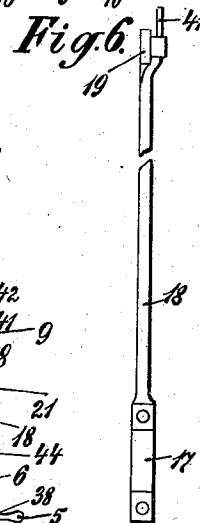
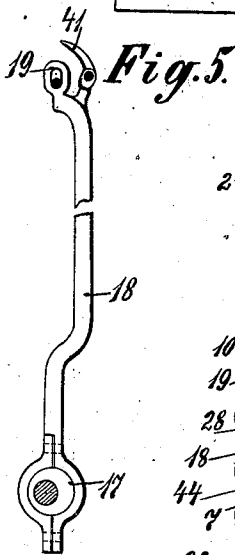
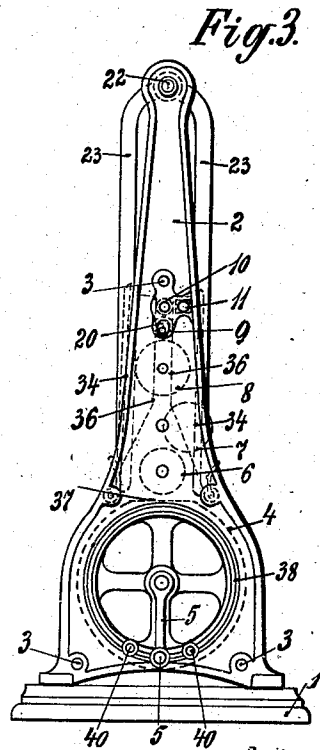
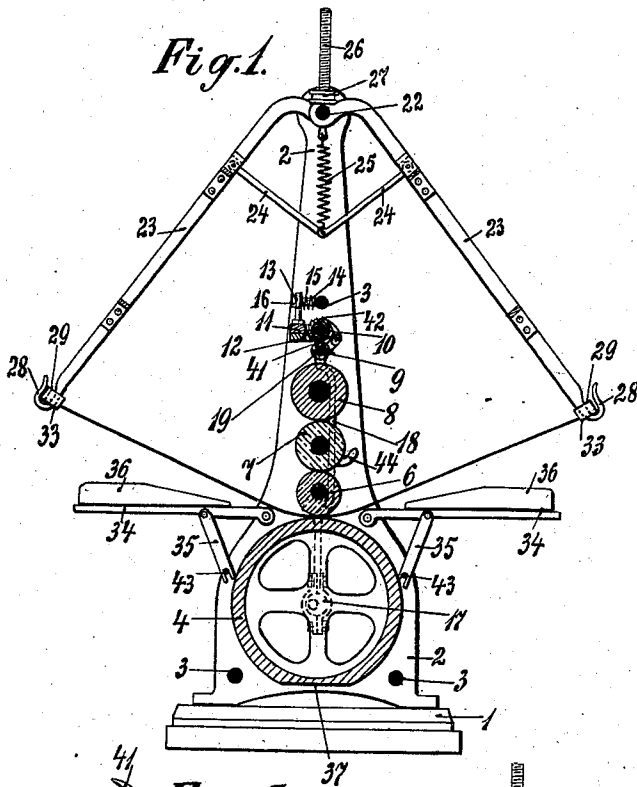


I. JURIČIĆ.
 DUPLICATING OR STENCIL MACHINE.

APPLICATION FILED AUG. 18, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.

H. Mori
E. Kamsch.

Inventor.

