Sept. 10, 1935. M. O. JONES ET AL 2,013,687

PRINTING PRESS

Filed March 2, 1933 2 Sheets-Sheet 1

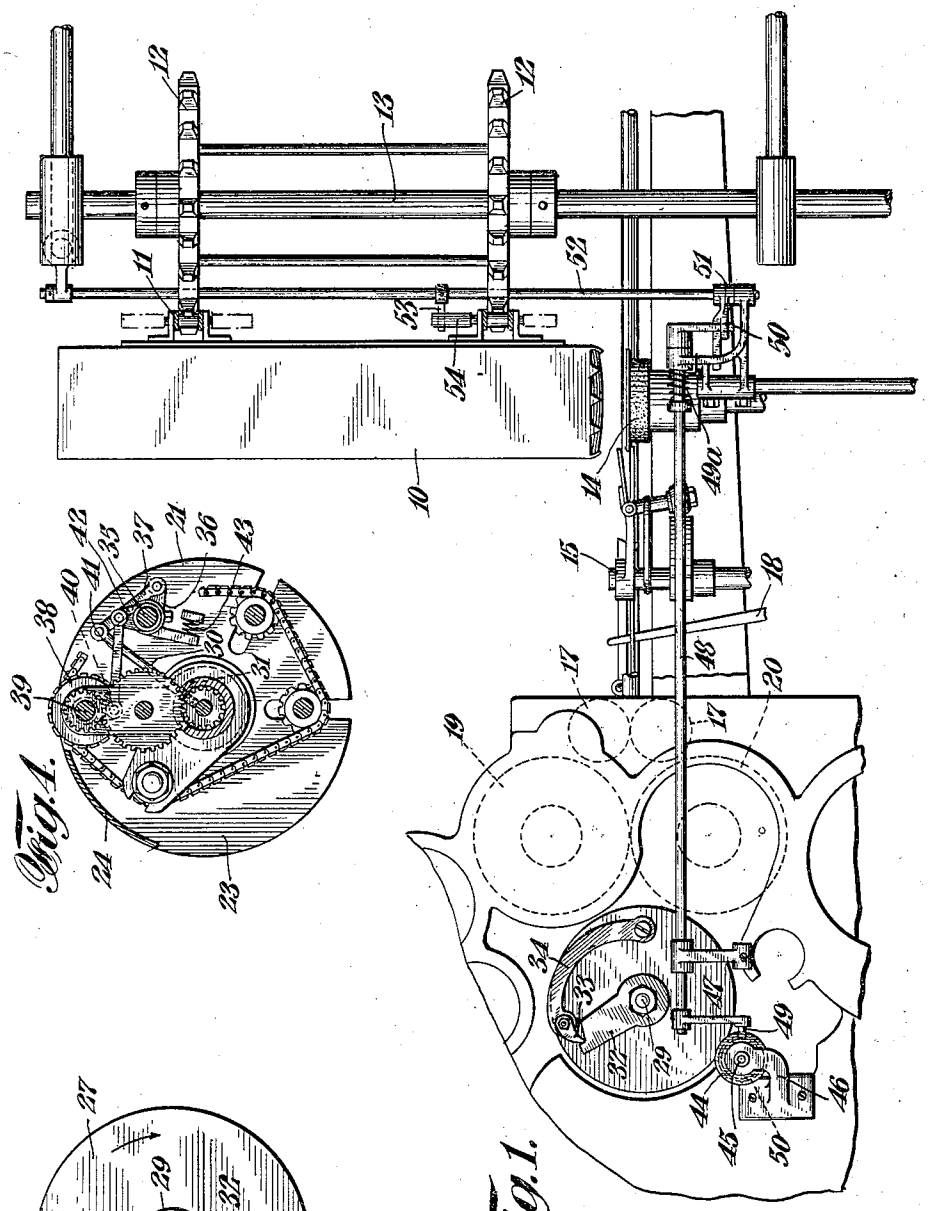


Fig. 1.

Fig. 4.

