No. 715,949. Patented Dec. 16, 1902.

J. A. BIBERFELD.

MACHINE FOR FILLING AND LINKING SAUSAGES.

(Application filed Jan. 28, 1902.)

(No Model.) 5 Sheets—Sheet 1.

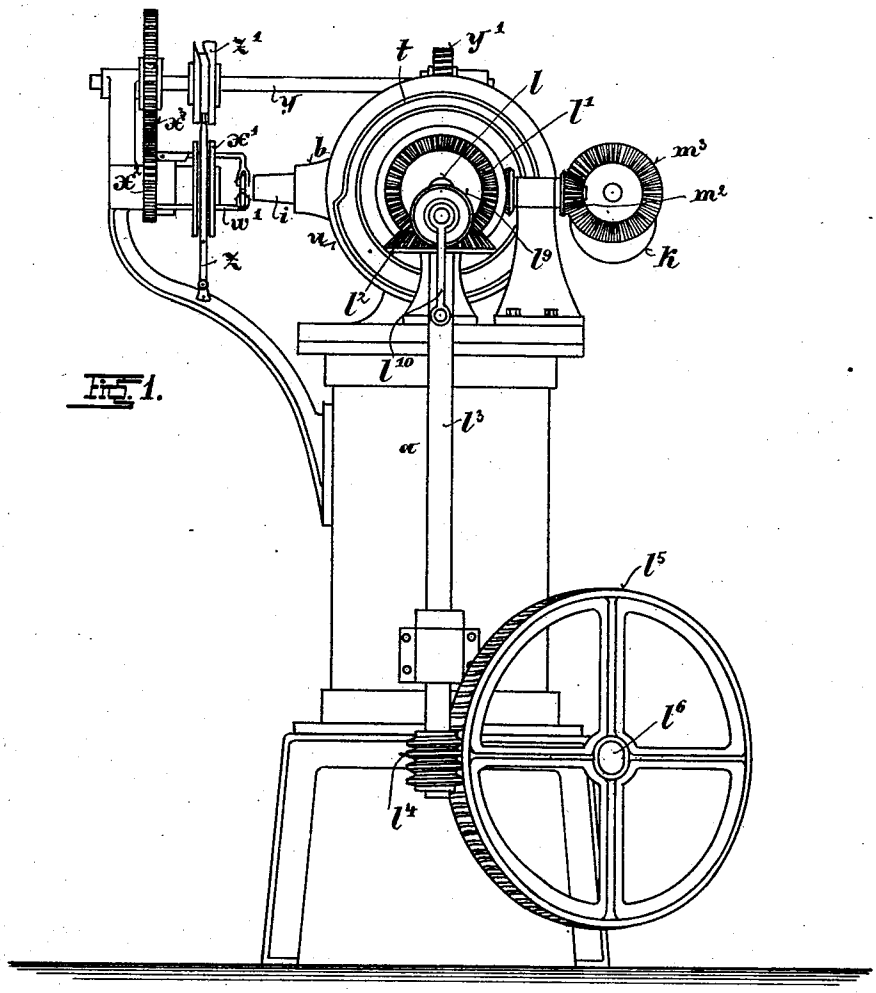



Fig. 1.

