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H. L. JOHNSTON

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MEAT CHOPPER

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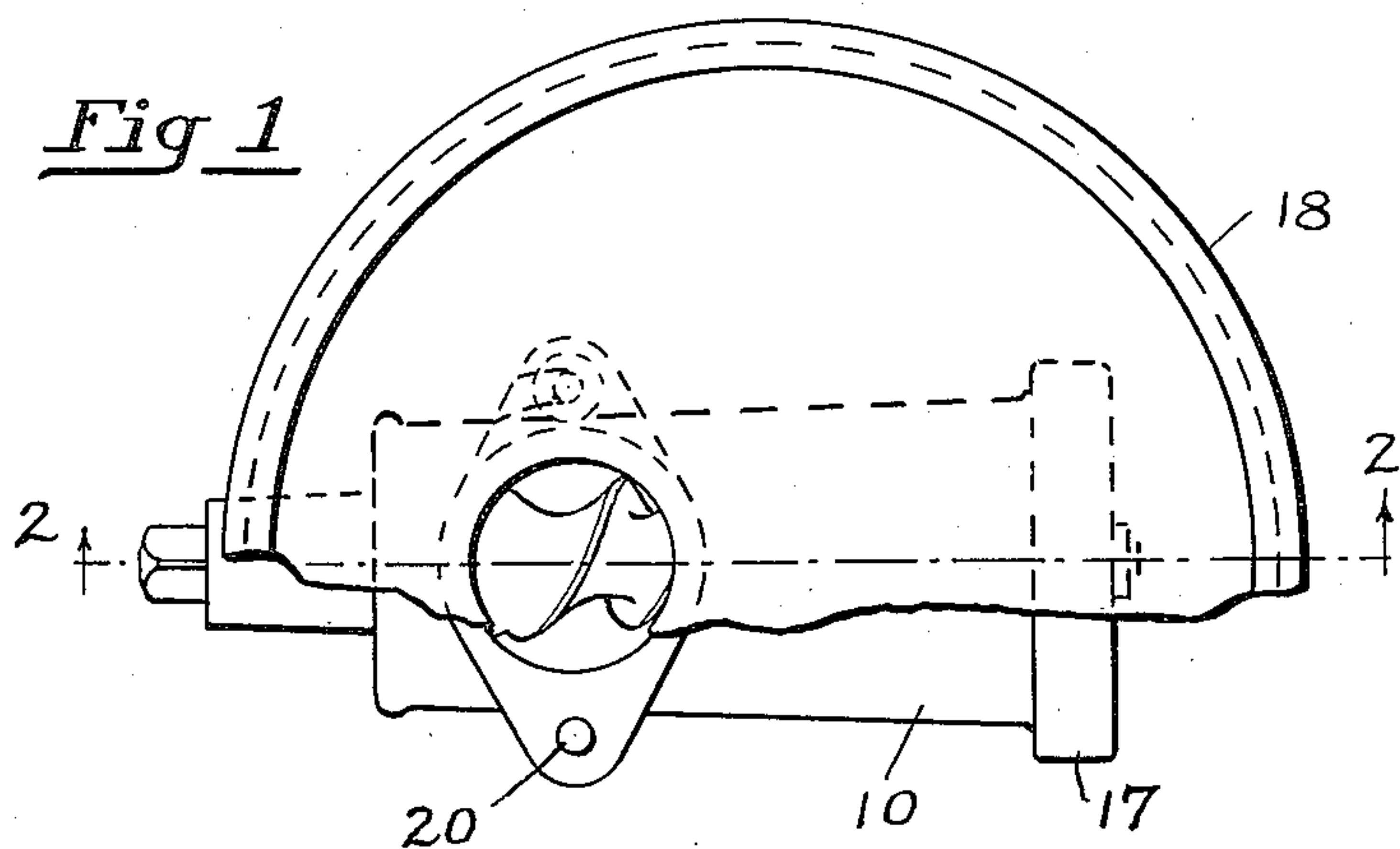