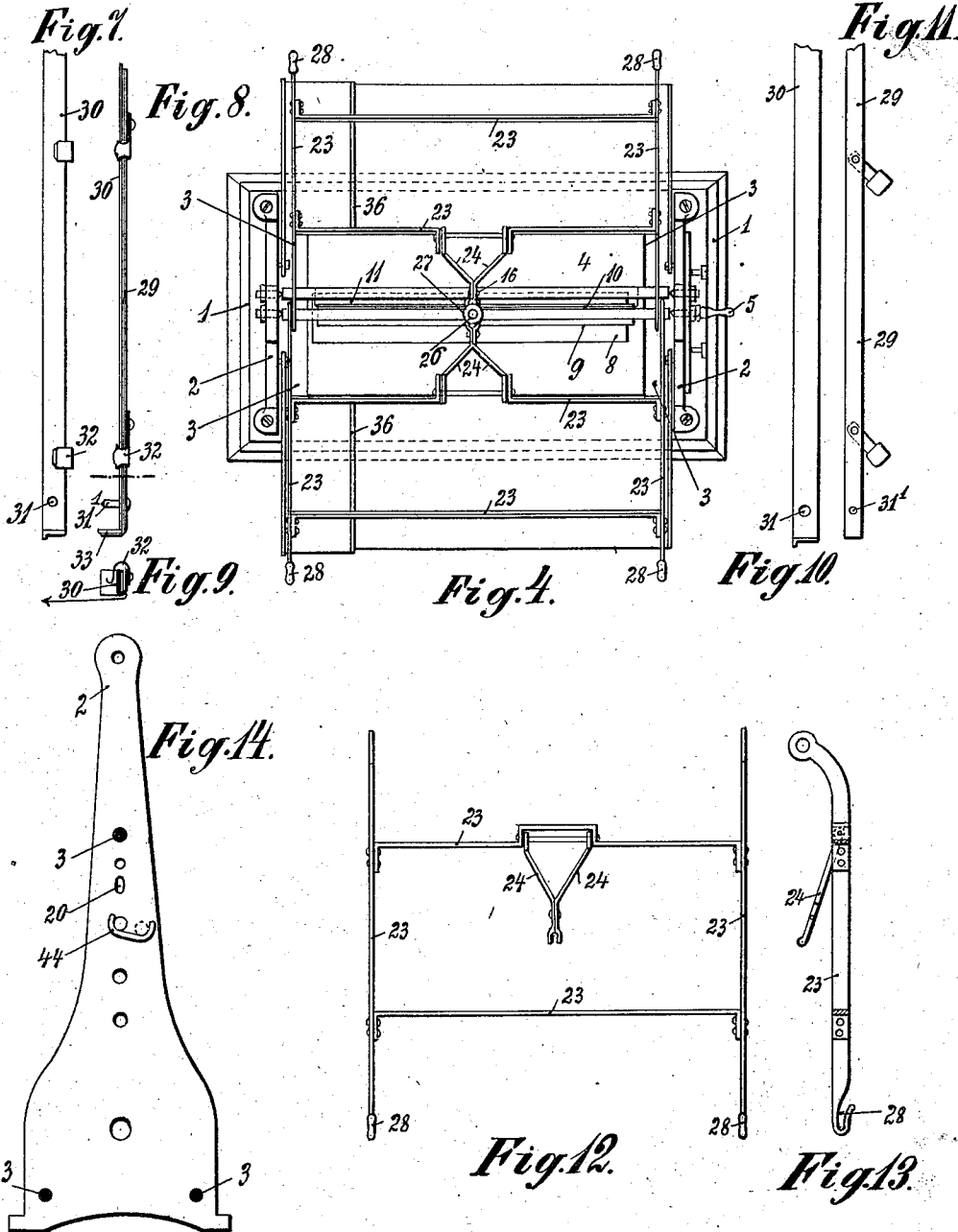
I. Juricic
by B. Singer
 Att'y.

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 DUPLICATING OR STENCIL MACHINE.

APPLICATION FILED AUG. 18, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses.
H. Mon
C. Hamisch

Inventor.
Ivo Juricic
 by *B. Singer*
 Att'y.

UNITED STATES PATENT OFFICE.

IVO JURIČIĆ, OF AGRAM, AUSTRIA-HUNGARY.

DUPLICATING OR STENCIL MACHINE.

