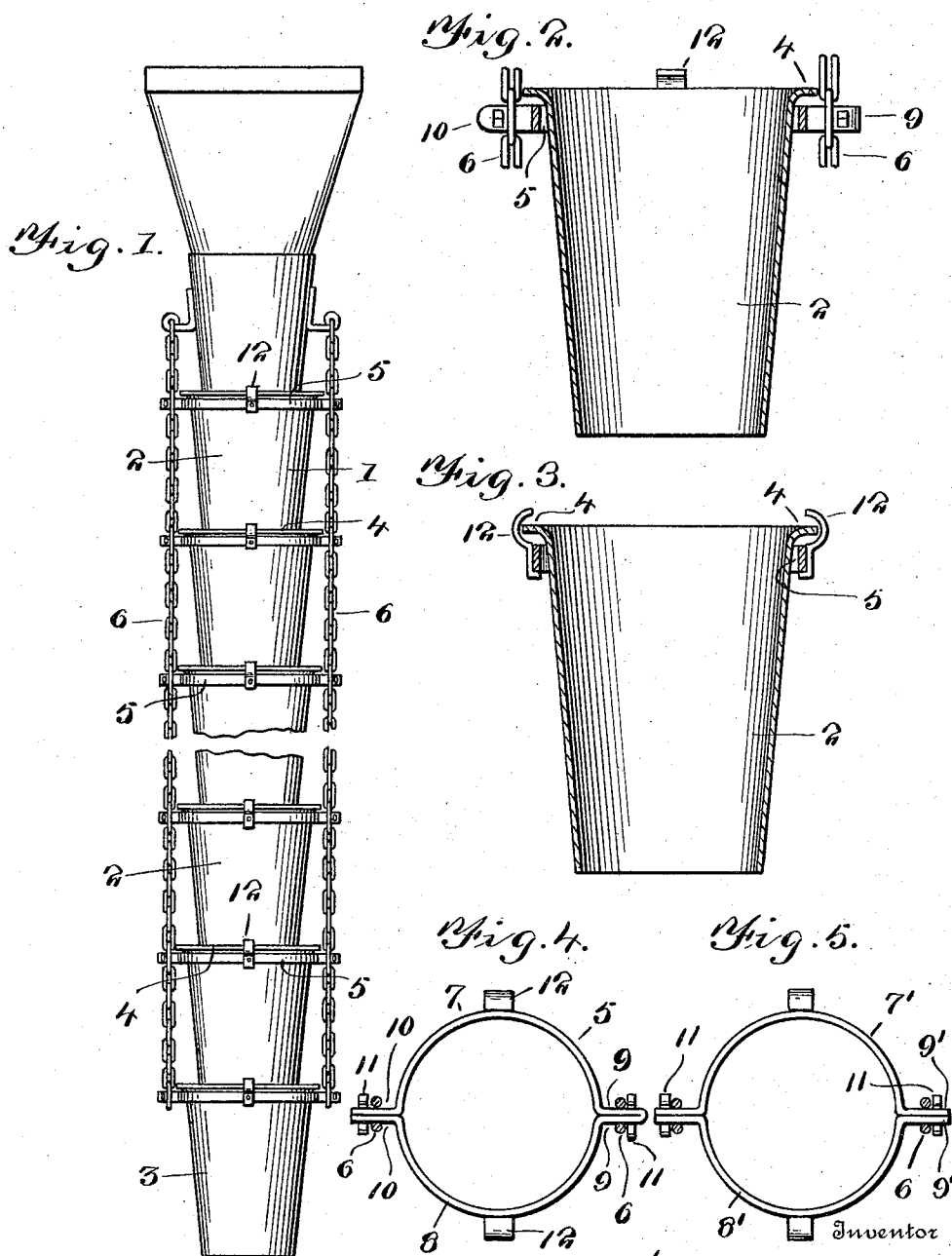


G. W. WORLEY.
GRAIN SPOUT.
APPLICATION FILED MAY 5, 1915.

1,185,459.

