

No. 653,060.

Patented July 3, 1900.

C. BETZ.

MACHINE FOR MAKING PRETZELS.

(Application filed Dec. 26, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. I.

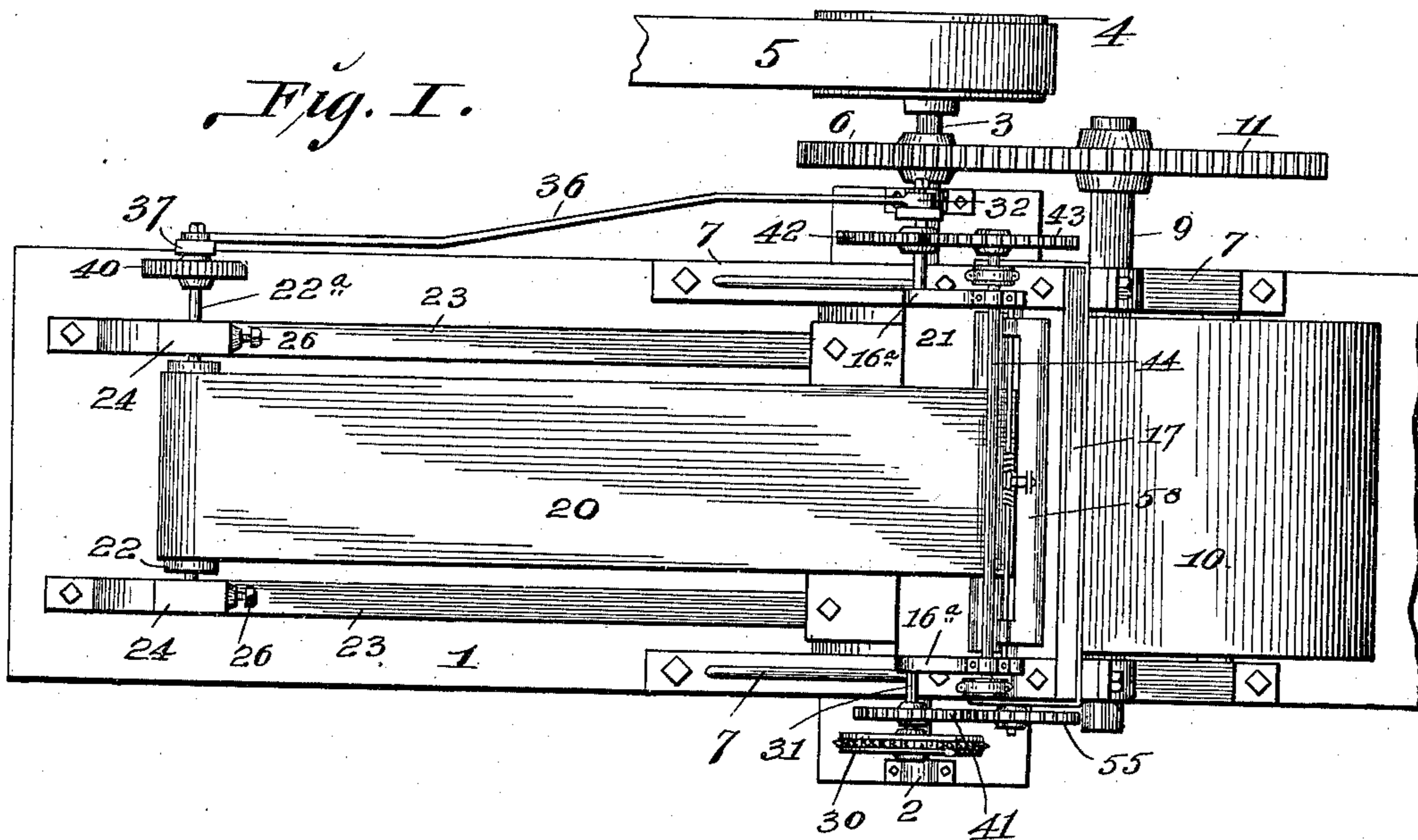
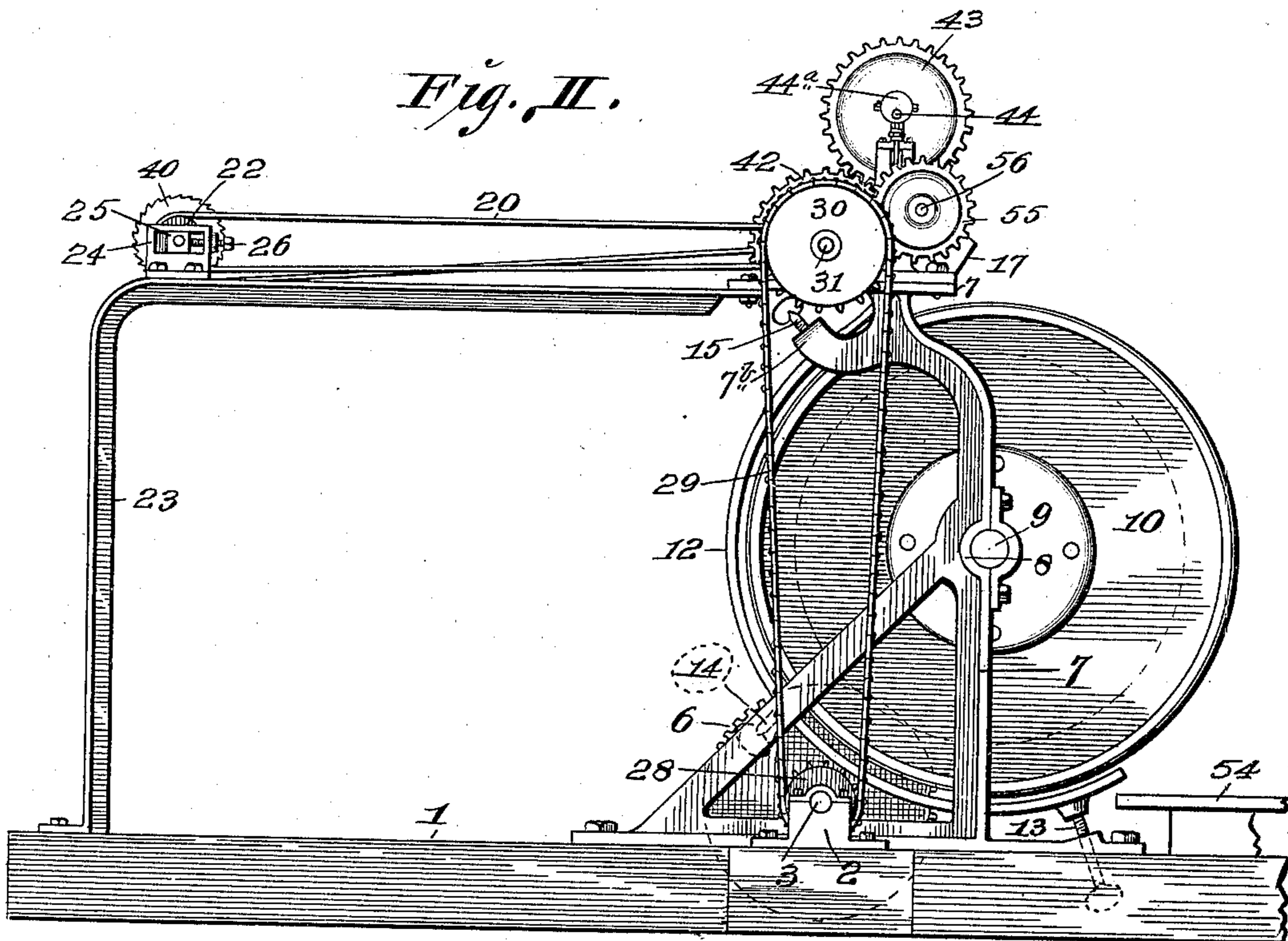


