

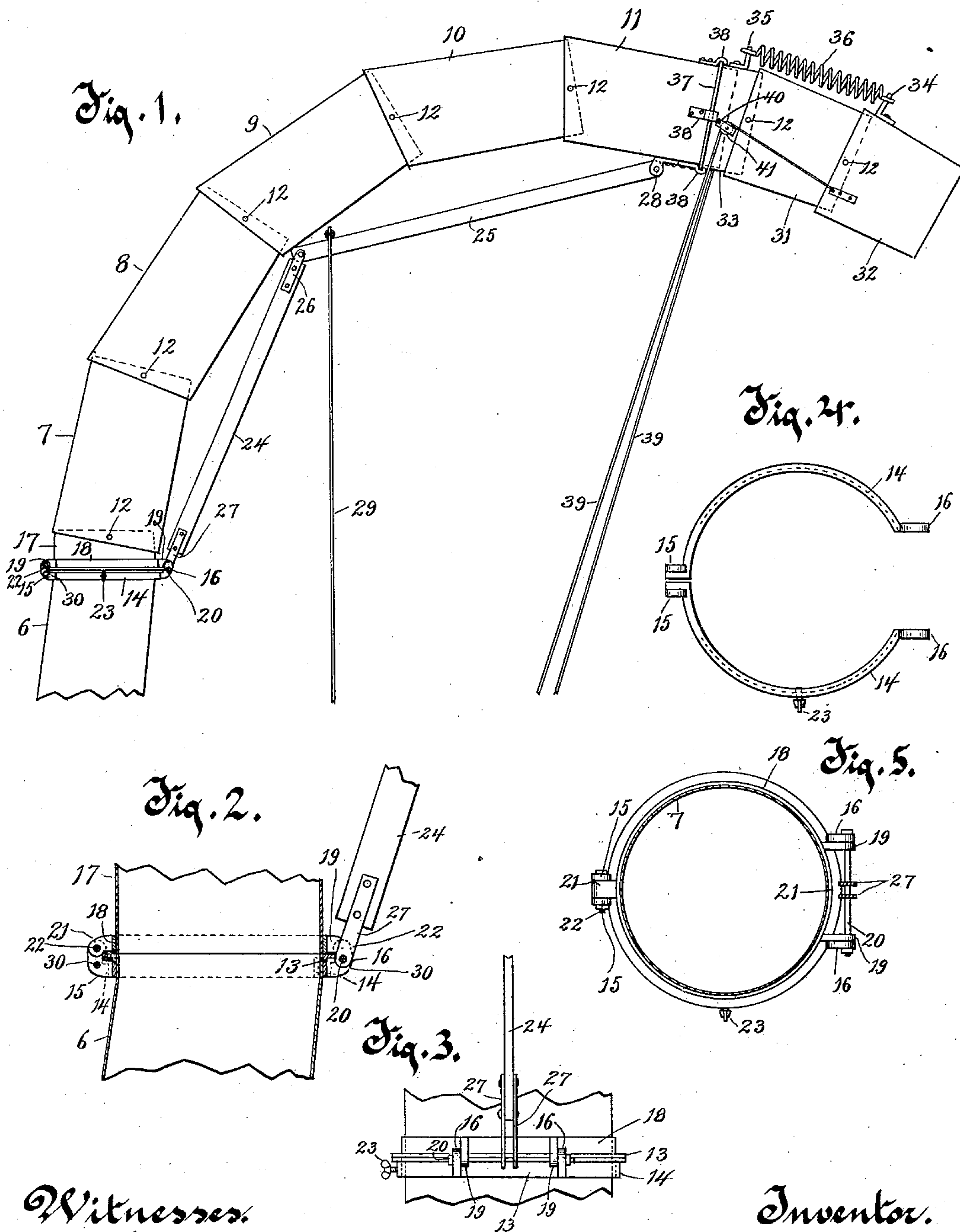
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A. ROSENTHAL.  
SECTIONAL AND ADJUSTABLE DISCHARGE SPOUT.

APPLICATION FILED JUNE 19, 1903.

NO MODEL.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## SECTIONAL AND ADJUSTABLE DISCHARGE-SPOUT.

SPECIFICATION forming part of Letters Patent No. 744,408, dated November 17, 1903.

Application filed June 19, 1903. Serial No. 162,145. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST ROSENTHAL, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Sectional and Adjustable Discharge-Spouts, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in sectional and adjustable discharge-spouts more especially intended, although not necessarily, for use in connection with corn husking and shredding machines, to serve as a passage-way for the travel of the cut and shredded husks and stalks to the place of deposit. It is, however, equally adaptable for use in connection with straw-cutting machines, threshing-machines, various forms of feed-cutting machines, and, in fact, in connection with a variety of different machines—such, for instance, in conjunction with elevators, to serve as grain-spouts therefor.

