

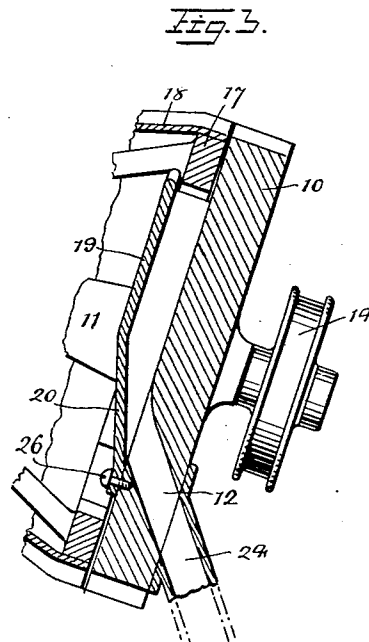
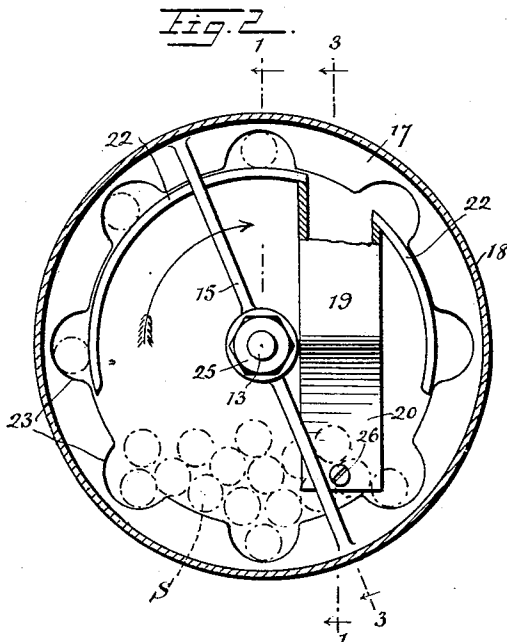
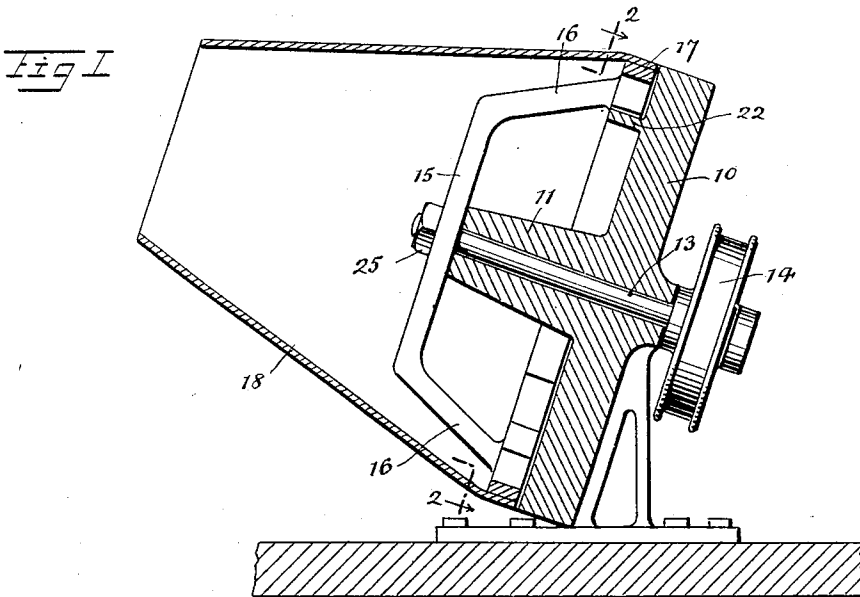
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FEED MECHANISM

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FEED MECHANISM

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This invention has relation to feeding mechanisms and refers more particularly to a mechanism for feeding slugs or disks to a means for forming collapsible tubes therefrom.

An outstanding object of the present invention is to provide a mechanism for singly feeding and delivering to a suitable conveyer or chute, metal disks or slugs so that the same will be disposed in a predetermined position when received by the conveyer or chute.

