

APPLICATION FILED SEPT. 15, 1905.

Patented June 8, 1909.
2 SHEETS—SHEET 1.



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PRINTING PRESS.

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923,836.

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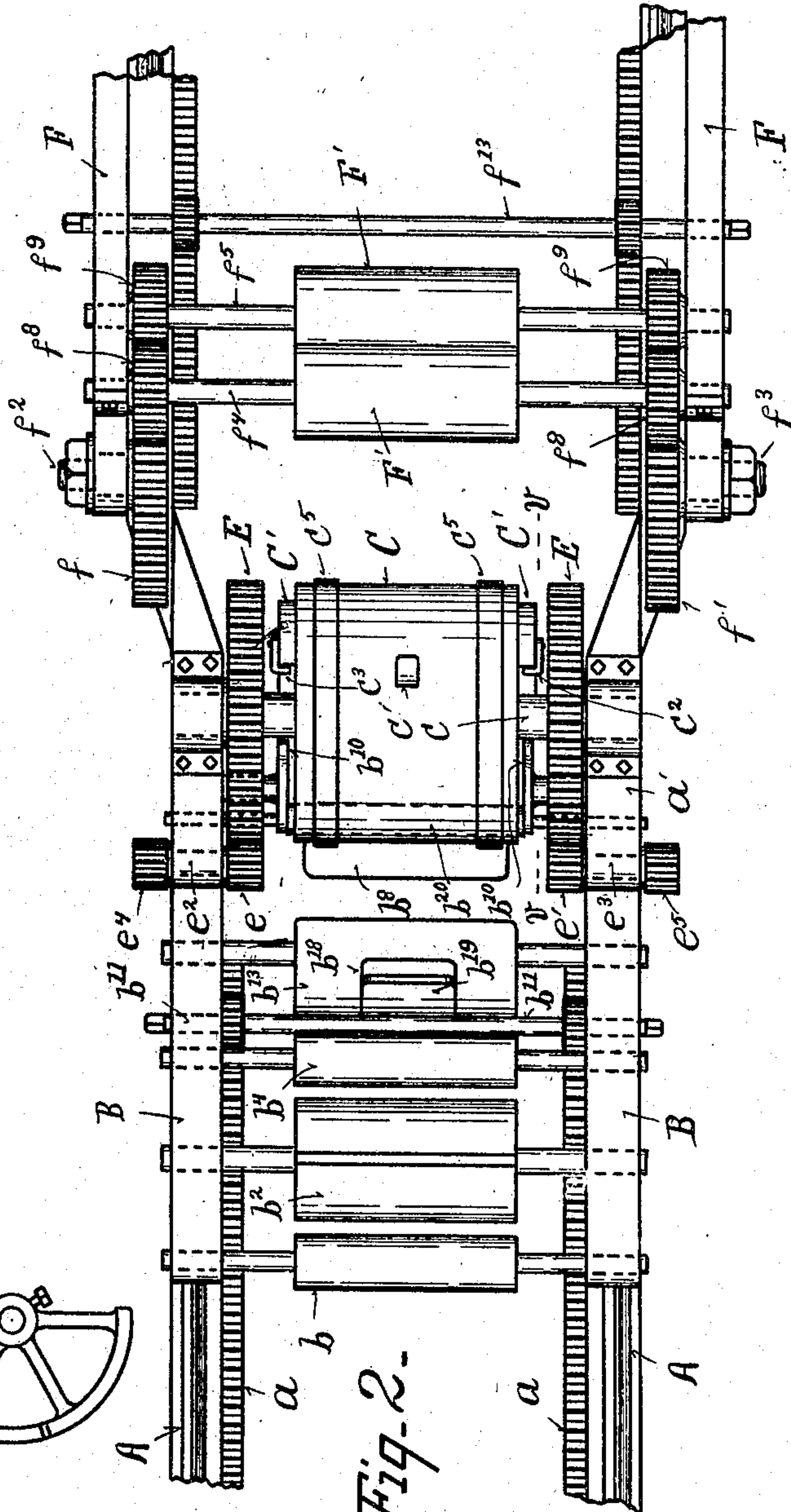
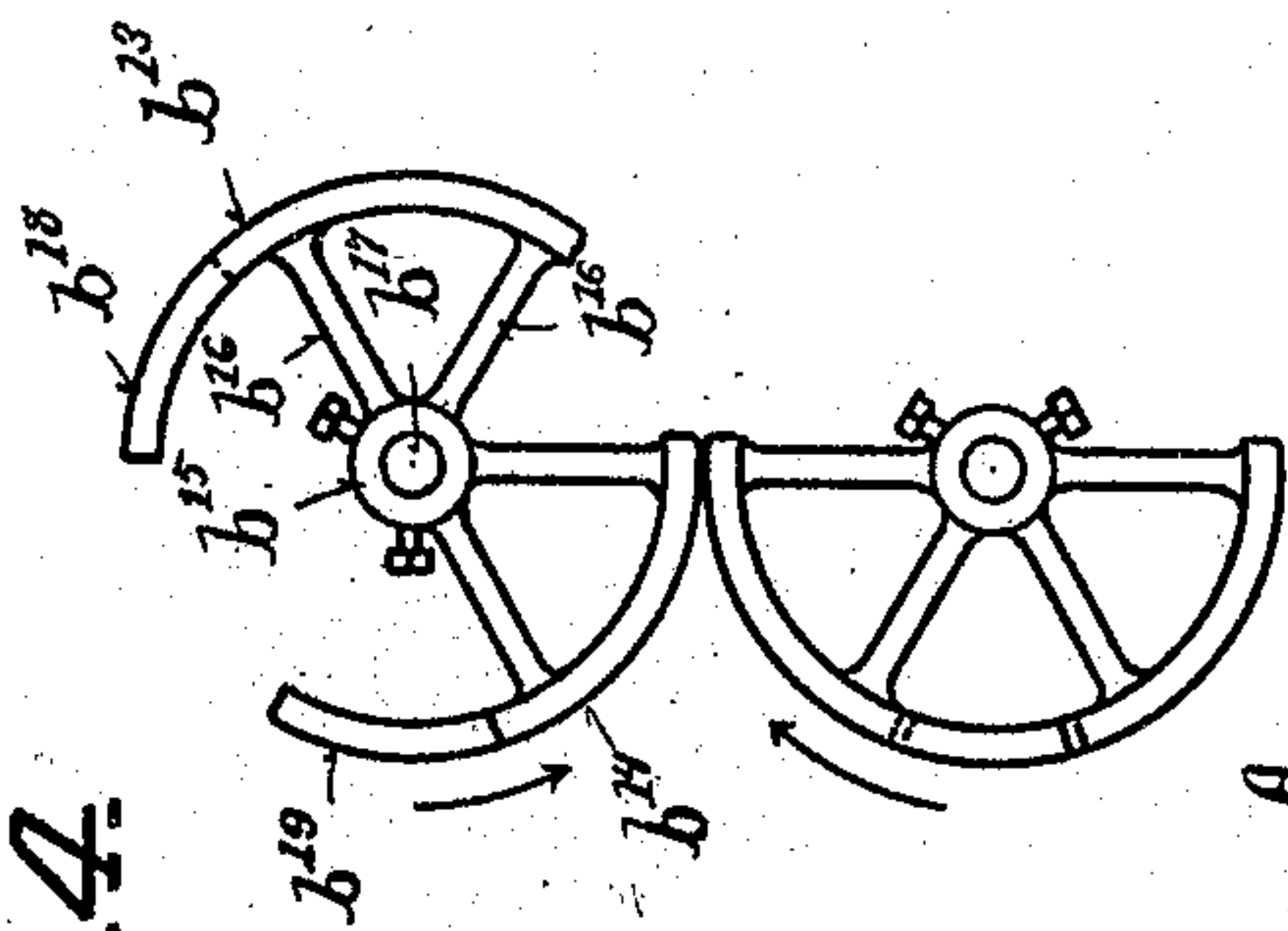
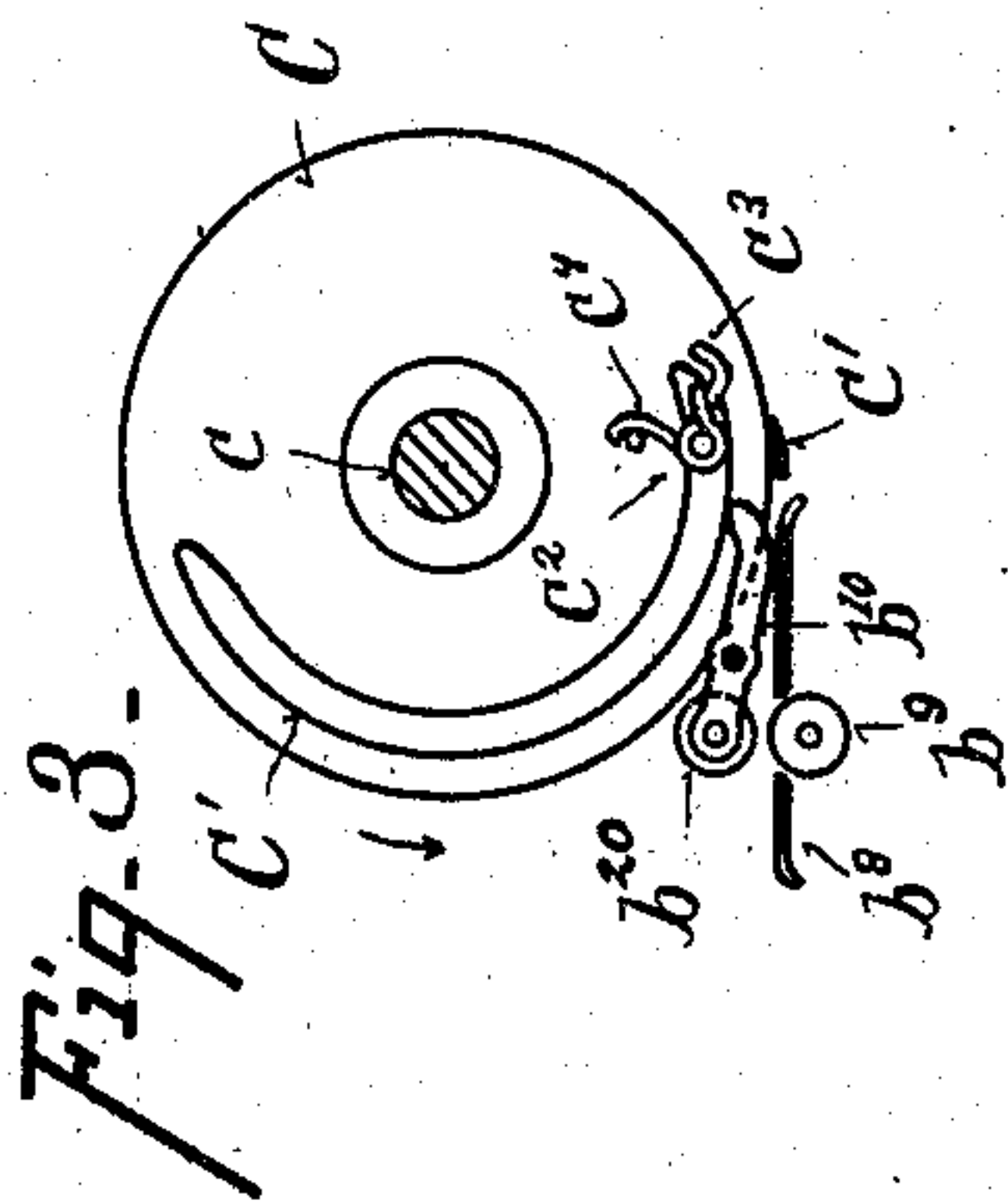