Fig-5

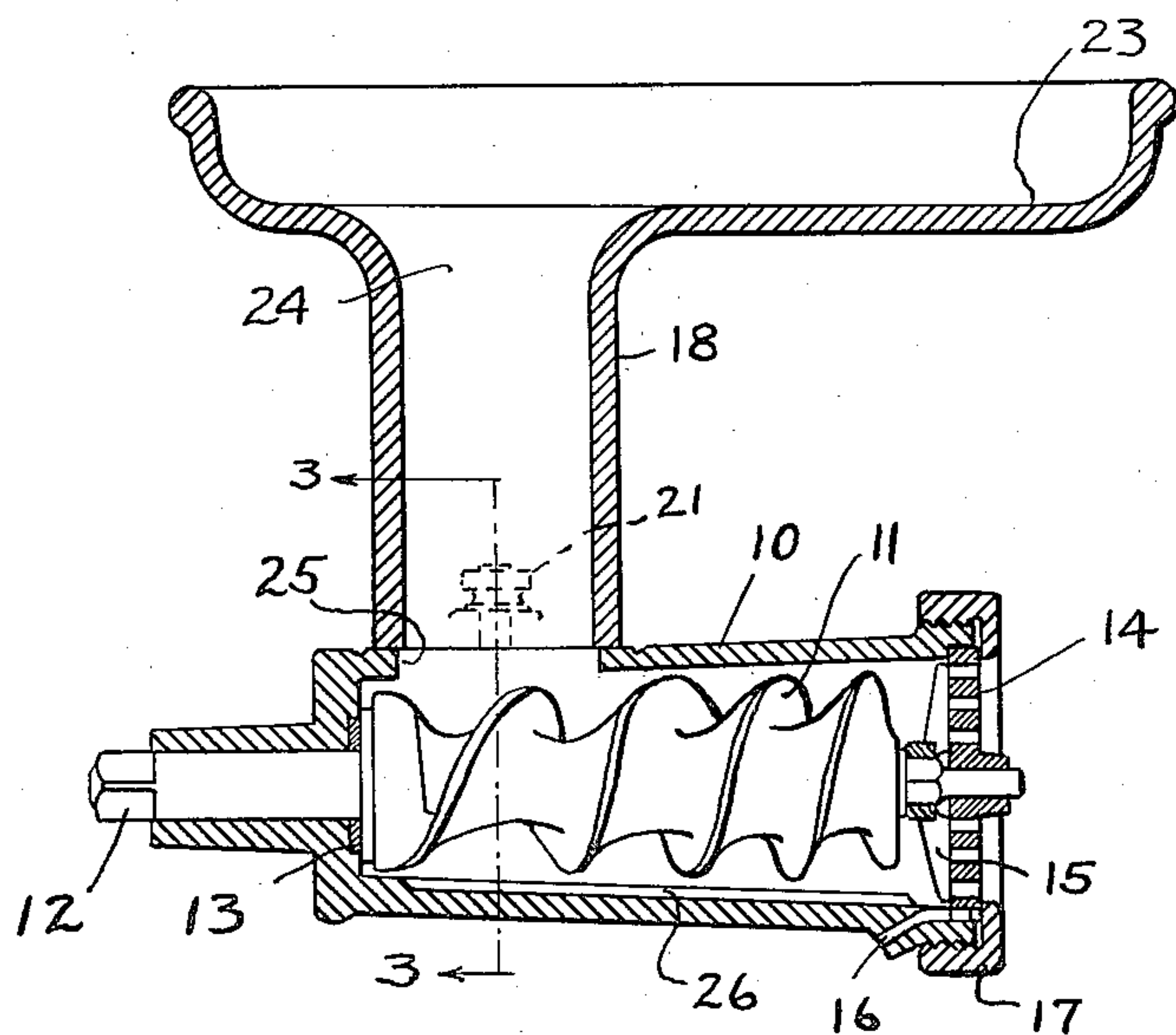


Fig-2

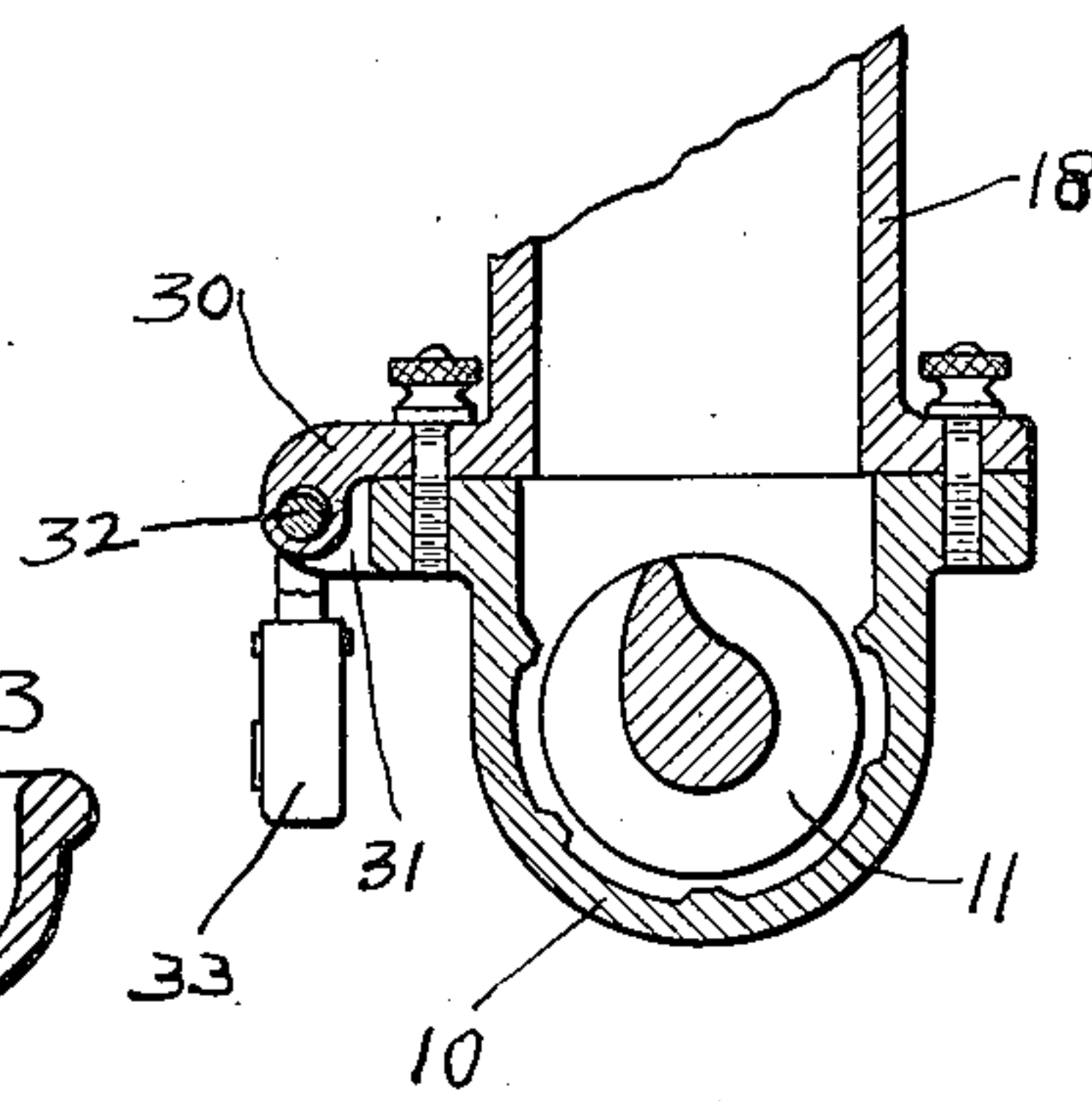


Fig-3

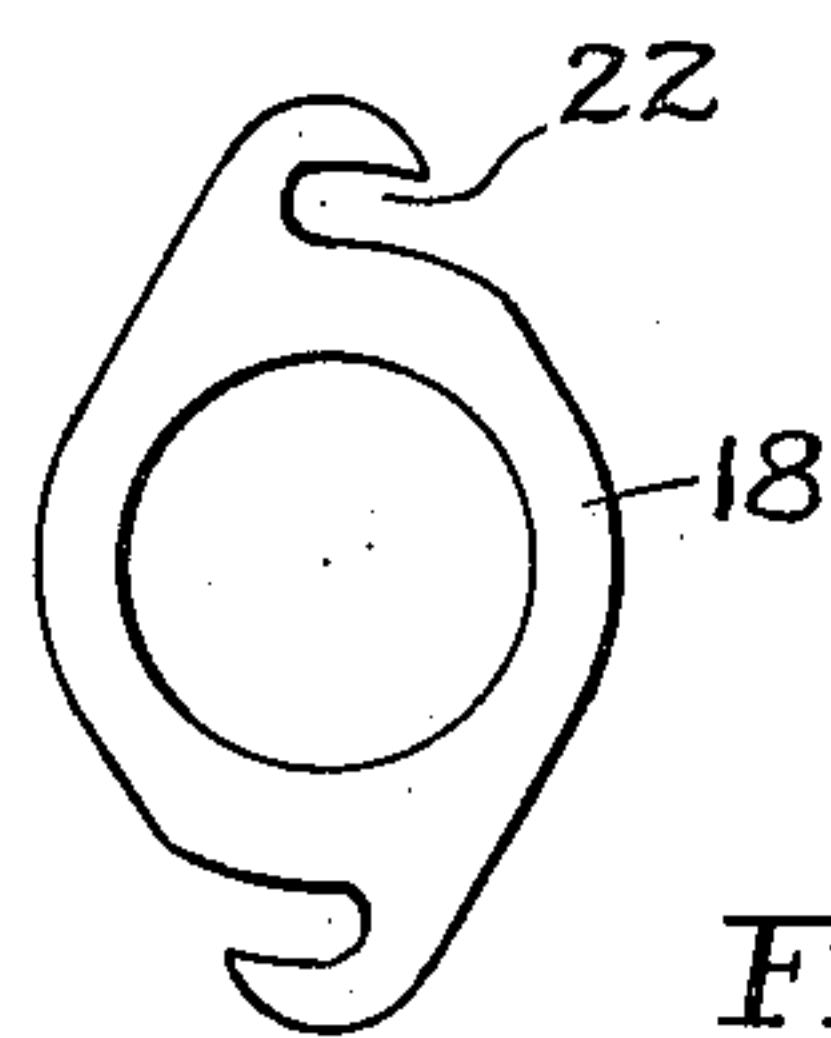


Fig-4

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## UNITED STATES PATENT OFFICE

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## MEAT CHOPPER

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Application May 22, 1931, Serial No. 539,335

1 Claim. (Cl. 146—182)

This invention relates to new and useful improvements in meat choppers, and more particularly to that type of chopper in which the meat is forced against a perforated plate, by means of a worm operating in an internally ribbed cylinder, and there cut by means of a knife revolving with said worm; such a type of chopper as is shown in my copending application Serial No. 682,688 filed December 26, 1923, which became Patent Number 1,807,574 on May 26, 1931.

One of the principal objects of the present invention is to provide a chopper of the type mentioned that will afford a maximum of safety to the operator, and yet is simple in construction and affords certain economies in manufacture.