SPECIFICATION forming part of Letters Patent No. 727,636, dated May 12, 1903.

Application filed August 18, 1902. Serial No. 120,151. (No model.)

To all whom it may concern:

Be it known that I, IVO JURIČIĆ, trade official, a subject of the Emperor of Austria-Hungary, residing at 36 Medulicgasse, Agram, Croatia, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in or Relating to Duplicating or Stencil Machines, of which the following is a specification.

The present invention relates to a duplicating or stencil machine for hand or machine writing of the type in which the writing to be reproduced consists of perforations manually or mechanically made in wax-paper or other convenient material chemically or mechanically prepared for this purpose, after which ink is pressed through the perforations of the wax-paper onto sheets of paper introduced beneath the wax-paper stencil-sheet. While, however, in all machines hitherto used each copy necessitated at least two reciprocating motions of the wax-paper and upon the backward motion of the latter required the separation of the printing and inking rollers in order to protect the sheet printed during its forward motion against defacement, the present apparatus allows an impression to be obtained on each forward-and-backward motion of the wax-paper. The copies are at the end of each forward-and-backward motion automatically removed from the apparatus, while in apparatus hitherto used the removal of the printed paper had to be effected by hand, and thus caused loss of time. Moreover, the introduction of the paper into known machines requires a considerable time, whereas in the present apparatus it is quickly effected, owing to the arrangement of convenient guides. Thus the present apparatus allows of a quicker working and in a more economical manner.

The invention consists, essentially, in the wax-paper or similar stencil being stretched and secured in an oscillating frame, the oscillation being effected by the rotation of a printing or impression roller, which serves as a support for the paper sheets during the printing operation. This roller applies from an automatic feeding and grinding device the ink, upon each forward-and-backward motion, to a correspondingly-guided and automatically-drawn-in sheet of paper, which is after-

ward automatically removed from the apparatus at the end of the motion.

In the drawings, Figure 1 is a vertical section of the apparatus in operative position. Fig. 2 is an elevation of the apparatus viewed from the right of Fig. 1. Fig. 3 is a side view of the apparatus in inoperative position. Fig. 4 is a plan view of Figs. 1 and 2, and Figs. 5 to 13 show details.

Upon a support 1, Figs. 1 to 4, are secured two standards 2, rigidly connected by cross-bars 3. Between the standards 2 is arranged an impression-roller 4, which can be partly rotated by a hand-crank 5, keyed onto the end of the axle. Above the roller 4 and rotatably mounted in the standards 2 is an inking-roller 6, which receives the ink with the aid of an automatic feeding or grinding device from rollers 7 8 9 10, arranged in superposition. At an equal height with the uppermost inking-roller 10 is a square iron bar 11, freely rotatable in the standards 2, Fig. 1. Rigidly connected to or screwed to this bar 11 is a wooden or other bar 12, the inner projecting edge of which is hollowed to conform to the shape of the roller 10. The bar 11 carries in its center a bracket or projecting arm 13, through which extends a pivot-pin 14, rigidly connected with the cross-bar 3 of the standards 2. On the pin 14, between the arm 13 and bar 3, is a spring 15, which bears at one end against the cross-bar 3 and with its other end against the arm 13 of the bar 11. The outer end of the pin 14 is provided with a nut 16. As the cross-bar 3 is fixed the bar 11 can, by turning the nut 16, be adjusted so that the bar 12 can be pressed toward or moved away from the roller 10. The ink is uniformly supplied to the space formed between the bar 11 and roller 10 along the whole length of the apparatus, from which it is transmitted through the adjustable space between bar 12 and roller 10 to the transmitting-roller 9, arranged below. On the axis of the impression-roller 4 are eccentrics 17, (see Figs. 5 and 6,) the upwardly-extending strap-rods 18 of which have convenient eyes 19, supporting the shaft of the roller 9, the ends of which enter longitudinal slots 20 in the standards 2, Figs. 3 and 4.

