

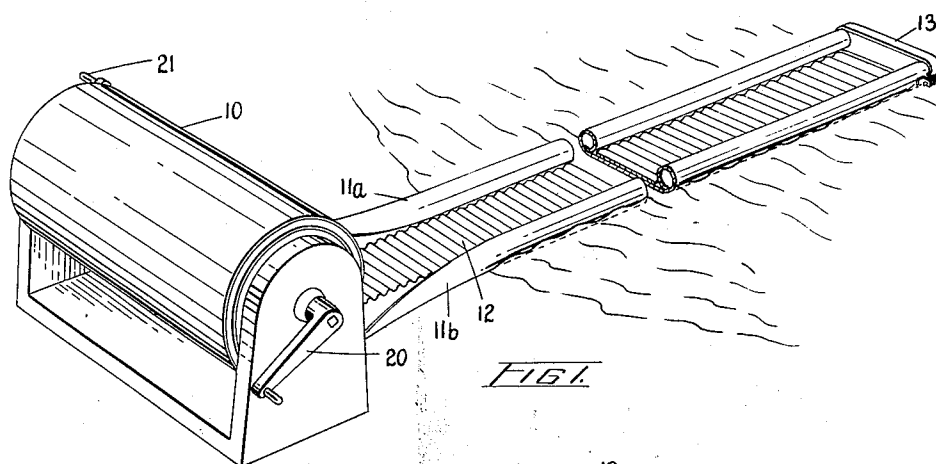
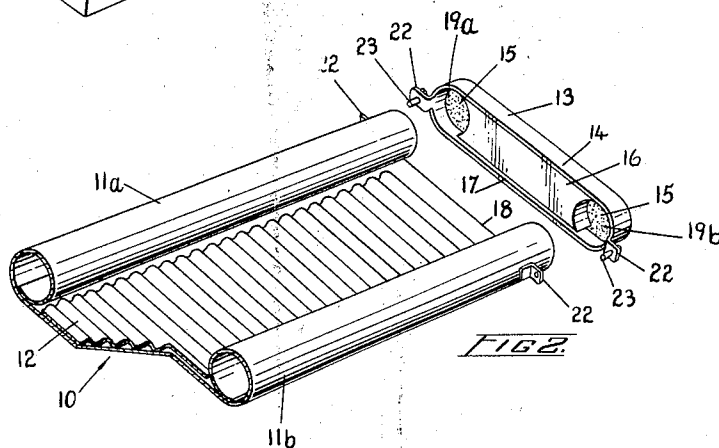
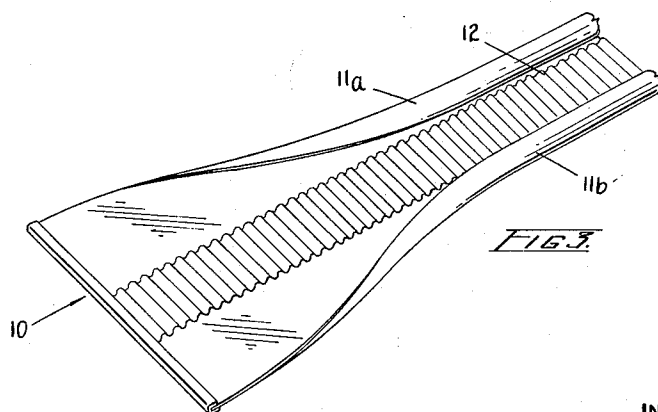
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CONTINUOUSLY EXTENSIBLE AND ROLL-UP STRUCTURE

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3,252,173

## CONTINUOUSLY EXTENSIBLE AND ROLL-UP STRUCTURE

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2 Claims. (Cl. 14-27)

This invention relates to a portable floating structure such as a bridge. More particularly this bridge is continuously extensible and can be easily rolled up and transported to a new site where it can be unrolled.

Numerous types of portable floating bridges have been previously proposed and are in use. However, these bridges are constructed of many sections which have to be assembled at each new site and disassembled each time they are moved. Also these bridges have considerable bulk in their disassembled form and require much handling and space each time they are moved.

The bridge of this invention is made of a continuous strip of preformed resilient material such as steel or plastic which can be quickly and easily rolled, preferably on a drum, and unrolled. Very little assembling is required and the bridge is extended across the stream by simply unrolling from a drum on the shore or the bank.

This invention is founded upon the use of a resilient strip of material, such as spring steel, which can be wound onto a flat drum. However, when the strip is unwound the preformed curled edges which have been lying flat in the rolled up form reform into two tubes which provide longitudinal rigidity and buoyancy. Transverse rigidity is provided by a lamina of corrugated material which is fixed to the flexible strip but which can also be rolled up longitudinally.

The accompanying drawings illustrate an embodiment of the invention in which,

FIGURE 1 illustrates the bridges partially rolled on a drum and extending out to float on the water,

FIGURE 2 is a fragmentary exploded end portion of the bridge to show the cap which is used to seal the end of the bridge which is projected over the water.

FIGURE 3 is the land end of the bridge.

The bridge illustrated comprises a strip of thin resilient material 10 which is formed so that the edges are coiled into two longitudinal tubes 11a and 11b which will provide longitudinal rigidity and buoyancy and lamina of flexible corrugated material 12 which may be fixed to the thin flexible strip by means such as spot welding with the corrugations running transversely across the material 10 to provide transverse rigidity. The corrugated lamina 12 is of such a width as to preferably cover the space between the tubes 11a, 11b and can be used as roadway

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for vehicles or a walk for persons. On rolling up the bridge as shown in FIGURE 1, the tubes 11a and 11b uncoil and flatten permitting the bridge to be rolled up to form a cylinder. This may be done on a drum (FIG. 1) operated by hand cranks 20, 21, the drum being mounted near the shore or bank. On unrolling the bridge it extends across the river and floats as illustrated. In order to prevent the bridge from flooding an end cap 13 is fitted over the end which will be projected over the water.

FIGURE 2 illustrates details of a suitable end cap. A metal casing 14 of the correct size to fit over the end of the bridge is fitted with a gasket 15 of suitable material such as rubber. The casing 14 is formed with a core 16 which, with the casing, forms a slit 17 along the bottom edges of the cap into which the end 18 of the base of the bridge between the tubes 11a and 11b may fit with a fluid tight seal, and the core also forming casing wells 19a and 19b into which the ends of the tubes 11a and 11b will fit against the gasket 15 with a fluid tight seal.

A suitable means of attaching the end caps to the bridge would be by the use of pairs of complementary mating brackets 22, each being punched to receive bolts 23, one bracket of each pair being welded to the end of the bridge and the other attached to the end cap.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A portable floating structure comprising a continuous strip of thin resilient material formed with the longitudinal edges coiled transversely to form a sealable tube along each lateral edge to provide fluid tight buoyancy chambers and longitudinal rigidity, said tubes being capable of uncoiling when said strip is rolled up to form a cylinder, a lamina of corrugated material fixed to the resilient strip between the tubes, said lamina providing transverse rigidity and being capable of being rolled longitudinally with said strip when rolled up and an end cap at the end of the structure in sealing engagement with the end of each of said tubes to form a water free compartment.

2. A portable floating structure as claimed in claim 1 wherein the thin resilient strip is spring steel.

### References Cited by the Examiner

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JACOB L. NACKENOFF, Primary Examiner.