No. 635,061. Patented Oct. 17, 1899.

W. SABEL.

REGISTERING FRAME FOR LITHOGRAPHIC PRESSES.

(Application filed Nov. 15, 1898.)

(No Model.) 2 Sheets—Sheet 1.

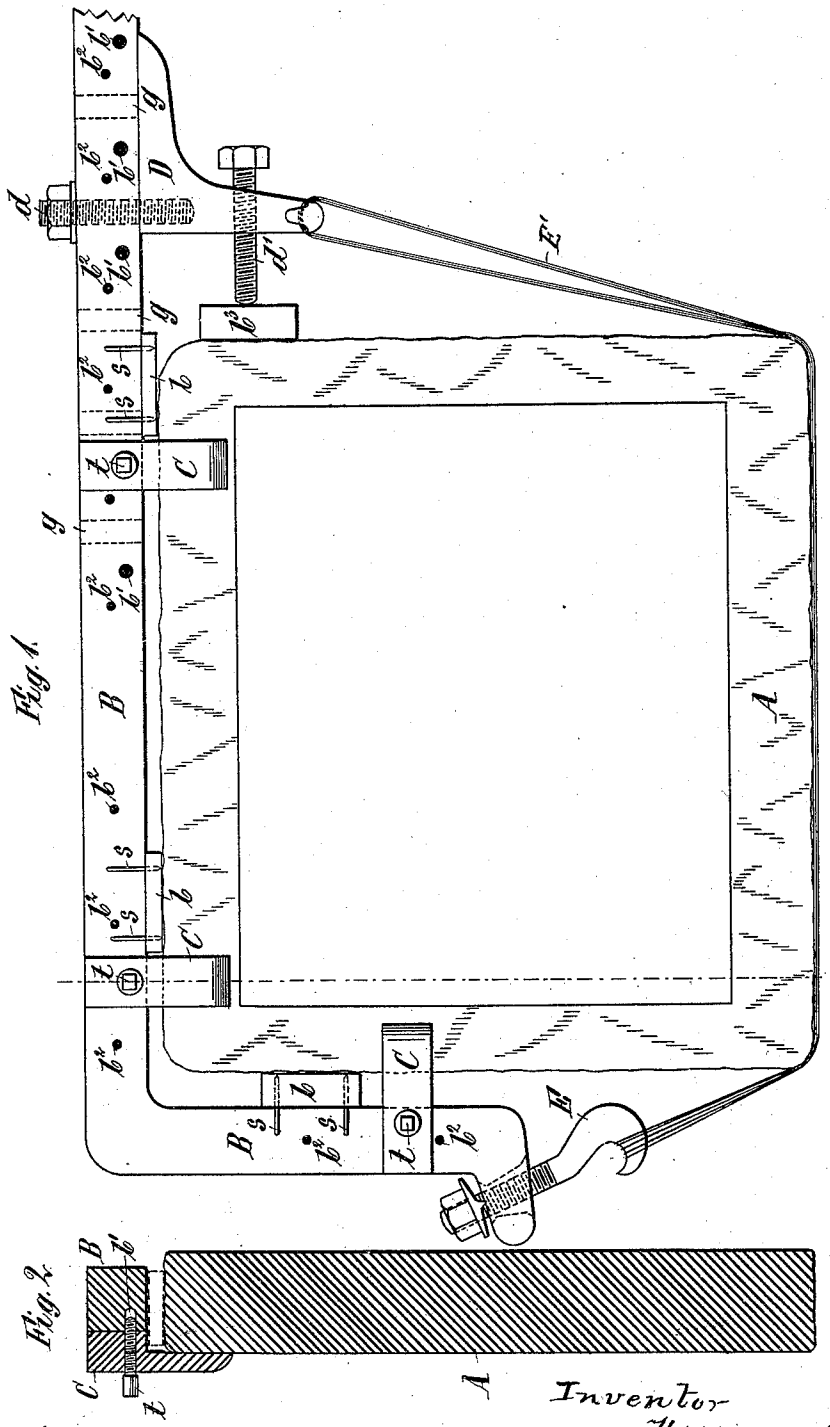

Fig. 1.

