

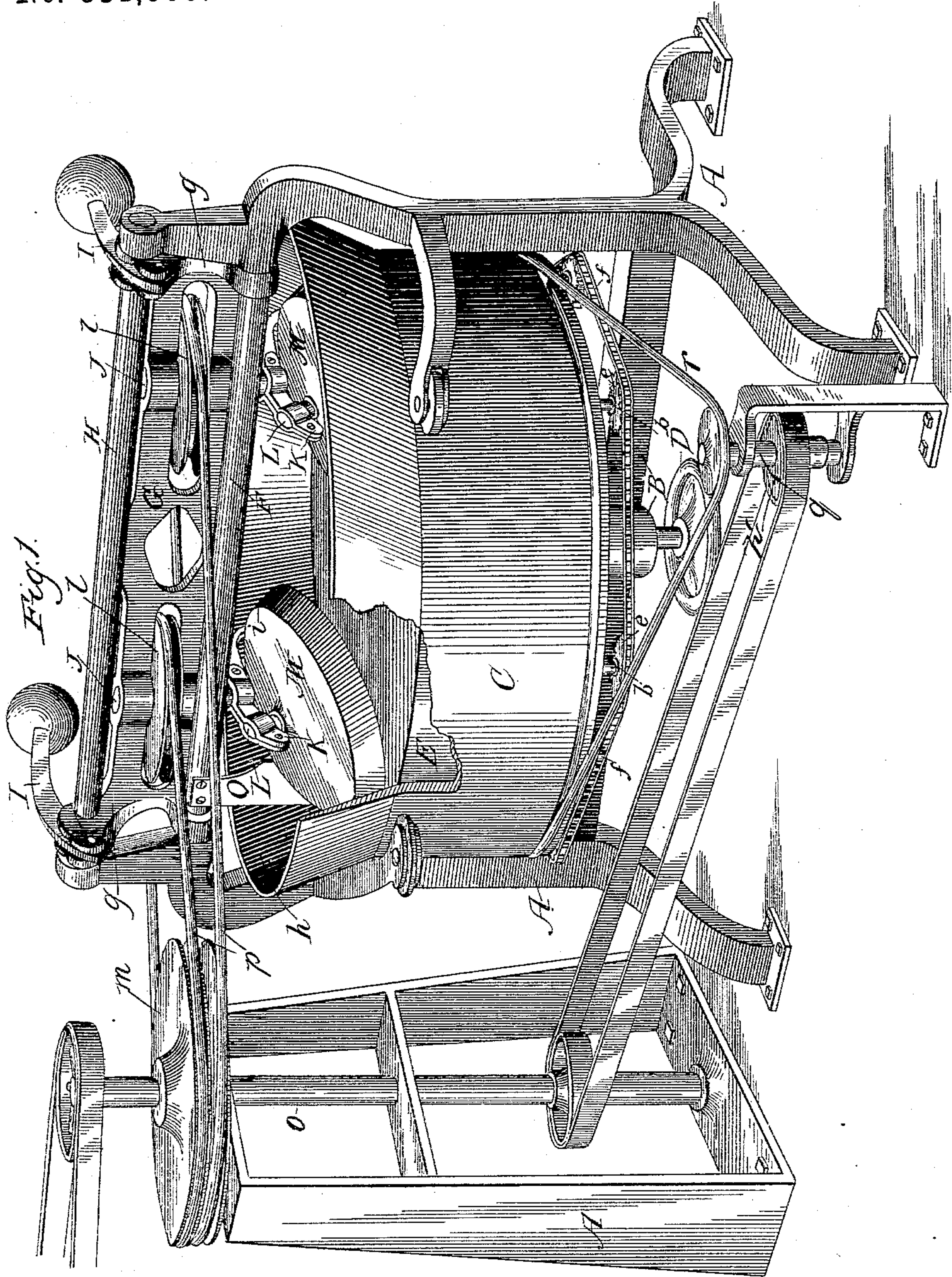
(No Model.)

3 Sheets—Sheet 1.

R. McCHESNEY.
MEAT CUTTING MACHINE.

No. 331,900.

Patented Dec. 8, 1885.



Witnesses.
Will C. Owsimuds.
D. B. Keeler

Inventor
Reuben McChesney
By Jno. G. Elliott
Atty.

