May 9, 1939. H. C. BEHRENS 2,157,587

INK FOUNTAIN

Filed Dec. 6, 1937 3 Sheets-Sheet 1

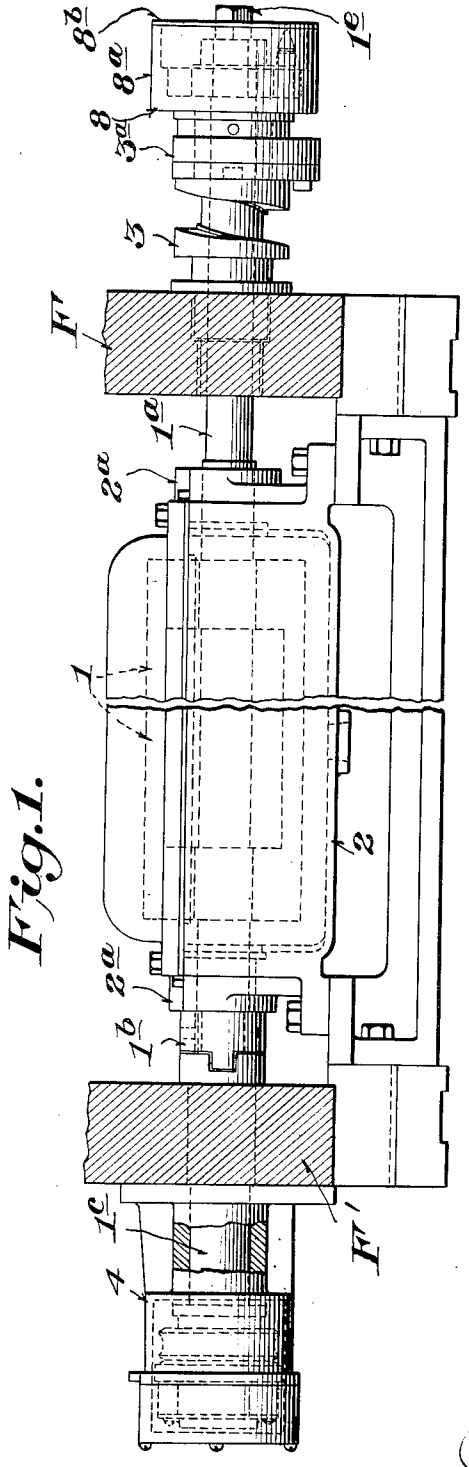


Fig. 1.

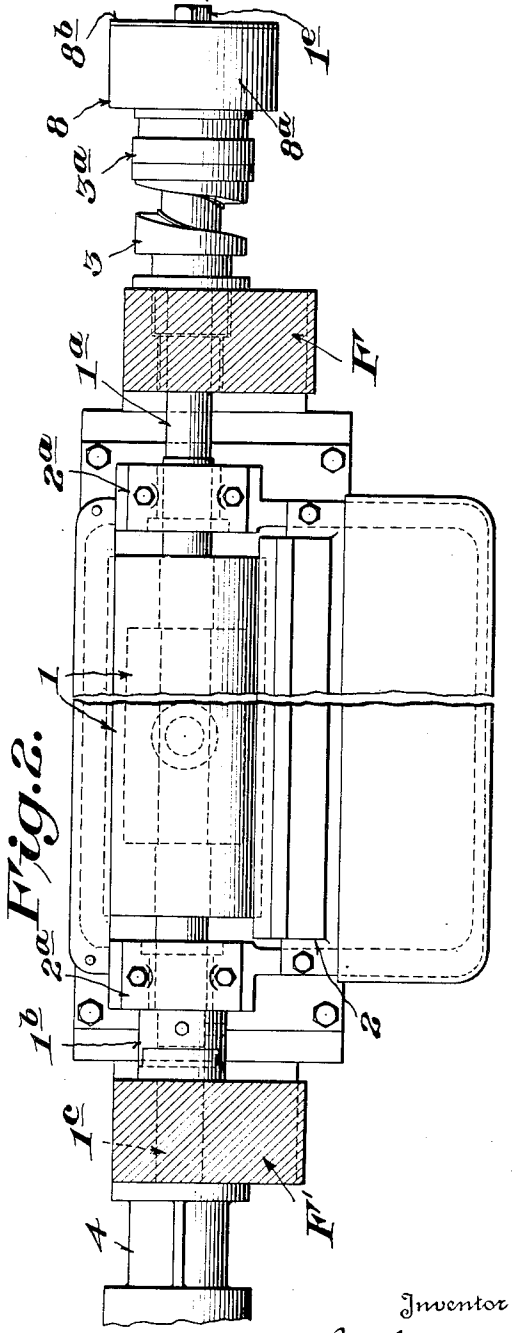


Fig. 2.

