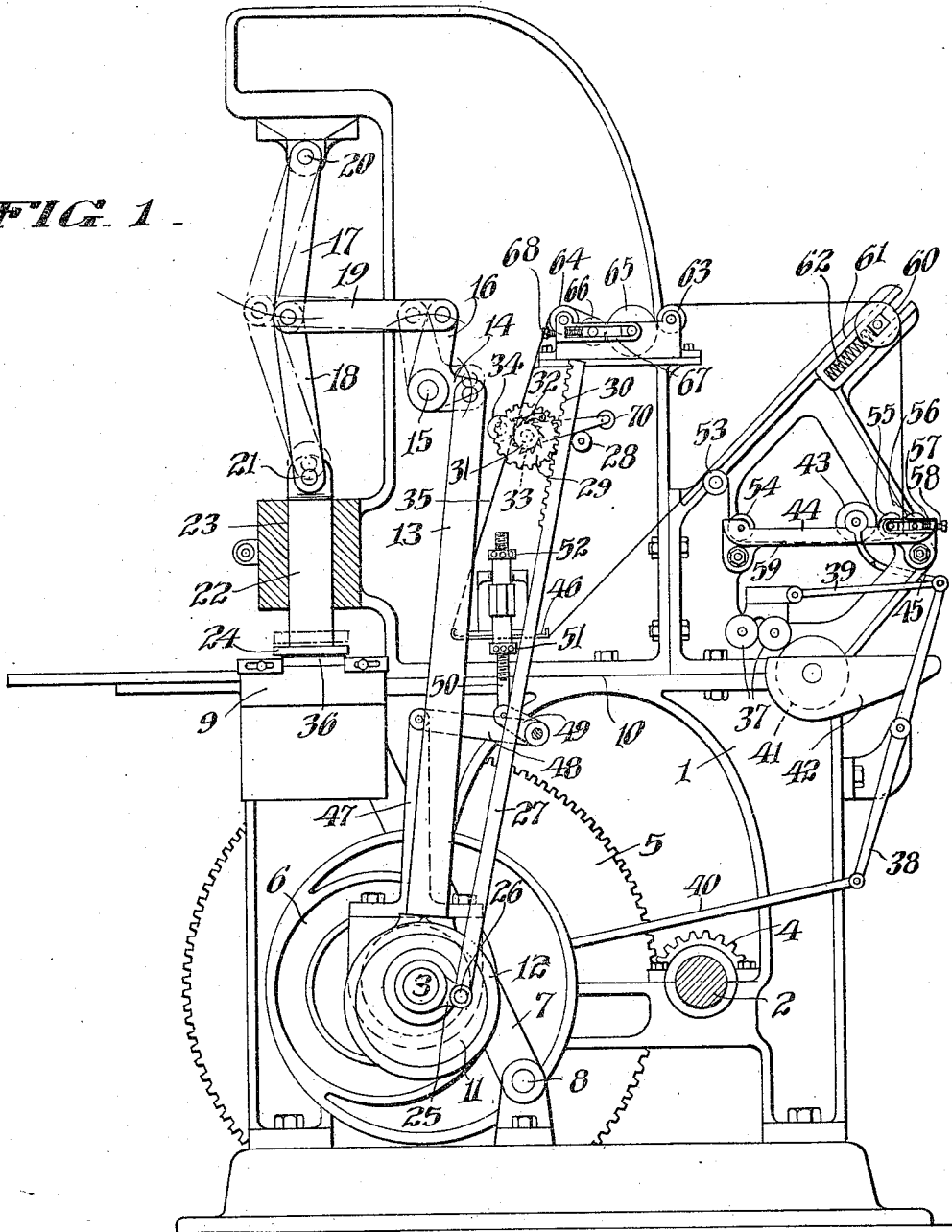


C. HAWKINS.
WIPER AND POLISHER FOR PLATE PRINTING AND DIE STAMPING PRESSES.
APPLICATION FILED AUG. 25, 1911.

1,230,897.