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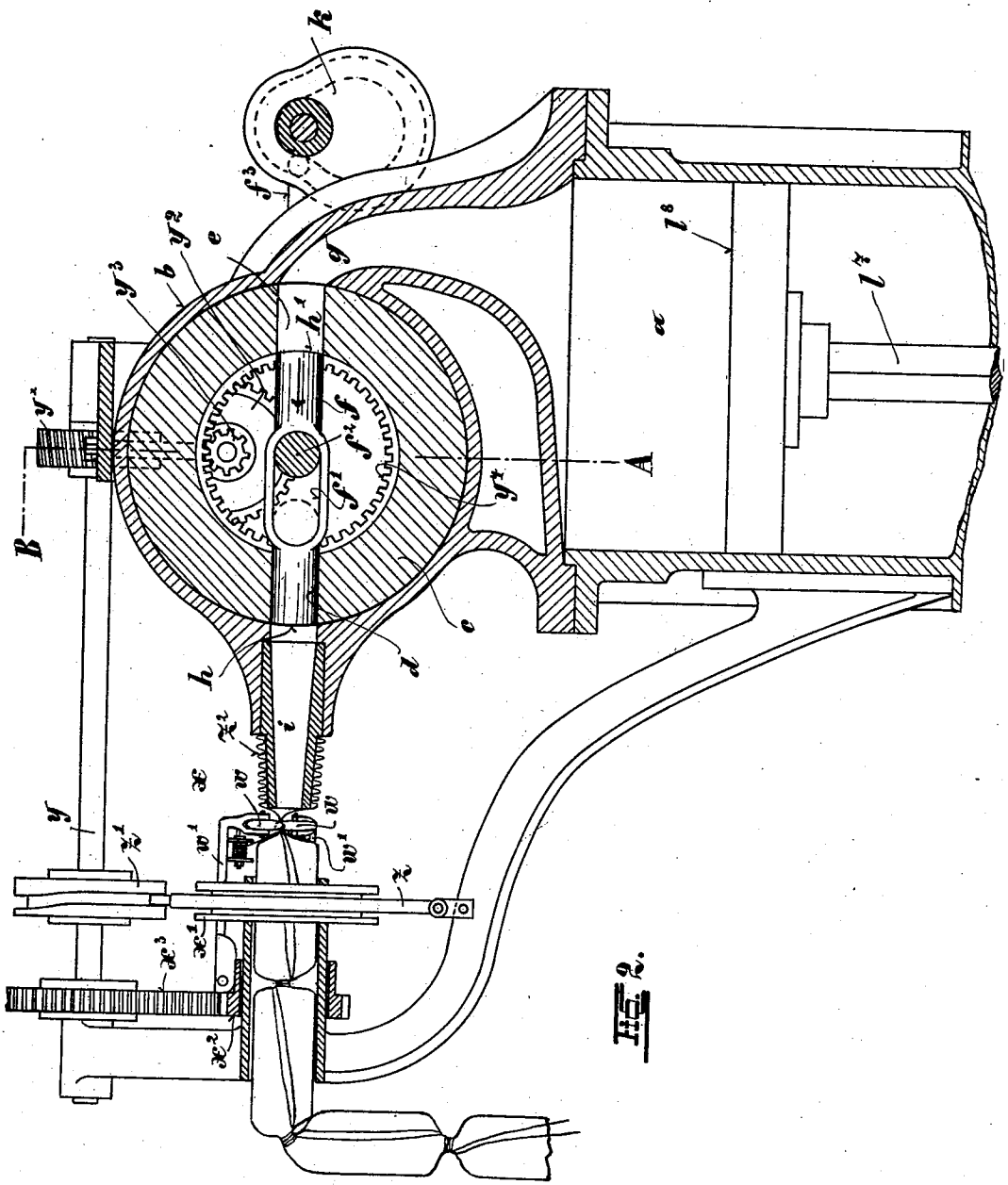


Fig. 2.