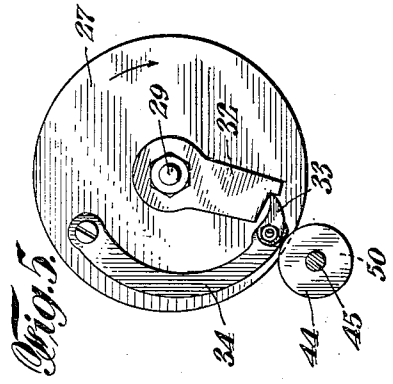


Fig. 5.

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Fig. 2.

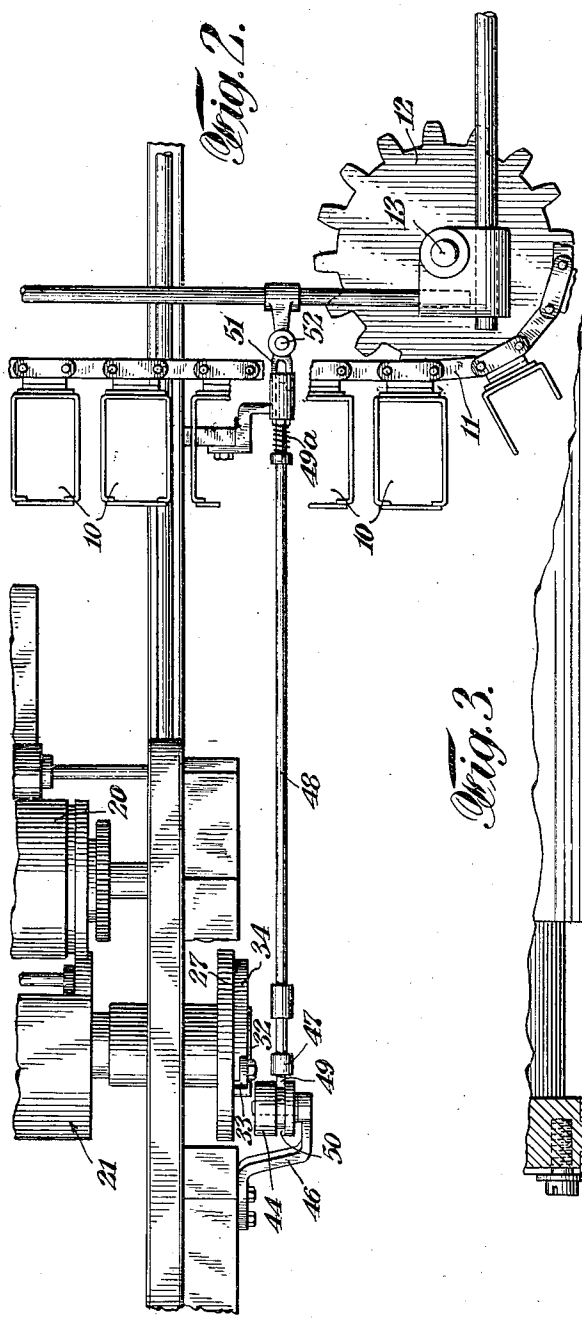
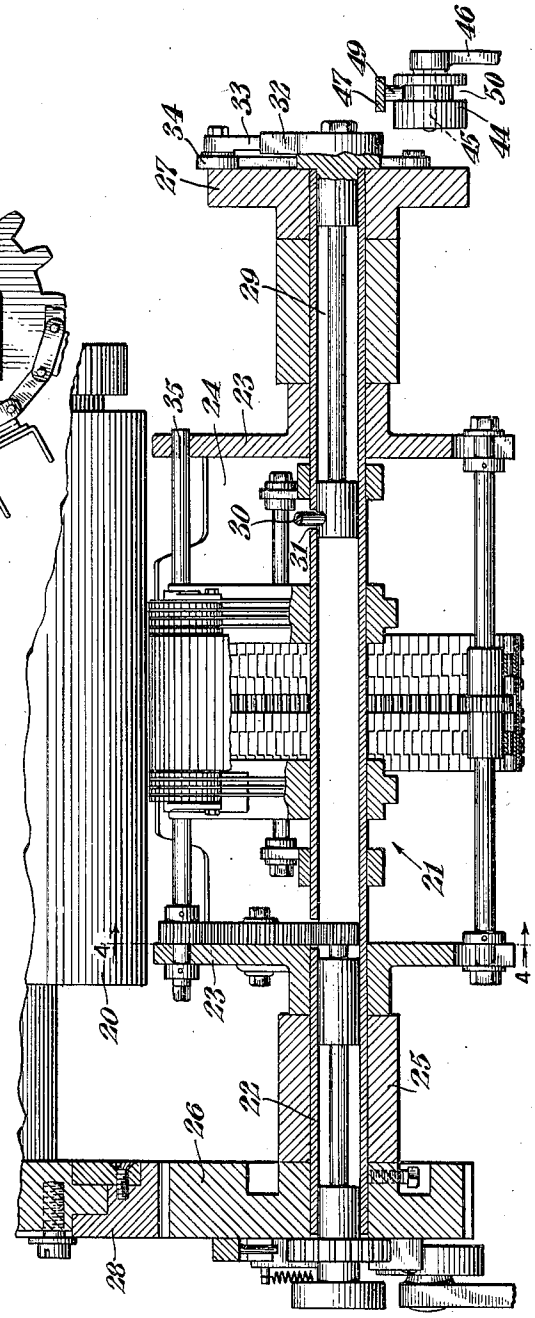