Patented June 26, 1917.
2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES
Daniel Webster, Jr.
William Conway.

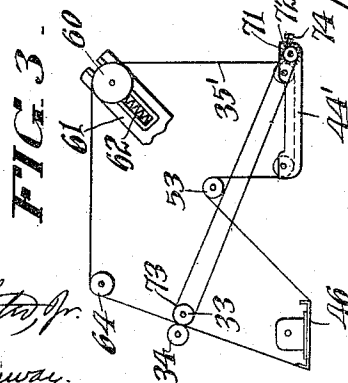
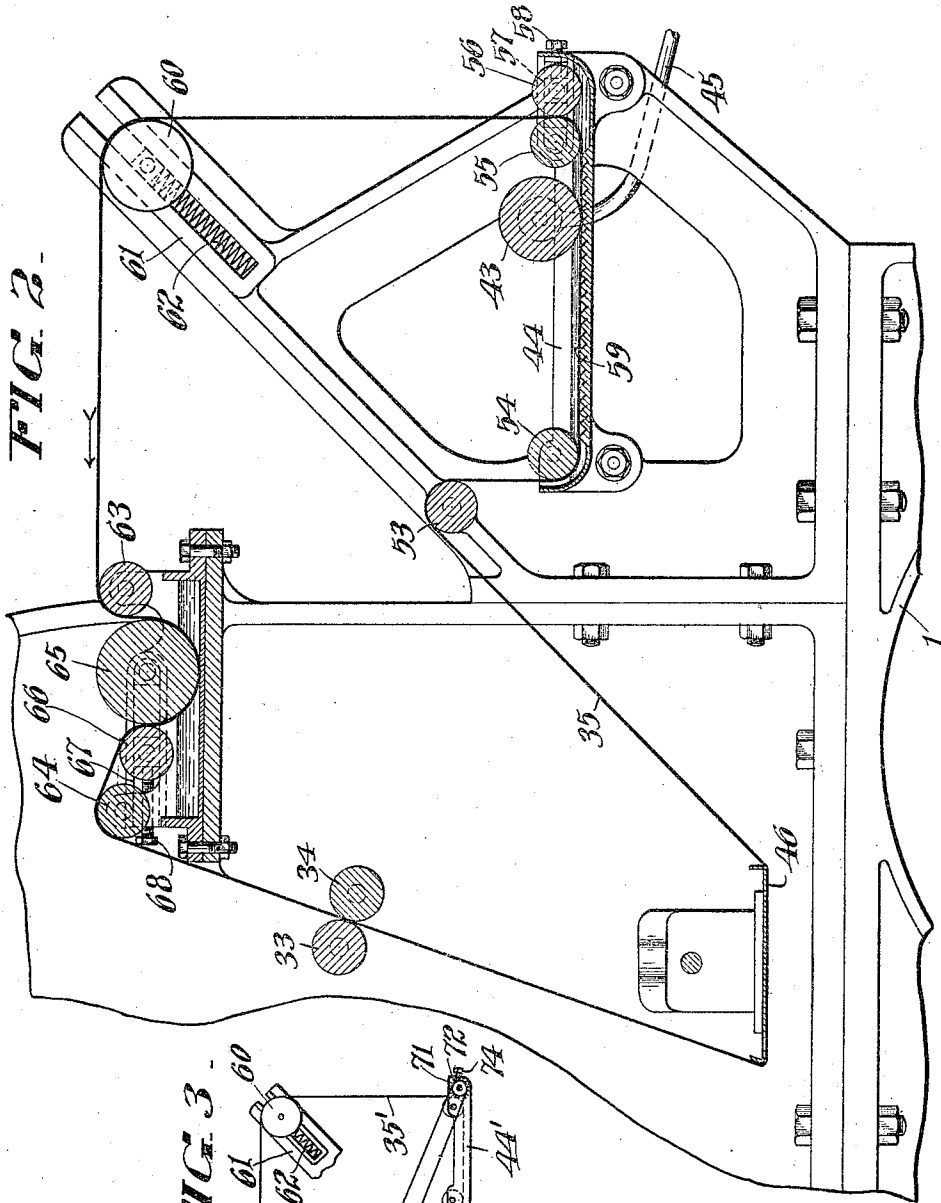
BY

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UNITED STATES PATENT OFFICE.

