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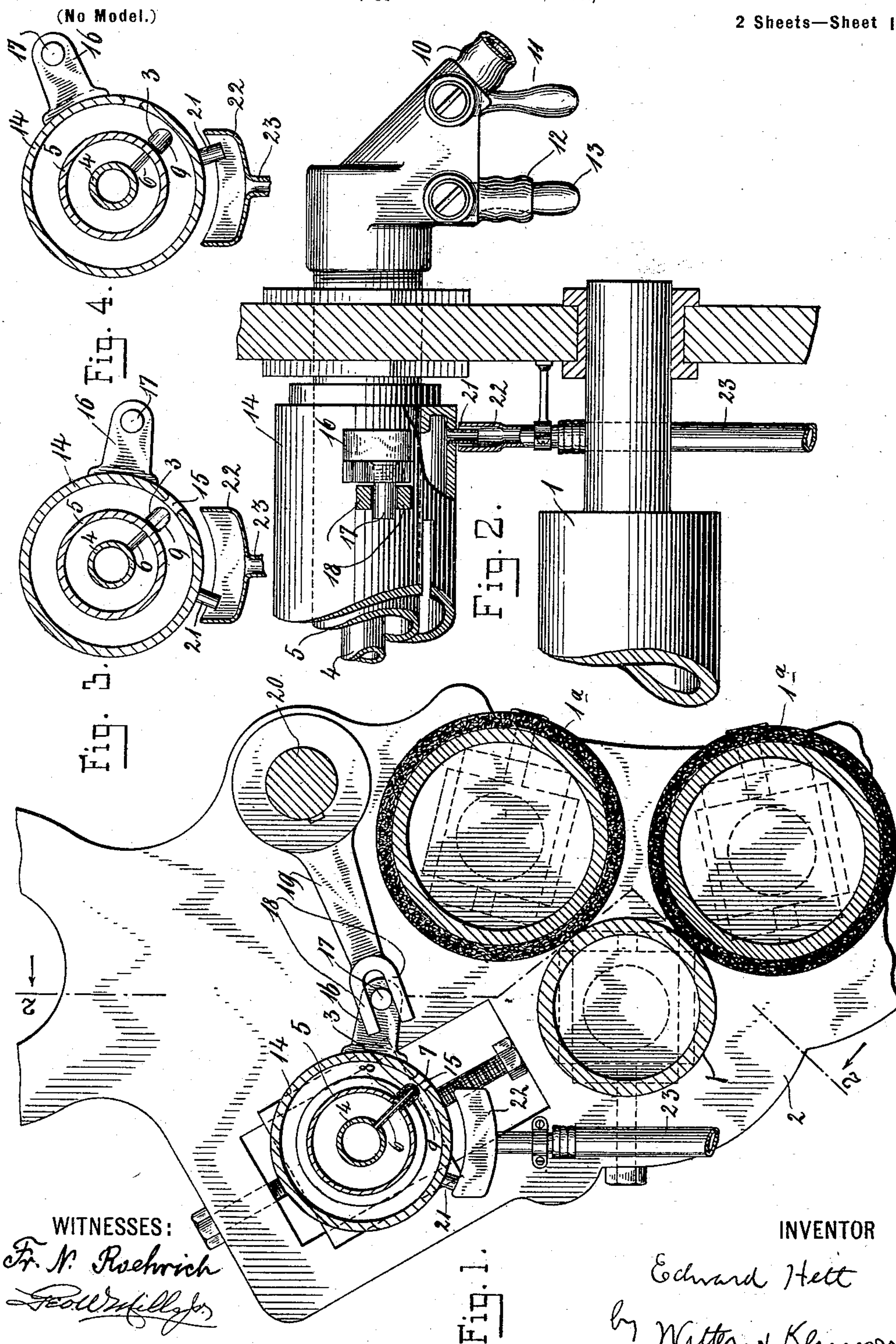
Patented Nov. 21, 1899.

E. HETT.

LITHOGRAPHIC PRESS.

(Application filed June 13, 1898.)