Upon rotating the roller 4 by the hand-

crank 5 the top ink-transmitting roller 9 is alternately raised and lowered by the eccentrics 17 and rods 18, whereby the roller 9 is alternately brought in contact with the inking-roller 10 and the lower metallic grinding-roller 8, and after a few rotations transmits the ink received from the roller 10 to the grinding-roller 8, whereupon it moves upward again. The roller 8 is rotatable and is movable longitudinally between the standards 2, one end of its shaft being provided with coarse threads 21, which cooperate with corresponding screw-threads provided in the standard 2. By the screw motion thus obtained the roller 8 has a grinding action on the ink received and transmits it to the inking-rollers 7 and 6, arranged below, by which it is further distributed.

In the upper part of the apparatus is rotatably arranged a rod 22, carrying downwardly and outwardly directed frames 23, mounted loosely, however, with a sufficient friction and adapted to receive at their lower ends the perforated wax stencil carrying the writing or drawing to be duplicated. One of the frames 23 is shown in detail in Figs. 12 and 13 of the drawings. The frames 23 are connected by inwardly-projecting links 24, the ends of which are drawn upward by a spiral spring 25. The spiral spring 25 is carried by a vertical screw 26, which extends through an opening in the rod 22 and can be adjusted by a screw-nut 27. The stencil is secured by suitable clamps which engage with resilient hooks 28 at the lower ends of the frames 23. These clamps are shown in detail in Figs. 7 to 11 and consist of two bars 29 and 30, between which the ends of the wax-paper are introduced. The bar 30 is of angular cross-section and is provided with holes 31 for receiving guide-pins 31' on the bar 29. These bars carry spring locking devices 32, by means of which both bars 29 and 30 can be strongly clamped together with the stencil in between, as shown in Fig. 9. Offsets 33 on the ends of the bar 30 serve as a guide during the engagement with the resilient hooks 28 of the frame 23.

Tables 34, arranged for supporting and guiding the paper sheets to be printed upon, are hinged between the standards, and in their operative position, Fig. 1, are secured by hinged braces or brackets 35, engaging with pins 43 on the frames. In this position the tables are horizontal and at an equal height with the top of the impression-roller 4 and bottom of the inking-roller 6, between which the wax-paper secured to the frames 23 and the paper to be printed upon is passed. The tables 34 are provided with side guides 36, which can be adjusted to correspond to the width of the paper sheets used in order to insure a regular feed.

The circumference of the impression-roller 4 is at 37 flattened, as shown in Fig. 1, in order to facilitate the introduction of the wax-paper at the beginning of the operation. The

hand-crank 5 on the shaft of the roller 4 moves over an angular projection on the standard 2, which is provided with an annular groove 38. In this groove 38 are two adjustable pins 39, which can be fixed by nuts 40, which serve as locking means. Flexibly connected with one of the eccentric-rods 18 is a ratchet-pawl 41, which engages with the teeth of a ratchet-wheel 42, keyed onto the shaft of the ink-feeding roller 10, which is thus intermittently turned during the working of the apparatus in order to bring fresh sections of the ink-charged roller 10 opposite to the transmitting-roller 9 at the times when the rollers 9 and 10 are out of contact.

When not in use, all parts of the apparatus are in the position shown in Fig. 3. The frames 23 are folded down and in and the tables 34 are turned upward and inward. In order to prevent unnecessary contact of the rollers 6, 7, and 9 with the rollers 4, 8, and 10, made of resistant material, (wood, metal, or the like,) and consequently undue wear or flattening, the hand-crank 5 is at this time turned to the bottom with the flattened face 37 of the printing-roller 4 at the top. The screws connecting the roller 7 with the standards are loosened, whereby the shaft of the roller 7 moves down in the lowermost part of the oblique support 44, Fig. 4, on the standards 2, so that the roller 7 is neither in contact with the roller 8 nor with the roller 6, and finally the roller 9 is in consequence of the position of the crank 5 and eccentric 17 neither in contact with the upper roller 10 nor with the lower roller 8.