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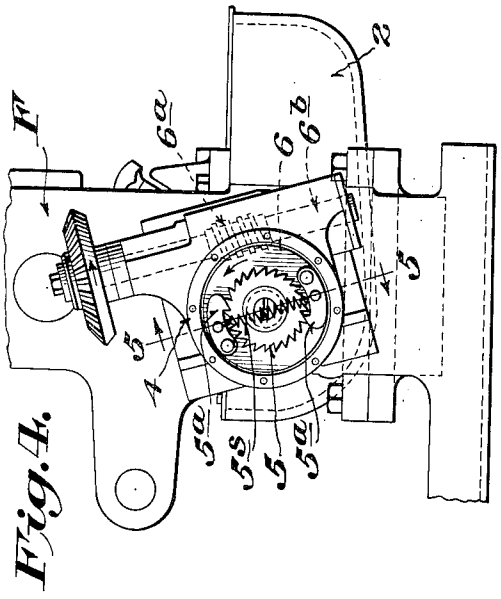


Fig. 4.

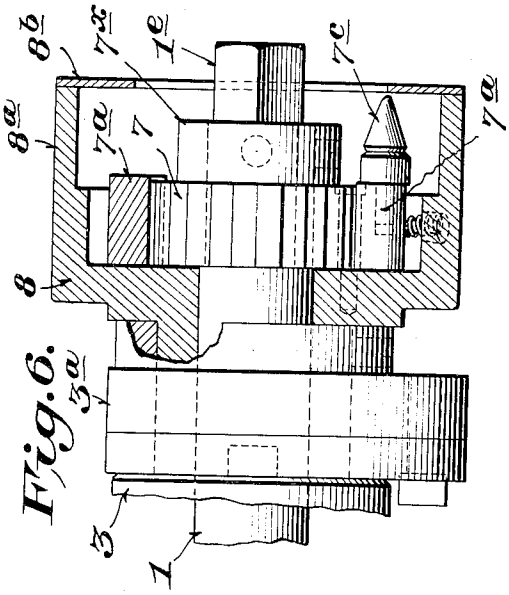


Fig. 6.

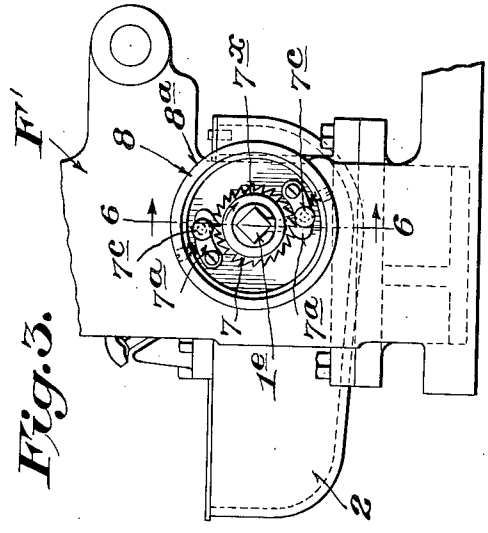


Fig. 3.

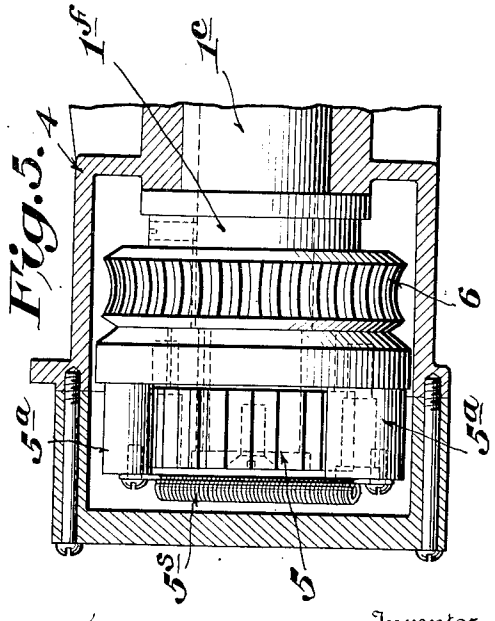


Fig. 5.

