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H. K. KATZENMAIER

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OIL WELL CELLAR BRACING BRACKET

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2 Sheets-Sheet 1

Fig. 1.

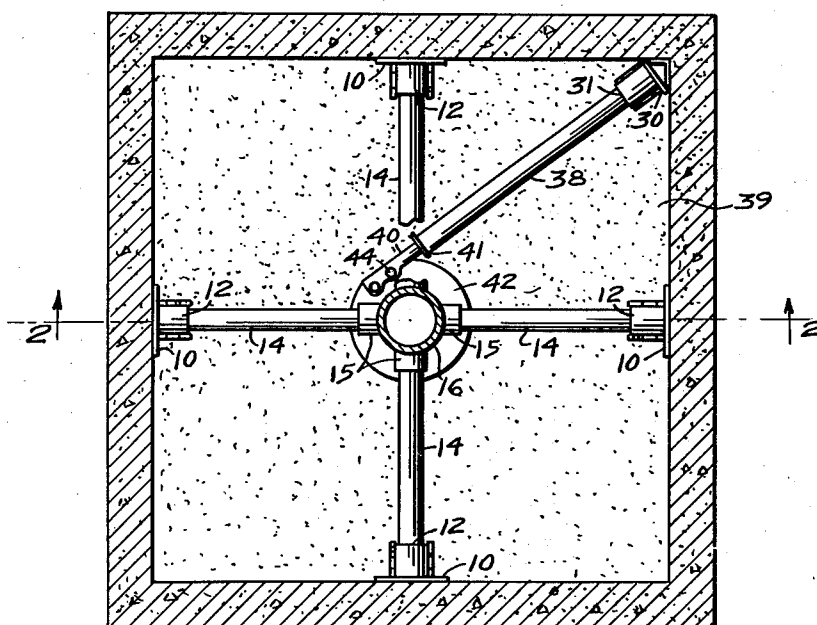
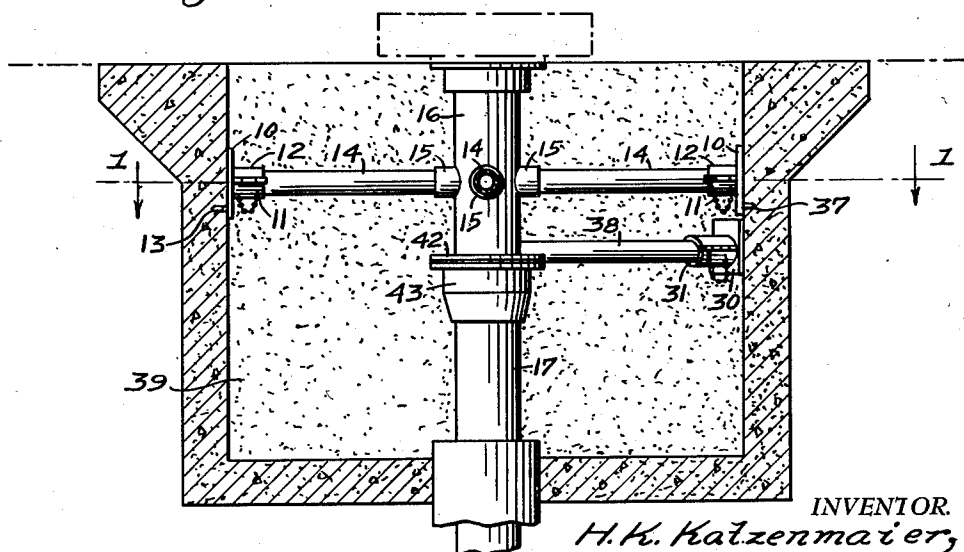


Fig. 2.