2 Sheets—Sheet 1.



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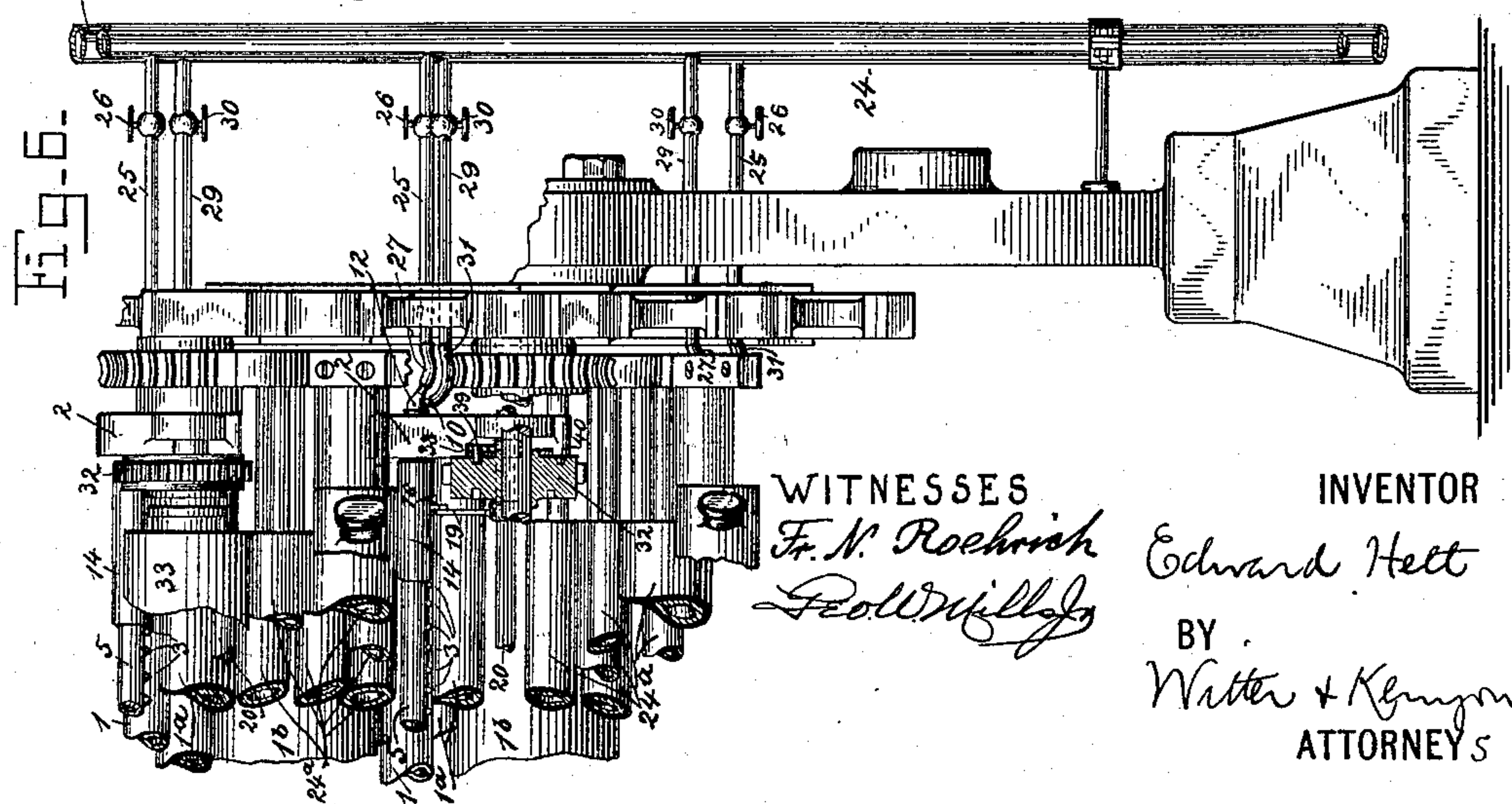
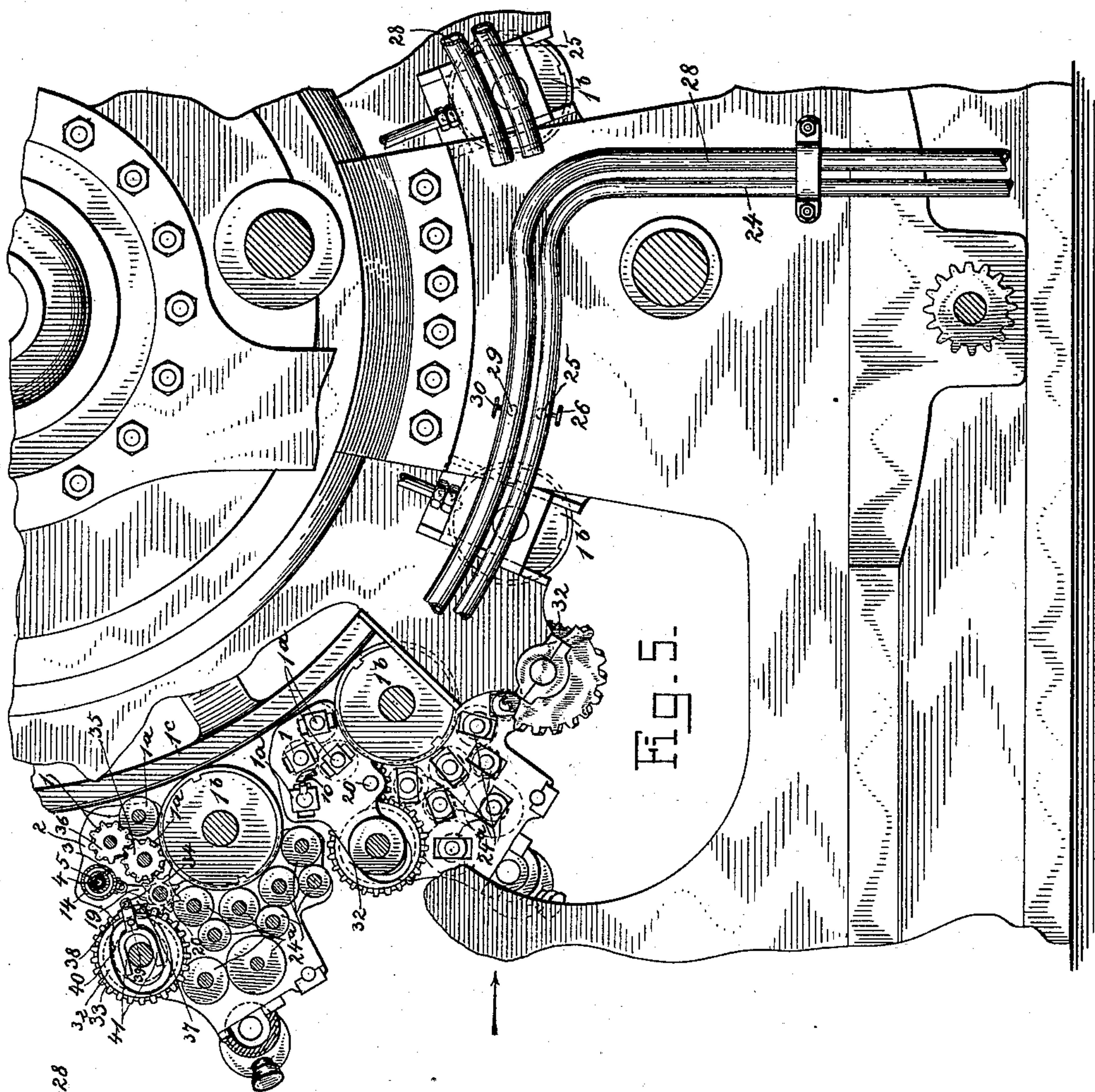
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(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