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INK FOUNTAIN

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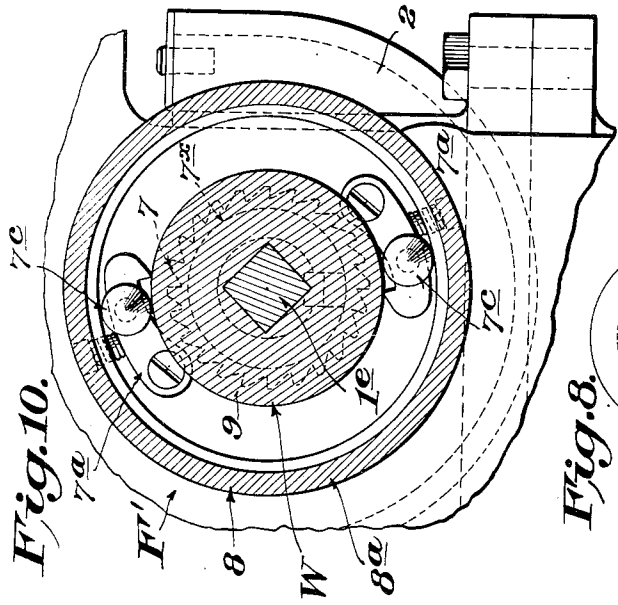


Fig. 10.

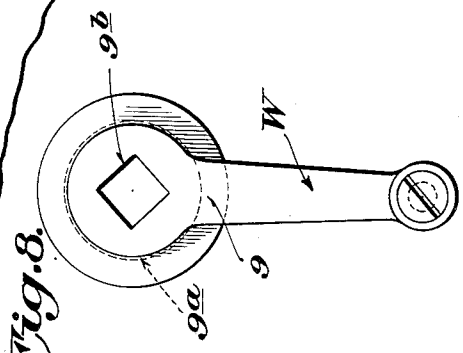


Fig. 8.

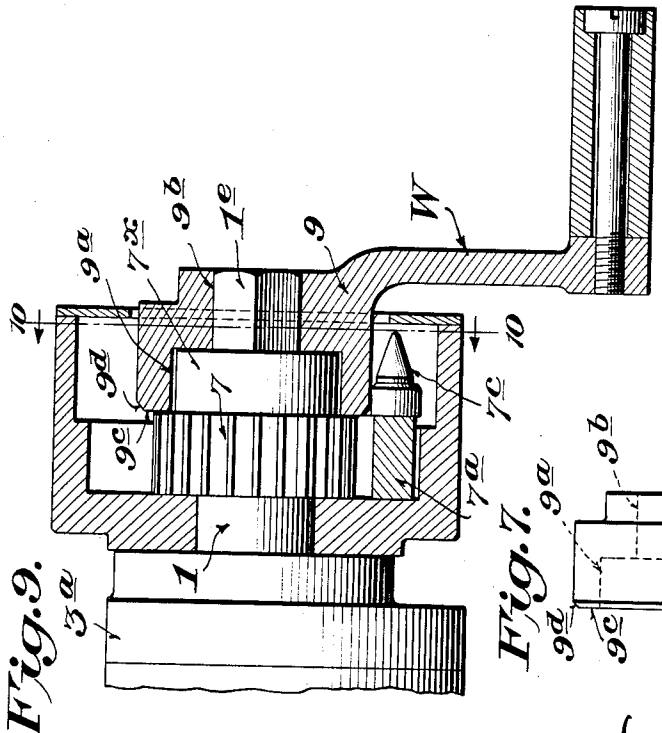


Fig. 9.

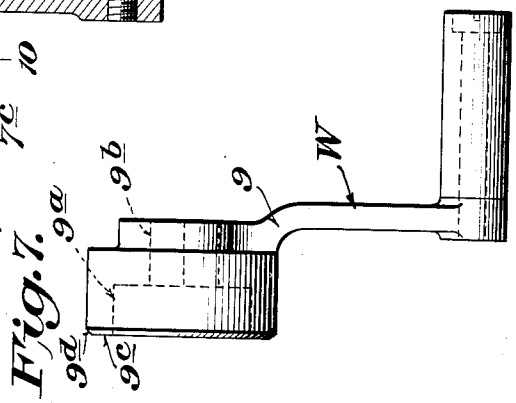


Fig. 7.

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UNITED STATES PATENT OFFICE

2,157,587

INK FOUNTAIN

Herbert C. Behrens, Battle Creek, Mich., assignor to The Duplex Printing Press Company, Battle Creek, Mich., a corporation of Michigan

Application December 6, 1937, Serial No. 178,419

8 Claims. (Cl. 101—364)

This invention relates to means for driving the fountain rolls of printing press ink fountains of otherwise conventional design. The usual printing press ink fountain comprises a bowl to contain ink and a feed roll, journaled in the ends of the bowl or in the frame, that dips into the ink; and means are provided to regulate the thickness of the film of ink carried by the roll when it is revolved. The roll in some cases is revolved continuously and in other cases intermittently to bring fresh quantities of ink in position to be transferred to the ink distributing means from which the ink is transferred finally to the printing surfaces. In various designs of inking apparatus the distributing roll is vibrated and the ductor roller is oscillated by cams fastened to the shaft of the fountain roll.

