S. A. NEIDICH.

PRINTING COUPLE APPLIANCE.

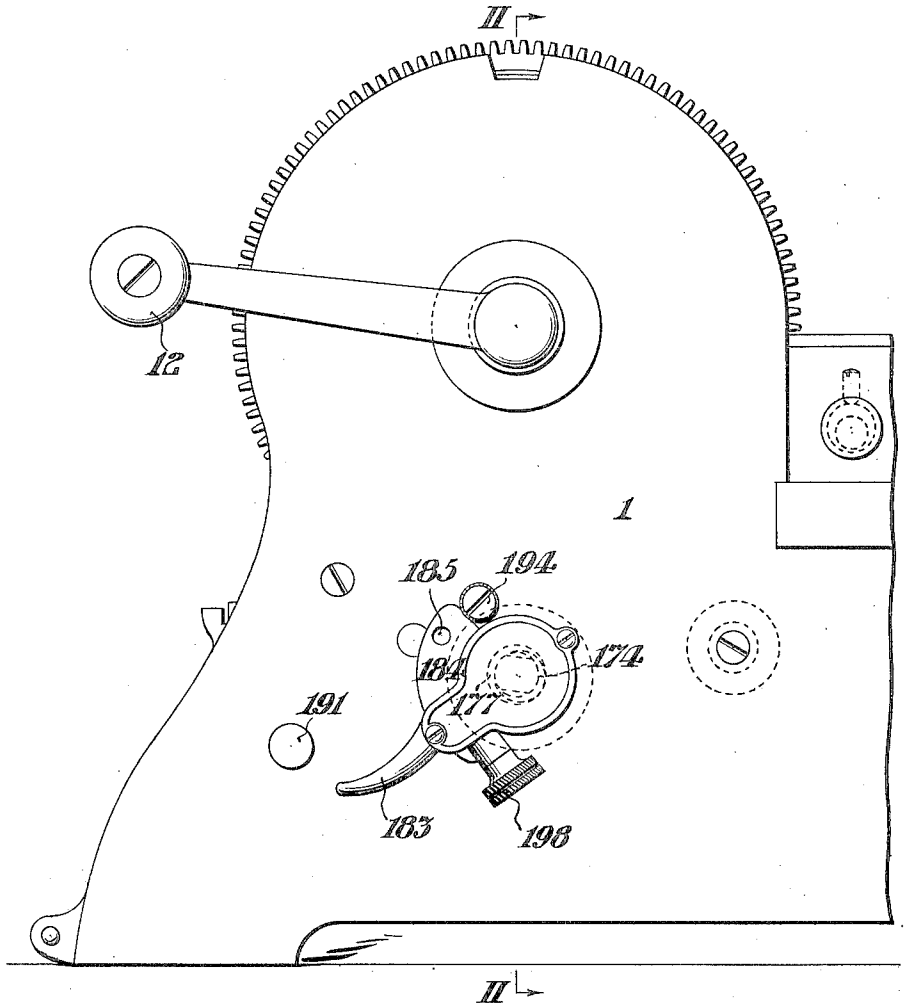
APPLICATION FILED SEPT. 8, 1911.

1,089,148.

Patented Mar. 3, 1914.

3 SHEETS—SHEET 1.

FIG. I.



WITNESSES:

