May 29, 1934. W. H. GRAVELL 1,960,906

STORAGE STRUCTURE

Filed Oct. 8, 1931 2 Sheets-Sheet 1

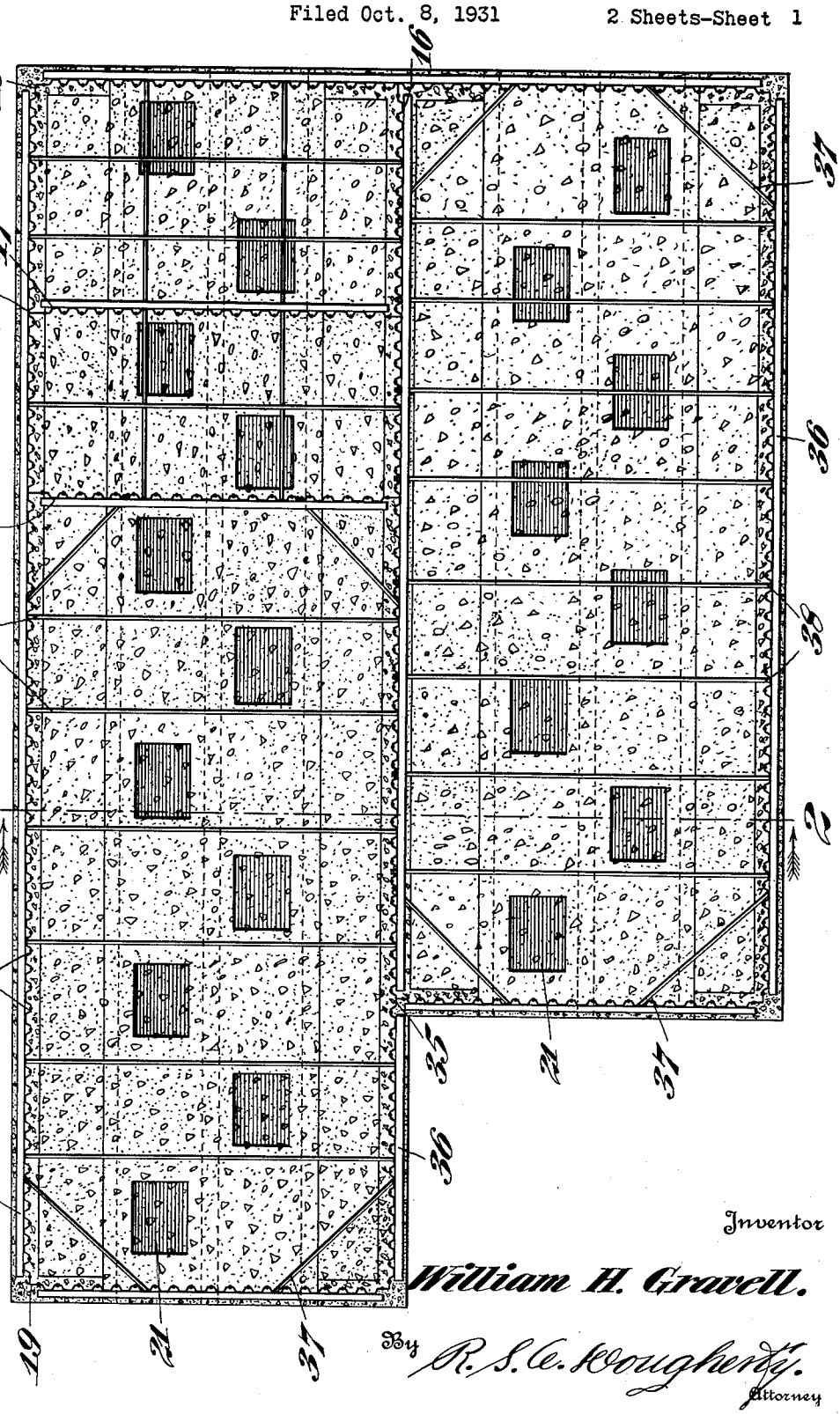


Fig. 1.

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Filed Oct. 8, 1931 2 Sheets-Sheet 2

Fig. 2.