Another object is to provide such a chopper which is formed of separable parts of such size and shape as to be readily stored in a refrigerator, to make for easy cleaning and maintenance of sanitary conditions.

Other objects and advantages will be apparent from the description and claim set out below, and the drawing.

In the drawing, in which like characters of reference refer to similar parts—

Fig. 1 is a top view of the device, part of the hopper or feed pan being broken away to better show the parts beneath;

Fig. 2 is a vertical section on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section on the line 3—3 of Fig. 2;

Fig. 4 is a bottom view of the lower end of the inlet or neck, adapted for attachment to the cylinder; and

Fig. 5 is a sectional view, similar to Fig. 3, of a somewhat modified form of construction.

In the embodiments of the invention shown in the drawing there is a cylinder 10 within which a worm 11 is designed to rotate. A driving stud 12 is squared, or otherwise formed, at the end, to afford means for connecting to a source of power for driving the worm. Suitable washers 13 are arranged to take the end thrust of the worm. A plate 14, perforated with a plurality of openings of suitable size, cooperates with the knife 15 to accomplish the cutting. The plate 14 is restrained from rotation by the small pin 16 set in the cylinder 10. The knife and plate are held adjusted in cutting contact by the threaded adjusting rings 17.

A hopper 18 provides means for feeding the meat, or other material to be chopped, into the cylinder. As in the invention of my earlier filed copending application referred to, the inlet or

neck through which the meat, or other material to be ground, is passed or fed into the chopper cylinder, is of such coordinated dimensions as to cross-sectional area and length that the operator may not extend his fingers into the path of the worm. In the present invention the inlet or neck which receives the hopper, as either an integral or separable member, retains the safety features of my earlier device, while being made separable to facilitate removal for cleaning or placing in the refrigerator, and for effecting certain manufacturing economies.