Fig. 4.

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Fig. 2.

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UNITED STATES PATENT OFFICE.

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PRINTING-PRESS.

No. 923,836

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE HARTMAN, a citizen of the United States of America, and resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

My invention relates to a printing press, especially one that is adapted to printing paper bags, etc., in the course of their manufacture.

The object of my invention is a printing press of this character in which the printing rolls may be brought readily into position to bear against and to be in gear with the pressure cylinder, or may be removed as readily therefrom to permit the blanks passing onward without being printed and into which blanks of various sizes may be fed to the printing rolls either automatically or by hand. This object is attained by the means described in the specification and illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of a printing press embodying my invention, the parts being shown in position; the dotted lines to the right of the figure showing the position of the printing rolls when not in contact with the pressure cylinder and the dotted lines at the top of the figure showing the rolls for completing the blank. Fig. 2 is a plan view of the press embodying my invention, the printing rolls being shown removed out of contact with the pressure cylinder. Fig. 3 is a detail side elevation of the pressure cylinder, and of the lever for opening the finger which grasps the blanks and holds them to the pressure cylinder. Fig. 4 is a side elevation of the adjustable rolls for feeding blanks of various sizes to the pressure cylinder.

Referring to the parts: Mounted upon longitudinal ways, A, is a carriage, B, in which is journaled four sets of rolls, b , b' ; b^2 , b^3 ; b^4 , b^5 ; b^6 , b^7 ; a shelf, b^8 , a feed roll, b^9 , and a lever, b^{10} . Carriage, B, may be reciprocated upon ways, A, by means of a pinion, b^{11} , mounted upon a crank shaft journaled in the carriage and carrying a crank, b^{12} , and meshing with a horizontal rack, a , carried by the ways. The carriage may be reciprocated upon the ways by turning the crank, b^{12} . A paper tube is fed forward by rolls, b b' , to rolls, b^2 b^3 , which sever the tube into blanks, which pass through rolls, b^4 , b^5 , which crimp the rear end of the blank, to the adjustable rolls, b^6 ,

b^7 , which feed the blanks thence to the shelf, b^8 , to be carried forward to the pressure cylinder.

Rolls, b^6 b^7 , are made adjustable for feeding blanks of various sizes in the following manner—Each roll, b^6 b^7 , is made up of two segments of a cylinder, b^{13} , b^{14} . Segment, b^{13} , is attached to a hub, b^{15} , by radial arms, b^{16} , and is secured in any position upon the shaft, b^{17} , by means of a set-screw passing through the hub. Segment, b^{14} , is attached by similar arms to a similar hub to be secured similarly in position by a set-screw upon shaft, b^{17} . Segment, b^{13} , has a recess, b^{18} , in it, and segment, b^{14} , has a tongue, b^{19} , of a width equal to that of the recess, b^{18} , so that the tongue may be projected into the recess, b^{18} .

The speed with which the paper tube is fed forward by rolls, b b' , is uniform. To cut various lengths of blanks from the tube, the speed of rotation of the knives, b^2 b^3 , is varied by suitable gearing, (not shown). It is desirable that the rolls, b^6 b^7 , should cease to contact the blank before the rear crimped ends pass through them, in order that the rolls may not flatten the crimping. To this end, when short blanks are being cut, the segments b^{13} b^{14} , are brought closely together with the tongue, b^{19} , projecting into the recess, b^{18} . When long blanks are being used, the surface of the rolls is expanded by drawing the segments, b^{13} b^{14} , apart.

Lever, b^{10} , is mounted in the carriage, B, above the shelf, b^8 , and carries at one end a roll, b^{20} , which normally contacts the roll, b^9 , to steady the blank in its passage to the pressure cylinder. Pressure cylinder, C, carries a cam, C' , upon its end which is adapted to contact the end of the lever, b^{10} , to raise the roll, b^{20} , out of contact with the roll, b^9 , just after the finger, c^3 , has contacted the lever, b^{10} , and opened the finger, c' , to grasp the end of the blank. The cam, C' , holds the rolls, b^9 — b^{20} out of contact with each other until the finger, c' , has carried the blank beyond them.

