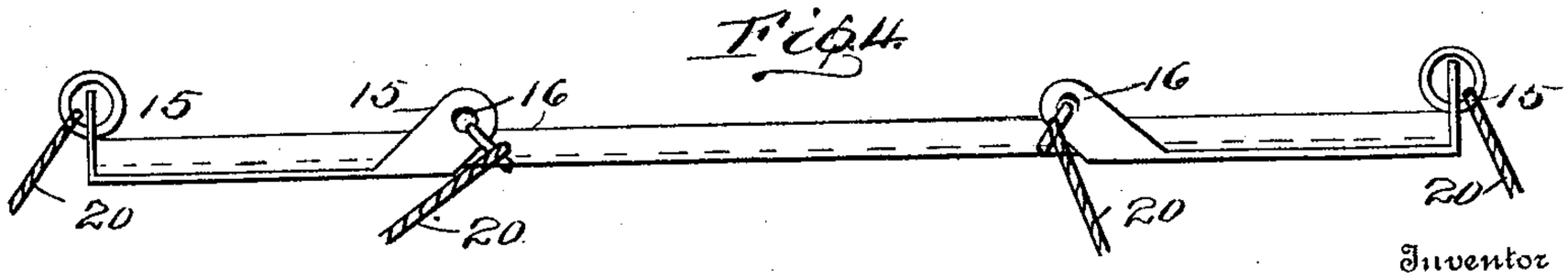


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SLING FOR HOISTING APPARATUS.

No. 819,576. Specification of Letters Patent. Patented May 1, 1906.

Application filed March 20, 1905. Serial No. 251,079.

To all whom it may concern:

Be it known that I, WILLIAM L. McCABE, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Slings for Hoisting Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in loading and unloading apparatus, and more particularly to hoisting devices and spreaders therefor.

The object in view is the provision of means for facilitating the hoisting of loose packages of uniform or varying sizes, and this object is attained by the employment of a supporting-floor and an inclosing flexible netting adapted to engage said floor.

The invention comprises certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings, Figure 1 represents a perspective view of the hoist-spreader embodying the features of the present invention, only one of the containers being illustrated. Fig. 2 represents a perspective view of one of the containers. Fig. 3 represents a top plan view of the flooring, parts being broken away. Fig. 4 represents a view in side elevation thereof. Fig. 5 represents a view in end elevation of one of the cross-bars of the spreader. Fig. 6 represents a fragmentary longitudinal central vertical section through the parts seen in Fig. 5. Fig. 7 represents an enlarged detail view of one of the lanyards and sets of eyes interposed in the length of the lower cable of the net. Fig. 8 represents a view in side elevation of a modified form of the present improved hoist-spreader.

In the handling of loose packages—as, for instance, boxes of tea, being of uniform size and shape—or in the handling of other articles of varying sizes and shapes which are relatively small and can be easily elevated and transported in large quantities if retained against lateral displacement it is desirable to provide for the retaining of the same upon a given supporting-surface, so that said surface may be elevated and transported for facilitating the rapid loading or unloading of a vessel, storage-building, or other place of deposit, and in order to provide for the handling of such articles I contemplate employing a structure such as disclosed in the accompanying drawings, in which 1 indicates a spreader comprising, preferably, a right-angled four-part coupling designed to be rigidly connected with and carry radially-extending arms 2 2. The arms 2 2 are of course of any desired length, and, as will be seen by reference to Fig. 6, each of said arms is preferably hollow and filled with any suitable material 3, preferably hard wood, the end of the arm 2 being bored transversely and the wood filling cut away for accommodating a cable 4 passed therethrough. A cap 5 is threaded onto the end of the arm 2, and the washers 6 are interposed between the cap 5 and the outer end of the wood filling 3, so that when the cap is threaded on the washers 6 will be compressed and will force the outer portion of the filling 3 against the cable 4, so as to bite the same for retaining the cable against longitudinal movement, the said outer portion of the filling 3 being preferably independent of the main portion thereof. A cable 7 connects all of the outer ends of the several arms 2, and, as will be seen by reference to Fig. 6, passes through each of the caps 5 outside the wood filling 3, said cable being firmly held in place by means of a pin or nail 8 driven through the washers 6, through the cable 7, through a portion of the wood filling 3, and through the cable 4. The cable 7 is thus held positively against movement longitudinally, and the outer ends of the arms 2 are prevented from swinging toward each other, the cable 4 being positively held against longitudinal movement with respect to the respective arms 2. There is of course a cable 4 for each of the outer ends of each arm 2, and said cables are all preferably centered at a point above the spreading-arms 2 and are suitably connected to a hoist-engaging ring 9.

