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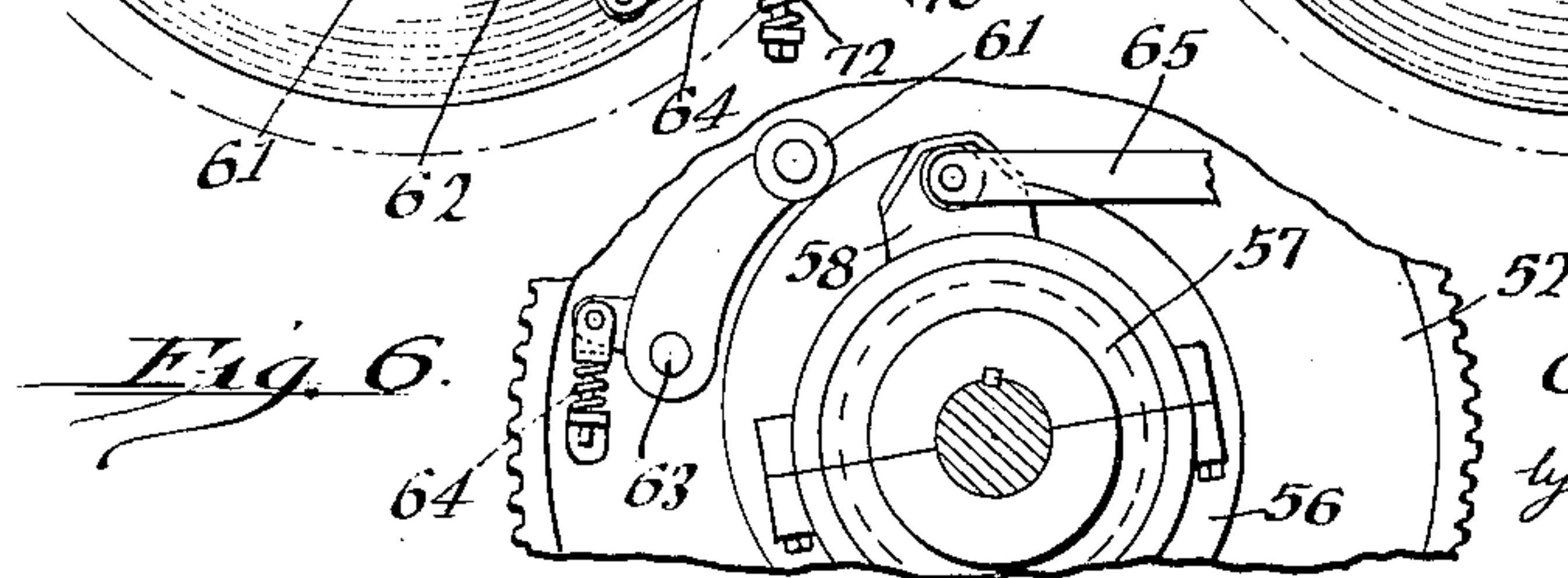
