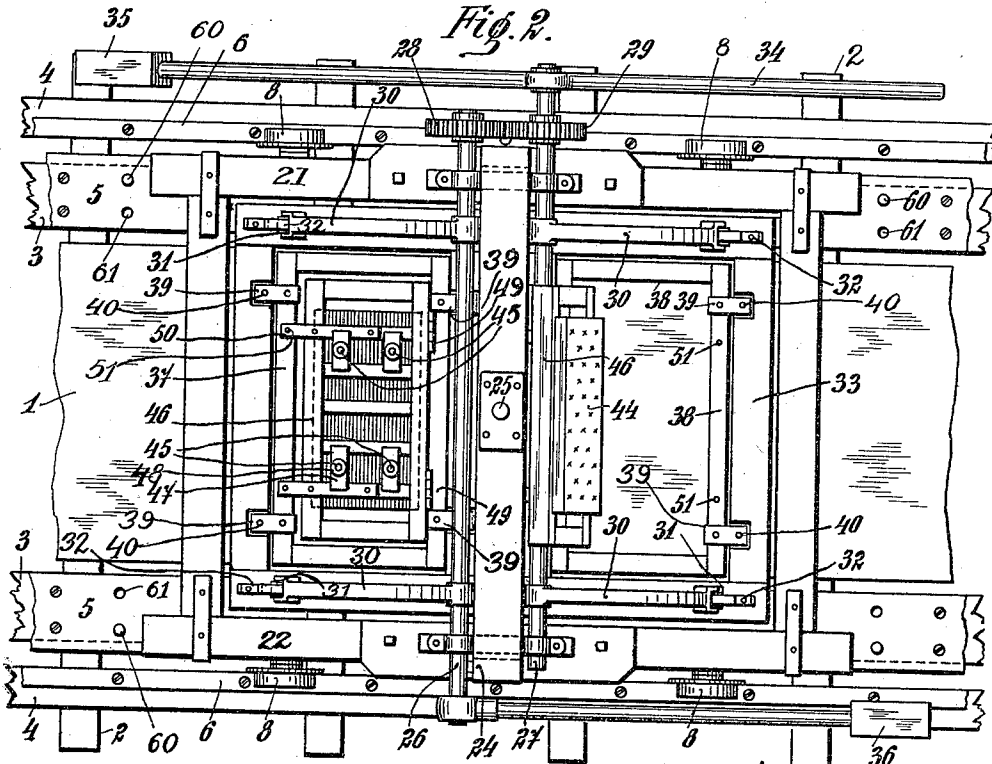
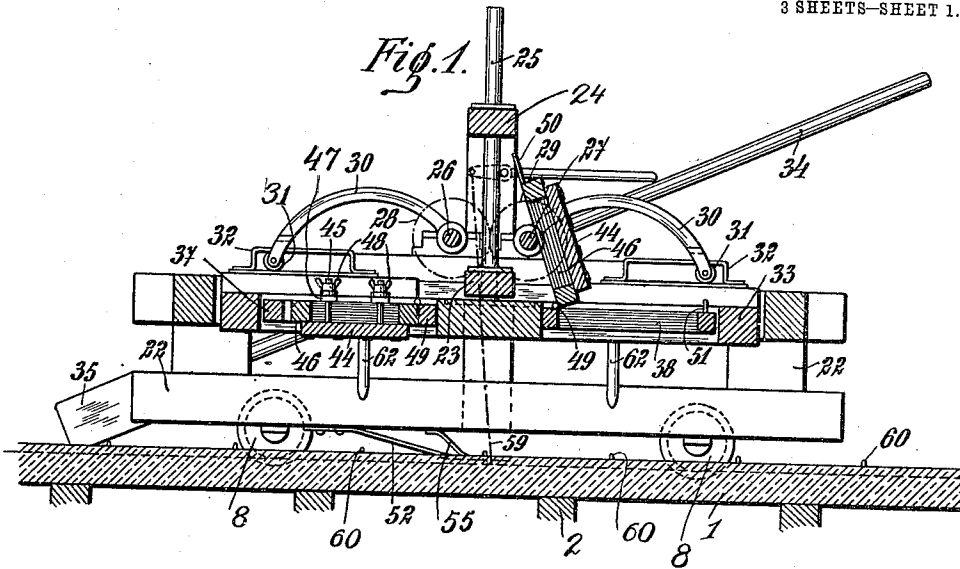


A. SVOBODA.
HAND PRINTING MACHINE.
APPLICATION FILED MAR. 20, 1911.

1,006,987.

