

April 8, 1924.

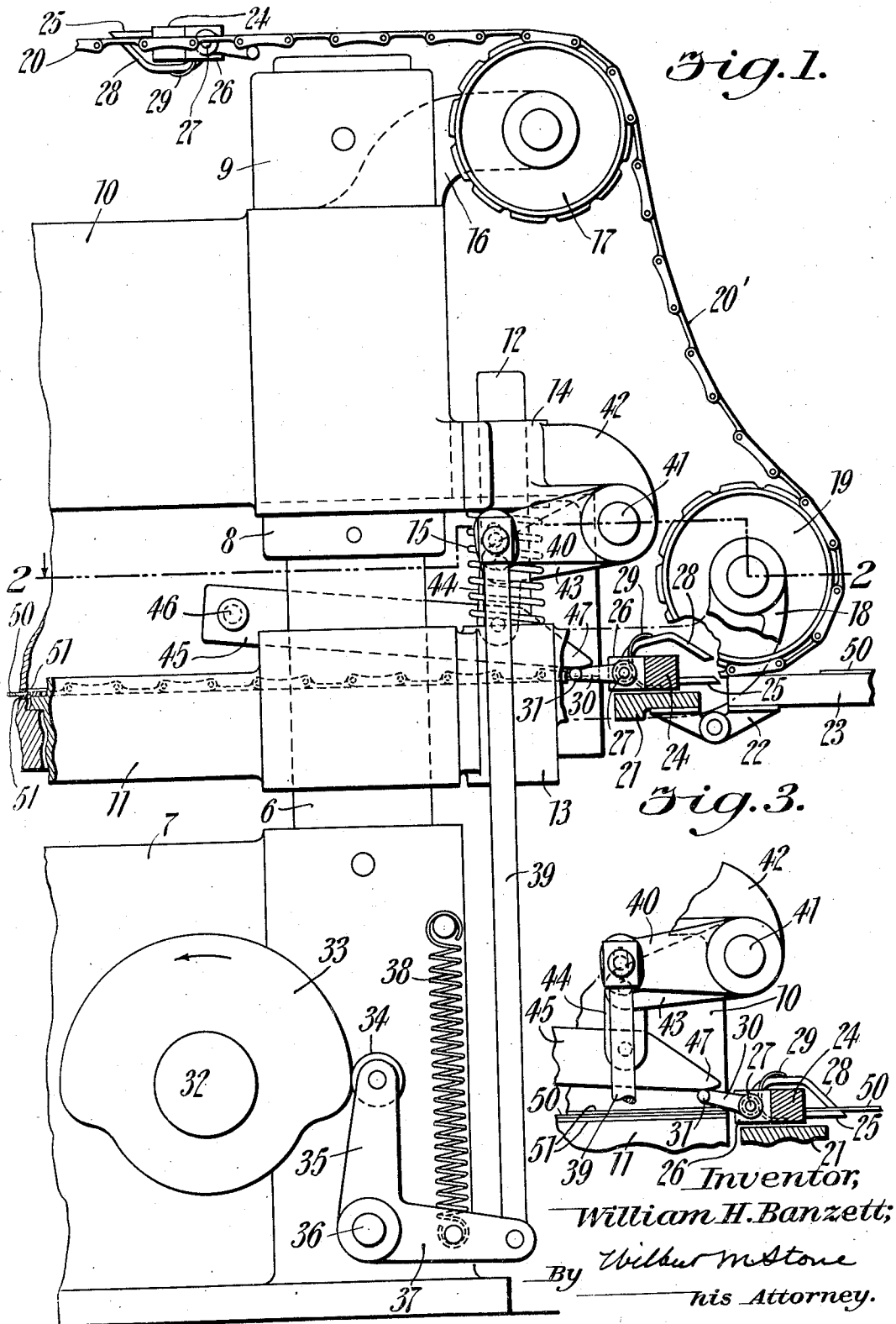
1,489,339

W. H. BANZETT

SHEET FEEDING MECHANISM

Filed Feb. 23, 1922

2 Sheets-Sheet 1



April 8, 1924.