Fig. 3.



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UNITED STATES PATENT OFFICE

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PRINTING PRESS

Montgomery O. Jones and Wesley P. Shomaker,
Richmond, Va.

Application March 2, 1933, Serial No. 659,311

19 Claims. (Cl. 101—76)

This invention relates to improvements in printing presses of the type used in printing church contribution envelopes. Such presses are equipped with a printing cylinder, an impression cylinder, and a numbering and dating cylinder geared together to rotate in unison. The numbering and dating cylinder carries numbering wheels and means are provided for selectively rotating the wheels to change the number a single unit after the printing of a predetermined number of envelopes. By this mechanism, each envelope of a group of collection envelopes is furnished with the same identifying number.

An object of the present invention is a new, novel and improved means for controlling the actuating mechanism by which the numbers are changed.

In the Jones and Shomaker Patent No. 1,855,132 there is disclosed feeding mechanism for supplying envelopes to a printing press which comprises an endless row of magazines from which envelopes are successively withdrawn and delivered to the press. The present invention is adapted for use in connection with such feeding mechanism and means are provided whereby the row of magazines effects actuation of the number changing mechanism after each complete cycle of withdrawal of envelopes from the magazines.

Other objects, novel features and advantages of this invention will be apparent from the following specification and accompanying drawings, wherein:

Fig. 1 is a fragmentary elevation of an apparatus embodying the invention;

Fig. 2 is a fragmentary plan view thereof;

Fig. 3 is a section substantially on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 3, and

Fig. 5 is an end elevation of the impression cylinder.

As disclosed in detail in the above mentioned Jones and Shomaker application, a plurality of magazines 10 are carried by a chain 11 trained around sprocket wheels 12 supported by posts 13 and are moved horizontally in an endless row. Each magazine contains a stack of envelopes or the like and a vertically reciprocating suction block 14 removes the bottom envelope from each magazine in succession after which an oscillating picker 15 transfers the envelope from the suction block 14 to a table 16 from which it is pushed between feed rollers 17 by fingers 18. As the above mentioned mechanism is disclosed in detail in said Jones and Shomaker patent, it is unnecessary further to describe it herein.