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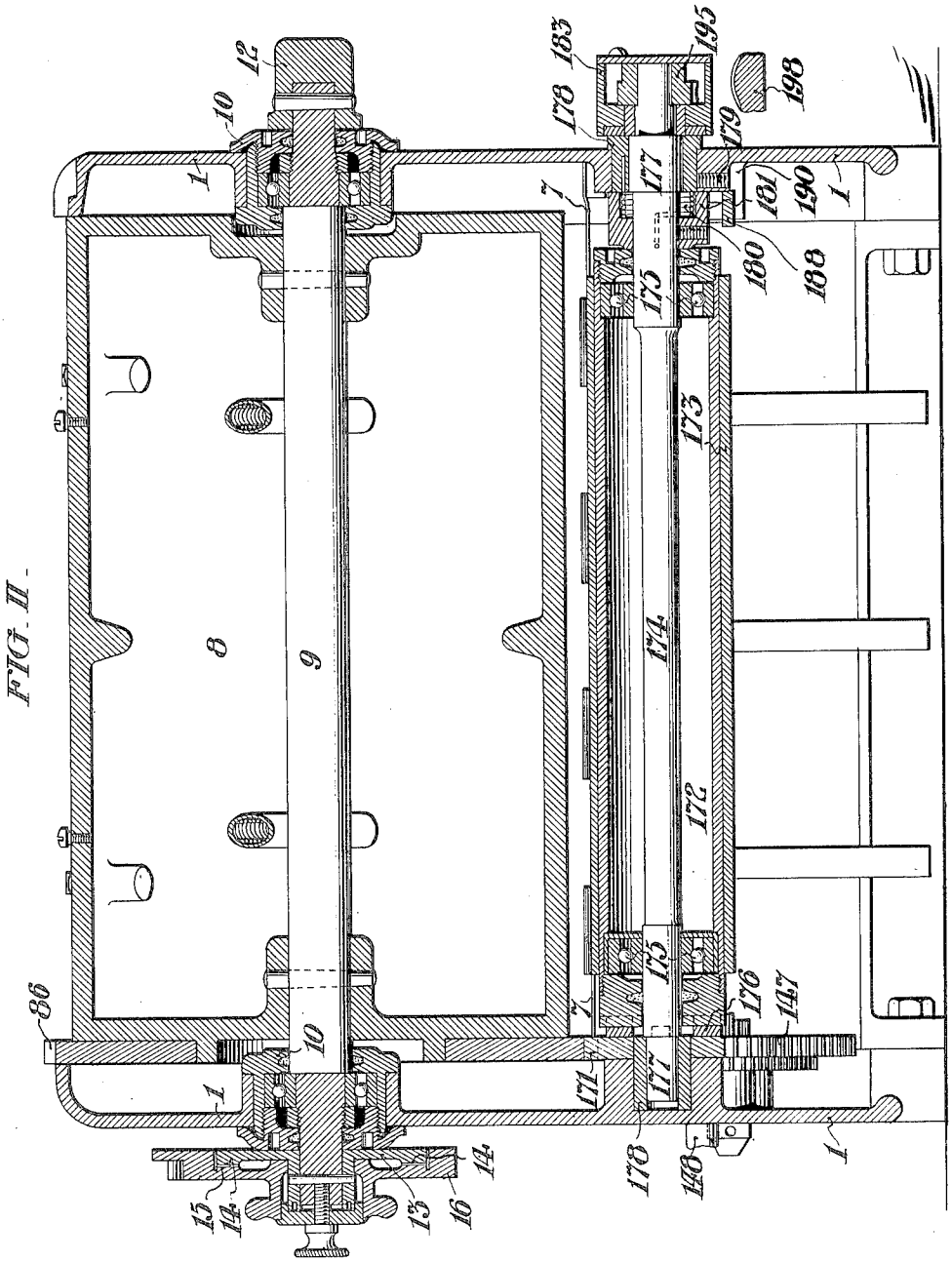
3 SHEETS—SHEET 2.

FIG. II.



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3 SHEETS—SHEET 3.

FIG. III.

