No. 875,844. PATENTED JAN. 7, 1908.

M. R. PEACOCK.

FLEXIBLE JOINT FOR DREDGER PIPES.

APPLICATION FILED OCT. 17, 1905.

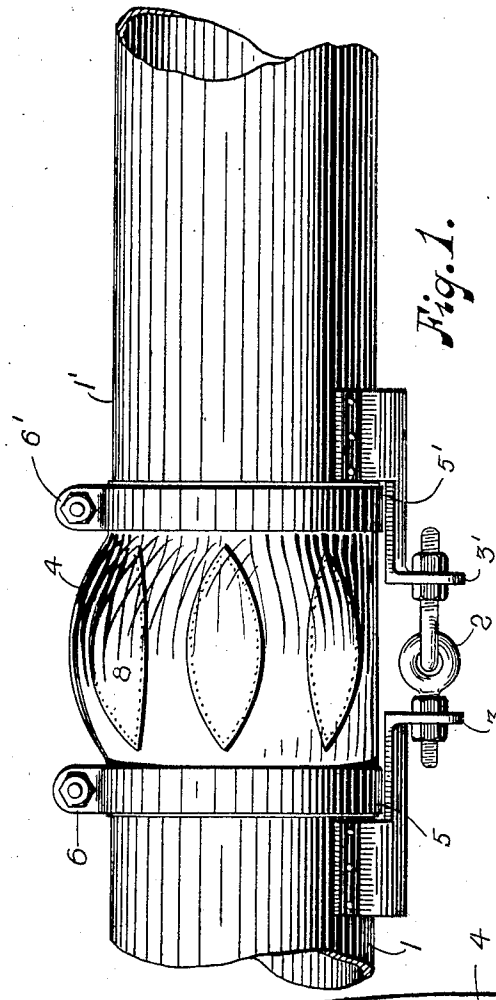


Fig. 1.

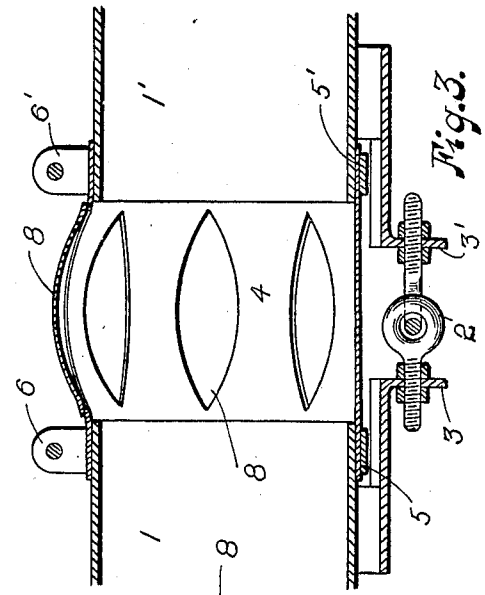


Fig. 3.

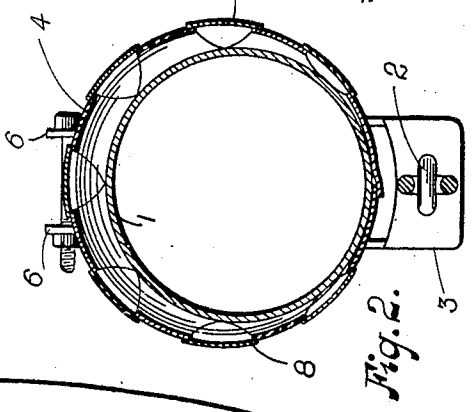


Fig. 2.

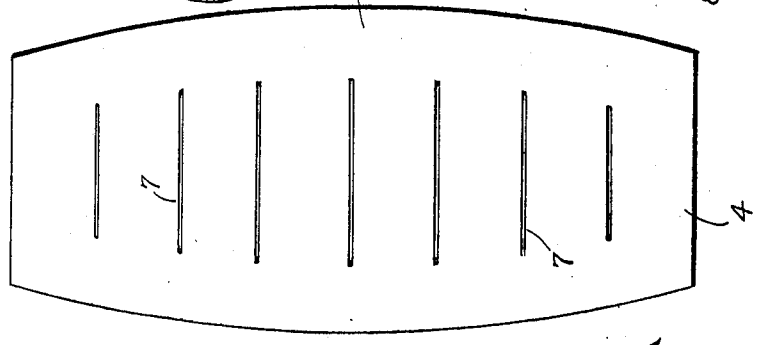


Fig. 4.

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FLEXIBLE JOINT FOR DREDGER-PIPES.

No. 875,844. Specification of Letters Patent. Patented Jan. 7, 1908.

Application filed October 17, 1905. Serial No. 283,143.