1,489,339

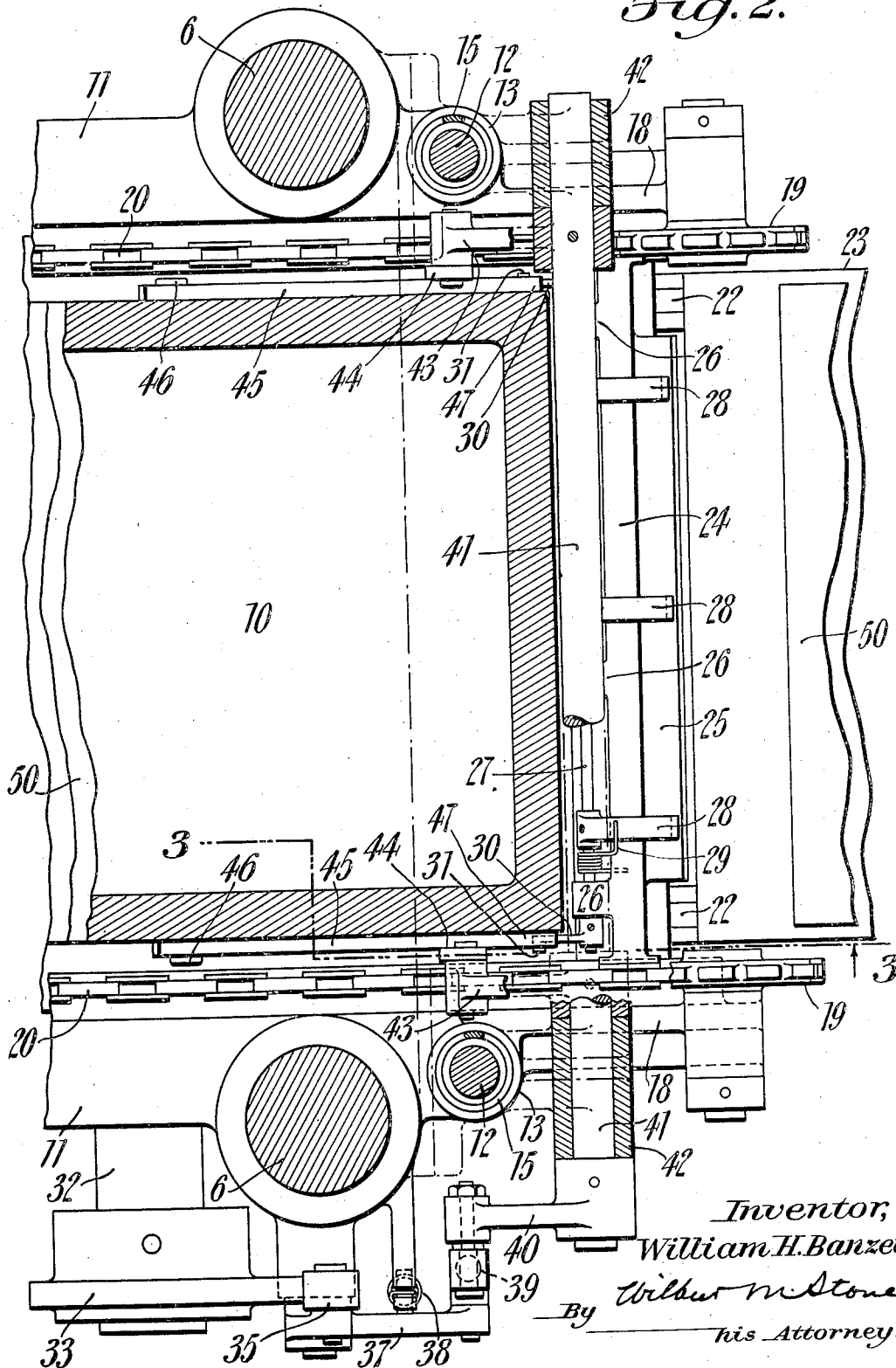
W. H. BANZETT

SHEET FEEDING MECHANISM

Filed Feb. 23, 1922

2 Sheets-Sheet 2

Fig. 2.



Inventor,  
William H. Banzett,  
By *Wilbur M. Stone*  
his Attorney.

# UNITED STATES PATENT OFFICE.

WILLIAM H. BANZETT, OF BERGENFIELD, NEW JERSEY, ASSIGNOR TO AMERICAN LITHOGRAPHIC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

## SHEET-FEEDING MECHANISM.

Application filed February 23, 1922. Serial No. 538,516.