Patented May 30, 1916.



Witnesses

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GRAIN-SPOUT.

1,185,459.

Specification of Letters Patent.

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Application filed May 5, 1915. Serial No. 26,093.

To all whom it may concern:

Be it known that I, GEORGE W. WORLEY, a citizen of the United States, residing at Salix, in the county of Woodbury and State of Iowa, have invented new and useful Improvements in Grain-Spouts, of which the following is a specification.

This invention relates to flexible loading spouts of the telescopic kind employed in loading grain, coal or other substances into cars, etc., the primary object of the invention being to provide a spout which may be economically manufactured and sold, which allows convenient application and removal of its sections, which provides for the adjustment of each section as occasion requires to remove a worn surface out of the path of the flowing material and to present a new surface over which the material may travel, which may be made of any convenient length desired and which is adapted to give service for a long period and to be of greater flexibility than spouts of ordinary construction.

The invention consists of the features of construction, combination and arrangement of parts herein fully described and claimed, reference being had to the accompanying drawing in which:—

Figure 1 is a perspective view of a flexible grain spout embodying my invention. Fig. 2 is a vertical longitudinal section through a portion of the spout on an enlarged scale. Fig. 3 is a vertical longitudinal section taken at right angles to the section shown in Fig. 2. Fig. 4 is a vertical transverse section. Fig. 5 is a view similar to Fig. 4 showing a slight modification.

Referring to the drawing, 1 designates my improved flexible, telescopic loading spout, which comprises a series of joints or sections 2 and terminates at one end in an ejector nozzle 3.

Each joint or section 2 is made of sheet metal, and comprises a circular longitudinally tapered or flaring body, the reduced end of one section being adapted to fit within the enlarged end of an adjacent section, while the enlarged end of the section in question receives the reduced end of another section. The forward or enlarged end of each

section is formed with an outwardly curved or turned continuous stop flange 4, for a purpose hereinafter described.

The joints or sections 2 are carried and held in assembled relation by means of rings or bands 5 and link chains 6. The ring or bands 5 encircle the enlarged ends of the joints or sections 2 and immediately in rear of the flanges 4, and the rings or bands throughout the series are connected by a pair of link chains 6 extending along the opposite sides of the spout. The flanges 4 prevent the joints or sections 2 from slipping rearwardly out of engagement with the rings, and the latter from slipping forwardly out of engagement with the joints or sections, the rings or bands being retained in properly spaced relation by the carrier chains 6.

As shown, the joints or sections 2 have a telescopic engagement throughout the length of the spout, so that the latter may be telescopically extended and contracted, or opened and closed in the ordinary way. For convenience I preferably construct each ring or band 5 of a single piece of strap metal in the form of two relatively movable or adjustable semi-circular sections 7 and 8. These sections, when the ring is made of a single piece of material, are provided at one side with end portions 9 which overlap and are integrally connected and are provided at their diametrically opposite side with end portions 10 which overlap and are independent of connection with each other, thus allowing the band to be opened and closed on the lapping end portions 9 as hinges to permit of the ready removal or application of a joint or section 2, as will be readily understood.

The ends or lugs 9 and 10 are adapted to receive and engage corresponding links of the carrier chain 6 and to be held in engagement therewith by cotter or other fastening pins 11 passing through openings in the end portions 9 and 10 and holding the same against relative movement, while at the same time preventing the chains from slipping laterally and becoming displaced. Hook-shaped clips or retaining members 12 are secured to those diametrically opposite

sides of each ring or band which are at right angles to the ends 9 and 10 and project over and beyond the flange ends 4 of the joints or sections, thereby preventing forward displacement of the latter through or from the rings or bands.

