E. J. SMITH.

INKING MECHANISM.

APPLICATION FILED JUNE 19, 1916.

1,262,707.

Patented Apr. 16, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

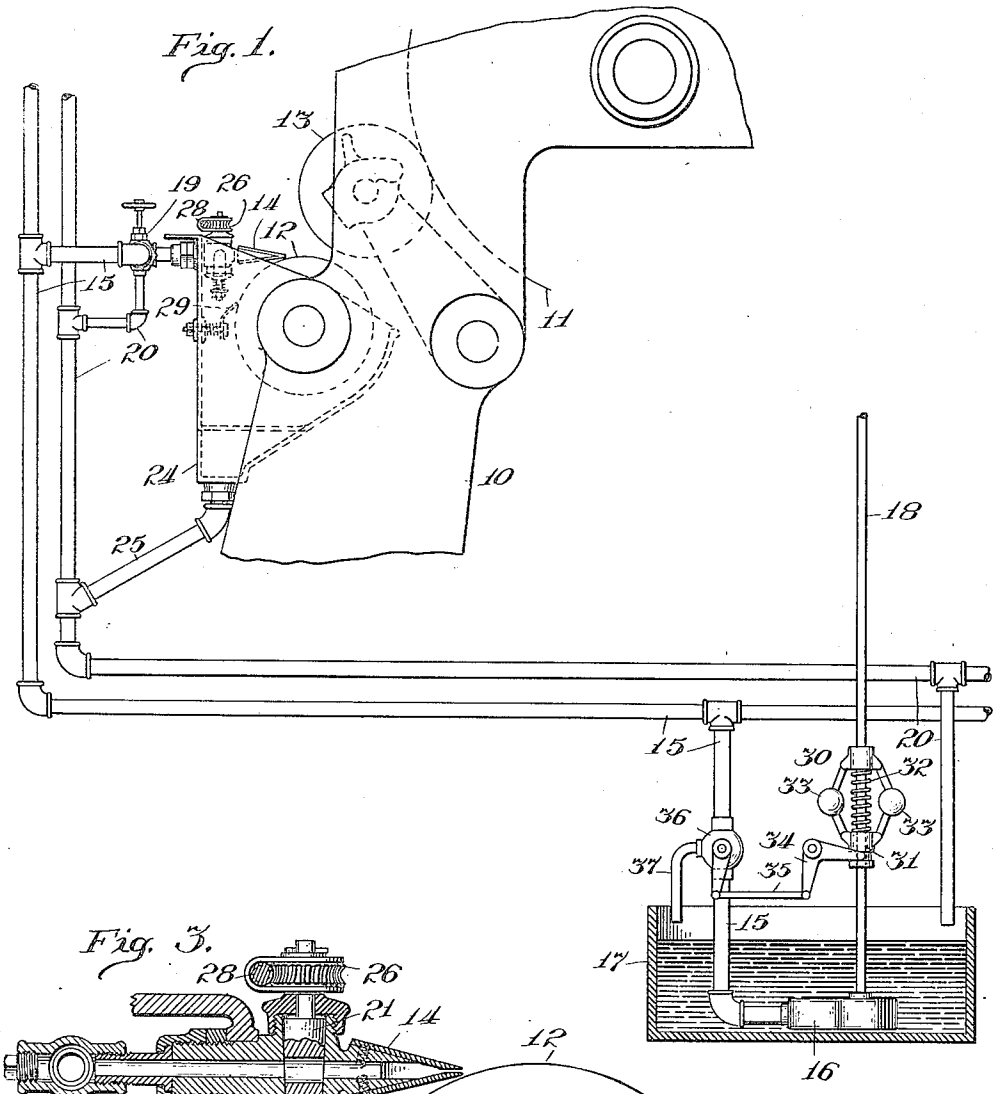
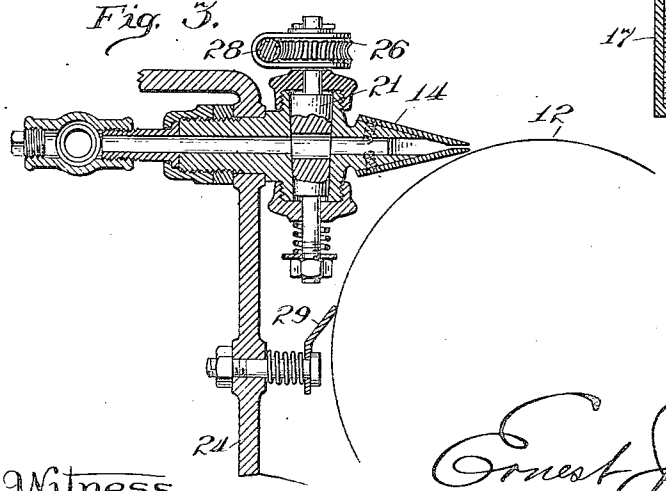



Fig. 3.




