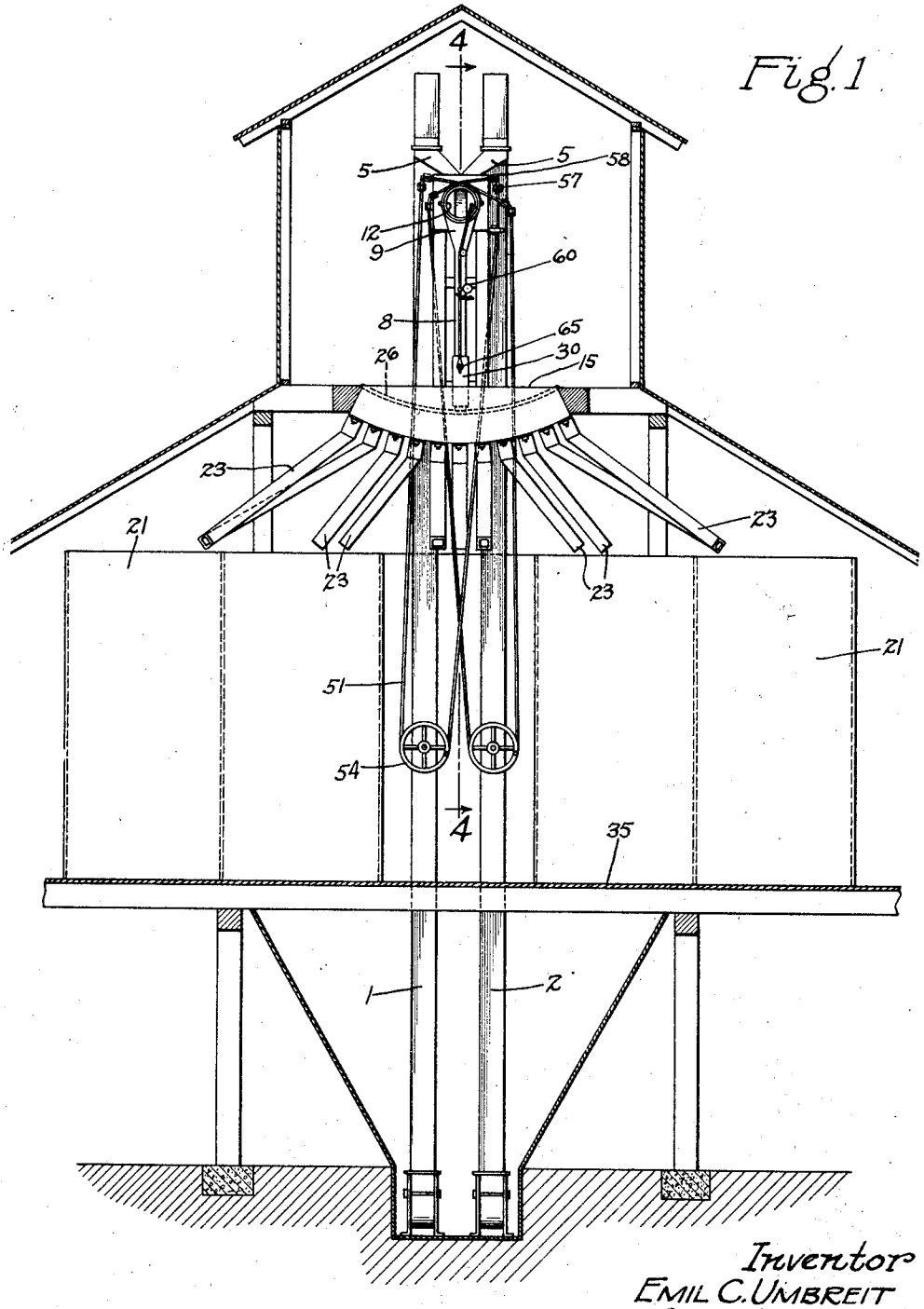
March 11, 1930. E. C. UMBREIT 1,750,552

DISTRIBUTING APPARATUS

Filed Oct. 22, 1928 4 Sheets-Sheet 1