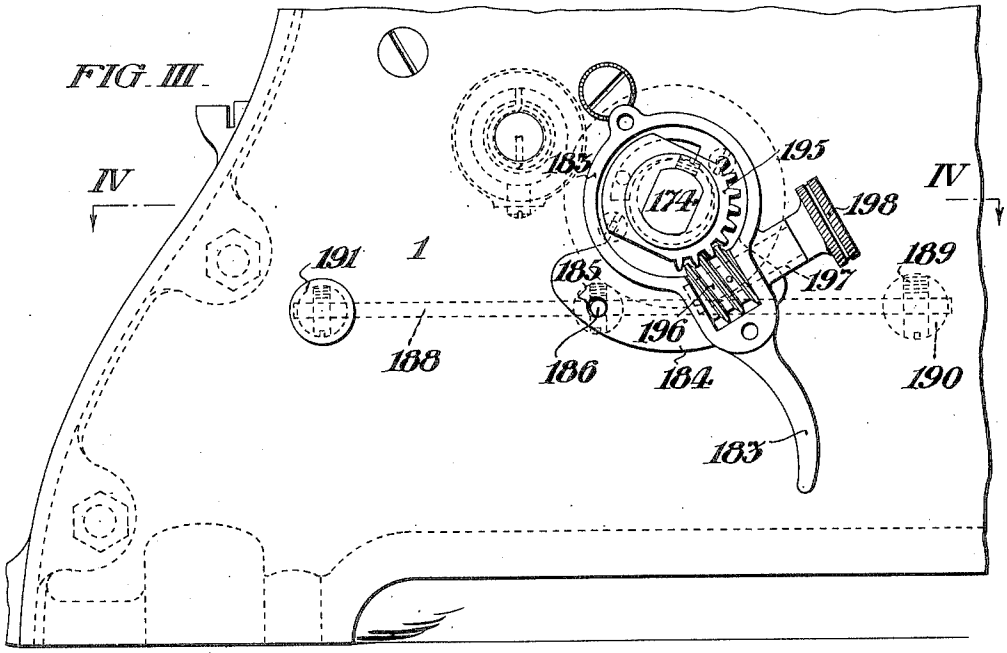
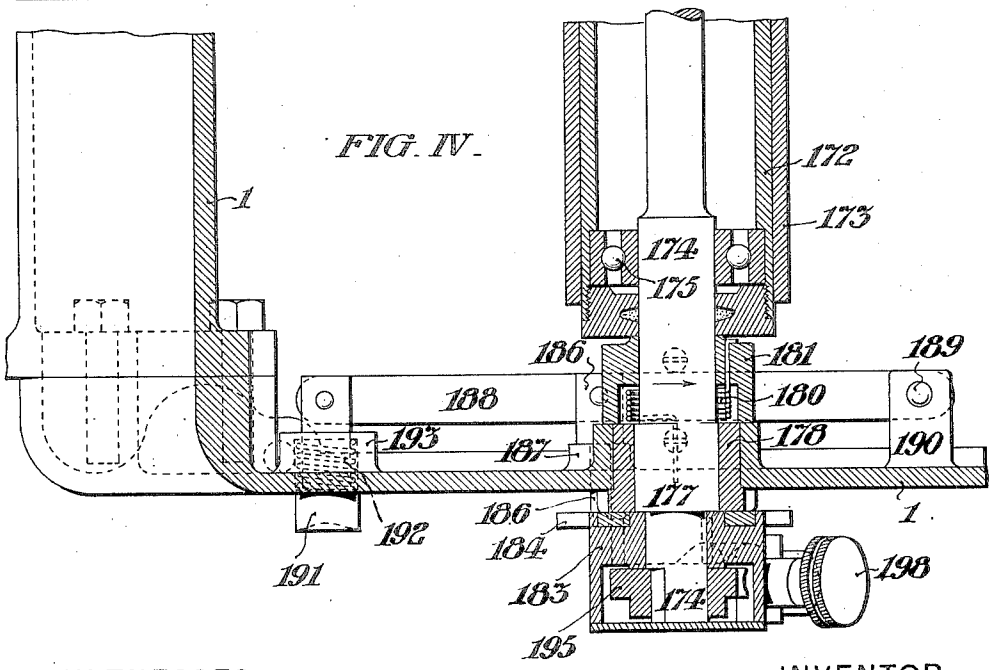


FIG. IV.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL A. NEIDICH, OF EDGEWATER PARK, NEW JERSEY, ASSIGNOR TO THE AMERICAN MULTIGRAPH COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PRINTING-COUPLE APPLIANCE.