Patented Oct. 24, 1911.

3 SHEETS-SHEET 1.



Witnesses
W. Williams
J. M. Gray

Inventor
A. Svoboda
by J. M. Gray
A774

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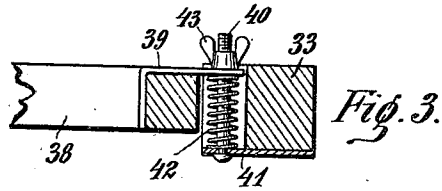


Fig. 3.

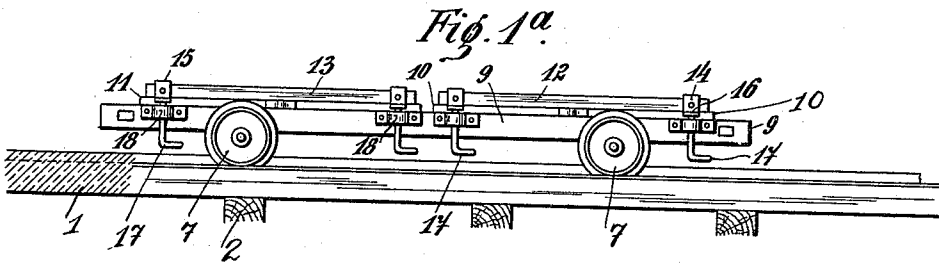


Fig. 1a.

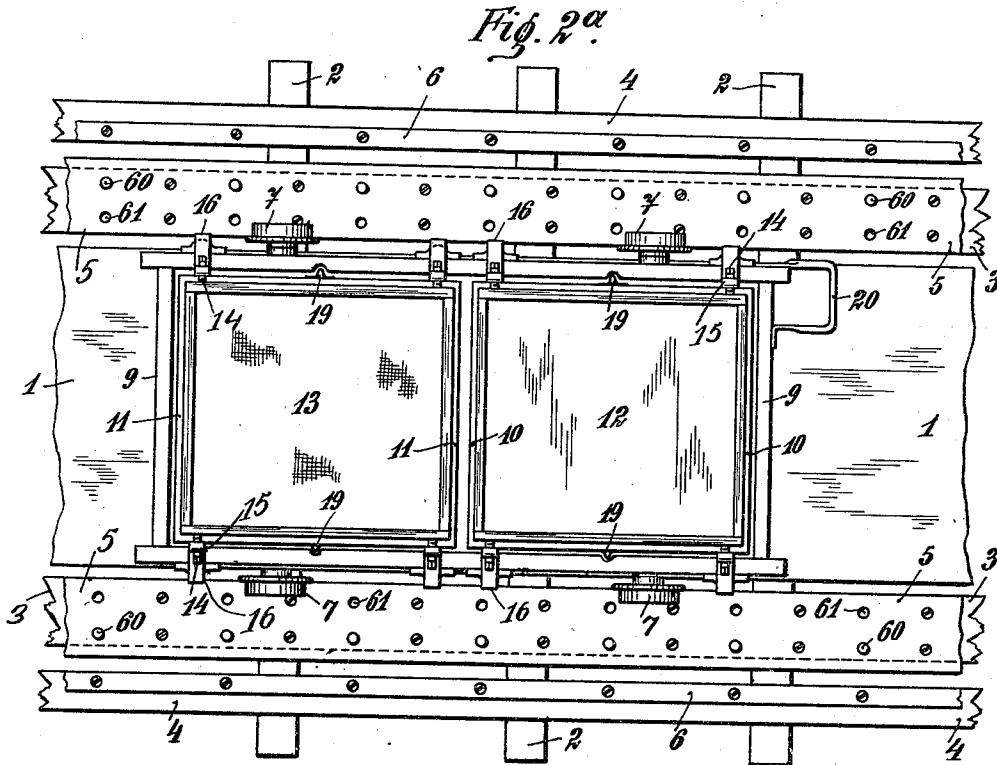


Fig. 2a.

