Oct. 18, 1938. C. B. RICHARDSON 2,133,401

WALLPAPER SAMPLE PRINTING MACHINE

Filed March 21, 1936 2 Sheets-Sheet 1

Fig. 1.

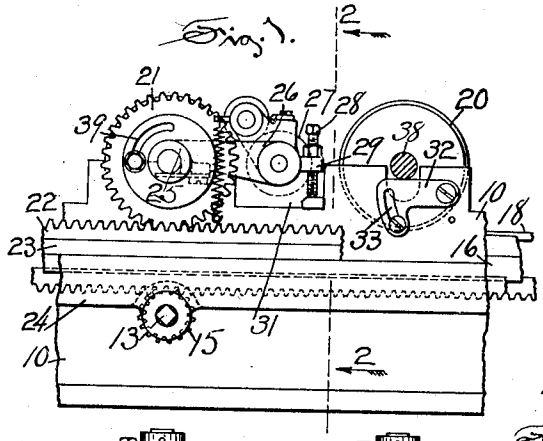


Fig. 2.

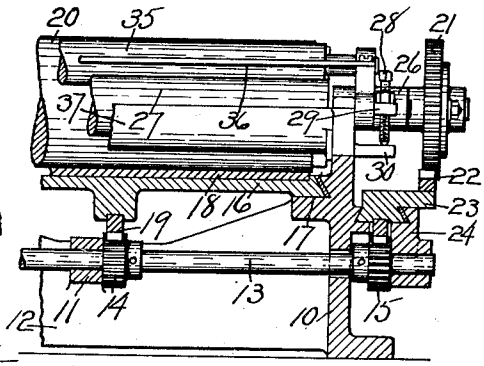
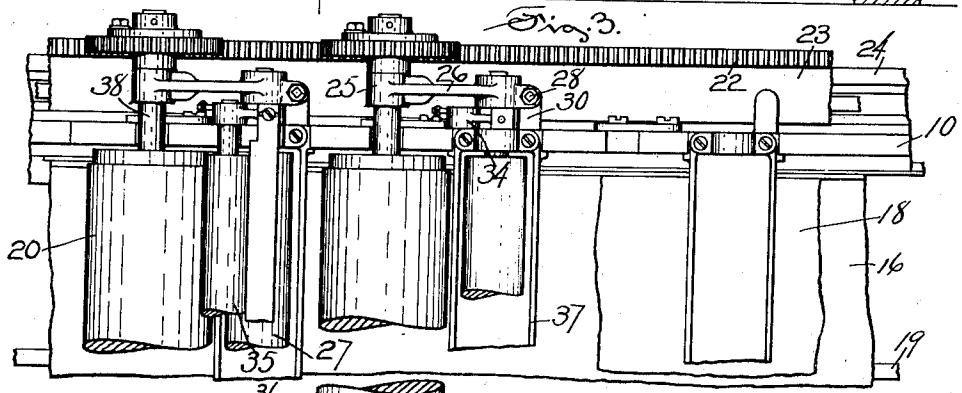


Fig. 3.



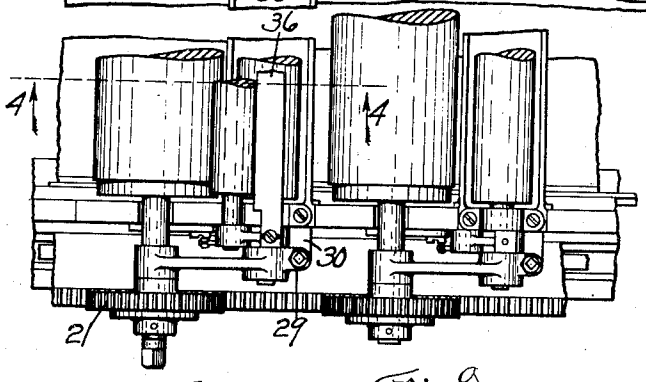


Fig. 4.

