

No. 640,263.

Patented Jan. 2, 1900.

H. BERNHARD.  
ROLLER MILL FEEDER.

(Application filed Aug. 28, 1899.)

(No Model.)

Fig. 1.

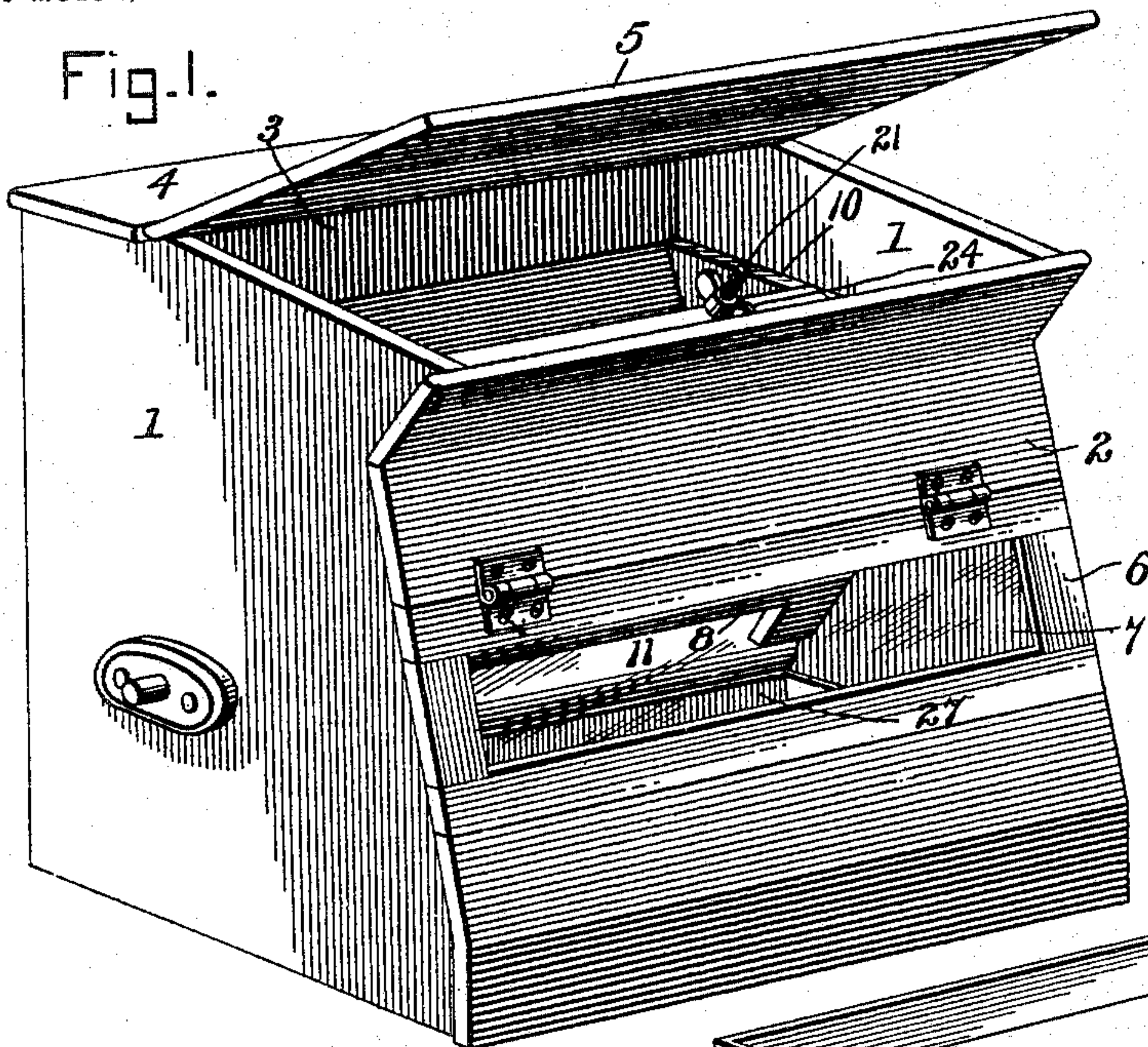


Fig. 2.

