

No. 721,123.

PATENTED FEB. 17, 1903.

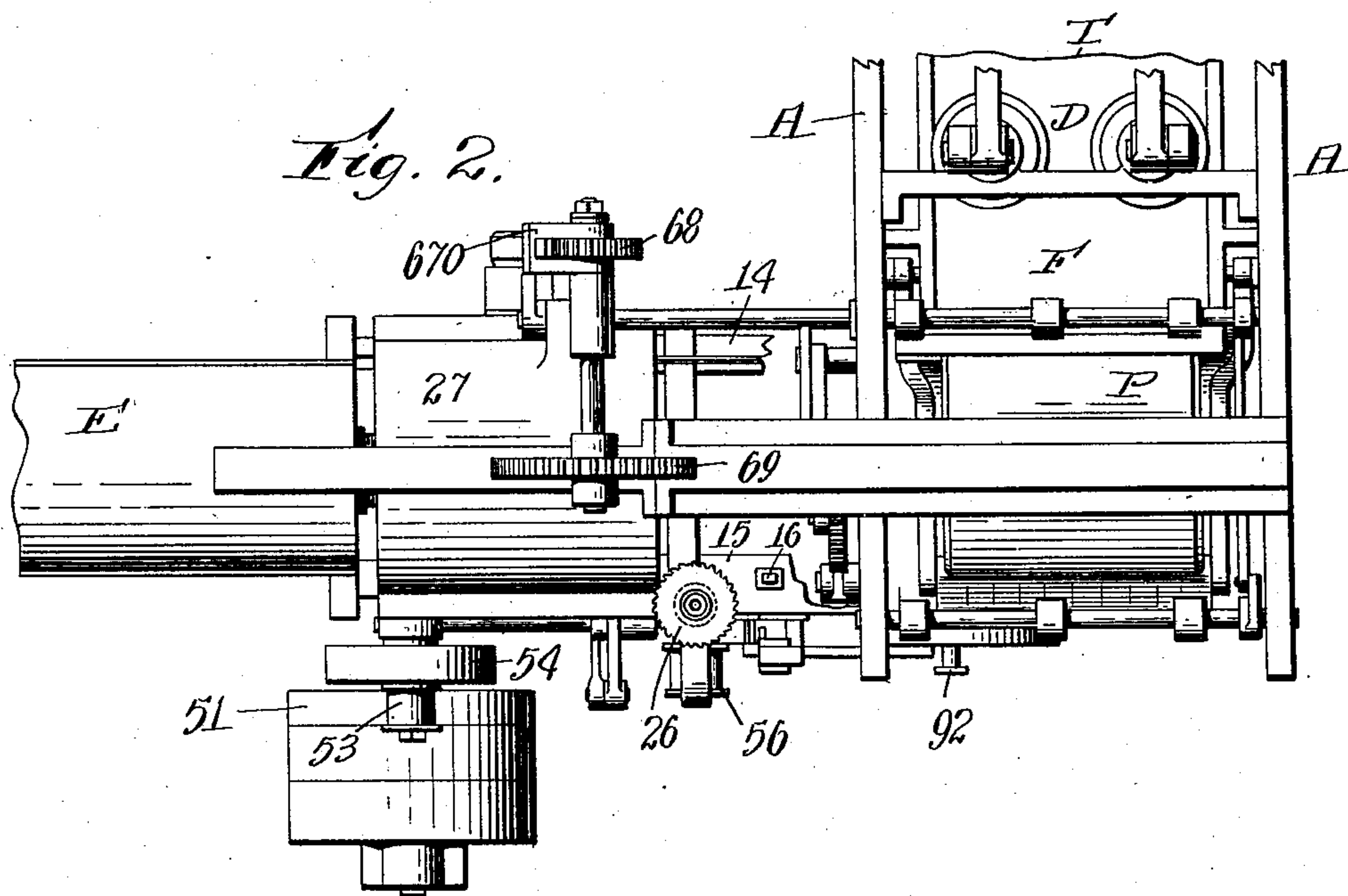
