

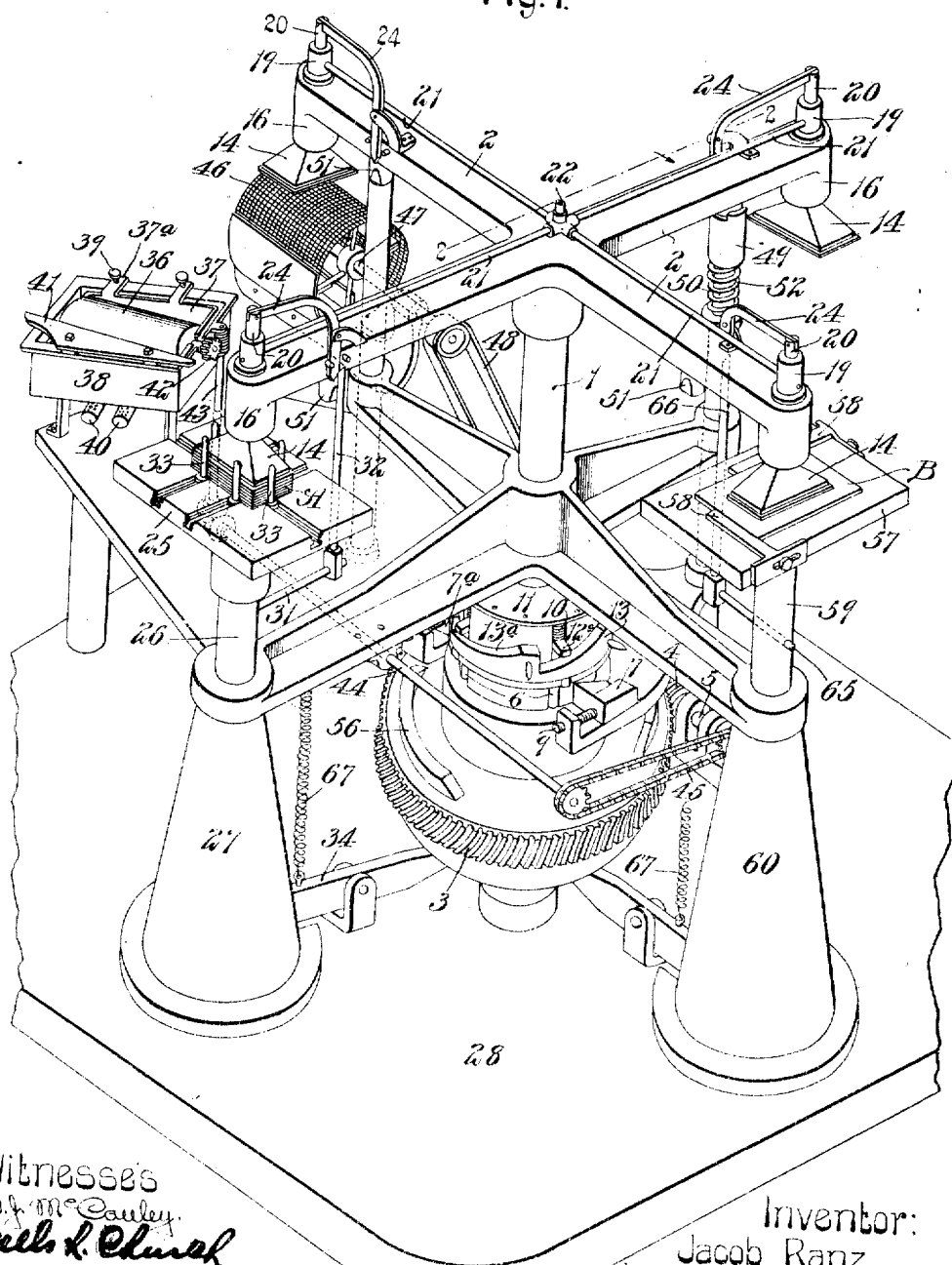
J. RANZ.
MACHINE FOR MOUNTING PHOTOPRINTS AND SIMILAR ARTICLES.
APPLICATION FILED MAR. 5, 1908.

911,070.