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WIPER AND POLISHER FOR PLATE-PRINTING AND DIE-STAMPING PRESSES.

1,230,897.

Specification of Letters Patent.

Patented June 26, 1917.

Application filed August 25, 1911. Serial No. 645,908.

To all whom it may concern:

Be it known that I, CYRUS HAWKINS, a citizen of the United States, and a resident of Collingswood, Camden county, New Jersey, have invented a certain new and useful Wiper and Polisher for Plate-Printing and Die-Stamping Presses, of which the following is a specification.

The purpose of my invention is to provide for wiping and polishing plates of steel, iron, copper and other suitable metal for use in plate printing and die stamping, by a preferably endless band, with intermediate washing and, with dull inks, wringing and moistening of the band so used.

A further purpose of my invention is to wash a wiping band at a speed proportionate to the use, and by a movement of the band which is effective to present new wiping and polishing surfaces.

A further purpose of my invention is to assist mechanically in the washing operation on a wiper band.

A further purpose of my invention is to provide a moistening solution suitable for both wiping and polishing plates inked with dull inks.

A further purpose of my invention is to use a non-absorbent surface for a band wiper intended to wipe varnish inks and to brush the ink from the surface within a washing tank containing a varnish solvent.

Further purposes of my invention will appear in the specification and claims hereof.

I have preferred to illustrate my invention by one form thereof which I have found practical, efficient and relatively inexpensive.

Figure 1 is a side elevation, partly in section, of a steel die stamping press to which my invention is applied.

Fig. 2 is an enlarged elevation, partly in section, of a portion of the press and my invention applied thereto as used with dull inks.

Fig. 3 is a side elevation, partly in section, showing my endless wiper and cleaning tank applied to varnish ink work.

Similar numerals of reference indicate like parts in the drawings.

Obviously, my invention can be applied to a great variety of presses. Only one is illustrated. Upon the frame 1 of this press is journaled a driving shaft 2 and driven shaft 3 connected by gears 4, 5. The shaft

3 carries cam or eccentric groove 6 oscillating an arm 7 pivoted at 8. This arm reciprocates the plate holder 9 along a track 10. The shaft 3 carries an eccentric 11 inclosed within strap 12 and giving movement through rod 13 to one end 14 of a bell crank pivoted at 15. The other end 16 of the bell crank shifts toggle-links 17, 18 by means of rod 19.

The link 17 is pivotally supported at 20 from the upper end of the frame and the lower end of the link 18 is pivoted at 21 to counterblock rod 22 which is guided to reciprocate vertically in the frame at 23 so as to move the counterblock 24 between the two positions shown in full and dotted lines.

The shaft 3 also carries a crank arm 25 upon which is mounted crank pin 26 which moves rod 27 between guide roll 28 and gear 29. The upper part of the rod is formed as a rack at 30 to engage with this gear and turn it. The gear is not keyed to its shaft nor in any way rigidly secured to ratchet 31, but carries a latch 32 which moves the ratchet 31 in one direction of rotation of the gear so that it shall turn the shaft, but permits reverse movement of the gear while the shaft is allowed to remain in the position to which it has just moved.

Upon the same shaft as the ratchet is located a roller 33 which mates with roller 34 to feed the wiping band 35 or 35', as hereinafter more fully pointed out. They would also tend to squeeze excessive moisture out of the band, whether used alone for this purpose or when merely additional to the wringing means provided. The band is fed a predetermined space for each movement of the press in order that the portion of the band which has just been used for wiping may be advanced and a clean portion may be provided for the next wiping duty, and also that the various operations through which the band passes may be performed at a speed proportionate to the speed of operation of the press with the die or plate then in use.