Witnesses

W. Williams
John Brown

Inventor
A. Svoboda

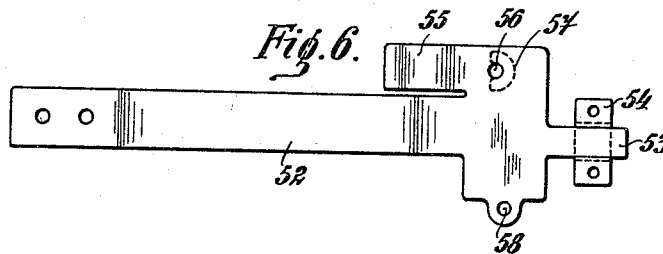
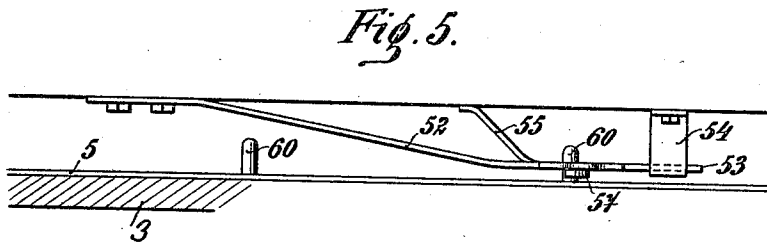
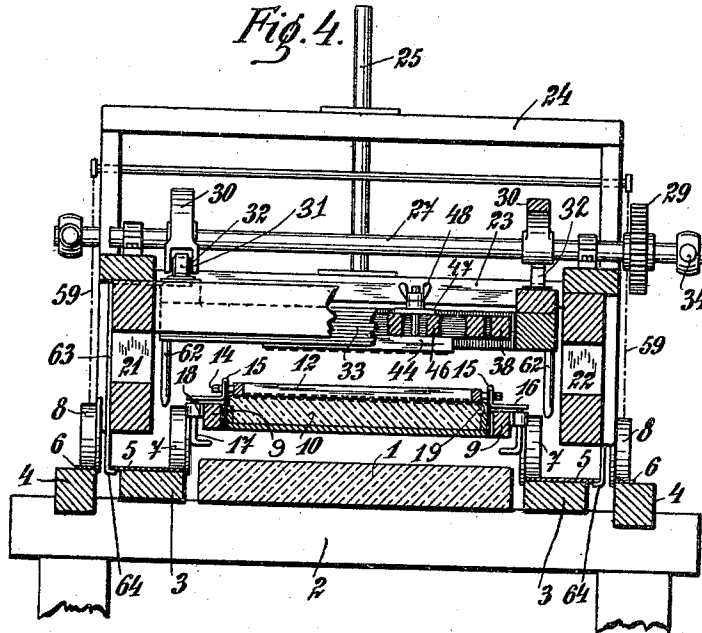
by John Brown
Atty

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3 SHEETS—SHEET 3.



Witnesses

W. Williams
John S. Swoy

Inventor
A. SvoBoda

by *J. M. Swoy*
Atty

UNITED STATES PATENT OFFICE.

ANTON SVOBODA, OF ROCHLITZ, NEAR REICHENBERG, AUSTRIA-HUNGARY.

HAND PRINTING-MACHINE.

1,006,987.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed March 20, 1911. Serial No. 615,740.

To all whom it may concern:

Be it known that I, ANTON SVOBODA, a subject of the Emperor of Austria-Hungary, residing at Rochlitz, near Reichenberg, Bohemia, Austria-Hungary, have invented certain new and useful Improvements in Hand Printing-Machines, of which the following is a specification.

My invention relates to improvements in hand printing machines for textile materials and the like, the which up to now have the drawbacks in that the operation is slow and allows hardly more than one color to be printed.

The objects of my improvements are, first, to avoid said drawbacks, second, to provide a cheap machine with which at least two or more colors may be printed quickly and surely by hand without necessitating changing of the block. I attain these objects by the mechanism illustrated in one form and by way of example in the accompanying drawings, in which—

Figures 1 and 1^a are side views of the printing and inking carriages with the cement track in side views; Figs. 2 and 2^a are plan views of the devices shown in Figs. 1 and 1^a; Fig. 3 is a detail of the resilient support for the printing frame; Fig. 4 is a cross section of the printing carriage; Fig. 5 is a side elevation of the fixing spring for the printing carriage; Fig. 6 is a plan of the spring shown in Fig. 5.