A further object of the invention resides in the provision of a feeding mechanism, the elements of which may be readily disassembled to facilitate the adjustment thereof whereby the same will compensate for variation in the thickness and size of the slugs or disks.

The invention furthermore contemplates a feeding mechanism which is so constructed as to positively preclude marring, scratching, or otherwise defacing the slugs and which reduces to an absolute minimum the possibility of clogging or wedging of the slugs between the moving parts.

A further feature of the invention resides in the provision of a guard element for preventing the feeding of more than a single slug to the delivery chute.

The invention furthermore comprehends a feeding mechanism which is extremely simple in its construction and mode of operation, which is comparatively inexpensive to produce and install, and which is highly efficient in its purpose.

With the above recited and other objects in view, reference is had to the following specification and accompanying drawings, in which there is exhibited one example or embodiment of the invention, which is in no way intended as a limitation upon the scope of the appended claims as it is to be clearly understood that variations and modifications which properly fall within the scope of said claims may be resorted to when found expedient.

In the drawing—

Figure 1 is a sectional view through the feeding mechanism taken approximately on the line indicated at 1—1 in Fig. 2.

Fig. 2 is a sectional view taken approximately on the line indicated at 2—2 in Fig. 1.

Fig. 3 is a fragmentary sectional view taken approximately on the line indicated at 3—3 in Fig. 2.

Referring to the drawings by characters of reference 10 designates a stationary base which is preferably of circular formation and disposed slightly at an angle to the vertical, the same being provided with an axially projecting bearing boss 11 and a delivery passage 12. A spindle or shaft 13 extends through the base and is mounted for rotation in the bearing boss, the same having keyed or otherwise attached to its lower end a driving element 14 such as a pulley disposed exteriorly of the base and adapted to be suitably connected with an actuating mechanism, not shown. At its opposite end the spindle or shaft 13 has connected therewith for rotation a yoke 15, the free ends of the arms 16 of which are connected with an annulus 17 disposed in slightly spaced parallel relation to the upper or inner face of the base 10. A substantially frusto-conical hopper 18 has its lower enlarged end positioned over and secured to the outer periphery of the annulus, the upper reduced end of said hopper being opened to permit of the introduction thereto of the disks or slugs S. A guide trough 19 of channel shape in cross section is secured to the upper or inner face of the base 10 with its lower angularly disposed end 20 registering with the inner end of the delivery passage 12 and with its upper open end 21 in alignment with the inner periphery of the annulus 17. Arcuate guard flanges 22 protrude outwardly from the inner or upper face of the base 10 and extend from the opposite sides of the upper open end 21 of the trough 19 to points below the axial center of the annulus. The inner periphery of the annulus is provided with circumferentially and equidistantly spaced substantially semi-circular feeding notches 23 which are each adapted upon rotation of the annulus and hopper to receive and carry a single slug upwardly for delivery through the trough 19 to the delivery passage 12, the guard flange 22 functioning to prevent displacement of the slugs from

the feed notches until they reach the upper open end of the trough 19. Due to the fact that the annulus is of a thickness approximately equal to the thickness of the slugs or disks S and that the depth of the notches coincides with the diameter of the slugs, it is obvious that only a single slug can be picked up by the feed notches and that the same of necessity must be delivered in a predetermined position to the trough and feed passage. The lower end of the feed passage 12 has connected and communicating therewith a conveyor chute 24 which leads to the forming means.

In order to render the hopper and annulus readily detachable to substitute annuluses of various thicknesses and having feeding notches of varying sizes to coincide with slugs of different thicknesses and sizes, the yoke 15 is detachably maintained in place by a nut 25 threaded on the upper end of the spindle or shaft 13, to which access may be readily gained through the upper open end of the hopper. When the hopper and annulus are removed, the trough 19 which is also detachably secured in place by a screw or other fastening element 26 is readily accessible for replacement.

In use and operation a quantity of slugs or disks S are introduced to the hopper through its upper open end; the hopper and annulus are rotated through the spindle connected with the yoke, the rotation of the hopper together with the yoke arm 16 serving to agitate the slugs. The slugs are singly picked up by the notches 23 and carried to the upper open end of the trough 19 where they are gravitationally fed therethrough successively to the feed passage 12 and conveyor chute 24. This insures a positive feeding of the slugs in a predetermined position to the forming means, while precluding the possibility of marring, scratching or defacing of the slugs or clogging of the moving parts of the mechanism.

