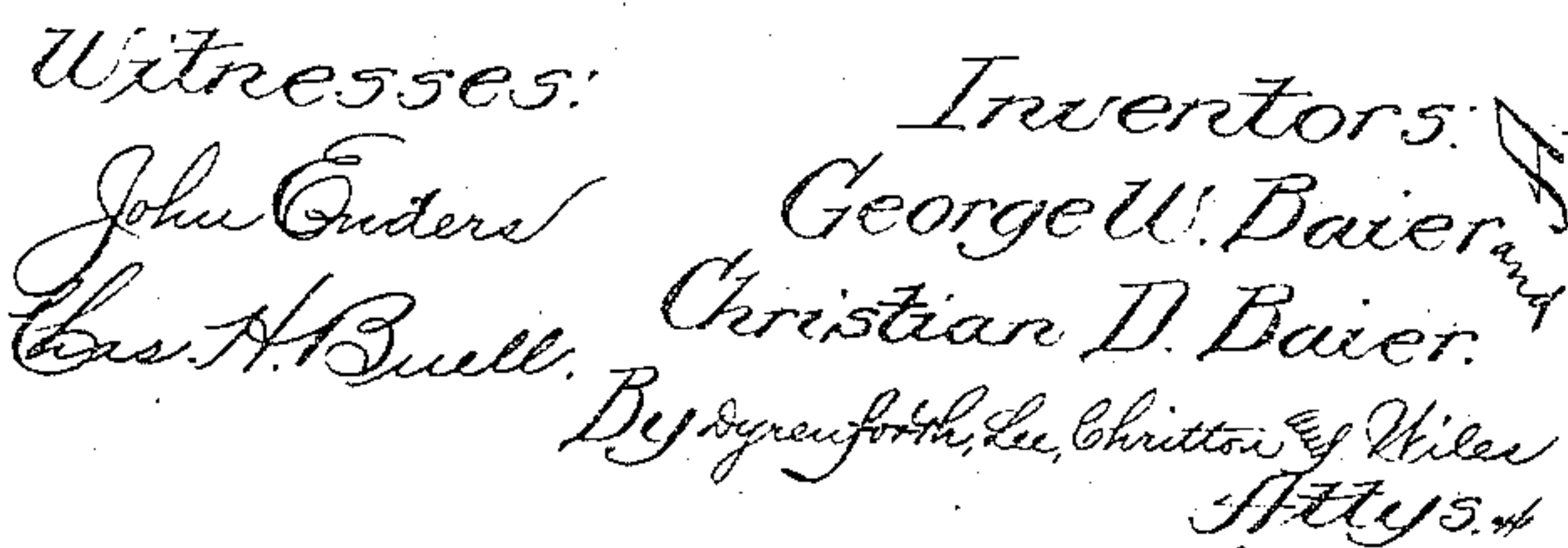


943,214.

Patented Dec. 14, 1909.



UNITED STATES PATENT OFFICE.

GEORGE W. BAIER AND CHRISTIAN D. BAIER, OF CISSNA PARK, ILLINOIS.

GRAIN-SPOUT FOR PORTABLE ELEVATORS.

943,214.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed July 11, 1908. Serial No. 443,154.

To all whom it may concern:

Be it known that we, GEORGE W. BAIER and CHRISTIAN D. BAIER, citizens of the United States, residing at Cissna Park, in the county of Iroquois and State of Illinois, have invented a new and useful Improvement in Grain-Spouts for Portable Elevators, of which the following is a specification.

Our invention relates to certain new and useful improvements in grain-spouts for portable elevators, and is fully described and explained in the specification and shown in the accompanying drawing, in which:

Figure 1 is a side elevation of our improved device; Fig. 2 is a top plan thereof; and Fig. 3 is a longitudinal section taken at the line 3 on Fig. 2.

Referring to the drawing: A is a hopper adapted for attachment to the discharge end of a grain-conveying elevator and the same terminates at its lower end in a cylindrical sleeve *a* having at its extreme lower edge a bead *a*¹. This hopper is bound preferably by a band at its upper edge for the purpose of protecting and strengthening the hopper and for preventing undue wear. A cylindrical collar B having an inturned bead *b* at its upper edge surrounds the sleeve *a* and is limited in its downward movement with respect thereto by engagement of the beads *b* and *a*¹ while being free to rotate with respect thereto.

Three conical sections C, C¹ and C² are provided as illustrated and below these conical sections is a series of cylindrical sections D, D¹ and D² each telescopically mounted upon the one above it and each of the cylindrical sections being provided with a reinforcing or strengthening ring *d*. Chains *c*, secured to each of the conical sections C, C¹ and C² by pins *c*¹ and attached at their upper ends to the cylindrical collar B and at the lower ends to the upper cylindrical section D, serve to flexibly secure all of said sections together in suspended relation to the hopper. The cylindrical sections, which may be of any desired number though only three of such sections are shown in the drawing, are secured together by means of chains *d*¹ which in practice are preferably arranged ninety degrees away

from the corresponding chains *c* on the conical sections C, C¹ and C². The chains *d*¹ are provided at intervals with rings *d*² adapted to be engaged by snap-hooks *d*³, which are attached to the rings *d*, for the purpose of holding the spout in a shortened condition. The purpose of such adjustment will be at once apparent, when it is considered that as the crib or bin fills up at the far end (to which the grain is first delivered), it is obviously desirable to contract the length of the spout for filling the central portion and afterward the remaining portion.