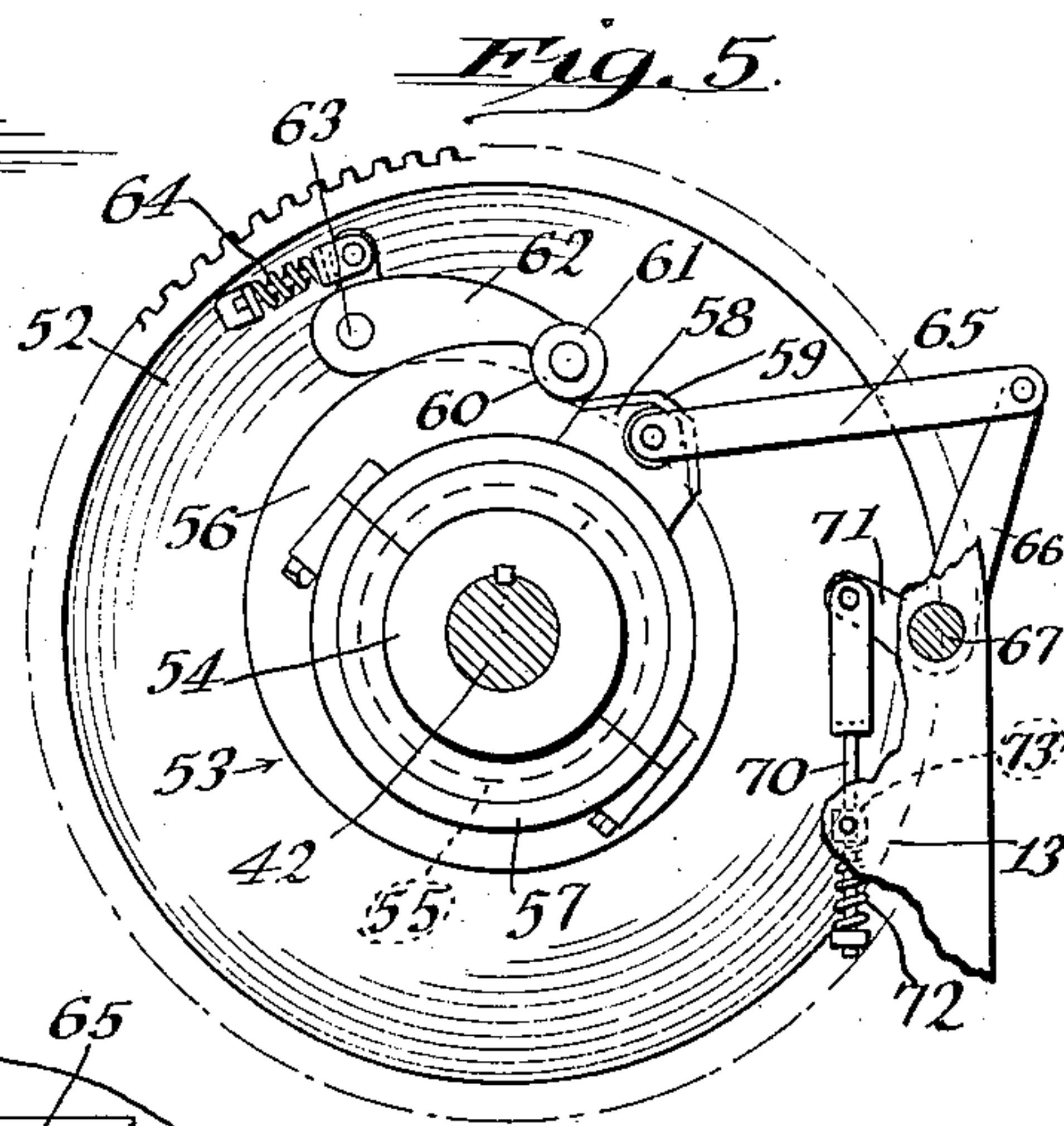
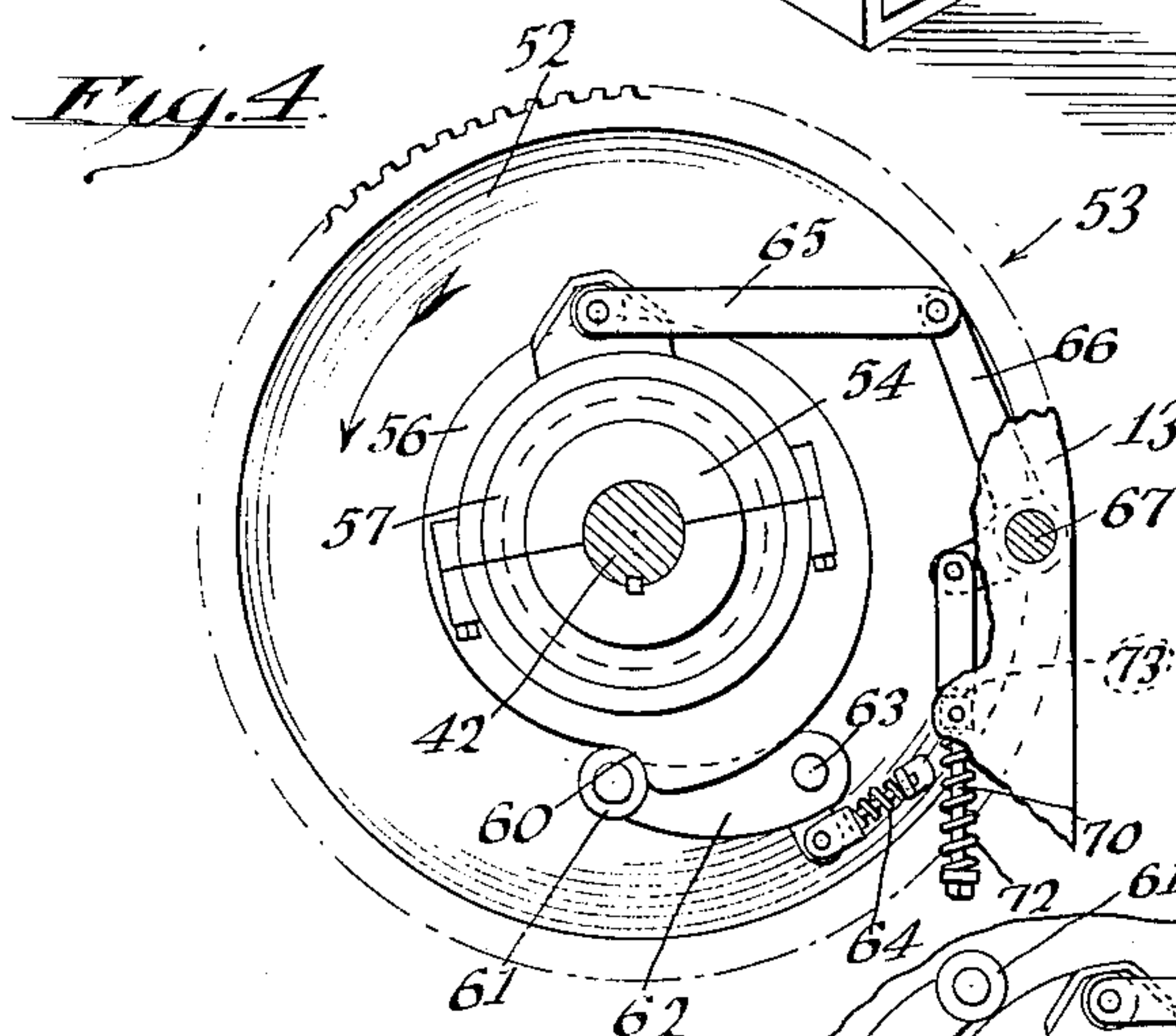
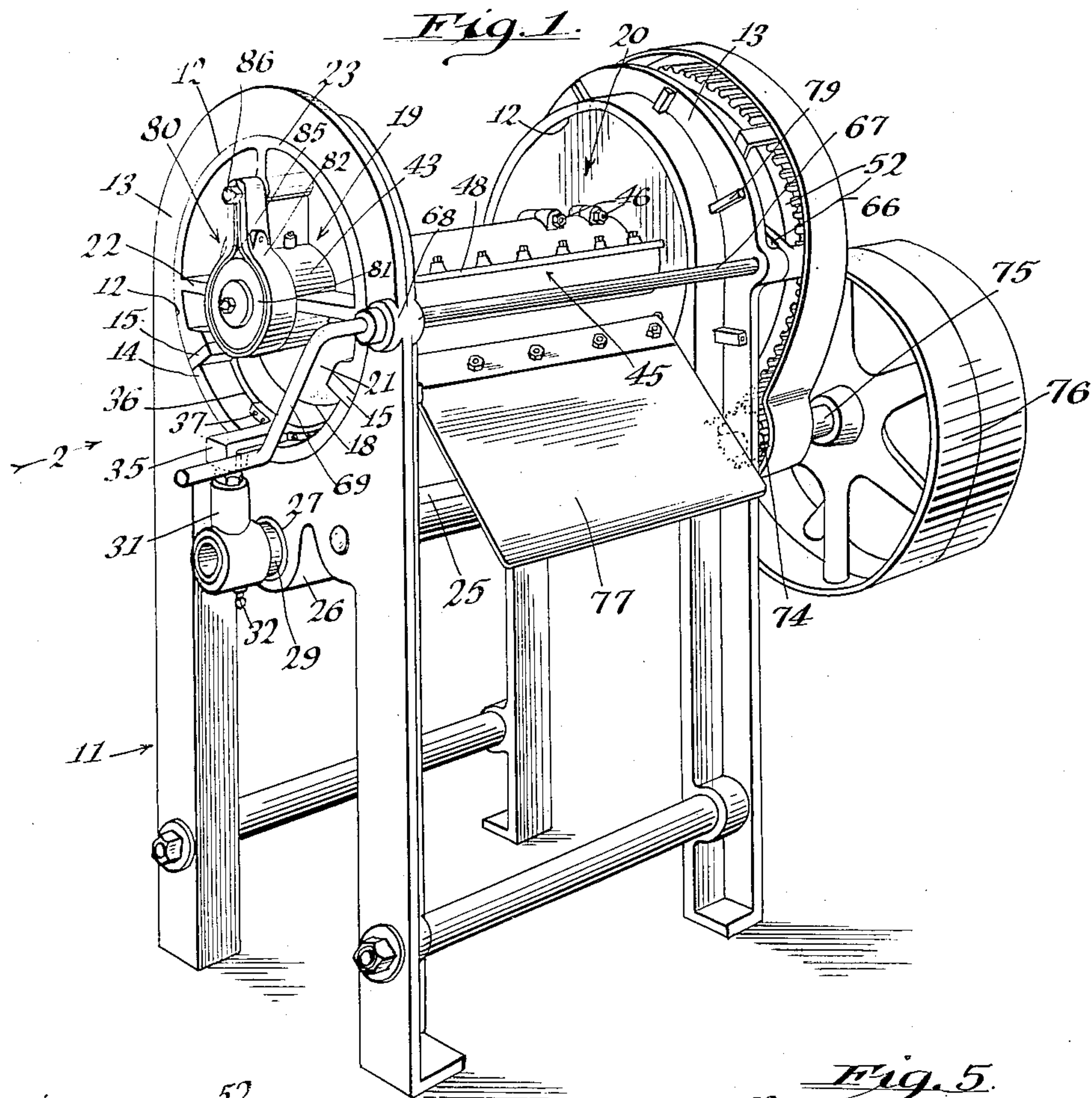
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STEREOTYPE PLATE SHAVING MACHINE