Fig. II.



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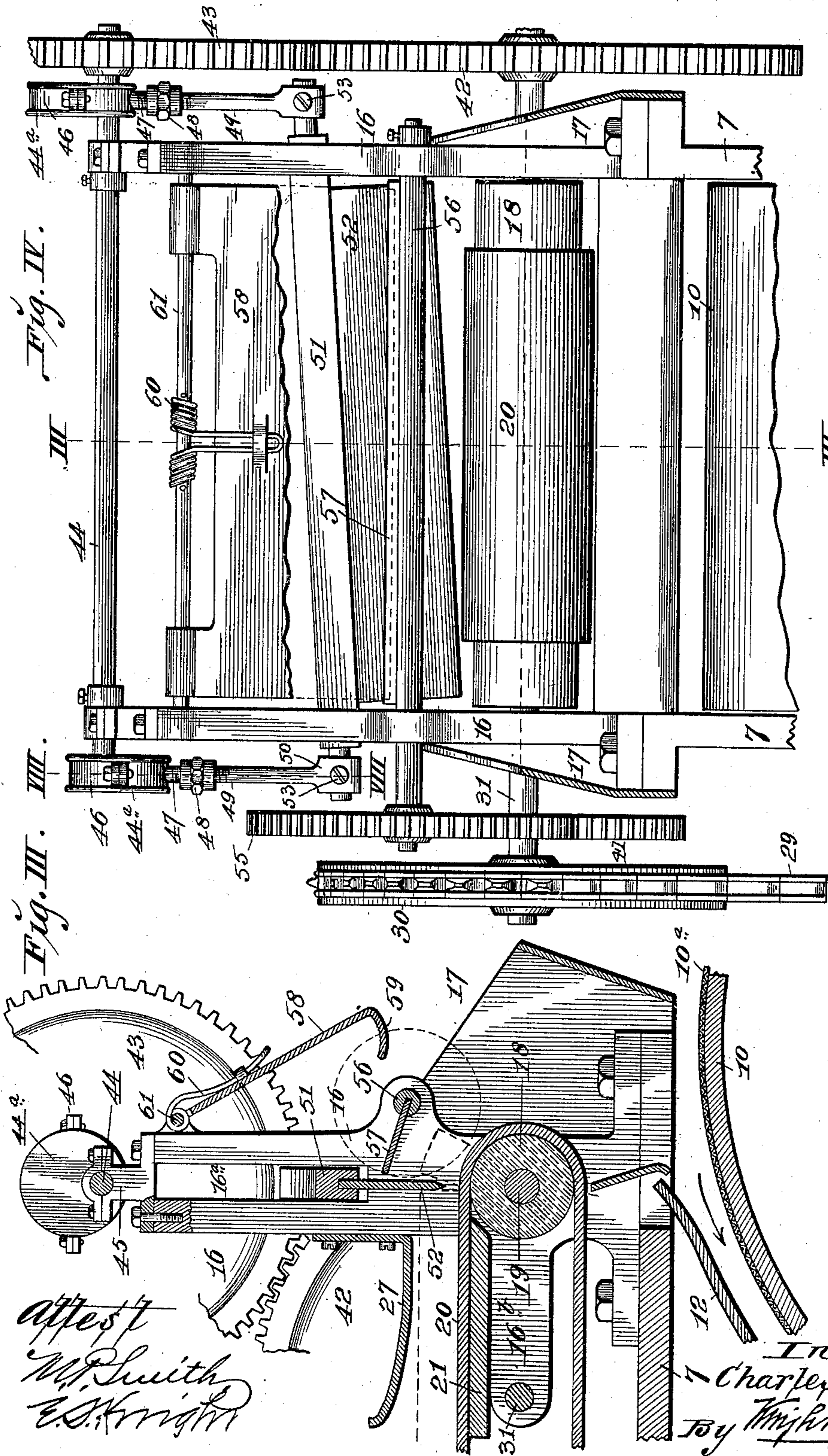
