

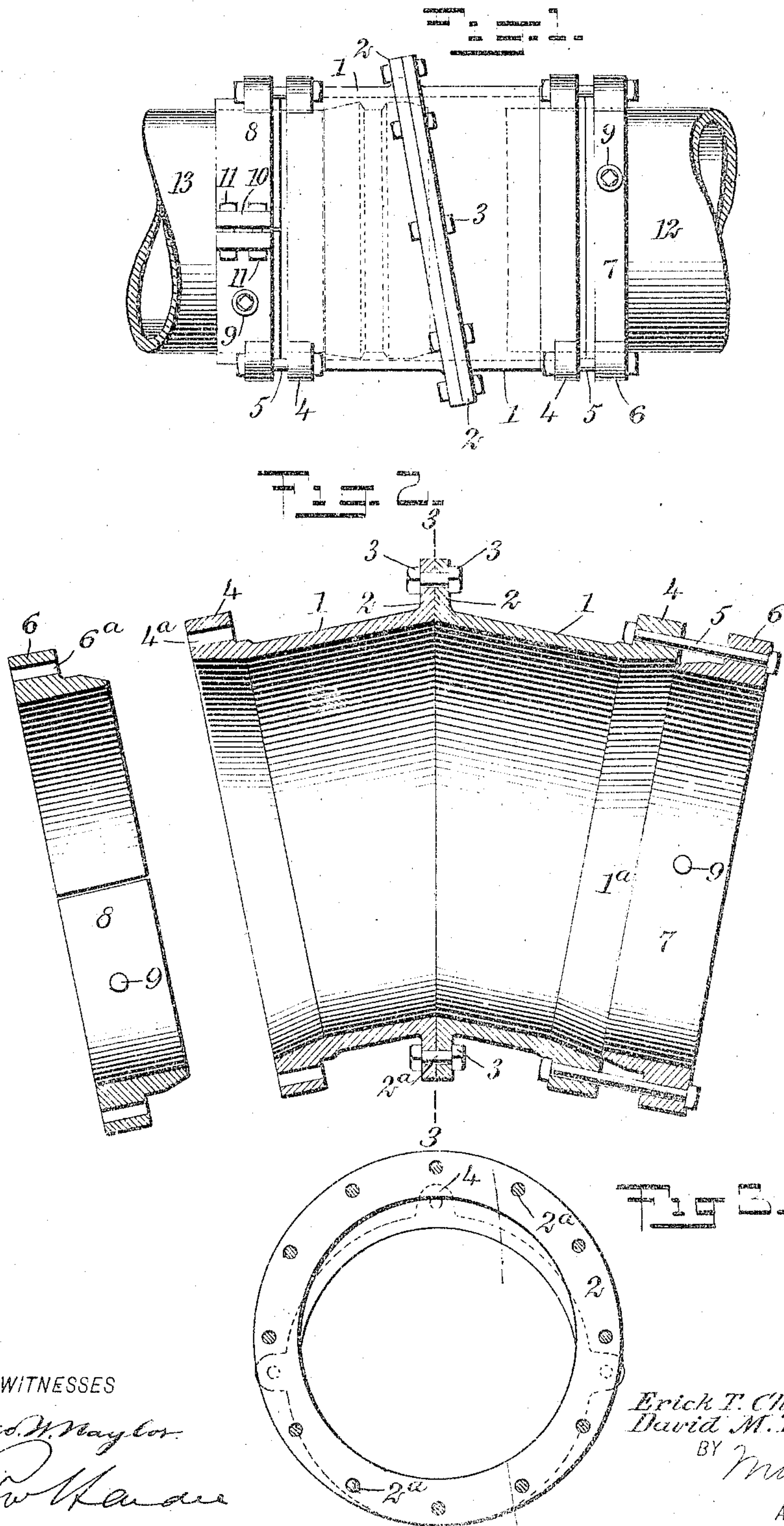
No. 850,731.

PATENTED APR. 16, 1907.

E. T. CHRISTENSEN & D. M. TULLOCH.

PIPE COUPLING.

APPLICATION FILED JULY 28, 1906.



WITNESSES

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PIPE-COUPLING.

No. 850,731.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed July 28, 1906. Serial No. 328,205.

To all whom it may concern:

Be it known that we, ERICK T. CHRISTENSEN and DAVID M. TULLOCH, both citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Pipe-Coupling, of which the following is a full, clear, and exact description.

Our invention relates to pipe-couplings adapted to be used on pipes of large diameter, and has for its object to provide means for repairing and coupling the broken sections of large pipes when located under water, and especially when lying on the bed of a river, and to adapt such coupling and the pipe-sections connected therewith to conform to the contour of the ground on which the pipes lie.

The connecting ends of large pipes lying on the bed of a river frequently become broken from various causes, such as the dragging of an anchor from a vessel along the bottom of a river, and when the connecting ends of the adjacent sections become broken it is necessary to cut away a portion of the ends of the pipe-sections and connect such sections together by means of a sleeve adapted to make up in length for the portion of the pipe-sections cut away. This sleeve must be applied when the pipe-sections are in their places under water, and the coupling should be so constructed and arranged relatively to the bottom of the river as to enable the pipe-sections to lie evenly on the ground; otherwise a continuous strain is exerted on the joint, which is liable to cause the joint to break and form a leak in the pipe-line. Considerable difficulty has been found heretofore in making a proper connection under water between the sections of a pipe-line after they have become broken, and many expedients commonly used in pipes of small diameter and connected when not under water have been found to be impracticable and inapplicable to pipes located at the bottom of a river. Some of such impractical means embody a sleeve having a threaded engagement with the ends of the pipe-section, others require the use of headed nuts to couple together a sleeve and pipe-section, and still others require the use of molten solder, which cannot be applied when the pipe-sections are arranged under water; nor can nuts of the required size adapted to large pipes be success-

fully applied to such pipes when arranged under the conditions required. Such conditions and disadvantages are overcome by the means illustrated in the accompanying drawings, in which drawings like characters of reference indicate like parts throughout the views, and in which—

Figure 1 is a side elevation of a pipe-coupling embodying our invention applied to the ends of two adjacent pipe-sections. Fig. 2 is a vertical transverse section of a coupling embodying our invention, showing the sections arranged at an angle to each other; and Fig. 3 is a vertical cross-section taken on the line 3 3 of Fig. 2.

