J. F. LINGEMANN.

MOUNTING MACHINE.

APPLICATION FILED JAN. 12, 1916.

1,233,889.

Patented July 17, 1917.

2 SHEETS—SHEET 1.

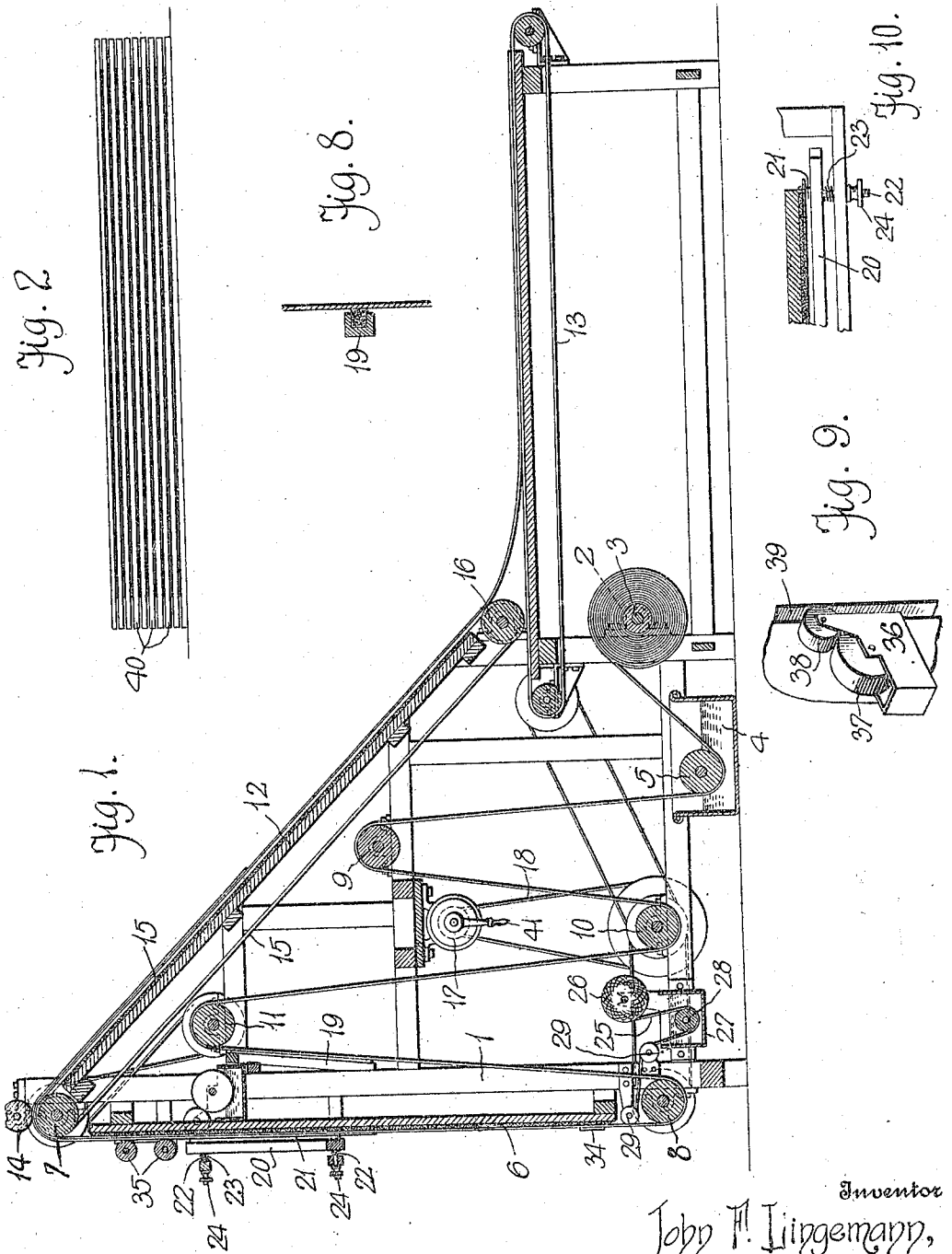


Fig. 1.

Fig. 2.

Fig. 8.

Fig. 9.

Fig. 10.

Witness

Chas. W. Stauffiger

Anna M. Dorr

Inventor

John F. Lingemann,

By Barthel & Barthel

Attorneys

J. F. LINGEMANN.

MOUNTING MACHINE.