Fig. 2.

Witnesses
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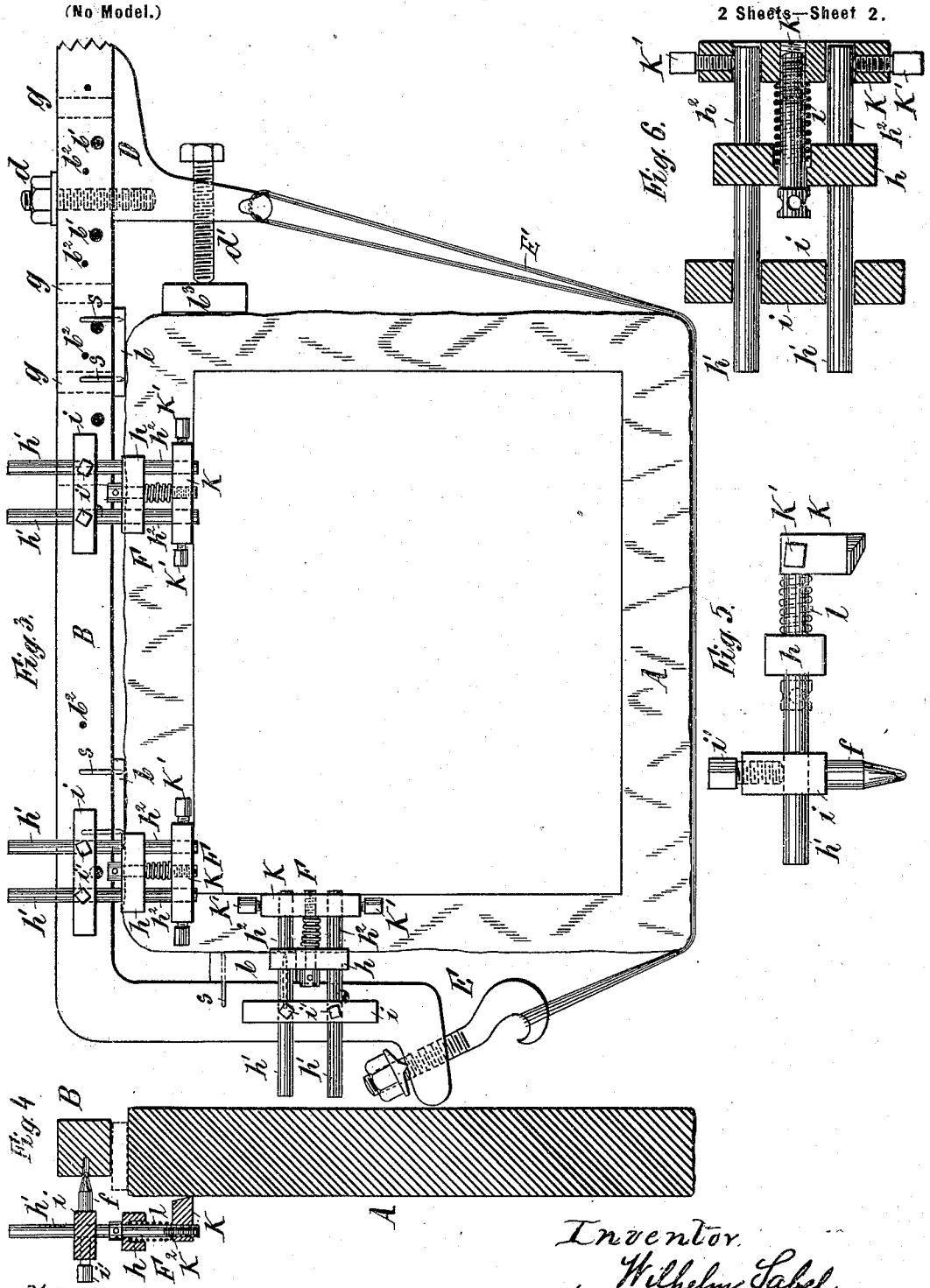

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UNITED STATES PATENT OFFICE.

