

July 5, 1932.

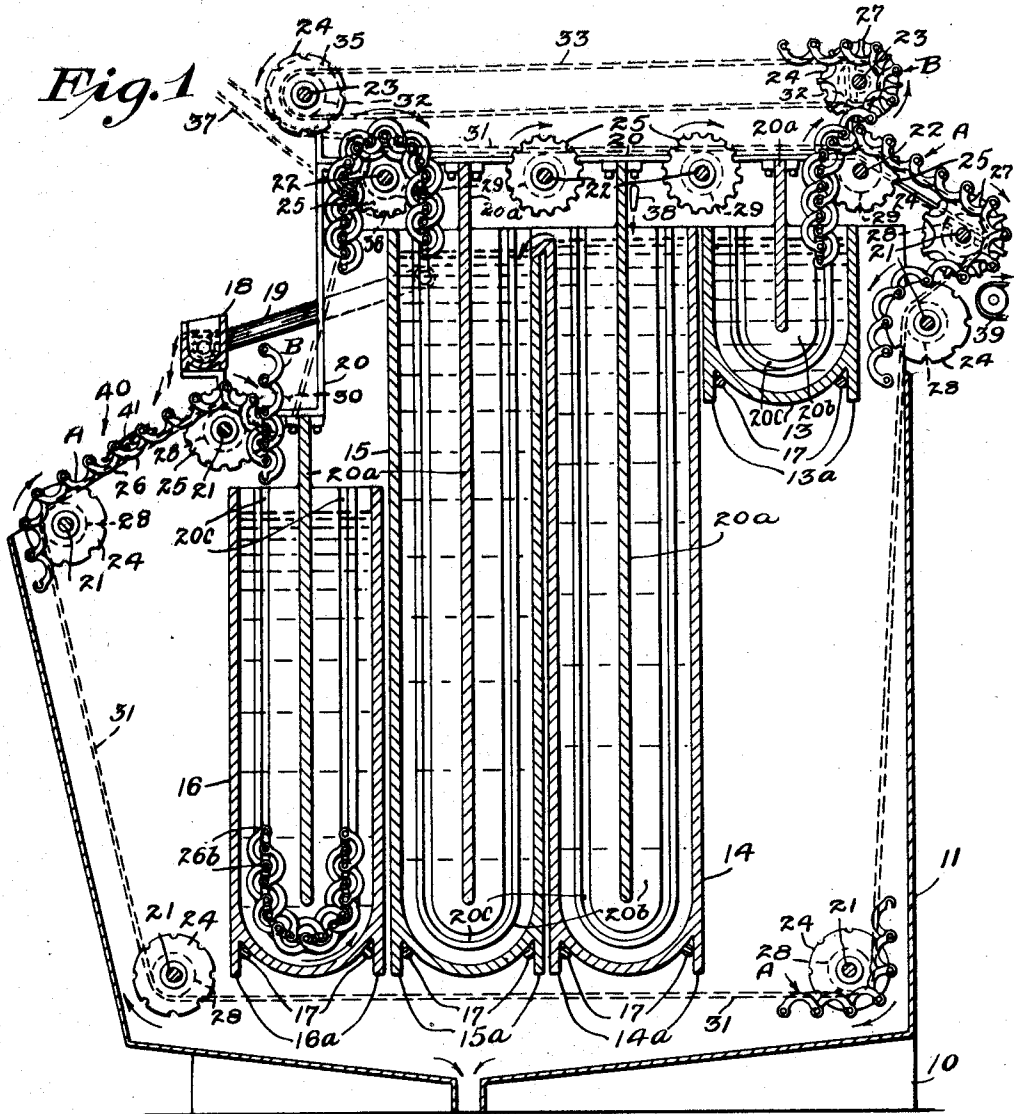
G. M. DYE

1,865,682

PHOTOGRAPHIC PRINT TREATING METHOD AND APPARATUS

Filed Jan. 21, 1929

3 Sheets-Sheet 1



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