

No. 637,734.

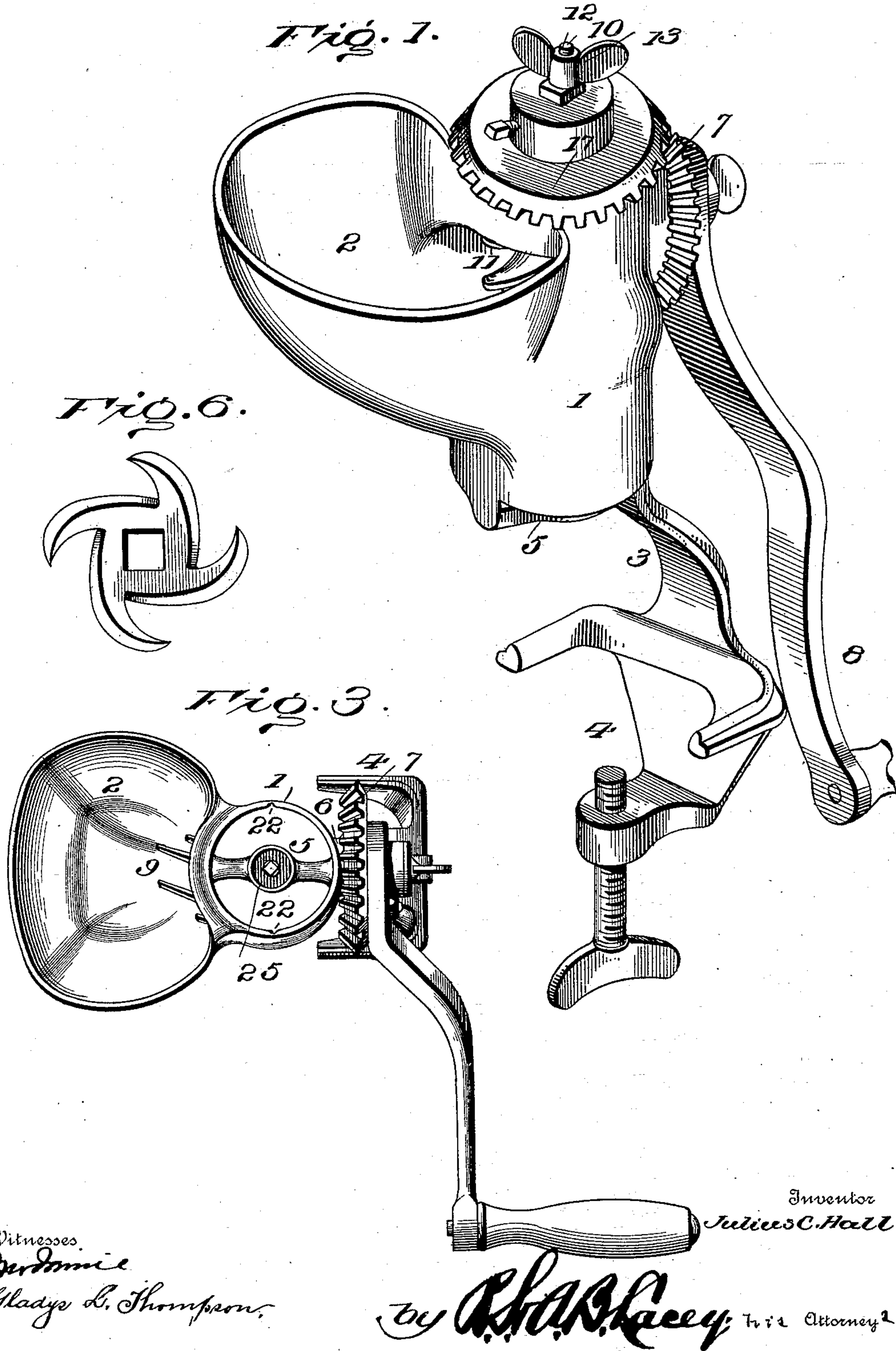
Patented Nov. 21, 1899.

J. C. HALL.
MINCING MACHINE.

(Application filed Feb. 4, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

James

Gladys L. Thompson.