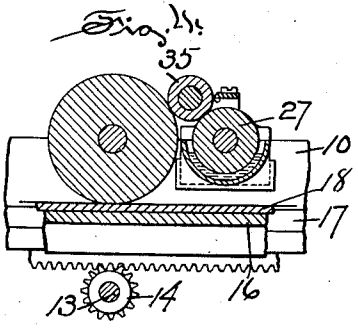


Fig. 8.

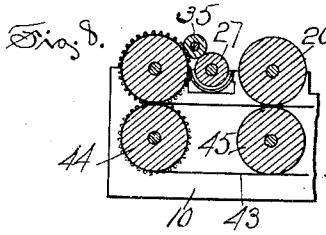
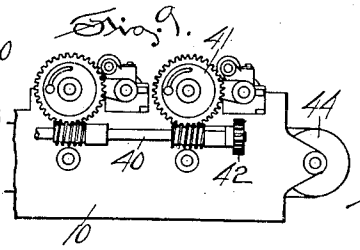


Fig. 9.



INVENTOR
Carl B. Richardson
by
Arthur B. Jenkins,
ATTORNEY

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WALLPAPER SAMPLE PRINTING MACHINE

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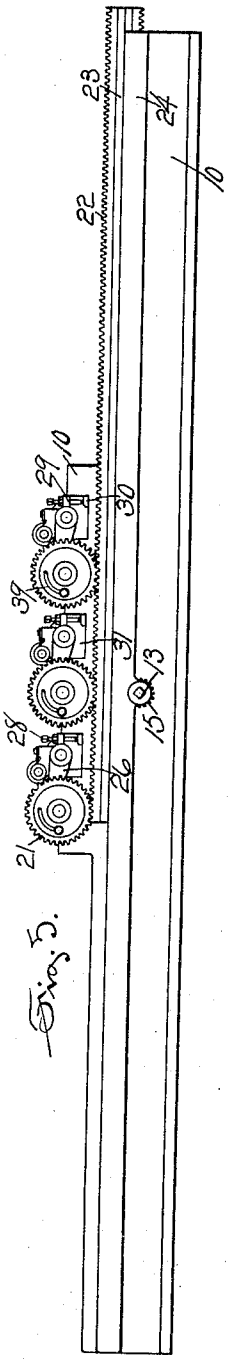


Fig. 5.

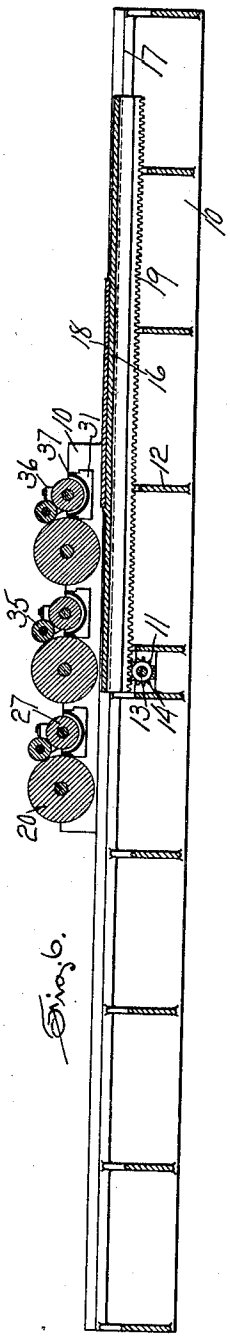


Fig. 6.