The degree of taper to the conical sections is so proportioned that the hopper can be turned at substantially ninety degrees to the cylinder sections as illustrated in Figs. 1 and 3 of the drawing and the number of sections and the degree of taper therein illustrated are such as to produce the requisite degree of curvature without difficulty. Should it be desired, however, to vary the number of the sections to any extent, the degree of taper will be correspondingly modified to permit the same degree of bend. Some grain elevators are on the market in which the discharge end is not horizontal, but is inclined at an angle, and in such cases it is possible to dispose the hopper in other than a horizontal position, and in such case it would be sufficient if the conical sections were made with only sufficient bend to permit the cylindrical sections to take a horizontal position.

It will be understood by those skilled in the art that the grain-spout herein shown is of the type which is especially designed for the handling of ear-corn, although small grains may be equally well spouted by it, if desired, and in the operation thereof, the corn or grain falls, striking the curved surface of the interior of the spout at the conical sections, and being thereby deflected into a horizontal direction of movement, and acquires by its fall a considerable speed, so that it will move without the addition of further force through the entire length of the cylindrical sections, even though they be supported in a substantially horizontal position as illustrated. By this mode of operation, corn can be distributed in a corn-crib with the greatest ease even to the ends of a comparatively long crib, or grain may

be equally well distributed into a bin if desired, and it is only necessary to direct the end of the spout to shift the stream as may be desired, the cylindrical sections being self supporting in the same plane when supported at the ends and the conical sections being so arranged as to permit the requisite amount of bend to bring the cylindrical sections to a substantially horizontal plane, and yet not permit enough bend as to make such a sag in the spout as would seriously interfere with the operation thereof.

At the end of the spout is mounted a section E, the upper end of which, at least, is of considerably larger diameter, than the lower end of the lower cylindrical section D² so that the section E can be swung either laterally or vertically to a limited extent as illustrated in Figs. 1 and 2 by the dotted lines. This section is preferably made conical in form for convenience in handling and to permit a greater degree of angular movement, without an undue waste of material in the formation of the section, but it may be of other forms if desired. This section is preferably reinforced and strengthened by bands *e* secured externally of the section at its ends, and is flexibly secured to the section D² by means of chains *e*¹ connected by snap-hooks *e*² with the upper edge of the section D² as illustrated, and for holding this section in adjusted position, the band *e* at its lower smaller end is provided with eyes or loops *e*³ to which a rope may be tied for this purpose.

The stream of corn or grain issuing from the spout can be turned to the right or left or up or down to a limited extent sufficient to deflect the grain the desired amount, without the difficulty or inconvenience of shifting the entire end of the comparatively heavy spout.

It will readily appear that the inner surface of the section E will become worn, when adjusted in position at an angle to, or out of alinement with the cylindrical sections. This wear is due to the friction of the corn or grain, in its passage therethrough, in being deflected in its course by the angular adjustment of this section. This is especially the case when the section E is raised at its outer end to give an upward shoot to the grain in its passage therefrom, and to prolong the life of this section, provision is made for its independent adjustment by turning it one-half way around, or through an arc of 180 degrees. To effect this adjustment, the snap-hooks which hold this section to the section D², through the medium of the chains *e*¹, are disengaged and after the proper adjustment, the snap-hooks are again engaged with the alining loops on the band of section B². Wear will also take place in both the conical and cylindrical

sections, which is likewise due to the frictional action of the grain in its passage through them, and to prolong the life of the cylindrical sections they can be turned one half way around after first detaching the chains *e* from the pins *e*¹ upon the section D, after which the chains may be again attached to hold the sections in such readjusted position. Obviously the wear within both the conical sections and the cylindrical sections may be changed simultaneously by the swinging of the spout from side to side through a perpendicular plane.

We realize that considerable variation is possible in the details of construction of our improved device, without departing from the spirit of our invention, and we do not intend therefore, to limit ourselves to the specific form herein shown and described.

What we claim as new and desire to secure by Letters Patent, is—

1. The combination with a hopper and a series of cylindrical sections adapted to be placed in a substantially horizontal position, of a series of conical sections connecting the same with the hopper and adapted to form a suitable curve for the deflection of material and a terminal section loosely fitting the final cylindrical section and capable of universal angular oscillation with respect thereto, for the purpose set forth.

2. The combination with a hopper and a series of cylindrical sections tightly fitting each other, of a series of conical sections connecting the cylindrical sections with the hopper and capable of forming together a deflecting curve for the purpose specified, a series of chains limiting the movement of the cylindrical sections upon each other and hooks on the sections adapted to engage the chain for adjusting the relative position of the cylindrical sections.

3. The combination with a hopper, of a cylindrical sleeve projecting from the lower end thereof and provided with an outwardly projecting bead, a cylindrical collar rotatable about said sleeve and provided with an inwardly projecting bead to engage therewith, a series of conical telescopic sections forming a flexible curved section, a series of cylindrical telescopic sections tightly fitting each other, chains attached to each conical telescopic section with ends secured to one of said cylindrical telescopic sections and secured at opposite ends to said cylindrical collar, and a terminal section loosely fitting the final cylindrical section and capable of angular oscillation with respect thereto.

4. The combination with a hopper, of a cylindrical sleeve projecting from the lower end thereof and provided with an outwardly extending bead, a cylindrical collar rotatable about the sleeve and provided with an

inwardly projecting bead to engage there-
with, a series of conical telescopic sections
below the cylindrical collar forming a spout
and flexibly secured thereto, a series of cy-
5 lindrical telescopic sections secured to said
conical sections, an adjustable terminal sec-
tion detachably connected to said cylindrical
sections, a chain attached to each cylindrical
section and hooks fastened to said cylin-

drical sections, adapted to engage said 10
chain to hold the spout in a contracted po-
sition.

GEORGE W. BAIER.
CHRISTIAN D. BAIER.

In presence of—

SAM. A. BROWN,
CARL ENGELBRECHT.