In the preferred construction shown herein, a seat 19 is formed on the cylinder to receive the lower end of the inlet or neck, this seat being formed to provide no extended passage, but being in effect flush with the outside of the cylinder, thus being quite as near the periphery of the worm 11 as the construction will permit. To this seat is secured the inlet 18 by means of studs 20 and thumb nuts 21 or other suitable means. The bottom end of the inlet 18 is shaped substantially as shown in Fig. 4, the slots 22 being designed to engage the studs 20. As shown these slots are arcuate and have a center of curvature lying within a plane passing through the longitudinal axis of the cylinder. Also they snugly receive the studs 20, the inlet being given a rotary motion in assembling. It is obvious that the hopper may be quickly detached by loosening the thumb nuts 21 and giving the hopper a slight turn. The seat 19 is shown as flat, but this is not necessary as the lower end of the inlet may be curved to conform to the curvature of the cylinders; but in either event a construction is provided which makes quite awkward and difficult the feeding of meat, or other stuffs, into the cylinder except the inlet be in place. This added difficulty, with the construction as shown, would be so great as practically to preclude the possibility of an operator purposely using the chopper without the inlet being properly attached in operative position.

However, if added certainty is desired, the construction shown in Fig. 5 may be used. As shown there, the lower end of the inlet is provided with a laterally and downwardly extended lug or locking portion 30, adapted for locking co-action with a corresponding portion 31 extending laterally from the cylinder adjacent the seat 19. These two locking extensions are provided with passages which aline when the inlet has been rotated into operative position with the slots 22 receiving the studs 20. By then passing



through these aligned passages the bolt **32** of a lock, shown diagrammatically at **33**, disassembly or separation of the inlet from the cylinder is prevented so long as the lock is in position. If the owner of a store wished to make sure that the chopper could not be operated without the safety inlet being in place, he need only lock it in position as shown. Since the arcuate slots **22** center in the diametric plane of the cylinder it may not be swung aside about one stud as a pivot while the lock is in place and because of the snug fit of the studs in the slots it may not be rocked backward about one stud as a pivot.

From the user's point of view therefore this construction affords the desired safety. From the manufacturer's point of view it permits of more simplified operations in casting or otherwise molding the cylinder with a corresponding lowering of the costs of manufacture; permits of forming the cylinder and inlet or neck of different materials, or of readily giving them different finishes, and permits of making the cylinders in various sizes to suit the capacities required, whereas one size of inlet and hopper may suffice for the whole series of cylinder sizes.

As shown the inlet or neck portion has the hopper or feed pan **23** formed integrally therewith; but, of course, this pan may be a separate part as in my aforesaid copending application.

In operation the meat or other material to be chopped is piled up in the hopper **23**. This material will have been previously cut into pieces small enough so that it will readily pass downwardly through the passage **24** in the inlet or neck. The operator then passes the pieces through the opening **24**. He can push them down into the cylinder with a "feed stick" which is of conventional form and loosely fits the bore of the neck. The opening into the cylinder through the seat is preferably made slightly larger than the opening at the bottom of the inlet passage **24**, as shown at **25**, to make sure that no ledge will

be formed to obstruct the free passage of material into the cylinder.

The worm, coacting with the usual cylinder ribs **26**, then forces the material toward the plate **14**, where it is cut by the shearing action of the knife **15** against the edges of the openings in plate **14**, and is then pushed out through the openings into a suitable receiving container.

While the forms of apparatus herein described constitute preferred embodiments of the invention, it is to be understood that the invention is not limited to these precise forms of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claim.

Having thus described the same, what I claim as novel and desire to secure by Letters Patent, is—

A meat grinder of the character described comprising a chopper cylinder adapted to receive a worm therein and having an inlet opening in the wall thereof, a seat portion carried by said cylinder and surrounding said opening, attaching lugs carried by said seat portion, a separable inlet having a passage therethrough for the feeding of meat or the like into the cylinder, the lower end of said inlet being formed to receive said seat member and having attaching lugs with arcuate slots therein adapted to receive the attaching lugs of the seat member for attaching said inlet in operative position with the passage therethrough in alignment with the opening in the cylinder wall, each arcuate slot having a center of curvature lying substantially within the vertical axis of the inlet opening, said inlet passage being so restricted as to cross-sectional area and of such proportions as to length and cross-sectional area as to prevent the operator from extending his fingers into contact with the worm, and locking means for preventing rotational movement of said inlet about the vertical axis of said inlet opening.

HERBERT L. JOHNSTON.