Filed Feb. 26, 1929

3 Sheets-Sheet 1



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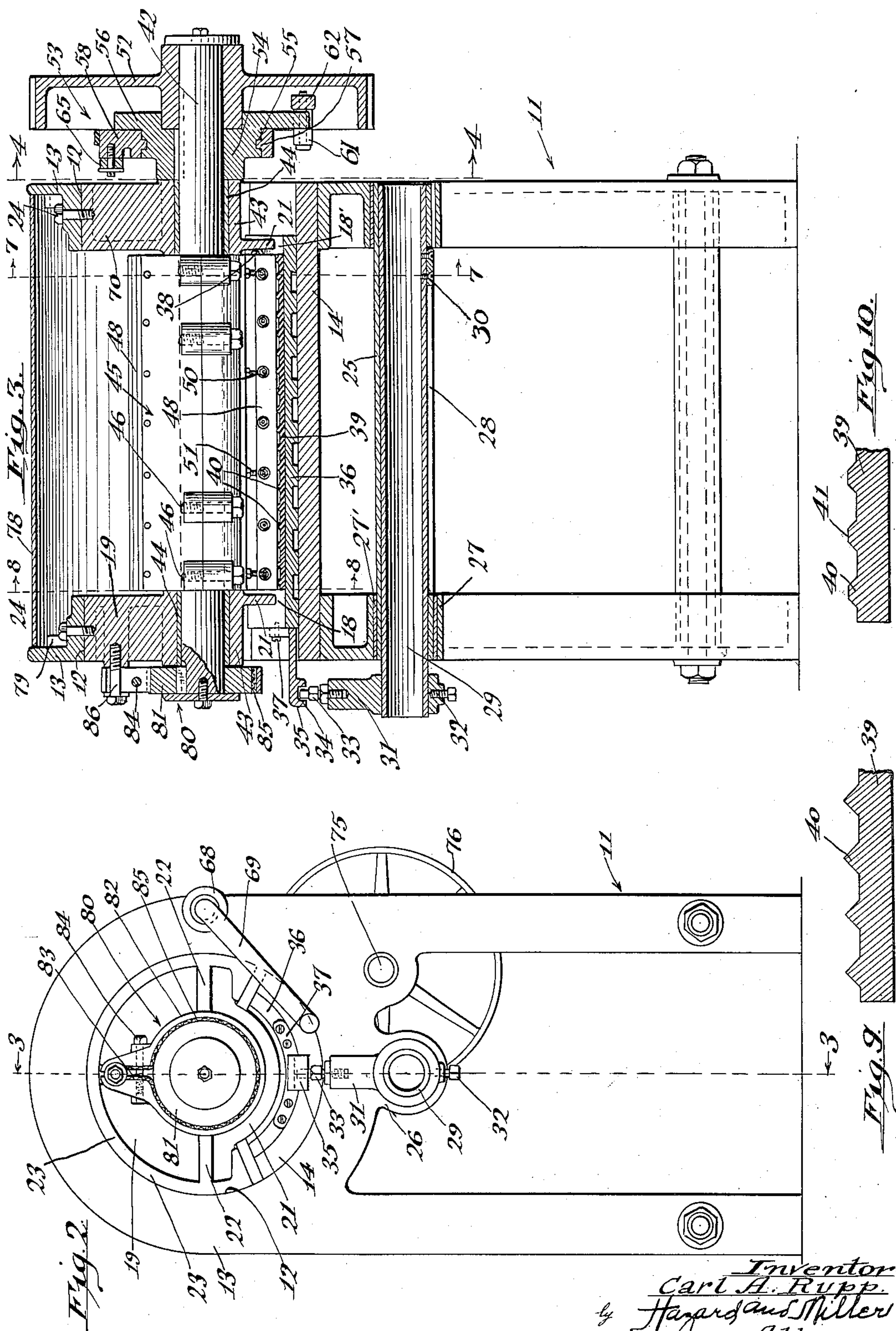
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3 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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STEREOTYPE PLATE SHAVING MACHINE

Application filed February 26, 1929. Serial No. 342,693.