INVENTOR.
H. K. Katzenmaier,

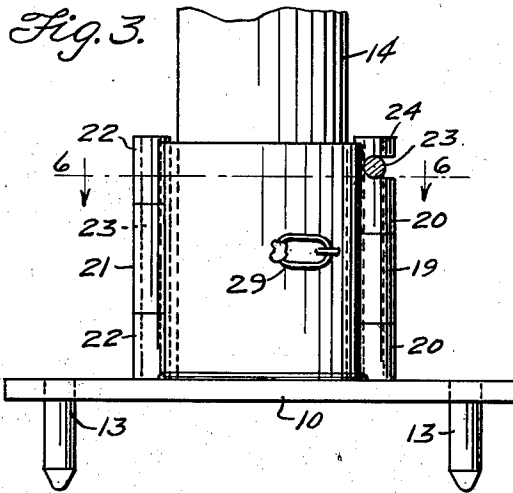
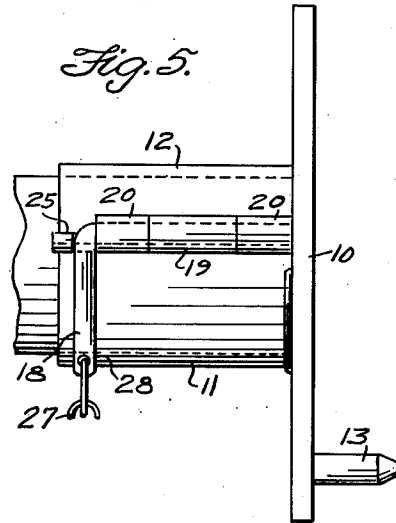
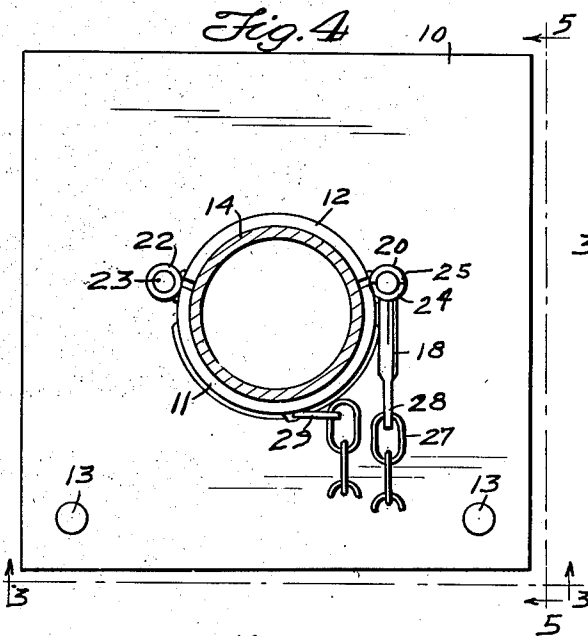
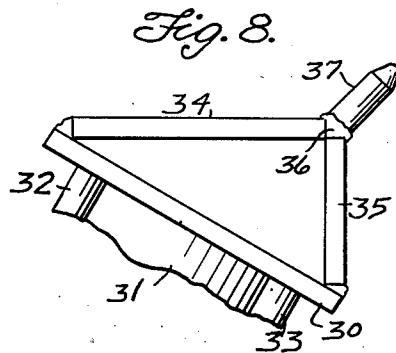
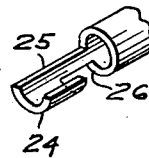
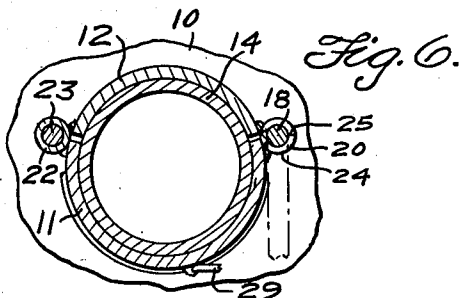
BY Victor J. Enns & Co.

ATTORNEYS

H. K. KATZENMAIER

OIL WELL CELLAR BRACING BRACKET

2 Sheets-Sheet 2



INVENTOR.

H. K. Hatzenmaier

BY *Victor J. Evans & Co.*

ATTORNEYS

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2,706,004

OIL WELL CELLAR BRACING BRACKET

Henry K. Katzenmaier, Coalinga, Calif.

Application April 3, 1952, Serial No. 280,423

2 Claims. (Cl. 166—75)

This invention relates to oil wells of the type having a cellar or pit around the upper end of the well, and in particular supporting struts for bracing the end of a well casing in the cellar which make it possible to eliminate welding and which facilitate the installation of well drilling equipment.

The purpose of this invention is to eliminate the necessity of welding the upper end of a well casing in a pit or cellar and reduce the possibility of breakage in the operation of the well drilling rig, to a minimum.

