

D. P. HELMICH.

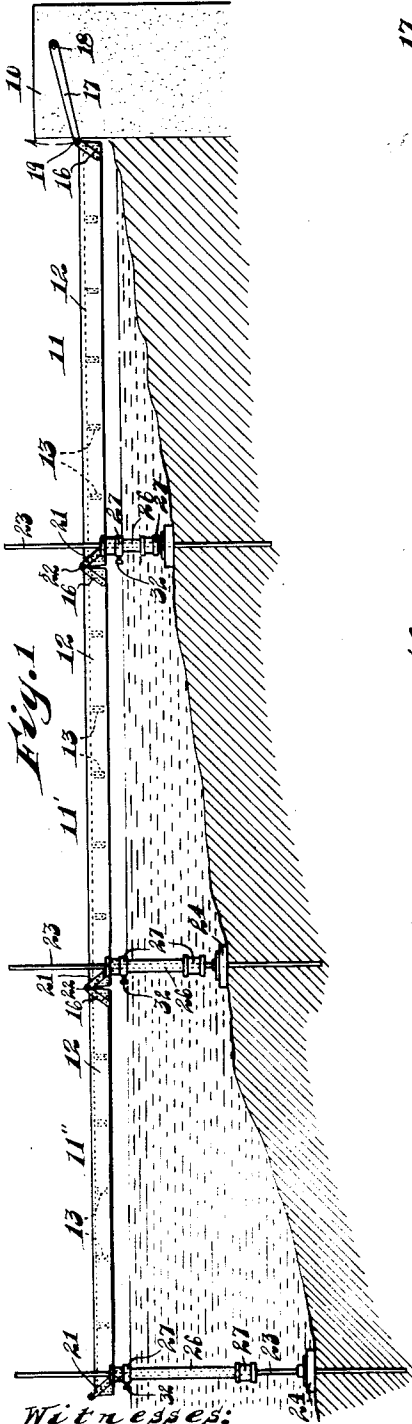
PIER.

APPLICATION FILED JULY 29, 1918.

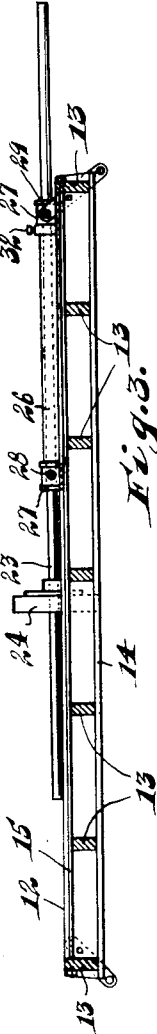
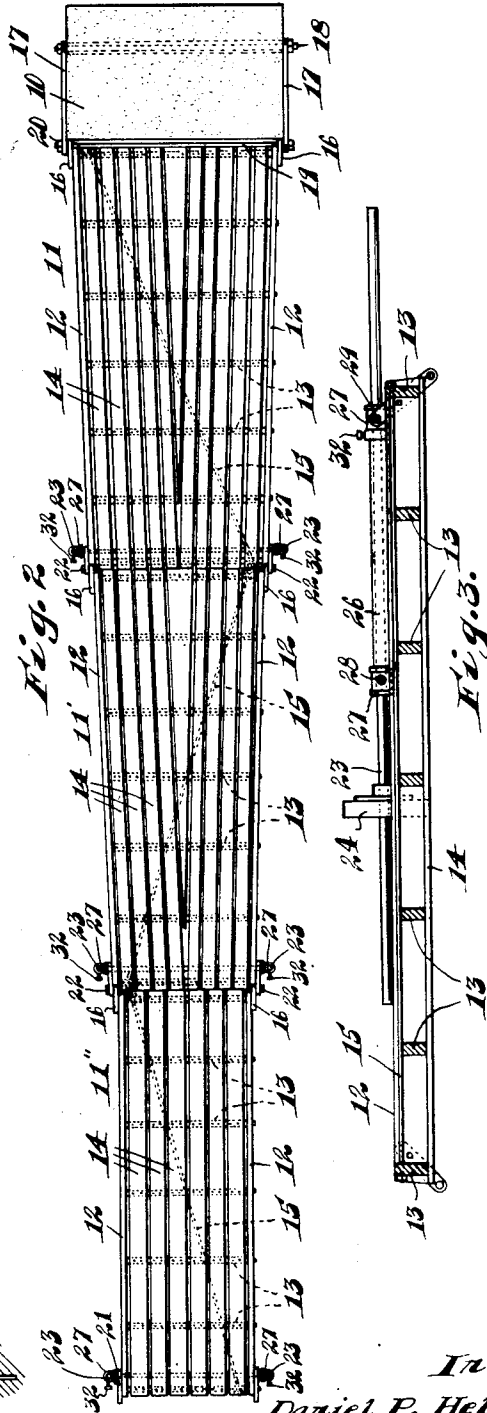
Patented Nov. 16, 1920.