My invention is a stereotype plate shaving machine adapted to shave the internal ridges formed in casting stereotype plates to adapt them to properly fit the printing cylinders.

5 An object of my invention is the employment of rotary cutting or shaving tools which operate against stereotype plates held stationary during the shaving operation, the blades cutting the internal ridges on the
10 plate formed in the casting operation.

A further object of my invention is a construction by which the plates may be inserted by a longitudinal motion and after shaving, withdrawn by the same motion.
15 In this connection a detailed object is utilizing a guide by which the stereotype plate is held in an accurate position when being thrust into the shaving machine and is held in such position during the shaving operation.
20 For this purpose I utilize a partly cylindrical shaped bed-plate on which the stereotype plate is positioned. This bed-plate is drawn partly out of the shaving machine by a pulling lug attached to a
25 guide.

Another object of my invention is utilizing a continuous power operation and in conjunction with this having a single revolution clutch by which the shaving blades are
30 given one complete revolution and then come to rest and in which the manipulation of this clutch is by a readily actuated lever at the front end of the machine.

A further object and feature of my invention is to provide a safe construction in this type of machine whereby there is little likelihood of the operator becoming injured, and to effect this, substantially all the working parts when in working operation are enclosed, and in the manipulation of the machine there is little likelihood of the operator having his hand or finger caught by the cutters.
40

The scraping blades are mounted on a longitudinal shaft extending in the axial center of the bed-plate and of the stereotype plates and this has blade holders in which the blades may be adjusted to give an accurate scraping operation.
45

Further features of my invention will ap-

pear from the following description taken together with the drawings, in which my invention is illustrated.

Figure 1 is a perspective view of the machine from the forward end with the cover
55 plate or hood removed;

Fig. 2 is a front end elevation taken in the direction of the arrow 2 of Fig. 1;

Fig. 3 is a vertical longitudinal section taken on the line 3—3 of Fig. 2 in the direction of the arrows, showing the blades and blade holder however, in side elevation in the cutting operation;
60

Fig. 4 is a transverse section on the line 4—4 of Fig. 3 in the direction of the arrows, showing the one revolution clutch in its moving position;
65

Fig. 5 is a view similar to Fig. 4, showing the clutch engaging to transmit rotation;

Fig. 6 is a partial view similar to Figs. 4 and 5, showing the clutch in its inoperative position rotating with the power mechanism but leaving the cutter-shaft idle;
70

Fig. 7 is a partial transverse section on the line 7—7 of Fig. 3 in the direction of the arrows;
75

Fig. 8 is a vertical transverse section on the line 8—8 of Fig. 3, showing the cutting blades however in the position at rest;
80

Figs. 9 and 10 are partial longitudinal sections of the stereotype plate before and after scraping.

In constructing my invention I utilize a suitable frame or leg structure 11 which is illustrated as having four legs suitably braced and having a circular opening 12 in the head structures 13. A curved bed-plate 14 is located in the lower portion of the circular opening 12 and has longitudinal abutment plates 15 extending from the opening at one end to the opening at the other end. Bolts 16 secure the bed-plate in position and bolts 17 secure the abutment plates 15 to the bed-plate.
85 90 95

This bed-plate extends through an arcuate slot 18 and 18' in the end closure discs 19 and 20 fitted in each of the openings. These closure discs have a web portion 21 and radial ribs 22 and are provided with a
100

rim 23 fitted in the openings 12. The rims are secured by bolts 24.

A guide tube 25 is mounted in a fixed position in the depending lugs 26 on the end structure 13 and there being fixed by bushings 27. This tube has a longitudinal slot 28 preferably at the bottom. A traveling tube 29 is slidably mounted in the guide tube and has a guide plate 30 secured thereto and fitting in the groove 28, thus preventing rotation or lateral motion of the tube 29. This construction gives a simple sliding form and on the outside of the tube 29 there is a pulling lug 31 clamped thereto by a set screw 32. This pulling lug has an adjustable pulling screw 33 which engages in a notch 34 on an outwardly extending arm 35. This arm is bolted to a slidable base plate 36 as by bolts 37. This base plate slides on the bed-plate 14 and extends through the arcuate slot 18 in the end discs 19 and 20. There are abutment lugs 38 engaging the lower portion of the web of the disc 20.