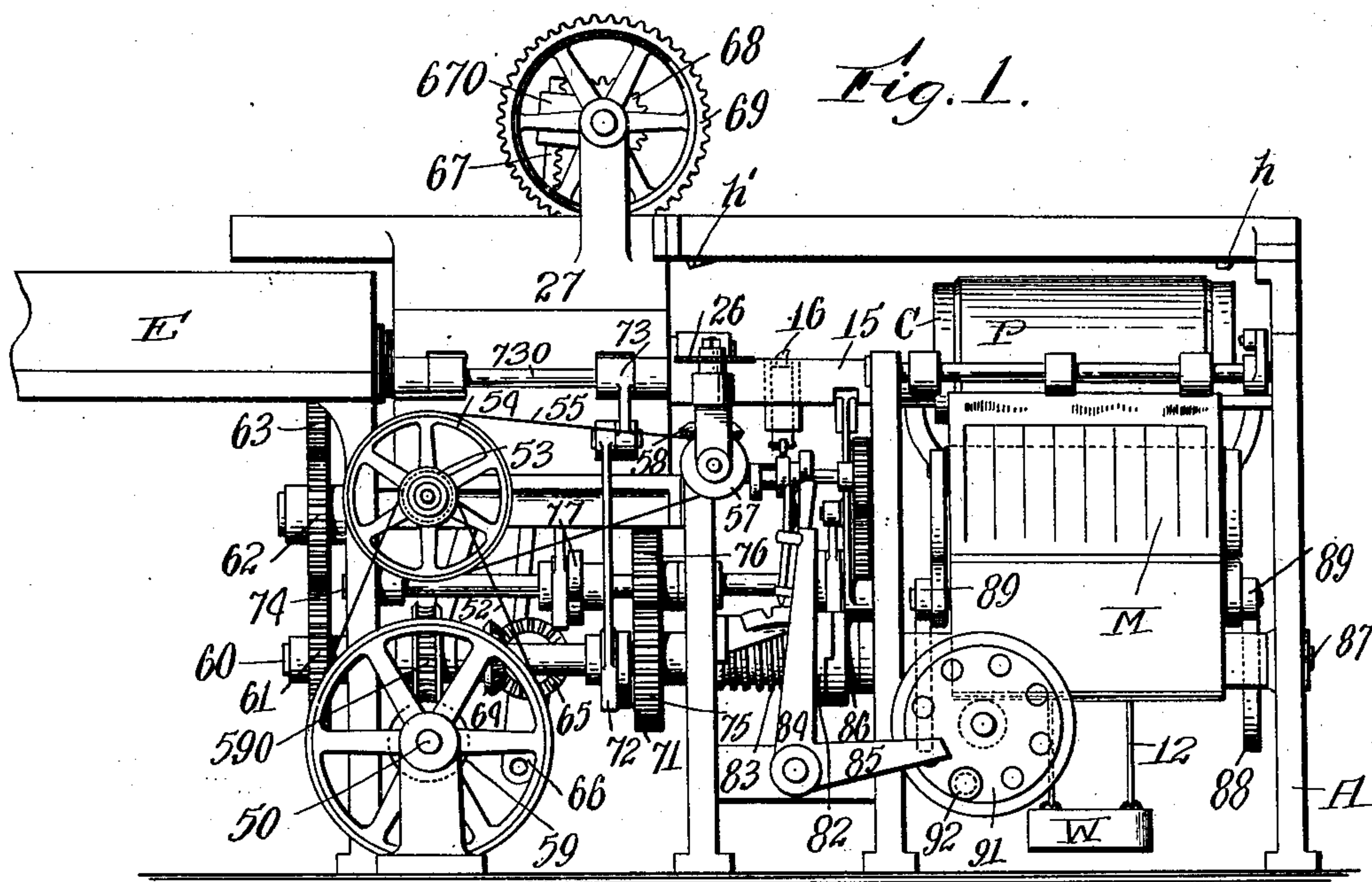
H. A. W. WOOD.