2 SHEETS—SHEET 1.

1,358,951.



Witnesses:
E. C. Wessels.
A. A. Olson



Inventor:

Daniel P. Helmich,

By Joshua R. H. Voss
his Attorney.

D. P. HELMICH.
PIER.

APPLICATION FILED JULY 29, 1918.

1,358,951.

Patented Nov. 16, 1920.

2 SHEETS—SHEET 2.

Fig. 4

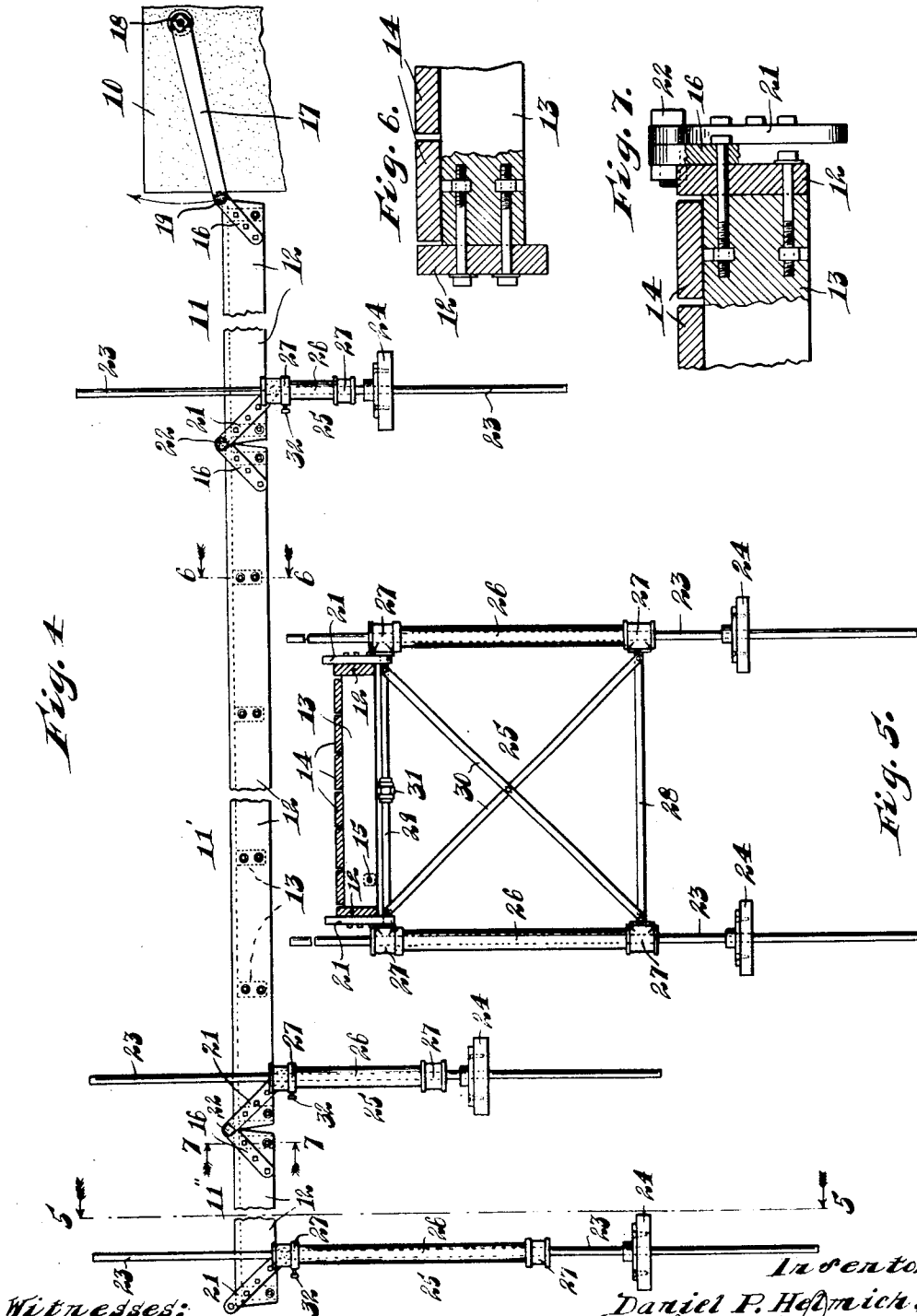


Fig. 5

Witnesses:
C. E. Wessels,
A. A. Olson.

Inventor:
Daniel P. Helmich,
By Joshua R. H. Potts
Attorney.

UNITED STATES PATENT OFFICE.

DANIEL P. HELMICH, OF CHICAGO, ILLINOIS.

PIER.

1,358,951.

Specification of Letters Patent. Patented Nov. 16, 1920.

Application filed July 29, 1918. Serial No. 247,246.

To all whom it may concern:

Be it known that I, DANIEL P. HELMICH, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Piers, of which the following is a specification.

My invention relates to improvements in piers, and has for its object the production of a device of this character which will be of a collapsible or foldable nature, permitting of ready erection thereof when desired, and as ready removal thereof when desired. A further object is the production of a pier as mentioned, which will be of a vertically adjustable nature, so as to permit of adjustment thereof to correspond with the level of the water, whether high or low.

A still further object is the production of a pier of the character mentioned, which will be of durable and economical construction, and which will be highly efficient in use.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1, is a side elevation of a pier embodying the invention, the same being shown arranged for use,

Fig. 2, a top plan view of the pier,

Fig. 3, a central longitudinal section through one of the pier sections in inverted position, that is, the position assumed thereby when detached, in the process of removing the pier,

Fig. 4, an enlarged side elevation of the pier, parts thereof being broken away,

Fig. 5, a section taken on line 5—5 of Fig. 4, and

Figs. 6 and 7, enlarged detail sections taken on lines 6—6 and 7—7 respectively, of Fig. 4.

The preferred form of construction, as illustrated in the drawings, comprises an anchoring element 10 in the form of a concrete block or the like, which, in the construction of the pier, is arranged upon and firmly embedded in the shore at the point where it is desired to locate the pier.

The platform of the pier is formed of a plurality of elongated sections 11, 11' and 11'', each of which is formed of side pieces