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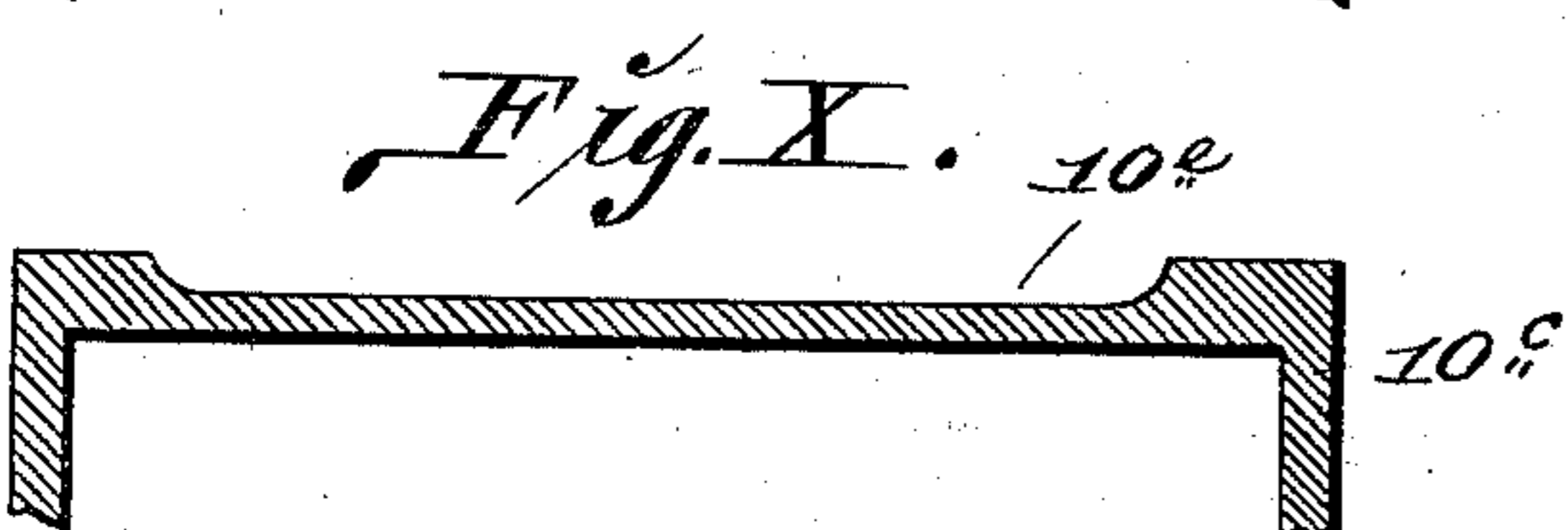