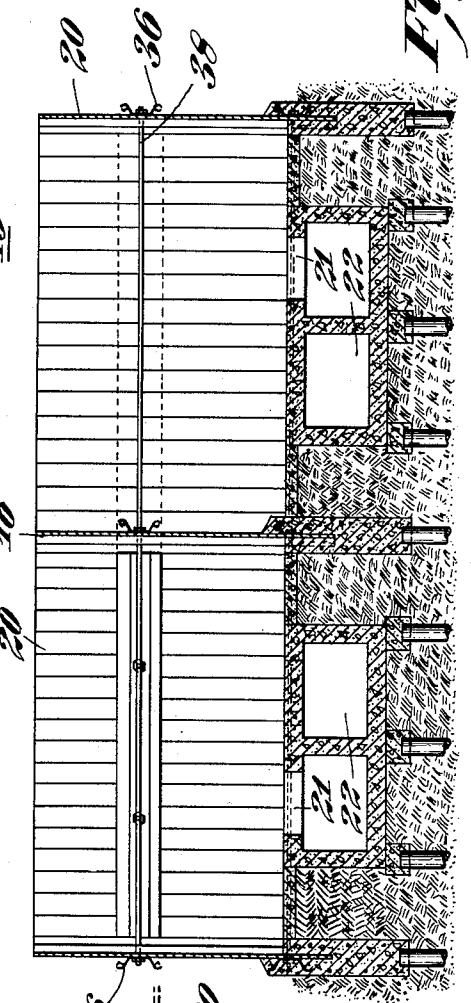


Fig. 3.

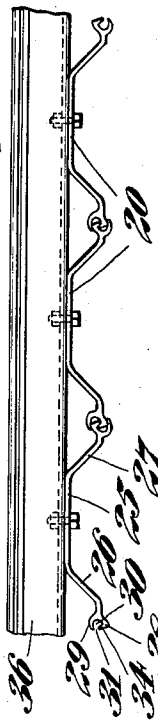


Fig. 4.

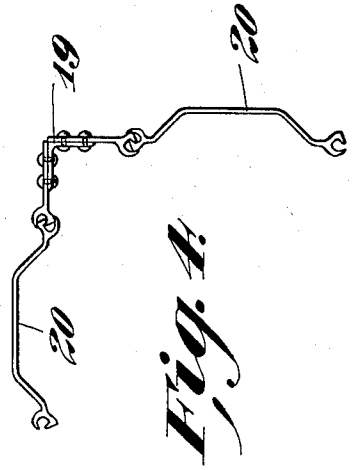


Fig. 5.

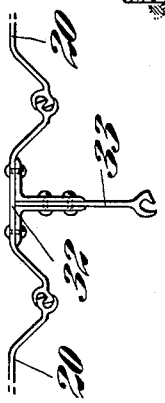
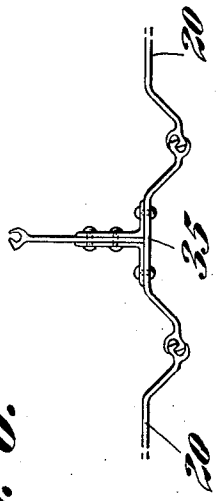


Fig. 6.



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UNITED STATES PATENT OFFICE

1,960,906

STORAGE STRUCTURE

William H. Gravell, Philadelphia, Pa., assignor to Bethlehem Steel Company, a corporation of Pennsylvania

Application October 8, 1931, Serial No. 567,636

8 Claims. (Cl. 189—3)

My invention relates to improvements in bins.

One of the objects of the invention is to construct bins of interlocking sections which are easily assembled and which do not require any fasteners to retain the sections in assembled condition.

Another object of the invention is to provide bins which are particularly adaptable for the storage of coal or like material.

The novel features of my invention will be more fully understood from the following description and claims taken with the drawings in which:

Fig. 1 is a top plan view of my bins;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is an enlarged top view of a plurality of the interlocked sections which comprise the wall structure of the bin;

Fig. 4 is an enlarged view of the corner structure of the bin;

Figs. 5 and 6 are enlarged views of modified wall sections.

Referring to the drawings more in detail, 15 designates a bin structure made in accordance with my invention. This structure is divided into a plurality of bins by the partitions 16 and 17.

The main walls of the bin structure are constructed of a plurality of interlocking sections 20, an enlarged view of which is shown in Fig. 3, and are connected at their outer corners by angular members 19, an enlarged view of which is shown in Fig. 4.

The lower ends of the sections 20 preferably terminate in a concrete foundation. A concrete floor, having openings 21, is preferably provided in the bottom of the structure. Openings 22 are provided beneath the floor for the reception of suitable conveyors for receiving the material delivered through the openings 21.

