

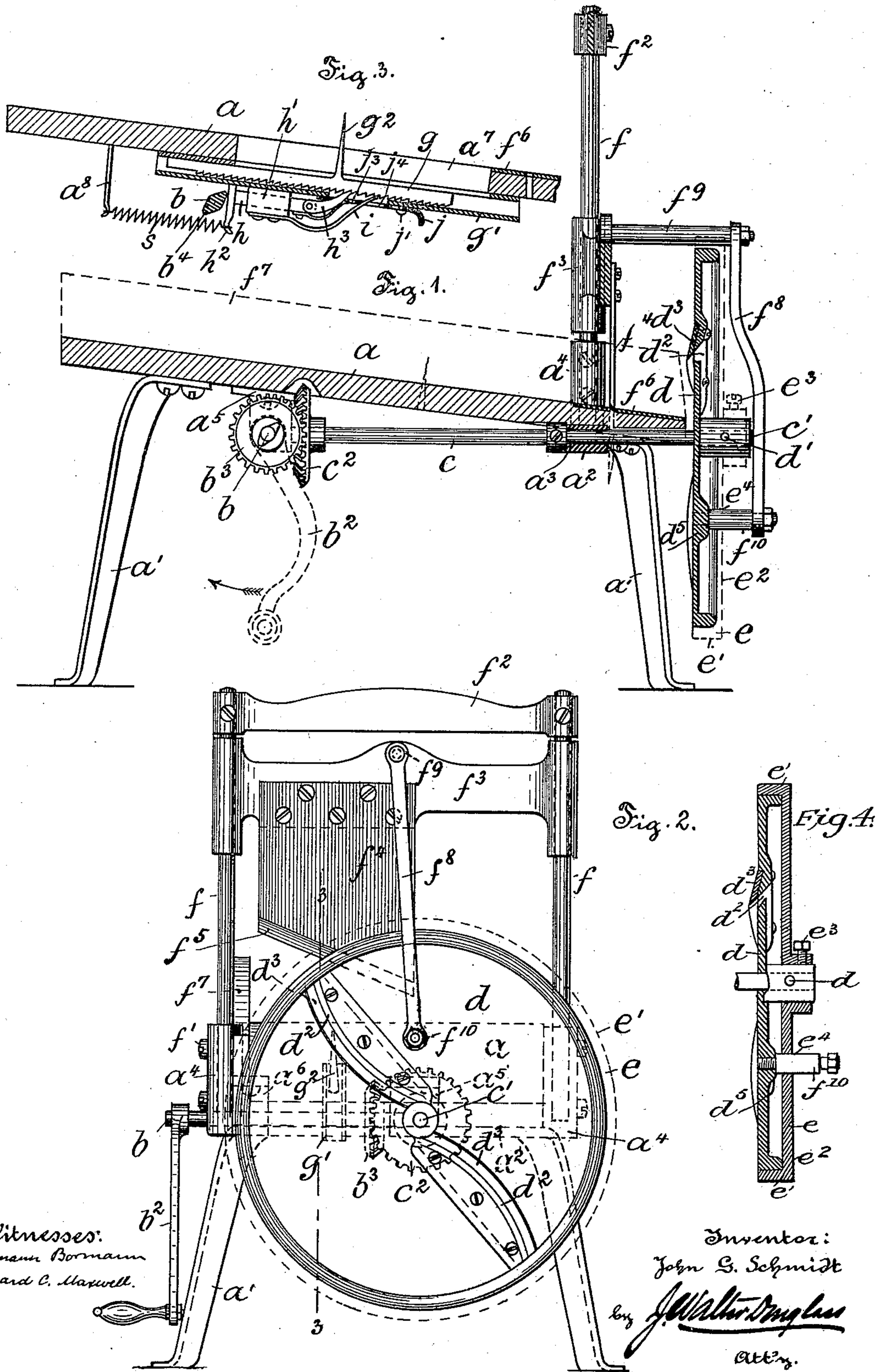
(No Model.)