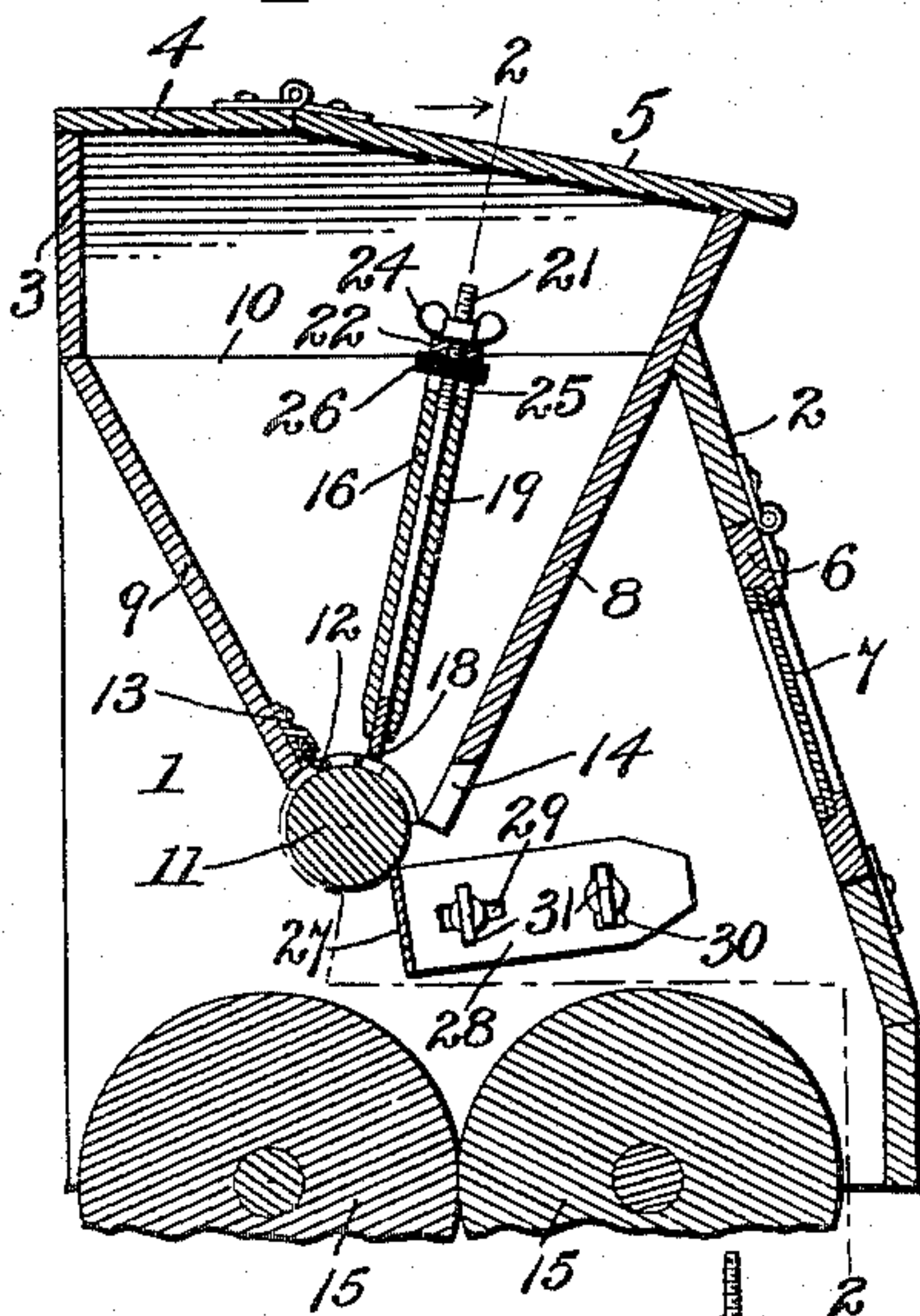


Fig. 5.