Similar letters refer to similar parts throughout the several views.

The textile fabric or the like to be printed is stretched in the known manner over a cement base or track 1, in the form of a horizontal strip of uniform breadth resting on beams or sleepers 2. On the cross beams 2, there rest on each side a pair of longitudinal beams 3, 4 and 3, 4 parallel to the sides of the track the beams 3, 3 having broad metal plates or strips 5, 5 and the beams 4, 4 narrow metal plates or strips 6, 6, respectively fastened thereon. The inner edges of the strips 5, 5 form rails for the wheels 7, of the inking carriage and the inner edges of the strips 6, 6 form rails for the wheels 8, of the printing carriage. The inking carriage has a low frame 9, mounted between its wheels 7 and carrying the bolsters 10, 11, for the known inking pads 12, 13 which are clamped between horizontal side clamping screws 14. Plates 15, are fastened to the side walls of the bolsters 10, 11, and have

a threaded hole to receive the clamping screws 14. The plates 15 have horizontal arms 16, which project outwardly over the frame 9, and rest on vertical adjusting screws 17. These adjusting screws 17 engage in brackets 18, fastened to the frame so that by adjusting the screws 17, the inking pads 12, 13 may be adjusted as regards their height or brought into the desired plane.

The bolsters 10, are preferably provided with side projecting pins or knobs 19 to engage in corresponding grooves formed in the frame of the carriage to receive them. A handle 20, is fixed to the carriage to facilitate handling.

The printing carriage consists of a carriage frame mounted on the wheels 8, and having sufficiently high side walls 21, 22 to provide space for the inking carriage to pass thereunder. A cross beam 23, is provided on the frame and on this there is mounted a yoke 24. The frame also takes the printing table (33), which has to be moved up and down and has to be accurately guided. Guiding rails are provided at the four corners of the frame on the inner sides thereof for the purpose of guiding the printing table (33) in its vertical motion. In addition, a guiding rod 25 is arranged in the center and this rod is suitably held in the yoke 23, 24.

At each side of the yoke, in the middle of the carriage, there are arranged horizontal rotatable shafts 26, 27 having pinions 28, 29 or toothed rims engaging with one another between said carriage. To each of the shafts 26, 27 there are fixed arms 30, having forked ends carrying rollers 31, engaging in horizontal guides 32, fixed on the printing table, so that when the shafts 26, 27 are rotated, the printing table is moved vertically upward or downward. The rotation of the shafts 26, 27 is conveniently effected by hand, by means of a rod 34 having an extension at one end to carry a counter balanced weight 35. At the opposite end of the shaft 26 as seen in Fig. 2, a rod is arranged carrying a balance weight 36. Of course other methods of operating the printing table may be employed.

Two or more removable frames 37, 38 according to requirements are mounted resiliently in the printing table and for this purpose these removable frames are provided with four projecting eye plates 39

movable on four vertical guiding pins 40. These latter are fastened on plates 41 which are in turn fixed to the bottom side of the printing frame. Between the plates 41 and the eye plates 39, springs 42 (see Fig. 3) are arranged. By means of the wing nuts 43 the springs 42 may be more or less compressed, to raise or lower the forms, or the individual wing nuts 43 may be adjusted to bring the form into the required plane. The color forms 44, are provided at their upper ends with bolts 45, which project through openings in the hinged frame 46 and by means of washers 47 supported on the hinged frame and nuts 48, the color forms are held in place. The hinged frames 46, are located in the frames 37, 38 and have hinges 49 adapted to allow the frames 46 to be opened upwardly. On the opposite side to the hinges there are horizontal eye pieces 50 which are adapted to engage over upwardly projecting studs 51, on the frame 37, 38, and to be held down by nuts on said studs.

