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2 SHEETS-SHEET 1.

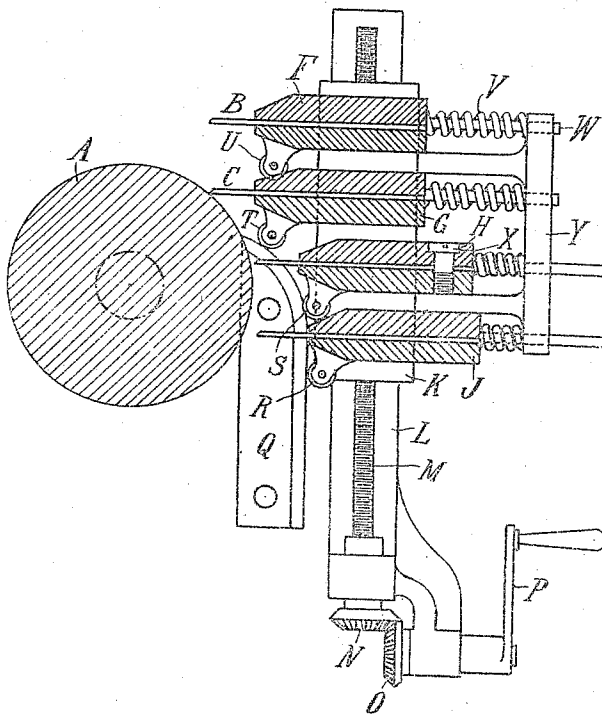


Fig. 1.

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INTAGLIO PRINTING MACHINE MECHANISM.
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2 SHEETS—SHEET 2.

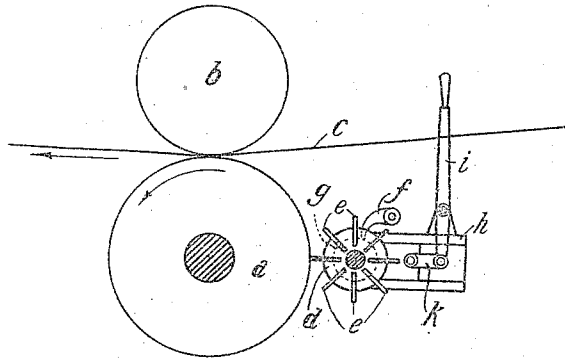


Fig. 2

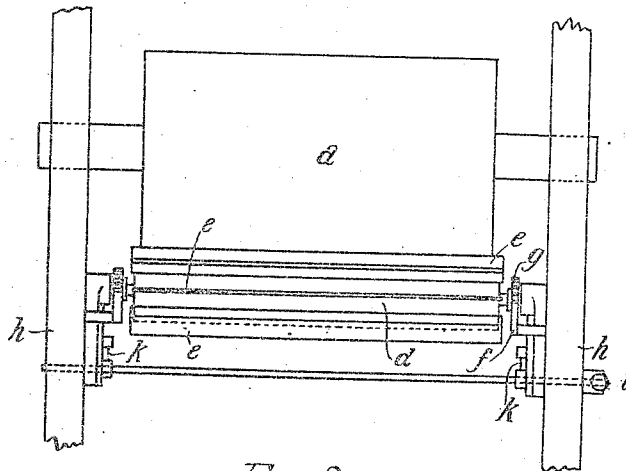


Fig. 3

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UNITED STATES PATENT OFFICE.

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INTAGLIO-PRINTING-MACHINE MECHANISM.

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Specification of Letters Patent.

Patented June 3, 1913.

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To all whom it may concern:

Be it known that I, EDUARD MEERTENS, a subject of the Emperor of Germany, residing at Freiburg, Baden, Germany, have invented new and useful Improvements in Intaglio-Printing-Machine Mechanism, of which the following is a specification.

This invention relates to an improvement in quick printing machines provided with scrapers or doctors.

It has been found to be a drawback in quick printing that the color knife or doctor in spite of its to-and-fro motion longitudinally with regard to the axis of the roller incurs an unequal wear through contact with the form on the roller surface, that is to say, that after a short time it is not only blunted but is unequally blunted. This drawback has been attempted to be remedied by giving the knife a motion extending far over the roller and by counteracting the wear of the knife by means of an automatic sharpening device. This wide motion in the direction of the axis on the roller cannot, however, be applied to all machines, especially on account of the larger space rendered necessary thereby. For the removal of the excess color from the forms of intaglio printing rotary machines, there has hitherto been used for each color print only one simple color doctor. If several doctors were attached then the others were in combination with color receptacles and served only to regulate the flow of the color to the printing roller or to distribute again on the form plate the excess of color collected between the ends of the form plate, but not to relieve the roller finally of the excess color. The color doctor which serves for the complete cleansing of the roller surface as well as its holder was hitherto pivotally arranged so that its edge was pressed against the roller surface by means of levers with weights or springs or the like.

