

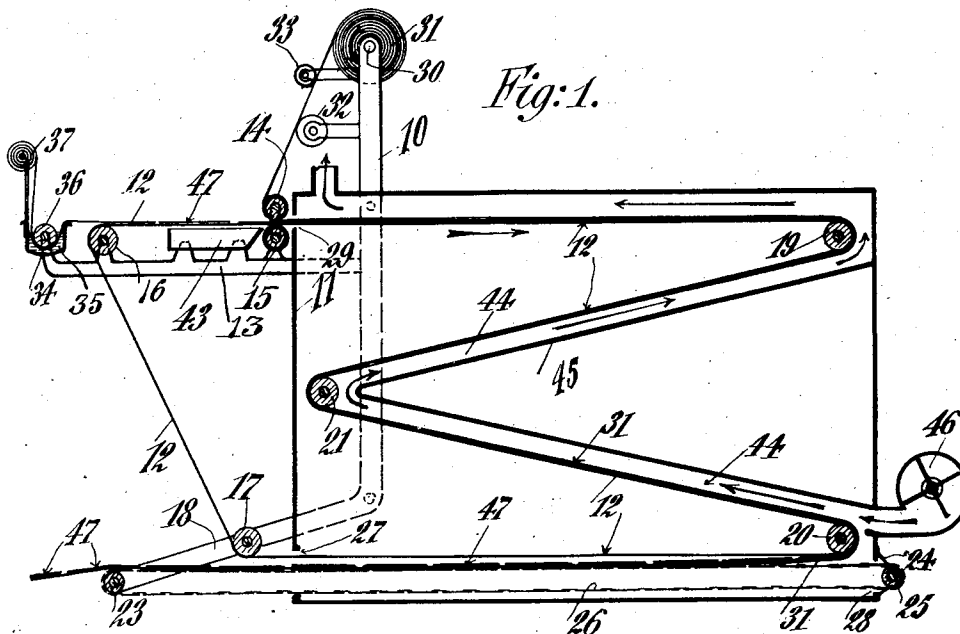
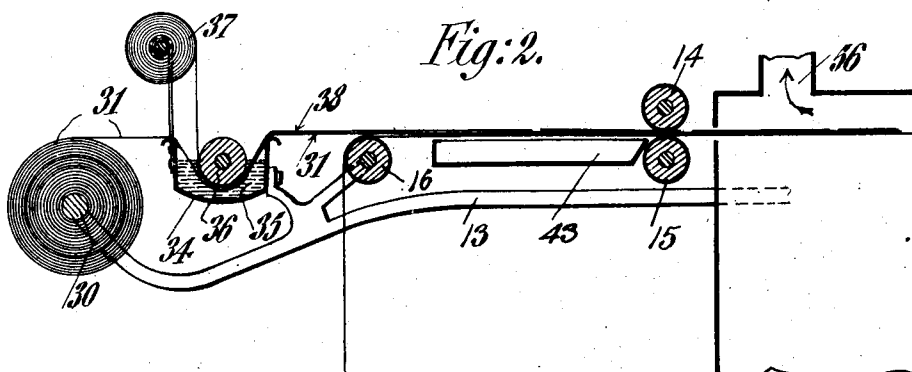
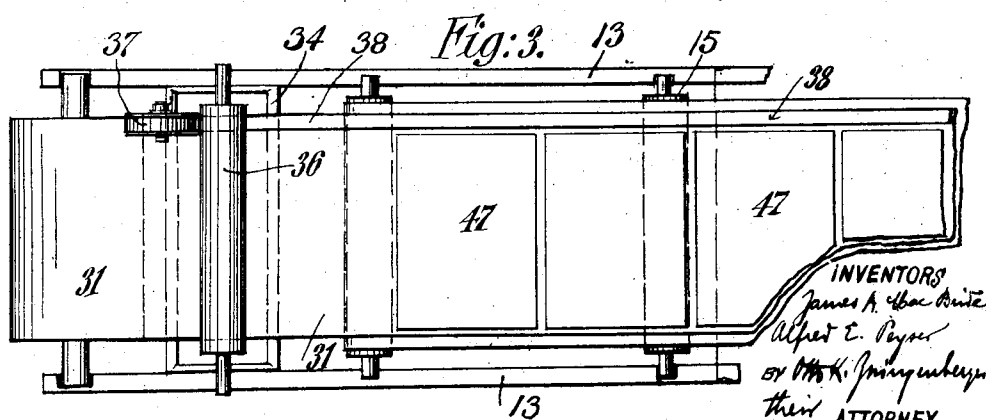
Aug. 23, 1927.