To all whom it may concern:

Be it known that I, MANUEL R. PEACOCK, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Flexible Joints for Dredger-Pipes; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to a flexible joint for pipes or the like especially adapted to those of large size, such as are employed in conveying the spoil over water from hydraulic dredgers.

The object of the invention is to provide a device of the character named of simple, cheap and durable construction, more perfectly adapted to perform the desired functions than those at present in use.

In practice, much difficulty, delay and expense has heretofore been experienced in this type of device, owing to the rapid deterioration of the flexible joints when made of fabric or flexible material, so much so, that in many instances, metallic ball and socket joints are employed, which latter bring in their own inherent difficulties hardly less serious.

I accomplish the desired objects by means of the devices illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation. Fig. 2 is a cross section. Fig. 3 is a transverse section. Fig. 4 is a plan of the sleeve blank.

Referring to the drawings, 1 and 1′ are the adjacent ends of the pipes to be connected.

2 is a metallic universal joint shown for the purpose of this illustration as a pair of interlocked eye-bolts provided with screw threaded ends and nuts.

3 and 3′ are lugs on the pipes 1 and 1′ attached thereto a little distance back of the ends of the pipes.

4 is a sleeve of fabric or other flexible material of somewhat peculiar form, connecting the ends of the pipes 1 and 1′.

5 and 5′ are bands or cinctures of any suitable character, here shown, as flat metallic bands having lugs 6 and 6′ provided with suitable bolts.

I preferably form the sleeve 4 of heavy canvas, the diameter of which gradually increases to a point intermediate of its ends. This increase in diameter is eccentric to the axis of the pipe, that is to say, the enlarged portion extends around the sleeve with the exception of the bottom. In practice I have found that a simple and inexpensive way of constructing this sleeve is to form a lune shaped blank of canvas or other suitable material, cut therein a series of slits intermediate of the curved sides, as shown in Fig. 4. Then apply lune shaped patches to the slits and join the parallel sides, thus making a globular shaped sleeve having lune shaped gores or inserts forty-five degrees apart with the exception of the bottom. That is to say there would be seven slits around the circumference of the sleeve, an unslit space occupying the position where the eight would come were there eight slits equally spaced. The edges of the slits are of course spread apart to conform with the edges of the lune shaped patches 8. These adjacent edges, that is to say the edges of the lune shaped patch and the edges of the slit slightly overlap each other and are strongly sewed together or otherwise secured to each other. Thus the sleeve when so formed, presents the shape of an eccentric globular or bulbous portion intermediate of two short cylindrical ends which are concentric to each other and eccentric to the bulbous portions, and as clearly shown in Fig. 3 of the drawings, the portions of the sleeve extending between adjacent slits to and connecting the ends of the sleeve have become lune-shaped in form. The cylindrical concentric ends are slipped over the ends of the adjacent pipes 1 and 1′, the greatest diameter of the eccentric bulbous portion being upwards and the lower periphery of the cylindrical ends forming an unobstructed continuation of the bottoms of the pipes 1 and 1′. To secure the ends of this sleeve on the pipes, the bands 5 and 5′ or other securing devices are clamped over the sleeve ends and hold them firmly in position. The eye-bolt connection is suitably adjusted to relieve the sleeve of all stress or pull other than is due to the internal pressure of the fluid passing therethrough.

In operation, the eye-bolt connection permits of sidewise bending of the pipe line at this point and also such vertical bending as may be caused by wave motion while at the same time it relieves the sleeve from improper strains. The bulbous and eccentric form of the sleeve permits a free and unobstructed passage of the material regardless of the lateral angle at which the pipe line may be bent. The flat and unswelled bottom surface forms a straight continuation of the normal bottom of the pipe and prevents the

lodgment of stone, gravel or sand in this portion of the connection. It is in this latter peculiarity of the present joint that its advantage over the present forms largely resides. The lodgment of rocks and other extraneous substances in the downwardly projecting pocket of the ordinary coupling causes their rapid destruction.

It is obvious that many changes in form, proportion of parts and character of material used may be made without departing from the essence of this invention. I therefore claim this invention broadly, unrestricted except as specifically provided.

What I claim, is:—

1. A flexible pipe connection comprising two tubular portions adapted to fit the pipe sections to be connected, and a single bulbous enlargement intermediate of said tubular portions and the adjacent ends of the pipe sections, said bulbous enlargements being composed of highly flexible non-metallic material and adapted to be flexed.

2. A connection for pipes or the like comprising a flexible sleeve adapted to fit over the ends of pipes and being swelled or increased in cross-section intermediate of and eccentric to its ends.