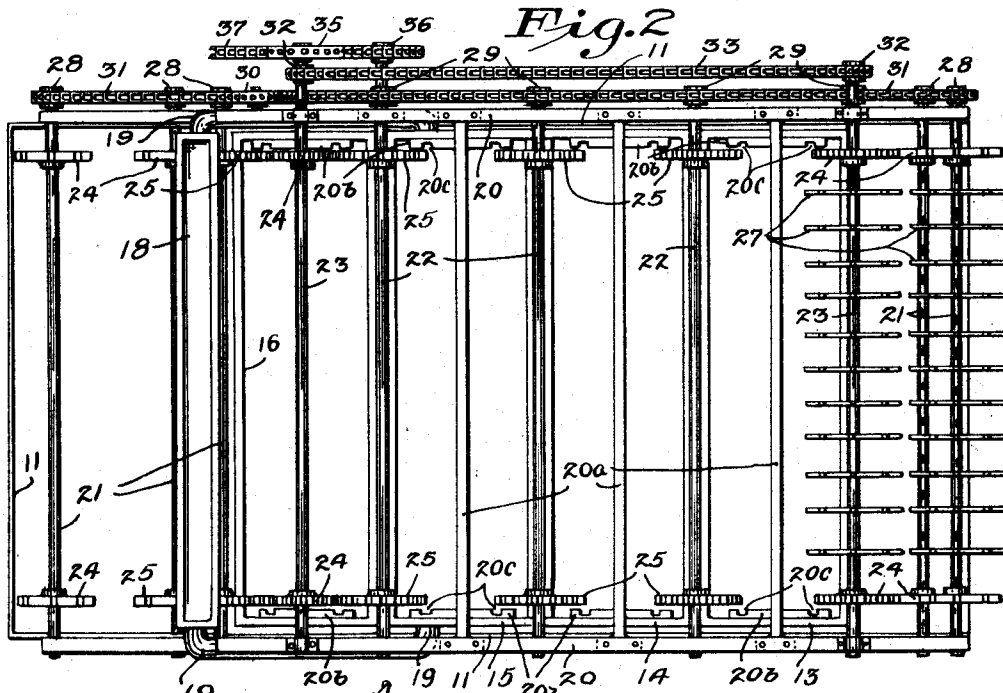
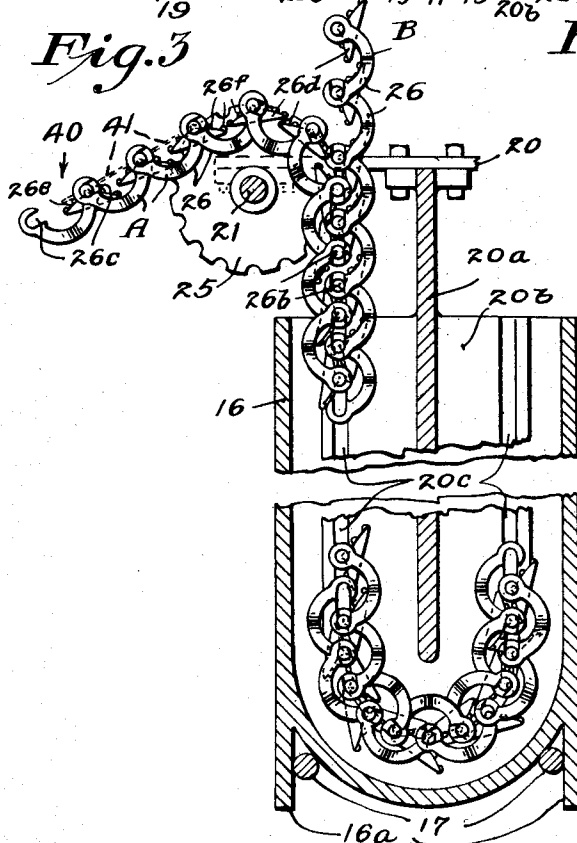
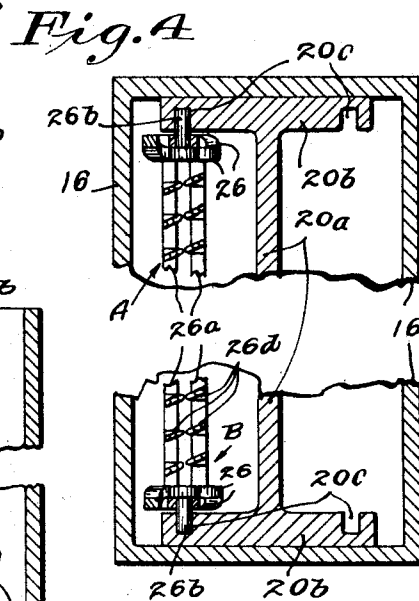
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PHOTOGRAPHIC PRINT TREATING METHOD AND APPARATUS