Patented Feb. 2, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

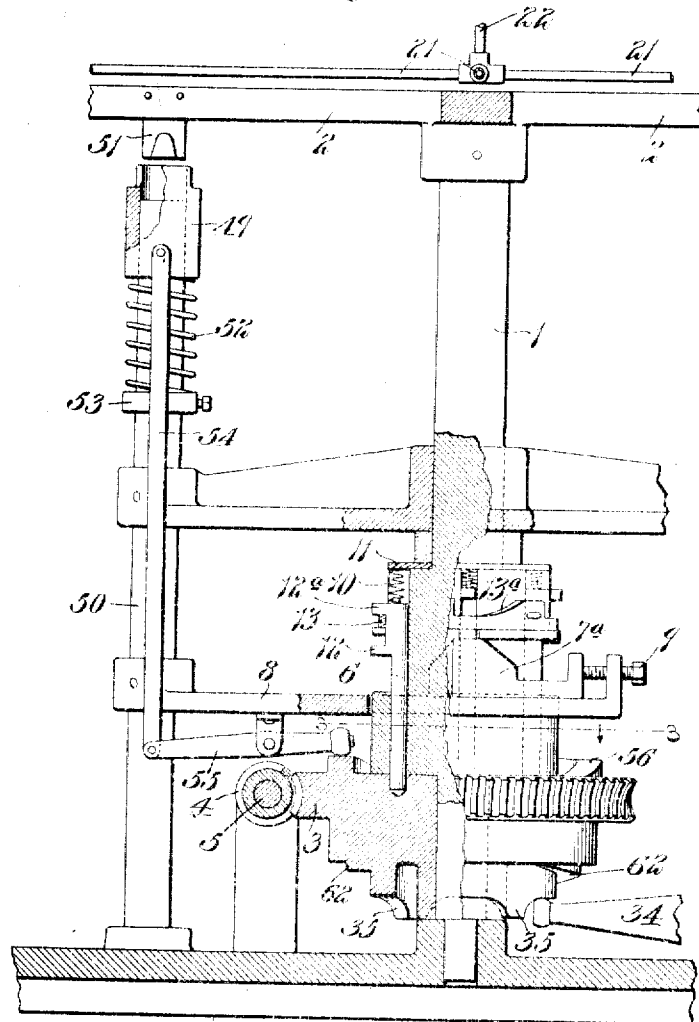
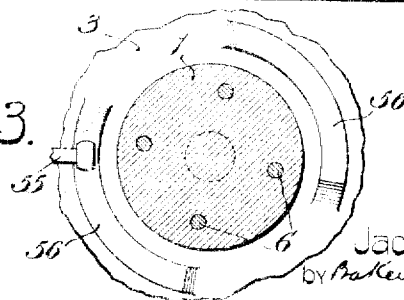


Fig. 3.



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3 SHEETS—SHEET 3.

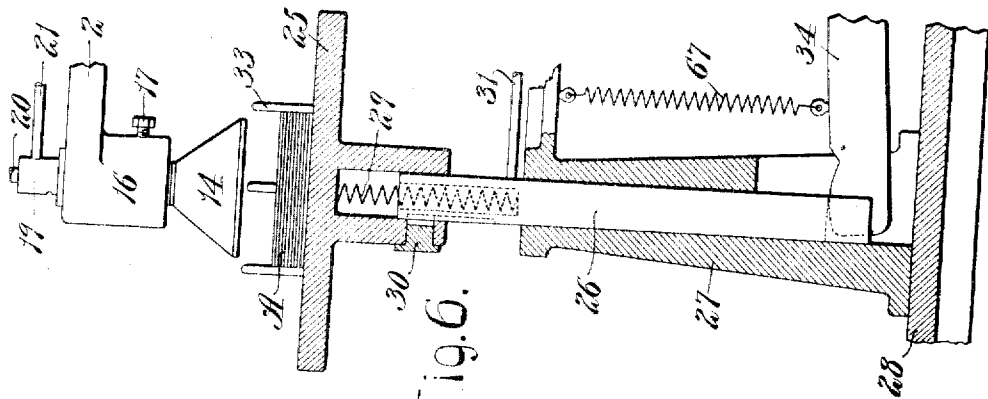


Fig. 6.

