

Dec. 2, 1958

J. R. GAMBLE
SUPPORTS FOR CYLINDRICAL MEMBERS
ON A TRANSPORT CARRIER

2,862,631

Filed Dec. 31, 1956

2 Sheets-Sheet 1

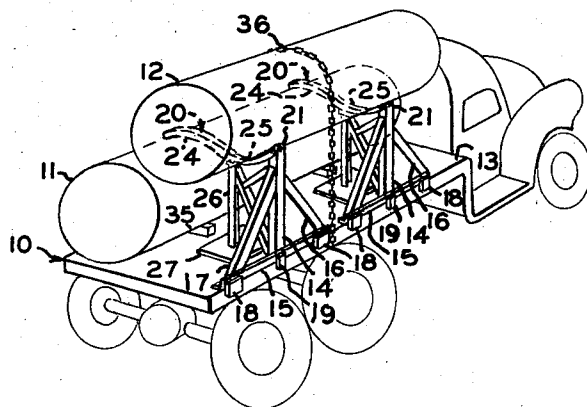


FIGURE 1.

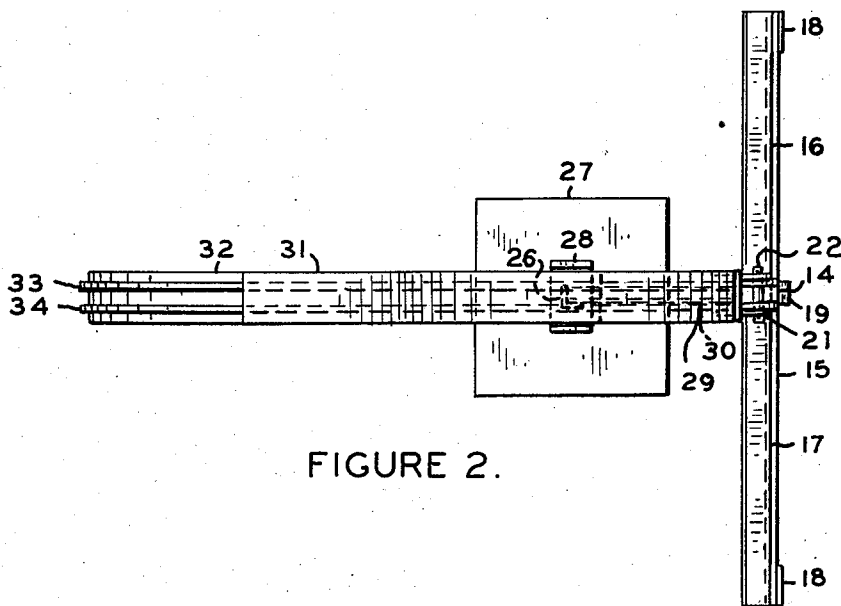


FIGURE 2.

INVENTOR
JOHN R. GAMBLE
BY *Martin B. Davis*
ATTORNEY

Dec. 2, 1958

J. R. GAMBLE
SUPPORTS FOR CYLINDRICAL MEMBERS
ON A TRANSPORT CARRIER

2,862,631

Filed Dec. 31, 1956

2 Sheets-Sheet 2

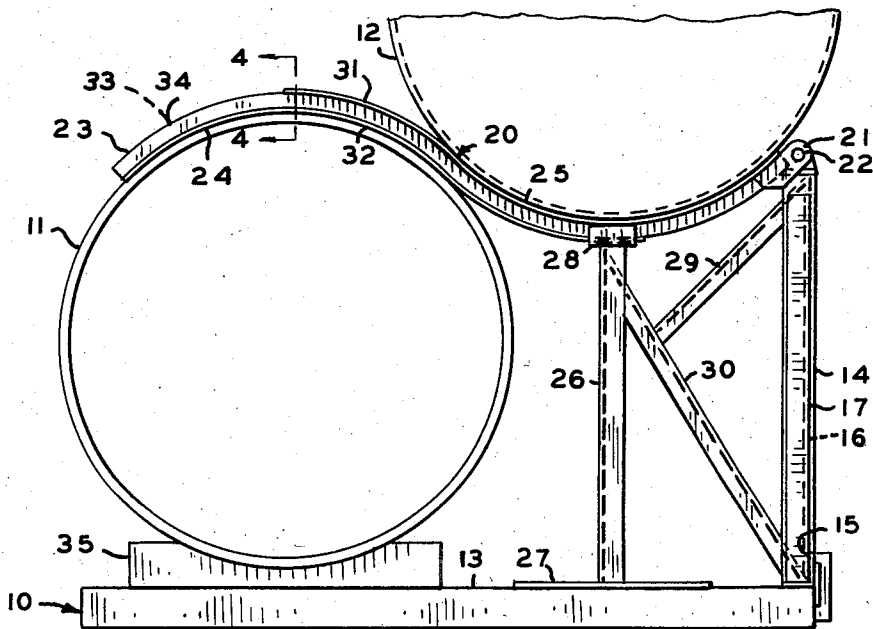


FIGURE 3.