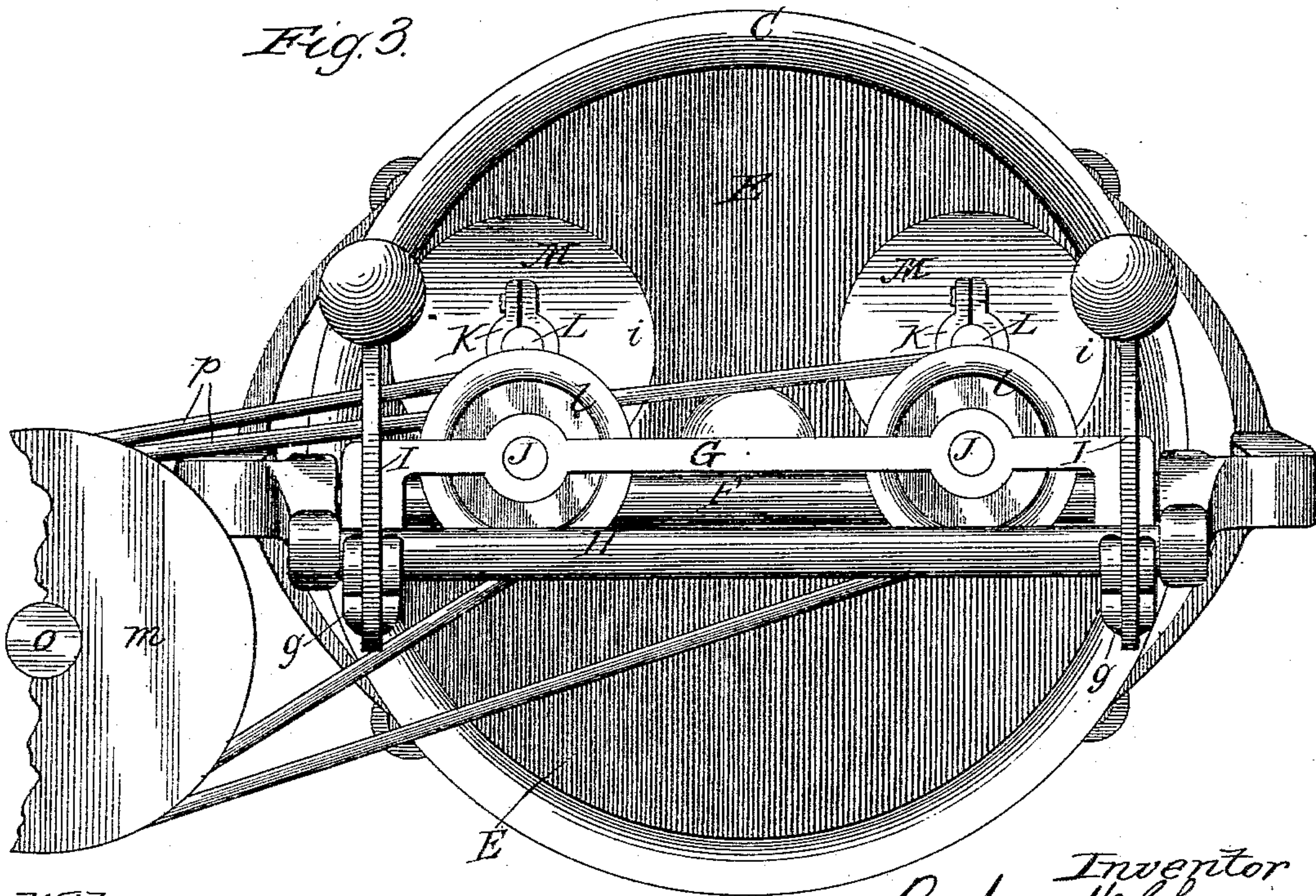
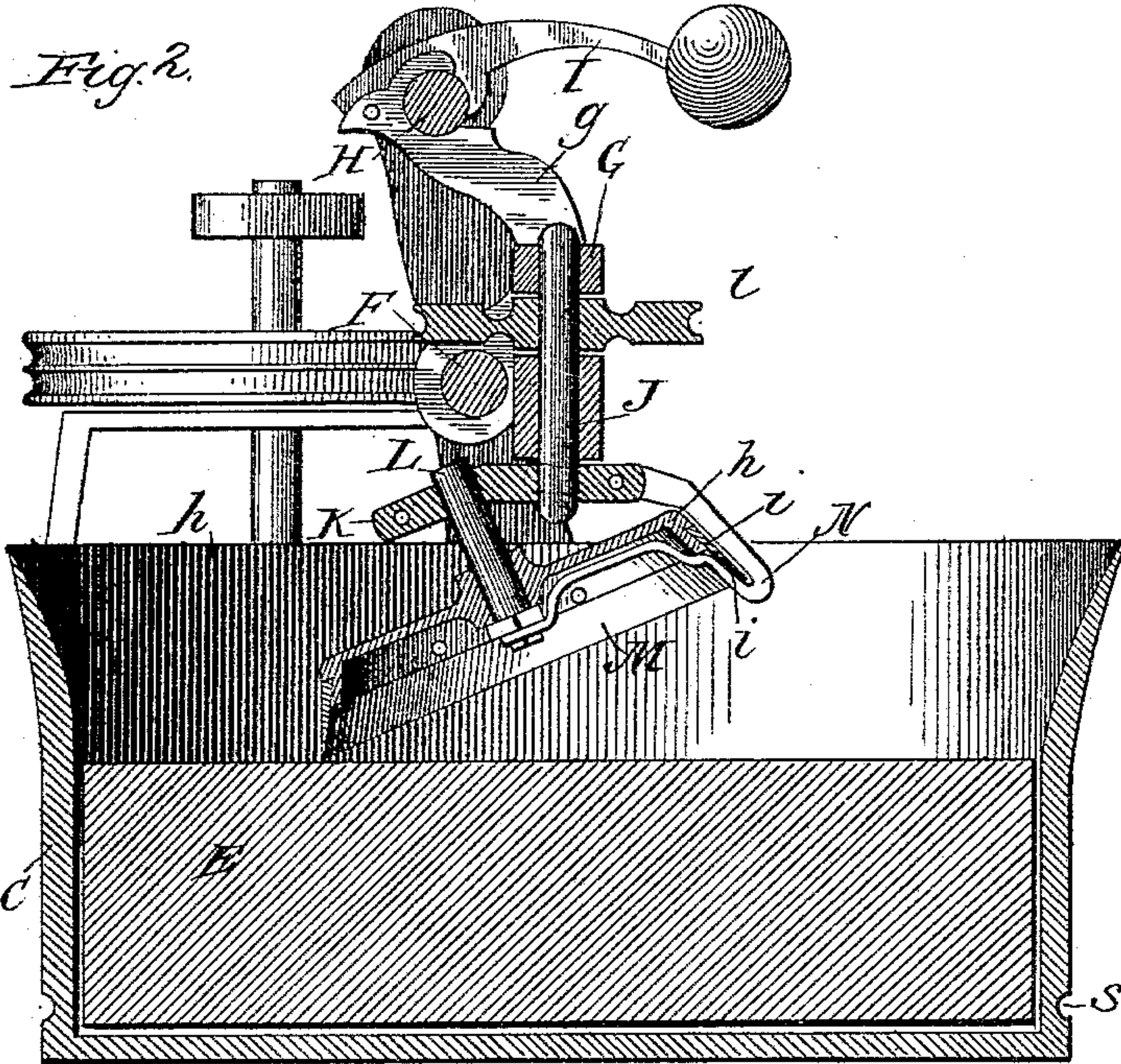
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Chas. C. Owsen
D. B. Keeler