Fig. 1



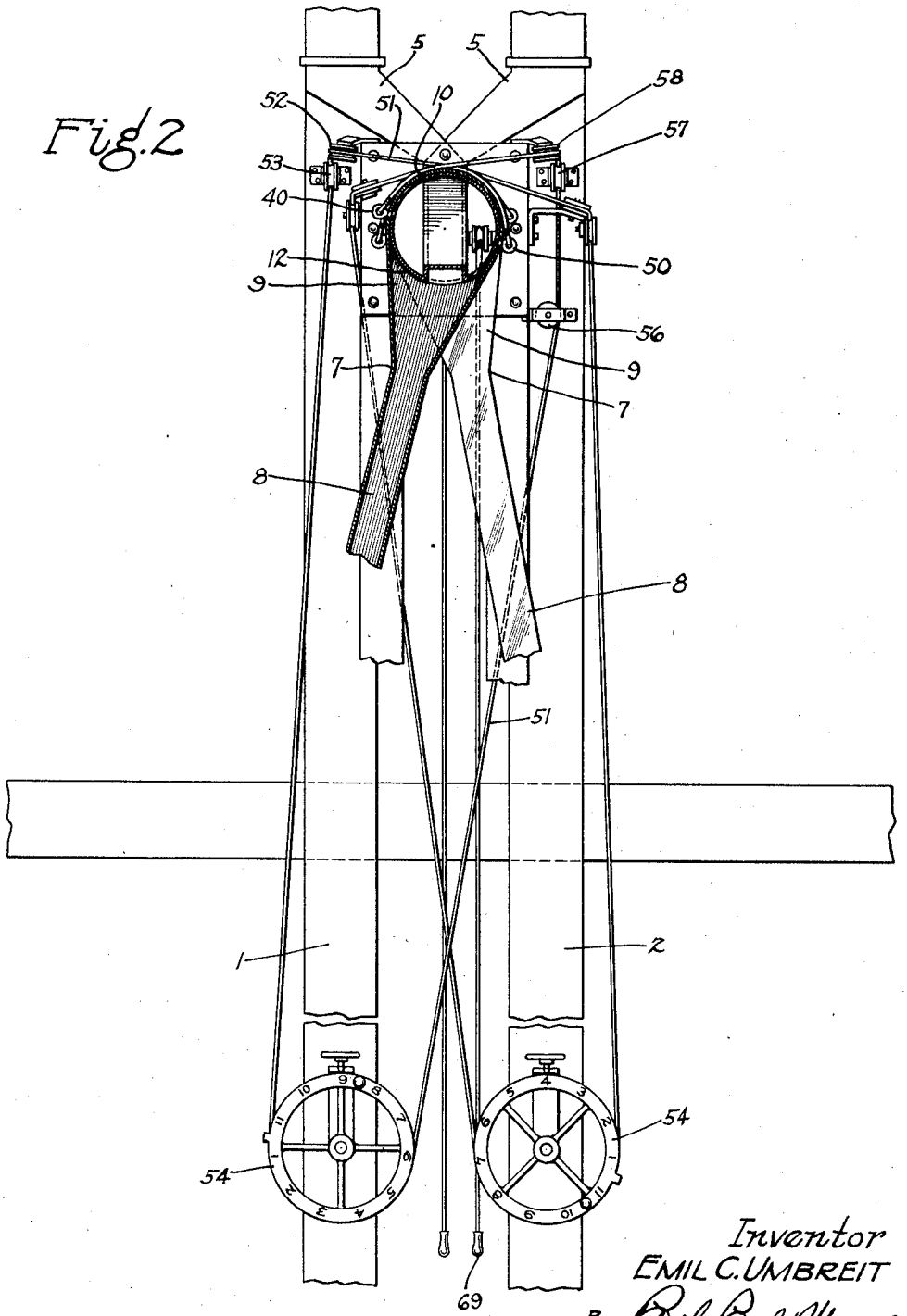
Inventor
EMIL C. UMBREIT
By Pauel, Pauel & Moore
ATTORNEYS