As illustrated in the drawings, the main portion of the coupling consists of two similar cylindrical sleeves 1, having flanges 2 formed on their adjacent ends, extending in a plane inclined to the axial line of the sections 1. The flanges 2 are duplicates, and each is provided with a series of apertures adapted to receive bolts 2^a, having threaded nuts 3 secured thereto, by means of which the adjacent ends of the sleeve-sections are united firmly together. The apertures formed in the flanges 2 for the bolts 2^a are arranged at equal distances from each other, and the apertures in each flange are arranged in the same circular line, so that the sections are adapted to be rotatably adjusted on each other and adapted thereby to extend in any line between a straight line and a right angle. By means of such construction the pipe-sections held by the coupling are adapted to be arranged so as to conform to the contour of the ground upon which they lie. The outer ends of the sections 1 are provided with a series of lugs 4, having transverse apertures 4^a, adapted to receive bolts 5, which engage apertures 6^a in similar lugs 6, formed on set-rings 7 and 8, and thereby clamp said rings and sleeve-section together. The outer end 1^a of the sleeve-section 1 is preferably beveled outwardly, and the inner edge of the set-rings 7 is also preferably beveled to correspond with the bevel formed on the outer end of the sleeve-section, whereby a ring of metallic packing is adapted to be arranged within the outer ends of the sleeve-sections and compressed firmly against the end of a pipe-section by means of the set-rings 7. Pipe-sections are generally constructed with a flaring flange or bell mouth on one end, adapted to receive and engage the opposite or

spigot end of an adjacent pipe-section, so as to form a connecting-joint. When such joint becomes broken and it is necessary to remove the bell-mouth of one end of a pipe-section, which is the portion generally broken, the adjacent ends of such pipe-sections are placed within the sleeve-sections of a coupling, as indicated in Fig. 1. A ring of lead or other metal may be molded around the end of a pipe-section while the section is out of water and then cut in two or more parts. After the pipe-sections have been arranged in place on the river-bed and the sleeve-sections applied to the end thereof and so adjusted relatively to each other as to produce the required angle to enable the pipe-sections to lie evenly on the ground the sections forming the ring of metal packing are inserted in place within the inner bevel or flaring outer end of the sleeve-sections and the set-rings are drawn up firmly against such packing by means of the bolts 5, so as to make a watertight joint between the sleeve and the pipe sections. The set-rings 7 and 8 are preferably provided with set-screws 9, adapted to be tightened against the ends of the pipe-sections, so as to prevent the ends of such sections from being pulled out of the coupling-sleeve. If desired, the set-rings may be formed in two sections 8, as shown in Fig. 2, and bolted together and provided with lugs 10, by means of which and bolts 11, passing through such lugs, the sections of the set-ring may be clamped firmly together. While we prefer to connect the sleeve-sections 1 together by means of flanges 2, such construction may be modified without departing from our invention. Thus a series of lugs similar to the lugs 4 on the outer ends of the sleeve-section may be arranged in an inclined plane and connected together by bolts; but such construction would not give the firm bearing and tight connection afforded by the flanges 2, formed on the inner ends of the pipe-sections.

The construction herein shown and described enables the parts to be readily connected together while lying on the bed of the river, for the reason that the adjustable parts are comparatively small and easily handled by one person, although the pipe-sections themselves may be of large dimensions, whereas no appliance could be used by a person on the bed of a river which would enable a threaded-nut connection to be applied to the end of a pipe-section or connecting-sleeve.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A pipe-coupling comprising similar cylindrical sleeves having flaring outer ends, and provided on their adjacent inner ends with flanges extending in a plane inclined to the axial line of said sleeves, each flange being provided with a series of apertures evenly disposed from each other, and adapted to register with the apertures of the adjacent flange, bolts engaging said apertures and clamping said flanges together, set-rings bolted to the outer ends of said sleeves independently of each other, and provided with an inner diameter extending flush with the inner diameter of the respective sleeves, substantially as shown and described.

2. A pipe-coupling comprising similar cylindrical sleeves having flaring outer ends, and provided on their adjacent inner ends with flanges extending in a plane inclined to the axial line of said sleeves, each flange being provided with a series of apertures evenly disposed from each other and adapted to register with the apertures of the adjacent flange, bolts engaging said apertures and clamping said flanges together, rings bolted to the outer ends of said sleeves independently of each other and having their inner wall extending flush with the inner wall of said sleeves, and constructed in sections adapted to be adjusted laterally relatively to each other, means for clamping the sections of said rings together, and for securing said ring to the end of the adjacent sleeve, substantially as shown and described.

3. A pipe-coupling comprising similar cylindrical sleeves having flaring outer ends, and provided on their adjacent inner ends with flanges extending in a plane inclined to the axial line of said sleeves, each flange being provided with a series of apertures evenly disposed from each other and adapted to register with the apertures of the adjacent flange, bolts engaging said apertures and clamping said flanges together, set-rings provided with a beveled inner end adapted to telescope with the flaring end of the adjacent sleeve, and with their walls extending flush with the inner walls of their adjacent sleeves, substantially as shown and described.

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Witnesses:

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