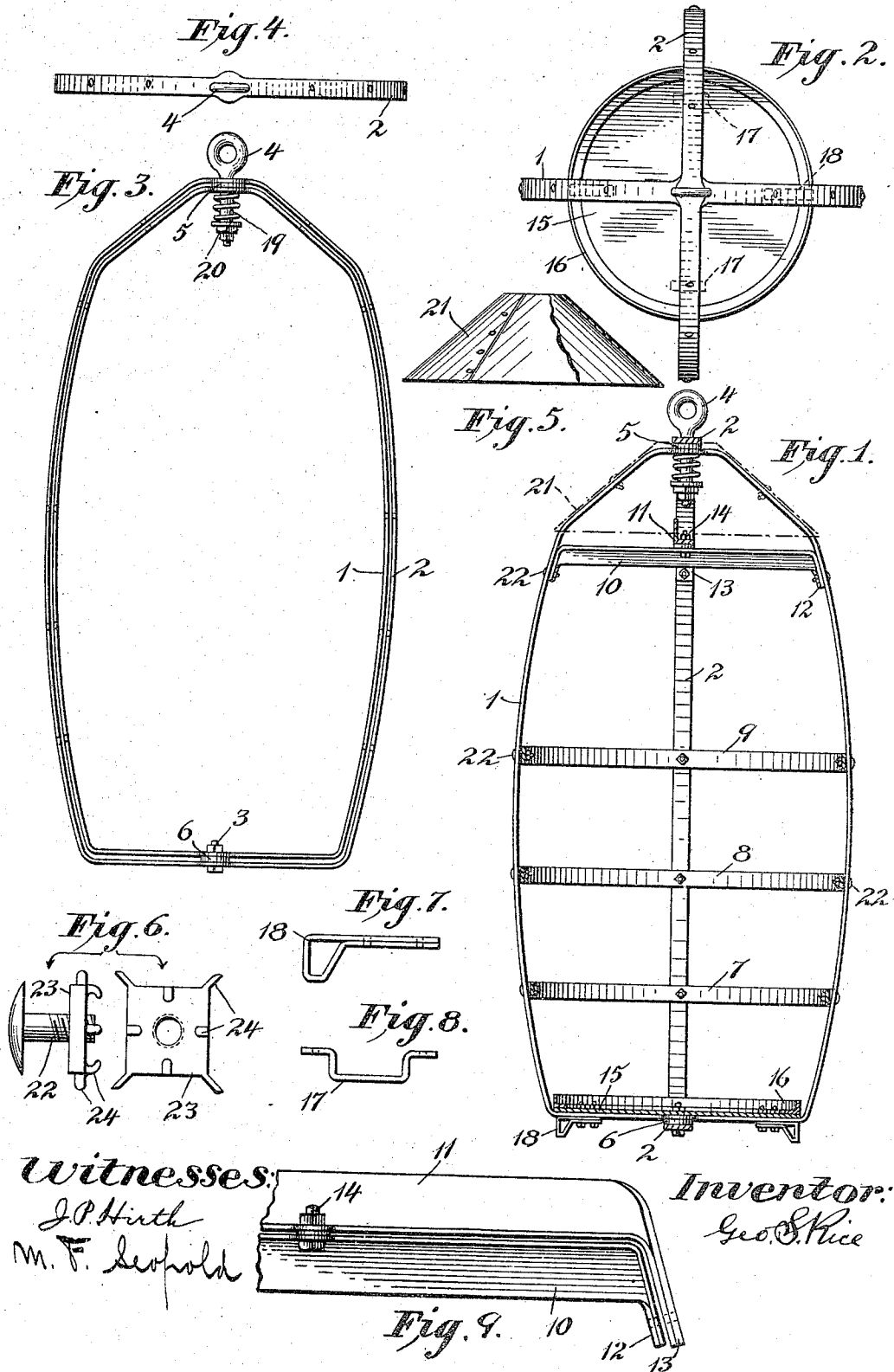


G. S. RICE.
HOISTING CAGE.
APPLICATION FILED FEB. 1, 1912.

1,063,285.