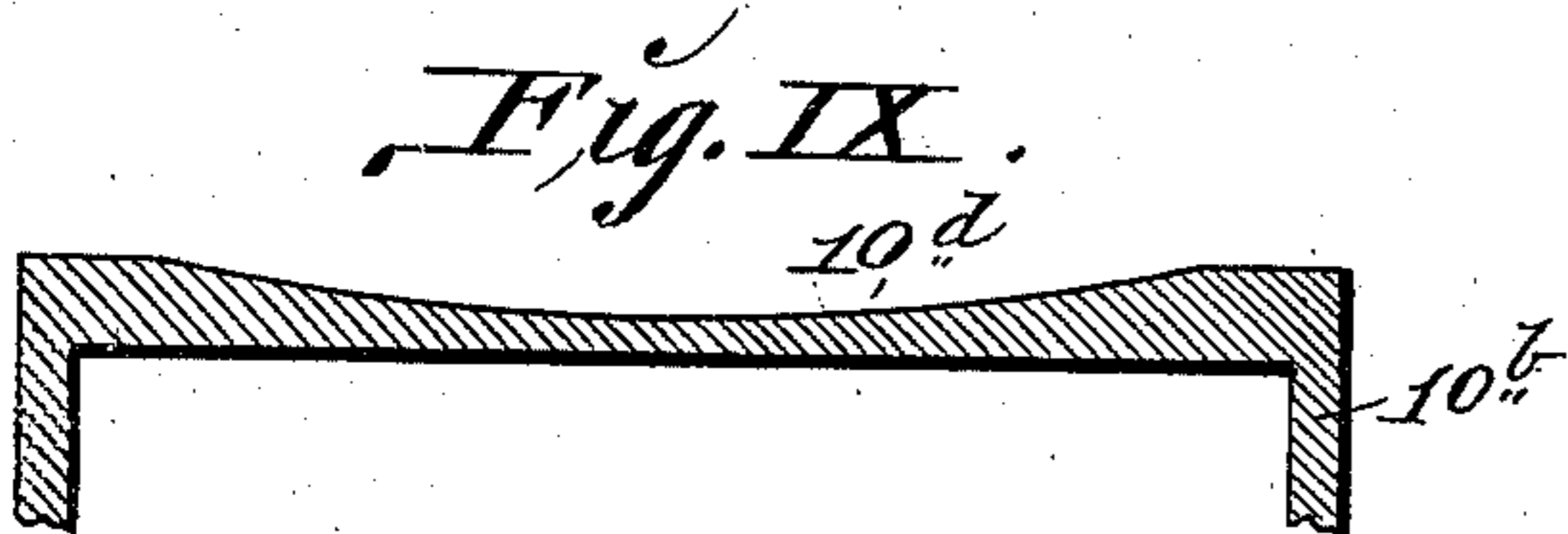
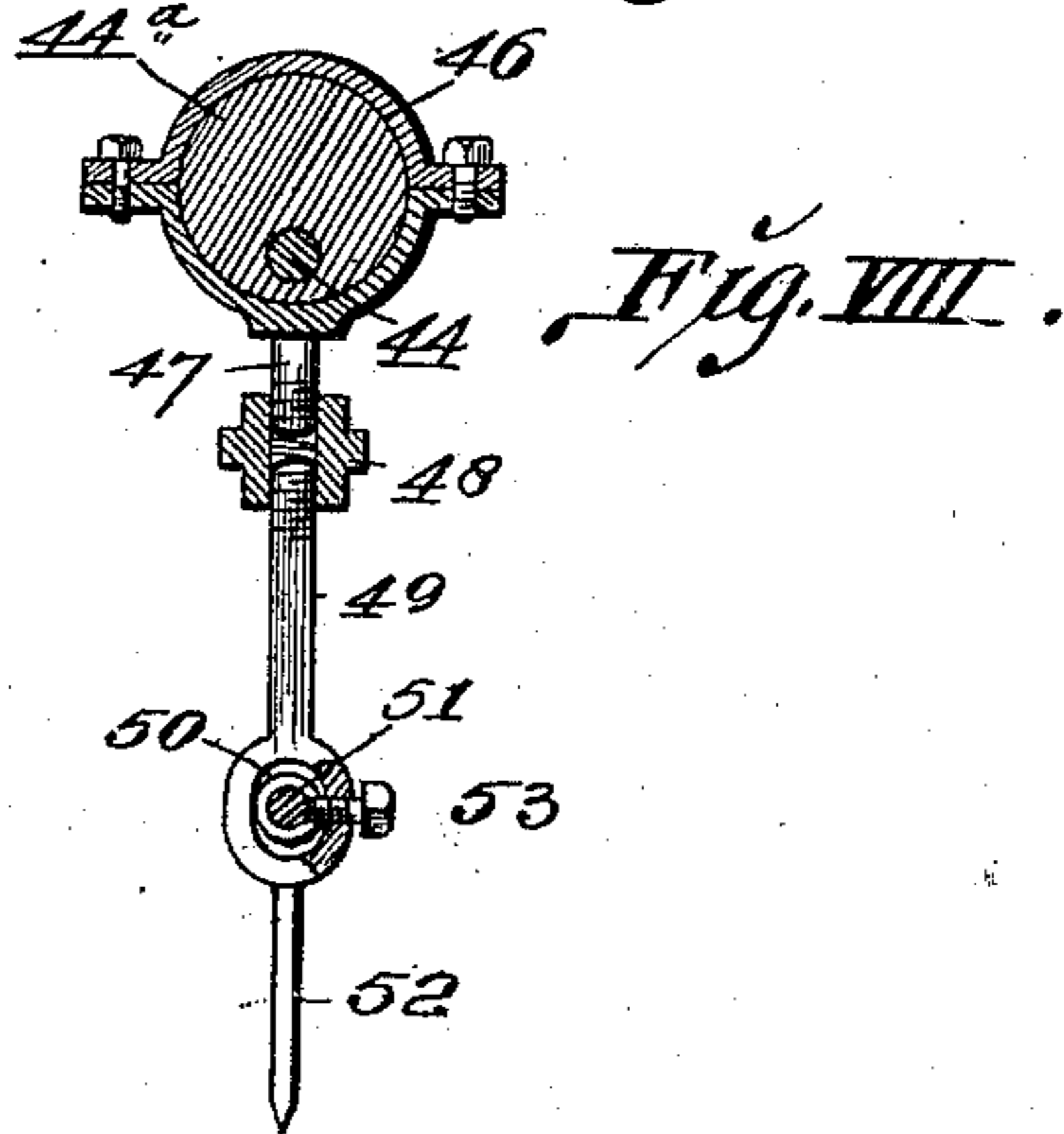