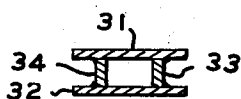


FIGURE 4.

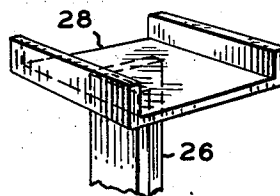


FIGURE 5.

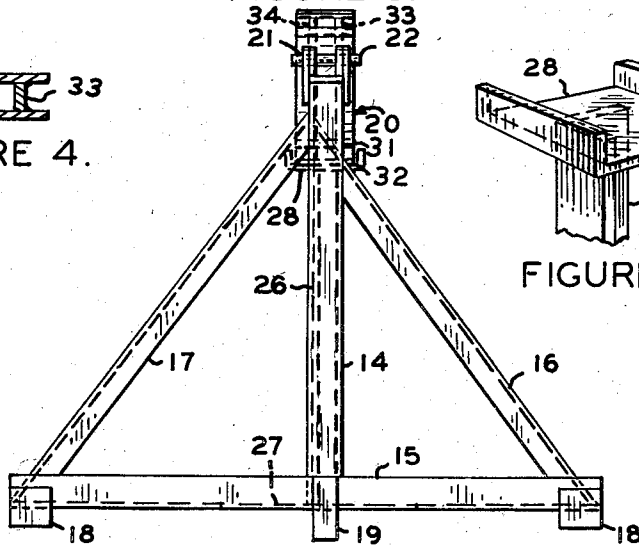


FIGURE 6.

INVENTOR
JOHN R. GAMBLE
BY *Marvin B. Davis*
ATTORNEY

1

2,862,631

SUPPORTS FOR CYLINDRICAL MEMBERS ON A TRANSPORT CARRIER

John R. Gamble, Kansas City, Kans., assignor to The Kaw Valley Steel Company, Kansas City, Mo., a corporation

Application December 31, 1956, Serial No. 631,607

4 Claims. (Cl. 214-10.5)

This invention relates to improved supports for cylindrical members of concrete pipe and tanks on a transport carrier.

Heretofore large cylindrical members having a diameter greater than half the maximum width set forth in state highway regulations had to be transported in single lengths due to the usual length of the cylinders being nearly the length of the transport bed, or in tandem on railway cars where the diameter of the cylinder exceeds half of the maximum clearance width.

An object of the present invention is to provide improved structural supports including S shaped members that will permit a pair of large cylinders of concrete pipe or tanks; each with a diameter exceeding half of the maximum clearance; to be transported on a carrier, the carrier having a bed length of less than the sum of the lengths of the pair of cylinders.

Another object of the present invention is to space parallel a pair of cylindrical members on a transport carrier, one cylinder partially above and partially to one side of the other cylinder, so as to confine the overall width of the cylinders within the maximum width set forth in the various State laws, the sum of the diameters of the cylinders exceeding the maximum width permitted by the State laws.

Another object of the invention is to provide improved supports; each support being an S curve member having a length portion concave on the bottom thereof so as to rest on the top portion of a cylinder located on the bed of a transport carrier, and another length portion of the S member being concave on the top thereof so as to support another cylinder spaced parallel with the first mentioned cylinder, and one end of the S curve member being supported by a column spaced from the first mentioned cylinder, and the column being supported by the bed of the transport carrier.

Another object of the present invention is to position one concrete pipe or cylindrical member longitudinally with and toward one side of a transport bed and provide structural support columns near the opposite side of the transport bed with saddle or cradle members having one end of each hinged to a respective column, and extended to saddle over the top of the first mentioned concrete pipe or cylindrical member, and the cradle members providing saddle supports for an additional concrete pipe or cylindrical member to be supported partially above and partially to one side of the first mentioned concrete pipe. The cylindrical members, supports and transport bed are then tied together with the usual chains for security.