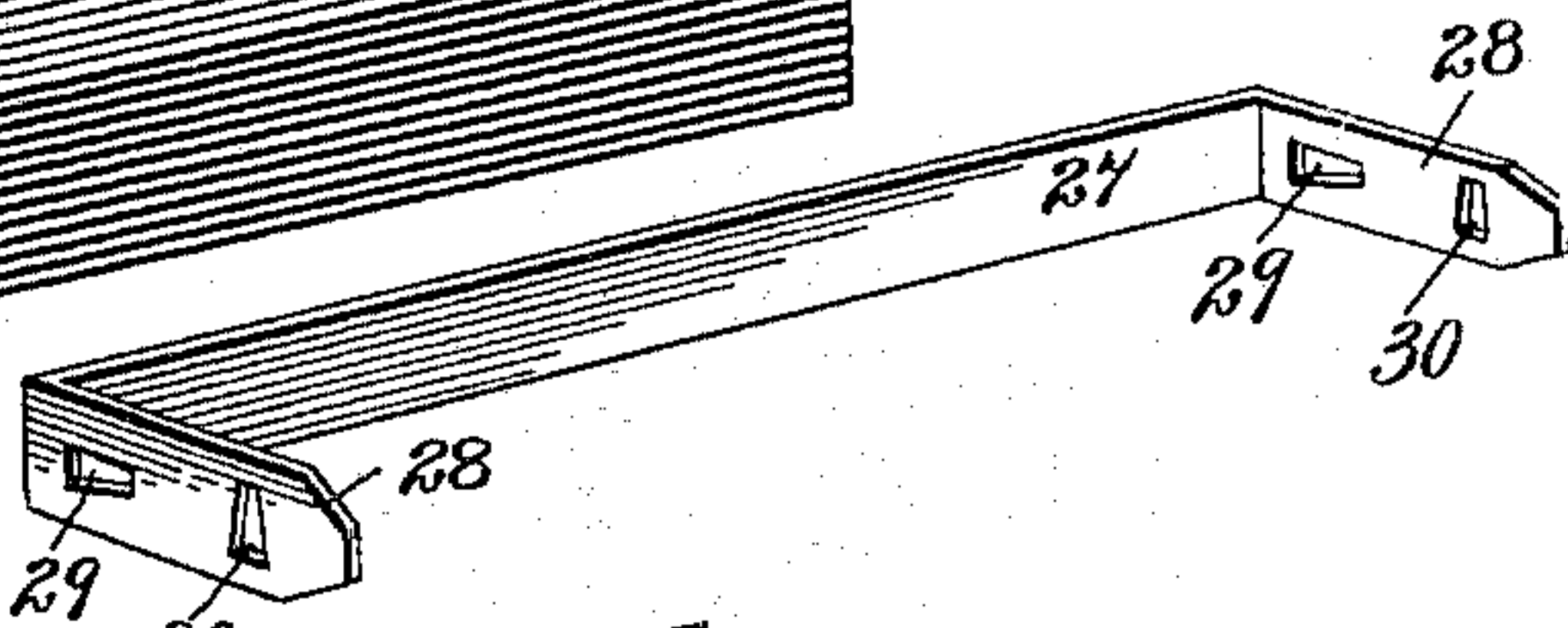


Fig. 3.