# STEREOTYPE PRINTING PLATE FINISHING MECHANISM.

APPLICATION FILED DEC. 23, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:  
C. F. Wesson.  
M. E. Forde.

*Inventor:*  
*H. A. W. Wood.*  
*By his Attorneys.*

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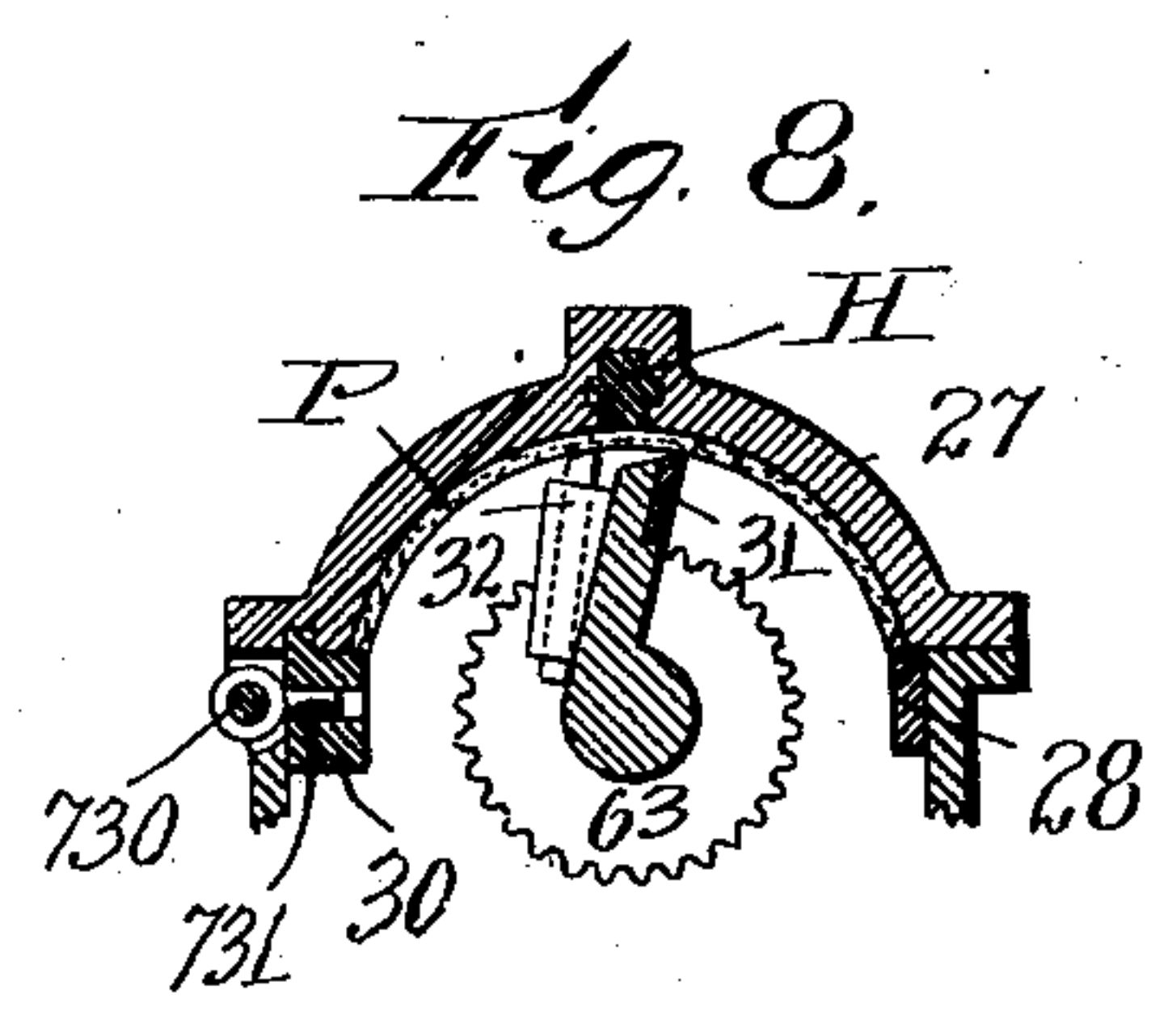