The present invention is designed to apply several easily interchangeable color knives to the same roller, the holders of which knives are preferably arranged parallel to the form roller, in such a manner that each separate holder with its knife is pressed automatically or by hand levers against the roller and can also be independently withdrawn, so that the worn knife can be replaced during the operation of the machine by a sharp fresh knife in a very short time,

and without rendering it necessary that the blunt knife should simultaneously be withdrawn from the machine. The replacement can be effected by means of guide rods and the motion take place by aid of levers, cams, screws, springs, revoluble devices or the like. Moreover the knife holders with the knives can be arranged parallel one above the other or side by side and be inclined one to another, for instance in such a manner that the knife with its holder forms a kind of drum, from which the knife projecting by hand or automatic adjustment is pressed against the form roller or can be removed from it, while the frame or the knife holder is turned against the roller to the requisite angle according as the operating knife is placed higher or lower with respect to the roller. It is obviously necessary during the operation of the machine in view of scraping without interspaces, to take care that the knife first applied acts upon the surface of the roller until the next knife has come in full operation.

The invention is illustrated diagrammatically in the accompanying drawings in which—

Figure 1 shows a section through the printing roller and a series of color doctors and holding devices. Fig. 2 shows a diagram of an arrangement of a number of scrapers or doctors fixed upon a drum and successively brought into contact with the printing roller by turning the drum: Fig. 3 is a plan view of the same device.

Referring first to Fig. 1, A indicates the form roller, B, C, D, E, the color doctors, F, G, H, J, the respective holders, K the slide which can be moved up and down by means of the frame L, screw M, cone wheels N, O, and crank P. Q indicates a frame with curved surface upon which the rollers R, S, T, U, give to the doctor holders the requisite guidance so that on the sinking of the slide K in the position illustrated in Fig. 1, the doctor C is pressed vigorously against the form roller A, while the doctors D and E are prevented by the surface of Q from pressing too strongly against the form roller and being removed therefrom respectively. The parts marked V indicate springs which push the doctor holders away from the frame Y. X indicates a screw which is shown in full only on H but is applicable to each doctor and serves to press

together the two parts of the holder. The rods W slide in the bar Y and are firmly screwed to the doctor holders.

In Figs. 2 and 3 are shown a number of doctors which are grouped upon a drum and can be successively approached to the printing roller by turning the drum. On these drawings *a* indicates the printing roller, *b* the counter roller, *c* the paper strip passing between them, and *d* the drum upon which the doctors *e* are mounted. *f* is a pawl which engages in the wheel *g* (Fig. 3) and holds the drum fast at any desired point, whereas it can be revolved whenever the pawl *f* is raised. The drum *d* is adjustable in the bars *h* and by means of the levers *i* and *k* it can be approached to or removed from the printing roller *a*.

What I claim is:

1. Improved scraper mechanism for the rotary printing cylinder of an intaglio printing machine comprising in combination, a plurality of scraper blades, an adjustable support adapted to hold any one of said blades in operative contact with the rotary printing cylinder, and mechanism for moving a blunted blade out of contact and a sharp blade into contact with the rotary printing cylinder without stopping the machine.

2. Improved scraper mechanism for the rotary cylinder of an intaglio printing machine comprising in combination, a plurality of spring-impelled scraper blades arranged over or near one another, an adjustable support adapted to bring any one of the blades into operative contact with the surface of the rotary cylinder, and manually operated mechanism for applying a sharp blade to the rotary surface and removing a blunt blade therefrom without stopping the machine.

3. Improved scraper mechanism for the rotary cylinder of an intaglio printing machine comprising in combination, a plurality of spring-impelled scraper blades ar-

ranged over or near one another, an adjustable support adapted to bring any one of the blades into operative contact with the surface of the rotary cylinder, and manually operated lever mechanism for displacing the adjustable support from the periphery of which the scrapers project, for the purpose of moving a blunted blade out of contact with the rotary cylinder and bringing a sharp blade into operative contact therewith without stopping the machine.

4. An improved scraper mechanism for the rotary cylinder of an intaglio printing machine comprising in combination a plurality of spring-impelled scraper blades arranged over or near one another, an adjustable support adapted to bring any one of the blades into operative contact with the surface of the rotary cylinder and manually operated lever mechanism for rotating the adjustable support from the periphery of which the scrapers project, for the purpose of moving a blunted blade out of contact with the rotary cylinder and bringing a sharp blade into operative contact therewith without stopping the machine.

5. An improved scraper mechanism for the rotary cylinder of an intaglio printing machine comprising in combination a plurality of spring-impelled scraper blades arranged over or near one another, an adjustable support adapted to bring any one of the blades into operative contact with the surface of the rotary cylinder, and manually operated lever mechanism for moving horizontally the adjustable support of said blades for the purpose of moving a blunted blade out of contact with the rotary cylinder and bringing a sharp blade into operative contact therewith without stopping the machine.

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