In many forms of machines of the character above referred to the spouts are continuous and the terminal portions project at more or less abrupt angles. In consequence the cut or other material fed through the spout is impeded by and is lodged at the angle, causing a clogging at such point, and hence necessitating frequent cleaning. As these long continuous spouts are difficult to clean, it is of course obvious that a construction is desirable which avoids the objections pointed out, and hence various forms of adjustable and sectional spouts have been devised with provision for changing the curvature thereof, so as to avoid the objectionable abrupt angles. These devices, however, have not proven entirely satisfactory, and it is the object of my invention to overcome in a simple and easily-operated construction the difficulties now present in existing forms of sectional and adjustable spouts.

A further object of my invention is to provide a hood at the discharge end of the spout, said hood having means whereby it can be adjusted independently of the spout, so as to direct the discharge either up or down or to the right or left.

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

In the accompanying drawings, Figure 1 is an elevation of a spout constructed in accordance with my invention, showing the sections adjusted to a curved form. Fig. 2 is a vertical sectional view of a fragment of the lower portion of the spout, illustrating the swivel connection. Fig. 3 is a view at right angles to Fig. 2, the parts, however, not being in section. Fig. 4 is a view of the lower turnable band forming part of the swivel mechanism, and Fig. 5 is a plan view of Fig. 2.

Referring to the drawings, the numeral 6 indicates the lower spout-section, which projects rigidly from a casing or from the drum from which the material is forced. In the application of my invention to a corn husking and shredding machine this spout-section usually projects from a fan-drum, and the cut and shredded material is forced into the spout by the action of a fan. The other successive spout-sections shown in the drawings are indicated, respectively, by the numerals 7, 8, 9, 10, and 11. Of course as many of these spout-sections may be employed as desired, depending upon the length it is desired to have the spout. Each spout-section is slightly less in diameter than the next succeeding section and telescopes slightly at its forward end into the rear end of said succeeding section and is pivotally connected thereto by means of lateral trunnions 12 12.

It is desirable that the lowermost adjustable spout-section 7 should be connected to the fixed section 6 by means of a swivel-joint, so that the entire spout may be swung around in order to regulate the position of the discharge end. In the accompanying drawings I illustrate the preferred form of swivel connection. Referring thereto, the numeral 13 indicates an angle-band which is secured fast around the upper end of fixed section 6, one flange of said band being uppermost. Loosely surrounding band 13 is a similar band 14, having its flange uppermost and beneath the flange or band 13. Band 14 is provided with projecting lugs 15 15, and at an opposite



point of its circumference the band is provided with two other lugs or ears 16 16, which are farther apart than the lugs 15. Fitting around the lower end of a short tube 17 and fast thereto is a flat band 18, which is provided with two lugs or ears 19 19, adjacent to and on the inside of the lugs 16. A bolt 20 connects the sets of lugs 16 and 19. The band 18 at an opposite point of its circumference is provided with a projecting ear 21, which lies between the lugs 15. A transverse bolt 22 connects the lugs 16 and the ear 21. Engaging a threaded opening in the band 14 is a thumb-screw 23, the inner end thereof being adapted to be turned tightly against the inner band 13. When the screw is loosened, the spout is free to turn at the swivel-joint, so that the spout-sections may be swung by hand to the desired position, and after being so swung the screw can be tightened, so as to hold the spout at such position.

Two bars 24 and 25, respectively, are hinged together at their inner meeting ends, as indicated by the numeral 26. The rear end of bar 24 has two straps 27 27 projecting therefrom, and the lower ends of these straps are pivoted on the bolt 20. The forward end of bar 25 is hinged to one of the spout-sections—say the section 11—by a hinged joint 28. Connected to one of the bars, preferably the bar 25, is a rope, cable, or other suitable operating device 29. It is obvious that a pull on this rope or cable will tend to straighten out the bars 24 and 25, and this action of the bars will necessarily straighten out the spout, each spout-section turning on its pivot. In order to adjust the spout to the curved form illustrated in the drawings, an initial upward or lifting force is exerted thereon, and the spout will then by reason of its own weight assume the curved form illustrated in Fig. 1, the amount of curvature being limited by contact of the rear end of bar 25 with the under side of the spout-section immediately thereabove.

In the use of the invention the thumb-screw 23 is first loosened, and this permits the spout to be turned so as to bring its forward discharge end in position to discharge at the proper place. The thumb-screw is next tightened, and then the spout is given the proper curvature in the manner hereinbefore pointed out.

It will be seen from the above description that I provide a simple and easily-operated construction in which there are no sharp bends or angles to impede the material traveling through the spout, and at the same time provision is made for readily varying, adjusting, and holding the spout in desired positions to discharge at the proper point.