APPLICATION FILED JAN. 12, 1916.

1,233,889.

Patented July 17, 1917.

2 SHEETS—SHEET 2.

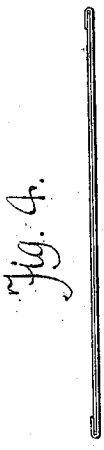


Fig. 4.

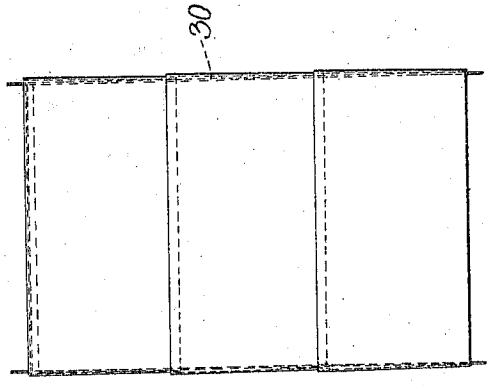


Fig. 3.

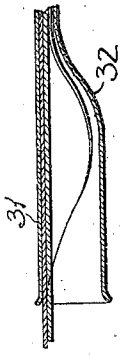


Fig. 6.

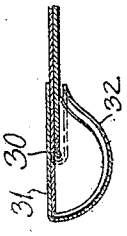


Fig. 5.

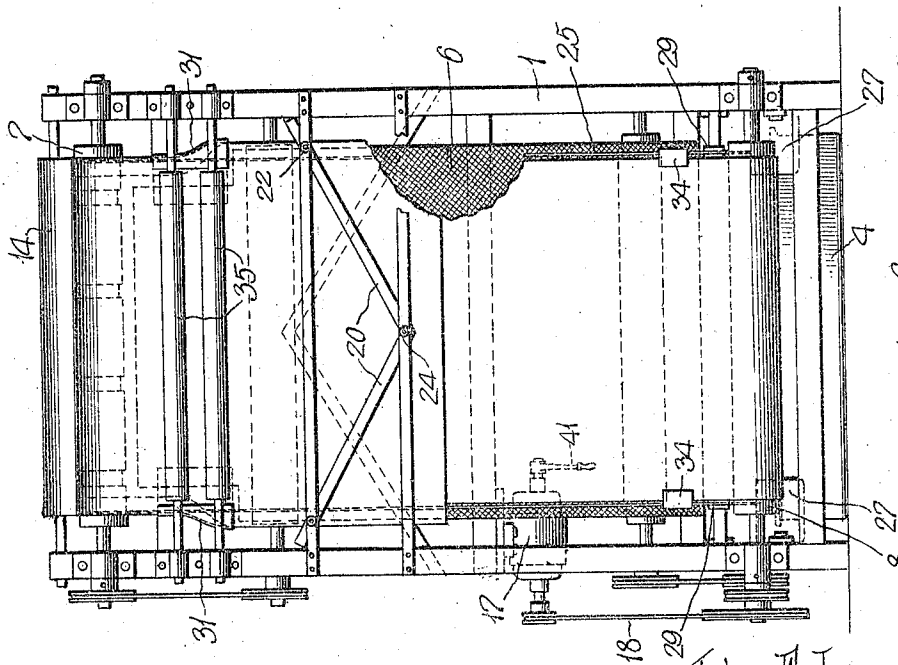


Fig. 2.

Witness

Chas. W. Stauffer

Anna M. Dorr

Inventor

John F. Lingemann,

By Banker & Banker

Attorneys

UNITED STATES PATENT OFFICE.

JOHN F. LINGEMANN, OF DETROIT, MICHIGAN.

MOUNTING-MACHINE.

1,233,889. Specification of Letters Patent. Patented July 17, 1917.

Application filed January 12, 1916. Serial No. 71,629.

To all whom it may concern:

Be it known that I, JOHN F. LINGEMANN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Mounting-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

In mounting lithographs, posters or like large display sheets, it has been customary hitherto to apply the sheets to the backing material, cloth, paper or the like by the ordinary method of brushing and pasting, usually on a flat surface. Where paper is used to back the lithograph, this involves considerable difficulty because it is not easy to handle large sized sheets on a horizontal surface and on a vertical surface any attempt to shift the back or the lithograph or both together, is difficult owing to the suction of the wet fabric on the supporting surface. It is furthermore necessary, in order to provide a smooth mount, that the backing material used should be moistened and allowed to swell so that when the applied pasted lithograph unites firmly with the backing, and the paste dries out, the backing and the sheet shrink evenly and thereby avoid wrinkling.