In the accompanying drawings I have illustrated an ink fountain of this conventional design equipped with the novel improvements which constitute the present invention; and I will first describe the invention with reference to said drawings, and then summarize in the claims the novel combinations and construction of parts for which protection is desired.

In said drawings:

Fig. 1 is a side elevation of the fountain.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a right hand end view of Fig. 1.

Fig. 4 is a left hand end view of Fig. 1.

Fig. 5 is an enlarged section on line 5—5, Fig. 4.

Fig. 6 is an enlarged section on line 6—6 of Fig. 3, showing the pawls normally engaged with the ratchet.

Fig. 7 is an elevation showing the wrench for manually rotating the fountain roll.

Fig. 8 is a plan view thereof.

Fig. 9 is a view similar to Fig. 6 but showing the wrench applied to the end of the shaft disengaging the pawls.

Fig. 10 is a section on the line 10—10, Fig. 9.

In the construction shown, the fountain roll 1 is fastened to a shaft 1*a* which has journals running in bearings 2*a* on the ends of fountain bowl 2; and the right hand end of the shaft is extended and also journaled in a frame member F of the press, the shaft projecting through said member.

Loosely mounted on one end of this shaft is the cam 3 for vibrating the usual distributing rollers (not shown); and the cam 3*a* for oscillating the usual ductor roller (not shown).

The other end of shaft 1*a* is coupled as at 1*b* to the inner end of a shaft section 1*c*, which forms an extension of the shaft 1*a*, and is journaled in the adjacent frame member F′ and in a housing casting 4 attached to the outer side of said member.

On the shaft section 1*c* within housing 4 is fastened a ratchet 5; and on the shaft section 1*c* beside the ratchet 5 is loosely mounted a worm wheel 6, a collar 1*f* being fast on the shaft 1*c* between the frame and worm wheel. Pawls 5*a* are pivoted on the worm wheel and are normally held in yielding engagement with the ratchet by a spring 5*s*.

The worm wheel 6 may be revolved by a worm 6*a* connected to a shaft 6*b*, which can be operatively geared to some convenient revolving member of the press (not shown), so that when the press is operating the worm wheel is revolved, and the pawls 5*a* engaging the ratchet revolves the shaft 1*c*.

At times it is desirable to revolve the fountain roll while the press is stopped. I provide means to render the pawls 5*a* inoperative by preferably disconnecting the fountain roll from the parts which are ordinarily driven therefrom. For this purpose the extreme right hand end 1*e* of the shaft is squared to enable it to be engaged by a hand operated wrench (Figs. 7–10, inclusive). A ratchet 7 is fast on the shaft adjacent the squared end and is engaged by pawls 7*a* pivoted on a sleeve 8, which is free on the shaft. The pawls 7*a* are provided with pins 7*c* projecting therefrom parallel with end 1*e*.

When it is desired to manually operate the fountain roll a wrench is used. This wrench W shown in Figs. 7–10 inclusive, has a cylindrical head 9 having an inner recess 9*a* adapted to receive a hub 7*x* (Fig. 6) on the ratchet 7 and an outer recess 9*b* of square cross section adapted to receive the squared end 1*e* of shaft 1*c* when the head is applied to the end of the shaft as shown on Fig. 9. The rim 9*c* of the wrench is slightly beveled on its outer periphery as at 9*d* so that the head 9 of the wrench, when engaged with the end 1*e* as shown in Fig. 9, will also engage the tapered pins 7*c* on pawls 7*a* and move the pawls outwardly as shown in Fig. 10 sufficiently to disengage said pawls from ratchet 7, thus allowing the shaft 1 to be manually turned by the wrench.

Thus the pawls 5*a* on the gear side of the press are disengaged from their ratchet 5 when the fountain roll 1 is operated by wrench W at the plate side of the press, but said pawls 5*a* automatically re-engage when the press is driven.

A ductor cam 3*a* and a vibrator cam 3 are free on shaft 1*a*, but are fastened to the hub of sleeve

8, and therefore the said sleeve is disconnected from the shaft as long as the wrench is engaged with the shaft. The annular flange 8a on the sleeve and the annulus 8b on the end of said flange are provided to protect the ratchet 7 and pawls 7a.

The detail parts may be made both right and left handed, for ready use with fountains built right or left, and keep the drive on the same side of the press.