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 5

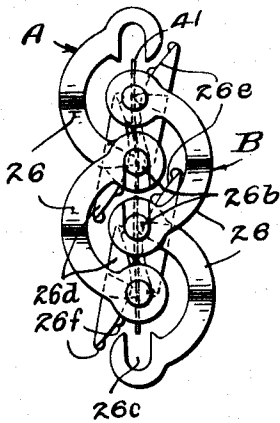


Fig. 6

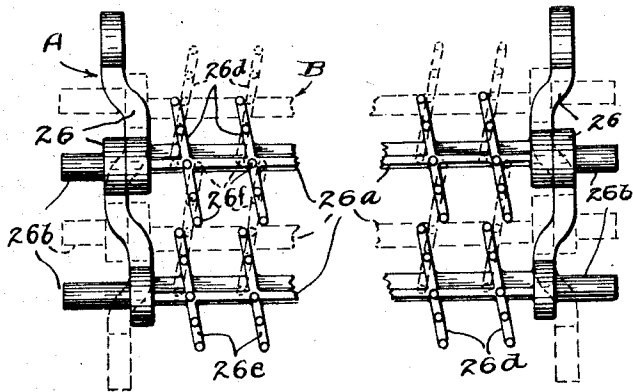


Fig. 7

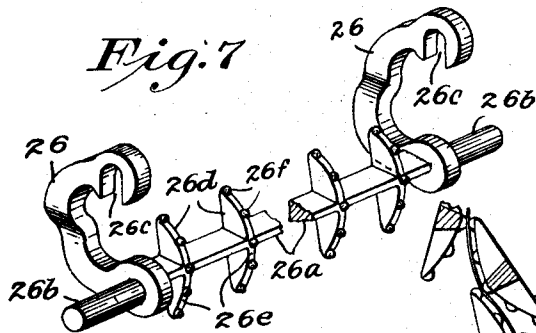
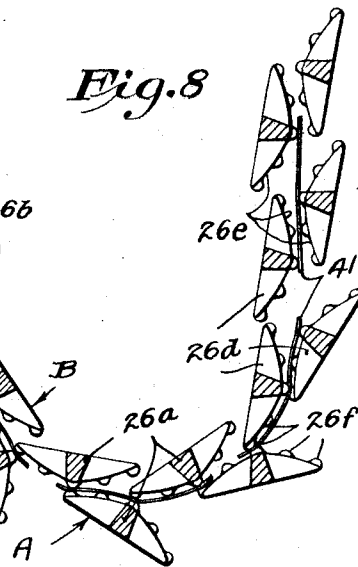


Fig. 8



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PHOTOGRAPHIC PRINT TREATING METHOD AND APPARATUS

Application filed January 21, 1929. Serial No. 333,823.

This invention relates to a device for handling photographic prints and particularly to a device for moving short cut prints or films progressively through different receptacles containing print treating solutions. After the prints are printed and passed through the developing solution they are transferred to the fixing bath. Frequently the prints after leaving the developing solution are first treated with a short-stop solution in order to arrest any further development. It is desirable to have an automatic mechanism which will convey the print through the fixing and washing liquids. Such a conveyor must travel in a sinuous path and the print or film must be very lightly engaged so that the emulsion side thereof will not be scratched or otherwise marred. It is also necessary that the print or film be so engaged that the treating solution will have access to all portions of the emulsion side thereof, else there would be portions of the emulsion surface which would not be properly fixed and washed and this would make a flaw in the final picture.

It is an object of this invention, therefore, to provide a simple and efficient print handling apparatus comprising conveying means which will engage and progress the prints through a sinuous path without damaging the same and at the same time permit the liquid to act on all portions of said print.

It is another object of the invention to provide a print or film handling apparatus comprising a conveying means having opposed means traveling therewith between which the prints or films are engaged at spaced points, said means shifting as the conveying means travels through a sinuous path so that the print is engaged at different points during its travel.

