Feb. 2, 1937. A. KÖHLER 2,069,656

TICKET PRINTING MACHINE

Filed Oct. 24, 1934

Fig. 1.

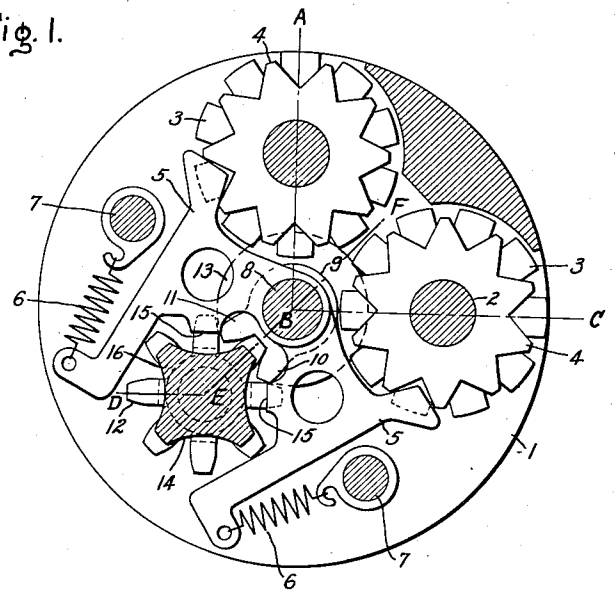


Fig. 3.

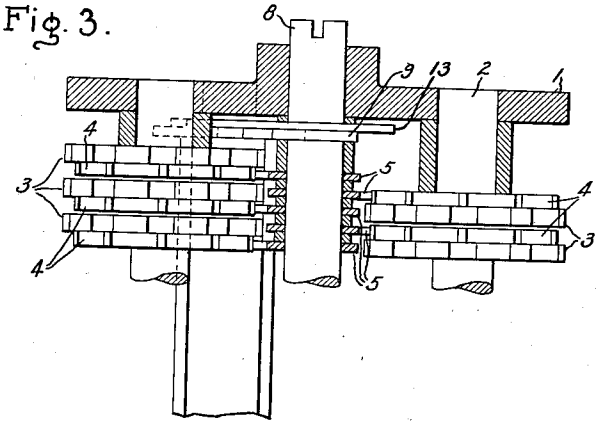
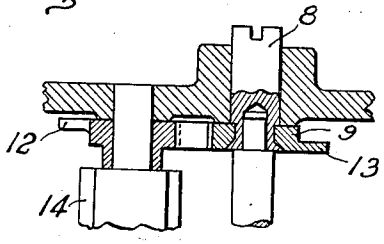


Fig. 2.



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TICKET PRINTING MACHINE

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2 Claims. (Cl. 101—91)

The present invention relates to ticket printing machines comprising a printing drum with adjustable type carriers. In these machines it is necessary to lock the type carriers during rotation of the drum, that is during printing, because the ratchet wheels provided on the type carriers permit a correct adjustment but do not necessarily securely hold the type carriers in position. For this reason one provides adjustable members with projections which act on the ratchet wheels to hold them in place. This arrangement has the disadvantage that pawls or like members which during operation do not properly engage the ratchet wheel, are bent, thereby endangering the operation of the apparatus. Furthermore, this arrangement necessitates a complicated and expensive construction for permitting movement of the locking members in both directions of rotation.

The object of the invention is to provide an improved arrangement for locking the ratchet or ratchet wheel by means of an intermittent locking drum, which drum in a preferred embodiment is moved by means of an intermittent drive mechanism.

Another object of the invention is the provision of an intermittent drive mechanism which is arranged so that the printing drum is put into a position ready for operation while the intermittent drive mechanism is moved into an intermediate position.

The arrangement according to my invention is such that the intermittent drive mechanism locks itself automatically.

An arrangement according to my invention is shown in the accompanying drawing in which Fig. 1 shows a side view of a portion of a printing drum, Fig. 2 is a partial sectional view along the lines D E F Fig. 1, and Fig. 3 is a sectional view along the lines A B C of Fig. 1.

The printing drum 1 carries the axles 2. The type wheels 3 are freely movable about the axles 2. Ratchet wheels 4 are rigidly connected with the type wheels 3 and engaged by pawls 5. Each pawl 5 is forced into engagement with its ratchet wheel 4 by means of a spring 6 connected to a rod 7. Rods 7 are also provided within the printing drum 1. The printing drum rotates about a fixed axle 8 to which the wheel or gear 9 is secured. The latter is provided with only two teeth 10 and 11, engaging the teeth of the wheel 12. In the position shown on the drawing, a full tooth of the gear 12 is located in the opening between the teeth 10 and 11. The teeth of the latter are alternately cut away by one-half, that is far enough that the teeth do not come into engagement with the locking member 13 provided adjacent the teeth 10 and 11 of the wheel 9. The thickness of the locking member is somewhat less than that of the teeth of the gear 12 which are partially cut away, so that these teeth and the locking member 13 can pass each other. The locking drum or wheel 14 is rigidly secured to the gear 12. The locking wheel has projections fitting under noses 15 of the pawls 5 and also depressions 16, permitting movement of the noses 15 of the pawls 5 sufficient to permit rotation of the wheels 3. The gears 9 and 12 represent an intermittent gear for intermittently rotating the locking drum 14 to automatically lock the pawls.

The arrangement is shown in position ready for operation.

If the printing drum and consequently the gear 12 which rests therein are rotated around the stationary gear 9, for instance in clockwise direction, then the tooth 10 will force the complete tooth of the gear 12 out of the opening, in other words, the gear 12 performs besides its circular motion around the gear 9 also a rotation around its own axis, also in clockwise direction, until the complete tooth is removed from the opening between the teeth 10 and 11; this complete tooth, as well as the next complete tooth to the left, will then lie against the locking member 13, so that the gear 12 is prevented from rotating around its own axis. Simultaneously, the incomplete tooth shown in the top of the drawing is rotated past the locking member 13, so that it will arrive behind the latter element. When the printing drum and consequently the gear 12 have almost completed their circular motion, this incomplete tooth will mesh with the gear 11 and consequently the wheel 12 is given such a rotation around its own axis that a complete tooth will arrive in the opening between the teeth 10 and 11, at which the initial position shown in the drawing is again reached.

Simultaneously with the intermittent rotation of the gear 12 around its own axis, the locking drum 14 which is connected with this gear is rotated intermittently from the position shown into the blocked position and is returned to the illustrated position at the end of the rotation of the printing drum.

With the above described partial rotation of the gear 12 and the locking wheel 14, which rotation in the present instance is 45 degrees, the projections of the locking drum 14 have been moved adjacent the noses 15 of the pawls 5,

thereby locking the latter and accordingly the ratchet wheels 4 and the type wheels 3. During the end of the rotation of the printing drum, the gear tooth 11 of the gear 9 enters the gear 12 and turns the latter, together with the locking wheel 14 into a position ready for operation, as indicated in the drawing.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. A ticket printing machine including the combination of a printing drum with adjustable type carriers, ratchet wheels for the type carriers, pawls cooperatively arranged with the ratchet wheels, and means disposed within the printing drum for locking the pawls, such means comprising a locking drum and an intermittent gear for intermittently turning the locking drum.

2. A ticket printing machine including the combination of a printing drum with adjustable type carriers, a shaft for the drum, shaft means parallel to said shaft for supporting the type carriers, ratchet wheels for the type carriers, pawls cooperatively arranged with the ratchet wheels, means for automatically locking the pawls, the ratchet wheels being supported on said shaft means, and means including said shaft for supporting the pawls.

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