One considerable advantage in the arrangement indicated lies in the soaking of the band in the washing bath for a length of time proportionate to the time of passage from the point of wiping use to the washing bath, i. e., proportionate to the drying interval after use, whatever the speed of opera-

tion of the press, which is varied with the character of the work being done.

During the movement of the arm 7, the plate block 9 carries the plate 36 under the counterblock 24 at one end of the stroke and within range of inking rollers 37 at the other end of the stroke. These rollers are reciprocated by an arm 38 through rod 39. The movement of the arm is caused by any suitable cam or eccentric upon the shaft 3, acting through connecting rod 40. The reciprocation of the rollers brings them in effective contact with an ink roll 41 rotatable in a well 42.

In the form shown in Figs. 1 and 2, for use with dull (oil) inks, I prefer to have the lever 38 perform an additional function in the reciprocation of a device shown as roller 43 within tray 44 by means of arm 45 to move over the surface of and press against the band 35 while it is being soaked in the wash tray.

My invention relates to the wiping and polishing band fed by rollers 33, 34 and the elements cooperating with it. This band 35 or 35' is made continuous and is passed about the wiping counterform 46 which is given vertical reciprocating movement by eccentrically driven rod 47, bell crank arms 48, 49 and rod 50, along which latter the counterform is adjustable by means of spanner nuts 51, 52.

This gives the counterform movement to bring the wiping band 35, or 35', into effective contact with the plate 36 during the movement of the plate so that the band may perform its wiping function.

Obviously, the feed rollers may be placed at almost any point along the band and the relative positions of other parts may be varied. In the forms illustrated, following the direction of travel of the band after it leaves the feeding rollers 33, 34, it is shown as passing about the counterform, and then about an idler 53 in order to get it above the washing tank 44 within which it is shown as guided by rolls 54, 55. Both of these perform idler or guiding functions.

Thus far the description of the structure and arrangement has been true of the selected form of my endless band wiper and polisher whether applied to dull (oil) or varnish ink work, and both could be handled upon the form of machine selected for illustration. The band itself would be different, however, being absorbent for oil-ground inks and relatively non-absorbent, such as leather or rubber-impregnated canvas, for use with varnish inks. Their treatment from this point on in the washing, etc., differs correspondingly.

Considering first the absorbent band, for oilground inks, the form illustrated in Figs. 1 and 2, I prefer to have the roll 55 cooperate with a roll 56 adjustably pressed there-

against along housing 57 by adjustment 58 so that the extra water from the band is expressed therefrom. During passage through this tray the band is preferably scrubbed against the corrugated or otherwise roughened bottom 59 by the movement of the roller 43 when it is rolled through movement of arm 45, and by the movement of the band beneath the roll when the band is fed by rolls 33, 34. Any suitable washing solution, such as soda or potash, is used in this tank 44, and the corrugation at the bottom need not be integral unless so desired.

The band next passes about the tension take-up roller 60 which is pressed outwardly in housing 61 by means of spring 62, and then through a moistening or sensitizing solution within which it is guided by idlers 63, 64 and where wringing rollers 65, 66, suitably adjustable in housing 67 by screw 68, remove the excess moisture. The band next passes to the feed rollers, completing the circuit formed.

With the varnish inks the apparatus is much simplified as seen in Fig. 3. A varnishing solution is used, such as naphtha, benzin, gasolene, etc., and brushing is effective because the ink does not sink deeply into the surface. There is little need of squeezing the extra moisture out of the band, both because it does not soak into the band much and on account of its rapid evaporation. Hence, I omit the roller 43 with its operating mechanism as well as the cooperating corrugation in the bottom of the tank. I also omit the roller 56.