It will be noticed that the swivel-joint not only enables the spout to be turned so as to direct the discharge to the proper point, but said swivel-joint is also of such construction as to form a hinge which may be useful in turning the spout back over the machine, so that the machine when the work is completed

at one point may be readily removed to another location. To accomplish the swinging back of the spout, all that is necessary to be done is to turn the spout around on its swivel so that said spout will be over the top of the machine. The spout may then be turned downwardly in a compact position over the machine, and this is done by taking out bolt 22 and permitting the entire spout to turn downwardly on the pivot 20.

The lower outer band 14 of the swivel is preferably of two similar half-sections, and the bolt 20 serves to connect the two lugs 16, while a short bolt 30 connects the opposite lugs 15.

I prefer to employ in connection with the discharge end of the spout a hood provided with independent means for adjusting the direction of the discharge. This hood consists of two main sections 31 and 32, respectively, the end of the former telescoping slightly into the end of the latter and a short tube-section 33 telescoping slightly into the end section 31 and slightly over the end of the terminal section 11 of the spout proper. Each of the sections of the hood is pivotally connected by means of the trunnions 12. Section 32 of the hood has a projection 34 extending therefrom, and the short tube-section 33 has a similar projection 35 extending therefrom, the two projections being connected by a coiled spring 36. The rear end of short tube-section 33 is also formed or provided with an annular rib or rim 37, over which is adapted to engage the rounded hooked ends of a plurality of metallic straps 38, secured to the spout-section 11. Connected to opposite sides of the terminal hood-section 32 are the ends of ropes or cables 39. These ropes or cables are extended rearwardly and through guides 40, connected to opposite points of the short tube-section 33, and preferably over pulleys 41 within said guides, and are finally extended downwardly. In the operation of the hood when the two ropes 39 39 are pulled downwardly together it has the effect of drawing the hood-sections 31 and 32 together and downwardly, and hence lower the discharge end, the spring 36 by such action being stretched. If pull on the ropes or cables is removed, the spring contracts, and thereby raises the hood-sections, and consequently the discharge end is raised. The swivel connection formed by the annular rib or rim 37 and the straps 38 enables the discharge end of the hood to be directed either to one side or the other simply by pulling on one or the other of the ropes. For instance, if the right-hand rope is pulled the hood will be turned so as to direct the discharge to the left, whereas if the left-hand rope is pulled the hood will be turned so as to direct the discharge to the right.

While I have herein shown the hood as composed of two sections 31 and 32, yet it will be understood that more of these sections may be provided, if desired, or simply one



section of hood may be employed. A plurality of sections are used, however, inasmuch as thereby a greater curvature or bend may be effected.

5 What I claim as my invention is—

1. In combination with a discharge-spout having its length made up of a series of tubular sections, the rear section being fixed, and each section telescoping slightly into the other  
10 and pivoted together so as to adapt the spout to assume a curved form, of arms pivoted or hinged together at their inner ends, and their outer ends pivoted to the spout-sections, and an operating device engaging one of the arms  
15 and adapted when operated to straighten out said arms and thereby apply force on the spout in a direction to straighten out the movable sections of said spout.

2. In combination with a discharge-spout  
20 having its length made up of a series of tubular sections, the rear section being fixed, and each of said sections telescoping slightly into the other, and pivoted together so as to adapt the spout to assume a curved form, of arms  
25 beneath the spout and pivoted or hinged together at their inner ends, and their outer ends pivoted to the spout-sections, and an operating device engaging one of the arms and adapted when operated to straighten out said  
30 arms and thereby apply force on the spout in a direction to straighten out the movable sections of the spout, the said spout when force is applied thereto in an opposite direction adapted to be brought into curved form, the  
35 degree of curvature being limited by contact of the inner hinged ends of the arms with the under side of the spout.

3. In combination with a discharge-spout having its length made up of a series of tubular sections, the rear section being fixed, and each section of the series telescoping slightly into the other and pivoted together so as to adapt the spout to assume a curved form, and the rear movable section having a swivel connection with the fixed section of arms pivoted or hinged together at their inner ends,  
40 one of said arms being pivoted to one of the movable sections, and the other arm pivoted at the swivel-joint, and an operating device  
45 engaging one of the arms and adapted when operated to straighten out said arms and thereby apply force to the spout in a direction to straighten out the movable sections of said spout.

55 4. In combination with a discharge-spout consisting of a series of tubular sections, the rear section being fixed and each section of the series telescoping slightly into the next succeeding section, and said several sections  
60 being pivoted together, of a swivel connection between the fixed section and the adjacent movable section, said swivel connection consisting of a short tube rotatably supported at its rear by the fixed section, parallel  
65 lugs projecting outwardly from one side of the short tube, an ear projecting outwardly from the opposite side of said short tube, a band

rotatably surrounding the forward or upper end of the fixed tube and provided on opposite sides with sets of projecting lugs, a bolt  
70 passing through the lugs on one side of said movable or rotatable band and through the corresponding lugs of the short tube, and a bolt passing through the other lugs of the movable band and through the ear of the short  
75 tube.