The rollers 17 feed the envelopes in succession between a printing cylinder 19 and an impression cylinder 20 after which the envelope is passed between the impression cylinder 20 and the numbering cylinder 21. The numbering cylinder comprises a hollow axle 22 upon which are mounted collars 23 between which is provided a shield 24. The axle 22 is journalled in bearings 25 and has a gear 26 fastened to one end and a collar 27 fastened to the other end. The gear 26 meshes with a gear 28 carried by the shaft of the impression cylinder 20 and the two cylinders are caused to rotate in unison. The gears 26 and 28 are eccentrically supported by the two cylinders and co-act in the manner described in detail in the co-pending application of Wesley P. Shomaker, Serial No. 659,308, filed March 2, 1933.

In the right hand end, (Fig. 3) of axle 22, there is rotatably mounted a shaft 29 to the inner end of which is attached a radially extending arm 30 projecting through a slot 31 in the axle 22. A rigid arm 32 is fixed to the outer end of the shaft 29 and is adapted to be engaged by a pawl 33 carried by the free end of an arm 34 pivoted to the collar 27.

A shaft 35 is rotatably supported by and extends between the collars 23. An arm 36 is fixed to this shaft and its free end is connected to the free end of the arm 30 by a link 37. A pair of sets of numbering wheels 38 are rotatably mounted on a shaft 39 extending between the collars 23. These numbering wheels are actuated by oscillation of arms 40 supported by the shaft 39 and connected by links 41 with arms 42 fastened to the shaft 35. A spring 43 is provided to normally retain the elements described in the position shown in Fig. 4.

The cylinder 21 is also provided with dating mechanism which is shown in the drawings, but not described in the specification inasmuch as it constitutes no part of the present invention and is fully described in the aforementioned Shomaker application.

A roller 44 is slidably and rotatably mounted on a stub shaft 45 carried by a bracket 46. This roller normally lies outside of the path of rotation of the arm 34 but is movable into said path by means of an arm 47 carried by a shaft 48 and provided with a pin 49 extending into a groove 50 in the roller. When the roller lies in the path of the arm 34 it engages the latter to move the same inwardly and through the pawl 33 to rotate slightly the ratchet arm 32. As a result, the

shaft 29 is slightly rotated, thereby causing movement of the arms 40 through the medium of the linkage above described, thus selectively advancing the number wheels to change the number by a single unit. The spring 43 then returns the linkage to normal position and the numbering mechanism remains unchanged until the arm 34 is again engaged by the roller 44.

The shaft 48 is provided at its opposite end with a spring 49a which tends to maintain the roller 44 out of the path of the arm 34, and also an arm 50 which projects downwardly between the arms of a fork member 51 fixed to a vertical shaft 52 which extends upwardly adjacent the chain 11. This rod 52 is provided with an arm 53 which extends into the path of a pin 54 carried by one of the chains 11. This pin may be carried by either of the chains and may extend upwardly or downwardly from the chain by which it is carried.

Normally, the roller 44 is in the position shown in Fig. 3 and the numbering cylinder rotates without any change being effected in the numbering mechanism. However, when the pin 54 engages the arm 53, the rod 48 is rotated and the roller is carried by the pin 57 into the path of the arm 34, so that the same is moved inwardly to effect change of the numbering mechanism by a single unit. As soon as the arm 53 is released from the pin 54, the spring 49 rotates the rod 47 reversely to bring the roller 44 back into the position shown in Fig. 3, the return of the roller being accomplished before the numbering cylinder has made a complete revolution so that the numbering mechanism is again changed until the arm 53 is again engaged by the pin 54.

It is apparent that various modifications may be made in the above-described structure without in any way departing from the spirit of the invention as defined in the appended claims. It is to be understood that the word "cylinder" in the claims is used in the accepted meaning of this word in the printing industry and is definitive of any rotatable member which operates in a cylindrical space irrespective of whether the member is itself a geometrical cylinder. Although it is preferable to mount the shaft 29 coaxial with the cylinder, the shaft need not be so mounted but may be mounted in the cylinder in other relation to the cylinder axis.

We claim:

1. In a printing press, a cylinder, movable printing mechanism mounted thereon, a shaft rotatably mounted in said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects movement of the latter, ratchet and pawl mechanism for effecting rotary movement of the shaft relative to the cylinder, a member movable into position to be engaged by said pawl upon rotation of said cylinder, and means for periodically moving said member into and out of said position.