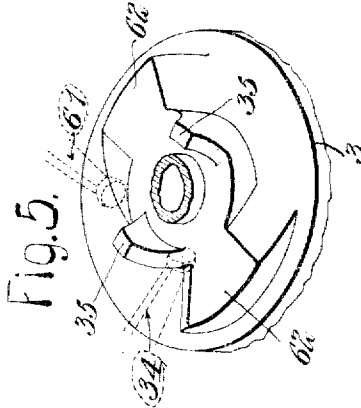


Fig. 5.

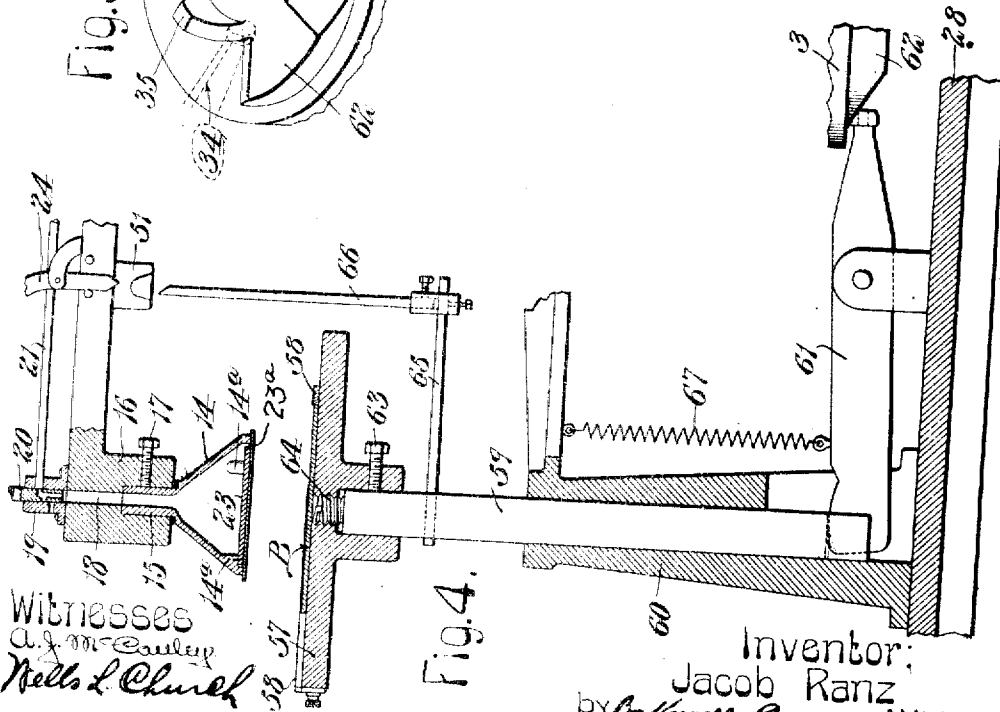


Fig. 4.

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UNITED STATES PATENT OFFICE.

JACOB RANZ, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO JACOB F. LANG, OF ST. LOUIS, MISSOURI.

MACHINE FOR MOUNTING PHOTOPRINTS AND SIMILAR ARTICLES.

No. 911,070.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed March 5, 1908. Serial No. 419,387.

To all whom it may concern:

Be it known that I, JACOB RANZ, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Machines for Mounting Photoprints and Similar Articles, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a machine constructed in accordance with my invention; Fig. 2 is a vertical sectional view taken on approximately the line 2—2 of Fig. 1 looking in the direction of the arrow in said figure; Fig. 3 is a detail horizontal sectional view taken on the line 3—3 of Fig. 2; Fig. 4 is a vertical sectional view of the table that supports the object to which a print is to be applied, this figure also showing one of the pick-up devices in section; Fig. 5 is a detail view of the underneath side of the gear that imparts movement to the pick-up device carrier; and Fig. 6 is a vertical sectional view of the table that supports the pile of prints.

This invention relates to machines for mounting photoprints, labels and similar articles, and has for its object to provide a machine of simple construction that will automatically pick up prints or labels, apply some suitable adhesive thereto, and thereafter press the prints on the cards or objects on which they are to be mounted.