EDWARD HETT, OF NEW YORK, N. Y.

## LITHOGRAPHIC PRESS.

SPECIFICATION forming part of Letters Patent No. 637,574, dated November 21, 1899.

Application filed June 13, 1898. Serial No. 683,352. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD HETT, a citizen of the United States, and a resident of New York, (New Dorp,) in the county of Richmond, State of New York, have invented certain new and useful Improvements in Lithographic Presses, of which the following is a specification.

My invention relates to lithographic or planographic presses, and particularly to the damping mechanism for use in such presses.

It has for its main object to provide improved means for supplying water in suitable quantities and at proper times and places to the damping-rollers of a lithographic or planographic press, and especially to prevent an excessive supply of water to such rollers and to the printing-cylinder.

It consists of the novel devices and combinations herein shown and described.

In the operation of lithographic presses great difficulty has heretofore been encountered in avoiding an excess of water upon the damping-rollers and upon the printing-surface, especially where the printing-surface is cylindrical, and particularly so in multicolor-presses, where damping-rollers often lie directly above the paper web and where there are a plurality of sets of printing-cylinders each relatively small as compared with the drum or impression-cylinder and each with its set of inking-rollers and damping-rollers with their connections, and where, owing to the necessarily small size and crowded and complicated character of the mechanism and to its consequent inaccessibility when the press is in operation, it is of the utmost importance that the damping be automatic, exact, and certain in its operation without the need of constant supervision. This difficulty has been due in great measure to the lack of a positive feed to the damping-rollers of water or other suitable dampening liquid and to improper or defective distribution of the water. It is of course essential in lithographic-printing presses that a sufficient supply of water be furnished to the damping-rollers and the printing-cylinder and that such water be evenly and properly distributed. An excess of water is, however, almost as injurious as a scarcity of water. Where the water is excessive in amount, it tends to form into drops or