2. In a printing press, a cylinder, movable printing mechanism mounted thereon, a shaft rotatably mounted in said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects movement of the latter, ratchet and pawl mechanism for effecting rotary movement of the shaft relative to the cylinder, a member movable into position to be engaged by said pawl upon rotation of said cylinder, an endless row of magazines, and means actuated by said magazines for periodically moving said member into and out of said position.

3. In a printing press, a cylinder, movable printing mechanism mounted thereon, a shaft rotatably mounted in said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects movement of the latter, ratchet and pawl mechanism for effecting rotary movement of the shaft relative to the cylinder, a member movable into position to be engaged by said pawl upon rotation of said cylinder, an endless row of magazines, means actuated by said magazines for moving said member into said position, and resilient means tending to move said member out of said position.

4. In a device of the character described, an impression cylinder, a printing cylinder, a movable endless row of magazines, means for withdrawing envelopes or the like from said magazines in succession and delivering the same to said cylinders, numbering mechanism carried by said printing cylinder, a shaft rotatably mounted in said cylinder, connections between said shaft and numbering mechanism whereby rotary movement of the shaft relative to the cylinder, changes said numbering mechanism, ratchet and pawl mechanism for effecting rotary movement of the shaft relative to the cylinder, a member movable into and out of position to actuate said pawl upon rotation of said cylinder, and means actuated by said magazines for moving said member into and out of said position.

5. In a device of the character described, an impression cylinder, a printing cylinder, a movable endless row of magazines, means for withdrawing envelopes or the like from said magazines in succession and delivering the same to said cylinders, numbering mechanism carried by said printing cylinder, means rotatable with said cylinder and actuatable to change said numbering mechanism, means engageable with said last named means for actuating the same upon rotation of the cylinder, means normally holding said engageable means in inoperative position, and means actuated by said magazines for moving said engageable means into operative position.

6. In a device of the character described, an impression cylinder, a printing cylinder, a movable endless row of magazines, means for withdrawing envelopes or the like from said magazines in succession and delivering the same to said cylinders, numbering mechanism carried by said printing cylinder, means rotatable with said cylinder and actuatable to change said numbering mechanism, means engageable with said last named means for actuating the same upon rotation of the cylinder, resilient means urging said engageable means into operative position, and means actuated by said magazines for positively moving said engageable means into operative position.

7. In a device of the character described, an impression cylinder, a printing cylinder, a movable endless row of magazines, means for withdrawing envelopes or the like from said magazines in succession and delivering the same to said cylinders, numbering mechanism carried by said printing cylinder, a shaft rotatably mounted in said cylinder, connections between said shaft and numbering mechanism whereby rotary movement of the shaft relative to the cylinder changes said numbering mechanism, ratchet and pawl mechanism for effecting rotary movement of the shaft relative to the cylinder, a member movable into and out of position to actuate said pawl

upon rotation of said cylinder, resilient means for holding said member out of said position, and means actuated by said magazines for positively moving said member into said position.

8. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuating means therefor comprising a member rotatable with and movable relative to said cylinder, a second member movable into and out of position to engage said first member upon rotation of the cylinder and move it relative thereto, and means synchronized with said magazines for periodically effecting movement of said second member into and out of said position.

9. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuating means therefor comprising an arm rotatable with and relative to said cylinder, a member movable into and out of position to engage said arm upon rotation of said cylinder and rotate it relative thereto, and means synchronized with said magazines for periodically effecting movement of said member into and out of said position.

10. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuating mechanism therefor comprising a shaft rotatably mounted in said cylinder, connections between said shaft and printing mechanism whereby rotary movement of the shaft relative to the cylinder changes said printing mechanism, an arm pivotally supported by said cylinder, means for transmitting movement of said arm to said shaft, a member movable into and out of position to engage said arm upon rotation of said cylinder and rotate it relative thereto, and means synchronized with said magazines for periodically effecting movement of said member into and out of said position.