Briefly described, my machine comprises an intermittently moving carrier provided with a plurality of hollow pick-up devices, means for creating a suction in said devices so as to remove photoprints or similar articles from a table, means for applying an adhesive to said prints after said pick-up devices have removed them from the table, means for partially drying the adhesive on said prints, and means for thereafter pressing the print upon the card-blank or object to which it is to be applied.

Referring to the drawings which illustrate the preferred form of my invention, I designate a vertically disposed shaft provided at its upper end with a plurality of radially projecting arms 2 that form a pick-up device carrier. A gear 3 is loosely mounted on the shaft 1 adjacent the lower end thereof and said gear is driven con-

tinuously by a worm 4 on the main drive shaft 5 of the machine. I prefer to connect said worm and drive shaft together by means of a clutch of any suitable design so that the worm and gear 3 can remain at rest while the drive shaft continues in operation but as said clutch forms no part of my present invention I have not illustrated same.

In order that an intermittent or step-by-step movement will be imparted to the pick-up device carrier I have provided means for automatically connecting the shaft 1 and gear 3 together and then disconnecting them after said shaft has made a quarter revolution. Said means consists of a plurality of spring-actuated pins 6 mounted in an enlarged portion of the shaft 1, an opening or recess in the upper side of the gear 3 into which said pins 6 project as the gear revolves, and a pair of cam blocks 7 and 7* mounted on a stationary plate 8, said cam blocks being provided with adjusting screws 9 that can be manipulated to change the positions of said blocks and thus vary the time of operation of the pick-up device carrier. The pins 6 are forced downwardly by means of coiled springs 10 interposed between the upper ends of said pins and a plate 11 on the shaft 1 and each of said pins is provided with a laterally projecting head 12 that cooperates with the cam blocks 7 and 7* to move the pin upwardly away from the gear 3. When one of the pins 6 projects into the hole or recess in the upper side of the gear 3 the shaft 1 will rotate with said gear until the laterally projecting head 12 on said operative pin strikes the inclined face of one of the cam blocks, say, for example, the cam block 7 on the front side of the machine, as shown clearly in Fig. 1. Said cam block 7 causes said operative pin to move upwardly out of the hole in the upper side of the gear 3 and thus disconnects the shaft 1 from said gear. Said shaft remains at rest until the hole or recess in the upper side of the gear 3 comes into alignment with the second pin 6 in the shaft; namely, the pin that is arranged in advance of the pin that has just been disengaged from the gear and when said second pin moves downwardly into the hole in the gear the shaft 1 will be again connected to the gear 3 and will rotate with same until said second pin comes into contact with the cam block 7* at the rear side of the machine. Said cam block 7* dis-

engages this second pin from the gear and the shaft 1 and pick-up device carrier remain at rest until the hole or recess in the upper side of the gear 3 comes into alinement with the third pin 6 in the shaft 1. When said third pin passes into said recess the shaft 1 will make another quarter revolution, this third pin being disengaged from the gear by the cam block 7 at the front side of the machine. The last quarter revolution is imparted to the pick-up device carrier when the hole in the gear comes into alinement with the fourth pin in the shaft 1, said fourth pin being disengaged from the gear by the cam block 7* at the rear side of the machine.

From the foregoing it will be seen that an intermittent or step-by-step movement is imparted to the pick-up device carrier, the driving mechanism for said carrier being so constructed that the gear 3 makes two complete revolutions while the shaft 1 of the pick-up device carrier is making one complete revolution.

For enabling the pick-up device carrier to be rotated or turned at will, I have provided means for moving all of the pins 6 on the shaft 1 into an inoperative position so that they cannot pass into the recess in the upper side of the gear 3. Said means consists of a manually-operated ring 13 rotatably mounted on the shaft 1 and provided with four cam faces 13* that cooperate with laterally projecting heads 12* on said pins, said cam faces and cooperating heads causing all of the pins 6 to move upwardly when the ring 13 is rotated in one direction.