layers upon the damping-rollers or printing-surface, to ruin the lithographic surface, to work back upon the inking-rollers and mix with the ink, to interfere with the proper inking of the printing-cylinder, to fall in drops upon the web, and generally to render the resulting product inferior or unmarketable. I have found that by the use of one or more spraying devices from which a stream of fine spray or other suitable damping liquid is continuously thrown and by the use of a fending vessel which is intermittently interposed between the spraying device and the damping-roller or rollers, so that a stream of fine spray is intermittently thrown upon such roller or rollers, a sufficient amount of water can be positively supplied to the damping-rollers in even and proper distribution for securing the best printing results without any deleterious excess of water, without the formation of drops or layers, and without any injury whatever to the lithographic-printing surfaces or to the proper inking thereof or to the printed work itself. As the supply of fine spray to the damping roller or rollers is intermittent and as those rollers are constantly moving, an excess of water upon any portion of the rollers is prevented, while at the same time a sufficient amount of water is furnished by a positive feed to the rollers and is properly distributed, so as to meet all the requirements of good lithographic printing. I have also found that such beneficial results are obtained to the best advantage by using as such spraying device one or more atomizers, in which compressed air from a suitable source of supply is caused to blow across or around the mouth of a tube leading from any suitable source of supply of water or other damping liquid.

In two other applications executed simultaneously herewith and designated as "Case A" and "Case B" I have shown other forms of spraying devices arranged in other ways than those shown herein for accomplishing substantially the same result, this case being designated as "Case C" to distinguish it from said "Case A" and "Case B."

In the drawings accompanying this specification and forming part hereof and in which similar reference characters in the different figures represent corresponding parts I have



shown and will now proceed to describe the preferred form of my improved devices.

Figure 1 is a vertical cross-section through my improved devices. Fig. 2 is a vertical longitudinal section through a part of the same on the lines 2-2 of Fig. 1 viewed as shown by the arrows. Figs. 3 and 4 are vertical cross-sections through the air and water reservoirs. Fig. 5 is a side view, partly in section, of a part of a multicolor-press with the casing removed, showing a number of printing-cylinders with their sets of inking-rollers and damping-rollers and connections and the means for supplying compressed air and water to the different sets of atomizers, the air and water supply pipes being broken off, as shown, to enable other parts to be seen more clearly and the sets of damping-rollers and inking-rollers for one of the cylinders having their bearing-boxes removed to show the parts behind. Fig. 6 is a front view of the parts shown in Fig. 5.

1 and 1<sup>a</sup> 1<sup>a</sup> are damping-rollers of a lithographic press, 1 being the brass roller commonly employed, constituting the distributing damping-roller, and 1<sup>a</sup> 1<sup>a</sup> being the cloth-covered rollers commonly employed to make contact with the printing-surface. The number and arrangement of these damping-rollers can be varied as desired. As shown in the drawings, they are mounted upon swinging frames 2, one only of which is shown in the drawings.

1<sup>b</sup> 1<sup>b</sup> are printing-cylinders, and 1<sup>c</sup> is the drum or impression-cylinder of a multicolor-press. (See Figs. 5 and 6.)

3 3 are atomizers, of which I preferably employ a series, although the number of atomizers can be varied to suit the requirements of the case, and, if desired, a single atomizer could be used. These atomizers are secured to two cylindrical reservoirs—to wit, a water-reservoir 4 and an air-reservoir 5. Each atomizer is composed of a central water-tube 6, which opens into the water-reservoir 4 at one end and opens at the other end opposite the orifice 7 of the atomizer, and a surrounding tube 8, which at one end opens into the air-reservoir 5 and at the other end has an opening opposite the orifice 7 of the atomizer. A cap 9 is preferably screwed upon the outer end of the air-tube 8, having at its outer point the orifice 7.

10 is a pipe having a valve operated by handle 11 for supplying water to the water-reservoir 4.

12 is a pipe having a valve operated by handle 13 for supplying compressed air to the air-reservoir 5.