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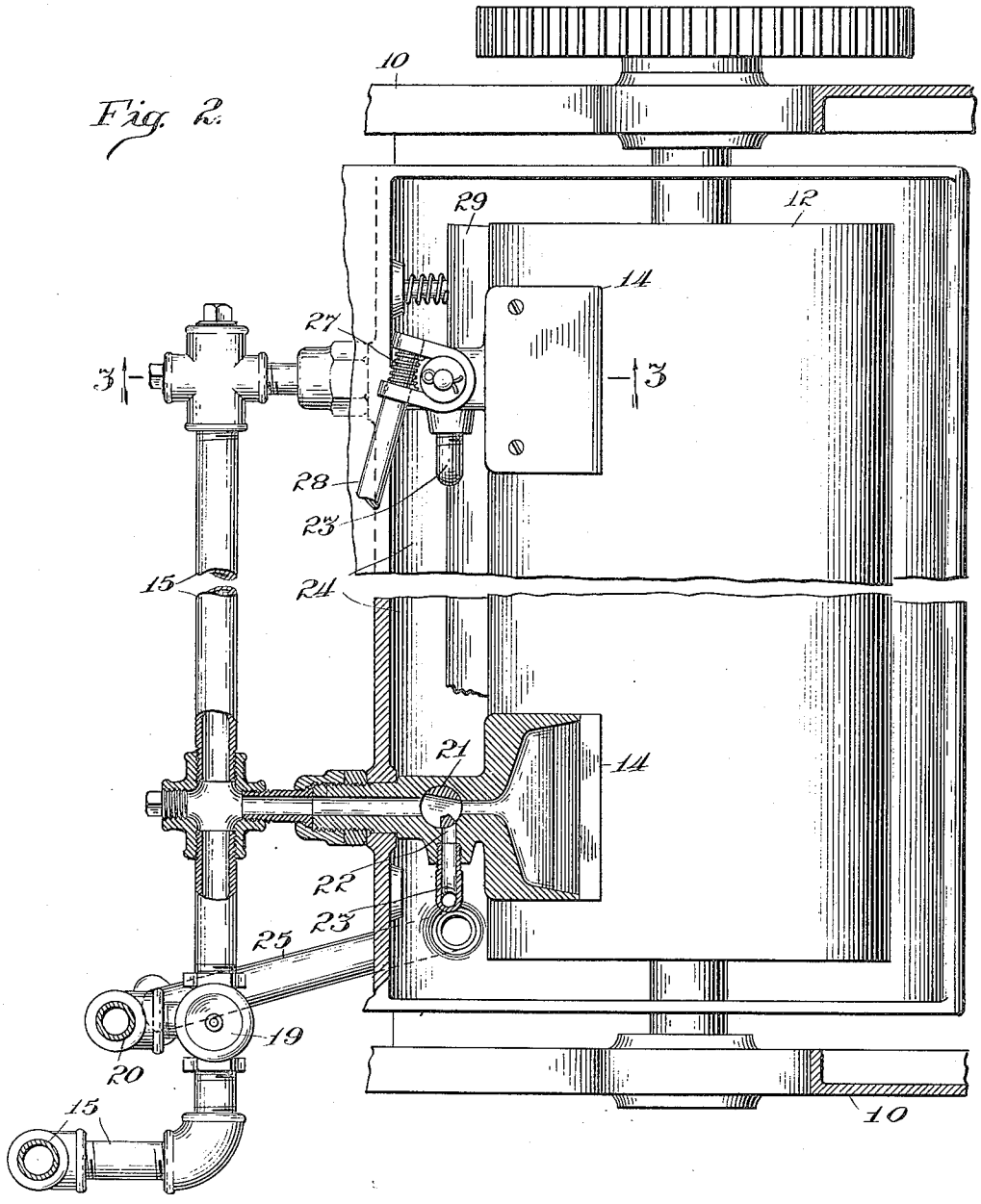
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2 SHEETS—SHEET 2.