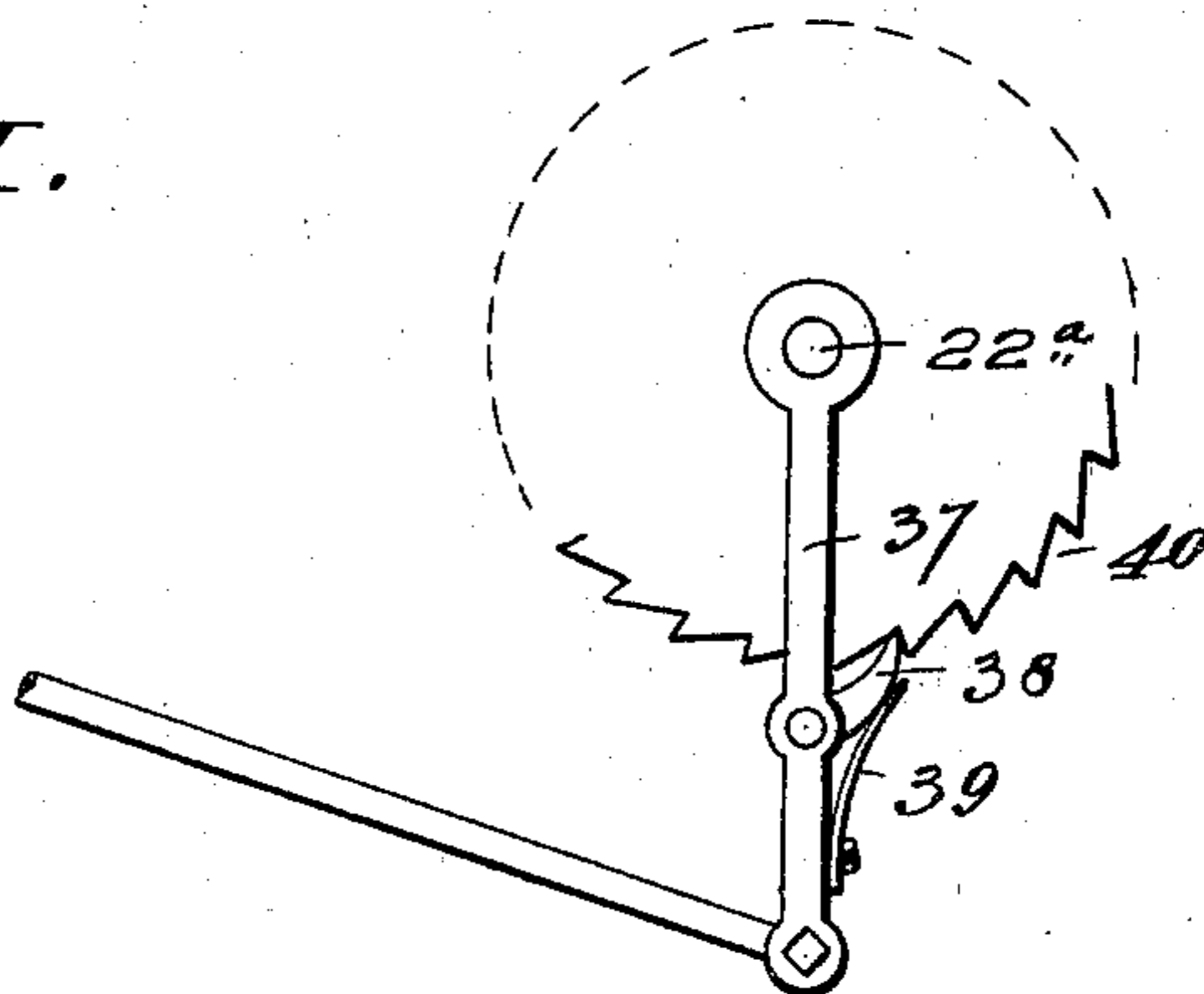
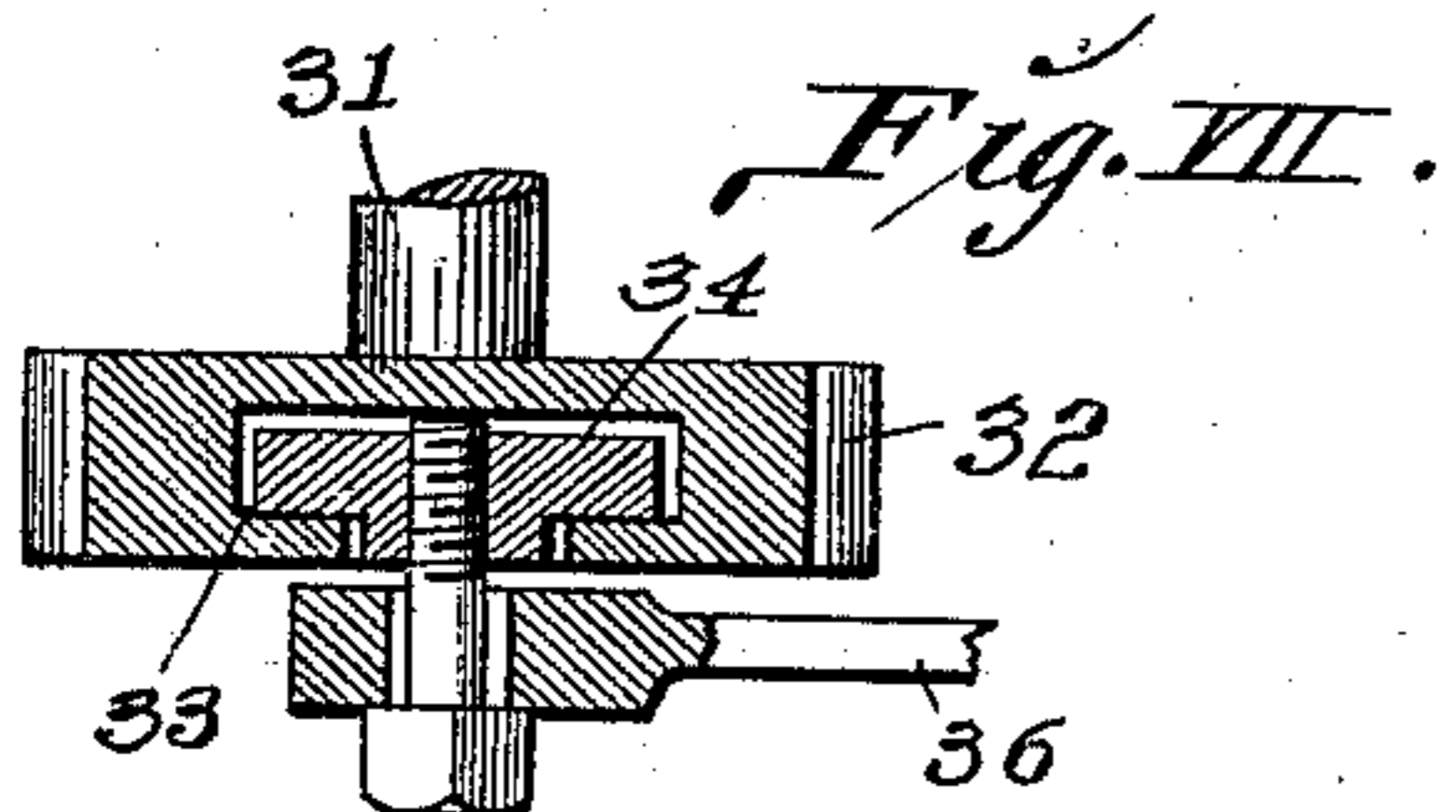
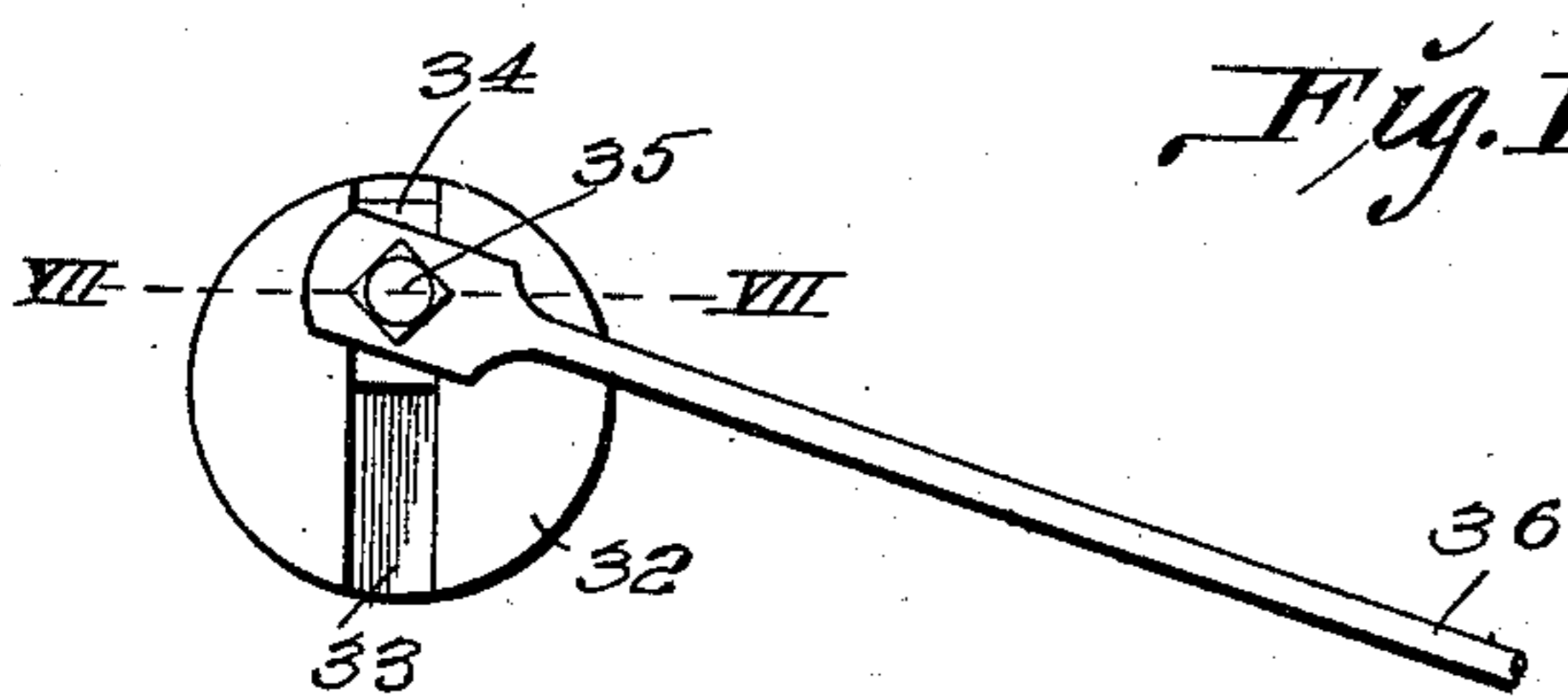