Inventor

Julius C. Hall

by *A. H. B. Lacey* his Attorney

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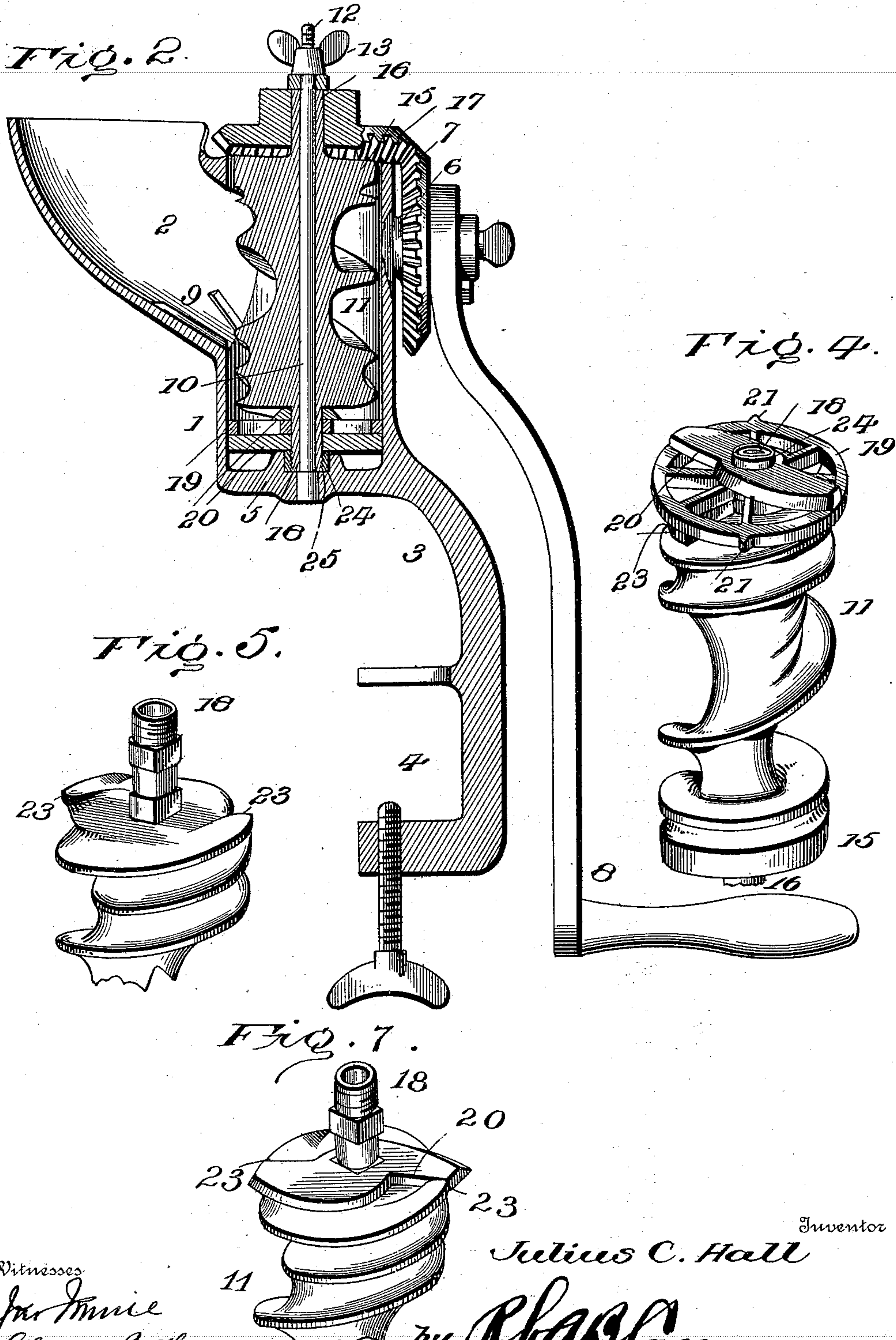
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Witnesses

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UNITED STATES PATENT OFFICE.

JULIUS C. HALL, OF WALLINGFORD, CONNECTICUT.

MINCING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 637,734, dated November 21, 1899.

Application filed February 4, 1899. Serial No. 704,569. (No model.)

To all whom it may concern:

Be it known that I, JULIUS C. HALL, a citizen of the United States, residing at Wallingford, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Mincing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its object the provision of a mincing-machine of the rotary type and embodying a force-feeder, cutters, and actuating mechanism therefor which will be capable of being quickly taken apart for cleaning, sharpening, or adjusting of the cutters or for any desired purpose and which will admit of the separated parts being easily assembled without the use of tools.

A further purpose of the invention is to dispose the parts so that juices expressed from the substance being comminuted will not escape at any point other than the common discharge, from which they will escape into the vessel or receptacle arranged for the reception of the minced substance.