J. A. MacBRIDE ET AL

1,640,131

MACHINE FOR SQUEEGEEING, MOUNTING AND DRYING PHOTOGRAPHIC PRINTS

Original Filed July 3, 1924 2 Sheets-Sheet 1



Aug. 23, 1927.

J. A. MacBRIDE ET AL

1,640,131

MACHINE FOR SQUEEGEEING, MOUNTING AND DRYING PHOTOGRAPHIC PRINTS

Original Filed July 3, 1924 2 Sheets-Sheet 2

Fig. 4.

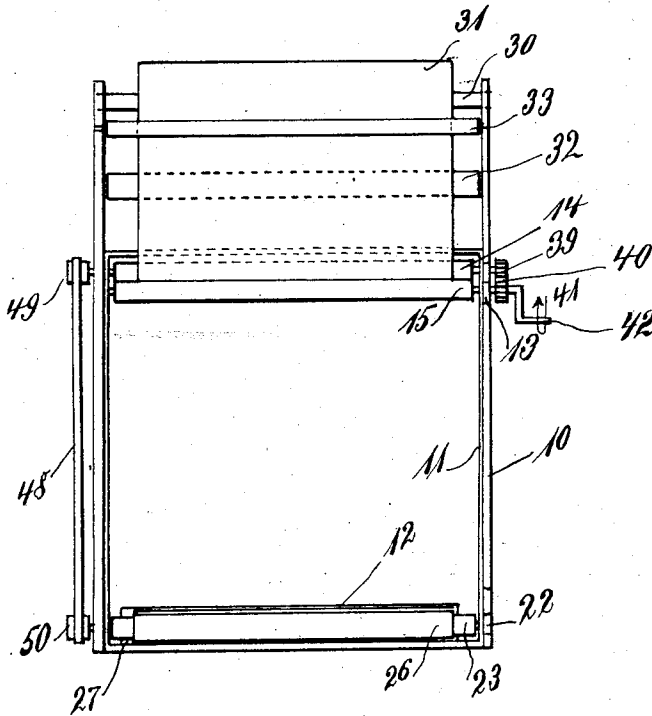
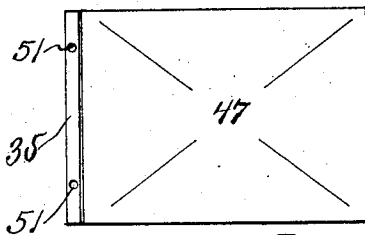


Fig. 5.



Fig. 6.

James A. MacBride
Alfred E. Byers INVENTORS

BY

Otto K. Grunberger ATTORNEY.

Patented Aug. 23, 1927.

1,640,131

UNITED STATES PATENT OFFICE.

JAMES A. MacBRIDE, OF KEARNY, AND ALFRED E. PEYSER, OF PERTH AMBOY, NEW JERSEY.

MACHINE FOR SQUEEGEEING, MOUNTING, AND DRYING PHOTOGRAPHIC PRINTS.

Application filed July 3, 1924, Serial No. 724,167. Renewed January 21, 1927.

This invention relates to an apparatus by which photographic prints, or other paper, may be given either a glossy, polished surface, or a matt or grained surface, and furthermore may be mounted and dried at the same time.

The chief object of the invention is to provide an apparatus by which the cumbersome operations of squeegeeing the photographic print, mounting and drying it step by step are reduced to one single operation of the apparatus, thereby simplifying the processes, dispensing with a number of attendants hitherto required to do this work, and saving considerable quantities of material and very much valuable time.

The details of an apparatus by which these objects are attained are described, by way of example, in the following specification, reference being had to the accompanying drawing, in which:

Fig. 1 is a longitudinal section of an apparatus embodying the principles of the invention; parts of the apparatus are omitted so as to show merely the print feeding and liquid expressing devices together with the drying arrangement.