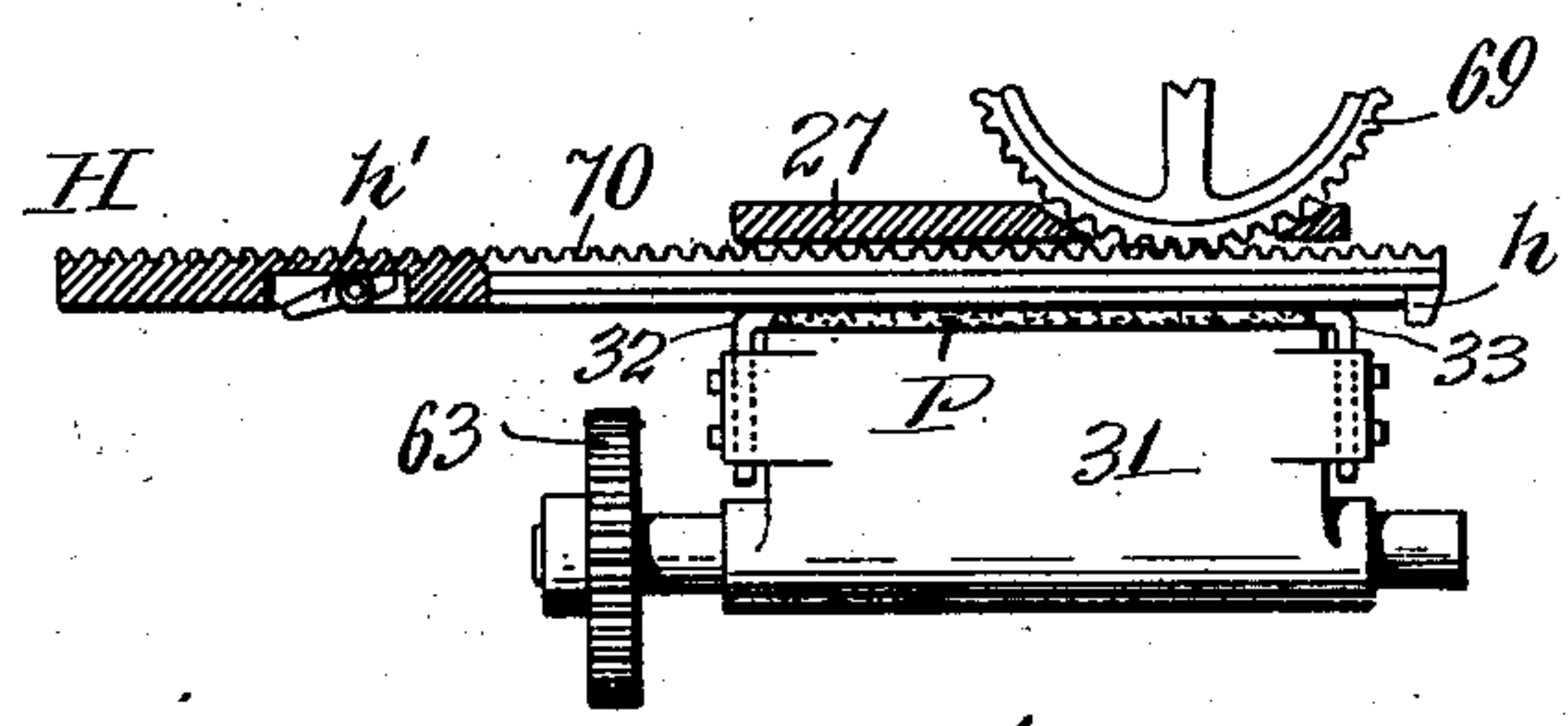
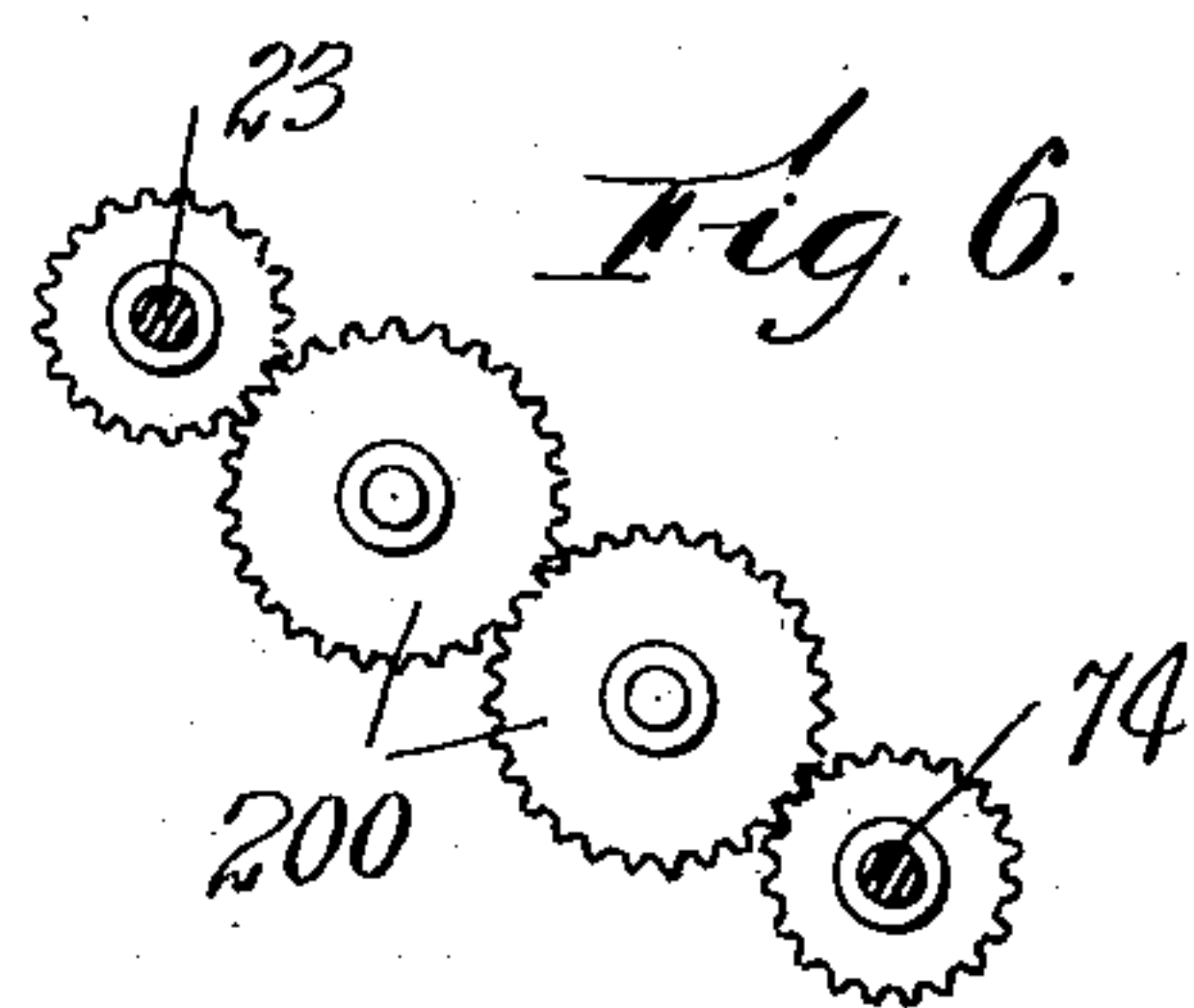
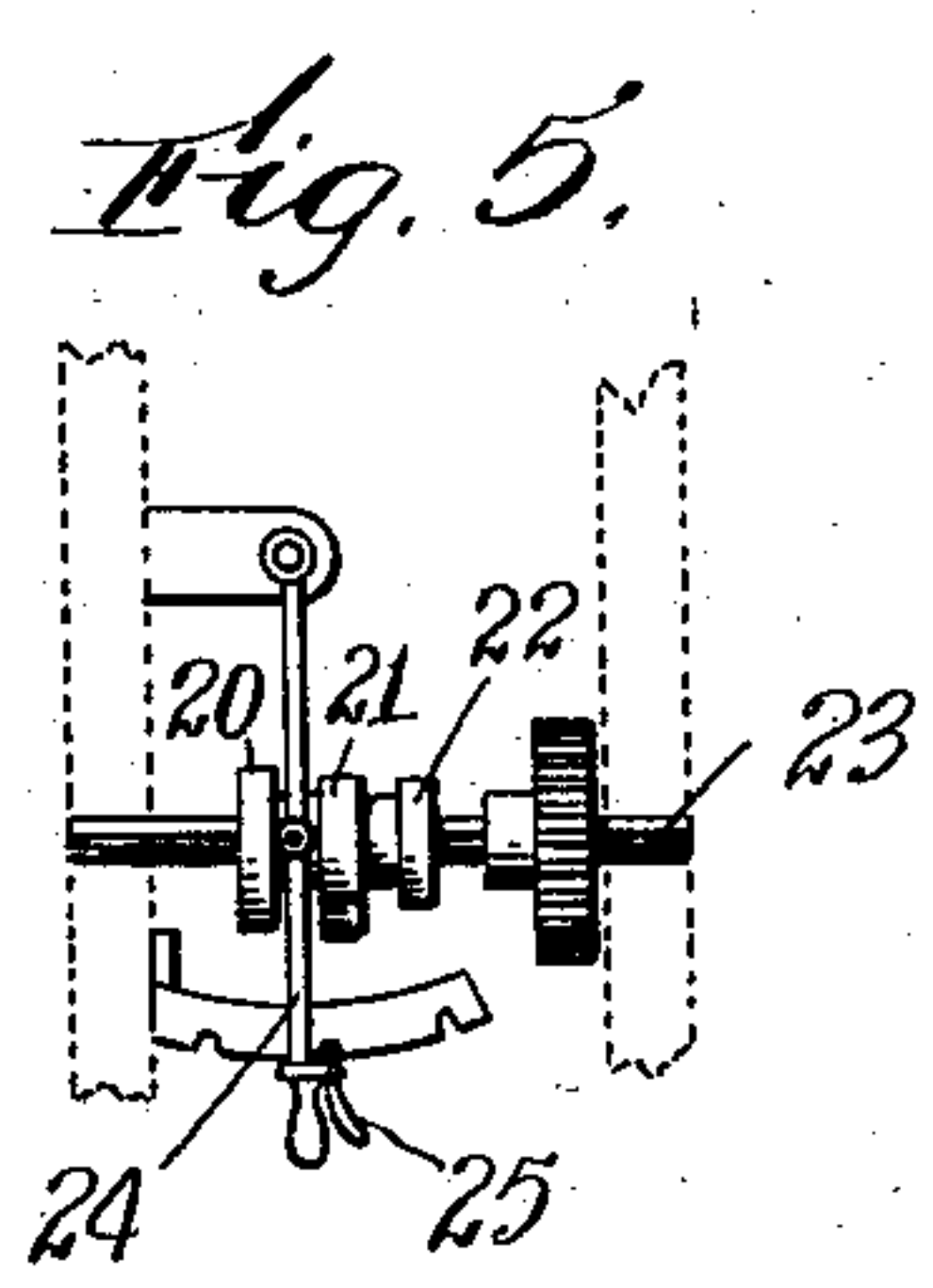
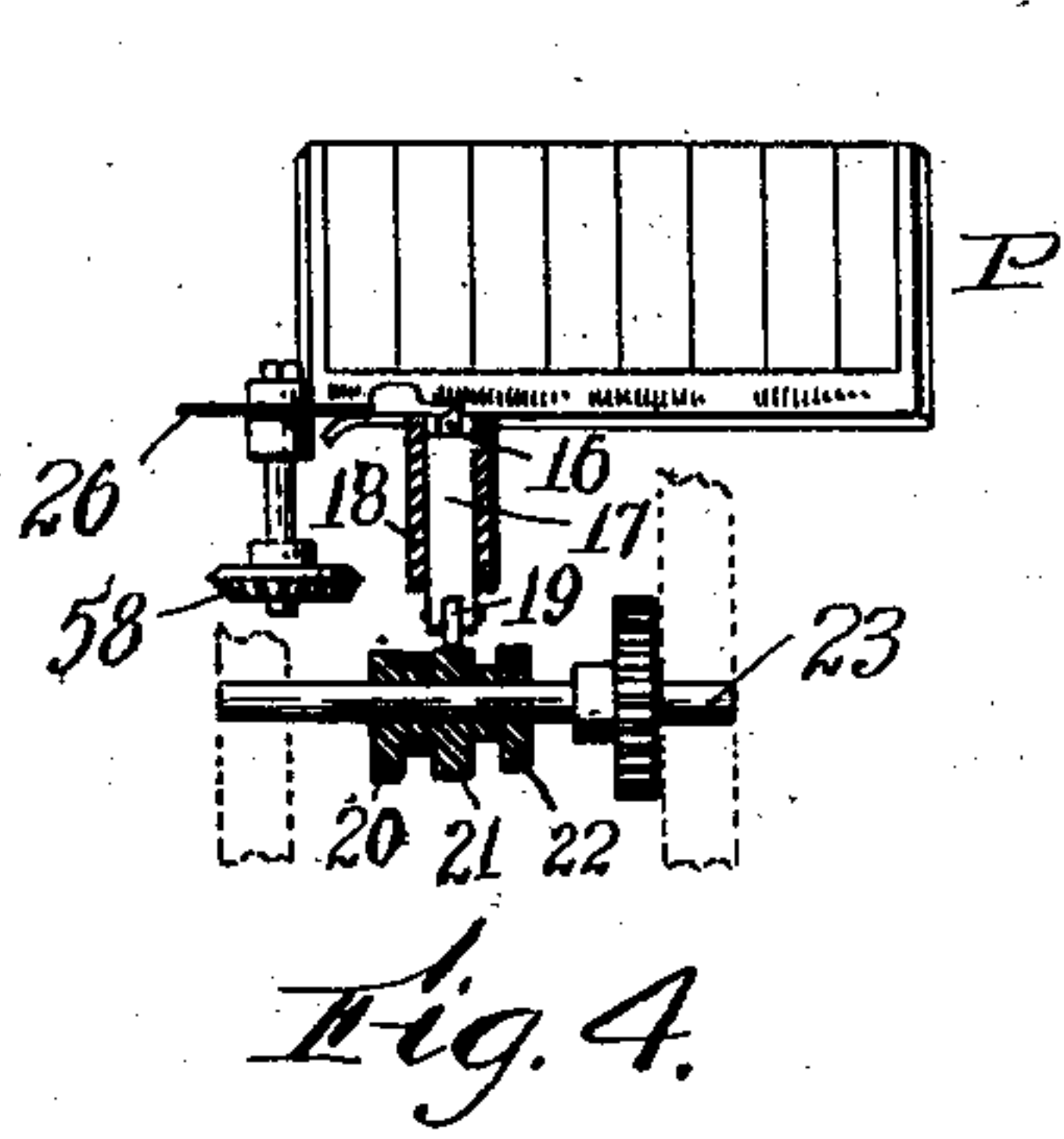