3. The combination with two pipe sections, of a connection for said pipe sections comprising a sleeve of substantially circular transverse section adapted to fit over the ends of the pipe sections, the circular section of the sleeve increasing in diameter from both ends to a point intermediate thereof, said enlarged portion of the sleeve being composed of highly flexible non-metallic material and arranged intermediate the adjacent ends of the pipe sections and adapted to be flexed.

4. A connection for pipes or the like comprising a flexible sleeve of substantially circular transverse section adapted to fit over the ends of pipes, the circular section increasing in diameter from both ends to a point intermediate thereof, the inner periphery of all of the circular transverse sections of the sleeve passing substantially through a straight line joining the inner circles forming the inner surface of the ends of the sleeve.

5. A flexible pipe connection comprising two tubular portions adapted to fit the pipe sections to be connected, and a single bulbous enlargement intermediate of said tubular portions and the adjacent ends of the pipe sections, said bulbous enlargement being composed of highly flexible non-metallic material and adapted to be flexed, and means for securing said sleeve in place.

6. A connection for pipes or the like comprising a flexible sleeve adapted to fit over the ends of pipes and being swelled or increased in cross-section intermediate of and eccentric to its ends and means for securing the sleeve in place.

7. A flexible pipe connection comprising two cylindrical end portions to fit the pipe sections to be connected, and a single bulbous enlargement arranged intermediate of and eccentric to the cylindrical end portions.

8. A connection for pipes or the like comprising a flexible sleeve of substantially circular transverse section adapted to fit over the ends of pipes, the circular section increasing in diameter from both ends to a point intermediate thereof, the inner periphery of all of the circular transverse sections of the sleeve passing substantially through a straight line joining the circles forming the inner surface of the ends of the sleeve, and means for securing the sleeve in place.

9. A connection for pipes or the like comprising a flexible sleeve adapted to fit over the ends of pipes and being swelled or increased in cross-section intermediate of and eccentric to its ends, means for securing the sleeve in place and a universal joint adapted to connect the pipes.

10. The combination with two pipe sections, of a connection for said pipe sections comprising a sleeve of substantially circular transverse section adapted to fit over the ends of the pipes, the circular section increasing in diameter from both ends to a point intermediate thereof, said enlarged portion of the sleeve being composed of highly flexible non metallic material and arranged intermediate the adjacent ends of the pipe sections, and said enlarged portion of the sleeve being adapted to be flexed, means for securing the sleeve in place, and a universal joint to connect the pipes.

11. A connection for pipes or the like comprising a flexible sleeve of substantially circular transverse section adapted to fit over the ends of pipes, the circular section increasing in diameter from both ends to a point intermediate thereof, the inner periphery of all of the circular transverse sections of the sleeve passing substantially through a straight line joining the circles forming the inner surface of the ends of the sleeve, means for securing the sleeve in place and a universal joint adapted to connect the pipes.

12. A connection for pipes or the like comprising a flexible sleeve adapted to fit over the ends of pipes and being swelled or increased in cross-section intermediate of its ends, means for securing the sleeve in place and a universal joint adapted to connect the pipes, each member of said universal joint having an adjustable rigid connection with one of the pipe sections.

13. A connection for pipes or the like comprising a flexible sleeve adapted to fit over the ends of pipes and being swelled or increased in cross-section intermediate of and eccentric to its ends, means for securing the sleeve in place and an adjustable universal joint adapted to connect the pipes.

14. A connection for pipes or the like com-

prising a flexible sleeve of substantially circular transverse section adapted to fit over the ends of pipes, the circular section increasing in diameter from both ends to a point intermediate thereof, the inner periphery of all of the circular transverse sections of the sleeve passing substantially through a straight line joining the circles forming the inner surface of the ends of the sleeve, means for securing the sleeve in place and an adjustable universal joint adapted to connect the pipes.

15. A connection for pipes or the like comprising a flexible sleeve consisting of cylindrical ends connected by lune shape sections.

16. A connection for pipes or the like comprising a flexible sleeve consisting of cylindrical ends connected by lune shape sections and means for securing the sleeves in place.

17. A connection for pipes or the like comprising a flexible sleeve consisting of cylindrical ends connected by lune shape sections, means for securing the cylindrical ends to pipes and a universal joint adapted to connect the pipes.

18. A connection for pipes or the like comprising a flexible sleeve consisting of cylindrical ends connected by lune shape sections, means for securing the cylindrical ends to pipes and an adjustable universal joint adapted to connect the pipes.

19. A connection for pipes or the like comprising a sleeve consisting of a lune shaped blank having two parallel sides adapted to be rolled upon itself to join said parallel sides.

20. A connection for pipes or the like comprising a flexible sleeve adapted to fit over the ends of pipes and having an enlarged portion intermediate of its ends, the bottom of the sleeve being substantially straight and coinciding with the bottom of the pipes to which it is joined.

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