Each of the sections 20 comprises a web portion 25 having inclined sides 26 and 27 each of which are flanged at their outer ends and are provided with a hook-like member 28 and a guard member 29, forming a pocket 30, as clearly shown in Fig. 3 of the drawings. This pocket extends the full length of the section 20 and has a longitudinal opening 31 which is somewhat less in width than the greatest internal width of the pocket.

The hook member 28 is provided with an elongated head 34, which is capable of being inserted in the end of the pocket 30 of an adjoining section. This head is of such a size that it cannot pass through the opening 31 and therefore the sections 20, after assembly, are retained against horizontal displacement. As each side of the sections are provided with a pocket and a head, a double lock is obtained and therefore a very strong joint is made between the sections.

Were it is desired to place a partition in the bin a wall section 32 (see Fig. 5) is used in place of a section 20. This section comprises a body portion similar to the section 20, and having a member 33 extending angularly from its body portion which is provided at its outer edge with an interlocking member which is similar to the interlocking members on the edges of the section 20. Where it is desired to connect a member to the outside of the wall, a section 35 (see Fig. 6) is preferably used. This section is similar to section 32, except that it has a member extending angularly from the opposite side of the body portion.

The bin structure is constructed by placing the section 32 into the end of the pocket 30 of the adjacent section and moving one of the sections longitudinally into place and continuing this procedure until the bin structure is completed, the corner members 19, and the sections 32 and 35 being used wherever necessary, depending on the size and number of bins desired. The partitions are assembled in the same manner.

By using the different sections described, bins of any size and shape may be constructed.

Horizontal strengthening members 36, which are similar in cross-section to the wall sections 20, may be used to add rigidity to the structure.

Where desirable the corners of the structure may be strengthened by tie rods 37 which extend obliquely through the members 36. Tie rods 38, which pass through the members 36 are used wherever necessary to give the required strength to the structure.

In order to dismantle the structure it is only necessary to remove the tie rods and the strengthening member 36, if used, and slide the sections out of engagement with each other until all of the sections have been removed.

From the foregoing it will be apparent that I have invented a bin structure which is easily assembled and dismantled without damaging the different members of the structure, and therefore this type of structure is very useful where it is necessary to move from one location to another as occasion demands.

While I have shown my invention in but one form it will be obvious to those skilled in the art that it is not so limited but is susceptible of other changes and modifications without departing from the spirit thereof and I desire, therefore,

that only such limitations shall be placed thereupon, as are imposed by the prior art, or as are specifically set forth in the appended claims.

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

1. A permanent bin structure comprising a plurality of interlocked flanged wall sections constituting substantially the entire wall structure thereof and partition sections interlocked with said wall sections, said bin resting upon the soil.

2. A bin structure comprising a plurality of interlocked flanged wall sections and angular interlocked corner sections, constituting the outer faces of said structure, members, having interlocking means, extending inwardly from a plurality of said wall sections, and a partition, having interlocking means, interlocked with the interlocking means of said members, said structure resting upon the soil and adapted to be permanent.

3. A permanent bin structure comprising a plurality of interlocked wall sections having their lower ends terminating in a foundation structure secured to the soil, said interlocked wall sections constituting substantially the entire walls therefor and a horizontal flanged reinforcement member engaging the upper ends of said wall sections.

4. A permanent bin comprising a plurality of interlocked wall sections to constitute substantially the entire walls for said bin, each of said sections comprising a body portion, having diverging portions extending from each side thereof and interlocking members integral with said diverging portions, said bin resting upon the soil.

5. A permanent bin structure comprising a plurality of interlocked wall sections constituting substantially the entire wall structure thereof, a partition comprising a plurality of interlocked sections and means, comprising an interlocking member, extending inwardly from one of the wall sections, interlocking with a complementary member on the partition, said bin resting upon the soil.

6. A permanent bin structure comprising a plurality of interlocked wall sections constituting substantially the entire wall structure thereof, members extending inwardly from certain of said wall sections, a partition for the bin structure, and interlocking means integral with the aforementioned members interlocking with complementary means on the partition, said bin resting upon the soil.

7. A permanent bin structure formed of a plurality of walls comprising interlocked arch web sheet piling constituting substantially the entire wall structure thereof, the interlocks in one wall being disposed in substantial alignment, the webs in one wall being disposed in substantial alignment and a longitudinal bracing member for each wall fastened to the web of the piling, said bin resting upon the soil.

8. A permanent bin structure, a plurality of wall structures interlocked sheet piling constituting substantially the entire wall structure thereof, longitudinal stiffener members bracing said walls, and a strut member connecting a pair of oppositely placed walls, said bin resting upon the soil.

WILLIAM H. GRAVELL.