Each arm 2 of the pick-up device carrier is provided with a pick-up device that consists of a hollow pyramidal-shaped member 14 provided at its upper end with a tubular-shaped extension 15 that fits into a boss 16 on the arm, said member being held in position by means of a set screw 17 that passes through the boss 16 and bears against the tubular extension 15, as shown in Fig. 4. The boss 16 is provided with a central bore or opening 18 that alines with the opening in the tubular extension 15 and at the upper end of said central opening 18 is a valve casing 19 in which a piston valve 20 is slidingly mounted. A pipe or conduit 21 passes through the side wall of said valve casing and the opposite end of said pipe is connected to a pipe 22 in which a suction is created by some suitable means, not shown, the pipes or conduits 21 of all of the pick-up devices leading to this main pipe 22, as shown in Fig. 1. The slide valve 20 is provided with a port that establishes communication between the pipe 21 and pick-up device when said valve is in one position, and a branch leads from said port so as to establish communication between the pick-up device and an air outlet port in the valve casing when the valve is in a different position. A plate 23 closes the

lower end of the member 14 and is connected to lugs or bosses 14* on said member, the edges of said plate being spaced away from the sides of the member 14 so that a slot 23* is produced which permits air to be drawn into the pick-up device when the valve 20 is in position for establishing communication between the pick-up device and the pipe 21. As the air rushes into the pick-up device a suction is created which causes a photo-print or similar article to adhere to the bottom plate of said pick-up device as shown in Fig. 4, until the valve 20 is operated to close the pipe 21. The valve 20 is reciprocated by means of a bell crank lever 24 pivotally connected to a bracket on the arm 2 and having its outer end pinned to the stem of the valve, as shown in Fig. 1, said lever 24 being operated by mechanism hereinafter described.

The prints or labels that are to be mounted are arranged in a pile A on a table 25 located in the path of movement of the pick-up devices and said table is supported by a plunger 26 that is reciprocatingly mounted in a bearing 27 on the base plate 28 of the machine. A spring 29 is preferably interposed between the table and the upper end of the plunger 26 so that the table will be yieldingly supported, and the flange on the underneath side of the table which surrounds the upper end of the plunger is provided with a key 30 that enters an elongated slot in the plunger so as to prevent the table from rotating relatively to the plunger. The driving mechanism for the pick-up device carrier is so timed that when said carrier comes to rest one of the pick-up devices 14 is arranged above the pile of prints on the table 25 and said table is then moved upwardly so as to force the topmost print of the pile against the bottom of the pick-up device. The plunger 26 on which said table is mounted is provided with a laterally projecting arm 31 that carries an adjustable trip rod 32, and when said plunger moves upwardly the upper end of said trip rod will engage the valve-operating lever 24 of the pick-up device that is located above said table, and move the valve upwardly so as to establish communication between the suction pipe 21 and the interior of the pick-up device and thus create a suction in the pick-up device which causes the topmost print of the pile to adhere to the bottom plate of said device. The purpose of interposing a spring 29 between the table 25 and plunger 26 is to enable the table to come to rest at different levels and thus allow for the gradual reduction in height of the pile of prints on the table. The prints are held in position on the table by a plurality of adjustable guides 33 and the table is moved upwardly by means of a lever 34 engaging the lower end of the plunger 26 and provided at its inner end with a roller which is located in the path of movement of two cams 35 on 130

the underneath side of the constantly rotating gear 3, as shown in Fig. 5. In view of the fact that the gear 3 makes two revolutions to every revolution of the pick-up device carrier the lever 34 will be actuated whenever said carrier comes to rest.

Mechanism for applying glue or some other suitable adhesive to the print that has just been removed from the pile on the table 25 is located adjacent said table and consists of a roller 36 that is journaled in the side walls of a glue tank 37 arranged inside of a water tank 38, as shown in Fig. 1. The inner tank or glue tank is provided with laterally projecting arms 37^a that rest upon a flange at the upper edge of the water tank, and the arms 37^a at one side of said glue tank are provided with adjusting screws 39 that bear upon the flange on the water tank so that said glue tank can be raised and lowered by manipulating the screws 39 and thus change the position of the roller 36 relatively to the pick-up devices which travel over said roller. Gas burners 40 are arranged underneath the water tank to heat the water in said tank and thus keep the glue or adhesive in proper condition, and a scraper blade 41 is provided for removing surplus glue from the roller 36. The shaft of said roller is provided with a gear 42 that meshes with a worm on the upper end of a shaft 43 and said shaft is provided with a bevel gear that meshes with a gear on a countershaft 44, as shown in dotted lines in Fig. 1. This countershaft 44 is driven by a sprocket chain 45 that passes over a sprocket wheel on the main drive shaft 5 so that the roller in the glue tank is driven continuously even when the driving mechanism of the pick-up device carrier is disconnected from the main drive shaft of the machine.