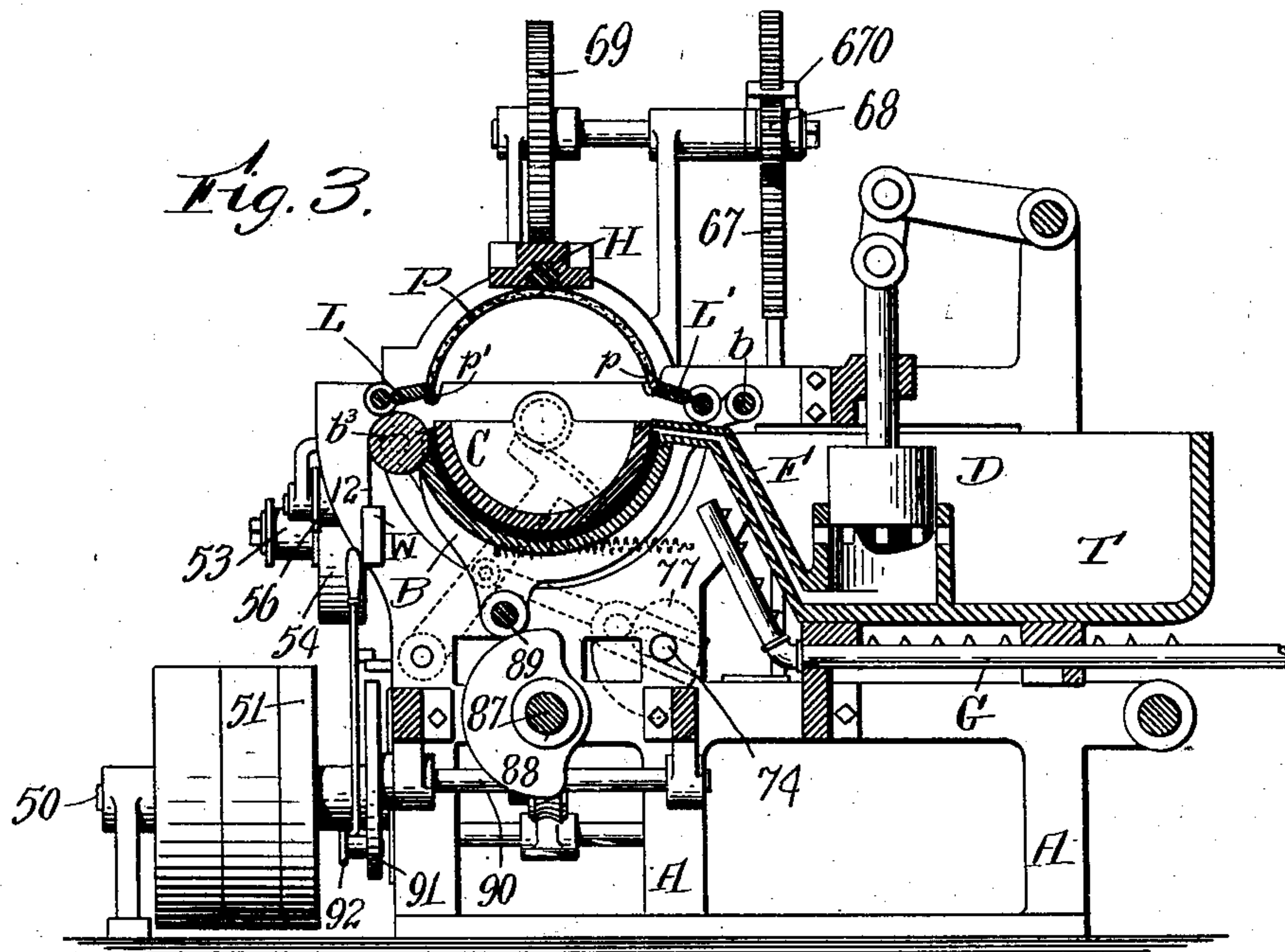
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STEREOTYPE PRINTING PLATE FINISHING MECHANISM.