*To all whom it may concern:*

Be it known that I, WILLIAM H. BANZETT, a citizen of the United States, and a resident of Bergenfield, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Sheet-Feeding Mechanisms, of which the following is a specification.

This invention relates to sheet feeding mechanisms and has for one of its objects to provide means for automatically gripping and subsequently releasing sheets with reference to sheet conveyors as used in connection with embossing and like presses.

Another object is to provide means which are positively operated independently of any movement of the conveyors, but timed in synchronism with their advance.

A further object is in the provision of devices for accomplishing these purposes in forms which may be readily installed on existing presses, as well as incorporated in new structures.

With these ends in view the improvements comprise features hereafter described in their preferred embodiments and illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical view, partly in section, of a conventional type of embossing press, showing the sheet conveying means and the application of an embodiment of the invention.

Fig. 2 is a horizontal sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view, taken substantially on line 3—3 of Fig. 2, showing a sheet engaged in the grippers.

The scale of all the views is the same.

In the drawings, 6, 6 are opposite vertical rods at the feeding side of the press, these rods being rigidly secured in base 7, their upper ends having fixed collars, as 8 and 9, between which is head 10.

The bed or platen 11 is guided vertically on rods 6 and also by smaller rods 12, fixed in extensions 13, respectively, of the bed and slidable in registering openings in projections as 14, respectively, of head 10, rods 12 being encircled by compression springs as 15, respectively, adapted to press bed 11 down immediately it has performed its function, said bed being actuated reciprocally by any suitable means, not shown.

Attached at each side of head 10 on one

side of the press, are brackets, as 16, in which are rotatably mounted, respectively, chain sprockets, as 17. Similarly, other brackets 18, extending from bed 11, carry sprockets 19, respectively, and other pairs of sprockets are mounted in like manner on the opposite side of the press.

A pair of endless conveyor chains 20 are trained over these several pairs of sprockets, respectively, and means, connected with the driving means of the press, actuate the chains intermittently, in exact uniformity, the bed 11, as it rises, causing the chains to slack, as at 20' in Fig. 1.

A wide rail 21 is carried adjacent the bed of the press, its upper surface being in the plane of certain parts of the chains as they bend around sprockets 19, and attached to the underside of the rail, by hinges 22, is sheet support table 23, carrying sheets as shown.

At regularly spaced intervals the chains carry sheet gripping devices, each consisting of a cross bar 24 having on its retreating side a gripper-bar 25, its upper surface being approximately level with the corresponding surface of sheet support table 23, when on rail 21 over which the grippers pass.

The bar 24, as shown, is considerably higher than bar 25, acting as a guide and stop for the edge of the sheet fed against it, as will be later seen herein.

From the advancing side of bar 24 extend lugs 26 in which is rotatably mounted a rod 27, and to this rod are secured at spaced intervals, sheet grippers 28, bent to extend over the bar 24 and make contact with the gripper bar 25, being urged by torsion springs, as 29. The foregoing construction constitutes the sheet advancing means.

Fixed to the ends of rod 27 are cranks, as 30, extending in the direction of advance and provided with lateral pins, as 31, the arrangement being such that, when the ends of the cranks are depressed, as to raise the fingers 28.

A shaft, 32, driven in timed relation to the press, has secured to it peripheral cam 33 against which rides roll 34 rotatably mounted at the end of arm 35 of a bell-crank lever, pivoted at 36 on a projection from the press base, the other arm, 37, of

said lever, being drawn up by tension spring 38 attached to the base, thus holding roll 34 in engagement with said cam.

Pivoted to the end of the bell-crank lever 5 arm 37, is link 39 extending upwardly and pivotally engaging a rock arm 40, fixed on the extending end of shaft 41 mounted transversely of the press in brackets 42 formed with head 10.

10 A pair of rock arms 43 are fixed to shaft 41, adjacent the inner sides of brackets 42, respectively, these arms being pivotally connected, respectively, by links 44 with flat oscillating arms 45, pivoted at 46 to the 15 sides of bed 11, their bevelled ends, as 47, being adapted to make contact with pins, as 31, and depress cranks, as 30, when cam 33 is in one position and to clear said pins when said cam is in another position.