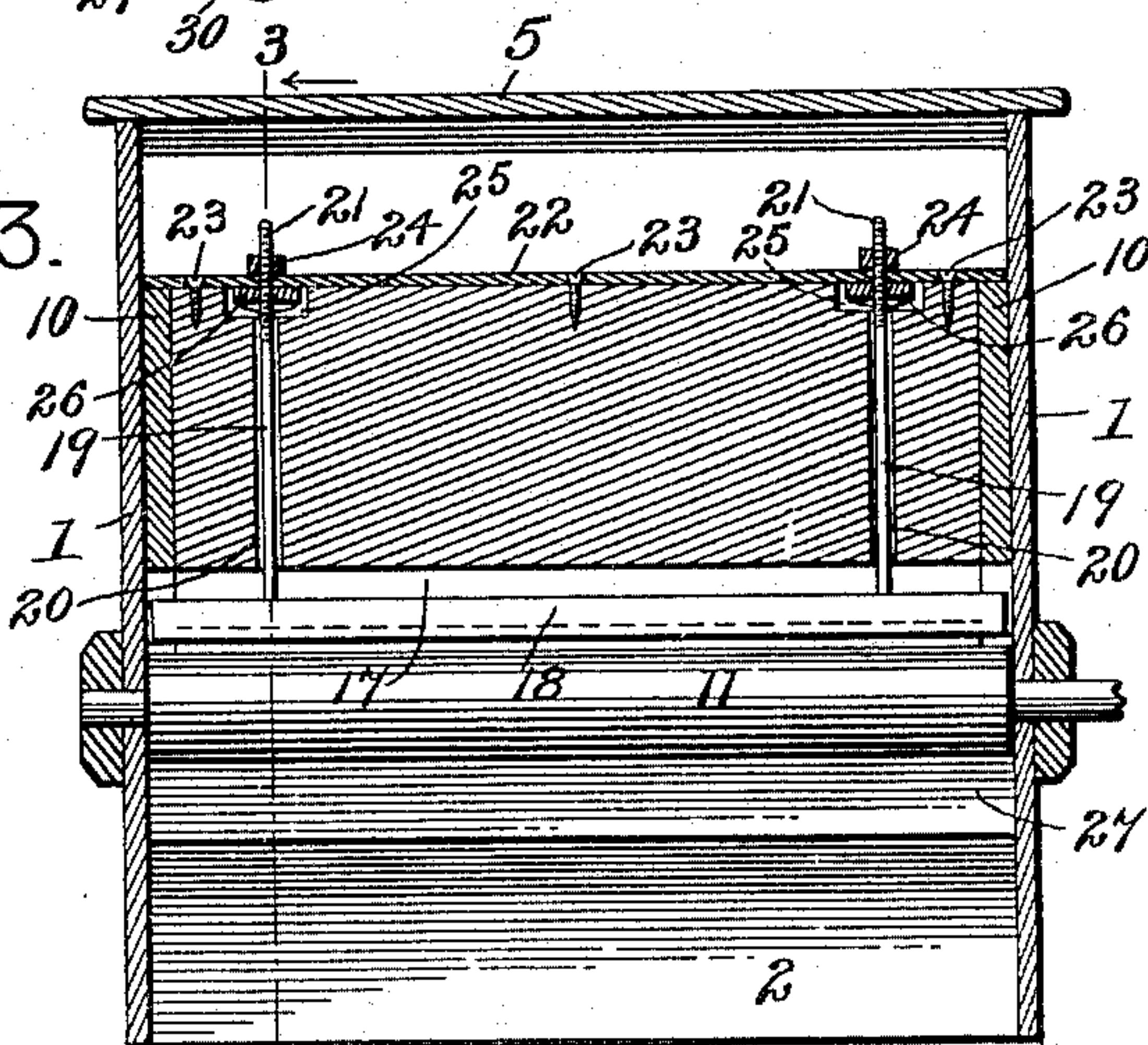