A drying apparatus is located adjacent the adhesive-applying means just described for partially drying the glue that has been applied to the print, and said drying apparatus is so positioned relatively to the table 25 that one of the pick-up devices will be arranged over said drying apparatus when the pick-up device carrier comes to rest. This drying apparatus consists of a cylindrical-shaped perforated screen 46 that surrounds fan blades on a shaft 47 provided with a pulley over which a belt 48 passes, said belt being driven from the main shaft of the machine.

The pick-up device carrier is locked when it comes to rest so as to hold the pick-up devices in proper position by means of a spring-actuated sleeve 49 mounted on a standard 50 and adapted to engage lugs 51 on the arms 2 of said carrier. The sleeve 49 is forced upwardly by means of a spring 52 interposed between the lower end of said sleeve and an adjustable collar 53 on the standard and said sleeve is drawn downwardly by means of a link 54 which is connected to the outer end of

a lever 55. Said lever is actuated by a pair of cams 56 on the upper side of the gear 3, as shown in Figs. 2 and 3, and said cams are so disposed that the sleeve 49 will be pulled downwardly just before the gear 3 and shaft 1 of the pick-up device carrier are connected together.

A table 57 is arranged diametrically opposite the drying apparatus for holding the card-blank B or object to which the print is to be applied, and said table is provided with adjustable guides 58 that enable the card-blank to be positioned properly. The table 57 is adjustably connected to the upper end of a plunger 59 which is mounted in a bearing 60 on the base plate of the machine and said plunger is moved upwardly so as to press the card-blank on the table against the print on the pick-up device which is located above said table. The means for elevating said plunger 59 consists of a lever 61 engaging the lower end of said plunger and provided at its inner end with a roller which cooperates with a pair of cams 62 on the underneath side of the gear 3, as shown in Fig. 5, said cams being so disposed that the lever 61 is actuated to raise the table 57 whenever the pick-up device carrier comes to rest. The table 57 is adjustably connected to the plunger 59 by a set screw 63, and said table is provided with an adjusting screw 64 that bears upon the upper end of the plunger and thus enables the horizontal position of the table to be varied, see Fig. 4. The plunger 59 is provided with a laterally projecting arm 65 that carries an adjustable trip rod 66 and when said plunger moves upwardly the trip rod 66 engages the valve-actuating lever 24 of the pick-up device that is then located above the table 57 and thus moves the valve of said device downwardly so as to cut off the pipe 21. This destroys the suction which held the print on the underneath side of said pick-up device so that said print will not tend to stick to the pick-up device when the table and card-blank move downwardly.

For preventing the tables 25 and 57 from receiving sudden shocks or jolts when their operating levers 34 and 61, respectively, pass out of engagement with their cooperating cams on the gear 3, I have connected the outer ends of said levers to tension springs 67 which form cushions for said levers.

Having described the construction of my machine I will now briefly describe the operation: The step-by-step movement of the pick-up device carrier brings the pick-up devices progressively into alignment with the table 25 that contains the pile of prints, the drying apparatus, and the table 57 on which the card-blank is placed, the prints being coated with an adhesive as the pick-up devices travel from the table 25 to the drying apparatus. Each time said carrier comes to rest the table 25 moves upwardly to present

a print to the pick-up device arranged above said table and the table 57 moves upwardly to press the card blank thereon against the print on the pick-up device which is then located above said table, the operator standing adjacent the table 57 so as to place the card-blanks on the table and remove them therefrom after the prints have been applied thereto. The suction in the pick-up devices holds the prints thereon while they are being carried from the table 25 to the table 57 and after the roller 36 applies the adhesive to a print, the pick-up device which carries said print comes to rest over the drying apparatus so that the adhesive on the print will be dried partially.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A machine of the character described, comprising means for picking up a photo-print or label, means for applying an adhesive to said print, means for partially drying said adhesive, and means for thereafter pressing said print on a card-blank or other object; substantially as described.