12, spaced transversely extending cross pieces 13 and platform boards 14 which are secured to the crosspieces 13. A diagonally extending metallic rod 15 is provided in each section connecting the opposite ends of the terminal crosspieces 13, said bar being designed to lend strength and rigidity to the construction.

Provided at the opposite sides of the rearward end of each platform section are rearwardly and upwardly inclined pivot plates or leaves 16. The members 16 of the platform section 11 are pivotally connected with the free ends of arms 17 which are fulcrumed at 18 to the anchoring element 10, the pivotal connection of the arms 17 with said anchoring element permitting of vertical adjustment of the platform section connected with said arms, such adjustment being effected by simply swinging the arms 17 about the pivot 18. The connection of members 16 with the arms 17 is effected by means of a bolt 19 and cooperating nut 20, this arrangement permitting of the free ends of arms 17 being drawn together by simply adjusting the nut 20. This drawing together of the arms 17 brings the same into clamping engagement with the opposite sides of anchoring element 10, whereby said arms and hence the adjacent end of the pier platform will be locked in positions of vertical adjustment, through frictional engagement of said arms with said anchoring element.

Provided at the opposite sides of the front end of each platform section are forwardly and upwardly inclined pivot plates or leaves 21 which are pivotally connected at their front ends with the rearward ends of the adjacent members 16 by bolts 22. With this arrangement it will be seen that the platform sections are pivotally connected with each other so as to permit of each being swung vertically with relation to the other, and disconnected therefrom by simply removing the pivot bolts 22.

The forward end of each platform section is supported by a supporting structure comprising a pair of tubular posts 23 arranged at opposite sides of the platform section, the lower end portions of said posts, in the installation or erection of the pier, being adapted to pierce or be driven into the ground, as clearly seen in Fig. 1. Spaced above the lower ends of said posts are stop blocks 24, which limit or determine the ex-

tent to which said posts may enter the ground, the blocks 24, when the posts 23 are in operative position, being adapted to rest upon the ground, that is, the bottom of the lake.