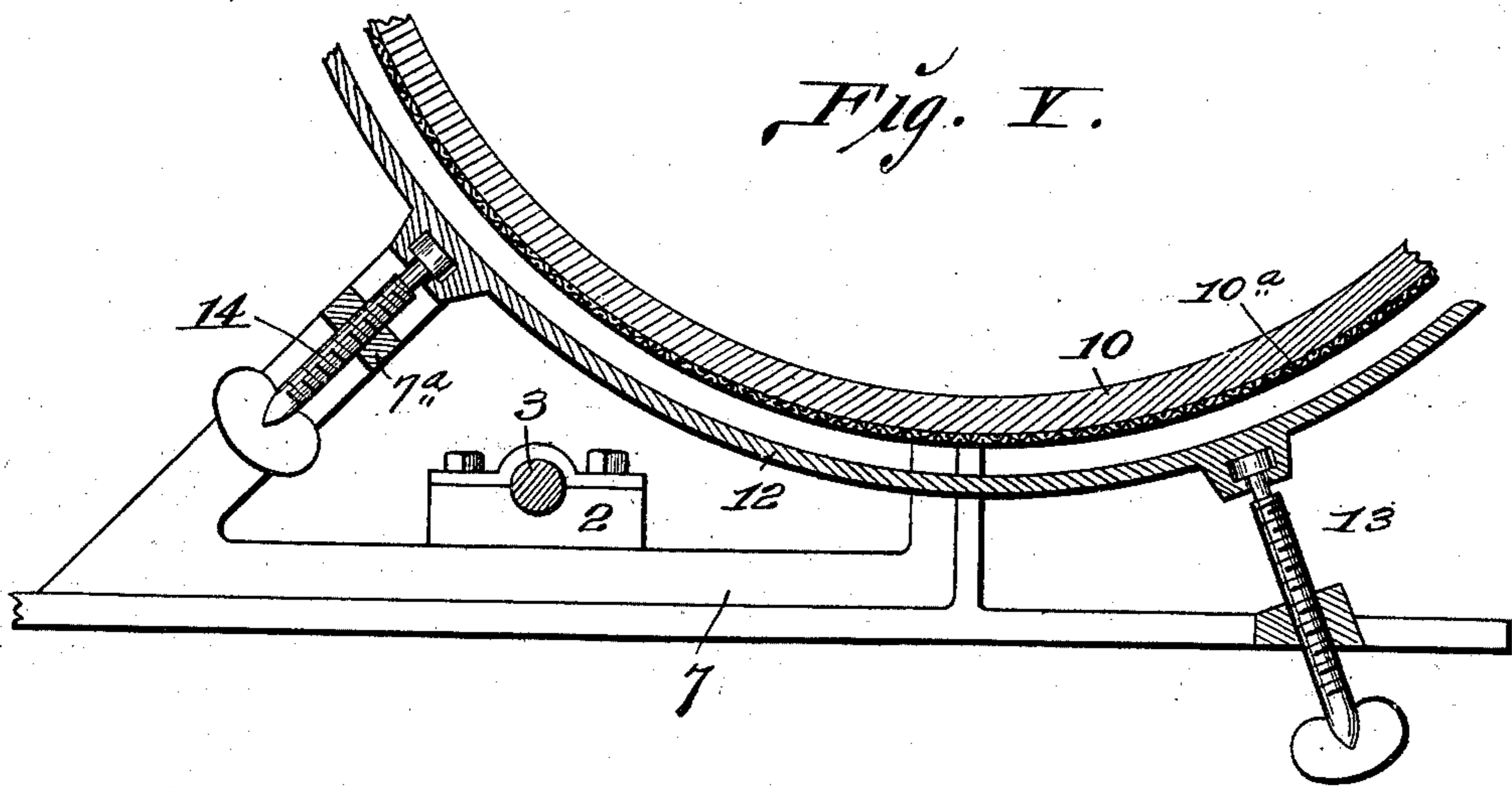
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