J. G. SCHMIDT.

SLICING, CHIPPING, AND GRINDING MACHINE.

No. 465,891.

Patented Dec. 29, 1891.



UNITED STATES PATENT OFFICE.

JOHN G. SCHMIDT, OF PHILADELPHIA, PENNSYLVANIA.

SLICING, CHIPPING, AND GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,891, dated December 29, 1891.

Application filed September 21, 1891. Serial No. 406,320. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. SCHMIDT, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Slicing, Chipping, and Grinding Machine, of which the following is a specification.

The principal object of my present invention is to provide a compact, durable, efficient, and comparatively inexpensive machine for automatically and rapidly slicing and chipping articles of food and for grinding and cleaning knives in an expeditious manner; and to this end my invention consists of the improvements hereinafter fully described and claimed.

The nature and characteristic features of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a central longitudinal section of a machine embodying features of my invention and showing a table provided on the under side thereof with a transverse and a longitudinal shaft, a feed-pin projecting above said table, a rotary cutter-disk, and a reciprocating knife, and also showing feed mechanism between said transverse shaft and feed-pin, and operating mechanism between said reciprocating knife and longitudinal shaft, also, indicating in dotted lines the position occupied by a removable grinding and polishing wheel. Fig. 2 is an end elevation of Fig. 1, showing the grinding-wheel in dotted lines in order to illustrate the cutter-disk and reciprocating knife, and also illustrating in dotted lines the position of the removable grinding and polishing wheel. Fig. 3 is a section on the line 3 3 of Fig. 2, showing the detail construction of the mechanism for operating the feed-pin; and Fig. 4 is a sectional view showing the grinding and polishing wheel applied to the hub of the cutter-disk and removably connected therewith by means of a set-screw.

In the drawings, *a* is a table supported on legs or feet *a'* and inclined downward to the right, as shown in Fig. 1, for a purpose to be presently described.

*a*² is a strip provided at or near the center

thereof with a bearing *a*³, and at the respective extremities thereof with sockets *a*⁴.

*a*⁵ is a bearing adapted to support two shafts ranging at right angles with respect to each other.

The strip *a*² is disposed transversely of the table *a* and is applied to the under side thereof by means of bolts or screws, and the bearings *a*⁵ and *a*⁶ are bolted or screwed to the under side of the table *a*.

b is a transversely-ranging shaft mounted in the bearings *a*⁵ and *a*⁶ and provided at one extremity thereof with a hand-crank *b*² and at the other extremity thereof with a miter-wheel *b*³.

c is a longitudinally-ranging shaft supported in the bearings *a*³ and *a*⁵ and having one extremity *c'* thereof projecting beyond the front or right-hand end of the table *a* and having the other extremity thereof provided with a miter-wheel *c*², meshing with the miter-wheel *b*³.

d is a cutter-disk mounted on the forward extremity *c'* of the shaft *c* and attached thereto by means of a pin *d'* or in any other preferred manner. This cutter-disk *d* is provided with a hub *c'*, an enlarged rim, and with radial slots *d*². In the present instance two radial slots are shown; but more than two slots—for example, four—may be employed.

*d*³ are knives secured to the corresponding side walls of each of the slots *d*² and having their respective cutting-edges projecting from the face of the disk *d*. In the drawings the cutting-edges of these knives *d*³ are represented as circular or curvilinear in form; but straight cutting-edges may, if preferred, be employed.

