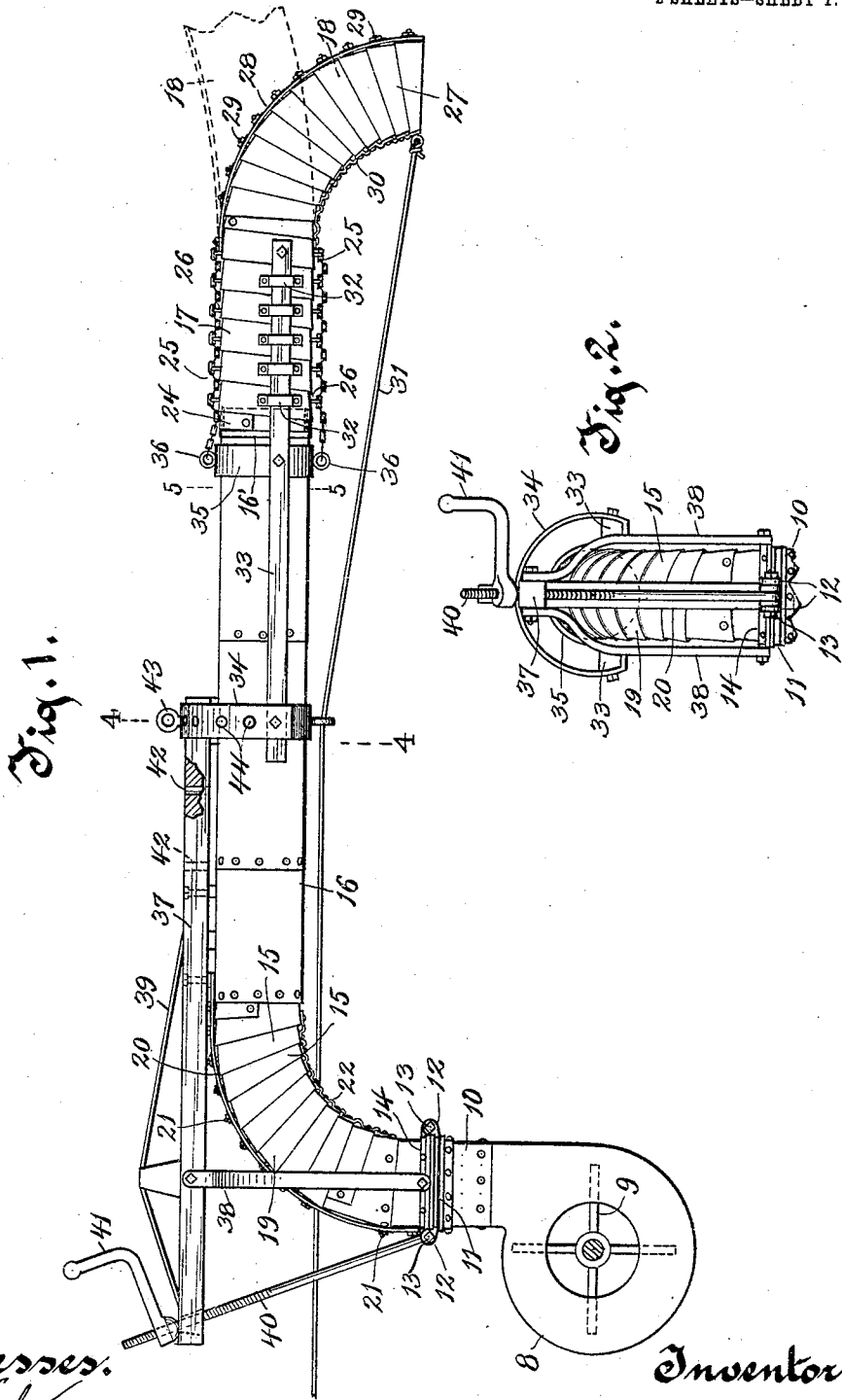


A. ROSENTHAL.
 DISCHARGE SPOUT FOR CORN HUSKING AND SHREDDING MACHINES.
 APPLICATION FILED MAY 1, 1908.

955,357.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.