March 11, 1930. E. C. UMBREIT 1,750,552

DISTRIBUTING APPARATUS

Filed Oct. 22, 1928 4 Sheets-Sheet 2

Fig. 2



Inventor
EMIL C. UMBREIT
By Paul, Paul & Moore
ATTORNEYS

March 11, 1930. E. C. UMBREIT 1,750,552

DISTRIBUTING APPARATUS

Filed Oct. 22, 1928 4 Sheets-Sheet 3

Fig. 3

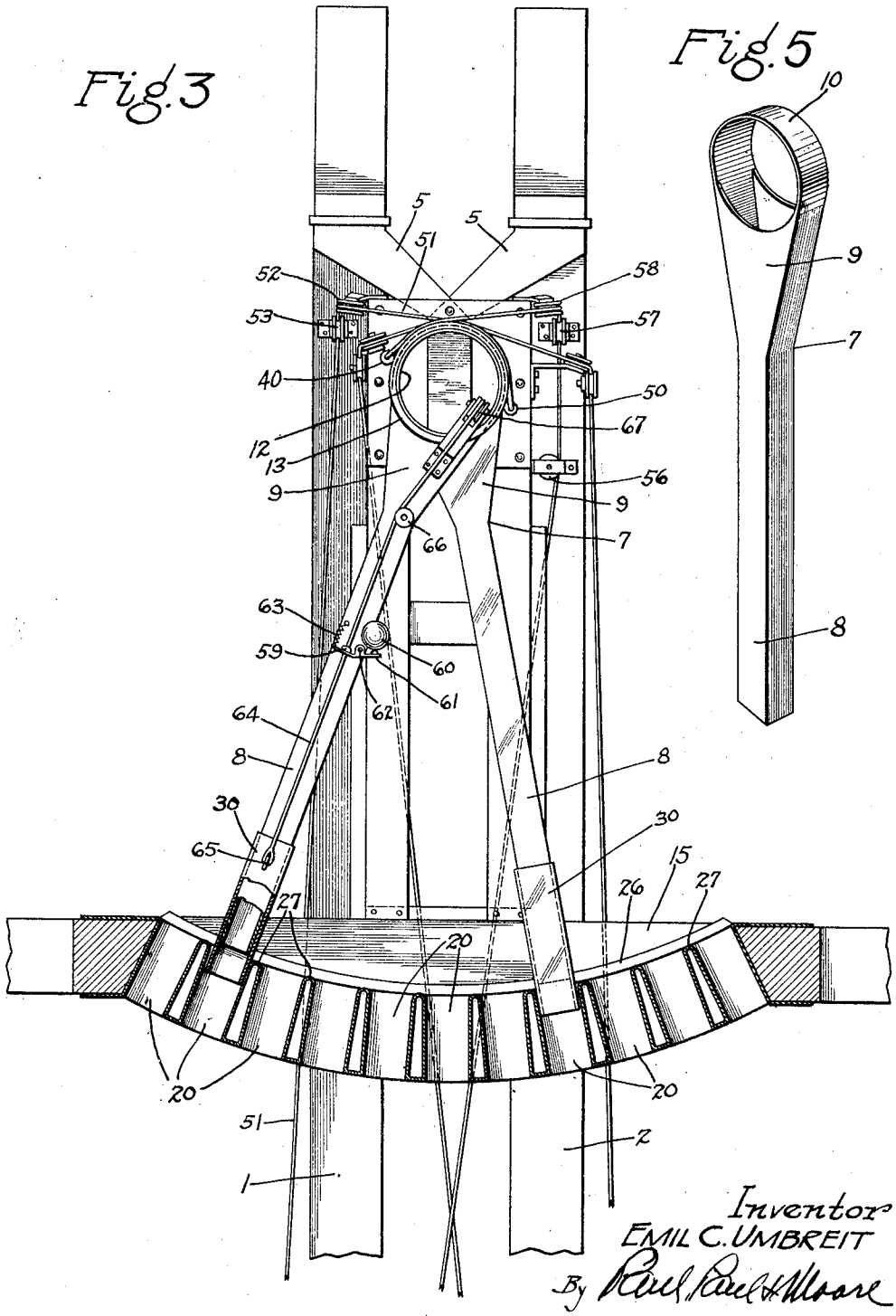


Fig. 5

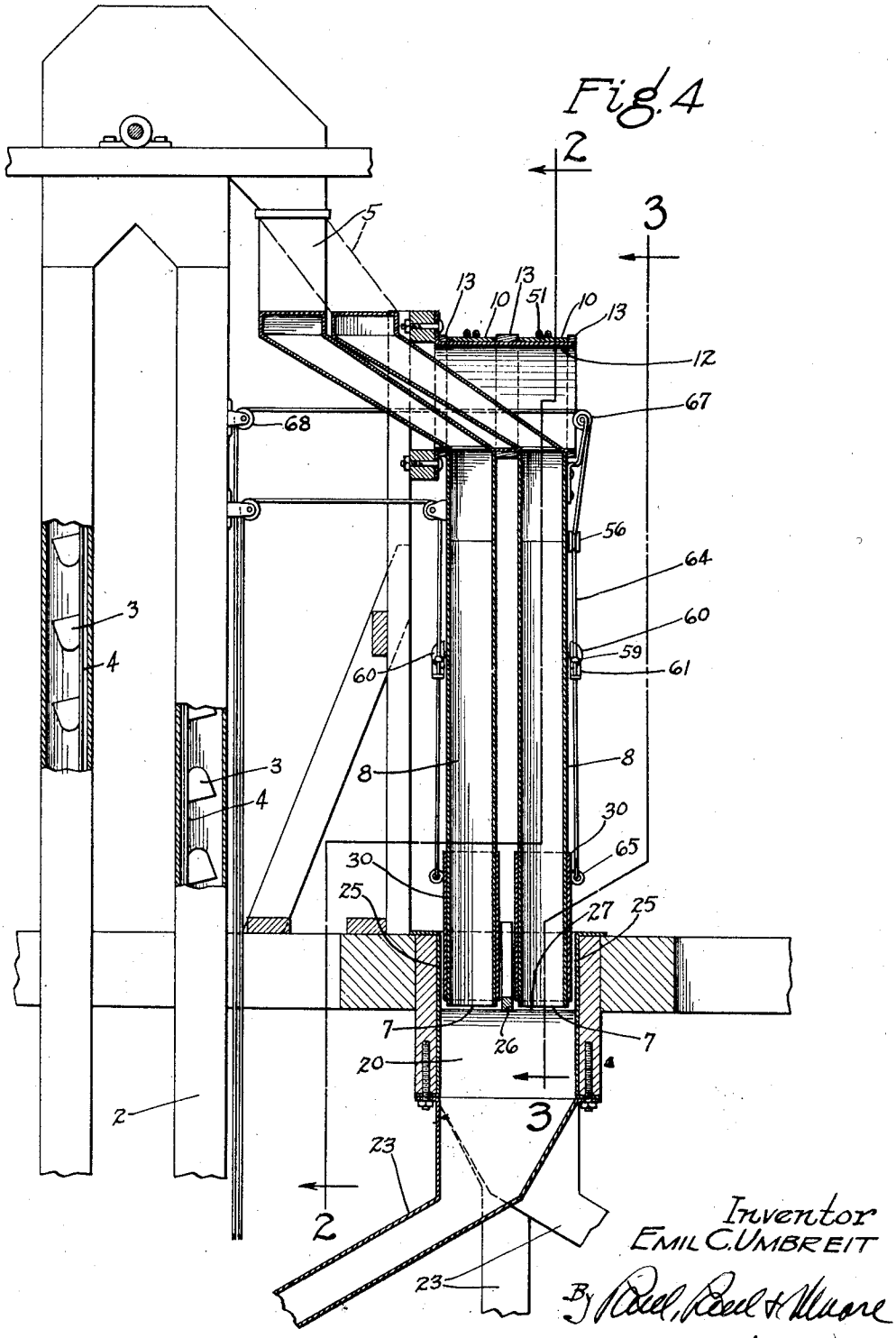
Inventor
EMIL C. UMBREIT
By Paul Paul & Moore
ATTORNEYS