Adjusting springs 52, illustrated diagrammatically in Figs. 5 and 6, are provided under the frame of the carriage for holding and adjusting the printing carriage when printing. These springs or resilient rods are fixed at one end to the frame and their other free ends or prolongations 53 of these free ends project over the plate 5, and are guided to move vertically in yokes 54 fastened to the frame. The springs also have resilient tongues 55, which press against the bottom of the carriage frame, and holes 56, with fortifying pieces 57 are provided in front of the tongue 55. A further hole 58 is only for the purpose of connecting the spring bar 52 by means of chains, cords or rods 59 with a suitable pulling device for facilitating the withdrawal of the spring 52 from working position. On the plates 5, there are provided at fixed intervals projecting pins 60, which engage in the eye holes 56 as when the carriage moves forward, the spring 52 rises and then falls over the said pins to fix the carriage in position. There are corresponding holes 61 in the plates 5, the position and size of which holes must correspond exactly to the dowel pins 62, fastened to the bottom of the carriage so that when the printing table is moved vertically the pins 62, pass into the holes 61, whereby the forms are pressed down in exactly the position required. The known hook arms 63 are provided which project downward at the sides to slip with their hook ends under the projecting ledges of the plates 5, when the carriage is moved but when the carriage is fixed as described above they anchor it down to the rails to prevent rising in a vertical direction.

The carriage and rails are proportioned to suit the greatest width of material to be

printed while the length of the material is not limited with this device. The drawings show a form with two colors but of course the arrangement may be multiplied for any desired number of colors.

The operation is carried out as follows. After inserting and fastening the printing forms or blocks, the carriage is moved to and fixed in the required printing position with the forms in raised position. The inking carriage is then moved under the printing carriage and the forms pressed down on to the color pads to color the forms with the desired coloring. The inking carriage is then drawn out and the cloth is printed in the required position by pressing down the printing table. The printing carriage is then moved forward to another section and the operation repeated care being taken to proceed in a definite order so as not to mix up the colors.

In addition to the properties of easy and exact adjustment and positioning of the parts and consequently cleaner and quicker operation with a large number of colors on any desired length of cloth, this machine has the advantage that the individual parts are readily accessible. Thus the printing blocks are accessible by merely moving the frames about their hinges and when necessary the adjustment required for accurate working or setting may be readily effected. Also packing up the forms at various points with paper to bring them into the required plane is absolutely unnecessary.

I am aware that prior to my invention hand printing machines have been made with printing carriage and inking pads traveled on a carriage passing under the printing carriage. I therefore do not claim such a combination broadly; but

I claim—

1. In a multi-color printing press the combination of an impression bed, a track disposed each side the impression bed, a manually operated inking carriage on the tracks, other tracks parallel with the first mentioned tracks, a printing carriage movable on the second mentioned tracks, automatic means for positioning the printing carriage at determinate points with reference to the impression bed, a vertically movable printing frame on the printing carriage hinged form holding frames pivoted to the printing frame, rock shafts mounted on the printing carriage, intermeshing gears on said rock shafts, a handle for operating the rock shafts, and a connection between the rock shafts and the printing frame whereby the latter may be raised or lowered.

2. In a multi-color printing press, the combination with an impression bed, a manually operated inking carriage, a track each side of the impression bed, a printing car-

riage operable on the tracks and including a vertically movable printing frame, hinged color form holding frames, two rock shafts mounted on the printing carriage, inter-
5 meshing gears on said shafts, slotted guides on the printing frame, arms extending from the shafts and engaging the slotted guides, and means for vertically guiding the printing frame when the shafts are revolved.

10 3. In a multi-color printing press, the combination of an impression bed, a manually operated inking carriage, a track each side of the impression bed, said track having openings, pins extending from the printing carriage to engage with the openings
15 in the track, pins extending from the track, flat springs between the printing carriage and the track, said flat springs having openings which engage with the pins projecting
20 from the track to hold the printing carriage in position during the printing operation, color form holding frames mounted in the printing carriage, means for operating the color forms toward and from the impres-
25 sion bed, and means for disengaging the flat springs from the openings after the printing operation.

4. In a multi-color printing press, the combination of a pair of tracks, an impression bed mounted between the tracks, a manually operated inking carriage having
30 rollers, operating on the tracks, a printing carriage having wheels operating on the tracks, a vertically movable printing frame on the printing carriage, adjustable spring
35 supports between the printing frame and the printing carriage, hinged form holding frames on the printing frame, a vertical guide between the vertical printing frame and the printing carriage, manually oper-
40 ated means on the printing carriage for raising and lowering the printing frame, means including pins and flat springs and having openings to cooperate with said
45 openings for holding the printing carriage in printing position over the bed, and means for disengaging the flat springs from the pins.

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

ANTON SVOBODA.

Witnesses:

FRANZ SIMON,
HERBERT SMITH.