Inventor
Reuben McChesney
By Jno. G. Elliott
Atty.

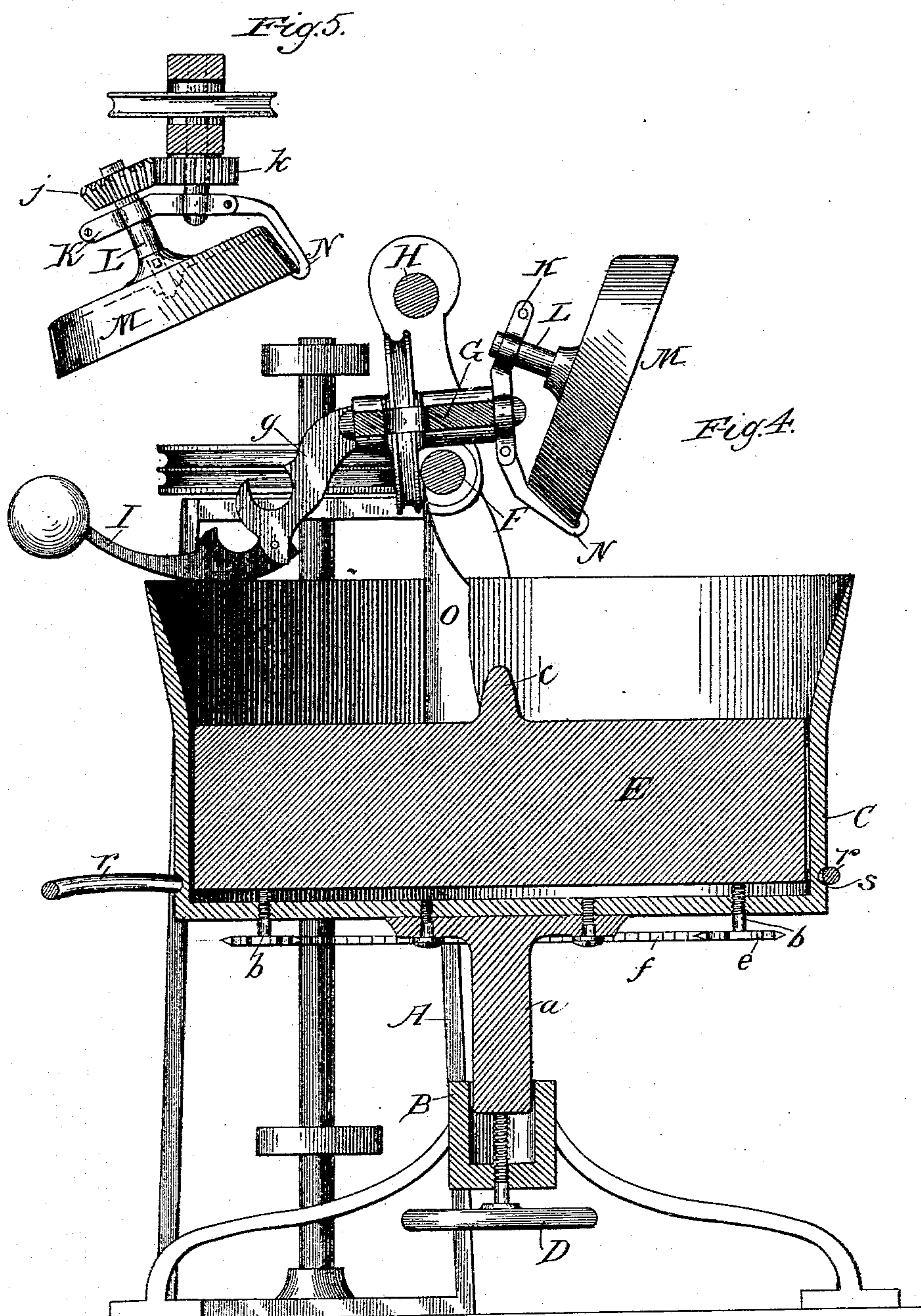
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Witnesses.

Will R. Quohndro.
D. B. Keeler

Inventor
Reuben McChesney
By, Jno. V. Elliott
Atty.

UNITED STATES PATENT OFFICE.

REUBEN McCHESENEY, OF FRANKFORT, NEW YORK, ASSIGNOR OF ONE-HALF
TO GEORGE A. COLNON, OF CHICAGO, ILLINOIS.

MEAT-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 331,900, dated December 2, 1835.

Application filed February 18, 1884. Serial No. 121,225. (No model.)

To all whom it may concern:

Be it known that I, REUBEN McCHESENEY, a citizen of the United States, residing in Frankfort, Herkimer county, and State of New York, have invented certain new and useful Improvements in Meat-Cutting Machines, of which the following is a specification.

This invention relates to meat-cutting machines in which both the block and the cutters have a rotary movement, and the block is vertically adjustable, so that it may be adjusted toward and from the cutters, as desired, or when it becomes worn.