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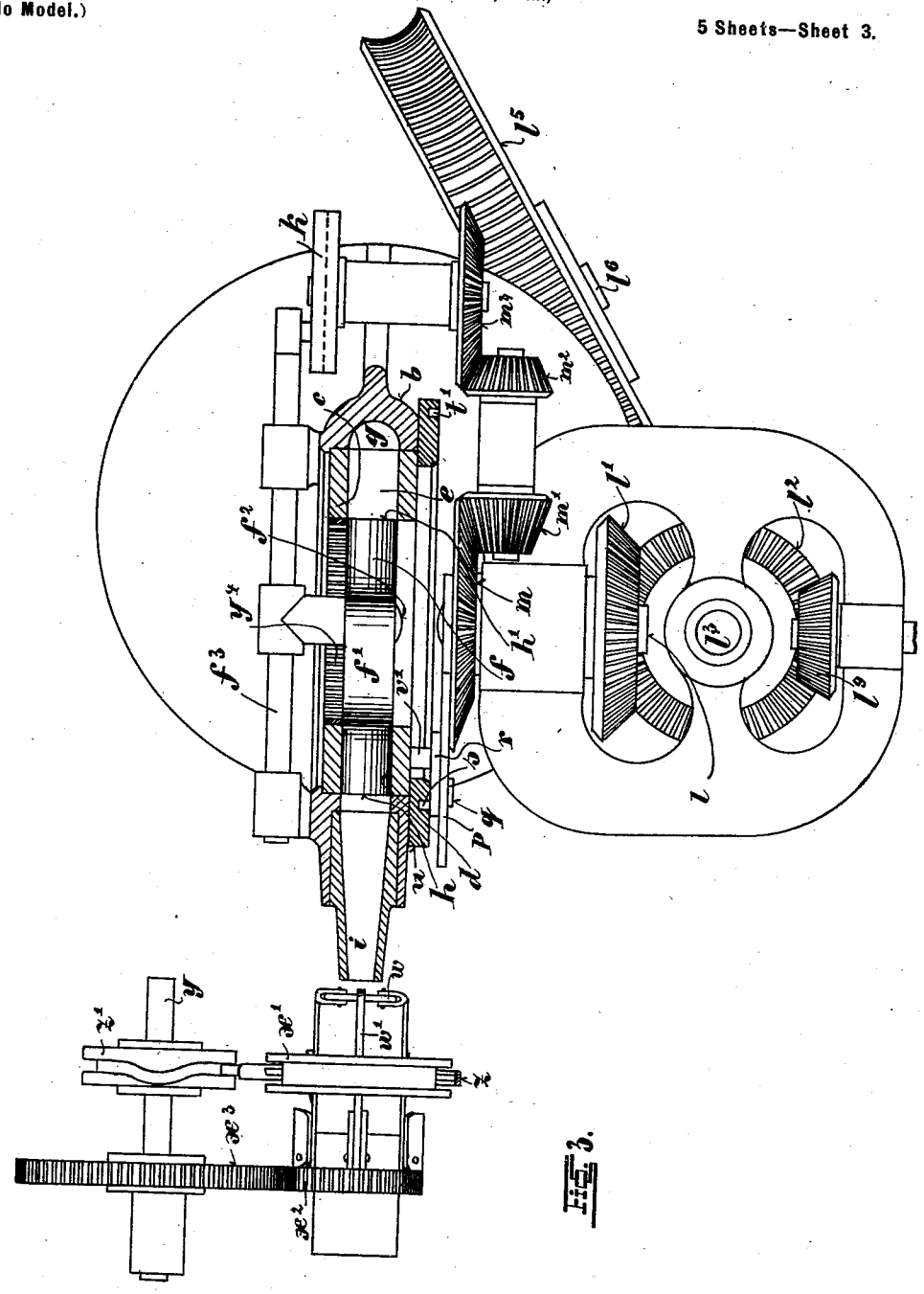


FIG. 3.

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MACHINE FOR FILLING AND LINKING SAUSAGES.

(Application filed Jan. 28, 1902.)

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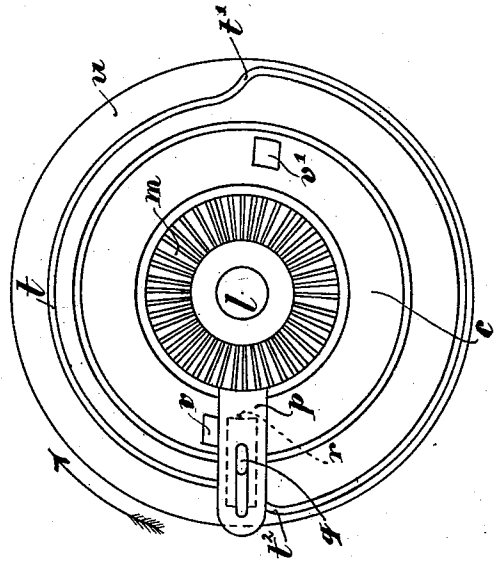


FIG. 5.