The depending end of each of the cables 4 may be provided with a ring 10 or other engaging means adapted to support a container 11, designed to inclose the packages to be transferred by the hoisting apparatus engaging the ring 9.

By reference to Figs. 2, 3, and 4 the specific construction of the container 11 may be understood, said container consisting of a floor-

ing (seen in Figs. 3 and 4) and a network. (Seen best in Fig. 2.) Said flooring consists of a framing 12, preferably of angle-irons and usually formed rectangular, a suitable bracing-gusset 13 being secured in each corner of the framing for straightening the same. A transversely-disposed brace or plate 14 extends across each corner of the framing 12, and each of said plates 14 extends beyond the planes of the sides of the framing and is turned upwardly at each end for producing ears 15 15, each of said ears being formed with an aperture 16 for receiving a supporting-cable 20, the ends of each cable 20 being connected to the two ears of the respective plates 14, and thus producing a bail for the reception of the supporting-cable hereinafter mentioned. A bar 17 is preferably arranged transversely of the framing 12 and fixed centrally thereof, said bar being by preference a T-iron braced at each end by gussets 18 18. Any suitable flooring material 19 may be carried by the framing 12, one end of said flooring resting upon the horizontal webs of the central bar 17 and the other on the horizontal web of the angle-iron of the corresponding side of the frame.

The floor or base produced is designed to receive the articles to be transported, and after such articles have been deposited thereon a netting, such as is seen in detail in Fig. 2, is adapted to be positioned for inclosing said articles for retaining the same in place and facilitating transportation, said netting completing the container and being made up of a lower cable 21, to which is connected an interwoven flexible mesh of any suitable arrangement of cables 22. At the upper edge of the mesh 22 is arranged a ring 23, to which said mesh is suitably secured, said ring constituting a mouth or opening through which the contained articles may be removed. Connected with the ring and converging to a common center above the same are suitable cables 24, a ring 25 being arranged for receiving the converging ends of said cables. The lower ends of the cables 24 extend past the ring 23 and are each provided with a suitable hook 26, of any preferred type, adapted to engage an eye 27, carried by one of the bails formed of one of the cables 20. The lower cable 21 is preferably made up of a number of sections each formed with an eye at each end, the contiguous eyes of such sections being connected together, as seen in Fig. 7, by an interlaced lanyard 27′, designed to be shortened or lengthened for taking up slack or admitting the same, as required, according to whether the cable is wet or dry.

In the practical operation of the present improved structure the packages are deposited upon the flooring 19 and the mesh 22 is positioned over the same, the cable 21 being passed beneath the corners of the framing 12, as indicated in Fig. 2, and the bails of cables 20 are passed between the cables of the mesh 22, and the eyes 27, carried by said bails, are engaged by the hooks 26, whereupon the container is ready to be elevated and transported, such elevation and transportation being accomplished by causing the hook or ring 10 to engage the ring 25.

After the container has been transported to the point where the articles are to be deposited the same is lowered until the floor rests upon a support, the cable 21 is removed from its engagement with the corners of the frame 12, the hook 16 disconnected from the eyes 27, and the netting elevated above the articles transported, which articles are then ready for removal. Thus it will be seen that ready and efficient transportation of the articles may be accomplished, and by the use of a plurality of the floors with each of the nets one floor may be loaded and another unloaded while the third is being transported.