The stereotype plate is indicated by the numeral 39 shown in longitudinal section in Fig. 3 and transverse section in Fig. 7. This plate as it comes from the casting machine has angular ribs 40 extending in a circumferential direction on the inner side and the object of the machine is to cut off the tops of these ribs or ridges leaving them flat as indicated at 41 (Figs. 9 and 10).

A tool or cutter supporting shaft 42 extends longitudinally of the machine, being mounted in journals 43 in the end discs 19 and 20, there being preferably anti-friction bushings 44 in these journals. The blade holders (note particularly Figs. 7 and 8) designated generally by the numeral 45 are formed in two sections clamped around the shaft 42 by bolts 46, there being a key 47 to rotate the tool holders. Each of the cutting blades 48 has a series of longitudinal slots 49 therethrough through which extend clamping bolts 50. The back edges of the blades are adjusted by adjustable set screws 51 mounted in the blade holders. One of the blades is positioned to give a first or a rough cut and the other to give a finishing cut, in one revolution.

A large gear 52 is rotatably mounted on the shaft 42 and on the inside of this gear there is a clutch mechanism designated generally by the numeral 53 shown in detail in Figs. 3, 4, 5 and 6. This clutch utilizes a hub member 54 keyed on the shaft and having an annular groove 55 therein. The hub carries also a cam-shaped rim 56 adjacent the gear 52. A rocking split ring 57 is mounted on the hub having a tongue extending into the groove 55 and from one side there is a lateral extension 58 carrying a cam 59.

The cam-shaped rim 56 has a shoulder 60

adapted to engage a roller 61 on a pivoted dog 62, this dog being carried by the pintle 63 secured to the gear 52 and having a compression spring and stem 64 normally pressing the roller into engagement with the cam-shaped rim 56.

The operation of the clutch is through the medium of the link 65 connected to the extension 58 of the split ring 57 and this link is connected to an arm 66 secured to the shaft 67. This shaft is journaled at opposite ends of the machine as indicated at 68 of Fig. 1 and has an operating crank handle 69 at the front or operator's end of the machine. A stem 70 is secured to the short arm 71 secured to the shaft 69 and is under tension by the spring 72 connected to the stem and abutting against the shoulder 73 on part of the structure of the rear end of the machine. This action of the spring 72 always tends to move the extension 58 with its cam 59 into the position indicated in Fig. 5, the crank being normally in the position of Fig. 6, this being the position when the machine is at rest.

The gear 52 is driven by a pinion 74 on the shaft 75 carrying the pulley 76. The manner of operation and functioning of the clutch is as follows:

When the crank 69 is in the position shown in Fig. 1 the extension 58 with its cam 59 is in the position shown in Figs. 4 and 6 and in this position when the roller 61 carried by the arm 62 which is continuously rotating meets the cam 59 it rides outwardly clearing the shoulder 60 on the cam-like rim 56 and thus allows the shaft carrying the cutting tools to remain stationary. However, when the crank 69 is pulled upwardly in a clockwise direction of movement the cam 59 is shifted to the position shown in Fig. 5 and in which case the roller 61 on riding over the cam 59 engages the shoulder 60. The roller otherwise rolls on the periphery of the rim cam 56. The dog 62 therefore carries the rim cam with its rotation as shown in Fig. 4 and is brought to rest after one complete revolution after the operator letting go the crank 69 and the cam 59 shifting to the position shown in Figs. 4 and 6.

When the shaft carrying the cutting tools is therefore at rest in the position shown in Fig. 8, the base plate 36 to support the stereotype plate 39 may be drawn outwardly by pulling on the lug 31, this having a straight line movement and passing through the slot 18 in the front disc 19. The operator may then remove the stereotype plate which has been shaved and insert another plate instead and by thrusting inwardly on the lug 31 the base plate and stereotype plate is again carried into the machine and ready for the operation of shaving which is accomplished as above described by operating the crank handle 69.

From the above description it will be seen that I have developed a comprehensive machine for shaving the interior ribs or ridges of stereotype plates in which the base plate supporting the stereotype plate may be conveniently shifted for an operator to remove and insert plates and there is no danger of the operator getting his hand caught in the cutting knives or blades as these are in the interior of the machine and there is no reason for him to reach in the machine. The shavings may be discharged by a discharge plate 77 secured to the bed plate 14 adjacent one of the abutment plates 15. In order to give a further protection a hood 78 extends over the top of the machine fitting on the ends of the internal ribs 79 attached to the end of the disc.

In order to bring the shaft 42 to a quick stop I employ a friction brake designated generally by the numeral 80 illustrated in Figs. 1, 2 and 3. This brake comprises a drum 81 keyed to one end of the shaft 42 and a split brake shoe 82 having a split 83 secured together by a bolt 84. Inside of the brake shoe there is a friction brake band 85. The brake shoe is prevented from rotation by means of the stud 86 positioned between the split portions and secured to the disc 19. By this means the frictional pressure on the drum 81 may be regulated so that when the clutch releases the rotary cutters can be brought to a quick stop.