Of course the center of the cutting-disk *d* should lie in the plane of the upper face of the table *a*, in order to facilitate the cutting action of the knives *d*³, and the miter-wheels *c*² and *b*³ should lie wholly beneath the table *a*, so as not to interfere with the feeding of the material to be chipped or sliced. These objects are attained by inclining the table *a* in the manner hereinabove described and by recessing the front extremity of the table *a* for the reception of the corresponding portion of the shaft *c*.

e, Fig. 4, is a grinding-wheel provided at the periphery thereof with a grinding-surface

e' , of emery, sandstone, or other preferred material, and having the right-hand or front face e^2 thereof coated with powdered emery or other polishing material. This grinding-wheel e is adapted to be mounted upon the hub of the cutter-disk d , forward extremity c' of the shaft c , and may be keyed thereto or removed therefrom by means of the set-screw e^3 .

f are vertical standards adapted to be fitted into the sockets a^4 and detachably secured to place by means of set-screws f' .

f^2 is a yoke connecting the upper portions of the standards f in order to hold the same in alignment.

f^3 is a cross-head adapted to be slid up and down on the standards f and provided with a blade f^4 , having an inclined or oblique cutting-edge f^5 .

f^6 is a slotted plate inserted into the table a and adapted to permit of the passage of the knife f^4 , and also to present a firm edge for supporting the article being sliced.

f^7 is a side wall attached to one of the edges of the table a , in order to prevent the article or substance from being forced off the table by the reciprocating knife f^4 or rotary cutter d . The cross-head f^3 is reciprocated upward and downward by means of a pitman or connecting-rod f^8 . One end of this connecting-rod f^8 is pivotally connected with a stud f^9 , formed integral with or applied to the cross-head f^3 , and the other extremity thereof is pivotally connected with a stud f^{10} . This stud f^{10} passes through a suitable aperture e^4 in the grinding-wheel e and is screwed into or otherwise detachably connected with a boss d^5 , formed on the face of the cutter-disk d .

g is a rack affording a range of end-play in the direction of the length of the table a , through suitable bearings g' , secured to the under side of the table a and located to one side of the center thereof.

g^2 is a pin projecting upward from the rack g above the table a and adapted to work in a slot a^7 formed in the table.

h is a traveler supported in bearings h' and provided at one extremity thereof with a transversely-ranging post h^2 and at the other extremity thereof with a spring-pawl h^3 .

s is a spiral spring connected at one extremity thereof with the traveler h and at the other extremity thereof with a post a^8 , depending from the under side of the table a . This spring s serves to return the traveler h to its normal position and to keep the post h^2 in contact with a cam b^4 , mounted on the shaft b , so that the rotation of the shaft b causes the cam b^4 and springs to reciprocate the traveler h back and forth, and these reciprocations of the traveler h cause the pawl h^3 to shift the rack g and pin g^2 toward the right with an intermittent motion.

i is a spring-detent adapted to engage the teeth of the rack g , in order to prevent retrograde motion thereof.

j is a hand-lever connected with the under

side of the support g' by means of screws j' , whose shanks work in slots formed in the lever, so that the latter is afforded a range of end-play.

j^3 and j^4 are slots formed in the lever j for the reception of the pawl h^3 and detent i , so that the pawl and detent normally work freely through the slots j^3 and j^4 . However, the side walls of these slots engage the pawl and detent and lift them out of range of the rack g when the hand-lever is shifted toward the right in Fig. 3, and thus the pin g^2 and rack g are released and may be shifted manually toward the left.