20 In operation, assuming the bed of the press has risen to coact with the press head to emboss a sheet therebetween, as in Fig. 1, the sheet feeding means being at a standstill, those grippers having the leading end of the 25 sheet being embossed in their grip, not shown, being necessarily quiescent so as not to disturb the sheet in its register with the embossing plates, as 51, carried by the press head and bed, and being ready, after the 30 embossing is completed and the press bed lowered, to withdraw the embossed sheet to the left when the sprocket chains carrying the sheet gripping means make an incremental advance.

35 Roll 34 is engaged by the high portion of cam 33 whereby connection 39 is pulled downward and through rock arms 40, 43 and links 44, oscillatable arms 45 are depressed, their toes 47 engaging and depressing 40 cranks 30 of sheet grippers 28, thereby raising those grippers from coaction with gripper bar 25, all as in Fig. 1.

Thereupon sheet 50 on feed table 23 is thrust forwardly, by means not shown, over 45 the sheet engaging portion of gripper-bar 25 against stop wall 24 thereof, thereby positioning said sheet in the direction of its line of travel to the left. The continued rotation of cam 33 presently presents a low part of 50 said cam to engagement with roll 34, whereupon spring 38 swings bell-crank lever arms 35, 37 in anti-clockwise direction, connection 39 is raised and sheet grippers 28 descend onto the leading end of said sheet 50, gripping it to bar 25, all during the quiescence 55 of feed chains 20. Press bed 11 now descends carrying downwardly therewith arms 18, to which feed table 23 is hinged, and sprockets 19, thereby taking up the slack 20' in chains 20.

60 Then the feed chains advance to the left, carrying the embossed sheet outwardly to the left, and the new sheet inwardly to the left into position for embossing and the next 65 gripper bar into sheet receiving position.

Then press bed 11 rises and cam 33 presents its high part to roll 34, whereby the next set of grippers on the gripper-bar, now in sheet receiving position, are raised. The described operation is then repeated.

I claim:

1. In sheet feeding mechanisms in which intermittently operating means are provided for advancing a sheet into position to be operated upon and wherein said sheet advancing means has also a movement transverse to the direction of sheet advancement, the combination of sheet gripping means carried by the sheet advancing means, and means independent of the transverse movement of the sheet advancing means for actuating the sheet gripping means.

2. In sheet feeding mechanisms in which intermittently operating means are provided for advancing a sheet into position to be operated upon and wherein said sheet advancing means has also a movement transverse to the direction of sheet advancement, the combination of sheet gripping means carried by the sheet advancing means, and means independent of the transverse movement of the sheet advancing means for actuating the sheet gripping means during the quiescence of the sheet advancing means.

3. In sheet feeding mechanisms in which 95 a gripper-bar is intermittently advanced, and in which said gripper-bar is provided with spring-urged sheet grippers for coaction therewith and wherein said gripper-bar and its sheet grippers have an intermittent movement transverse to the direction of movement of advancement during a rest period of said advancement, the combination of an oscillating arm arranged and adapted at one time for raising said sheet grippers 100 relatively to said gripper-bar and at another time for releasing said sheet grippers for permitting their spring-urged closing, and means for actuating and timing said oscillating arm, said releasing of the sheet grippers occurring during the quiescence of said gripper-bar.

4. In sheet feeding mechanisms in which a gripper-bar is intermittently advanced and in which said gripper-bar is provided with spring-urged sheet grippers for coaction therewith and wherein said gripper-bar and its sheet grippers have an intermittent movement transverse to the direction of movement of advancement during a rest period of said advancement, the combination of an oscillating arm arranged and adapted at one time for raising said sheet grippers relatively to said gripper-bar and at another time for releasing said sheet grippers for permitting their spring-urged closing, and means for actuating and timing said oscillating arm, said releasing of the sheet grippers occurring between the intermittent transverse movements of said gripper-bar.

5. In sheet feeding mechanisms in which a gripper-bar is intermittently advanced and in which said gripper-bar is provided with spring-urged sheet grippers for coaction therewith and wherein said gripper-bar and its sheet grippers have an intermittent movement transverse to the direction of movement of advancement, the combination of an oscillatable arm arranged and adapted at one time for raising said sheet grippers relatively to said gripper-bar and at another time for releasing said sheet grippers for permitting their spring-urged closing, and means for actuating and timing said oscillating arm, said releasing of the sheet grippers occurring between the intermittent transverse movements of said gripper-bar and between the intermittent advance movements thereof.

In witness whereof, I hereby affix my signature, this 20 day of February, 1922.

WILLIAM H. BANZETT.