The invention furthermore has for its object to so mount the force-feeder and cutting mechanism that the latter may be adjusted from without the body and while the machine is in operation, also to improve the general construction of the machine, whereby its capabilities for effective service are increased.

The invention is set forth in detail in the following description; and it consists of the novel features and combinations of parts, as more particularly recited in the appended claims.

In the drawings, Figure 1 is a perspective view of a rotary mincing-machine constructed in accordance and embodying the vital features of the invention. Fig. 2 is a vertical central section of the body, hopper, and force-feeder, the driving mechanism and clamp being shown in full. Fig. 3 is a top plan view of the frame, the force-feeder being removed. Fig. 4 is a perspective view of the force-feeder inverted and having the cutting mechanism in position. Fig. 5 is a detail view of the lower end portion of the force-feeder inverted,

the cutting mechanism being removed. Fig. 6 is a detail view of a four-armed cutter which is designed to take the place of the two-armed cutter when the mincing is required to be finer. Fig. 7 is a detail perspective view similar to Fig. 5, showing the cutter adjacent to the shouldered end of the feeder in position.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The frame of the machine consists of the vertically -arranged cylindrical body 1, the hopper 2 springing from the side of the body 1 and communicating therewith, a downwardly-extending arm 3, provided at its lower end with a clamp 4 of ordinary construction for attachment of the machine to a table-ledge or like support, and a fixed bridge-tree 5 for supporting the force-feeder and the parts attached thereto. A journal 6 projects laterally from a side of the hopper and supports the gear-wheel 7, to which the operating-crank 8 is applied. A hopper 2 flares toward its upper end, so as to receive the substance to be comminuted, and its lower outer portion curves downwardly and inwardly toward the body 1, so as to direct the substance therein and obviate the formation of any projecting part for the lodgment of the substance in its passage to the cutting mechanism. A series of ribs 9 are provided upon the inner side of the lower portion of the hopper and are obliquely arranged and serve to prevent the moving of the substance by the force-feeder to one side of the hopper.

A spindle 10 is secured at its lower end centrally of the bridge-tree 5 and rises vertically therefrom and receives the force-feeder 11. The upper end portion of the spindle is threaded for a short distance, as shown at 12, and receives a tension-nut 13 for the purpose presently to be described. A portion of the spindle adjacent to the threaded terminal 12 is made square and receives a washer, which is prevented from turning upon the spindle by reason of its frictional engagement with the upper end of the rotary force-feeder.

The force-feeder 11 is of the screw type and is mounted upon the spindle 10 and is provided at its upper end with a head 15, which

closes the upper end of the body 1, and with a vertical extension 16, to which is secured the gear-wheel 17, which is in mesh with the gear-wheel 7 and receives motion therefrom.

5 An extension 18 is provided at the lower end of the feeder 11 and receives the cutting mechanism, said extension being of such formation in cross-section as to cause the cutters to rotate therewith in the operation of the machine. A disk or plate 19 is mounted upon
10 the extension 18 between upper and lower cutters 20 of like formation, and this disk is perforated to provide escape-openings for the substance during the mincing action of the machine. This plate or disk 19 acts conjointly
15 with the cutters 20 to comminute the substance passing through the machine. The plate 19 is fixed and is prevented from turning in any desired manner, and, as shown, it
20 is formed with outwardly-extending lugs 21, which enter vertical grooves 22, formed in the inner walls of the body 1. The lower end of the feeder is formed at opposite points with
25 shoulders 23, against which the arms of the uppermost cutter 20 obtain a bearing, thereby preventing the turning of said cutter upon the extension 18. These shoulders are terminals of the spiral ribs, which project beyond
30 the end of the feeder. The parts 19 and 20 are retained upon the extension 18 by means of the nut 24, fitted to the lower threaded end of said extension. The nut 24 is of circular form and enters a recess 25, formed in the
upper side of the bridge-tree 5.

35 The cutters 20 are of like formation and embody two arms, which are oppositely disposed, and the coarseness of the substance when cut will depend upon the relation of the cutters 20. When said cutters 20 are arranged in
40 parallel relation, the substance will be cut into coarse particles, and by arranging the cutters right-angularly or in crossing relation the particles will be smaller in size. If it be required to cut the substance into still smaller
45 particles, the lowermost two-armed cutter is replaced by the four-armed cutter shown in Fig. 6.

When the force-feeder is placed upon the spindle 10, the cutters and the perforated
50 disk or plate 19 may be held in close relation by turning up the tension-nut 13. This element 13 also serves to hold the feeder within the body 1, and when removed said feeder can be lifted from the body for cleaning or any purpose. The construction is of such character
55 as to preclude the escape of juices from the body 1 except by way of the lower end, which is open and forms a common discharge for all matter fed to the machine through the
60 hopper 2.