The objects of this invention are to provide a connection between the cutters and block which will simultaneously and automatically operate both of them; to provide one or more cutters operating at an oblique angle to the face of the block and having a rotary movement around their actuating-shaft, and at the same time an independent and rotary movement about their own axes, or, in other words, what may be termed a "planetary" movement, and thereby cause the cutters to operate with a shear cut upon the meat or other substances to be reduced by their cutting-edges; to provide a movable frame for the cutters, which may be rigidly locked to hold the cutters in their operative position or swung upon its own axis to elevate the cutters for the purposes of cleaning and repair and for convenience in removing the substances from the block without disturbing or throwing out of action the connections for operating the cutter and the block; to provide such a connection between the devices for simultaneously adjusting the block and its metal casing that all of said devices may be simultaneously and uniformly operated; and, finally, to provide certain other details of construction hereinafter described. I attain these objects by devices illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective of a machine embodying my invention; Fig. 2, a vertical section of the same, taken through one of the cutters; Fig. 3, a plan view of the same; Fig. 4, a central vertical section through the same, with the cutters shown above their operative position; Fig. 5, a detail of the cutter and the preferred form of connection between the cutter and its drive-shaft to give

the cutter a positive and reverse rotary movement.

Similar letters of reference indicate the same parts in the several figures of the drawings.

A A represent the standards, and B a cross-bar, constituting the frame for supporting the operative parts of the machine. The casing C, the rim of which is flaring and projects above the cutting-block, has a closed bottom, having cast therewith or otherwise secured on its under side a short shaft, *a*, bearing in the cross-bar of the frame, said shaft, with its case and the block, being vertically adjustable by means of a screw, D, working in the cross-bar, and having a bearing against the end of the journal of the shaft *a*. Seated loosely in the casing, and on the set-screws *b*, is the cutting-block E, which may have a plain surface or be provided with a central projection, *c*, against which the cutters may work, and the meat be prevented from accumulating at this point and out of the operative line of travel of the cutters.

So far means have been described for simultaneously adjusting the height of the block and its casing; but in order to adjust the block independently of the casing the screws *b* have sprocket-wheel heads *e*, connected by a chain *f*, so that by pulling on the chain the several screws supporting the block are simultaneously operated, and by this means a uniformity of the adjustment of the entire surface of the block is effectually and quickly secured. These two adjustments of the block provide, first, a means for moving the block up in contact with the cutters, and, second, for adjusting the block in the casing from time to time as the block becomes worn down from frequent use, and, besides, also provide for a ready removal from the casing of the block to plane it down.

Fixed in and toward the upper ends of the standards is a shaft, F, on which is secured a swinging frame, G, having hook-arms *g*, which, when the frame is in its operative position, are adapted to be caught on a rod or round, H, joining the upper ends of the standards, said arms having pivoted thereto weighted levers I, which, when swung over to their operative positions, embrace the round and operate to removably lock the swinging frame in its op-

erative position, and to maintain the cutter in an elevated position when the frame is swung upon its axis for the purpose of lifting the cutters out of the casing or for cleaning and sharpening them. Journaled in the swinging frame are shafts J J, which, projecting below the frame, have secured on their ends arms K, which extend at substantially a right angle to the length of the shafts, and have secured toward their free ends and at an oblique angle to the shaft pintles L, on which the cutters M have a loose bearing. Cutters M are cup-shaped, and preferably flaring, so that the operating portion of their edge will exert a force in a line perpendicular to the face of the cutting-block, on which line they are found to operate most successfully. These cup-shaped cutters may be cast in one piece; but by preference their closed end *h* is cast separately from the cutting-edge, and with a flange to which the blade *i* may be secured in any suitable manner—as, for instance, by a set-screw.

By making the cup-shaped cutters in two pieces the blades may be made of steel and be readily removed for sharpening or for the substitution of new ones. It should be stated, however, that the cutting-blade may be made in sections, and so also may the entire cutter, and it would not be a departure from this invention to have a hub on the pintle and connect the cutting-blade thereto by radial arms instead of employing a closed head, as shown.

When the shafts of the cutters are revolved by suitable mechanism, hereinafter described, and the cutters are revolved about these shafts with a portion of their cutting-edges in contact with the block, each cutter will describe a circle about its shaft, and owing to its slewing on the pintle will have an independent movement upon its own axis, by reason of the friction of the cutter on the block. The block in the meantime by suitable mechanism, hereinafter described, is revolved in a direction opposite to that of the shafts, and as a result draws upon the cutting-edges of the cutter.