APPLICATION FILED DEC. 23, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:  
*E. H. Wesson.*  
*M. E. Forde.*

Inventor:  
*H. A. W. Wood.*  
 By his Attorneys,  
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# UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO THE CAMPBELL PRINTING PRESS & MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## STEREOTYPE-PRINTING-PLATE-FINISHING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 721,123, dated February 17, 1903.

Original application filed March 4, 1898, Serial No. 672,552. Divided and this application filed December 23, 1902. Serial No. 136,352. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Stereotype-Printing-Plate-Finishing Mechanism, of which the following is a specification.

This application for patent is a division of my original application for patent, filed March 4, 1898, Serial No. 672,552.

The inventions specifically claimed in this case relate to improvements in the mechanism used for finishing stereotype printing-plates.

The first improvement relates to a finishing device which is arranged to trim the side type edge of the plate to correspond to the heading that is used—that is, I provide a tool which as the plate is moved will trim the type-heading of the plate, and I also provide means so that the tool will follow the contour of the heading. I also preferably arrange with this type-edge-trimming tool a set of cams, any one of which may be thrown into operation, so that the same tool may be used to trim the type-headings of plates with various headings.

My second improvement relates to finishing devices which will trim the ends of the plate close to the type.

I have shown in this application for patent these improvements as embodied in a combined stereotype-printing-plate casting and finishing mechanism, as they have been designed principally for use in such a machine, although they are capable of general application.

Referring to the drawings and in detail, Figure 1 is a front side elevation of the specific machine which I have chosen to illustrate the best application now known to me of my improvement. Fig. 2 is a plan view thereof. Fig. 3 is a cross-sectional view through the casting mechanism. Fig. 4 is a detail view of the side type-edge-trimming mechanism. Fig. 5 is a plan view of the cam mechanism that I use in connection therewith. Fig. 6 is a detail of the gearing used

to actuate the cams. Fig. 7 is a detail view of the plate-conveyer and the end trimming mechanism, and Fig. 8 is a cross-sectional view thereof.

The casting mechanism is not shown in detail, only the principal parts thereof being illustrated to enable the machine to be understood as a whole. The parts of the mechanism are mounted in a suitable framework A.

B designates the back of the casting mechanism. This back is pivoted or hinged to the main frame by means of hinge *b*, so that the same can turn thereon.

C represents the core, which consists of a hollow segment mounted on bearings journaled in the framing A.

The back B is provided with a roll *b*<sup>3</sup> at one side thereof. The matrix M is made long enough or has flexible springs or devices attached thereto, so that the same will extend over the roll *b*<sup>3</sup> to connect to a weight W.

D designates a suitable pumping device which is mounted in a melting-tank T, under which is arranged a suitable gas-pipe G. The pumping device connects by spout F to the casting-chamber formed by the annular space between the core and back. These devices are so arranged that the cast plate P will have one of its edges *p* cast smooth and the other edge with a shoulder *p'*. These edges form working shoulders, which are cast comparatively accurately and which may be used as guiding-surfaces in the further manipulation of the plate, the rough or broken edge of the plate being on the lip, which is not used for this purpose.

The core is oscillated by gearing shown by dotted lines in Fig. 3, which it is not necessary to describe at length in this case, and the back is raised and lowered by a cam hereinafter designated. The operation of this casting mechanism is described more in detail in my original application, the operation being such that at each operation of the machine a plate will be cast in the annular chamber to have its type-surface conform to the matrix held therein. The back B will then drop, the core oscillate to remove the cast



plate from the casting-chamber, and as this operation takes place the matrix will run over the roll  $b^3$  and will unwind from the surface of the cast plate. After the plate is delivered from the casting-chamber lifters  $L L'$  raise the plate from the oscillating core, so that the core and the other parts of the casting mechanism can return to position for the next cast.

10 A suitable conveyer or traveler  $H$  is mounted in the framing, as shown, and is so arranged that a lip  $h$  thereof will strike the rear edge of the plate and will slide the same from the position shown in Figs. 1 and 3 out  
15 over ways 14 and 15.

The way 14 is preferably grooved or formed so that the plates will be accurately guided along the same. As the plate passes along these guides the type edges thereof, which is  
20 to constitute the heading of the plate, will be acted upon by a tool, as 16, which is set in position just to engage the type edge. This tool is arranged in a suitable holder 17, which holder is mounted in a casting 18, secured to  
25 the frame  $A$ . The holder 17 has a roller 19 on the bottom thereof, which bears on one of the cams 20 21 22. These cams are preferably secured together to form one piece and are keyed to turn with and to slide on a shaft  
30 23. A lever 24 with a suitable catch 25 is arranged to engage these cams, so that any one of the same may be slid into position to control the action of the tool 16. The operative cam will act to raise and lower the tool 16, so  
35 that as the plate  $P$  is moved past said tool the tool will follow the contour of the heading.

By the term "contour of the heading" I mean the contour of the top of the plate that is to form the heading, which generally consists of the number of the page and the name  
40 of the paper and sometimes the volume and number of the issue.

It is desirable in finishing plates to trim the top surface of the plate close to this matter and to trim down the surface between the  
45 page-number and the heading, so that the plate will accurately and nicely make the proper impression. These cams are arranged to trim plates with various headings. Thus,  
50 for example, in the ordinary newspaper there are three headings, the outside heading, which contains generally the name of the paper in large type and matter at each side thereof, the second page, which contains the number  
55 of the page and the heading in small type, and the third page, which contains the heading and the number of the page, but in different relative positions to that of page 2. The remaining pages are generally, so far as  
60 the line of the headings is concerned, duplicates of pages 2 and 3. Thus with three cams I can generally fulfil the requirements of the ordinary newspaper, although in some instances I provide a larger number of cams  
65 to suit the varying exigencies for headings intended for the particular paper. As the plate is moved beyond this type-edge-trim-