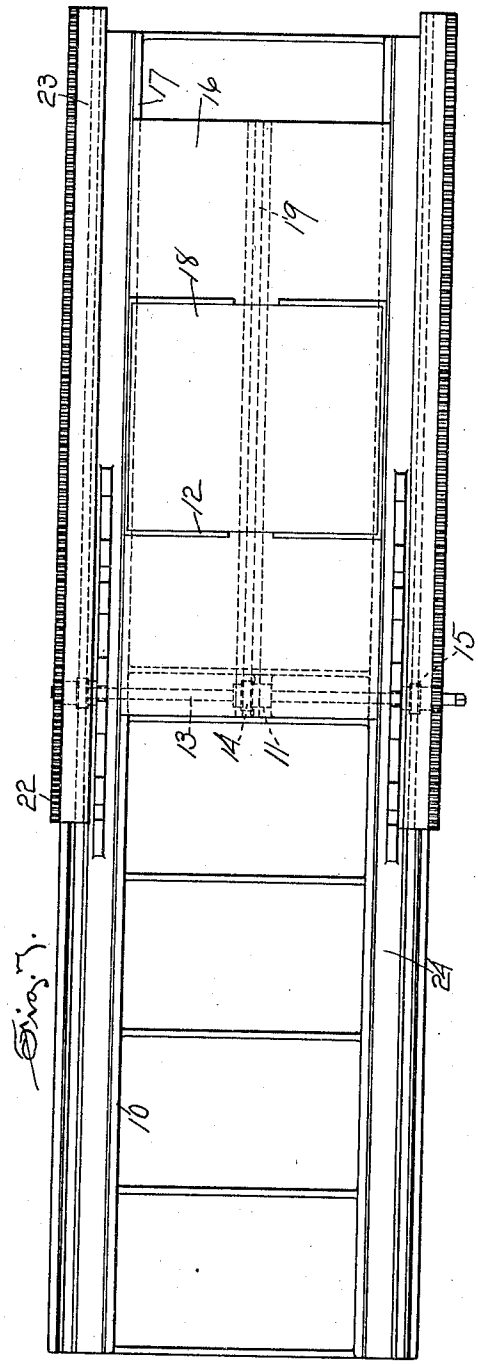


Fig. 7.

INVENTOR
Carl B. Richardson,
by
Arthur B. Jenkins,
ATTORNEY

Patented Oct. 18, 1938 2,133,401

UNITED STATES PATENT OFFICE

2,133,401

WALLPAPER SAMPLE PRINTING MACHINE

Carl B. Richardson, West Hartford, Conn.

Application March 21, 1936, Serial No. 70,030

6 Claims. (Cl. 101—171)

My invention relates to a machine for producing samples of printing in colors, more particularly of wall paper, and an object of my invention, among others, is the production of a machine of this type that shall be simple in construction and operation and extremely efficient in the results produced from its use.

One form of a machine embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained is illustrated in the accompanying drawings in which

Figure 1 is a view in side elevation of a portion of my improved printing machine.

Figure 2 is a view in section on a plane denoted by the dotted lines 2—2 of Fig. 1.

Figure 3 is a top plan view illustrating a portion of the machine with some parts omitted and with parts broken out in central lengthwise section.

Figure 4 is a detail view in section on a plane denoted by the dotted lines 4—4 of Fig. 3.

Figure 5 is a view in side elevation of my improved machine.

Figure 6 is a view in vertical longitudinal section through the same.

Figure 7 is a top plan view.

Figure 8 is a detail view in section through a portion of the machine illustrating a modification.

Figure 9 is a side view of a portion of said machine, Figs. 8 and 9 being on reduced scale.

In the printing of paper in colors, particularly in the printing of wall paper, it is common practice, in the operation of obtaining proofs of the printing, to make use of the regular printing machine which comprises a large cylinder rotatably mounted with printing units distributed at intervals about the periphery of the cylinder, said units comprising printing rolls and inking apparatus for applying ink to said rolls, comparatively short lengths of paper being run through the machine to receive the impressions from the printing rolls.

This operation entails much time and labor as many impressions are often required before the machine will operate to produce a satisfactory print. During this period the printing press or machine is taken from production and the expense of taking the proofs is therefore considerable not only from the time consumed in keeping the press from production but also in the labor which is also kept from production.

After a correct proof has been obtained this constitutes a manufacturing sample for use in subsequent production of the wall paper in accordance with said sample. It is my purpose to materially reduce this expense of taking the proofs and of obtaining a manufacturing sample by the use of a comparatively inexpensive apparatus which may be used solely for this purpose.

As hereinbefore explained a regular printing machine comprising a large cylinder with sets of printing rolls together with inking apparatus therefor distributed at intervals about the periphery of the cylinder, each roll applying a certain color to a figure or figures or portions of figures, such colors varying in number, as an example, from two or three to twelve or fourteen colors being employed.