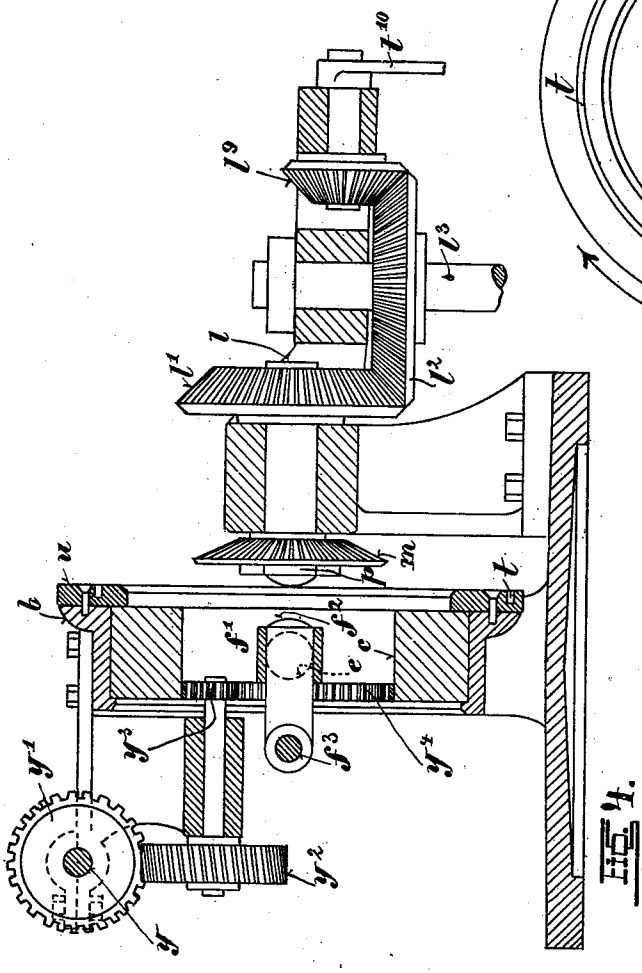


FIG. 4.

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No. 715,949. Patented Dec. 16, 1902.

J. A. BIBERFELD.

MACHINE FOR FILLING AND LINKING SAUSAGES.

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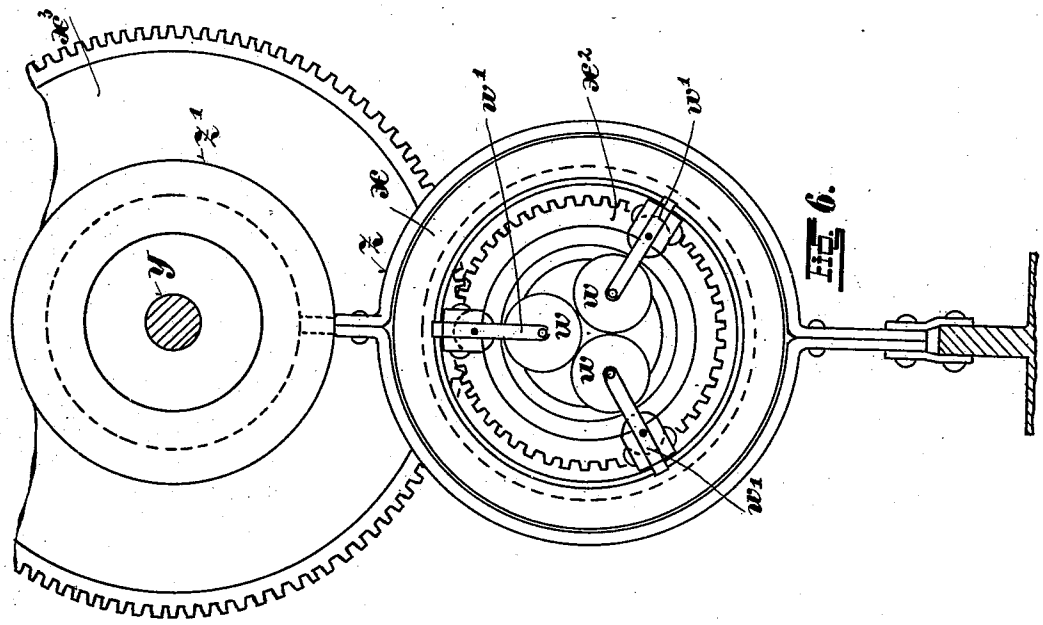



Fig. 6.