The cutter revolves much slower on its own axis than does the axis of its shaft, and this slow movement, in connection with its drawing upon the cutting-block, causes the cutter to operate or make a shear-like cut, so that the meat or other substance operated upon is drawn down against the cutting-edge, and not pushed forward, as it would be if the cutter were rigid upon the pintle or operated direct from the shaft. In order to render this shear-like cut more positive, the cutter may, as shown in Fig. 5, be made rigid on the pintle, and the pintle have a loose bearing in the arm, and have secured on its projecting upper end a gear, *j'*, meshing with a gear, *k*, fixed to the cross-bar of the frame G, and by this means the cutter be revolved in the opposite direction to its shaft, thus insuring a draw cut downwardly upon the material being operated upon.

By the peculiar action of the cutter, and es-

pecially upon meats, a clean sharp cut is always made, and there is no lost motion in the operation of the cutters, while at the same time the crushing or bruising of the meat fibers is entirely avoided, and the cutting capacity of the machine materially increased.

I have shown in the drawings a machine provided with two cutters; but it is obvious that a greater or less number may be employed, as desired, without a substantial departure from the spirit of my invention.

In order to prevent the cutters from clogging, they are each provided with a cleaner, N, consisting of a bent strip of metal secured at its ends to the pintle both above and below the cutter-head, which cleaner is preferably of spring metal, and is bent around both sides of the cutting-blades and of the cutting-edge thereof without being brought in actual contact with said blade; but so far as the invention involved by the cutter and its actuating mechanism is concerned it would not be a departure from my invention to have cleaners of any other desired form or manner of operation, though I consider the form of cleaner shown as preferable. The cleaner, however, should be fastened to some movable portion of the mechanism for actuating the cutter—as, for instance, the pintle-arm—else the cleaner would move down between the cutter and the block, and of course ruin the cutter; but if the cutter revolved only on its own axis, then the cleaner might be secured to any stationary portion of the machine.

To stir up the meat or other substance being operated upon by the machine, and to throw it constantly in the path of the cutters, a stirrer, O, Fig. 4, may be secured to the rigid round of the swinging frame at any point which will cause it to effect the best results.

As shown, the mechanism for actuating the cutter or cutters consists of a sheave, *l*, secured to the cutter-shaft, and connected by belt *p* with a large sheave, *m*, on a vertical shaft, *o*, which by means of a belt is connected with a sheave, *p'*, on a vertical shaft, *q*, the case and block being actuated by means of a belt, *r*, laid in groove *s* on the periphery of the case, near its bottom, which belt engages with a sheave on the upper end of the short shaft *q*. In practical use, however, I propose to employ shafts and gearing connecting with some motive power, and thereby dispense with the sheaves and belts, which are only shown for the purposes of illustrating the operation of my machine.

It may be proper to add that the velocity of the cutting-block should be less than that of the cutter-shafts, and substantially that of the cutters upon their own axes, for obtaining the best results.

The stirrer, instead of being a single blade, may consist of two or more tines, like that of a fork.

The arms K K are made in two parts, drawn together by a set-screw so as to clamp the pintle, so that said pintle may be adjusted

up or down in the arms, and by so doing decrease or increase the diameter of the circle on which the cutters are operated, for it will be seen that if the pintle is raised the cutters
5 will move in a less circle than if the pintle is lowered in the arm.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

10 1. The combination, with the vertical shaft, an arm projecting therefrom, and the upright pintle secured in said arm in an inclined position, of the cutter loosely mounted in an inclined position on said pintle, and the revolving block, substantially as described.
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2. The vertical shaft, an arm projecting therefrom, and an upright pintle secured in said arm in an inclined position, in combination with the cup-shaped cutter loosely mounted in an inclined position on said arm, and the revolving cutting-block, substantially as described.
20

3. The vertical shaft, the arm projecting

therefrom, and an upright pintle secured in said arm in an inclined position, and the revolving cutting-block, in combination with the cutter loosely mounted in an inclined position on said arm, and having contact with the block, substantially as described. 25

4. The vertical shaft and the two-part arm, in combination with the pintle adjustably and removably held by said arm in an inclined position, and the cutter loosely mounted on said pintle, substantially as described. 30

5. The combination, with the vertical shaft, an arm projecting therefrom, the pintle secured in said arm in an inclined position, and the cutter loosely mounted on said pintle, of the cutting-block and the swinging frame journaled at its ends and extending in a line above and parallel with the cutting-block, substantially as described. 35 40

REUBEN MCCHESENEY.

Witnesses:

JNO. G. ELLIOTT,
W. W. ELLIOTT.