An additional object of the invention mentioned in the preceding paragraph is to provide bases to the columns with detachable means to bear on the transport bed and against one side of the transport bed to prevent lateral shifting of the load previously described.

With these objects in view the invention will be more fully understood from the accompanying drawings, this specification and the scope of the appended claims.

In the drawings:

2

Figure 1 is a perspective view illustrating a transport carrier equipped with the improved supports loaded with cylindrical members.

Figure 2 is a plan view of one complete support frame.

Figure 3 is a rear view in elevation of the cylinders and transport carrier bed with one complete support frame being illustrated resting on the bed and having a vertical flange secured to the base of the main column and projected below the base so as to normally bear against one side of the transport carrier bed.

Figure 4 is an enlarged vertical sectional view taken on lines 4-4 of Figure 3 looking in the direction of the arrows with parts beyond the section line being omitted.

Figure 5 is an enlarged perspective fragmentary view of the intermediate column illustrating the cap which is located below the low portion of the S curve member.

Figure 6 is a side elevational view of one support frame.

The typical transport carrier 10, cylindrical members 11 and 12; which may be pipes or tanks; are old and well known in the art. The pipes may be concrete or metal. The flat bed 13 is typical of transport carriers.

The longitudinal centers of the cylinders 11 and 12 are spaced parallel and horizontally at a distance less than the diameter of either cylinder and the longitudinal centers of cylinders 11 and 12 are spaced vertically at a distance less than the diameter of either cylinder, thus making it possible to place two cylinders; each having a diameter greater than half of the allowable maximum clearance space provided by State laws; within the allowed maximum clearance space which is less than the sum of the diameter of the two cylinders.

Each improved support frame comprises: a vertical main column 14 preferably having the bottom thereof secured to the mid-length of a horizontal base member 15 which is preferably of an angle iron shape and having a sufficient length thereof with braces 16 and 17 secured to the ends of the base member 15 and the upper portion of the main column 14. The horizontal base member 15 rests on the flat bed 13 of the transport carrier 10 and is provided with vertical plates or flanges 18 and 19 secured to one side thereof and projected downwardly on the side of the bed 13 and below the base member 15. An S curve member 20 has one end thereof preferably provided with hinge 21 secured thereto and pivoted to the top of the main column 14 by hinge pin 22. The opposite end of portion 23 of the S curve member has a concave face 24 on the bottom thereof and normally rests on the top portion of the cylinder 11. The top portion 25 of the S curve member between the concave face 24 and the hinge 21 is of concave shape and forms a saddle to support an end portion of the cylinder 12. This support frame as described has sufficient structure to support the cylinder 12.

To add rigidity to the support frame and support the S curve member 20 when the cylinder 11 is removed, an intermediate post or column 26 is spaced parallel from the main column 14 and between the column 14 and the cylinder 11. A base plate 27 is secured to the lower end of column 26 and a cap plate 28 is secured to the upper end of the column 26 to support the S curve member 20 below the low point of the saddle formed by concave portion 25. Brace members 29 and 30 rigidly connect column 14 to column 26.

The S curve member 20 is preferably made of a top plate 31 and bottom plate 32, spaced by, and secured to, S curved bars 33 and 34.

It is obvious that at least two support frames as illustrated in Figure 3 are required to support a cylinder 12. The S curve member 20 is hinged for lifting the free end thereof to give sufficient clearance to place or remove the cylinder from the flat bed 13 of the transport carrier. The

3

cylinder 11 is usually placed on a saddle block 35 to prevent it from shifting or rolling on the flat bed 13.

A load chain 36 is usually applied around the entire load and bed 13 for movement by the transport.

The pivot or hinge 21 is most convenient for the loading operation but may be omitted if arrangement is made to tilt the support frame for clearance of the cylinder 11.

What I claim, as new and desire to secure by Letters Patent, is:

1. Support frames adapted to be spaced parallel for transverse support of cylindrical members which are thereby spaced parallel with and above a flat bed or a transport carrier, each support frame comprising: one long column, one shorter column, bracing members spacing said long and shorter columns in parallel relation, a saddle beam having substantially a uniform depth formed in the shape of an S or reverse curve, one end of the saddle beam having pivoted to the top of said long column, said long and shorter columns adapted to be supported by a flat bed of a transport carrier, said long column adapted to be located near one edge of the flat bed, said shorter column adapted to be located between a cylindrical member supported on the flat bed and said longer column, said saddle beam being extended to curve downwardly to rest the lowest portion thereof on said shorter column and be extended to curve upwardly sufficiently and adapted to be supported transversely on the cylindrical member, and said first mentioned portion of the saddle beam adapted to be a transverse support for a second cylindrical member spaced parallel with the first cylindrical member and located partially above and partially to one side of the first cylindrical member, means to anchor the base of the long column against one edge of the flat bed, and means adapted to secure the cylinders to the supports and flat bed.