The pressure cylinder, C, is mounted upon a shaft, c , journaled in standards, a' , fixed upon ways, A, and may be driven by proper gearing with a driving shaft, (not shown). Pressure cylinder, C, has a spring finger, c' , projecting through its periphery, and mounted upon shaft, c^2 , carried by the cylinder, the shaft, c^2 , being held by a spring, c^4 , nor-

mally in position to hold the spring finger, c' , in contact with the periphery of the cylinder, C. Shaft, c^2 , carries at its outer ends fingers, c^3 , which are to be contacted by lever, b^{10} , to open the finger, c' , to grasp a blank. Pressure cylinder, C, has two belts, e^5 , to carry the blank forward to the folding rolls, which may be of a character such as shown in my pending application for paper bag machines, Serial Number 271,576. After the pressure cylinder has conveyed a blank past the printing rolls, a fixed stud, mounted upon the frame diametrically opposite the pawl, b^{10} , (but not shown) contacts finger, c^3 , to open the gripper, c' , to release the blank. Shaft, c , has adjacent to the standards, a' , two gear wheels, E, E, which mesh with pinions, e , e' , secured upon stud shafts, e^2 , e^3 , which are journaled in the standards, a' , and carry pinions, e^4 , e^5 , upon their outer ends.

Mounted upon ways, A, is a second carriage, F, which may be reciprocated upon the ways by means of a pinion, a crank and a rack similarly to the carriage, B. Carriage, F, has enlarged pinions, f , f' , journaled upon stud shafts, f^2 , f^3 , upon the front end of the carriage. Journaled likewise in the carriage, F, are four horizontal shafts, f^4 , f^5 , f^6 , f^7 , which carry the printing rolls, F'. Each shaft, f^4 — f^7 carries at its outer ends pinions, f^8 , f^9 , f^{10} and f^{11} , which are in mesh with gear wheels, f , f' . By reciprocation of the crank, f^{12} , the carriage, F, may be moved forward so that pinions, f , f' , mesh with pinions, e^4 , e^5 , and the printing rolls are brought into contact with the pressure cylinder, C. In this position, the rotation of the pressure cylinder is conveyed by means of the gear wheels, E, and the pinions, e , e' , e^4 , e^5 , and the gear wheels, f , f' , to the shafts, f^4 — f^7 , carrying the printing rolls.

It is seen that suitable inking apparatus may be mounted in the carriage, F, for inking the printing rolls, in the usual manner.

It is seen that when it is desired to pass the blanks through the machine unprinted, the carriage, F, may be moved away from the pressure cylinder by the reciprocation of the crank, f^{12} . When the printing rolls, F', are carried away from the pressure cylinder, as

shown in Fig. 2, it is seen that the printing plates may be attached to them very readily, whereas, this process of attaching plates to the printing rolls in machines wherein the rolls cannot be moved from the pressure cylinder, is a tedious one. Should it be found that the plates are not putting the printing on the desired part of the blank, viz., that they are printing too high or too low on the blank, this is easily remedied by moving the rolls out of contact with the pressure cylinder and giving them an independent rotation in one direction or another so that the printing is done upon the blank either at an earlier or later period during its passage over the pressure cylinder.

What I claim is:

1. In a printing press the combination of a pressure cylinder, gear wheels carried by the cylinder, a movable carriage, printing rolls mounted in the carriage, pinions carried by the printing rolls, gear wheels mounted in the carriage and meshing with the pinions of the printing rolls, means of putting the gear wheels of the cylinder into gear with the gear wheels of the carriage, and a means for moving the carriage to bring the gear wheels of the carriage either into or out of gear with the gear wheels of the pressure cylinder simultaneously with bringing the printing rolls either into or out of contact with the pressure cylinder.

2. In a printing press the combination of a fixed frame, a pressure cylinder mounted in the fixed frame, gear wheels mounted upon the shaft of the pressure cylinder, pinions journaled in the fixed frame and meshing with the gear wheels of the pressure cylinder, a movable carriage, printing rolls mounted in the carriage, pinions upon the shafts of the printing rolls, gear wheels journaled in the movable carriage and intermeshing with the pinions upon the printing rolls and adapted to engage the pinions upon the fixed frame when the printing rolls contact the pressure cylinder.

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Witnesses:

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