In carrying out my invention I, in effect, develop this cylinder, together with the various sets of rolls and inking apparatus therefor, in a flat plane, the platen of my improved device which corresponds to that portion of the cylinder when thus developed and comprising its periphery, being arranged underneath and the several sets of rolls and inking apparatus when thus developed or flattened out therefor being located above the platen. To more clearly disclose this idea reference is made to the accompanying drawings in which the numeral 10 denotes the sides of the bed frame of my improved machine which are extended upwardly at their lengthwise centers to support printing units to be hereinafter described and which may be joined by webs 12 of suitable construction arranged in any desired manner to strengthen the frame. A driving shaft 13 is mounted in bearings arranged in any suitable manner as on a block 11 and on the sides 10 of the bed frame, this shaft extending crosswise of the machine and having pinions 14—15 meshing with teeth on racks to be hereinafter described. The shaft may be driven from any suitable source of power.

A slide 16 is mounted for reciprocating movement in slideways 17 formed on the sides 10, this slide carrying a plate 18 that constitutes a platen. The teeth of the pinion 14 are in mesh with the teeth on a slide rack 19 secured to the under side of the slide 16, and as shown in Figs. 2 and 6 of the drawings, the shaft 13 being capable of rotation in opposite directions to impart reciprocating movement to the slide.

Printing rollers 20 are journaled in the upper edges of the extensions of the sides 10 of the frame, the shafts of these rollers being positioned in notches in said upper edges and having gears 21 secured to their outer ends, said gears meshing with racks 22 carried by rack slides 23

mounted for reciprocating movement in slideways in ledges 24 extending lengthwise along the sides of the frame. The gears 21 are preferably secured to opposite ends of the shafts of the rollers 20, the slides 23 with their operating mechanisms also being located on opposite sides of the machine.

There will be as many printing rollers as there are colors to be applied to the paper in the printing operation. As shown herein, in order to simplify the matter, three printing rollers only are shown it being assumed that three colors will be applied to the paper, but it will be understood that the machine will be capable of embodying as many printing rollers as may be desired, as many as twelve or fourteen being employed in some cases.

The printing rollers are so arranged that they may be removed from this sample printing machine and transferred to the regular printing machine for printing paper in rolls of indefinite lengths. The printing rollers are so arranged that when their journals are seated adjustably within the notches in the sides 10 of the frame there will be a slight space between the peripheries of the rolls and the platen or plate 18 sufficient to receive a pad of cardboard or other similar material having thereon the paper to be printed. When such paper has passed beneath the printing rollers it together with the pad will be removed and as the slide 16 is reversed in its movement the surfaces of the printing rolls will be freed therefrom. Holders 25 are employed for retaining the rollers in place, as shown in Figures 1 and 3 of the drawings, these holders being at the ends of holder arms 26 pivotally supported on the projecting ends of the shafts of the inking rolls 27 journaled in blocks 31 seated in notches in the upper edges of the sides 10 of the frame. Adjusting screws 28 project through lips 29 at the ends of said arms, said adjusting screws being engaged with seats 30 projecting from said blocks 31.

In the printing of different figures rolls of different sizes are sometimes employed and I therefore provide means in such cases for positioning the rolls so that their lower surfaces may be properly spaced from the platen. For this purpose roll rests 32 are pivotally attached to the sides of the frame, the upper edges of these rests being in position to receive the shafts of the printing rolls, as shown in Fig. 1. Slots 33 are formed in the rests through which project binding screws to hold the rests in place. Brackets 34 pivotally mounted on the shafts of the inking rolls 27 supported by the blocks 31 receive the shafts of ink applying rolls 35 which are journaled in said brackets, said ink applying rolls being in contact with both the inking rolls 27 and the printing rolls 20. Doctors 36 are secured at their opposite ends to the brackets 34 the edges of said doctors contacting with the peripheries of the applying rolls 35 for the purpose of removing surplus ink therefrom. The inking rolls 27 are located as to their lower portions in ink containing troughs 37 supported at their opposite ends by the blocks 31, each pair of said blocks on opposite sides of the frame, together with the inking troughs, inking rolls and doctors supported thereby constituting fixtures or units which are removably placed in the side parts of the frame.