March 11, 1930. E. C. UMBREIT 1,750,552

DISTRIBUTING APPARATUS

Filed Oct. 22, 1928 4 Sheets-Sheet 4

Fig. 4



Inventor
EMIL C. UMBREIT
By Reed, Reed & Moore
ATTORNEYS

Patented Mar. 11, 1930 1,750,552

UNITED STATES PATENT OFFICE

EMIL C. UMBREIT, OF ROCKLAKE, NORTH DAKOTA

DISTRIBUTING APPARATUS

Application filed October 22, 1928. Serial No. 314,147.

This invention relates to improvements in grain handling apparatus and particularly relates to a device for distributing different grades of grain in a manner to prevent mixing thereof.

In devices of this kind there are generally two elevator legs used, and there is generally some arrangement whereby both legs can be connected either to deliver grain into one bin or car at the same time, or to simultaneously deliver into separate bins or cars. In these devices there is generally a spout connected with the delivery end of the leg, and this spout is adjustable to register with a passage leading to the bin to be filled. But these connections are generally either swingable on a vertical axis, or are arranged to be adjusted in a vertical plane in a direction toward and away from the legs. This is objectionable because the spouts must be lifted bodily in order to register their delivery ends with the proper lead or passage to a particular bin or car. Moreover after bodily lifting the spout it is necessary to lower it, while under bodily strain, and obtain registration between its delivery end and the passage. Under these conditions it is difficult to obtain registration and moreover, the spout adjusting and registration movements cannot be controlled from a remote point, as is desired, without an expensive construction. Even with expensive constructions registration is difficult and uncertain. Therefore important objects are to provide a simple construction, by which registration can be quickly and unfailingly made, and controlled from a remote point.

Other objects are to provide a form of adjustable leg which has a pendular motion, and which therefore is easily adjusted; to provide a construction including two pendular legs, swingable on a common axis, and each connected with a separate leg; to provide means operable from a remote point for swinging the legs, and for registering them with a particular bin or car lead; and generally to provide a construction which is simple, and which can be easily and quickly manipulated.

Features of the invention also include the details of construction.

Objects, advantages and features of the invention will appear from the description of the drawings forming a part of this application, and in said drawings:

Figure 1 is a vertical section through a granary structure showing the invention applied thereto, the mechanism being shown in face view;

Figure 2 is a detail face view showing one of the adjustable spouts in section, the section being taken on line 2—2 of Figure 4;

Figure 3 is an elevation partly in section taken substantially on line 3—3 of Figure 4;

Figure 4 is a section substantially on line 4—4 of Fig. 1; and

Figure 5 is a detail perspective of the pendular spout.

First referring to Figure 1. The elevator legs are respectively designated 1 and 2 and may be of any preferred construction. Each leg is provided with elevating buckets 3 mounted on chains 4, see Figure 4. The grain is delivered by the buckets into respective chutes 5, which chutes connect with the adjustable spouts of the present invention. The construction by means of which chutes 5 communicate with the spouts and the pendular arrangement of the adjustable spouts, are all features of the invention. Each spout comprises an elongated portion 8, and a portion 9 divergent toward a structure 12 and merging into or connected by a band 10 which surrounds, movably embraces, and rides upon the hollow structure 12. Spacer rings 13 are employed to separate the elements 9 and to secure them against movement upon the structure 12 in a direction axial thereto. By this means the spouts are mounted to have pendular motion, about the drum 12 as an axis, and it will be seen by an inspection of Figure 3 that inasmuch as the arc of swinging movement is comparativly small, (about sixty degrees) little force is required to swing the spout to position it for registration with the leads or passages to the bins. Therefore this structure lends itself to remote control, in that little force is required to adjust it.