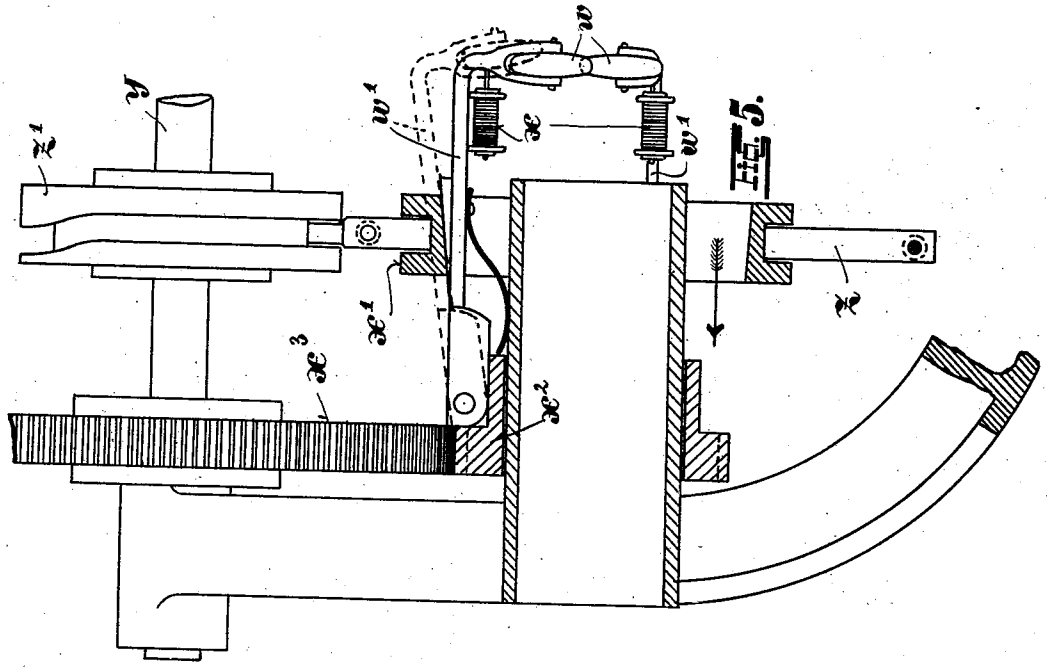



Fig. 5.

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# UNITED STATES PATENT OFFICE.

JOSUA ARON BIBERFELD, OF HAMBURG, GERMANY.

## MACHINE FOR FILLING AND LINKING SAUSAGES.

SPECIFICATION forming part of Letters Patent No. 715,949, dated December 16, 1902.

Application filed January 28, 1902. Serial No. 91,585. (No model.)

*To all whom it may concern:*

Be it known that I, JOSUA ARON BIBERFELD, merchant, residing at 8 Bornstrasse, Hamburg, Germany, have invented some new and useful Improvements in Machines for Filling and Linking Sausages, of which the following is a full and clear description.

The present machine produces sausages of equal weight, the ends of which are corded with cord, twine, or any other proper material. The same is illustrated by the inclosed drawings.

Figure 1 represents a view in elevation of the entire machine. Fig. 2 represents a longitudinal section of the upper part of the machine by means of which the stuffing is pressed into the gut and the cording of the sausages is effected. Fig. 3 represents a horizontal plan of the machine, partly in section. Fig. 4 represents a cross-section from A to B of Fig. 2. Figs. 5 and 6 represent the cording contrivance in enlarged proportions, and Fig. 7 represents a part of the machine.