A feature of my invention in having the two arcuate slots 18 and 18' in the discs 19 and 20 respectively, mounted in the end supporting frames, is that in the travel of the base plate 36 on the bed plate 14, that should any of the cuttings from the stereotype plate become scattered on the bed plate, these will be thrust outwardly through the arcuate slot 18' in the disc 20. Manifestly most of the cuttings will be swept to one side and outwardly by the rotating cutting blades being conveyed on the plate 77.

It will be seen that my machine has a number of safety factors in that the hood 78 extends completely over the top portion of the machine and prevents access to the cutters or to the stereotype plate from the top and either side of the machine. The disks at the ends of the machine have a comparatively small inverted arcuate slot, and the stereotype plate is only insertable through the slot at the forward end. Such slot is only of sufficient size to admit the base plate and the stereotype plate carried thereon. Moreover, in the manipulation of the controlling crank 68 for actuating the clutch to connect to the power mechanism and again to apply the brakes, this crank turns across the arcuate slot at the front of the machine and thus functions to prevent a workman from starting the machine with his fingers inserted through the arcuate slot at the

front. Manifestly, no access can be had to the arcuate slot on the gear end of the machine as the gears effectively cover this portion of the machine.

Another characteristic of my invention relates to its compactness and that the base plate carrying the stereotype plate is effectively guided by the telescopic guide tube.

Various changes may be made in the principles of my invention without departing from the spirit thereof as set forth in the description, drawings and claims.

I claim:

1. A stereotype plate shaving machine comprising in combination a supporting structure having two closure ends with an arcuate bed plate connecting such ends, there being a concave slot in one end adjacent one end of the plate, an inverted arcuate base plate slidably mounted on the bed plate, a slidable guide track outside of the bed plate, an element sliding on said track and engaging the outer end of the base plate, the base plate being adapted to support a concave stereotype plate insertable and removable through the said slot, a shaft journaled in the ends of the structure and having cutting blades to operate on the interior of the stereotype plate.

2. A stereotype plate shaving machine comprising in combination a supporting structure having two ends, an arcuate bed plate connecting such ends, there being an arcuate slot above one end of the plate, a base arcuate plate slidable on the bed plate and moving through the said slot and being adapted to support a stereotype plate, a telescopic guide device having a fixed part mounted in the structure and a movable part with means to engage the forward end of the base plate, the telescopic guide device having means to guide the base plate in a rectilinear movement, a longitudinal shaft journaled in the ends of the structure and having scraping blades to operate on the interior of the stereotype plate.

3. A stereotype plate shaving machine as claimed in claim 2, means to retain the shaft stationary with the blades out of contact with the stereotype plate and a clutch mechanism connected to a rotary power drive to intermittently rotate the cutting blades, whereby at the end of the movement of the cutting blades said blades are again positioned out of contact with the stereotype plate.

4. A stereotype plate shaving machine comprising in combination a supporting structure having an inverted arcuate slot at one end, a supporting base for a stereotype plate slidable with such plate longitudinally through the said slot, an exterior guide and support for the base plate, a shaft extending centrally through the structure and concentric with the stereotype plate, cutters secured

to the shaft, means to rotate the shaft to shave the interior of the plate, and a cover over the said structure enclosing the shaft, the cutters, and the plate, the means to rotate the shaft including a clutch, a control for said clutch operating in front of the said slot and moving across the said slot.

5. A stereotype plate shaving machine comprising in combination a supporting structure having an inverted arcuate slot at its front end, a concave base plate slidable in the said structure and adapted to support a stereotype plate, the base plate and the stereotype plate being slidable through the said slot, a cutter shaft extending centrally through the said structure and having cutters mounted thereon, a clutch controlled shaft extending longitudinally of the said structure and having a crank on the forward end, said crank being adapted to operate across the said slot, a power drive on the rear end of the machine having a connection to the cutter shaft, and means operated by the clutch shaft to operate a clutch connecting and disconnecting the power means from the cutter shaft.

6. A stereotype plate shaving machine comprising in combination a supporting structure having two ends each with a circular opening, a disk removably mounted on each end and having a bed plate connecting said disks, the disk at the forward end having an inverted arcuate slot, a concave base plate on the bed plate to receive and support a stereotype plate, the base plate and stereotype plate being slidable longitudinally through the said slot, a cutter shaft journaled in the said disks and having cutters, a gear on the rear end of the said shaft, a clutch operating shaft journaled in the ends of the said supporting structure and having a crank on the front end, a drive shaft connected to a source of power, a clutch interconnecting the drive shaft and the gear on the cutter shaft, the said crank being operated across the inverted arcuate slot, and a hood connecting the ends of the supporting structure.