In operation compressed air from the air-reservoir flows across and around the outward opening of the water-tube 6, thus drawing the water out of this tube and throwing it in the form of fine spray through the orifice of the atomizer. By this means and also by the pressure of the water in the water-reservoir a positive feed of fine spray is continuously maintained through the orifices of the

atomizers. In order to avoid an excessive amount of water upon the damping-rollers, I cause the feed or supply of fine spray to the damping-rollers to be intermittently interrupted by interposing between the orifice of the atomizer and the damping-roller a fending vessel for diverting at regular stated periods of time the stream of fine spray from the rollers. Any fending vessel may be used and of any suitable form and shape that can be intermittently interposed between the atomizers and the damping-rollers at regular and stated periods. In the drawings I have shown such a fending vessel as composed of a hollow revoluble cylinder 14, arranged in suitable bearings around the air and water reservoirs. This cylinder has an opening or slit 15, adapted in the oscillation of the cylinder 14 to register at regular and stated times with the orifices 7 of the atomizers. At such times a stream of spray will be thrown upon the damping-rollers. When the cylinder 14 is partly revolved on its axis, the walls of the cylinder will interpose between the orifices of the atomizers and the damping-rollers, thus fending the stream of fine spray from those rollers. A constant oscillating movement on its axis is given to the cylinder 14 through arm 16, pin 17, secured to the cylinder, arm 19, and fingers 18, arm 19 being secured to rocking shaft 20. Shaft 20 is oscillated in its bearings by any suitable mechanism, preferably by mechanism connected with the driving mechanism of the press. Fingers 18 embrace pin 17 and as arm 19 oscillates through arm 16 it causes the fending-cylinder 14 to oscillate back and forth, causing fine spray to be thrown intermittently upon the damping-rollers. Fig. 3 shows the slit or opening 15 of the fending-cylinder registering with the orifices of the atomizers, and Fig. 4 shows the walls of the cylinder interposed between the atomizers and the damping-rollers. A pipe 21 leads from the lower part of the fending-cylinder to permit the water discharged against the walls of that cylinder to escape into a waste vessel 22, from which the water runs away through pipe 23.

In Figs. 5 and 6 I have shown my improved devices as applied to a multicolor-press where a large drum 1<sup>c</sup> has a series of relatively small printing-cylinders 1<sup>b</sup> 1<sup>b</sup> surrounding it, each with its set of inking-rollers 24<sup>a</sup> and other inking mechanism and its set of damping-rollers 1 1<sup>a</sup> 1<sup>a</sup>. With so many and such fine and complicated parts crowded closely together in a comparatively small space it is impossible to show the mechanism in detail or even to show all of it in these views. They are intended merely to show the general arrangement of my improved devices in a multicolor lithographic press and to show the means for supplying compressed air and water or other suitable damping liquid to the different sets of atomizers and the means for positively driving the distributing damping-rollers 1 1.



24 is an air-supply pipe for supplying compressed air to the different air-reservoirs 5. It is connected with an air-pump (not shown) or with any other suitable source of supply of compressed air. Branch pipes 25, each provided with a cock 26, lead from air-supply pipe 24 and are provided at their ends with flexible hose connections 27, leading to air-pipe 12. The flexible hose permits the swinging action of the damping-frames 2 without interrupting the flow of air. By the above means compressed air can be readily supplied in sufficient quantities to all the air-reservoirs without interfering with the operation of the press.

28 is a water-supply pipe for supplying water or other suitable damping liquid to the various water-reservoirs. It is similarly provided with branch pipes 29, having cocks 30 and flexible hose 31, connecting with the various pipes 11. Pipe 28 is connected with a pump (not shown) or with any other suitable source of supply of water or other suitable damping liquid. By the above means the various water-reservoirs are readily and constantly supplied with damping liquid.

Each distributing damping-roller 1 is positively driven by the driving mechanism of the press in the following manner: 32 is the ink-distributing roller. It is driven by the driving mechanism of the press in any suitable manner. Such driving mechanism is therefore not shown or described herein. Spur-teeth 32 upon ink-distributing roller 33, through idle spur-wheel 34, drive spur-wheel 35, loosely mounted upon the shaft of one of the cloth-covered damping-rollers 1<sup>a</sup>, and the latter drives spur-wheel 36, rigidly secured to the shaft of distributing damping-roller 1, thus driving the latter at any determinate rate of speed desired. Roller 1 drives rollers 1<sup>a</sup> 1<sup>a</sup> by friction in the usual way. By driving the damping-rollers positively at a determinate rate of speed I have found that the amount of water or other liquid best suited for lithographic work can be obtained with greater accuracy and certainty than when the rollers are driven by friction in the usual manner.

The means shown in Figs. 5 and 6 for rocking shaft 20 are as follows: Upon shaft 20 is rigidly mounted the arm 37. Pivotaly secured to this is a rod 38, carrying a rolling pin 39, which moves in a cam-shaped slot 40 in one of the ends of ink-distributing roller 33. Rod 38 is forked at its other end, the two forks 41 41 surrounding and supporting rod 38 upon the end of the shaft of distributing-roller 33. As roller 33 rotates, the cam-shaped slot causes rod 38 to move backward and forward, thus imparting a rocking motion to shaft 20 and an oscillating movement to arm 19, and thence to fending-cylinder 14.