As is obvious from the showing in Fig. 1, a number of the containers 11 are adapted to be elevated by a single elevating-cable 28, which may be connected with any suitable hoisting apparatus in the ordinary manner. It is also obvious that any number of cables 4 may be provided and arms 2, as found desirable, the number being increased or decreased from that illustrated in Fig. 1, as required. For instance, as seen in Fig. 8, a single bar 2′ may take the place of two of the arms 2 and may be provided with cables 4′ 4′, supported by a single cable 28′ and adapted to carry two package-carriers instead of four.

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

1. In an apparatus of the class described, the combination with a plurality of cables, of a hollow bar spacing the same apart, said cables being passed through said bar, a filling for said bar, and means for causing said filling to bite said cables for maintaining the same against movement with respect to the bar.

2. In an apparatus of the class described, the combination with a plurality of cables, of a hollow bar for spreading the same apart, said cables being passed through said bar at points near the ends thereof, a filling for said bar, a cap threaded onto said bar at each end, and means interposed between each cap and the filling for causing the filling to engage said cable, and a pin passed through each cap into said filling through said cable.

3. In an apparatus of the class described, the combination with a plurality of cables, of arms arranged at right angles to each other and engaging said cables for spacing the same apart, a cable passed through the free ends of said arms, and a pin passed through said last-mentioned cable and into each of said bars.

4. In a container for hoists, the combina-

tion of a rigid floor, and a flexible inclosing net independent of and designed to be connected to said floor.

5. In a container for hoists, the combination of a floor, an independent inclosing mesh designed to engage said floor, a cable for supporting said mesh, and means for connecting said cables with said floor.

6. In a container for hoists, the combination of a floor, a bail connected with each corner thereof, a netting designed to inclose said floor, means for supporting said netting, and means for connecting said bails with the support for said netting.

7. In a container for hoists, the combination with a floor, of cables connected therewith at each end and constituting bails, a netting designed to surround said floor, cables supporting said netting, and means for connecting the last-mentioned cables with said bails.

8. In a container for hoists, the combination of a floor, ears projecting therefrom, cables connected with said ears, a netting designed to inclose articles disposed on said floors, cables for supporting said netting, and means for connecting said first and second mentioned cables.

9. In a container for hoists, the combination with the floor, of a netting removably engaging the same, and means for supporting said netting.

10. In a container for hoists, the combination with a floor, of a cable designed to engage the same and comprising a plurality of sections formed with an eye at each end, and a lanyard connecting the contiguous eyes of said sections, a flexible mesh engaging said cable, and means for supporting said mesh.

11. In a container for hoists, the combination with a floor, of a bail connected with each corner thereof, a netting designed to inclose material mounted upon said floor, a ring at the upper edge of said mesh and connected therewith, cables connected to said ring and converging to a common center, and hooks carried by said cables designed to engage said bails.

12. In an apparatus of the class described, the combination with a plurality of cables, of a spreader for said cables, said spreader comprising a series of radially-extending arms, and a container carried by said spreader.

13. In a device of the character described, the combination with a series of cables, of a spreader spacing said cables apart, said spreader comprising a series of arms, and a container supported by each of said arms.

14. A device of the class described comprising a flooring, means for sustaining said flooring, a flexible mesh inclosing said flooring, and means independent of the flooring for sustaining the mesh in position about the flooring.

15. In a device of the class described, the combination of a flooring, bails connected to said flooring for sustaining the same, a flexible mesh inclosing said flooring, and means adapted to engage said mesh and said bails for independently supporting the flooring and mesh while maintaining the same in their respective relations.

16. In a device of the class described, the combination of a flooring, flexible bails connected thereto, a mesh inclosing said flooring and bails, and cables engaging said bails and mesh for sustaining the parts.

17. In a device of the class described, the combination of a flooring, a bail arranged at each corner thereof, a flexible mesh inclosing said flooring, a cable engaging each of said bails, and means connecting said mesh with said cables, and means for supporting said cables.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM L. McCABE.

Witnesses:

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WM. H. BRINKER.