Witnesses.

A. W. Keeney.
Anna F. Schmidbauer

Inventor.

August Rosenthal.
 By *Benedict, Morrell & Caldwell.*
Attorneys.

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2 SHEETS—SHEET 2.

Fig. 5.

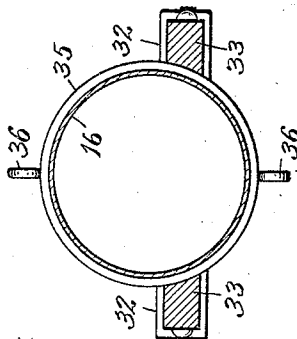


Fig. 24.

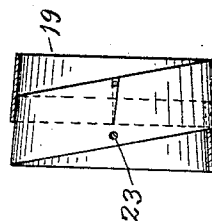
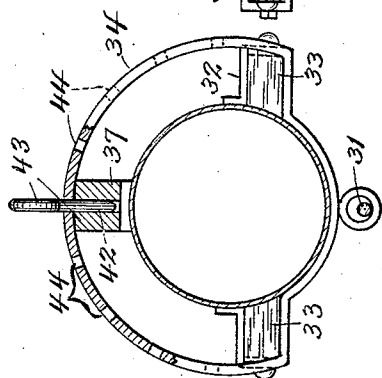
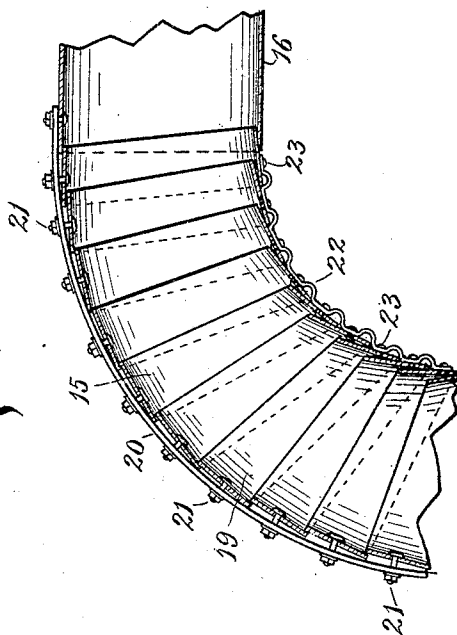


Fig. 6.

Fig. 3.



Witnesses:

A. H. Keeney,
Anna F. Schmidt

Inventor:

August Rosenthal
By *Benedict, Morell & Caldwell*
Attorneys.

UNITED STATES PATENT OFFICE.

AUGUST ROSENTHAL, OF WEST ALLIS, WISCONSIN.

DISCHARGE-SPOUT FOR CORN HUSKING AND SHREDDING MACHINES.

955,357.

Specification of Letters Patent.

Patented Apr. 19, 1910.

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To all whom it may concern:

Be it known that I, AUGUST ROSENTHAL, residing in West Allis, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Discharge-Spouts for Corn Husking and Shredding Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention has relation to improvements in discharge spouts for corn-husking and shredding machines and relates more particularly to that class of spouts in which pneumatic means is used for discharging the material therethrough.

The principal object of the invention is to provide a discharge spout which may be turned or bent to any convenient angle or height to discharge material from the husker.

A further object of the invention is to provide a discharge spout which is adjustable as to length. And a still further object of the invention is to provide a discharge spout which is simple in construction and inexpensive to manufacture and which contains but a minimum number of parts.

With the above, and other objects, in view, the invention consists of the devices and parts, or their equivalents, as hereinafter set forth.

In the accompanying drawings, in which the same reference characters designate the same parts in all the views; Figure 1 is a side view of the discharge spout of a corn-husking and shredding machine embodying my improvements, a part being broken away to show details of construction, and the normal position of the discharge end of the spout being shown in dotted lines; Fig. 2 is an end view of the spout; Fig. 3 is a vertical sectional view of a portion of the flexible elbow of the spout; Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1; Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 1; and Fig. 6 is a modified form of the flexible elbow construction.