It is still another object of the invention to provide a print handling device comprising a conveying means having a pair of link conveyors with oppositely disposed members swingable with said links and having means for engaging said prints at opposite sides and at different points during the travel of said conveyors through a sinuous path.

It is still another object of the invention

to provide a print handling apparatus comprising a plurality of liquid holding receptacles and a conveying means adapted to travel progressively through said receptacles, said conveying means being carried on a frame supported above said receptacles whereby said conveying means can be lifted bodily from said receptacles.

It is also an object of the invention to provide an improved method of handling prints or films by means of which they are progressed through different print treating liquids and effectively acted upon thereby.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views, and in which:

Fig. 1 is a central vertical section through the apparatus;

Fig. 2 is a plan view of the receptacles and a portion of the apparatus with the conveying means removed;

Fig. 3 is a partial vertical section similar to Fig. 1 but shown on an enlarged scale;

Fig. 4 is a horizontal section through one of the receptacles showing one of the conveying elements therein;

Fig. 5 is a partial view in side elevation of the conveying means;

Fig. 6 is a partial plan view of the conveying means;

Fig. 7 is a perspective view of one of the conveying elements, and

Fig. 8 is a partial vertical section similar to Fig. 3 but shown on an enlarged scale.

Referring to the drawings, an apparatus is shown comprising a frame 10 which supports a casing or receptacle 11. A plurality of receptacles or tanks 13, 14, 15 and 16 are disposed side by side within casing 11. While tanks 13, 14, 15 and 16 may be of various shapes, in the embodiment of the invention illustrated they are shown as of elongated rectangular shape in horizontal cross section and as having semi-cylindrical bottoms with projecting flanges 13a, 14a, 15a and 16a at their bottom sides. Pairs of rods 17 extend between the sides of casing 11 and are dis-

posed respectively in the angles between said flanges and the curved bottoms of said tanks, said rods thus supporting said tanks. A trough 18 is disposed some distance above the outer side of tank 16 and is connected by a pair of conduits 19 to the upper end of tank 15. A frame 20 extends over the top of tanks 13 to 16 and has plates 20a depending therefrom and centrally disposed in tanks 13 to 16 respectively, said plates extending from one end of each tank to the other and having end flanges 20b thereon fitting against the ends of said tanks. Plates 20a extend down in said tanks to a point closely adjacent the bottoms thereof and form partitions dividing each tank into two compartments which are connected only below said partitions. The flanges 20b at the ends of the plates 20a extend from the top of each tank to a point adjacent the bottom thereof, as shown in Fig. 1 and Fig. 3. Each of these flanges has a groove 20c therein extending vertically at each side thereof and having a semi-circular curved portion extending about the bottoms of the partitions 20a. The grooves 20c form guiding means for conveyor elements, to be later described. A plurality of horizontal shafts 21 are journaled in suitable bearings on the sides of casing 11 and similar horizontal shafts 22 are journaled in bearings carried on frame 20, said shafts being disposed substantially in a horizontal plane. A similar pair of horizontal shafts 23 are journaled in bearings supported on frame 20 above the shafts 22. Sprocket wheels 24 are secured to shafts 23 adjacent each end of the same and similar sprocket wheels 24 are secured to certain of the shafts 21, namely the pair shown at the left hand side of Fig. 1 and the lower pair shown at the right hand side of Fig. 1. Sprocket wheels 25 somewhat similar to sprocket wheels 24 but having twice the number of grooves therein are secured to the remainder of shafts 21 and to shafts 22, each shaft having sprocket wheels at its ends respectively.