This invention relates to a system for mounting lithographs, posters or the like, whereby the operation may be carried on continuously, whereby the backing of paper is moistened sufficiently and allowed to swell properly before the pasted lithograph is applied and whereby the margins of the finished product are reinforced, together with other features that obtain perfectly smooth and suitable mounts.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings,

Figure 1 is a view in side elevation of mechanism for mounting photo-lithographs according to the method herein described, and forming itself a part of the invention;

Fig. 2 is a view in front elevation thereof;

Figs. 3 and 4 are views in detail of a finished mount;

Figs. 5 and 6 are views in detail of a marginal folder;

Fig. 7 is a view in detail of a drying stack;

Fig. 8 is a view in detail of a spreader;

Fig. 9 is a view in detail of margin pasting rolls; and

Fig. 10 is a view in detail of a mounting strip and support.

As herein indicated, a main frame 1 of suitable material and design to combine strength and rigidity with lightness has bearings 2 for a spindle 3 of a stock roll of paper or like fabric that is intended for backing lithographs or the like, the bearings being arranged adjacent a moistening tank 4 with a guide roll 5 therein around which the paper is drawn as indicated through the contents of the tank. At the front of the frame there is an upright perforated or foraminous screen 6 with guide rolls 7 and 8 at the top and bottom, to the latter of which the paper is led over a series of rolls 9, 10 and 11 so disposed in the frame of the machine that by the time the paper has reached the screen, it has become fully expanded by the action of the water through which it is drawn. The arrangement of this train of rolls is of course immaterial provided the paper is given time to take up the water and become thoroughly expanded when it reaches the screen. An inclined bed 12, likewise of perforated material or screen, leads from the upper roll 7 to a horizontal traveling track or endless belt carrier 13 or even a flat table whereby the paper with the applied mount is moved along readily for being cut. Preferably, an idler 14 rests on the upper roller, the bearings permitting vertical movement, so that the weight of the idler assists in drawing the paper over the roller 7.

To aid the movement of the wetted paper, to which lithographs are pasted as the strip of backing travels up the screen, there may be endless carrier belts 15 passing over the upper roll 7 and a similar idler 16 at the lower end of the incline, the upper roll 7 being peripherally channeled to receive the belts and present a flush face for the paper.

The train of rolls over which the paper passes, and the cylinders 7 and 8, are either operated by hand, or preferably as herein indicated, by a suitable motor 17 with such driving gear between the parts as give them the speed to carry the paper along. This mechanism which is indicated diagrammatically herein at 18 may, of course, take any preferred form.

As the paper passes over the last roll in the intermediate train between the feed cyl-

inder or paper roll and the roll 8, it encounters a spreader 19 which consists preferably of divergent arms faced with felt or other like material whereby the paper is expanded or freed from longitudinal wrinkles and made to run on to the roll 8 in a smooth and laterally expanded condition. As the paper passes up over the screen 6, the perforations of which admit air behind the wet layer, so that he paper does not cleave to the screen but slides freely thereover, the parts of the lithographs may be pasted thereto manually, one after the other.

Preferably, however, there is a mounting member in the form of a V-shaped presser bar 20 with felt or like lining 21 on the face toward the screen (see detail Fig. 10) the bar being carried by studs 22 passing through convenient parts of the main frame, and having yielding springs 23 and tension thumb-nuts 24, at necessary points. By pasting a lithograph section along the upper margin to the upwardly traveling backing strip below this mounter, the section is drawn under the mounter which works it out from the middle to the margins and causes it to adhere, the superfluous paste being pressed out beyond the margins, and the mounter operating more effectively than a brush used in the ordinary manner.

The width of the roll of backing paper is slightly less than that of the lithograph, so that the pasted edges of the latter extend beyond the margins of the back. While in this extended position, a cord 25 or like flexible binder from a ball 26 placed at a convenient point on the frame, is led through a pasting trough 27 under a feeding wheel 28 and over guides 29 whereby the person operating the device may lay the cord against the pasted overlying margins of the lithograph adjacent the margins of the backing strip as indicated at 30 in the detail Fig. 3. There may be one or two of these binder balls with the pasting troughs and guides for binding either one or both margins.