11. In a printing press having a cylinder rotating in timed relation with a moving endless row of magazines, changeable printing mechanism mounted on said cylinder, a shaft rotatably mounted in said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects change of the latter, an arm pivotally supported by said cylinder, means for transmitting movement of said arm to said shaft, a member movable into and out of position to engage said arm upon rotation of said cylinder and rotate it relative thereto, and means synchronized with said magazines for periodically moving said member into and out of said position.

12. In a printing press having a cylinder rotating in timed relation with a moving endless row of magazines, changeable printing mechanism mounted on said cylinder, a shaft rotatably mounted in said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects change of the latter, an arm pivotally supported by said cylinder, means for transmitting movement of said arm to said shaft, a member movable into and out of position to engage said arm upon rotation of said cylinder and rotate it relative thereto, and means actuated by said magazines for periodically moving said member into and out of position.

13. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuating means therefor comprising a member rotatable with and movable relative to said cylinder, a second member movable into and out of position to engage said first member upon rotation of the cylinder and move it relative thereto, and means actuated by said magazines for periodically moving said member into and out of said position.

14. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuating mechanism therefor comprising a shaft rotatably mounted in said cylinder, connections between said shaft and printing mechanism whereby rotary movement of the shaft relative to the cylinder changes said printing mechanism, an arm pivotally supported by said cylinder, means for transmitting movement of said arm to said shaft, a member movable into and out of position to engage said cylinder and rotate it relative thereto, and means actuated by said magazines for periodically moving said member into and out of said position.

15. In a printing press, a cylinder, movable printing mechanism mounted thereon, a shaft rotatably supported by said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects movement of the latter, an arm pivotally supported by said cylinder, means for transmitting movement of said arm to said shaft, a member movable into and out of position to engage said arm upon rotation of said cylinder and rotate it relative thereto, and means for periodically moving said member into and out of said position.

16. In a printing press, a cylinder, movable printing mechanism mounted thereon, a shaft rotatably mounted in said cylinder, means connecting said shaft and printing mechanism whereby rotary movement of the former relative to the cylinder effects movement of the latter, an arm pivotally supported by said cylinder, means for transmitting movement of said arm to said shaft, a member movable into and out of position to engage said arm upon rotation of said cylinder and rotate it relative thereto, and means for periodically moving said member into and out of said position.

17. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuating means therefor comprising a shaft rotatably mounted in said cylinder, connections between said shaft and printing mechanism whereby rotary movement of the shaft relative to the cylinder changes said printing mechanism, an arm fixed to said shaft, a second arm pivoted to said cylinder and engageable with the first arm to effect rotation of said shaft upon swinging movement of said second arm, a member movable into and out of position to engage and swing said second arm upon rotation of said cylinder, and means synchronized with said magazines for periodically effecting movement of said member into and out of said position.

18. In a printing press having a rotating cylinder and an endless row of magazines moving in timed relation therewith, changeable printing mechanism mounted on said cylinder, actuat-

ing means therefor comprising a shaft rotatably mounted in said cylinder, connections between said shaft and printing mechanism whereby rotary movement of the shaft relative to the cylinder changes said printing mechanism, an arm fixed to said shaft, a second arm pivoted to said cylinder and engageable with the first arm to effect rotation of said shaft upon swinging movement of said second arm, a member movable into and out of position to engage and swing said second arm upon rotation of said cylinder, and means actuated by said magazines for periodically moving said member into and out of position.

19. In a printing press, a cylinder, movable printing mechanism mounted thereon, actuating means therefor comprising a shaft rotatably mounted in said cylinder, connections between said shaft and printing mechanism whereby rotary movement of the shaft relative to the cylinder changes said printing mechanism, an arm fixed to said shaft, a second arm pivoted to said cylinder and engageable with the first arm to effect rotation of said shaft upon swinging movement of said second arm, a member movable into and out of position to engage and swing said second arm upon rotation of said cylinder, and means for periodically moving said member into and out of position.

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