On the cylinder $a$ a box $b$ is fastened, inside of which a disk $c$ is rotating. This disk $c$ has two opposite conduits $d$ $e$, in which a double piston $f$ slides to and fro. The arrangement is such that the piston is only set at work as soon as the conduits $d$ $e$ have come into the position right before the filler $g$. In this moment the piston is removed in the direction of the arrow, Fig. 2, and now the channel $e$ can be filled with meat, or rather the proper stuffing material, while the channel $d$ is emptied by the piston $f$. After this is done the disk $c$ is turned around one hundred and eighty degrees. During this rotation, of which the piston $f$ naturally takes part, the piston $f$ does not change its position, but, on the contrary, its front face closely passes along the inside of the case $b$. It completely fills up the channel $d$, thus preventing the entrance of air into the channel during the rotation of the disk $c$. As soon as the disk $c$ has finished the rotation of one hundred and eighty degrees—*i. e.*, when the front face $h$ of the piston $f$ has come into the position before the pipe $g$—then the piston is again removed in the direction of the arrow. The retiring piston then permits a tight filling up of the channel $d$ without permitting the entrance of air, while by the front face $h'$ of the piston a discharging of the channel $e$ into the nozzle $i$ and into the gut is caused. The middle part of the piston $f$ is provided with an oval slit $f'$, in which the axle $f^2$ is resting, the latter being capable of being removed in the direction of the arrow, Fig. 2, by adapted means. When the disk $c$ has made a turn of one hundred and eighty degrees out of its position, as illustrated in Fig. 2, the axle $f^2$ is removed to the left, and the piston $f$ must obey this removal of the axle. If the piston $f$ has thus reached the position illustrated in Fig. 2—*i. e.*, when the axle $f^2$ is in the dotted position—then the axle $f^2$ is caused to return into its former position, Fig. 2, by means of a spring or any other proper arrangement. The removal of the piston $f$ at the proper time may be effected by different means. A proper contrivance is illustrated by Figs. 3 and 4. The axle $f^2$ is secured to the rod $f^3$, and the removal of both parts $f^2$ and $f^3$ may be caused by the grooved disk $k$. The revolving of the grooved disk $k$ is effected by two sets of bevel-wheels $m$ $m'$ and $m^2$ $m^3$, secured to the shaft $l$, Fig. 3.

The shaft $l$ receives its motion by the bevel-wheels $l'$ $l^2$, secured to the shaft $l^3$. On the lower end of the shaft $l^3$ there is keyed a screw gear-wheel $l^4$, Fig. 1, which acts against the teeth of the wheel $l^5$. The shaft $l^6$, through any suitable connection, (not necessary to show,) drives the piston-rod $l^7$ of the piston $l^8$. The bevel-wheel $l^9$ catches into the bevel-wheel $l^2$, Fig. 4, said bevel-wheel $l^9$ being set at work by the crank $l^{10}$. The last-named bevel-gear imparts its motion to all parts of the machine.

The contrivance for the motion of the disk $c$ is illustrated by Fig. 7. If the shaft $l$ is in rotation, then the arm $p$, secured to the same, is also revolving. Said arm $p$ is provided with a slit in which a part $r$ is made to slide to and fro by means of a piece of iron $q$, Figs. 7 and 3. The part $r$ is provided with a pin $s$, Fig. 3, which catches into the groove $t$ of the directing-disk $u$. The disk $c$ is provided with cams $v$ $v'$. In the position illustrated by Fig. 7 the part $r$ is behind the cam $v$, and when now a rotation of respectively the shaft $l$ and the arm $p$ is caused in the direction of the arrow then the disk $c$ must follow this rotation, and, indeed, for such a long time until the pin $s$ has reached the point $t'$

of the groove $t$. As soon as it is passing through this point $t'$ the part $r$ is pulled backward behind the cam $v'$ and the disk $c$ remains in rest until the pin $s$ has come to the point $t^2$—*i. e.*, during half a rotation. At $t^2$ the part $r$, which is now again removed, touches the cam $v$, and thus again causes half a rotation of the disk $c$. During the dwell of the disk $c$ the removal of the piston $f$ takes place.