In certain types of oil fields where wells are drilled through a series of strata such as a surface stratum of erosional material, a limestone strata directly beneath the surface stratum, a water-yielding stratum of sandstone, a stratum of shale, a second stratum of limestone, and a second stratum of sandstone which yields gas or oil or both, it has been found advisable to use a cellar or pit around the upper end of the well which extends into the limestone stratum and in order to brace the upper end of the well casing in these cellar bracing members, which extend from the well casing to corners of the well are welded to the well casing and also to brackets or bracing members at the corners. With the parts welded in this manner wherein a rigid type of construction is provided the parts crack or break when subjected to shock loads and with the parts welded they are difficult to replace. Furthermore where it is necessary to weld each joint in the field considerable time is required to install the bracing structure. For the same reason considerable time is required to remove the structure when the drilling rig is removed.

With this thought in mind this invention contemplates an assembly of brackets for securing the ends of bracing members to the inner surfaces of walls of a well cellar or pit whereby the inner ends of the bracing members may be held in collars extended radially from a sleeve on the upper end of the surface pipe and also wherein a diagonal bracing member may be bolted to a flange of the sleeve and secured in a corner of the cellar to prevent rotation of the well casing.

The object of this invention is, therefore, to provide means for forming well cellar bracing brackets whereby bracing members extended from the upper end of a surface pipe of a well may readily be installed and removed.

Another object of the invention is to provide an improved bracket for retaining ends of well bracing members in position against the walls of a cellar surrounding the upper end of the well wherein the possibility of breakage is reduced to a minimum.

A further object of the invention is to provide bracing member retaining brackets for cellars or pits around the upper ends of wells that may be installed without welding and which provide supporting members of simple and economical construction.

With these and other objects and advantages in view the invention embodies a well bracing member bracket formed with semi cylindrical sockets which extend from mounting plates and wherein the mounting plates are provided with projections for anchoring the plates in position upon a wall surface. The invention also includes a corner bracket for retaining a diagonally positioned bracing member in position with one end anchored in the corner and the opposite end bolted to a flange of the upper end of the surface pipe of the well.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings, wherein:

Figure 1 is a sectional plan taken on line 1—1 of Figure 2 illustrating the improved bracing member brackets in position in a pit or cellar of a well.

Figure 2 is a vertical section through the well, being taken on line 2—2 of Figure 1.

Figure 3 is an elevational view taken on line 3—3 of Figure 4 showing a side view of one of the bracing member brackets.

Figure 4 is a front elevational view looking toward the face of the bracket.

Figure 5 is a side elevational view taken on line 5—5 of Figure 4 illustrating a chain lock of the bracket.

Figure 6 is a cross section through the socket of the bracket taken on line 6—6 of Figure 3.

Figure 7 is a detail illustrating a locking element positioned on the end of one of the latch elements of the bracket.

Figure 8 is a plan view showing a modification wherein the bracket is adapted to be positioned in a corner of a well or cellar.

Referring now to the drawings wherein like reference characters denote corresponding parts the improved well cellar brace retaining bracket of this invention includes a base plate 10, having a socket formed with a lower arcuate substantially semi-circular socket or section 11 and an upper arcuate complementary socket member or section 12 extended therefrom and the base plate which is provided with prongs 13 is positioned against the face of a wall with the projections 13 extended into the wall to provide anchoring means and with the brackets retained in position in this manner the bracing members 14 held in the socket extend to collars 15 on a sleeve 16 of a surface pipe as indicated by the numeral 17.

The lower section 11 of the socket is secured to the base plate 10, preferably by welding and with the sections extended outwardly from the base plate the end of a bracing member 14 may be clamped therein by an L-shaped pin 18 extended through meshing cylindrical elements or eyes 19 and 20 of the sections 11 and 12, respectively, the sections being hinged at the opposite sides with similar cylindrical elements 21 and 22 and a pin 23.

The cylindrical elements 20 at the outer end of the sleeve are provided with an extended end formed with a semi-circular section 24 carried by an arm 25 and provided with a recess or notch 26 in which the vertically disposed section of the locking bolt 18 extends, as illustrated in Figure 5.

The bolt 18 is secured to the bracket with a chain 27 which is attached to the end of the bolt through an eye 28 and the bolt is secured, at the opposite end, to an eye 29 on the under surface of the section 11.