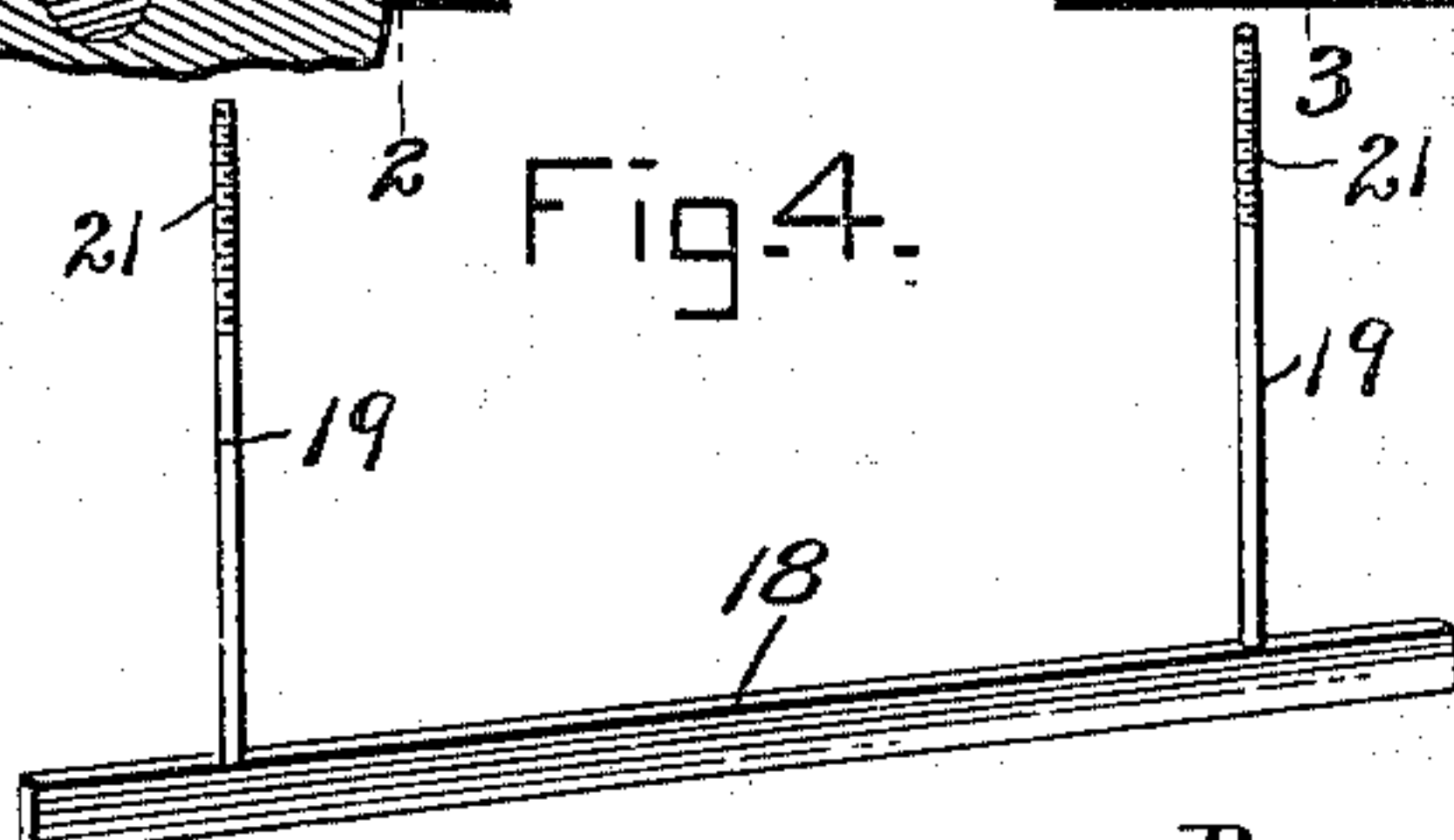