WILHELM SABEL, OF COBLENZ, GERMANY.

REGISTERING-FRAME FOR LITHOGRAPHIC PRESSES.

SPECIFICATION forming part of Letters Patent No. 635,061, dated October 17, 1899.

Application filed November 15, 1898. Serial No. 696,559. (No model.)

To all whom it may concern:

Be it known that I, WILHELM SABEL, a subject of the Emperor of Germany, residing at Coblenz, in the Empire of Germany, have invented a new and useful registering-frame for laying the sheets on in an exact manner in a lithographic or color-printing hand printing-press, of which the following is a specification.

In the present state of the art when producing prints in several colors by means of a lithographic hand printing-press the entire success depends principally on making a good register. To this end the registering of prints into the hand printing-press is done by means of perforating-needles, which perforate the paper, and these, by means of corresponding or registering holes in the stones, serve to assist in laying the paper on correctly; but even the difference of distance between the points of the needles and the shafts, and still more the enlargement of the holes in the paper and stones in consequence of frequent use, and in addition the inaccuracies at perforating the paper are all sources of faults which produce a great number of imperfect and mutilated sheets, without taking into account that this process is very tedious and consumes much time, and especially if large sizes are used cannot be performed by one printer alone, but requires aid. However, by employing my improved frame a printer even of limited experience can print the sizes alone without assistance and in less time than was required hitherto. Dirty impressions are totally excluded, and differences arising from the paper shrinking while printing can be more evenly distributed.

My new frame is immediately joined with a stone, and accurate register can be obtained by means of gages, which can be successfully put on or taken off. After drawing or engraving on the stone the pattern desired the boundary of the printing-paper is similarly marked thereon by a long side line and also one adjacent end line conforming to the shape of the paper, as will be seen from the drawings. These boundaries are likewise marked on every other stone used in impressing the various colors on the paper and which stones are prepared in any well-known manner. If then all the stones employed have the same laying-on frame carrying gages in equal positions, a good register must necessarily be obtained.

In the accompanying drawings, which form a part of this specification and in which similar letters refer to similar parts—

Figure 1 is a plan view of my invention, showing it in connection with a stone. Fig. 2 is a sectional view of Fig. 1 on line $x\,x$. Fig. 3 is a plan view of my frame with gages attached. Fig. 4 is a sectional view of Fig. 3 on line $y\,y$. Fig. 5 is a side view of the gage I employ on an enlarged scale. Fig. 6 is a view on line $z\,z$ of Fig. 5.

My laying-on frame consists of an angle-iron B, which is preferably constructed in the relative proportion and placed against the stone as shown. Secured to the inner face of the long leg of said angle-iron are a plurality of wooden blocks b, which when the frame is in position rest against the side of the stone and serve when the frame is fastened to give the same a better hold. The inner face of the short leg is similarly provided. Formed in the outer end of the said long leg are a plurality of transversely-extending horizontal holes g, through which a bolt d is adapted to pass and engage an adjustable block B, which has on its outer end a hook d^2. The free end of the short leg of frame B is provided with a foot d^3, having an opening therein, through which I pass the screw-threaded shank of a hook E. Connecting the two hooks and passing around the free side of stone A is an endless (preferably wire) rope E′, which when the nut working on the shank of hook E is tightened draws the frame tightly against the said stone A and retains it in that position. Mounted in the block D aforesaid is a clamping-screw d', which working against a block b^3, bearing on stone A, serves to also hold the frame in its position against the said stone.

In order that the gages hereinafter described be placed in the exact and correct position, the accurate register of the frame B to stone A must be secured. For this object I form in both legs of the frame a plurality of threaded openings b', adapted to receive screws t. Each of these screws passes through and clamps to the frame a guiding-arm C, which arms permit a quick, yet perfect, adjustment of the frame to the stone. The