Fig. 2.




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# UNITED STATES PATENT OFFICE.

ERNEST JAMES SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## INKING MECHANISM.

1,262,707. Specification of Letters Patent. Patented Apr. 16, 1918.

Application filed June 19, 1916. Serial No. 104,462.

*To all whom it may concern:*

Be it known that I, ERNEST JAMES SMITH, a subject of the King of England, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Inking Mechanisms, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to inking mechanisms for printing presses, and it has for one of its principal objects the provision of a new and improved form and arrangement of means for delivering ink to an inking device from which it may be transferred to an inking cylinder. It is another object of my invention to provide improved inking mechanism by which the ink may be readily cut off from a single column, a page or a section of the press without affecting the feeding of ink to the remaining parts. It is another object of my invention to provide a differential controlling means by which the supply of ink may be varied relative to the speed of the press, the amount of ink delivered being less relative to the speed of the press when the press is operating at its normal full-speed than when the press is running at its low speed. It is another object of my invention to improve mechanisms of this type in sundry details hereinafter pointed out. The preferred means by which I have accomplished my several objects are illustrated in the accompanying drawings and are hereinafter specifically described. That which I believe to be new and desire to cover by this application is set forth in the claims.

In the drawings:—

Figure 1 is a diagrammatic view showing a portion of the press provided with my improved inking mechanism;

Fig. 2 is an enlarged detail, partly broken away, showing the arrangement of an inking roller and its coöperating parts; and

Fig. 3 is a vertical cross-section, being taken substantially on line 3—3 of Fig. 2.

Referring to the several figures of the drawings in which corresponding parts are indicated by the same reference characters,—

10 indicates the framework of a press having an inking cylinder 11 revolubly mounted thereon adapted to be given a supply of ink from an inking roller 12 by means of an oscillating roller 13 actuated by any suitable mechanism.

Ink is delivered to the inking roller 12 through a plurality of nozzles 14 arranged at intervals along the inking roller 12, the nozzles 14 being supplied with ink through a line of piping 15 adapted to be given a supply of ink by a pump 16 located in an ink-well 17. The pump 16 is adapted to be driven at any desired speed by a shaft 18 driven from any suitable part of the press. The pipe 15 is provided with a stop and waste valve 19 by which the supply of ink is adapted to be shut off entirely from the nozzles 14 of any inking roller 12. The waste port of the valve 19 is connected by a line of piping 20 with the well 17 for conducting back to the well the ink forced through the valve 19.

Each of the nozzles 14 is also provided with a valve 21 by which the size of the opening to and through the nozzle may be controlled. As is best shown in Fig. 2, when the valve 21 is turned in clockwise direction in said figure to shut off partially or entirely the flow through the nozzle 14, a waste port 22 is at the same time opened whereby the ink excluded from the nozzle 14 is permitted to escape through a waste pipe 23 into a trough 24 which surrounds the lower portion of the roller 12 and which is connected by means of a pipe 25 with the waste pipe 20. The valves 21 are adapted to be operated by means of worm-gears 26 mounted upon the stems of the valves meshing with worms 27 adapted to be rotated by shafts 28 leading to the side of the press into convenient reach of a pressman. Preferably each nozzle 14 is adapted to provide ink for a single column of the printed page, means being provided thus for shutting off the supply of ink for any one or more columns as desired. A spring-pressed scraper-blade 29 is adapted to remove surplus ink and lint or any other foreign matter from the roller 12.

Mounted upon the shaft 18 is a governor 30 adapted to rotate with the shaft. The governor 30 comprises a head 31 adapted to be moved upward longitudinally of the shaft against the action of the spring 32 upon a high speed rotation of the governor, this being effected through the medium of the centrifugal force generated by the weights 33. The head 31 is connected by means of a

bell-crank lever 34 and a link 35 with a valve 36 interposed in the ink supply pipe 15 leading from the pump 16. As will be readily understood, when the press and the pump 16 are being driven at a low speed, the centrifugal force generated by the weights 33 is comparatively small so that the valve 36 is kept open up to a maximum. As the speed of the press increases, however, the force generated by the weights 33 likewise increases, moving the head 31 upward against the action of the spring 32 and serving through the lever 34 and the link 35 to partially close the supply port of the valve 36 and at the same time to open a waste port to a waste pipe 37 leading back to the ink-well 17. By the use of this device, as the speed of the press increases the amount of ink delivered in proportion to the speed of the press decreases. The adjustment is designed to be such that at high speed operation of the press the desired amount of ink will be delivered through the valve 36. It therefore follows that at the low speed driving of the press a greater amount of ink will be delivered as compared to the speed of the press, serving thus to bring the inking mechanism quickly to a properly inked-up condition when the press is operating at low speed preparatory to normal high speed operation.