Heretofore it has been common to make flexible loading spouts of telescopic sheet metal joints or sections which in some constructions are coupled by direct fastening or pivot pins, in others by pivotal connections and links or braces, and in others by flexible carrier chains, but in all such constructions with which I am familiar adjustment of the spout sections to present new surfaces for wear can only be carried out to a certain extent, and in most instances at the cost of time, trouble and labor. As is well known, the spout sections are subject to considerable wear from the flowing grain or material on the low side, which wear is accentuated and increased greatly at abrupt bends or angles. When a hole is worn in a section, it has been possible heretofore to present a fresh surface for use by disconnecting the fastening connections at one side and revolving the section half way around so that the lugs or projections which engage the chain links or braces will be reversed and the section also inverted, but in all constructions with which I am familiar this has been the maximum extent of adjustment permitted. With these types of spouts, it is generally necessary to employ a swivel connection between the nozzle or spout proper and the adjacent joint or section, in order to allow the nozzle to have bending motions. The chains or equivalent connections, however, prevent any material flexion of the spout except in two directions.

My invention overcomes these objections and provides a spout which is more readily flexible in the usual directions and may also be adjusted to certain degrees in other directions, since the looseness of the joints or sections fitting within the supporting rings permits said sections to have universal angular adjustment with relation to each other. Furthermore, my construction allows any section when worn or injured beyond repair to be easily removed by opening the adjacent supporting ring, whereupon a new section may be readily entered in its place. A most important advantage of my construction, however, is that any of the sections may be turned or rotated if necessary or desired a distance to present a fresh surface for wear after the one in use has worn away, allowing a continuous rotation and series of adjustments for presenting a corresponding number of wear surfaces where hitherto it has been possible only to adjust the section once only to present a new surface after the diametrically opposite

one in use has been worn away. Moreover, no swivel is required at the delivery end of the spout, as each section itself constitutes a swivel. It will also telescope more easily and completely, obviates the necessity of using metal strips to cover holes worn in the sections, and enables old sections to be used by simply flanging the enlarged ends of such old sections and fitting them within the supporting rings and attaching them to the chains as described. By the use of continuous flanges on the spout sections it will be obvious that the clips may engage at any point therewith, thus absolutely preventing movement of the sections rearwardly out of engagement with the retaining clips, while allowing said sections to have free rotation. These and other advantages will be apparent from the foregoing description.

If desired, each supporting ring may be made of two independent semi-circular sections 7' and 8', in which case the end portions 9' would be independent or free from connection, the ring sections being held united by the chains and the fastening devices 11.

I claim:—

1. A flexible spout comprising supporting rings, flexible elements coupling the rings, telescopic spout sections having end portions provided with continuous flanges engaging the rings, whereby the spout sections are held from movement in one direction, and retaining means on the rings engaging said flanges to hold the sections from displacement in the opposite direction while permitting rotation of the same within the rings.

2. A flexible spout comprising supporting rings, flexible connections between the rings, telescopic joint sections having flanged ends engaging the rings, and hooked clips cooperating with said flanged ends to hold the sections from displacement while permitting said sections to be turned or rotated in the rings.

3. A flexible spout comprising supporting rings, flexible connections between the rings, telescopic spout sections engaging the rings, and cooperating retaining elements on the rings and spout sections operating to hold said spout sections against longitudinal displacement in either direction, while permitting said sections to be freely rotated.

4. A flexible spout comprising supporting rings, link chains connected with the rings, telescopic spout sections having flanged ends engaging the rings, and clips cooperating with said flanged ends to hold the sections from displacement while permitting said sections to be turned or rotated in the rings.

5. A flexible spout comprising split sup-

porting rings having diametrically opposite end portions, link chains having links engaged with said end portions, fastening means engaging the end portions and holding the rings closed and the chain links from displacement, joint sections having flanged ends engaging the rings to hold said sections from displacement in one direction, and clips for holding said sections

from displacement in the reverse direction, 10 said flanges and clips permitting the joint sections to turn or rotate within the rings.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. WORLEY.

•Witnesses:

R. N. RAWSON,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."