Fig. 4.



Witnesses  
Edwin S. McKee.  
R. M. Smith.

Inventor  
Henry Bernhard.  
By *E. J. Singer*  
Attorney



# UNITED STATES PATENT OFFICE.

HENRY BERNHARD, OF STRASBURG, ILLINOIS.

## ROLLER-MILL FEEDER.

SPECIFICATION forming part of Letters Patent No. 640,263, dated January 2, 1900.

Application filed August 28, 1899. Serial No. 728,777. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY BERNHARD, a citizen of the United States, residing at Strasburg, in the county of Shelby and State of Illinois, have invented a new and useful Roller-Mill Feeder, of which the following is a specification.

This invention relates to feeders for roller-mills; and the object in view is to provide a feeding device in the form of an attachment which may be easily and readily applied to the ordinary roller-mill in common use and which is simple in construction and reliable in operation.

One of the principal objects of the present invention is to provide, in connection with a feeding-roller, a feeder-gate which is housed within the casing of the attachment and which is movable toward and away from the feeding-roller by mechanism which is capable of being adjusted so as to hold the feeder-gate at any desired distance from the feeding-roller and maintain the distance desired without danger of varying the feed, thus causing the stock to fall in an even stream upon and between the grinding-rolls.

A further object of the invention is to provide, in connection with the feeding-roller, a scraper so constructed and arranged that it is capable of a double movement, one movement being toward and away from the feeding-roller in a rectilinear path and the other movement toward and away from the feeding-roller in a curved path, whereby an even adjustment may be obtained and the scraper at the same time arranged at a point where it will not interfere in the least with the discharge of the stock from the feeding-roller and the grinding-rollers.

By means of the construction hereinafter described the feeding-gate is rigidly held in its relation to the feeding-roller, and the stock is spread in a straight line along the gate and throughout the length of the roller in an even stream. The adjusting means are all located within the casing of the attachment, and at the same time there are no screws or small nuts to get loose.

The invention consists in a feeder for roller-mills embodying several novel features and details of construction and arrangement of parts, as hereinafter fully described, and illus-

trated in the drawings and incorporated in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a feeder constructed in accordance with the present invention, showing the upper lid raised. Fig. 2 is a vertical cross-section taken on the line 3 3 of Fig. 3. Fig. 3 is an oblique longitudinal section taken on the line 2 2 of Fig. 2. Fig. 4 is a detail perspective view of the feeder-gate and its threaded stems. Fig. 5 is a similar view of the scraper.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

The attachment serving as a feeder for roller-mills as contemplated in this invention comprises a casing within which the operative parts of the feeding mechanism are housed. This casing consists of parallel sides 1, an inclined front 2, a back 3, and a top 4, embodying a hinged section 5, forming the lid or cover of the attachment, which may be raised and thrown backward for giving access to the interior of the casing. The front 2 is also provided with a hinged section forming a door 6, which is provided with an observation-panel or glass-covered opening 7, through which the operation of the feed may be inspected without opening the casing. The casing also comprises downwardly-converging sides or front and back 8 and 9, connected at their edges to the sides 1 of the casing and properly positioned by means of wedge-shaped pieces 10, shaped to conform to the cross-sectional shape of the interior portion of the casing. The feed-roller 11 is arranged between the lower edges of the parts 8 and 9, whereby the flour or other stock is directed upon said feed-roller. The rear wall 9 of the hopper has applied thereto a protection-strip 12 for establishing a closed joint between said side of the casing and the feed-roller and preventing the escape of the stock at that point. The strip is preferably composed of rubber or other flexible or elastic material secured to the part 9 by means of a metallic clamping-strip 13, the said flexible strip bearing at all times against the feed-roller. The front wall 8 is cut out in its lower edge to form a discharge-opening 14, enabling the stock to pass downward between the grinding-rolls 15,



which are arranged in parallel relation to each other and to the feeding-roller, at a suitable distance beneath said feeding-roller, the relative disposition of said parts being such  
5 that the stock is deposited in a stream from the feeding-roller into the space between the grinding-rolls.

Arranged within the hopper-like compartment comprised between the walls 8 and 9 is  
10 a division-piece or deflection-board 16. This board is set at an inclination or oblique angle, and its side edges are received in grooves in the pieces 10 at the ends of said compartment. The board 16 is provided in its bot-  
15 tom edge with a groove 17, in which is placed a metallic strip 18, forming a feeder-gate. This strip 18 is adapted to be moved laterally within the groove 17 and toward and away from the feed-roller. The gate 18 is provided  
20 with a plurality of stems 19, which extend through openings 20 in the board 16, said stems being screw-threaded at their upper ends, as shown at 21. Applied to the upper  
25 edge of the board 16 is a metallic strip 22, corresponding, approximately, in width to the thickness of the board 16 and of the same length as said board, the strip being secured by means of screws 23 or other suitable fasteners. The stems of the gate also pass  
30 through openings in the strip 22 and receive thumb-nuts 24, which bear against said metal strip, for the purpose of adjusting the feeder-gate up and down, toward, and away from the feed-roller. The board 16 is also provided in  
35 its upper edge with recesses 25, one recess being provided for each gate-stem, and within said recesses are arranged peripherally-milled jam-nuts 26, which are also adapted to bear against the metal strip 22 and lock the thumb-  
40 nuts against accidental turning.