The machine is particularly adapted for mincing meat, but may be used for cutting up fruits and vegetables, and in adapting the invention for any particular or special use it
65 is to be understood that various changes in the form, proportion, and minor details may

be resorted to without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is—

70 1. In a machine of the character described, the combination of a vertically-arranged body open at its upper end for the introduction of the feeder and cutter and provided at one side with a hopper and having a bridge-tree
75 at its lower end, a non-rotatable or fixed spindle rising centrally from the bridge-tree and rigidly attached thereto at its lower end, a force-feeder mounted loosely upon the fixed spindle and having independent and free rotation
80 thereon and provided with cutting mechanism, means applied to the upper end of the spindle for securing the force-feeder thereon and holding it within the body of the machine, and actuating mechanism for rotating
85 the feeder about the spindle, substantially as set forth.

2. In a mincing-machine of the nature specified, the combination with a vertically-disposed body open at its upper end for the introduction of the feeder and cutter and having
90 a hopper at one side and provided at its lower end with a bridge-tree, and a non-rotatable or fixed spindle rigidly attached at its lower end to said bridge-tree and passing upwardly through the body of the machine, of
95 a force-feeder mounted loosely upon the bed-spindle and having independent and free rotation thereon, and having a pendent extension at its lower end, cutting mechanism mounted upon said pendent extension, means
100 applied to the upper end of the spindle for holding the force-feeder thereon and within the body of the machine and at the same time serving to maintain the elements of the cutting mechanism in intimate or working relation,
105 and actuating mechanism for rotating the feeder about the spindle, substantially as set forth.

3. In a mincing-machine of the variety set
110 forth, the combination with a vertically-arranged body open at its upper end and having a hopper at one side and provided at its lower end with a bridge-tree, and a non-rotatable or fixed spindle rigidly attached at its
115 lower end to the bridge-tree and passing upwardly through the said body, of a force-feeder insertible through the upper open end of the body and loosely mounted upon said fixed spindle and having free rotation thereon
120 and provided at its lower end with loosely-assembled cutting mechanism and having a head at its upper end for closing the upper portion of said body, and means applied to the upper end of the fixed spindle for holding
125 the feeder thereon and within the body of the machine and the elements of the cutting mechanism in working relation, substantially as described.

4. In combination, a vertically-arranged
130 body open at its upper end and having a hopper at one side and formed with inner verti-

cal grooves, a feeder insertible through the upper open end of the said body and having a pendent extension at its lower end, a perforated plate or disk loosely mounted upon said extension and having outwardly-extending lugs to move in and interlock with the grooves of the aforesaid body to prevent relative turning of the plate, cutters placed upon the said pendent extension upon opposite sides of the perforated plate and rotatable with the feeder, means applied to the lower end of the pendent extension to secure the perforated plate and cutters thereon, and independent means for holding the feeder within the body and clamping the elements of the cutting mechanism upon the extension thereof, as and for the purpose specified.

5. In a mincing-machine of the character set forth, the combination with the force-feeder having a pendent extension at its lower end and having its spiral ribs projecting beyond the lower end and terminating in oppositely-disposed shoulders, a perforated plate mounted upon the said pendent extension, and a cutter slipped upon the said pendent extension and having its arms obtaining bearing against the aforesaid shoulders, substantially as and for the purpose described.

6. The herein-described mincing-machine, comprising a vertically-disposed body open

at both ends and having a hopper at one side, a laterally-extending journal and a clamp and bridge-tree at its lower end, a spindle rigidly attached at its lower end to the bridge-tree and having its upper end threaded, a force-feeder mounted to turn freely upon the fixed spindle and having upper and lower extensions and a head to close the upper end of the body, upper and lower cutters mounted upon the lower extension of the feeder and rotatable therewith, a perforated plate placed upon said lower extension between the cutters and interlocking with the body, means for securing the cutters and plate upon the said lower extension, a gear-wheel slipped upon the upper extension, a clamp-nut applied to the upper end of the fixed spindle and holding the feeder within the body, the gear-wheel upon the feeder and the cutters and perforated plate in working relation, and a companion gear-wheel mounted upon the said lateral journal and meshing with the aforesaid gear-wheel and provided with an operating-crank, substantially as specified.

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

JULIUS C. HALL. [L. S.]

Witnesses:

FREDERIC L. BALDWIN,
W. R. GILBERT.