Patented June 3, 1913.



Witnesses:

J. P. Hirth
M. F. Leopold

Inventor:
Geo. S. Rice

UNITED STATES PATENT OFFICE.

GEORGE S. RICE, OF PITTSBURGH, PENNSYLVANIA.

HOISTING-CAGE.

1,063,285.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed February 1, 1912. Serial No. 674,846.

(DEDICATED TO THE PUBLIC.)

To all whom it may concern:

Be it known that I, GEORGE S. RICE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Hoisting-Cages, of which the following is a specification.

This application is made under the act of March 3, 1883, c. 143, (U. S. Stat., 22, p. 625), and the invention described therein may be used by the Government, or any of its officers or employees in prosecution of work for the Government, or by any other person in the United States, without the payment of any royalty thereon.

My invention relates to hoisting cages and has for its object the provision of a novel cage which shall have peculiar advantages in regard to portability and ease of assembling and disassembling. Although not limited to such use it is of especial utility in mine rescue work as an emergency cage.

The invention consists in certain features of construction and arrangement hereinafter described and specifically pointed out in the claims.

It frequently happens in case of mine accidents that the regular hoisting equipment may be so damaged or disarranged that it cannot be used. In such cases the provision of an emergency cage which can be made ready in a few minutes will greatly facilitate the work of rescue parties and aid in saving the lives of many to whom even a short delay may prove fatal. To be useful for this purpose the cage should be incapable of being upset by striking projecting timbers or other obstructions in the shaft, and should as far as possible guide itself past such obstructions, since the men, if wearing rescue apparatus, cannot see readily nor control the movements of the conveyance used. Such cage should be sufficiently strong to withstand any blows to which it may be subjected, and should be so arranged that timbers and cloth for brattices or other supplies necessary for rescue work can be successfully lowered in it. It is especially important that the cage should be of such construction that it may be quickly assembled and readily taken apart again for the purpose of convenient storage and transporta-

tion, as it is often necessary to load these cages along with other rescue apparatus on railway cars especially equipped for mine rescue work. All of these varied requirements are met by the cage hereinafter described.

In the accompanying drawings illustrating one embodiment of the invention, Figure 1 is an elevation of the cage in assembled position, Fig. 2 is a top plan view of the same, Fig. 3 is an elevation of the cage frame in collapsed position, Fig. 4 is a top plan view of the structure shown in Fig. 3, Fig. 5 is a view of the hood used in the cage, Fig. 6 is a view of a special form of fastening device, and Figs. 7, 8 and 9 represent certain details of the cage structure.

In the form illustrated the cage comprises a collapsible frame consisting of two flat bars 1 and 2, each bent into a form which may be termed approximately elliptical and the ends welded together, thus forming endless members which serve not only as uprights but also as top and bottom frame parts. The member 1 is made slightly smaller than the member 2 so as to be capable of lying entirely within and substantially in the same plane as said member 2. A bolt or rivet 3 connects the members 1 and 2 at the bottom, and the king bolt 4 at the top, about which bolts as pivots the members 1 and 2 may be rotated about the vertical axis of the cage to bring them into the extended position shown in Figs. 1 and 2, or into the collapsed position shown in Figs. 3 and 4. Washers 5 and 6 may be placed between the two frame members.

The inclosing members for the cage comprise horizontally arranged hoops 7, 8 and 9, each bolted to the upright frame members, thus serving both to brace the frame and to form skeleton sides adapted to prevent falling or dislodgment of the load. If desired a flexible hoop or chain may be used in place of a rigid hoop for the member 9 to facilitate entrance and exit.