frame being properly and securely adjusted, arms C are removed and the gages placed in position. Each of these gages (see Figs. 5 and 6) is preferably formed of a block h, through which are passed two parallel rods h'. Sliding freely on these rods and to the left of said block h is a tailpiece i, having on its lower surface a pointed leg f, adapted to snugly fit in openings b^2, provided in the angle-frame B. In the upper part of the tailpiece are clamping-screws i', adapted to press against the rods g'. It will be thus seen that when the gages are set in position the screws i' are loosened and the head-plate (afterward described) placed approximately in proper position, after which said screws i' are tightened. On the other end of said rods is a head-piece K, also freely mounted and provided in its center with a screw-threaded opening. Mounted in the block h is an adjusting thumb-screw K^2, which, passing through the said threaded opening in head-piece K, allows a fine adjustment of the latter. Surrounding the said screw K^2 is a spring l, bearing continuously against the said head-piece and assisting in securing an exact adjustment thereof, while in each end of said head-piece are other set-screws K', which when the head-piece K has been properly and accurately adjusted, so that the nose M registers exactly with the limitation-line aforesaid, are tightened, thus holding the said nose continuously in its exactly-correct position.

In practice I have found that three gages (two on the long side and one on the short) are all that are necessary. The gages being in position, the paper is laid on so that its long edge rests against the two gages and its short edge (or left end) against the single gage. The gages are next removed and the press operated, the sheet receiving the impression exactly where desired, while as will be readily seen rapid work is obtained and all false impressions excluded. The frame B remains in position on the stone, but below the level thereof. When the gages are removed, the press may be operated without interfering therewith.

Having now described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a new and improved registering-frame for lithographic and color-printing hand-presses, the combination of an angle-frame, means secured thereto embodying a block on one end an adjustable hook in the other end, means engaging said block and hook, and adjustable guide-arms for fastening the same to an ordinary printing-stone, guiding-arms on said frame and gages having fine adjustability mounted on said frame for exactly registering each sheet laid on said stone, substantially as described.

2. In a new and improved registering-frame for lithographic color and printing press, the combination of an angle-frame, a sliding block adjustably secured to its longer leg, a clamping-screw in said block, a hook on the end of said block, a second adjustable hook mounted in the end of the remaining leg of said angle-frame, means for connecting said hooks and securing therein and within said frame an ordinary printing-stone, guiding-arms on said frame, and gages also thereon for exactly registering each sheet placed on said stone, and each having a tailpiece, a pointed leg carried thereby, and set-screws substantially as described.

3. In a new and improved registering-frame for lithographic color and printing press, the combination of an angle-frame having means for securing it to an ordinary printing-stone, said frame being provided with a plurality of screw-threaded openings, guiding-arms for securing the correct relative positions between said stone and frame, screws passing through said arms and entering said openings, and gages for exactly registering each sheet placed on said stone, and each having a tailpiece, a pointed leg carried thereby, and set-screws substantially as described.

4. In a new and improved registering-frame for lithographic and color and printing presses, the combination of an angle-frame having means for securing it to a printing-stone, other means for accurately adjusting the said frame in its correct position, and gages mounted on said frame, each of said gages having a block, parallel rods therein, a tailpiece on said rods, set-screws in said tailpiece, a pointed leg on the lower surfaces of said tailpiece and adapted to snugly fit in openings formed in said frame, a head-piece mounted on the opposite ends of said rods, a thumb-screw mounted in said block and passing through said head-piece, other set-screws in said head-piece and a nose on the lower end of said head-piece, substantially as described.

5. In a new and improved registering-frame for lithographic color hand-presses, the combination of an angle-frame, a block adjustably secured to one end thereof, an adjustable hook in the other end of said frame, a wire rope connecting said hook and block, guiding-arms adjustably secured to said frame, gages adjustably mounted on said frame, each of said gages having a block with parallel rods therein, a tailpiece mounted on said rods, a pointed leg on said tailpiece and means for fastening said tailpiece on said rods, a head-piece also mounted on said rods, a thumb-screw in said block and operating said head-piece, other set-screws in said head-piece adapted to clamp the same, and a nose on said head-piece, and a spring surrounding said screw and between said block and head-piece, substantially as described.

In testimony whereof I have herein set my hand this 7th day of October, 1898.

WILHELM SABEL.

Witnesses:
EUG. FUNK,
ALFRED NUTTING.