7. A stereotype plate shaving machine as claimed in claim 6, the cutter shaft having oppositely positioned cutters, a brake operating device connected thereto, the said clutch being thrown out and the brake operating when the cutters are out of engagement with the stereotype plate, and the said cutter shaft to be rotatable a full turn to again disengage the clutch to apply the brake.

8. A stereotype plate shaving machine as claimed in claim 6, a guide device secured to the supporting structure and having an extension at the forward end, an extension arm connected to the base plate and attached to the extension of the said guide device.

9. A stereotype plate shaving machine

comprising a supporting structure having an end piece with an inverted arcuate slot at the front, a slidable concave base plate adapted to support the stereotype plate and slidable longitudinally through the said slot, a cutter shaft having cutters, a guide device having one portion mounted in the supporting structure and another portion slidable therein with a connection between the base plate and the slidable portion.

10. A stereotype plate casting machine having end closures, the forward end closure having an inverted arcuate slot, a slidably mounted concave base plate to support the stereotype plate slidable longitudinally through the said slot, a rotary cutter shaft journaled in the end closures, a guide device comprising a fixed tube in the supporting structure and a slidable tube telescoping therein, a pulling lug connected to the slidable tube, an arm connected to the base plate, and a connection between the lug and the said arm.

11. A stereotype plate shaving machine comprising, in combination, a supporting structure having two ends with circular openings in the ends, a removable disc-like structure in each end, a concave bed plate mounted in the structure and engaging the circular openings at opposite ends, a concave base plate having a rectilinear sliding motion on the bed plate and passing through an inverted arcuate slot in one of the discs, the bed plate being adapted to support a stereotype plate, a longitudinal shaft journaled in said disc-like structures, a constantly rotating power wheel, a clutch adapted to connect the shaft to the wheel and rotate the shaft one revolution, said shaft having cutters, the cutters being held stationary and out of contact with the stereotype plate.

12. A stereotype plate shaving machine comprising, in combination, a supporting structure having two ends with a circular opening at each end, a closure disk mounted in each opening, one of said disks having an inverted arcuate slot, a concave bed plate below the slot, a concave base plate slidably mounted on the bed plate to move outwardly through the slot with a rectilinear movement, the bed plate being adapted to support a concave stereotype plate, a shaft journaled in the disks and having cutting blades to operate on the interior of the stereotype plate, said slot being of sufficient size only to allow passage of the base plate and the stereotype plate and insufficient when the stereotype plate is inserted for the insertion of the operator's hand or fingers, said disks being removable from the ends to facilitate a dismantling and assemblage of the shaft and the cutting blades, the end of the machine opposite the end having the arcuate slot being provided with

a driving mechanism and a clutch, a control shaft extending from the driving mechanism to the end having the arcuate slot, and a control crank on such shaft, the control
5 crank being operative across the arcuate slot to require removal of the operator's hand and fingers from the slot for operation of the clutch.

10 13. A stereotype plate shaving machine comprising in combination a supporting structure having a concave bed plate, a concave base plate slidably mounted thereon in a longitudinal direction, the supporting
15 structure having closed ends with an inverted arcuate slot at one end of sufficient size only to allow passage of the base plate and the stereotype plate, said base plate being adapted to support the stereotype plate, and means exterior to the end of the
20 supporting structure having the slot to guide the base plate in its insertion and removal through said slot, a rotary shaft having cutting blades to operate on the interior of the stereotype plate, and a clutch being positioned to operate across the arcuate slot
25 and thereby necessitate removal of a person's hand from the slot before the clutch can be actuated.

30 14. A stereotype plate shaving machine comprising in combination a supporting structure having a forward and a rearward end each having a circular opening, a disk removably mounted in each opening, the
35 forward disk having an inverted arcuate slot, a concave base plate to support a stereotype plate, an exterior supporting and guiding means therefor, said base plate with the stereotype plate being slidable longitudinally through the said slot, a cutter
40 shaft having cutters rotatably mounted in the said disks, an enclosing hood connecting the two ends forming an enclosure for the stereotype plate and the cutters, a power means to intermittently actuate the said cutters, the said power means including a
45 power source at the rear end of the machine and a drive connection therefrom to the cutter shaft, and a clutch for interconnecting the power means and the cutter shaft
50 having a control device at the front end of the supporting structure, the said control device being operated across the said arcuate slot.

55 In testimony whereof I have signed my name to this specification.

CARL A. RUPP.