What I claim as my invention and desire to secure by Letters Patent, is—

1. In a printing press, the combination of an inking device, means for delivering a supply of ink to said inking device, a valve adapted to control the delivery of ink to said inking device, and means controlled by the speed at which the press is driven for regulating said valve.

2. In a printing press, the combination of an inking device, means for delivering a supply of ink to said inking device, a valve adapted to control the delivery of ink to said inking device, and means adapted upon an increase in the speed of the press to partially close said valve for decreasing the rate of feeding the ink therethrough relative to the speed of the press.

3. In a printing press, the combination of an inking device, an ink-well, connections between said ink-well and said inking device, means adapted normally to deliver a supply of ink through said connections in proportion to the speed of the press, a regulating valve interposed in said connections, and means adapted upon an increase in the speed of the press to partially close said valve for decreasing the flow of ink through said connections relative to the speed of the press.

4. In a printing press, the combination of an inking device, an ink-well, connections between said ink-well and said inking device, and means adapted upon an increase in the speed of the press to decrease relative to the speed of the press the amount of ink delivered from said well to said inking device.

5. In a printing press, the combination of an inking device, an ink-well, connections between said ink-well and said inking device, means for forcing a supply of ink from said well through said connections to said inking device, a regulating valve interposed in said connections, and means controlled by the speed of the press for regulating said valve.

6. In a printing press, the combination of an inking device, an ink-well, connections between said ink-well and said inking device, means for forcing a supply of in from said well through said connections to said inking device, and a governor driven in timed relation to the speed of the press for regulating said valve adapted upon an increase in the speed of the press to decrease relative to the speed of the press the amount of ink delivered to said inking device therethrough.

7. In a printing press, the combination of an inking device, an ink-well, connections between said ink-well and said inking device, means for forcing a supply of ink from said well through said connections to said inking device, a three-way valve interposed in said connections, overflow connections between one of the ports of said valve and the ink-well, and means controlled by the speed of the press for regulating said valve differentially relative to the speed of the press, being adapted to vary the effective size of the opening leading through said connections relative to the size of the overflow opening.

8. In a printing press, the combination of an inking device, an ink-well, connections between said ink-well and said inking device, means for forcing a supply of ink from said well through said connections to said inking device, a three-way valve interposed in said connections, overflow connections between one of the ports of said valve and the ink-well, and a governor driven in timed relation to the speed of the press for regulating said valve, being adapted upon an increase in the speed of the press to decrease the effective size of the opening leading through said connections relative to the size of the overflow opening.

9. In an inking mechanism, the combination of an inking roller, a plurality of nozzles arranged along said roller, supply connections between said nozzles, means for forcing ink upon said roller through said supply connections and thence through said nozzles, and a regulating valve for each nozzle provided with an overflow port, said valve being adapted to control the flow of ink upon said roller through said nozzle and to permit the escape of the surplus ink, the aggregate opening through the valve lead-

ing to the nozzle and through the overflow port being substantially constant in size as the valve is regulated whereby each valve controls the flow through its nozzle without affecting the amount of ink delivered to the remaining nozzles.

10. In a printing press, the combination of an inking roller, a plurality of nozzles arranged along said roller, an ink-well, connections between said ink-well and said nozzles, a pump driven in timed relation to the speed of the press for forcing ink from said ink-well through said connections and through the nozzles upon the roller, and differential means controlled by the speed of the press for regulating the amount of ink delivered through said nozzles upon said roller.

11. In a printing press, the combination of an inking roller, a plurality of nozzles arranged along said roller, an ink-well, connections between said ink-well and said nozzles, a pump driven in timed relation to the speed of the press for forcing ink from said ink-well through said connections and through the nozzles upon the roller, means in connection with each nozzle for controlling the amount of ink permitted to flow therethrough, means for returning surplus ink from said roller to said ink-well, and means controlled by the speed of the press for regulating the amount of ink delivered through said connections to said nozzles, said controlling means being adapted upon an increase in the speed of the press to decrease relative to the speed of the press the amount of ink delivered through said connections.

ERNEST JAMES SMITH.