The tank 44' is fitted, preferably, with a brush 71 which is turned either continuously or intermittently by any suitable means, here shown as a belt connecting its pulley 72 with a pulley 73 on the shaft of roller 33. I prefer to rotate brush 71 in the same direction as idler 55, so that their adjoining surfaces shall move in opposite directions, in order that the brushing effect may be increased. I also prefer to have the line joining their centers cut their circumferences under the surface of the liquid to improve the cleansing effect. The brush 71 is preferably adjustable toward and from idler 55 by screw 74.

Moistening is not necessary for the non-absorbent surfaces in use with varnish inks, and I have omitted the moistener in Fig. 3. I prefer to have the band dry and find that it will dry out effectively without excessive length.

It will thus be seen that in both forms I have applied a wiping and polishing band to a press so as to move intermittently thereabout and to keep the band within a washing solution a length of time proportionate to the quantity of ink which is being applied by successive wipings, and proportionate to the length of time the ink has

had to dry. In one form I also sensitize and moisten the band just before it is to be used.

By means of the handle 70, with either form of my invention, I may start the band at any time independently of the operation of the machine. This may be needed at the beginning of the operation of the machine in the form of Figs. 1 and 2, in order that a properly sensitized and moistened portion of the wiping band may be in position when the machine starts. While I purpose joining the ends of the band without appreciably increasing the thickness, so as not to interfere with the wiping function, the handle makes it possible to throw the joint beyond the wiping position, with both forms of my invention, at each approach thereto, or to place the major part of the wiping duty upon any selected part of the belt whenever the operator so elects.

Where its use is desired, I have discovered that a sensitizing solution composed of spirits of ammonia, carbonate of potash and starch in the proportions of one quart spirits of ammonia, one-quarter ounce carbonate of potash and two ounces of starch will sensitize the band quite effectively for taking up oil-ground inks. The solution has been mixed for use by me with water in the proportions of one part of the solution to two parts of water with good results.

The use of the solution invented by me and herein given, with an absorbent band results in polishing as well as wiping the plates where oil-ground inks are used, so that it is not necessary to follow it up by hand polishing of the plate. This is true also of the use of the relatively non-absorbent and preferably dry wiping band invented by me for use with varnish inks, the double function of wiping and polishing being thus capable of being fully performed for these inks also.

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

1. In a device of the character stated, an impression plate, inking means therefor, an endless wiping band for the plate, a washing

tank for the band, feed mechanism moving the band from the wiping position to the tank, a device for moving over the surface of and pressing against the band within the fluid in the tank and bodily movable means whereby the surface of the device applied to the band is changed during the operation of the device.

2. In a device of the character stated, an impression plate, a wiping band, a washing tank having a roughened surface for the band, means for moving the band from the wiping position through the washing tank, while presenting a roughened surface to the band and bodily movable means for forcing the band against the roughened surface to scrub the band.

3. In a device of the character stated, a press, a metal plate used therein, means for inking the plate, an endless band, means for wiping the plate by the band, a washing tank adapted to hold a fluid, means for moving the band from the wiping position through the fluid in the tank, a device within the fluid in the tank adapted to be moved over the surface of the band and press against it, and means for moving the roller back and forth in the tank to engage and squeeze the band for cleansing purposes.

4. In a device of the character stated, an impression plate, inking rollers therefor, an endless wiping band for the plate, a washing tank for the band adapted to hold a fluid and reciprocating rubbing means engaging the band within the fluid to assist in the washing operation.

5. In a device of the character stated, an impression plate, inking rollers therefor, an endless wiping band for the plate, a washing tank for the band adapted to contain a liquid and having a corrugated bottom, a roller on the opposite side of the band from the bottom and means for rolling the roller along the corrugated bottom to cause the band to engage with the corrugations.

CYRUS HAWKINS.

Witnesses:

HARRY W. KING,

WILLIAM STEELL JACKSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."