2. A machine of the character described comprising a table adapted to hold a pile of prints or similar articles, a table adapted to hold the object to which the print is to be applied, a rotatable member carrying a plurality of pick-up devices, means for moving said member intermittently so that said pick-up devices will come into alinement with said tables, and means for bodily moving said tables toward said pick-up devices to force the prints into engagement with the pick-up devices and thereafter force the objects into engagement with the prints on said pick-up devices; substantially as described.

3. A machine of the character described, comprising a rotatable carrier provided with a plurality of hollow pick-up devices, a support arranged in the path of movement of said devices for holding a pile of prints or labels, means for creating a suction in said pick-up devices as they come into alinement with said support so that the top print of the pile will adhere to the pick-up device, a fan arranged in the path of movement of said pick-up device, and means arranged between said fan and support for applying an adhesive to the prints carried by said pick-up devices; substantially as described.

4. A machine of the character described, comprising a rotatable carrier provided with a plurality of hollow pick-up devices, a support arranged in the path of movement of said devices for holding a pile of prints or labels, means for creating a suction in said pick-up devices as they come into alinement with said support so that the top print of the pile will adhere to the pick-up device, a fan arranged in the path of movement of said pick-up device, means arranged between

said fan and support for applying an adhesive to the prints carried by said pick-up devices, means for moving said rotatable member intermittently, a support arranged in the path of movement of said pick-up devices for holding the object to which the print is to be applied, and means for actuating said last-named support to force the object thereon into engagement with the print on the pick-up device that is in alinement with said support; substantially as described.

5. A machine of the character described, comprising a rotatable carrier provided with a plurality of hollow pick-up devices, means for causing photo-prints or similar articles to adhere to said pick-up devices when they arrive at a certain position, means for applying an adhesive to the prints carried by said devices, means for partially drying the adhesive on said prints, a table adapted to hold the objects to which the prints are to be applied, and means for elevating said table as the pick-up devices come into alinement with the same; substantially as described.

6. In a machine of the character described, a rotatable carrier provided with pick-up devices, a stationary table adapted to hold prints, a stationary table adapted to hold the articles to which the prints are to be applied, means for moving said carrier intermittently, locking means consisting of a spring-actuated device adapted to engage said carrier and hold it at rest when the pick-up devices come in alinement with said tables, a link connected to said device, and a cam-actuated lever for operating said link so as to disengage said locking device from the rotatable carrier; substantially as described.

7. In a machine of the character described, a pick-up device carrier provided with a shaft, a continuously rotating member, a plurality of devices carried by said shaft and adapted to engage said member to connect the shaft thereto, and manually-operated means for moving all of said devices into an inoperative position; substantially as described.

8. In a machine of the character described, a pick-up device carrier provided with a shaft, a continuously rotating member, a plurality of devices carried by said shaft and adapted to engage said member to connect the shaft thereto, and automatic means for intermittently disengaging said devices from said rotating member so that a step-by-step movement is imparted to the carrier; substantially as described.

9. In a machine of the character described, a pick-up device carrier provided with a shaft, a rotating gear journaled on said shaft and provided with a recess or opening, a plurality of spring-actuated pins carried by said shaft and cooperating with the opening in the gear to connect said shaft and gear together, and means for withdrawing the operative pin

from said recess when the shaft reaches a certain position; substantially as described.

10. In a machine of the character described, a pick-up device carrier provided with a shaft, a rotating gear journaled on said shaft and provided with a recess or opening, a plurality of spring-actuated pins carried by said shaft and cooperating with the opening in the gear to connect said shaft and gear together, and stationary cams arranged in the path of movement of said pins for withdrawing the operative pin from said recess when the shaft reaches a certain position so as to permit the shaft to come to rest while the gear continues in operation; substantially as described.