A cross brace consisting in the form illustrated of two angle bars 10, 11, with flattened end portions 12, 13, and a pivoted connection 14 at their middle point, is bolted to the frame members as shown in Fig. 1. When not in use, the bars of the brace may

be rotated about the pivot 14 so that they lie one within the other as shown in Fig. 9 for convenience in storage.

A bottom or platform 15, suitably braced by a rim or ring 16, is bolted to the main frame, filling pieces 17 being attached to the bottom of the platform to contact with the frame member 2. Lugs or supports 18 are bolted to the under side of frame member 1 so that the cage will set properly on a supporting surface.

The king bolt 4 is arranged to have a swiveling movement so that twisting of the cable will not turn the cage. The bolt may have any desired form of head for the attachment of the hoisting cable. If a steel cable provided with an eye is used the king bolt eye may be provided with a pivoted section to facilitate attachment of the cable. A cushioning member, as a spring 19, is preferably inserted between the frame and the nuts 20 on the king bolt.

A bonnet 21 which may consist of a piece of sheet metal formed as shown in Fig. 5 may be bolted to the top of the cage frame, preferably on the outside, as shown in dotted lines in Fig. 1. The bonnet may be removed when lumber or the like is to be handled.

To facilitate the assembling and taking apart of the cage a special form of bolt and nut illustrated in Fig. 6 may be employed. The heads of the bolts 22 are made thin and rounded in order not to catch on obstacles in the shaft, and the nuts 23 are provided with wing projections 24 so that they can be grasped by the hand like an ordinary wing nut or can be readily turned by a flat bar or the like if an ordinary wrench should not be at hand. For the storage of these bolts and nuts when not in use it may be desirable to provide some member of the cage with a canvas bag or other receptacle.

It will be seen that the generally elliptical contour of the cage will greatly facilitate its travel past obstructions in the shaft, and that the curved upright portions of the frame will serve to a certain extent as guide shoes. In large cages it may be desirable to use more than two of these frame members. It will be understood that various changes in details of construction and arrangement of parts other than those specifically set forth above may be made by one skilled in the art without departing from the spirit and scope of the invention, hence I do not wish to be in any way limited to the precise construction described.

I claim:

1. A supporting frame for a hoisting cage comprising a plurality of frame members,

and connecting means adapted to permit relative movement of said members into a collapsed position.

2. A collapsible frame for a hoisting cage comprising a plurality of frame members of different dimensions adapted to lie one within another when in the collapsed position.

3. A frame for a hoisting cage comprising a plurality of frame members so connected as to be capable of pivotal movement relative to each other approximately about the vertical axis of the cage.

4. A frame for a hoisting cage comprising a plurality of endless frame members and means for pivotally connecting said members.

5. A collapsible frame for a hoisting cage comprising a plurality of endless frame members of approximately elliptical outline and means for pivotally connecting said members.

6. In a hoisting cage, a collapsible frame and removable inclosing means supported by said frame.

7. A hoisting cage comprising a rigid collapsible frame and a detachable platform supported by said frame.

8. A hoisting cage comprising a collapsible frame, a platform, and detachable bracing members adapted to connect the parts of said frame and hold them in extended position.

9. A hoisting cage comprising a collapsible frame, a platform, and substantially hoop-shaped members adapted to connect the parts of said frame.

10. A hoisting cage comprising frame members, means connecting said members and forming skeleton sides, a platform, and a bonnet, said sides, platform, and bonnet being detachably connected to the frame members.

11. A hoisting cage comprising a plurality of endless upright frame members, connecting members forming skeleton sides, a cross-brace for the top of the frame, a platform and cushioned means for attachment of a hoisting cable.

12. In a hoisting cage, the combination of a frame and a bracing member for the frame comprising a plurality of bars with their ends adapted for attachment to the frame, said bars being pivotally connected intermediate their ends.

In testimony whereof I hereto affix my name in the presence of two witnesses.

GEORGE S. RICE.

Witnesses:

H. I. SMITH,
ALBERT H. FAY.