5. In combination with a discharge-spout consisting of a series of tubular sections, the rear section being fixed, and each section of the series telescoping slightly into the next  
80 succeeding section, and said several sections being pivoted together, of a swivel connection between the fixed section and the next adjacent movable section, said swivel connection consisting of a short tube rotatably supported at its rear by the fixed section, parallel  
85 lugs projecting outwardly from one side of the short tube, an ear projecting outwardly from the opposite side of said short tube, a band rotatably surrounding the forward or  
90 upper end of the fixed tube and provided on opposite sides with sets of projecting lugs, a bolt passing through the lugs on one side of said movable or rotatable band and through the corresponding lugs of the short tube, a  
95 bolt passing through the other lugs of the movable band and through the ear of the short tube, and a set-screw engaging a threaded opening in the rotatable band the inner end of said screw, when the screw is turned  
100 inwardly, adapted to impinge against the fixed tubular section.

6. In combination with a discharge-spout consisting of a series of tubular sections, the rear section being fixed and each section of  
105 the series telescoping slightly into the next succeeding section, and said several sections being pivoted together, of a swivel connection between the fixed section and the next adjacent movable section, said swivel connection consisting of a short tube rotatably supported at its rear edge by the fixed section, parallel lugs projecting outwardly from  
110 one side of the short tube, an ear projecting outwardly from the opposite side of said tube, a band rotatably surrounding the forward or upper end of the fixed tube and provided on opposite sides with sets of projecting lugs, a bolt passing through the lugs of said movable or rotatable band and through the corresponding lugs of the short tube, a bolt passing  
120 through the other lugs of the movable band and through the ear of the short tube, and arms pivoted together at their inner ends, the forward end of one of said arms being hinged to one of the movable sections of the spout, and the rear end of the other arm having projections extending therefrom said projections being pivoted on the bolt which connects the registering sets of lugs.  
125 130

7. In a discharge-spout, a swivel connection between the inner tube-section of said spout and the remaining portion of the spout, said swivel connection consisting of lugs pro-



jecting from one side of the inner end of the main portion of the spout, an ear projecting from the other side of said main portion, a band loosely surrounding the outer or upper end of the fixed inner tube-section of the spout, said band provided on opposite sides with sets of lugs, a bolt passing through one of said sets of lugs and through the set of lugs on one side of the inner end of the main portion of the spout, and a bolt passing through the other set of lugs of the movable band and through the ear at the opposite side of the inner end of the main section of the spout.

8. In combination with a discharge-spout, of a hood at the outer end thereof, said hood consisting of an outer tube-section and a tube-section intermediate of the outer end of the spout proper and the inner end of the outer hood-section, and telescoping over the end of the former and into the end of the latter, said intermediate tube-section provided with an annular rib or rim, and the several tube-sections of the hood being pivoted together, and the inner or intermediate section pivoted to the outer end of the spout proper, projections extending from the tube-sections of the hood intermediate of the lines of pivots thereof, a coiled spring connecting said projections and tending to hold the hood-section in a straightened-out position, straps secured to the outer end of the spout proper and provided with hooks engaging over the annular rib or rim, and cords connected to the outer section of the hood on the opposite side of the lines of pivots to said projections and passing through guides on the inner hood-section approximately on the lines of said pivots and adapted, when operated in one way, to turn the

hood-sections downwardly against the stress of the spring and when operated in another way to turn the hood on its swivel, and thereby throw the outer end of the hood to one side or the other.

9. In combination with a discharge-spout, of a hood at the outer end thereof, said hood consisting of an outer tube-section, and a tube-section intermediate of the outer end of the spout proper and the inner end of the outer hood-section, said tubes telescopically fitting each other, and the inner end of the intermediate tube-section telescopically fitting over the outer end of the spout proper, said intermediate tube-section provided with an annular rib or rim, and the several tube-sections of the hood being pivoted together, and the intermediate tube-section pivoted to the outer end of the spout proper, projections extending from the tube-sections of the hood between the lines of pivots thereof, a coiled spring connecting said projections and tending to hold the hood-sections in a straightened-out position, straps secured to the outer end of the spout proper and provided with hooks engaging over the annular rib or rim, and ropes or cables secured to opposite sides of the outer hood-section on the other side of the lines of pivots from said projections and extending rearwardly through guides on opposite sides of the intermediate tube-section approximately on the lines of pivots.

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

AUGUST ROSENTHAL.

Witnesses:

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