Fig. 2 is a longitudinal section of a modified type of an apparatus embodying our invention; parts of the walls of the drying chamber being broken away so as to show especially how the feeding and liquid expressing devices are arranged.

Fig. 3 is a top view of the apparatus illustrated by Fig. 2, showing the print feeding device together with the liquid expressing device.

Fig. 4 is a side elevation on the line 4—4 of Fig. 1, omitting the water basin, so as to show how the feeding device is arranged.

Figs. 5 and 6 show a top view and a longitudinal sectional view, respectively, of a mounted print with a hinge, as finished by the apparatus.

The same reference characters indicate the same parts in all the figures.

In the drawing 10 denotes the outside frame of the apparatus and 11 denotes a drying chamber, made of wood, sheet metal or any suitable material, for receiving, and conducting an air current over the mounted prints. An upper system of parallel rollers is arranged inside and outside of the drying chambers to carry an endless belt or main conveyor 12.

An arm 13 stretches out from frame 10

and holds a pair of squeezing rolls 14 and 15 so that they are disposed outside of the chamber 11 parallel to its upper left edge, while guide roll 16 is arranged near the end of said arm 13. Below said guide roll 16 another guide roll 17 is arranged upon an arm 18. Inside the drying chamber 11 in the upper right corner there is a guide roll 19 disposed in a journal located in the front side wall of the said chamber, and in the lower right corner there is another guide roll 20 similarly arranged, while a guide roll 21 is arranged in like manner in about the middle of the height of the chamber 11 near its left side wall.

Arm 18 holds at its end a guide roll 23 and a bracket 24 holds a guide roll 25; both rolls contrary to the upper system of guide rolls are all located outside the chamber 11, but an auxiliary endless belt 26, stretched over the same, passes through the chamber 11 through suitable apertures 27 and 29 respectively in the next adjoining left and right side walls. Any of the aforesaid guide rolls inside the chamber has a length only slightly less than the inner width of the chamber and fits in easily, without, however, allowing any lateral play; they are rotatably secured in the rear wall of the chamber 11 in exactly the same way as described above in regard to the front wall, but as it is apparent to every one that the arrangement of the parts is the same on that rear wall, any further reference to the same is omitted. All the guide rolls in and outside the chamber may be of wood, rubber, or any other suitable material, but as the conveyor 12 is formed of a long sheet of celluloid, cellulose-acetate compound, hardened casein compounds or any other sheet of flexible, though hard and tough material which according to the requirements of the business either has, or is capable of receiving either a high polish, i. e. a glossy surface, or a dull matt surface resembling that of ground or frosted glass or other grained surface, we prefer to make all guide rolls, especially the squeezing rolls, of rubber. Care is taken to have all guide rolls perfectly round and properly journaled to be absolutely in a level position so that the conveyor 12, which is of slightly less width than the inside width of the chamber 11 and through which it passes by suitable slotlike apertures 29 in the left side wall, always runs straight

ahead and will not be inclined to rub with either of its rims on the inside walls of the chamber 11.

At the upper end of frame a roller 30, is arranged which holds a roll of backing material 31, such as adhesive cloth, or paper, or any other suitable material. In the case of adhesive cloth, this is passed with its adhesive side towards the conveyor 12, to between the squeezing rollers 14 and 15; furthermore a wet roller 32 is arranged on the un-adhesive side of the cloth in contact with the same so as to impart some moisture onto the cloth for the purpose of causing it to expand. In case the backing material 31 consists only of plain paper then the adhesive material, for instance paste, glue or the like, is put into the same by means of a paste roller 33 before it passes between the rollers 14 and 15. A basin 34, filled with water 35 and having a cross-bar or roller 36, is secured to arm 13 so as to be in front of guide roller 16; at the upper end of the outside wall of this basin 34 a roll of tape 37 is rotatably arranged in a recess of said wall and the loose end 38 of same is passed through the water under the cross-bar 36 onto the conveyor 12 so that the now thoroughly wetted end 38 is taken along by the conveyor. Driving gears 39 and 40 are secured to the squeezing rolls 14 and 15, respectively and motion is imparted to the roll 15 in the direction of arrow 41 by means of a handle 42, which, in case mechanical power is desired for operation, may be substituted by any other contrivance to bring such mechanical power into effect.