1,089,148. Specification of Letters Patent. Patented Mar. 3, 1914.

Original application filed September 28, 1910, Serial No. 584,202. Divided and this application filed September 8, 1911. Serial No. 648,325.

To all whom it may concern:

Be it known that I, SAMUEL A. NEIDICH, of Edgewater Park, in the State of New Jersey, have invented a certain new and useful Improvement in Printing-Couple Appliances, whereof the following is a specification, reference being had to the accompanying drawings.

This application is a division of application Serial #584,202 filed September 28th, 1910 for Letters Patent of the United States for improvement in duplicating machines.

As hereinafter described, my invention includes adjusting mechanisms and throw-off mechanisms for an impression cylinder and is preferably embodied in a machine comprising a rotary printing drum and a cooperative rotary platen.

My invention includes the various novel features of construction and arrangement hereinafter more definitely specified.

In the drawings:—Figure I is a fragmentary elevation of the right hand side of a duplicating machine embodying my invention. Fig. II is a vertical sectional view taken on the line II, II in Fig. I. Fig. III is a fragmentary elevation of the right hand side of said machine, on a larger scale than Fig. I, showing the platen adjusting lever with its cover plate removed. Fig. IV is a fragmentary plan sectional view taken on the line IV, IV in Fig. III.

In said figures, the duplicating machine frame 1 supports the feed table 7 beneath the rotary printing drum 8. Said drum has its shaft 9 journaled in bearings 10 in said frame 1, having at one end the operating handle 12 exterior to said frame and at its other end the collar 13 with the crown clutch teeth 14 engaging the crown clutch teeth 15 in the rotatably adjustable cam 16 which controls the paper feed. As shown in Fig. II, the gear 86 on said printing drum 8 engages the gear 171 to rotate the platen 172 having the rubber face 173 in coöperative relation with said drum. However, said drum and platen may be rotated by the gear 147 on the main driving shaft 148; the latter being connected with a motor. As shown in Figs. II and IV said platen 172 being carried by the normally stationary shaft 174, is arranged to rotate upon the bearing balls 175, and is connected with said gear 171 by the Whitworth coupling ring 176 which permits said platen to be shifted without interfering with the operation of said gear 171 which is journaled on the concentric bearing 178 of said shaft 174. In order to shift the axis of said platen toward and away from said drum 8, to render it operative and inoperative and to vary the depth of the printed impression, said shaft 174 is provided at its opposite ends with the eccentrics 177 journaled in two bearings 178, which are respectively concentric and eccentric, the latter being rotatably adjustable but normally held stationary in said frame 1 by the set screw 179. Said shaft 174 is encircled by the spring 180 having one end fixed in the collar 181 on said shaft and the other end held in said eccentric bearing 178 in stationary relation with the frame 1. Said spring 180 tends to turn said shaft 174 in the direction of the arrow marked thereon in Fig. IV to uniformly lower the platen 172 into inoperative position. However, said shaft may be manually turned by the lever 183 to present said platen 172 in operative position, and, said lever has the flange 184 with the socket 185 to engage the detent 186, to detain said lever 183, shaft 174 and platen 172 in the operative position of the latter with respect to the drum 8 as shown in Fig. IV. Said detent 186 is mounted to reciprocate in the bearing 187 in the frame 1 and is carried by the releasing lever 188 which is fulcrumed at 189 in the stud 190 on said frame and has at its opposite end the push button plunger 191 which is normally thrust outward as shown in Fig. IV by the spring 192 in the frame socket 193. It is to be understood that the arrangement is such that when said button 191 is pushed inward said detent 186 is withdrawn from the socket 185 in the impression lever flange 184 permitting said lever and the platen to be turned by said spring 180 into inoperative position, with said lever flange 184 against the stop stud 194. Although said lever 183 normally remains in relatively stationary relation on said shaft 174 it is circumferentially adjustable thereon; said shaft having the worm gear 195 fixed thereon as shown in Figs. III and IV in engagement with the worm 196 fixed on the worm shaft 197 having the knob 198 by which it may be turned. Although the operative position of said lever 183 is predetermined by said detent 186 fitting in the