Referring to Figures 1 and 3, a structure

is provided having an arcuate channel 15, the bottom of which is curved on a radius having the axis of the hollow cylinder 12 as a center. Leading from the bottom of this guide-channel are two rows of spout-receiving openings or passages generally indicated at 20, a passage for each bin or car. Referring to Figure 1, the bins, only some of which have been shown, are generally indicated at 21. Leading from each passage 20 is a spout 23 leading to a respective bin. Of course there is no intention to be limited to the number of passages 20 inasmuch as they may be increased and decreased according to the desired size or capacity of the installation.

Referring to Figure 4, the width of channel 15 is such as to receive and form a guide for the lower ends of two opposingly related spouts 7, to prevent movement in a direction of the axis of the cylinder 12. Thus the sides 25 of the channel 15 prevent movement of each spout in one direction, while the partition element 26 prevents movement of each spout in an opposite direction. This is a feature of the invention because it prevents such movements of the elements 7 as would cause a deposit of grain otherwise than in one of the passages 20.

Referring now to Figures 3 and 4, the lower ends of the portions 8 lie just above and therefore clear the top of the partitions 27 which define the passages 20, or just clear of the bottom of the guide channel 15. The tops of these partitions lie on a curved line having the axis of the cylinder as a center.

In order that each spout portion 8 can be properly connected with a particular passage 20, so that all the grain passing through the spout will be caused to enter a particular passage, the lower end of each spout portion 8 is provided with a telescopically arranged spout extension 30. These extensions are shown in raised position in Figure 4, and in lowered position in Figure 3. As soon as the element 8 is swung into alignment with one of the passages 20, the element 30 is projected into the passage as shown in Figure 3, whereby the element 8 is thereafter held against movement, and whereby the grain can only pass into that particular passage 20 into which the element 30 extends.

The distributing spouts 23, although shown herein as rigid, may be and often are, adjustable, and for this and other reasons the attendant on the bin floor indicated at 35, see Figure 1, desires to have the means for controlling the spout 7 operable from this point. For this purpose the band 10 or equivalent element swingingly securing the pendular spout, has attached thereto two cables, one attached as at 40 and the other attached as at 50, and extending partly around the band in opposite directions. The cable 51 attached at one end at 50, passes over a pulley 52, then rearwardly and downwardly over a pulley 53, thence to a control wheel 54 around the control wheel then again upwardly over an idler wheel 56 thence to pulley 57, forwardly to pulley 58 and around the drum in an opposite direction to be connected at 40. The wheel 54 is a kind of dial and is provided with numbers corresponding in number to that of the passages 20. When the wheel 54 is operated the element 8 will be correspondingly moved to alignment with one of the passages 20. Inasmuch as the mechanism for moving each leg is substantially identical, only one has been described. Moreover there is no intention to be limited to a two leg or two spout construction.

Means is also provided operable from the bin floor to raise and lower each spout extension 30, and means is also provided whereby a signal is given as soon as the spout extension is properly positioned in one of the passages 20. Referring to Figures 3 and 4 the signal means, in this instance, comprises a gong 60 with which is associated a clapper 61 pivoted at 62 upon the portion 8 of the spout. A clapper retraction spring is shown at 63. The stop 59 carried by the control cable 64 engages the clapper, after element 30 has entered a passage 20, see Figure 3, and causes it to ring the gong.