CHARLES BETZ, OF ST. LOUIS, MISSOURI.

MACHINE FOR MAKING PRETZELS.

SPECIFICATION forming part of Letters Patent No. 653,060, dated July 3, 1900.

Application filed December 26, 1899. Serial No. 741,524. (No model.)

To all whom it may concern:

Be it known that I, CHARLES BETZ, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Machines for Making Pretzels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a machine for cutting and rolling pretzels preparatory to their being twisted into the desired forms and baked.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view of the machine. Fig. II is a view in side elevation. Fig. III is an enlarged vertical sectional view taken on the line III III, Fig. IV. Fig. IV is an enlarged view, in front elevation, of the upper part of the machine. Fig. V is an enlarged sectional view of fragments of the dough-rolling drum and the lowermost part of the curved pressure-plate. Fig. VI is a view in side elevation of the dough-carrier-actuating device. Fig. VII is an enlarged cross-sectional view taken on the line VII VII, Fig. VI. Fig. VIII is a detail sectional view taken on the line VIII VIII, Fig. IV. Figs. IX and X are cross-sectional views of modified forms of the rim of the dough-rolling drum.

1 designates the base of the machine, and 2 the journal-boxes mounted thereon, in which the main driving-shaft 3 is journaled. The shaft 3 is equipped with a driving-pulley 4, that receives a belt 5 (see Fig. I) and carries a spur-wheel 6.

7 designates standards mounted on the base 1 and provided with journal-boxes 8, that receive a shaft 9, which carries a dough-rolling drum 10. Fixed to the shaft exterior of the standards 7 is a spur-wheel 11, the teeth of which engage those of the spur-wheel 6 for the purpose of imparting motion from the driving-shaft 3 to the dough-rolling drum 10. The rim of the dough-rolling drum 10 is provided with a covering 10^a, (see Fig. V,) preferably of canvas or of fine wire-cloth, the purpose of which will hereinafter appear.

12 designates a curved pressure-plate located in proximity to the circumference of

the rim of the dough-rolling drum 10 and supported upon adjusting-screws 13, 14, and 15, seated in different parts of the standards 7. The screws 13 are set in the base of the standards 7. The screws 14 are set in a cross-bar 7^a, connecting the standards near the bottoms thereof, and the screws 15 are set in a cross-bar 7^b near the upper ends of the standards. (See Fig. II.) By adjusting the screws 13, 14, and 15 the curved pressure-plate may be moved to or from the rim of the dough-rolling drum 10, as desired, in order to create greater or less space between the dough-rolling drum and curved pressure-plate and also that where desirable such space may be created of greater dimensions at either the upper or lower part of the curved pressure-plate.

Mounted on the standards 7 are a pair of uprights 16, that occupy a position immediately above the dough-rolling drum 10. Secured to the uprights 16 is a guard-box 17, that is open at top and bottom.

18 designates a roller, of pliable material, such as soft rubber, the roller being carried by a shaft 19, mounted in the uprights 16.

20 designates an endless carrier that travels on the pliable roller 18 over a supporting-plate 21, fixed to the uprights 16 and also arranged on a roller 22.

23 designates a pair of angle frame-bars mounted on the base 1 and attached to extensions of the standards 7. (See Figs. I and II.) Mounted on the frame-bars are journal-box frames 24, containing movable boxes 25, that receive the shaft of the roller 22, the boxes being adjustable by means of adjusting-screws 26, by which they may be moved to move the roller 22 to tighten the endless carrier 20.

In the use of the machine the dough, prepared in strips, is placed on the endless carrier 20 and is conveyed thereon to the location of the roller 18, passing under a smoothing-plate 27. (See Fig. III.) The driving mechanism of the carrier will be hereinafter described.

28 designates a sprocket-wheel on the drive-shaft 3, that receives a drive-chain 29, leading to a sprocket-wheel 30 on a shaft 31, mounted in arms 16^b, projecting from the uprights 16.

Fixed to the shaft 31 at the opposite end from the sprocket-wheel 30 is a disk 32. (Shown in detail in Figs. VI and VII.) In the disk

32 is an undercut groove 33, that receives a block 34. Seated in the block 34 is a jam screw or pin 35, adapted to bear against the disk within the groove 33 to hold the block in a fixed position.

36 is a pitman-rod through one end of which the shank of the jam-screw 35 passes loosely. The opposite end of the pitman-rod is pivoted to a rocker 37, loosely hung on the shaft 22^a of the roller 22. The rocker 37 carries a pawl 38, backed by a spring 39.