Coöperating with each pair of posts 23 is a supporting element or bent 25 comprising two tubular side members 26 which slidably embrace the posts 23. The ends of side members 26 are rigidly connected with T couplings 27, the lower ones of which are connected by a cross-pipe 28 and the upper ones of which are connected by a cross-pipe 29. Connecting the pipes 28 and 29 are diagonally disposed brace members 30 which are bolted thereto and to each other. The lower ends of the pivot plates or leaves 21 of each platform section pivotally engage with the ends of the pipe 29 of the corresponding supporting element, the arrangement being such that the entire supporting element will be locked to the platform section, and in the event of upward swinging of the latter said supporting element will be carried upwardly with the platform section and fold to position at the upper side thereof, when said platform section is swung over to inverted position, as seen in Fig. 3. To allow for ready connection or disconnection of the pipe 29 with respect to the pivot plates or leaves 21, said pipe 29 is split into two parts which are connected by a union 31, thus allowing each part of said pipe to be readily disconnected from the corresponding coupling 27 upon detachment of the corresponding brace members 30 from said pipe parts.

Set screws 32 coöperate with each supporting element 25 for locking the same in positions of vertical adjustment upon the posts 23, the arrangement being such that said supporting element and hence the platform sections connected therewith may be adjusted to any vertical position desired and locked in such position through adjustment of said screws 32.

With the construction set forth then it will be seen that a pier is provided which permits of ready and expeditious erection, it being clear that the platform sections may be successively projected from the anchoring element 10, each section, as the same is swung to position carrying its own supporting structure which automatically, by gravity, assumes operative or vertical position when the platform section has reached horizontal or substantially horizontal position. After the platform section is thus arranged, it is only necessary to apply sufficient pressure to the posts 23 coöperating therewith in order to force the same into the ground, as seen in Fig. 1. In removing the pier, the reverse steps are followed, the outermost section being first re-

moved and the other sections removed in succession, each section being swung upwardly and rearwardly to position upon the next rearward section and then carried along the remaining portion of the pier back to the shore. The adjustable connection of the supporting elements 25 with the posts 23, and the adjustable connection of the first platform section with the shore anchoring element permits of ready vertical adjustment to accommodate the pier to any level of water. The platform sections are preferably of converging formation, as clearly seen in Fig. 2, in order to obtain a sort of truss action, which adds to the strength and rigidity of the structure.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A pier comprising a plurality of sections arranged end to end; a pivotal connection between the adjacent ends of said sections; vertically adjustable means for supporting said sections; an anchoring element on the shore; and a means of connection between said anchoring element and the adjoining pier section permitting of vertical adjustment of the latter at the point of connection between said element and section, substantially as described.

2. A pier comprising a plurality of sections arranged end to end; a pivotal connection between the adjacent ends of said sections; vertically adjustable means for supporting said sections; and pivotal means of connection between the ends of each pier section and said vertically adjustable means, substantially as described.

3. A pier comprising a platform; a support therefor comprising posts adapted to engage the ground; a support element extending between and loosely engaging said posts for vertical adjustment thereon, said support element comprising tubular side members slidably engaging said posts; a cross piece extending between and connecting said side members; and means on said platform pivotally engaging said cross piece, substantially as described.

4. A pier comprising a platform; a support therefor comprising posts adapted to engage the ground; a support element extending between and loosely engaging said posts for vertical adjustment thereon, said support element comprising tubular side

members slidably engaging said posts; a cross piece extending between and connecting said side members; and means on said platform at the sides thereof pivotally engaging said cross piece, substantially as described.

5 5. A pier comprising a plurality of sections arranged end to end; a pivotal connection between the adjacent ends of said sections; vertically adjustable means for supporting said sections; an anchoring element on the shore; a connection between said anchoring element and the adjoining pier section permitting of vertical adjustment of the
10 latter at the point of connection between said
15 anchoring element and section, said con-

nection comprising a pair of arms arranged at opposite sides of said anchoring element and pivotally connected therewith; and means for drawing the free ends of said arms into close engagement with said anchoring element to lock said arms in positions of pivotal adjustment, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL P. HELMICH.

Witnesses:

ARTHUR A. OLSON,
HELEN S. LILLIS.