By means of the construction above described the feeder-gate may be accurately adjusted with respect to the feed-roller, and any desired distance may be left between said  
45 parts for maintaining a rigid and uniform feed of the material to the grinding-rollers. The adjusting mechanism is also housed entirely within a casing, where it is not liable to be interfered with by unauthorized persons.

50 In the lower portion of the casing there is provided a scraper 27, consisting of a metal strip of suitable width extending lengthwise of the casing and feed-roller and having its end portions bent at right angles to form extensions 28, which are parallel to each other and  
55 which project from the same side of the body portion of the scraper 27. The angular extensions 28 bear against the end walls of the casing, and each extension is provided with two slots 29 and 30, the slot 29 nearest the  
60 body portion 27 running longitudinally of the extension and the slot 30 extending transversely thereof. Passing through the slots of each extension are binding-screws 31, having  
65 shoulders which bear against the extensions 28 and threaded shanks which engage the end walls of the casing. The screws 31

serve both as guides and supports for the scraper and also as fastening means therefor when the scraper has been properly ad- 70  
justed. The body portion of the scraper extends in parallel relation to the feed-roller and with one edge in close relation to or in actual contact with said roller. Ordinarily it is preferred to use a corrugated feed-roller; 75  
but it matters not whether a smooth or corrugated roller is employed the scraper may be adjusted in close relation and at the proper angle to the feed-roller for effectually removing surplus material therefrom. By 80  
having the slots arranged one longitudinally and the other transversely of the extensions the scraper is capable of adjustment in two directions. It may be adjusted bodily in a straight line toward and away from the feed- 85  
roller and in a direction substantially tangential thereto, and it may also be moved in a curved path, turning upon the screws which are nearest to the body portion of the scraper as a center. In this way a fine and accurate 90  
adjustment is obtained, and at the same time the scraper is arranged where it will not interfere with the passage of the stock to the grinding-rolls. In fact it is located in such position as to act as a deflecting medium for 95  
directing the stream of flour or other material to the space which intervenes between the grinding-rolls. The adjusting means for the scraper are also located within the casing and not subject to interference on the part of 100  
bystanders.

By means of the construction above described a rigid and uniform feed is obtained, by means of which the material is supplied in an even stream to the grinding-rolls, the 105  
line of feed extending lengthwise of the feed-roller and from end to end thereof. The amount of feed may be easily regulated by properly adjusting the feed-gate, and when properly adjusted there is no danger of said 110  
gate becoming accidentally shifted, as it is locked in its adjusted position. It will also be seen that the scraper is capable of a double movement, thereby enabling it to be ad- 115  
justed readily in proper relation to the feed-roller for scraping surplus material therefrom, and the feed-gate and scraper, as well as the adjusting mechanism therefor, are all located within the casing. Should for any reason the feeder-plate be set too close to the 120  
feed-roller and the stock flow in faster than the feeding-space will permit, the machine will not choke up even though the hopper overflows. When the hopper becomes full, the grinding-rolls will produce a rumbling 125  
noise, thereby giving a signal to the operator to check the flow of material to the hopper or to open the feeder-plate to a greater extent.

From the foregoing it is thought that the construction, operation, and many advantages 130  
of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, pro-



portion, and minor details of construction may be resorted to without departing from the spirit or scope of the invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A feeder for roller-mills, comprising a casing having downwardly-converging walls and a feed-roller adjacent to the bottom edges thereof, one of said walls being provided in its bottom edge with a longitudinal groove facing downward, a feed-gate mounted to move up and down in said groove and provided with a stem extending upward through an opening included within said wall, and an adjusting device contained within the casing and coöperating with said stem for setting the gate, whereby the gate may be adjusted toward and away from the feed-roller and

held when adjusted, substantially as specified.

2. In a feeder for roller-mills, the combination with a casing, and a feed-roller mounted therein, of a scraper having its body portion arranged parallel to the feed-roller, rigid angular extensions at the ends of the scraper each provided with longitudinal and transverse slots, and clamping-fasteners passing through said slots into the casing, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY BERNHARD.

Witnesses:

A. F. ALLEN,  
HUGH S. LILLY.