The present machine is provided with the proper contrivance for cording the sausages or the gut, the proceeding being as follows: The fillings of the channels $d$ $e$ are discharged one after another into the gut $z^2$, shoved into the nozzle $i$ in the aforedescribed manner. As soon as one filling is discharged into the gut a compressing or pinching of the gut takes place and at the same time a cord is wrapped around the gut. To the upper ends of each of the arms $w'$, which are capable of being turned, a roll $w$ is supported. Besides this roll $w$, each arm $w'$ or some of them is provided with spools $x$, on which twine is wound. As soon as the disk $c$ commences its half-rotation the collar-piece $x^2$, provided with the arms $w'$, also begins to revolve. The arms $w'$ are pivotally connected to the collar-piece $x^2$, so that the same can be gradually pressed together, or rather that their ends can be brought near to each other, by means of the movable ring $x'$, so that the rolls compress the gut passing between them when they approach each other. The circumference of the collar-piece $x^2$ is provided with cogs, and the same receives its motion by the cog-wheel $x^3$. If the collar-piece $x^2$ is revolving, the arms $w'$ of course are also turned around. During the turning of the arms $w'$ the rolls $w$ roll around the gut at the compressed spot and at the same time twine is unwound from the spools $x$, thus cording the gut at the compressed point twice or thrice, according to the number of rotations of the collar-piece $x^2$. In the beginning of the working of the machine the cords wound upon the spools $x$ are first tied by hand around the place of the gut to be corded. During the whole operating of the machine a cutting of the twine does not take place. The same remains, moreover, uncut until the gut is entirely filled.

The cog-wheel $x^3$ is secured to the shaft $y$, which receives its motion by the cog-wheels $y'$, $y^2$, and $y^3$. The cog-wheel $y^3$ catches into the inner set of teeth $y^4$ of the disk $c$. Therefore the shaft $y$ and the entire cording mechanism remains in rest as long as the disk $c$ is not rotating, for during this period the discharging of a new meat-filling into the gut takes place. As soon as, however, the disk $c$ commences to revolve also the pinion $y^3$ is rotating and sets the cording mechanism at work. The removable ring $x'$ is connected with a fork $z$, which is pushed backward and forward by the disk $z'$, provided with a groove in such a manner that the ring $x'$ is removed in the direction of the arrow, Fig. 5, on which account the rolls $w$ withdraw from each other for such a long time as the discharging of the meat-filling is lasting.

I claim—

1. In a machine for filling sausages, the combination of a revolving disk C, a casing in which the same revolves, a discharge-nozzle on the said casing, means for supplying the filling material to the disk, and a piston reciprocating in the disk and of less length than the diameter of the disk and means for operating the piston and for rotating the disk, substantially as described.

2. In combination in a machine for filling and linking sausages, a casing, a disk revolving therein, a double piston with means for reciprocating the same to discharge the filling material first from one side of the disk and then from the other side, a discharge-nozzle to which the disk carries the filling to be discharged into and through the same, arms $w'$ carrying rolls $w$ for pressing the sausages and forming the links, rotary means carrying the arms and a twine-holder carried by the arms, substantially as described.

3. In combination, a casing, a revolving disk therein, means for moving the same intermittently, a piston working in the disk, a discharge-nozzle to receive the filling from the disk, arms $w'$ carrying rollers $w$ for forming the links, a rotary carrier for the said arms, a gear-wheel $x^3$ for driving the said rotary carrier, a cam-disk $z$, means controlled thereby for controlling the opening or closing of the said arms $w'$, a shaft $y$ carrying the gear $x^3$ and the cam-disk $z$ and means for driving the said shaft from the revolving disk, substantially as described.

4. In combination with a nozzle through which the material is forced, arms carrying rollers, a rotary support for said arms, means for holding the twine carried by said arms, and means for moving the arms carrying the rollers toward and from the axial line of the nozzle, substantially as described.

5. In combination, a rotary disk, a piston operating diametrically thereof, a nozzle to receive the material from the disk, arms movable toward and from the axial line of the nozzle, the carrying-rollers and twine-holding means, and means for operating the arms from the rotary disk, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOSUA ARON BIBERFELD.

Witnesses:
FRANZ STEHMANN,
FRANZ NETSCH.