Referring to the drawings, the numeral 8 indicates a fan casing of a corn-husking machine, and 9 the fan contained therein. This fan and its casing are of ordinary construction, the casing being provided with an inlet opening in its side and with a tubular vertical discharge pipe 10 connected

to its periphery and is adapted to receive material from the husking machine through its side opening and to discharge the same through the vertical discharge pipe. A cast metal ring 11 provided with eyed ears 12 is revolubly mounted on the top of discharge pipe 10 and is adapted to have connected thereto by means of bolts 13 passing through the ears thereof a similar ring 14, these rings serving as a hinge connection by removing one of the bolts and using the other as the hinge pin. The discharge spout consists of a flexible elbow 15, a straight section 16, an extensible section 17 and a flexible discharge end 18 connected together and fastened to the ring 14 by rivets or other securing means.

The flexible elbow is formed of a strip of sheet metal 19 wound spirally with one of the side edges thereof overlapping the edge of the adjacent convolution thus forming a flexible tubular elbow. The portions of the convolutions of sheet metal forming the outer curve of the elbow are spaced apart and connected to a flat spacing spring 20 bolted to each convolution by bolts 21, and the portions of the convolutions forming the inner curve of the elbow are riveted to a flexible strap or chain 22 by rivets 23 so as to permit a limited extension of one convolution within the adjacent convolution. The flexible strap is of such length between the rivets as to prevent the entire withdrawal of one convolution from another when the elbow is straightened out. The inner edge of the sheet metal is of less diameter than the outer edge in order to keep the elbow of the same diameter throughout its length as shown in Fig. 3. It will be noticed that the overlapping of the convolutions extends in the direction of the movement of the discharging material in order to avoid the abrupt shoulders formed by the joints of the convolutions. The straight section 16 is connected to the elbow by rivets and may be of any convenient length, and the extensible section 17 is connected to a ring 16' revolubly mounted on the outer end of the straight section of the spout. The extensible section is similar in construction to the elbow, being formed of a strip of sheet metal 24 wound spirally to form a tube with the top and bottom portions of each convolution being connected to adjacent convolutions by means of a chain or flexible

strap 25 and eyed pins or staples 26, the chain being of such length as to prevent the separation of one convolution from another when the spout is extended full length. The
 5 flexible discharge end 18 of the spout is identical in construction with the elbow, being formed of a strip of sheet metal 27 wound spirally and connected to a spacing spring 28 by bolts 29, and provided with a flexible
 10 strap 30 riveted to each convolution of the spiral. The spacing spring 28 is of sufficient strength to normally lift and hold the discharge end of the spout in the position shown in dotted lines in Fig. 1, and in order
 15 to bend the end downwardly at any angle desired a rope or cable 31 is connected to the discharge end of the spout and by means of which the angle of the flexible discharge end may be adjusted.

20 Each convolution of the extensible section of the spout is provided with two guide straps 32, positioned one on each side, and bars 33 extending parallel with the straight section are disposed in the eyes formed by
 25 the straps and the sides of the extensible sections and serve as the means for expanding and contracting the extensible section and also as a support for each convolution thereof. The outer ends of these bars are
 30 bolted to the sides of the outer end convolution of the extensible section and the inner ends of the bars are bolted to an adjusting ring 34 surrounding the straight portion of the spout. A sliding ring 35 provided with
 35 eyes 36 also surrounds the extensible section of the spout near its outer end and the inner ends of the chains 25 are connected to the eyes 36. The medial portions of the bars are bolted to this ring and are adapted to
 40 slide the said ring back and forth in adjusting the extensible section on the straight section of the spout, the ring serving as a brace or support for the bars. The upper portion of the adjusting ring 34 is of greater
 45 diameter than the straight section of the spout to provide space between the ring and the spout for the bars 33 and the outer end of a lever 37 which is bolted fast to the straight section of the spout and extends inwardly, or to the left looking at Fig. 1, to
 50 a position above the elbow and the fan. This lever is pivotally supported between the upper ends of two supporting members 38 which are pivotally bolted to the sides
 55 of the ring 14. The lever is strengthened by means of a tie rod 39 connected to both ends of the lever and passing over a block positioned above the pivotal connection of the lever.