Gutters 43 are arranged parallel to the rim on both sides of conveyor 12 between guide roll 16 and the squeezing rolls 14 and 15 to receive the drops of water squeezed out by these rolls from the paper and which are flowing off the conveyor 12 at its sides. By any of the well known devices for such purposes air is either sucked in or blown through the passageways 44 formed by the conveyor 12 and the V-shaped partition 45 interposed between the former and the right side wall and further up by the ceiling of the drying chamber. For instance air is introduced by a blower 46 and, if desired, the air blown in may be preheated by a source of heat (not shown) to only such a degree, however, as will be compatible with the sensitive nature of the prints.

The operation of our apparatus, can be performed by any unskilled helper. The apparatus being provided with a roll of adhesive cloth 31 and of tape 37, and water being supplied to the wet roll 32 and to the basin 34, the wet end 38 of tape 37 is put unto conveyor 12 parallel to its rim, and close to the squeezing rollers, the strip of the adhesive cloth 31 is passed over the wet roll 32 and is put, with its adhesive side down-

wardly, between the squeezing rollers, 14 and 15, whereupon a wet print 47 is put, the face downwardly, unto the conveyor 12 parallel to the tape 38 with a narrow interstice between them; the narrow strip of cloth thus left uncovered forms the "hinge" which facilitates together with the strip of tape, having several holes 51 punched through the same and the backing material below, the binding of a considerable number of prints into one volume and during the inspection of the volume the prints can be turned without being creased at the side where they are joined. Then we turn the handle 42 in the direction of arrow 41 so that the print 47 and the strong, gummed paper tape 38 are passing with the conveyor 12 between the squeezing rolls 14 and 15 into the chamber 11 and as the wet adhesive cloth 31 passes also between these rollers the said cloth is of course pressed onto the print 47 and the tape 38, with the result that they all stick to the conveyor and on their travel through the passageway 44 they are entirely dried out by the air, conducted through said passageway, and a perfectly mounted print, with a glossy surface, and a hinge, as illustrated by Fig. 5, is delivered automatically by the endless belt 26, which is driven by a belt 48 connecting the pulleys 49 and 50 secured to rolls 15 and 23, respectively.

As one wet print can be fed after the other onto the conveyor 12 it stands to reason that the output can be enormously increased.

The chain of mounted pictures having a continuous strip of tape running in a small distance from and parallel to one of the sides of the pictures is severed into single pictures by cutting them off with a pair of scissors or other similar devices.

Fig. 2 illustrates a modified form of our apparatus which may advantageously be used for making matt prints. This modification consists chiefly in a somewhat different arrangement of the manner in which the adhesive cloth is passed to the squeezing rolls. The squeezing rolls 14 and 15 are rotatably mounted in the frame 10 and the roll 30 with the roll of adhesive cloth 31 is arranged at the end of the arm 13; the basin 34 with water 35 and the roller 36 rotatably arranged therein, is interposed between the roll 30 and the guide roll 16. The cloth 31, with its adhesive side upwardly, and the tape 37 on top of the cloth are passed through the water below roll 36 onto the conveyor 12 in such manner that the tape 37 with its free end 38 always lays itself along the outer edge of the cloth 31 and the print 47, with its face up, is arranged on the cloth parallel to the tape 38 with only a narrow interstice between.

The moistened cloth comes thus in close contact with the conveyor 12 without any wrinkles or the like uneven spots whatever,

This modification makes also a mounted print with a hinge, but it gives a matt finish to the face of the print.

The line of holes 56 are the exit for the drying air introduced by blower 46.

Having thus described the general principle of our new machine, we wish to state that it is fully understood that various changes could be made without, however, departing from the spirit or sacrificing the advantages of the invention; such changes could be made by causing the conveyor 12 to run in an opposite direction which would necessitate a rearrangement of the feeding and squeezing devices, but ultimately such rearrangement would have to be based upon the constructive principle outlined above; nor could any change of materials bring about any new effect for the materials we employ in this construction, are, as far as the artistic effect is concerned, not new in the art; though they are new as elements in our apparatus by which we perform three different steps automatically in one operation with the benefit of gaining much valuable time, saving considerable material and obtaining an enormous increase in the output of prints.