socket 185 therein, the relative rotary position of said lever 183 and shaft 174 may be adjustably determined by rotation of said knob 198 so that the distance between the axis of the drum 8 and the axis of the platen 172 in the coöperative position thereof may be varied in accordance with the thickness of the paper to be printed or the depth of printing impression desired. Of course, said arrangement permits adjustment of the platen to compensate for wear or shrinkage of its resilient rubber surface 173. Said shaft 174 is provided with the normally stationary but rotatably adjustable eccentric bearing 178, so that said shaft may be adjusted in precise parallel relation with the axis of the printing drum 8, and, it may be observed that such construction not only simplifies and facilitates the primary assembling of the machine but affords means to compensate for wear of the shaft, bearings and roller.

It may be observed that the operator may at any instant during the operation of the machine press the button 191 to operate the lever 188 and thus render the platen 172 inoperative, to terminate the printing operation without stopping the machine.

I do not desire to limit myself to the precise details of construction and arrangement above described as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

I claim:—

1. The combination, with a frame, of a rotary printing drum journaled in said frame, a rotary platen arranged to coöperate with said drum, means arranged to adjustably shift the axis of said platen toward and away from said drum to vary the printing impression, including a shaft for said platen having eccentrics journaled in said frame, a worm gear on said shaft, an impression lever rotatably adjustable on said shaft and carrying a worm engaging said gear, said lever being formed with a housing surrounding the worm wheel and worm, a shaft for said worm extending outside of the housing, a handle on said worm shaft, a flange projecting from the housing, and a detent adapted to engage said flange to detain said platen in printing position.

2. The combination, with a frame, of a rotary printing drum journaled in said frame, a rotary platen arranged to coöperate with said drum, means arranged to adjustably shift the axis of said platen toward and away from said drum to vary the printing impression, including a shaft for said platen having eccentrics journaled in said frame, a worm gear on said shaft, a worm engaging said gear, said lever being formed with a housing extending around the worm wheel and carrying a flange, a detent adapted to engage said flange to detain said platen in printing position, a lever for moving said detent, and a push button for operating said last mentioned lever.

3. The combination, with a shaft carrying a circumferentially adjustable lever, of means arranged to adjust said lever including a worm gear fixed on said shaft, a worm carried by said lever in engagement with said gear, means arranged to turn said worm, said lever being formed with a housing journaled on the shaft and having a wall surrounding the worm wheel and worm, the worm being in a recess of said housing between the worm wheel and operative end of the lever, and a cap plate secured over said wall and coöperating therewith to inclose the worm and worm wheel.

4. The combination, with an eccentrically mounted shaft, of a roller platen on the shaft, a driving gear for the platen, a shiftable coupling between the gear and platen, a flange adjustably connected to said shaft, a spring tending to turn the shaft in a direction to release the platen, and a movable detent adapted to engage the flange to hold the platen active or release it.

5. The combination of an eccentric shaft, a platen thereon, a worm wheel on the shaft, a lever having the housing extending around the worm wheel, a worm carried by the lever and coöperating with the worm wheel, a flange projecting from the housing, a detent to engage the flange to hold the platen active, a stop positioned to be engaged by a shoulder on the flange to stop the rotative movement of the shaft, and a spring tending to cause such rotative movement.

In testimony whereof, I have hereunto signed my name at Burlington, New Jersey, this sixth day of Sept., 1911.

SAMUEL A. NEIDICH.

Witnesses:

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LILLIE M. DEACON.