For working, the tables 34 are first of all placed horizontally, Fig. 1, and the brackets 35 engaged with their fork-shaped ends over the pins 43 on the standards 2. Upon raising the screw 26 by turning the nut 27 the frames 23 will be spread apart. The stencil-sheet is now passed between the flat portion 37 of the roller 4 and the roller 6. The clamps are withdrawn from the hooks 28 of the frames 23 and opened, so as to allow of the introduction of the two ends of the stencil. The clamps, together with the clamped stencil, are then introduced into the hooks 28 of the frame 23. By conformably turning the screw-nut 27 both frames 23 are stretched apart until the wax-paper is properly stretched, so as to receive the shape shown in Fig. 1. After applying the ink to the channel between the bar 11 and roller 10 and upon suitably adjusting the bar 12 opposite to the latter by turning the nut 16 the frames 23 are several times oscillated by hand in order to cause a uniform distribution of ink on the rollers 10 9 8 7 6 and on the stencil by the rotation of the rollers, which is effected by their frictional engagement. As soon as the ink is uniformly distributed on the stencil the nuts 40 are loosened and the crank 5, and with it the roller 4, is so turned that the flat portion 37 of the roller comes opposite one end of the stencil. The

extreme positions of the crank 5 can be limited by the adjustment of the screw-nuts 40, so that if required the whole length of the stencil can be brought in contact with the cylindrical portion of the impression-roller 4 by the oscillation of the crank 5. The paper to be printed upon and placed upon the tables 34 is, owing to the quick oscillation of the printing-roller 4, drawn in between the latter and the stencil. The printed sheets fall automatically out of the apparatus beneath the table opposite to that from which they are fed. It will thus be seen that the printing can be quickly effected with the described apparatus, as the feeding as well as the arresting means allow of an easy and quick introduction as well as removal of the papersheets, automatically effected in the present case without loss of time. Moreover, as the introduction of the paper can be effected from both sides of the apparatus each copy necessitates only a single motion of the crank, while the position of the stencil or the oscillation of the impression-roller 4 between determined limits can be quickly effected.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a stenciling-machine, of an impression-roller for supporting and carrying the sheet to be impressed, an inking-roller coacting therewith, an oscillatory frame comprising two overhead pivoted sections having means at their lower ends for connecting with the ends of the stencil, means for spreading said lower ends apart to stretch the stencil between the impression-roller and the inking-roller, and means for rocking the impression-roller to oscillate said frame back and forth by frictional contact with the stencil.

2. In a stenciling-machine, the combina-

tion with an impression-roller and an inking-roller driven frictionally thereby, of an oscillating stencil-carrying frame comprising two sections hinged overhead with retaining devices at their lower ends to hold the ends of the stencil and adjustable, spring-seated means for spreading said sections apart as to their lower ends, and for drawing them in.

3. In a stenciling-machine, a stencil-carrier comprising a frame having two sections pivoted adjacent to each other and having hooks on their free ends, means for spreading said sections apart, two separable bars fitting into said hooks and receiving the ends of the stencil, and clamping devices for holding said bars upon the stencil.

4. In a stenciling-machine the combination of two side standards tied together, an impression-roller journaled in the lower part of said standards, a vertical series of inking-rollers also journaled in said standards axially above the impression-roller, an oscillatory stencil-supporting frame comprising two sections pivoted adjacent to the top of the standard and having holding devices for the stencil at the lower end, means for spreading said sections apart and for closing them in between the standards, and tables hinged to the standards on each side of the impression-roller and capable of being turned up and in between said standards upon their hinges.

5. In a stenciling-machine, the combination with means for feeding sheets to be impressed, of an inking-roller, and an impression-roller having a flattened surface.

In testimony whereof I affix my signature in presence of two witnesses.

IVO JURIČIĆ.

Witnesses:

PAUL JOSEPH DOMANICZY,
FRANZ RENOSCHEFSKY.