What we claim is:

1. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber, a system of guide rolls operatively arranged with relation to said drying chamber, an endless belt conveyor to receive the wet print, said conveyor engaging aforesaid guide rolls, and being of hard tough material capable of receiving the special finish desired to be impressed upon the face of the print, a pair of squeezing rolls in cooperative relation with each other by means of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless belt conveyor, a space for applying the wet print to the endless belt conveyor, means to pass a strip of moist adhesive backing material unto the conveyor, and means for passing air through the drying chamber.

2. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber adapted for the passage of endless belt conveyors through its inside space, a system of guide rolls cooperatively arranged with relation to said drying chamber, an endless belt conveyor to receive the wet print, said conveyor engaging aforesaid guide rolls for its travel within and outside of the drying chamber and being of hard tough material capable of receiving the special finish desired to be impressed upon the face of the print, a pair of squeezing rolls in cooperative relation with each other by means of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless

belt conveyor, means to pass a strip of moist adhesive backing material unto the surface of the conveyor, and of means for passing air through the drying chamber.

3. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber adapted for the passage of endless belt conveyors through its inside space, an upper system of guide rolls co-operatively arranged with relation to said drying chamber, an endless belt conveyor to receive the wet print, said conveyor engaging aforesaid guide rolls for its travel within and outside of the drying chamber and being of hard tough material capable of receiving the special finish desired to be impressed upon the face of the print, a pair of squeezing rolls in co-operative relation with each other by means of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless belt conveyor, means to pass a strip of moist adhesive backing material unto the upper side of the conveyor, and means for passing air through the drying chamber.

4. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber, a system of guide rolls operatively arranged with relation to said drying chamber, an endless belt conveyor to receive the wet print, said conveyor engaging aforesaid guide rolls, and being of hard tough material capable of receiving the special finish desired to be impressed upon the face of the print, a pair of squeezing rolls in co-operative relation with each other by means of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless conveyor, a space for applying the wet print to the endless belt conveyor, means to pass a strip of moist adhesive backing material onto the upper side of the conveyor, a water basin adapted to discharge a strip of wet tape from a roll, held by the basin, unto the upper side of the endless belt conveyor, and of means for passing air through the drying chamber.

5. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber, a system of guide rolls operatively arranged with relation to said drying chamber, an endless belt conveyor to receive the wet print, said conveyor engaging aforesaid guide rolls, and being of hard tough material capable of receiving the special finish desired to be impressed upon the face of the print, a pair of squeezing rolls in co-operative relation with each other by means of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless belt conveyor, a space for applying the wet print to the endless belt conveyor, means

to pass a continuous strip of moist adhesive backing material unto the conveyor, and means for passing air through the drying chamber.

5 6. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber, a system of guide rolls operatively arranged with relation to said drying chamber, an endless
10 belt conveyor to receive the wet print, said conveyor engaging aforesaid guide rolls and being of hard tough material capable of receiving the special finish desired to be impressed upon the face of the print, a pair of
15 squeezing rolls in co-operative relation with each other by means of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless belt conveyor, a space for applying the wet print
20 to the endless belt conveyor, means to pass a continuous strip of moist adhesive backing material unto the upper side of the conveyor, a water basin adapted to discharge a continuous strip of wet tape from a roll,

held by the said basin, unto the upper side 25 of the endless belt conveyor, and of means for passing air through the drying chamber.

7. In a machine for squeegeeing, mounting and drying photographic prints, the combination of a drying chamber, a system 30 of guide rolls operatively arranged with relation to said drying chamber, an endless belt conveyor, made of celluloid, to receive the wet print, and engaging the aforesaid guide rolls, a pair of squeezing rolls in co-operative relation with each other by means 35 of the endless belt conveyor, means to impart motion to the squeezing rolls thereby starting the endless belt conveyor, a space for applying the wet print to aforesaid conveyor, means to pass a strip of adhesive 40 backing material unto the conveyor, means for passing air through the drying chamber, and means for delivering the ready print.

In witness whereof, we have hereunto set 45 our hand this 11th day of June, 1924.

JAMES A. MACBRIDE.
ALFRED E. PEYSER.