As the paper back and applied lithographs pass slowly up the screen, the extended margins each encounter a folding device at 31, the details of which are indicated in Figs. 5 and 6. Preferably the folder consists of appropriately curved parts 32 of perforated material to prevent adhesion so designed that they guide the extended margins, as seen at the upper portion of Fig. 2, around, under and against the back of the paper, infolding the applied cord as it does so. To hold the paper in line, lower guides 34 may be used, if desired, together with presser rolls 35 across the screen adjacent the folders 31.

As a further detail of good construction and as a means for securing smooth folding around the margins of the backing strip, auxiliary pasting troughs 36 have feed wheels 37 and 38, the upper ones traveling against and applying a fresh supply of paste to the back surface 39 of the projecting margins of the lithograph, whereby the smooth sliding of the paper through the folders and good adhering of the margins to the back and around the reinforcing cord, are insured.

After the applied lithographs are passed out on the carrier 13 and have been severed, or the backing strip has been severed between them, either manually or by a suitable cutter mechanism, they are stacked between and alternately with hard presser boards 40 of such material that they dry slowly under pressure, a sufficient number of drying boards being employed in carrying out the process, to always provide dry ones for each stack.

It is understood that various details of construction such as a starting and stopping clutch indicated at 41 and other controlling devices are used if the machine is power driven.

One prominent feature of the machine by which the method is carried out is the foraminous or perforated screen over which the moist back is made to travel slowly upward while the operator applies the previously pasted lithograph sections in register as they move up in front of him. Without such perforations, the band of paper would cleave to the upright surface and tear apart or else refuse to move at all owing to the vacuum which would be formed behind it, and the consequent atmospheric pressure on the outer side. Another feature is the reinforced margin obtained by the folder and the applied cord or twine, which is made feasible only by the previous pasting or soaking in paste of the twine before it is laid on the moist and pasted portions of the lithograph.

Another distinct advantage is the readiness with which the operator applies the lithograph sections to the upwardly traveling backing strip which is directly in front of the user and in such position that the upper margins of the sections are quickly placed on the strip at the height most advantageous to the manipulator.

The method which is thus carried out, consists first in moistening a moving strip of backing material and in drawing it over a suitable screen as it becomes fully expanded, in applying pasted lithographs or the like to the face thereof as it passes along the screen, in thereafter infolding the margins of the applied sheets around the backing strip, and in cutting off and stacking the mounts to cure under pressure between absorbent boards.

Thus, by this method, lithographs or posters of large size made up of any number of sections are rapidly and accurately mounted

tank, a train of rolls for guiding a strip of backing material through the contents of the tank and on to the screen, an inclined perforated guideway for receiving the strip as it leaves the screen, a substantially horizontal bed for taking strips from the guideway, means for laterally stretching the strip after it leaves the trough and before it reaches the screen, a mounter across the face of the screen for applying pasted mounts on to the strip as it passes thereunder, and means for applying reinforcements to and for folding the pasted margins of the mount and strip as they travel along the screen.

12. In a mounting machine, a main frame, a perforated screen thereon, a moistening tank, a train of rolls for guiding a strip of backing material through the contents of the tank and on to the screen, an inclined perforated guideway for receiving the strip as it leaves the screen, a substantially horizontal bed for taking strips from the guideway, means for laterally stretching the strip after it leaves the trough and before it reaches the screen, a mounter across the face of the screen for applying pasted mounts on to the strip as it passes thereunder, means for applying reinforcements to and for folding the pasted margins of the mount and strip as they travel along the screen, and stacking boards between which the severed portions of the strip are received as they leave the carrier and are retained while being cured.

13. In a mounting machine, a moistening trough, a perforated screen, guiding rolls for directing a strip of backing material through the contents of the tank and on to and along the screen, a mounter yieldingly secured across the face of the screen for applying a pasted mount to the strip as it passes thereunder, means for repasting the margins of an applied mount after it passes the mounter, means for folding the repasted margins of the applied mount around the margins of the traveling backing strip, means for guiding the strip and applied mount away from the screen, and means for receiving the severed portions of the strip and holding them in stacked and pressed condition while curing.

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

JOHN F. LINGEMANN.

Witnesses:
ANNA M. DORR,
C. R. STICKNEY,

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."