The element 64 is connected as at 65 to the element 30, and passes upwardly over a pulley 66, thence over a pulley 67 through the drum (see Figure 4) to a pulley 68, and downwardly to the bin floor ending in hand grip 69, see Figure 2.

I claim as my invention:

1. In combination a pair of elevator legs, a structure providing two parallel rows of passages, a hollow support arranged above the passages, a pair of spouts attached to the hollow support to swing independently as pendulums and in planes with the respective passages, each spout having a spout extension translatable thereon to enter any passage of the corresponding row when aligned therewith, and spouts establishing communication between the delivery end of each leg and corresponding pendular spout, in a manner to maintain communication between each leg and its pendular spout for all angular positions of said spout.

2. In combination with an elevator leg a structure providing a row of passages, a hollow cylindrical structure supported above said passages and having an arcuate opening in the lowermost portion of its wall, a spout having an upper open end engaged with the outer surface of the cylindrical structure and in register with said arcuate opening, means securing the spout to the support for pendular motion about the support as a center, a spout extension translatable upon said spout to enter any passage when aligned therewith, and a spout establishing communication between the delivery end of said leg and said

arcuate opening to deliver therethrough, the areas of the arcuate opening and of the upper open end of the pendular spout being such that delivery communication is maintained for all angular positions of said pendular spout.

3. In combination with an elevator leg, a plurality of bins, a structure above the bins providing an arcuate depression and a row of passages leading from the bottom of said depression, a hollow support arranged over the passages, a spout arranged upon the hollow support to swing as a pendulum in the same plane as the passages and having an extension spout translatable thereon to enter any passage when aligned therewith, means for swinging the spout to bring the extension into registrable opposition to any passage, means for manipulating said extension spout to engage it with and disengage it from a passage, a spout connecting the delivery end of the leg with said pendular spout through said hollow spout supporting structure, the sides of said arcuate depression acting as guides to prevent lateral movement of the spout with respect to the openings, and signal means automatically operable, after the spout extension has entered a passage.

4. In combination with an elevator leg, a structure providing passages, a tubular support, a tubular spout connected to the support to swing, said tubular support having an opening adapted to establish communication between its interior and said swingable spout for all positions of the spout, a tubular element establishing communication between the delivery end of the leg and said opening, and means for swinging said spout for registration with any passage.

5. In combination with an elevator leg a structure providing passages, a tubular support, a spout connected to the support in a manner to swing about its axis, said tubular support having an opening adapted to establish communication between its interior and said swinging spout for all positions of the spout, a tubular element establishing communication between the delivery end of the leg and said opening, and means connecting with the spout in its pivoted region adjacent its top for swinging it and bringing it to register with any selected passage.

6. In combination with an elevator leg a structure providing passages, a tubular support, a spout having a tubular portion telescopically engaging said tubular support and adapting said spout to swing about the axis of said support, said tubular support having an opening adapted to establish communication between its interior and said swinging spout for all positions of the spout, and a tubular element establishing communication between the leg and said opening.

7. In combination with an elevator leg a structure providing passages, a tubular support, a spout having a tubular portion telescopically engaging said tubular support, and adapting said spout to swing about the axis of said support, said tubular support having an opening adapted to establish communication between its interior and said swinging spout for all positions of the spout, a spout establishing communication between the delivery end of the leg and said opening, and means operating upon the telescopic portion of the spout for swinging it and bringing it to register with any selected passage.

8. In combination with an elevator leg a structure providing passages, a tubular support, a spout having a tubular portion telescopically engaging said tubular support, and adapting said spout to swing about the axis of said support, said tubular support having an opening adapted to establish communication between its interior and said swinging spout for all positions of the spout, a tubular element establishing communication between the delivery end of the leg and said opening, said spout having a telescopic spout extension adapted to enter any passage when aligned therewith, means for operating said extension to insert it into and withdraw it from a passage, and signal means automatically operable after entry of said extension into a passage.

In witness whereof, I have hereunto set my hand this 10th day of October, 1928.

EMIL C. UMBREIT.