40 is a ratchet-wheel fixed to the shaft 22^a and with the teeth of which the pawl 38 is adapted to engage. On the rotation of the shaft 31, propelled by the drive-chain 29, the disk 32 is rotated and the pitman 36 is operated to rock the rocker 37. As the rocker is moved the pawl 38 engages the teeth of the ratchet-wheel 40 and moves said wheel to impart rotation to the roller 22, and consequently to the endless carrier 20 thereon. By this arrangement and operation of parts the endless carrier is moved intermittently to carry the dough placed thereon forward to the cutting-knife, which will be presently described. By moving the block 34 in the grooved disk 32 away from or toward the axis of the disk the length of stroke of the pitman 36 may be altered at will to cause a greater or less movement of the ratchet-wheel 40 on each forward stroke of the pitman and a consequently increased or diminished travel in the intermittent feed of the endless carrier.

Fixed to the shaft 31 are pinions 41 and 42. The pinion 42 meshes with a pinion 43 on a shaft 44, mounted in bearing-boxes 45, seated on top of the uprights 16. The shaft 44 is provided with eccentrics 44^a, each of which is loosely surrounded by a sectional collar 46. (See Figs. III, IV, and VIII.) One member of each sectional collar 46 carries a stem 47, and each of the stems receives the connection of a coupling 48. Connected to the couplings 48 are links 49, provided with loops 50, (see Fig. VIII,) that receive the ends of a bar 51, that carries a knife 52. The ends of the bar 51 are held from turning in the loops 50 by set-screws 53, set in the loops and adapted to bear against the ends of the bar. The bar 51 works in vertical guide-slots 16^a, contained by the uprights 16. In the turning of the shaft 31 the pinion 42 is rotated and meshing with the teeth of the pinion 43 imparts rotation to the eccentric-carrying shaft 44. As the shaft 44 turns the eccentrics 44^a are carried thereby, and through the connecting-links 49 the knife 52 is raised and lowered to and from the carrier 20 in a position above the pliable roller 18, as clearly seen in Fig. III. The stems 47, carried by the sectional collars 46, are offset from each other with respect to the axes of the eccentrics, so that first one end and then the other of the knife 52 is raised and lowered to the carrier 20 to cause the knife to operate in a shearing manner in cutting the dough passed thereunder by the carrier on each of its intermittent movements, as explained. As

the knife descends each time it cuts off a piece of dough fed forward on the endless carrier, and the dough falls through the open guard 17 onto the rim of the dough-rolling drum 10 and is conveyed by the dough-rolling drum in the direction indicated by the arrow in Fig. III into the space between the dough-rolling-drum rim and the curved pressure-plate 12, whereby the pieces of dough are rolled to the desired shape and emerge at the lower end of the curved pressure-plate, where they are discharged onto the table 54.

55 designates a pinion on a shaft 56, mounted in the uprights 16. The pinion 55 meshes with the teeth of the pinion 41, whereby the shaft 56 is rotated. Carried by the shaft 56 is a wiper-blade 57, said wiper-blade being adapted to contact with the knife 52 in the turning of its shaft 56 for the purpose of clearing therefrom any dough that may adhere to the knife, the dough being thrown from the wiper-blade and falling onto the dough-rolling drum 10.

In order to remove any dough that may adhere to the wiper-blade 57, I have provided a wiper-plate 58, that has a lower curved end 59 arranged in position to be struck by the wiper-blade 57 in its rotation, the wiper-plate being movably held by a spring 60, secured to the supporting-shaft 61, on which the wiper-plate is mounted.

In Figs. IX and X, I have shown two modifications of the rim of the dough-rolling drum 10, the rims 10^b and 10^c therein being provided with circumferential concavities 10^d and 10^e instead of having a flat circumference, as seen in Figs. III and V.

I claim as my invention—

1. In a machine of the character described, the combination of dough-cutting means, a carrier on which the dough is conveyed to said cutting means, a pliable roller located beneath said cutting means, and over which said carrier travels, a dough-rolling drum, and an adjustable plate located at the periphery of said rolling-drum, substantially as described.

2. In a machine of the character described, the combination of a dough-rolling means, an endless dough-carrier, means for operating said endless dough-carrier intermittently, a dough-cutting knife, an eccentric-carrying shaft, the eccentrics thereon, and offset connections between said eccentrics and said dough-cutting knife, substantially as described.

3. In a machine of the character described, the combination of a dough-rolling means, an endless dough-carrier, means for operating said endless dough-carrier intermittently, a dough-cutting knife, an eccentric-carrying shaft, the eccentrics thereon, sectional collars encircling said eccentrics, and offset connections between said sectional collars and dough-cutting knife, substantially as described.

4. In a machine of the character described, the combination of a dough-rolling means, a

dough-carrier, a cutting-knife, means for operating said parts, and a revolving wiper-blade arranged to turn into contact with said knife, substantially as described.

5 5. In a machine of the character described, the combination of a dough-rolling means, a dough-carrier, a cutting-knife, means for operating said parts, a revolving wiper-blade arranged to turn into contact with said knife, and a spring-controlled wiper-plate arranged
10 in the path of rotation of said wiper-blade, substantially as described.

6. In a machine of the character described, the combination of a dough-rolling means, a
15 cutting-knife, means for operating said parts, an endless dough-carrier, rollers on which said

carrier is arranged; and means for operating said carrier, comprising a driven disk provided with an undercut groove, a block located in said groove, a pin or screw seated in
20 said block, a pitman connected to said pin, a ratchet-wheel fixed to the shaft of one of said rollers, a rocker loosely hung on said roller-shaft and pivotally connected to said pitman, and a pawl carried by said rocker arranged in
25 engagement with the teeth of said ratchet-wheel, substantially as described.

CHAS. BETZ.

In presence of—

E. S. KNIGHT,

M. P. SMITH.