Operation

When the press is running the worm wheel 6 drives the fountain roll 1 through the ratchet 5 and pawls 5a; and the ductor cam 3a and vibrator cam 3 are revolved with the fountain roll shaft by means of the ratchet 7 on the shaft engaged by the pawls 7a on the sleeve 8.

When the press is stopped the fountain roll can be revolved (without running the press) by manually engaging wrench W with the squared end 1e of the fountain roll shaft (Fig. 9) the head 9 of the wrench also engaging the tapered ends of the pawl pins 7c and thereby disengaging the pawls 7a from ratchet 7. This allows the fountain roll to be revolved manually, while the pawls 5a slip over the teeth of the driving ratchet 5; and as the cams 3, 3a are thus freed from the ratchet 7 the shaft 1a can be easily revolved without having to operate the mechanisms ordinarily actuated by the said cams.

I claim:

1. In an ink fountain, a bowl, an ink roll, a shaft extending beyond the fountain end, a ratchet fixed on one end of the shaft, a member loosely mounted on the shaft adjacent said ratchet, pawls carried by said member and engaging the ratchet to drive the ink roll, means for driving the member; and a detachable member adapted to be manually engaged with the roll and when so engaged to disengage the pawls and whereby when so engaged the roll can be manually rotated independently of said driving means.

2. In an ink fountain, a bowl, an ink roll, a shaft extending beyond the fountain end, means for driving the roll; a ratchet fixed on one end of the shaft, a sleeve loosely mounted on the shaft adjacent the ratchet, pawls pivoted to the sleeve and engaging such ratchet, said pawls being disengageable from the last mentioned ratchet when it is desired to manually rotate the roll shaft independently of said driving means, and a detachable member adapted to be manually engaged with the roll and when so engaged to disengage the pawls and whereby when so engaged the roll can be manually rotated independently of said driving means.

3. In an ink fountain, a bowl, an ink roll, a shaft extending beyond the fountain ends, a ratchet fixed on one end of the shaft, a member loosely mounted on the shaft adjacent said ratchet, pawls carried by said member engaging the ratchet to drive the ink roll in the proper direction, and means for driving the member; a ratchet fixed on the other end of the shaft, a sleeve loosely mounted on the shaft adjacent the latter ratchet, pawls pivoted to the sleeve and engaging such ratchet, said pawls being disengaged from the last mentioned ratchet when it is desired to manually rotate the roll shaft independently of the driving means.

4. In an ink fountain as set forth in claim 3, a vibrator actuating cam and a distributing roller actuating cam loose on the shaft and rigidly connected with said sleeve.

5. In an ink fountain, a bowl, an ink roll, a shaft extending beyond the fountain and through adjacent frame members, a gear loosely mounted on one end of the shaft; means for driving the gear; a ratchet fixed to the shaft adjacent the gear, and pawls carried by the gear engaging the ratchet to drive the ink roll in the proper direction, a sleeve loosely mounted on the other end of the shaft, a ratchet fixed on the shaft adjacent the sleeve, pawls pivoted on the sleeve and engaging said ratchet, and manually operable means for turning the shaft when the pawls on the sleeve are disengaged from the last mentioned ratchet.

6. In an ink fountain as set forth in claim 5, a vibrator actuating cam and a distributing roller actuating cam loose on the shaft but rigidly connected with said sleeve.

7. In an ink fountain, a bowl, an ink roll, a shaft extending beyond the fountain and through adjacent frame members, a worm gear loosely mounted on one end of the shaft; means for driving the worm gear; a ratchet fixed to the shaft adjacent the worm gear, pawls carried by the worm gear engaging the ratchet to drive the ink roll in the proper direction; a sleeve loosely mounted on the other end of the shaft, a ratchet fixed on the shaft adjacent the sleeve; pawls pivoted on the sleeve and engaging said ratchet; a vibrator actuating cam and a distributing roller actuating cam loose on the shaft but rigidly connected with said sleeve; and manually operable means for turning the shaft when the pawls on the sleeve are disengaged from the last mentioned ratchet.

8. In an ink fountain, a bowl, an ink roll, a shaft extending beyond the fountain end and on which is fastened the roll and on which are loosely mounted other parts requiring power, a ratchet fixed on one end of the shaft, a member loosely mounted on the shaft adjacent said ratchet, pawls carried by said member and engaging the ratchet to drive the ink rolls, means for driving the member; and a detachable member whereby the roll can be manually rotated independently of said driving means, and whereby the other parts on the shaft are disconnected from the shaft when said member is engaged therewith.

HERBERT C. BEHRENS.