ming mechanism the edge or the shoulder  $p^2$  thereof is cut off by a saw 26. The plate is then carried by the conveyer into an arch 27, 70 which has a back guide 28 and a front clamping-guide 30. When the conveyer has brought the plate accurately into position in this arch, the clamping-guide 30 is raised to clamp the plate tightly and rigidly in its exact position. 75 A cutter 31 is then rotated to trim or shave off the inside of the curved plate, so that the same will accurately fit on the printing-cylinder of the press to which the same is to be applied. Also turning with this cutter 31 are 80 edge-trimming tools, as 32 and 33. These tools are so set as to just touch the type ends of the plate, as shown in Fig. 7, and to accurately finish or clean off any blurs or imperfections. These tools 16, 32, and 33 will thus 85 automatically do the operations that are generally performed by hand of truing the plate up to its type edges, and thus by this mechanism I may dispense with all or practically all manual finishings of the plate. After the 90 plate has been finished in this manner the clamp 30 is released and the plate is slid out of the arch on the next left-hand movement of the conveyer onto a suitable horse or delivery-table  $E$  by means of a gravity-pawl  $h'$ , 95 arranged in the conveyer, as shown. Many suitable forms of gearing for actuating these parts may be devised. The one that I have shown is arranged to act as follows: 50 designates a shaft to which power may be ap- 100 plied by means of the usual tight and loose pulleys. Mounted on this shaft is a pulley 51, which connects by belt 52 to a small pulley 53, which turns a large pulley 54, which by means of belt 55 drives a small pulley 56, 105 which communicates power by means of bevel-gears 57 and 58 to the saw 26. A worm 59 is arranged on the shaft 50 and drives a worm-wheel 590, secured to the main shaft 60 of the machine. This shaft 60, by means of gears 110 61, 62, and 63, drives the trimming mechanism within the arch. The shaft 60, by means of bevel-gears 64 and 65, turns a crank 66, to which is connected a sliding rack 67, which passes through a yoke 670, hung on the shaft 115 of the pinion 68 and which engages said pinion 68. Mounted on the shaft of the pinion 68 is a gear 69, which meshes with a rack 70, mounted on the back of the conveyer  $H$ , and by this mechanism the conveyer  $H$  will be re- 120 ciprocated back and forth to manipulate the plate, as before described. Also arranged on the shaft 60 is a cam 71, which operates a yoke 72, which is connected to a lever 73, mounted on shaft 730, which connects by short 125 arms or fingers 731 to control the clamping mechanism inside of the arch. A shaft 74 is driven from the shaft 60 by means of gears 75 and 76, and the said shaft carries a cam 77, which, by means of suitable connections, ac- 130 tuates the lifters  $L$  and  $L'$  by means of connections more particularly described and shown in my principal application for patent filed March 4, 1898, Serial No. 672,549. Ar-



ranged on the end of this shaft 74 is a cam and connections to oscillate the core. This shaft 74 is keyed to drive the shaft 23, which actuates the type-trimming tool by means of suitable spur-gearing 200. (Shown in Fig. 6.) One member 82 of a clutch is arranged on the end of the shaft 60 and the other member 86 thereof is arranged on the end of a shaft 87, which shaft 87 is journaled in line with the shaft 60. The member 82 is keyed to the end of the shaft 60 and can slide thereon. A suitable spring 83 is placed behind the same to keep the clutch normally in engagement. The sliding member 82 of the clutch is controlled by a lever 84, which has an arm 85, which arm 85 is set in position to engage a pin 92, which may be set in different positions in a disk 91, mounted on a shaft 90, which is driven by means of a suitable worm and worm-wheel from the shaft 87. This device constitutes a suitable stopping mechanism by which the operation of the casting device will be stopped after the desired number of plates have been cast from the particular matrix then in place, the number being determined by setting the pin in the proper hole in the disk, as is fully described in said other application, Serial No. 672,549. The shaft 87 carries suitable cams 88, which bear on rollers 89, secured to the back B, and by this means the back is raised and lowered at the proper time.

The remaining connections for actuating the pumping device and the other parts of the machine are fully described and particularized in my other application, Serial No. 672,549, and as they form no part of the improvements claimed in this application it is not thought necessary to describe the same at length in this case.

Although I have shown my improvements applied to a machine which is entirely automatic, in connection I contemplate applying them to devices which are not automatic in operation, as these improvements are believed to be valuable improvements in any plate-finishing device.

Many other arrangements could be devised for carrying out the particular features of my invention, and I do not wish to be limited to the specific construction which I have shown and described.

What I do claim, and desire to secure by Letters Patent, is—

1. The combination of means for moving a curved stereotype printing-plate axially, a tool set to trim the type edge of the heading of the plate, and means for actuating the tool so that the same will follow the contour of the heading.

2. The combination of ways, means for sliding a plate along said ways, a tool set to trim the type-heading of the plate, and a cam arranged to actuate the tool, so that the same will follow the contour of the heading.

3. The combination of means for moving a plate, a tool set to trim the type-heading of the plate, and a series of cams, any one of which may be used to control the tool.

4. The combination of ways, means for sliding a plate along said ways, a tool set to trim the type-heading of the plate, a rotating shaft, and a series of cams mounted on said shaft, any one of which may be set to control the tool.

5. The combination of ways, means for sliding the plate along said ways, a tool set to trim the type-heading of the plate, a series of cams, and means for throwing any one of the cams into operation so that the tool may be set to follow the contour of various headings.

6. The combination in a stereotype-printing-plate-finishing mechanism, of a rotating arm carrying a cutter arranged to true or trim the inner surface of the plate, and knives mounted on said arm and turning therewith to trim the ends of the plates.

7. The combination of ways, means for sliding plates along said ways, an edge-trimming tool, means for actuating the same to trim the type-heads of the plates as the same are slid along said ways, a rotating cutter for truing or trimming the inner surface of the plates, and knives connected to said cutter for trimming the type ends of the plates.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

H. A. WISE WOOD.

Witnesses:

WILLIAM J. BEGIR,  
LOUIS W. SOUTHGATE.