By means of my improved spraying device in connection with means to cause an intermittent fending of the stream of spray from the damping-rollers, I am enabled to supply to the damping-rollers with great certainty

and exactness an amount of damping liquid suited to produce the best results in lithographic printing and to avoid both a scarcity and also an excess of such liquid, and I am thus enabled to prevent the injurious results, referred to above, that flow from such an excess or a scarcity. The intermittent character of the stream of fine spray that falls upon the moving damping-rollers prevents the formation of drops or layers or the deposit of an excessive amount of liquid upon those rollers, while furnishing at the same time by a positive feed a sufficient amount of liquid properly distributed to answer all the requirements of good lithographic printing. It is particularly efficient in producing such results when used in connection with damping-rollers driven positively by suitable driving mechanism at a determinate rate of speed. By the use of atomizers (the preferred form of my spraying device) the stream of spray is finely comminuted and well distributed and can be readily and accurately regulated.

As my improved devices are automatic and are accurate, reliable, and certain in operation and need little supervision, they are of especial value in multicolor-presses where the parts of the mechanism are numerous and complicated in character and small in size, where the printing is rapidly performed, and where printing is taking place simultaneously in many different places, so that constant supervision and regulation of the action of the damping mechanism, so necessary in the mechanism now employed in lithographic presses, cannot be maintained.

The term "lithographic," as used in the specification and claims herein, is employed in its broad sense of planographic to include any printing by the lithographic process or any printing-surface adapted for printing lithographically whether such printing be done by, or such printing-surface be, stone, metal, or any other surface capable of printing by the lithographic process as distinguished from printing from an intaglio or raised surface, or whether such lithographic-printing surface be flat or curved or cylindrical.

Various modifications may be made in the devices shown in the drawings here described without departing from my invention. Thus the spraying devices employed need not be atomizers, but may be any suitable means for spraying liquid. The form and arrangement of the compressed air and water reservoirs and their connections with the atomizers and the form and arrangement of fending vessel and means for oscillating it may be varied as desired so long as a continuous feed of spray from the atomizers is intermittently interrupted by means of some interposing or fending body. The number of atomizers can be varied at will to suit the requirements of the case. The supply of water need not necessarily be under pressure, although I prefer to have it under pressure, as a more positive



feed is thus secured. The opening in the fending vessel need not be a slit, but may consist of numerous separate openings. Other modifications than those referred to may also be made.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a lithographic press, the combination of an atomizer adapted to throw spray upon a damping-roller, a water-supply and a compressed-air supply communicating with the atomizer, a fending vessel intervening between the atomizer and the damping-roller and having an opening in it and means for causing the discharge-orifice of the atomizer and the opening of the fending vessel to register intermittently with each other, whereby spray will be thrown intermittently upon the damping-roller.

2. In a lithographic press, the combination of an atomizer adapted to throw spray upon a damping-roller, a water-supply and a compressed-air supply communicating with the atomizer, an oscillating fending vessel intervening between the atomizer and the damping-roller and having an opening in it, and means for oscillating the fending vessel so as to cause the opening in the vessel to register intermittently with the discharge-orifice of the atomizer, whereby spray will be thrown intermittently upon the damping-roller.

3. In a lithographic press, the combination of an atomizer adapted to throw spray upon a damping-roller, a water-reservoir and a compressed-air reservoir communicating with the atomizer, pipes for supplying water and compressed air to said reservoir, an oscillating fending vessel intervening between the atomizer and the damping-roller and having an opening in it, and means for oscillating the fending vessel so as to cause the opening in the vessel to register intermittently with the discharge-orifice of the atomizer, whereby spray will be thrown intermittently upon the damping-roller.

4. In a lithographic press, the combination of an atomizer adapted to throw spray upon a damping-roller, a water-reservoir and a compressed-air reservoir communicating with the atomizer, pipes for supplying water and compressed air to said reservoirs, an oscillating fending vessel intervening between the atomizer and the damping-roller and having an opening in it, an oscillating arm, actuated by the driving mechanism of the press and connected to the oscillating fending vessel so as to cause the opening in the vessel to register intermittently with the discharge-orifice of the atomizer, whereby spray will be thrown intermittently upon the damping-roller.

5. In a lithographic press, the combination of an atomizer adapted to throw spray upon a damping-roller, a water-reservoir and a compressed-air reservoir communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, an oscillating

fending vessel intervening between the atomizer and the damping-roller and having an opening in it, an orifice in the fending vessel for discharging waste water, and means for oscillating the fending vessel so as to cause the opening in the vessel to register intermittently with the discharge-orifice of the atomizer, whereby spray will be thrown intermittently upon the damping-roller.