In the design illustrated in Figure 8 a corner base plate 30, similar to the base 10 is also provided with a socket as indicated by the numeral 31 having a hinge 32 at one side and a latch 33 at the other, and in this design the base plate 30 is provided with supporting elements such as the plates 34 and 35 which are positioned to form a right angle at the point 36 with the opposite edges of the plates secured, preferably by welding to the edges of the base plate 30. The plates 34 and 35 are provided with projections 37, similar to the projections 13 of the plate 10. This bracket is particularly adapted for anchoring a bracing member in a corner as shown in Figure 1.

The bracket illustrated in Figure 8 and formed with a base plate 30 is particularly adapted for holding a diagonally positioned bracing member, as indicated by the numeral 38 in a corner of the cellar 39 and, as illustrated in Figure 1, the bracing member is provided with an extension 40 with a flange 41 thereon and the extension 40 is secured to a flange 42 of the upper end 43 of the surface pipe 17 by bolts 44. With the bracing member 38 mounted in this manner it is particularly adapted for preventing clockwise rotation of the surface pipe or well casing.

The sleeve 16 extended upwardly from the upper end of the surface pipe is provided with collars 15 into which the ends of the bracing members 14 extend, as shown in Figure 1 and 2 and with the parts assembled in this manner the surface pipe is rigidly held in position without

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permanently connecting the bracing members to the surface pipe or well casing and wall of the cellar.

The parts are readily installed by dropping the bracing members 14, extending from the collars 46, into the sockets with the upper sections 12 of the sockets in the open positions and after the ends of the bracing members are dropped into the sockets the sections 12 are closed and locked by the bolts 18.

With the elements assembled in this manner the direct shock load resulting from rigid or welded joints is obviated and the possibility of breakage in the mounting is substantially eliminated. The parts may also be readily removed and replaced and the entire supporting structure may be installed or removed in a comparatively short time.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A bracket for surface pipe pit holders comprising a base plate having a substantially semi-circular section of a socket extended perpendicularly from one side, a substantially complementary socket section positioned to coact with the semi-circular section to form a cylinder, adjacent edges of said semi-circular section and complementary section having spaced aligned eyes thereon and one of said eyes of the semi-circular section having a notch in one side, an L-shaped pin positioned with one arm thereof extended through the spaced eyes and with the other arm positioned in the notch of one of the eyes, said base plate having supports extended from edges thereof and said supports and base plate positioned to form a triangle with extended edges of the supports meeting at the vertex of the triangle, the meeting edges of the supports being provided with spaced pins adapted to be imbedded in a corner formed by meeting edges of concrete walls for anchoring the base plate with the socket elements thereon in said walls.

2. In a lateral support for a surface pipe extended through a rectangular-shaped pit, the combination which comprises brackets having base plates with substantially semi-circular sockets extended perpendicularly from one

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side and having pins extended from the other mounted against the inner wall surface of the pit and positioned to engage side walls of the pit at points spaced midway between corners thereof, horizontally positioned laterally disposed collars adapted to be positioned around the surface pipe and also adapted to be aligned with axes of the sockets of the base plates, one-piece rods positioned with ends thereof extended into the collars and with opposite ends thereof positioned in said semi-circular sockets, complementary socket members adapted to coact with the semi-circular sockets to form cylinders, said semi-circular sockets and complementary socket members having spaced aligned eyes on adjacent edges, pins adapted to be extended through said spaced aligned eyes for retaining the complementary socket members upon the substantially semi-circular socket members, said surface pipe having a flange thereon, a corner base plate having a substantially semi-circular socket extended perpendicularly therefrom and having plates extended from edges thereof which, with the base plate, form a triangle and the meeting edges of said plates having spaced pins extended therefrom, a complementary socket member positioned to coact with the substantially semi-circular socket member of the corner base plate to form a cylindrical socket, a one-piece rod extended from said cylindrical socket to said flange of the surface pipe, and means for temporarily connecting said one-piece rod extended from the socket of the corner base plate to said flange of the surface pipe and positioned on one side of the axis thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

35	653,307	Millholland	July 10, 1900
	1,142,246	Gagan	June 8, 1915
	1,726,948	Downs	Sept. 3, 1929
	1,820,391	Hartman	Aug. 25, 1931
	2,482,616	Gregory et al.	Sept. 20, 1949
40	2,584,022	Johnson	Jan. 29, 1952