60 A threaded adjusting rod 40 is pivotally connected to the ring 14 and extends upwardly at an angle and passes through an opening in the end of the lever and is provided with a cranked nut 41 which is adapted
 65 to raise or lower the outer end of the

spout by turning the nut up or down on the threaded rod and changing the angle of the flexible elbow.

The forward end of the lever is provided with a series of vertical apertures 42 which
 70 are adapted to receive a locking pin 43 passing through one of the openings 44 in the sliding ring 34 to adjust the length of the extensible section of the spout. The openings 44 in the enlarged portion of the ring
 75 are adapted to serve as adjusting means for turning the extensible section and the flexible discharge end of the spout on the straight section to provide for a lateral discharge.

80 In the principal form of the invention the sheet metal strip forming the elbow is tapered or reduced in diameter at its inner edge by cutting the blank to shape to produce this result, whereas in the modified
 85 form of construction shown in Fig. 6 the same result is obtained by cutting each convolution part way and drawing the cut edges together so that they will overlap and riveting them together.

From the above description it will be seen that a discharge spout is formed in which all positions of adjustment are provided for in a very simple manner. By means of the flexible elbow, the threaded rod, the lever,
 95 and the cranked nut, the spout may be tilted to any angle desired to raise or lower the discharge end of the spout. If it is desired to lengthen or shorten the spout the locking pin is removed and the sliding ring is moved
 100 back and forth, as the case may be, causing the spirally formed extensible section to slide on the straight section of the spout, and when the proper adjustment is obtained the locking pin is inserted through one of the
 105 openings in the sliding ring and into one of the apertures of the lever.

If it is desired to revolve the discharge end of the spout the locking pin is removed and the sliding ring turned causing the turning
 110 of the extensible section and the discharge end of the spout, and when the desired angle is reached the pin is replaced in the aperture of the lever and through the opening in the sliding ring in register therewith. The angle
 115 of the discharge end of the spout may be adjusted by pulling on the rope and drawing the end downwardly against the upward tendency of the spacing spring. The whole spout may be revolved by means of the
 120 swiveled joint between the spout and the fan casing. It is obvious that this spout may be used with other machines than corn huskers and it is to be understood that the invention contemplates the use of the spout with all
 125 kinds of machines in which material is discharged and elevated.

What I claim as my invention is:

1. A discharge spout, comprising in part a flexible tube formed of a spirally wound
 130

strip of material with an overlapping portion, yielding means having a tendency to move the outer end of the tube upwardly for holding upper portions of the convolutions of the spiral in fixed spaced relation with each other, and means for permitting a limited movement of the lower portions of the convolutions with relation to each other.

2. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form of an elbow, yielding means having a tendency to move the outer end of the tube upwardly for holding upper portions of the convolutions of the spiral in fixed spaced relation with each other, and means for permitting a limited movement of lower portions of the convolutions with relation to each other.

3. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form of an elbow, a metal strip having connection with the upper portion of each convolution of the spiral for holding them in fixed spaced relation with each other, and a flexible means connected to the lower portion of each convolution to permit a limited movement of a portion of each convolution with relation to another.

4. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form of an elbow, a spring metal strip having connection with each convolution of the spiral and having a tendency to move the outer end of the tube upwardly for holding them in spaced relation with each other, and a flexible means connected to the lower portion of each convolution to permit a limited movement of a portion of each convolution with relation to another.

5. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form of an elbow, a metal strip having connection with each convolution of the spiral for holding them in spaced relation with each other, a flexible means connected to other portions of each convolution to permit a limited movement of a portion of each convolution with relation to another, supporting members pivotally connected to the tube, a lever pivoted to said supporting members for holding the tube in adjusted position, a threaded rod connected to said tube and said lever, and a nut threaded to said rod for adjusting the position of the lever.

6. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form

of an elbow, a spring metal strip having connection with each convolution of the spiral for holding them in spaced relation with each other, a flexible means connected to other portions of each convolution to permit a limited movement of a portion of each convolution with relation to another, a lever for holding the tube in adjusted position, a threaded rod connected to said tube and said lever, a nut threaded to said rod for adjusting the position of the lever, a straight section of tubing connected to said spirally formed tube, an extensible tube formed of a spirally wound strip of metal with an overlapping portion, means for permitting a limited movement of one convolution of the spiral with relation to another, and means for adjusting the length of the extensible section of tubing.

7. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form of an elbow, a spring metal strip having connection with each convolution of the spiral for holding them in spaced relation with each other, a flexible means connected to other portions of each convolution to permit a limited movement of a portion of each convolution with relation to another, a lever for holding the tube in adjusted position, a straight section of tubing connected to said spirally formed tube, an extensible tube formed of a spirally wound strip of metal with an overlapping portion, means for permitting a limited movement of one convolution of the spiral with relation to another, an adjusting ring mounted on the straight section of tubing, a sliding ring mounted on the straight section of tubing, bars connected to the adjusting ring and the sliding ring and to the outer end of the extensible tube, and means for adjusting the position of the adjusting ring on the straight section of tube to adjust the length of the extensible tube.

8. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form of an elbow, a metal strip having connection with each convolution of the spiral for holding them in spaced relation with each other, a flexible means connected to other portions of each convolution to permit a limited movement of a portion of each convolution with relation to another, a lever for holding the tube in adjusted position, a straight section of tubing connected to said spirally formed tube, an extensible tube formed of a spirally wound strip of metal with an overlapping portion, means for permitting a limited movement of one convolution of the spiral with relation to another, an adjusting ring mounted on the straight section

of tubing, a sliding ring mounted on the straight section of tubing, bars connected to the adjusting ring and the sliding ring and to the outer end of the extensible tube, said
5 adjusting ring provided with a locking pin, and said lever provided with apertures into which the locking pin is inserted to adjust the position of the adjusting ring on the straight section of the tube and to adjust
10 the length of the extensible tube.

9. A discharge spout, comprising in part a flexible tube formed of a spirally wound strip of material with an overlapping portion and capable of being bent in the form
15 of an elbow, a metal strip having connection with each convolution of the spiral for holding them in spaced relation with each other, a flexible means connected to other portions of each convolution to permit a limited
20 movement of a portion of each convolution with relation to another, a lever for holding the tube in adjusted position, a straight section of tubing connected to said spirally formed tube, an extensible tube formed of a
25 spirally wound strip of metal with an overlapping portion, means for permitting a limited movement of one convolution of the spiral with relation to another, an adjusting ring mounted on the straight section of tubing, a sliding ring mounted on the straight section
30 of tubing, bars connected to the adjusting ring and the sliding ring and to the outer end of the extensible tube, means for adjusting the position of the adjusting ring on the straight section of tube to adjust the length of the extensible tube, a flexible discharge
35 end formed of a spirally wound strip of metal with an overlapping portion and capable of being bent in the form of an elbow connected to the extensible tube, a metal

strip having connection with each convolution of the spiral for holding them in spaced relation with each other, a flexible means connected to other portions of each convolution
45 to permit a limited movement of a portion of each convolution with relation to another, and a cable for adjusting the position of the discharge end.

10. A discharge spout, comprising in part a flexible elbow section, an extensible section
50 and a flexible end section, all of said sections being formed of spirally wound strips of material, a straight section of tubing interposed between the elbow section and the
55 extensible section and to which the extensible section is swiveled, lever means for changing the angle of the elbow section, sliding bars and an adjusting ring for expanding and contracting and revolving the extensible section, and a cable for adjusting
60 the angle of the discharge end.

11. A discharge spout, comprising in part a fan and its casing, a flexible elbow section swiveled to the fan casing, a straight tubular section connected to the elbow section, an
65 extensible section swiveled on the straight section, a flexible end section connected to the extensible section, the said elbow section, the extensible section and the end section being formed of spirally wound strips
70 of metal with overlapping portions, and means provided in connection with each section for adjusting said sections and holding them in adjusted positions.

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

AUGUST ROSENTHAL.

Witnesses:

ANNA F. SCHMIDTBAUER,
A. L. MORSELL.