6. In a lithographic press, the combination of a series of atomizers adapted to throw spray upon a damping-roller, a water-supply and a compressed-air supply communicating with the atomizers, a fending vessel intervening between the atomizers and the damping-roller and having a slit or openings in it and means for causing the discharge-orifices of the atomizers and the slit or openings of the fending vessel to register intermittently with one another, whereby spray will be thrown intermittently upon the damping-roller.

7. In a lithographic press, the combination of a series of atomizers adapted to throw spray upon a damping-roller, a water-supply and a compressed-air supply communicating with the atomizers, an oscillating fending vessel intervening between the atomizers and the damping-roller and having a slit or openings in it, and means for oscillating the fending vessel so as to cause the slit or openings in the vessel to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-roller.

8. In a lithographic press, the combination of a series of atomizers adapted to throw spray upon a damping-roller, a water-reservoir and a compressed-air reservoir communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, an oscillating fending vessel intervening between the atomizers and the damping-roller and having a slit or openings in it, and means for oscillating the fending vessel so as to cause the slit or openings in the vessel to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-roller.

9. In a lithographic press, the combination of a series of atomizers adapted to throw spray upon a damping-roller, a water-reservoir and a compressed-air reservoir communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, an oscillating fending vessel intervening between the atomizers and the damping-roller and having a slit or openings in it, an oscillating arm, actuated by the driving mechanism of the press and connected to the oscillating fending vessel so as to cause the slit or openings in the vessel to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-roller.

10. In a lithographic press, the combination of a series of atomizers adapted to throw spray upon a damping-roller, a water-reser-



voir and a compressed-air reservoir communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, an oscillating fending vessel intervening between the atomizers and the damping-roller and having a slit or openings in it, an orifice in the fending vessel for discharging waste water, and means for oscillating the fending vessel so as to cause the slit or openings in the vessel to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-roller.

11. The combination in a lithographic press of a spraying device adapted to throw spray upon a damping-roller, means for supplying said spraying device with damping liquid, a fending vessel intervening between the spraying device and the damping-roller and having an opening in it and means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, whereby spray will be thrown intermittently upon the damping-roller.

12. The combination in a lithographic press, of a damping-roller, means actuated by suitable driving mechanism for positively driving said roller at a determinate rate of speed, a spraying device adapted to throw spray for damping the roller, means for supplying the spraying device with damping liquid, a fending vessel intervening between the spraying device and the damping-roller and having an opening in it, and means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, whereby spray will be thrown intermittently upon the damping-roller.

13. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, a spraying device adapted to throw spray upon the damping-roller, a fending vessel intervening between the spraying device and the damping-roller, and having an opening in it, and means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, and means for supplying said spraying device with damping liquid whereby spray will be thrown intermittently upon the damping-roller.

14. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, a spraying device adapted to throw spray upon the damping-roller, a fending vessel intervening between the spraying device and the damping-roller and having an opening in it, means for causing the discharge-orifice of the spraying device and the opening of the fending vessel

to register intermittently with each other, means for supplying said spraying device with damping liquid whereby spray will be thrown intermittently upon the damping-roller, and means for removing the waste water.

15. In a multicolor lithographic press, the combination of an impression-drum, series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms, each including a distributing-roller, atomizers adapted to throw spray upon the damping-rollers, means for supplying the atomizers with damping liquid and compressed air, fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for causing the discharge-orifices of the atomizers and the openings of the fending vessels to register intermittently with each other, whereby spray will be thrown intermittently upon the damping-rollers.

16. In a multicolor lithographic press, the combination of an impression-drum, series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms, each including a distributing-roller, atomizers adapted to throw spray upon the damping-rollers, means for supplying the atomizers with damping liquid and compressed air, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for oscillating the fending vessels so as to cause their openings to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers.

17. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, atomizers adapted to throw spray upon the damping-rollers, water-reservoirs and compressed-air reservoirs communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for oscillating the fending vessels actuated by the driving mechanism of the press so as to cause the openings of the fending vessels to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers, and pipes for removing the waste water.

18. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, atomizers adapted to throw spray upon the damping-rollers, water-reservoirs and compressed-air reservoirs communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, oscillating fending vessels intervening between the atomizers and the



damping-rollers and having openings in them, orifices in the fending vessels for discharging waste water, oscillating arms actuated by the driving mechanism of the press, and connected with the oscillating fending vessels so as to cause the openings in said vessels to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers, and pipes for conveying away the waste water.

19. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by suitable driving mechanism for positively driving the distributing-rollers at a determinate rate of speed, a spraying device adapted to throw spray upon the damping-roller, a fending vessel intervening between the spraying device and the damping-roller, and having an opening in it, and means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, and means for supplying said spraying device with damping liquid whereby spray will be thrown intermittently upon the damping-roller.

20. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by suitable driving mechanism for positively driving the distributing-rollers at a determinate rate of speed, a spraying device adapted to throw spray upon the damping-roller, a fending vessel intervening between the spraying device and the damping-roller and having an opening in it, means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, means for supplying said spraying device with damping liquid whereby spray will be thrown intermittently upon the damping-roller, and means for removing the waste water.

21. In a multicolor lithographic press, the combination of an impression-drum, series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms, each including a distributing-roller, means actuated by suitable driving mechanism for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, means for supplying the atomizers with damping liquid and compressed air, fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for causing the discharge-orifices of the atomizers and the openings of the fending vessels to register intermittently with each other, whereby spray will be thrown intermittently upon the damping-rollers.

22. In a multicolor lithographic press, the combination of an impression-drum, series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms, each including a distributing-roller, means actuated by suitable driving mechanism for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, means for supplying the atomizers with damping liquid and compressed air, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for oscillating the fending vessels so as to cause their openings to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers.

23. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by suitable driving mechanism for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, water-reservoirs and compressed-air reservoirs communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for oscillating the fending vessels actuated by the driving mechanism of the press so as to cause the openings of the fending vessels to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers, and pipes for removing the waste water.

24. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by suitable driving mechanism for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, water-reservoirs and compressed-air reservoirs communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, orifices in the fending vessels for discharging waste water, oscillating arms actuated by the driving mechanism of the press, and connected with the oscillating fending vessels so as to cause the openings in said vessels to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers, and pipes for conveying away the waste water.

25. In a multicolor lithographic press, the



combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by the driving mechanism of the press for positively driving the distributing-rollers at a determinate rate of speed, a spraying device adapted to throw spray upon the damping-roller, a fending vessel intervening between the spraying device and the damping-roller and having an opening in it, and means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, and means for supplying said spraying device with damping liquid whereby spray will be thrown intermittently upon the damping-roller.

26. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by the driving mechanism of the press for positively driving the distributing-rollers at a determinate rate of speed, a spraying device adapted to throw spray upon the damping-roller, a fending vessel intervening between the spraying device and the damping-roller and having an opening in it, means for causing the discharge-orifice of the spraying device and the opening of the fending vessel to register intermittently with each other, means for supplying said spraying device with damping liquid whereby spray will be thrown intermittently upon the damping-roller, and means for removing the waste water.

27. In a multicolor lithographic press, the combination of an impression-drum, series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms, each including a distributing-roller, means actuated by the driving mechanism of the press for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, means for supplying the atomizers with damping liquid and compressed air, fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for causing the discharge-orifices of the atomizers and the openings of the fending vessels to register intermittently with each other, whereby spray will be thrown intermittently upon the damping-rollers.

28. In a multicolor lithographic press, the combination of an impression-drum, series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms, each including a distributing-roller, means actuated by the driving mechanism of the press for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damp-

ing-rollers, means for supplying the atomizers with damping liquid and compressed air, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for oscillating the fending vessels so as to cause their openings to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers.

29. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by the driving mechanism of the press for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, water-reservoirs and compressed-air reservoirs communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, and means for oscillating the fending vessels actuated by the driving mechanism of the press so as to cause the openings of the fending vessels to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers, and pipes for removing the waste water.

30. In a multicolor lithographic press, the combination of an impression-drum, a series of printing-cylinders and inking mechanisms therefor, a series of damping mechanisms each including a distributing-roller, means actuated by the driving mechanism of the press for positively driving the distributing-rollers at a determinate rate of speed, atomizers adapted to throw spray upon the damping-rollers, water-reservoirs and compressed-air reservoirs communicating with the atomizers, pipes for supplying water and compressed air to said reservoirs, oscillating fending vessels intervening between the atomizers and the damping-rollers and having openings in them, orifices in the fending vessels for discharging waste water, oscillating arms actuated by the driving mechanism of the press, and connected with the oscillating fending vessels so as to cause the openings in said vessels to register intermittently with the discharge-orifices of the atomizers, whereby spray will be thrown intermittently upon the damping-rollers, and pipes for conveying away the waste water.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD HETT.

Witnesses:

GEO. W. MILLS, Jr.,  
EDWIN SEGER.