The mode of operation of the hereinabove-described machine is as follows: In order to polish and grind knives, the stud f^{10} and connecting-rod f^8 are removed, and pawl h^3 and detent i are thrown out of gear by means of the hand-lever j , and the hand-crank b^2 is rotated in the direction indicated by the arrow in Fig. 1. This rotation of the hand-crank causes the grinding-wheel e , Fig. 4, to be revolved, and a knife or other article may be ground upon its periphery e' or polished or cleaned upon its face e^2 in the usual or in any preferred manner. In order to slice bread or other articles or material, the connecting-rod f^8 and stud f^{10} are replaced, the pin g^2 is shifted into its extreme left-hand position, and the detent i and pawl h^3 are thrown into operative position. The bread or other article is then placed upon the table a in engagement with the pin g^2 and in contact with the side wall f^7 . The crank b^2 is then rotated in the manner hereinabove described, and the rotation of the crank causes the pin g^2 to feed the bread or other article intermittently forward, and also causes the knife f^4 to descend intermittently upon and through the same, and thus the bread or other article is cut into slices, which may be removed for use. In order to chip an article, as dried beef, into small pieces, the standards f , cross-head f^2 , and connecting-rod f^8 are preferably removed from the machine. However, only the knife f^4 may be removed and other parts permitted to remain in their normal positions. The dried beef is then placed upon the table a in engagement with the pin g^2 and in contact with the side wall f^7 . The crank b^2 is then rotated in the manner hereinabove described, and the rotation of the crank causes the pin g^2 to feed the dried meat forward twice during each revolution of the cutter-disk, so that the knives cut the meat up into small pieces or chips, which may be removed for use. It may be remarked that the dried meat extends only half-way across the table a , so that only one of the knives d^3 is in operation at a time.

Having thus described the nature and objects of my present invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described machine, provided with a table, a longitudinal shaft projecting

beyond one end of said table, a transverse shaft provided with an operating-handle, miter-wheels interposed between said shafts, a radially-slotted disk applied to the projecting end of the longitudinal shaft, knives applied to the corresponding side walls of said radial slots and adapted to operate transversely of said table, vertical standards supported by said table, a reciprocating cross-head provided with a removable knife and working on said standards, driving mechanism between said longitudinal shaft and cross-head, a feed-pin afforded a range of movement in a slot ranging longitudinally of said table, and feed-rack and pawl connections between said transverse shaft and feed-pin, substantially as and for the purposes set forth.

2. The herein-described machine, provided with a table, a longitudinal shaft, a transverse shaft, a radially-slotted cutter-disk applied to said longitudinal shaft and operating transversely of said table, a strip applied to said table and provided with detachable standards, a reciprocating cross-head provided with a removable knife and working on said standards, a pitman between said longitudinal shaft and reciprocating cross-head, a feed-pin afforded a range of motion in the direction of the length of said table, feed-rack and pawl connections between said transverse shaft and feed-pin, and an operating-handle connected with said transverse shaft, substantially as and for the purposes set forth.

3. The combination, with a table, of cutting mechanism operating transversely of said table, a feed-pin projecting above said table and afforded a range of motion in a slot in said table, an operating-shaft, and feed-rack and pawl connections between said shaft and pin for feeding the latter toward the cutting mechanism with an intermittent motion, substantially as and for the purposes set forth.

4. The combination, with a table, of cutting mechanism operating transversely of said ta-

ble, an operating-shaft, a rack supported in bearings applied to the under side of said table, a feed-pin connected with said rack and afforded a range of motion in a slot in said table, a traveler supported in bearings and provided with a spring-pawl adapted to mesh with the teeth of said rack, a cam mounted on said shaft and engaging said traveler, and a detent for preventing retrograde motion of said rack, substantially as and for the purposes set forth.

5. The combination, with a table, of cutting mechanism operating transversely of said table, an operating-shaft, a feed-pin afforded a range of motion in a slot ranging lengthwise of said table, feed-rack and pawl connections between said pin and shaft, a detent for preventing retrograde motion of said pin, and a sliding lever for throwing said pawl and detent out of action, substantially as and for the purposes set forth.

6. The combination of a table, a shaft ranging longitudinally thereof and having one extremity projecting beyond one end of the table, means for rotating said shaft, a strip provided at the respective extremities thereof with sockets, standards connected with said sockets by set-screws, a cross-head provided with a knife and working on said standards, a cutter-disk and a grinding-wheel keyed to the projecting extremity of said shaft, a post connected with said cross-head, a post detachably connected with said cutter-disk and extending through an aperture in the grinding-wheel, and a connecting-rod pivotally connected with said posts, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JOHN G. SCHMIDT.

Witnesses:

HERMANN BORMANN,
THOMAS M. SMITH.