11. In a machine of the character described, a carrier provided with a plurality of pick-up devices, means for causing photo-prints or similar articles to adhere to said devices, a table for holding the objects to which the prints are to be applied, a shaft on which said table is mounted, and an adjustable device mounted in said table and bearing upon said shaft for changing the elevation of the table; substantially as described.

12. In a machine of the character described, a carrier provided with a plurality of hollow pick-up devices, pipes leading to said pick-up devices for creating a suction therein, a piston-valve on each pick-up device for cutting off the suction pipe that leads thereto, levers for operating said valves, tables for holding photo-prints and the objects to which said prints are to be applied, means for moving said tables toward the pick-up devices, and means moving with said tables for actuating said valve-operating levers; substantially as described.

13. In a machine of the character described, a carrier provided with a plurality of pick-up devices, a shaft to which said carrier is connected, a constantly rotating gear, means for connecting and disconnecting said shaft and gear intermittently, tables for holding photo-prints and the objects to which said prints are to be applied, and means actuated by said gear for moving said tables toward the pick-up devices when the carrier comes to rest; substantially as described.

14. In a machine of the character described, a carrier provided with a plurality of pick-up devices that carry photo-prints or similar articles, a roller for applying an adhesive to said prints, means for moving said carrier intermittently, means for rotating said roller continuously, and means for adjusting said roller relatively to the pick-up devices on said carrier; substantially as described.

15. In a machine of the character described, a carrier moving in a horizontal plane and provided with a plurality of pick-up devices that carry photo-prints or similar articles, a receptacle arranged underneath

said carrier for holding an adhesive, a roller projecting into said receptacle for applying the adhesive to said prints, means for adjusting said roller relatively to said pick-up devices, driving means for said carrier, and means for causing said roller to rotate continuously even when the pick-up device carrier is at rest; substantially as described.

16. A machine of the character described, provided with a pick-up carrier having a plurality of radially projecting arms, a hollow pick-up device detachably connected to each of said arms and having an opening in alignment with an opening in the arm, a valve casing mounted on said arm at the upper end of the opening therein, a conduit or pipe entering said valve casing, a reciprocating valve mounted in said casing, a support arranged in the path of movement of said carrier for holding prints or similar articles, means for applying an adhesive to the articles after they have been picked up by said pick-up devices, and means for thereafter applying the prints to an article; substantially as described.

17. A machine of the character described, provided with a support adapted to hold a pile of prints or labels, a support adapted to hold articles to which the prints are to be applied, a rotatable carrier, pick-up devices on said carrier, each of which consists of a hollow pyramidal-shaped member having a closed end that is provided with a slot or opening, a hollow extension at the apex of said member, and a support on the carrier to which said member is detachably connected; substantially as described.

18. A machine of the character described, provided with a support that is adapted to hold a pile of prints or labels, a support adapted to hold the articles to which the prints are to be applied, a carrier, and a pick-up device mounted on said carrier and consisting of a hollow box-shaped member provided with a bottom plate having its edges spaced away from the interior walls of said member so as to produce a slot; substantially as described.

19. A machine of the character described, provided with a rotatable carrier having pick-up devices, tables or supports arranged in the path of movement of said pick-up devices for holding prints or labels and the articles to which said prints are to be applied, a glue-tank located intermediate said supports for holding glue or some other adhesive, said glue tank consisting of an outer receptacle, an inner receptacle provided with laterally projecting arms that extend over the upper edge of the outer receptacle, a roller journaled in the walls of the inner receptacle for applying an adhesive to the prints on said pick-up devices, and adjusting screws carried by said laterally projecting arms and bearing upon the upper edge of the outer recep-

tacle for varying the position of the roller relatively to the pick-up devices; substantially as described.

20. A machine of the character described, 5 provided with a carrier, pick-up devices on said carrier, means for causing prints or labels to adhere to said pick-up devices, means for applying an adhesive to said prints, a perforated casing arranged in the path of movement of said pick-up devices, a fan located 10 inside of said casing for partially drying the adhesive on said prints, and a support ar-

ranged in the path of movement of said pick-up devices for holding the articles to which the prints are to be applied; substantially as 15 described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this twenty ninth day of February 1908.

JACOB RANZ.

Witnesses:

WELLS L. CHURCH,
GEORGE BAKEWELL.