In order that the printing rolls may be readily adjusted to place the figures thereon in proper positions with respect to the platen, the journals 38 of said rolls are loosely engaged with the gears 21 and have round plates secured thereto, the latter having slots 39 to receive screws which project through the slots into the gears thereby enabling the position of the peripheries of the rolls to be changed as may be desired relatively to the gears 21.

In that form of the machine illustrated in Figs. 8 and 9 the printing units are substantially the same as hereinbefore described, being mounted on the top of the side parts 10 of the frame. The printing rolls 20, however, are driven by means of a worm shaft 40 mounted on the side parts of the frame and having worms in mesh with worm gears 41 secured to the printing rolls. The shaft 40 is driven by means of any suitable connection with a pinion 42 secured thereto.

As a means for subjecting the paper to the action of the printing rolls an endless belt 43 is passed around belt supporting rolls 44 located at each end of the belt with intermediate supporting rolls 45 located under each of the printing rolls. The operation of passing the paper to be printed to the printing rolls will be readily understood from the description hereinbefore set out.

I claim:

1. A wall paper sample printing machine comprising a frame, a platen supported by said frame, printing units supported by said frame, said units each including a printing roll of a structure for transfer to a cylinder printing machine and having journals insertable in the bearings of said cylinder printing machine; said printing rolls being removably mounted in the sides of said frame and an inking unit comprising blocks mounted in the side parts of said frame, inking rolls mounted in said blocks, and means for imparting relative movement as between said printing units and platen.

2. A wall paper sample printing machine comprising a frame, a platen supported by said frame, printing units supported by the side parts of said frame and including a printing roll of a structure for transfer to a cylinder printing machine and having journals insertable in the bearings of said printing machine, said roll being supported in notches open at the top in said side parts for free removal of said roll, means for adjusting the vertical position of said printing roll, means for removably retaining said printing roll in said notches, said printing units also including an inking unit including blocks removably mounted in open mouth notches in the side parts of said frame, inking rolls mounted in said blocks, and means for imparting relative movement as between said platen and printing roll.

3. A wall paper sample printing machine including a frame, a platen and a slide mounted for sliding movements in said frame, a shaft, separate means operatively connecting the shaft to the platen and slide, a printing unit comprising a roll of a structure for transfer to a cylinder printing machine and having journals insertable in the bearings of said cylinder printing machine, a printing roll rotatably mounted in the side parts of said frame and having a shaft, a rack secured to said slide, a gear secured to the shaft of said printing roll and engaged with said rack, and means for inking said printing roll.

4. A wall paper sample printing machine including a frame, a platen and a slide mounted for sliding movements in said frame, a drive shaft, separate means operatively connecting the drive shaft to the platen and slide, a printing

unit comprising a roll of a structure for transfer to a cylinder printing machine and having journals insertable in the bearings of said cylinder printing machine, a rack carried by said slide, a printing roll mounted in the side parts of said frame and having a shaft, a gear on the shaft of said printing roll engaged with said slide, and means for inking said printing roll.

5. A wall paper sample printing machine including a frame, a platen slidably supported by said frame, a ledge projecting from the side of said frame, a slide supported on said ledge, a printing unit comprising a roll of a structure for transfer to a cylinder printing machine and having journals insertable in the bearings of said cylinder printing machine, a shaft, separate means operatively connecting the shaft to the platen and slide, a rack on said slide, a printing roll supported in the side parts of said frame and having a shaft, a gear secured to the shaft of said printing roll and engaged with said rack, and means for inking said printing roll.

6. A wall paper sample printing machine including a frame, a platen slidably mounted on the frame, a slide supported on said frame and having a rack, a printing roll supported by said frame, a gear on the shaft of said printing roll engaged with said rack, means for adjusting the gear relatively to said printing roll, means for inking said printing roll, and means for imparting sliding movement to said platen and to said slide.

CARL B. RICHARDSON.