What is claimed is:

1. A mechanism for feeding slugs or disks to a delivering chute, comprising an inclined hopper adapted to receive a supply of said disks or slugs, the hopper including a substantially frusto-conical rotatable body, a stationary base disposed over and constituting a bottom wall for the lower enlarged end of the hopper, said base having a delivery passage extending therethrough communicating with the delivering chute, an annulus arranged within and connected to the lower end of the hopper body for rotation therewith, said annulus being disposed in closely spaced parallel relation to the inner and upper face of the base and having circumferentially spaced substantially semi-circular feeding notches in its inner periphery, an axial bearing boss extending inwardly from the base, a spindle extending through the base

and bearing boss, having detachable means of connection at its inner end with the annulus and hopper body and adapted to be driven at its outer end for rotating the hopper body and annulus, a feed trough provided on the inner upper face of the base communicating at its lower end with the delivery passage and having an upper open receiving end disposed within the inner periphery of the annulus, and guard means extending from the trough around the inner periphery of the annulus to a point below the axial center whereby the slugs picked up by the feed notches are maintained within the same by said guard means until they are gravitationally discharged therefrom into the upper open end of the trough for gravitational feeding therethrough and through the delivery passage to the chute.

2. In a feeding mechanism of the character set forth, an angularly disposed hopper including a rotatable substantially frusto-conical hopper body, a stationary base directly overlying the lower end of the hopper body to constitute a bottom wall therefor, said base having a delivery passage eccentric thereof and adjacent the lower portion, an axial bearing boss projecting inwardly of the hopper from the base, an annulus disposed within and connected to the lower end of the hopper body, having its lower face in closely spaced relation to the upper inner face of the base, said annulus having a plurality of circumferentially spaced feeding notches formed on the inner periphery, a driven spindle extending through the base and bearing boss, a yoke connected with the annulus, having a detachable driving connection with the inner end of the spindle, a trough attached to the inner upper face of the base, communicating at its lower end with the delivery passage and having its upper open end arranged in close proximity to the inner periphery of the annulus, and guard fingers on the inner upper face of the base extending from opposite sides of the trough around and within the inner periphery of the annulus to a point below the axial center, whereby upon rotation of the hopper and annulus, the elements to be fed, which are arranged within the hopper body, are singly picked up by the feeding notches and conveyed upwardly to the trough where they are gravitationally fed therethrough and through the delivery passage to the chute.

3. In a feeding mechanism of the character set forth, an angularly disposed hopper including a rotatable substantially frusto-conical hopper body, a stationary base directly underlying the lower end of the hopper body to constitute a bottom wall therefor, said base having a delivery passage eccentric thereof and adjacent the lower portion, an axial bearing boss projecting inwardly of the hopper from the base, an annulus disposed within and con-

5 nected to the lower end of the hopper body,
having its lower face in closely spaced rela-
tion to the upper inner face of the base,
said annulus having a plurality of circum-
ferentially spaced feeding notches formed on
the inner periphery, a driven spindle extend-
ing through the base and bearing boss, a yoke
connected with the annulus, having a detach-
able driving connection with the inner end
10 of the spindle, a trough attached to the inner
upper face of the base, communicating at its
lower end with the delivery passage and hav-
ing its upper open end arranged in close
proximity to the inner periphery of the annu-
15 lus, and guard flanges on the inner upper face
of the base, extending from opposite sides of
the trough around and within the inner pe-
riphery of the annulus to a point below the
axial center, whereby upon rotation of the
20 hopper and annulus, the elements to be fed,
which are arranged within the hopper body,
are singly picked up by the feeding notches
and conveyed upwardly to the trough where
they are gravitationally fed therethrough
25 and through the delivery passage to the
chute, the upper open end of the hopper con-
stituting means for introducing the elements
to be fed therethrough, and means for gain-
ing access to the means for connecting the
30 spindle with the yoke, whereby disconnec-
tion thereof may be effected for disassem-
bling the device.

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