2. Support frames adapted to be spaced parallel for transverse support of cylindrical members, the cylindrical members being spaced parallel with and above a flat bed of a transport carrier; each support frame comprising: two columns having flat bases, bracing members spacing said two columns in parallel relation, one column being longer than the other shorter column, a cap member being secured to the top of the shorter column, a saddle beam having substantially a uniform depth, one end of the saddle beam being pivoted to the top of the longer column, a saddle block with each complete support frame, said column bases and said saddle block adapted to be supported by a flat bed of a transport carrier, said saddle block adapted to be located to support a portion of a cylindrical member toward one side portion of the flat bed, said columns adapted to be located with the longest column near the edge of the opposite side of the flat bed, said shorter column adapted to be located between the cylindrical member and the longer column, said saddle beam being extended to rest a portion thereof on the cap of the shorter column and be extended sufficiently with a curved portion to be supported transversely on the cylindrical member, said first mentioned portion of the saddle beam having a reverse curve adapted to be a transverse support for a second cylindrical member spaced parallel with the first cylindrical member and located partially above and partially to one side of the first cylindrical member; means adapted to secure the bases of a plurality of support frames against the flat bed, and means adapted to secure the cylinders to the said plurality of support frames and the flat bed.

4

3. Support frames adapted to be spaced parallel for transverse support of cylindrical members which are thereby spaced parallel with and above a flat bed of a transport carrier; each support frame comprising: two columns having bases in the same horizontal plane, bracing members spacing said two columns in parallel relation, one column being longer than the other or shorter column, a saddle beam having substantially a uniform depth formed in the shape of an S or reverse curve, one end of the saddle beam being pivoted to the top of the longer column, said columns adapted to rest uprightly on and be supported by a flat bed of a transport carrier, said columns adapted to be located with the longest column near one edge of the flat bed, said shorter column adapted to be located between a cylindrical member supported on the flat bed and the longer column, said saddle beam being extended to curve downwardly to rest the lowest portion thereof on the shorter column and be extended to curve upwardly sufficiently and adapted to be supported transversely on the cylindrical member, and said first mentioned portion of the saddle beam adapted to be a transverse support for a second cylindrical member spaced parallel with the first cylindrical member and located partially above and partially to one side of the first cylindrical member, means to anchor the base of the long column against one edge of the flat bed, and means adapted to anchor the cylinders to each support frame and flat bed.

4. Support frames adapted to be spaced parallel for transverse support of cylindrical members which are thereby spaced parallel with and above a flat bed of a transport carrier; each support frame comprising: two columns, bracing members spacing said two columns in parallel relation, one column being longer than the other shorter column, a saddle beam having substantially a uniform depth formed in the shape of an S or reverse curve, one end of the saddle beam being pivoted to the top of the longer column, a saddle block with each complete support frame, said columns and said saddle block adapted to be supported by a flat bed of a transport carrier, said saddle block adapted to be located to support a portion of a cylindrical member toward one side portion of the flat bed, said columns adapted to be located with the longest column near the edge of the opposite side of the flat bed and the shorter column located between the cylindrical member and the longer column, said saddle beam being extended to rest the lowest curved portion thereof on the shorter column and be extended sufficiently to be supported transversely on the cylindrical member, and said first mentioned portion of the saddle beam adapted to be a transverse support for a portion of a second cylindrical member spaced parallel with the first cylindrical member and located partially above and partially to one side of the first cylindrical member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,631,304	Willoughby	June 7, 1928
2,593,472	McGinn	Apr. 22, 1952
2,766,660	Laddon et al.	Oct. 16, 1956

FOREIGN PATENTS

478,413	Canada	Nov. 6, 1951
---------	--------	--------------

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,862,631

December 2, 1958

John R. Gamble

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, line 2, address of assignee, for "Kansas City, Missouri" read -- Kansas City, Kansas --; in the heading to the printed specification, line 5, for "Kansas City, Mo." read -- Kansas City, Kans. --.

Signed and sealed this 14th day of April 14, 1959.

(SEAL)

Attest:

KARL H. AXLINE

Attesting Officer

ROBERT C. WATSON
Commissioner of Patents