A conveying means is provided comprising cooperating pairs or cooperating sets of conveyors. These conveyors will be designated A and B respectively. The conveyors A and B are similar in construction, but are oppositely disposed. Each conveyor comprises a plurality of links 26. These links are aligned in pairs at each side of the conveyor and the links of each pair are connected at one end by a bar 26a and each of said links has projecting outward therefrom a sprocket-engaging pin 26b. The links 26 are curved so as to be substantially of crescent shape and each has at its free end a rounded head having a slot 26c therein having an open end directed toward the other end of the link, said slot having a semi-cylindrical bottom. The diameter of slot 26c is substantially the same as the sprocket pin 26b. Bar 26a has secured

thereto at spaced points a plurality of members 26d said members having one side or surface 26e formed on a convex curve and having projecting therefrom spaced comparatively small rounded portions 26f. The curve of surface 26e is not concentric with the axes of pins 26b, nor is said surface the arc of a circle. While said surface might be variously formed, in the embodiment of the invention illustrated and in one form used in practice, said surface is made with a radius equal to the pitch radius of the sprocket wheels 24 and 25, the centers used for the curves at each end of member 26e being offset the distance between the centers of the sprocket pin grooves in the sprockets 25. The shaft 23 at the right, as shown in Fig. 1 and the shaft 21 at the upper right hand corner of Fig. 1 are each provided with a plurality of toothed wheels 27 spaced lengthwise thereof. Shafts 21 have small sprocket wheels 28 at one end thereof outside of casing 11 and shafts 22 have similar sprocket wheels 29 at one end outside of casing 11 aligned with the sprocket wheels 28. An idler sprocket 30 is carried on a stub shaft supported in frame 20 adjacent shaft 21 which is disposed below trough 18. A sprocket chain 31 runs over sprockets 28, said chain running over idler sprocket 30 between the sprockets on shafts 21 below trough 18 and the sprocket 25 disposed over tanks 16 and 15, said chain as shown in Fig. 1 running over the sprocket on shaft 21 at the upper right hand side of Fig. 1 and thence upward over the sprockets 29 on the shafts 22. Shafts 23 have sprockets 32 at their ends at one side of casing 11 and a chain 33 runs over these sprockets. Shaft 23 shown at the left of Fig. 1 also has a sprocket 35 thereon outside of the sprocket 32 and shaft 22 shown at the left of Fig. 1 has a sprocket 36 at its end outside of its sprocket 29, sprockets 35 and 36 being aligned. A chain 37 runs over sprocket 36 and around the bottom of sprocket 35 as shown in Figs. 1 and 2, this chain 37 extending to a driving sprocket not shown to which power will be applied. The various sprocket wheels 24 and 25, it will be seen, will be thus driven by chains 31 and 33.

A water supply pipe 38 shown disposed above tank 14 at the right hand side of its partition 20a is adapted to deliver water to said tank as indicated by the arrow immediately below the same. An endless conveyor 39 has its end disposed below sprocket 24 shown at the upper right hand corner of Fig. 1, the same moving as indicated by the arrow adjacent thereto.

The conveyors A and B are assembled by engaging the slots 26c over the adjacent pins 26b. As shown in Fig. 6, the links 26 are off-set at their ends so that when the free end engages over pin 26b the ends of adjacent links will be in contact at their edges.

The conveyor A, after being assembled as stated runs upward over the sprocket 24 at the lower left hand corner of Fig. 1, upwardly over the sprocket 24 farthest to the left in Fig. 1, then over sprocket 25 shown as adjacent the bottom of trough 18, said conveyor then moving downwardly into tank or receptacle 16. When the conveyor moves into said receptacle, links 26 travel in grooves 20c as shown in Figs. 3 and 4 and the conveyor is guided by said grooves which are in the plates or flanges 20b. Conveyor A passes down around the partition 20a in tank 16, upward out of said tank and over sprocket 25 on shaft 22 farthest to the left as shown in Fig. 1, over said sprocket and then down into tank 15, around the bottom of partition 20a therein, upward over sprocket 25 which is second from the left as shown in Fig. 1, then down into tank 14, around partition 20a therein and upward over sprocket 25 which is third from the left in Fig. 1, then downward into tank 13 and around the bottom of partition 20a therein, then upwardly out of tank 13 and over sprocket 25 which is on shaft 22 farthest to the right in Fig. 1, then downwardly in an inclined direction, over sprocket 24 farthest to the right in Fig. 1 and then over sprocket 24 at the right of tank 14, downwardly in casing 11 and over sprocket 24 at the right hand bottom corner thereof and thence horizontally to sprocket 24 at the left bottom corner of casing 11. Conveyor B which, it will be observed in Figs. 1, 3 and 5, is disposed oppositely to conveyor A passes downwardly from sprocket 24 which is on shaft 23 at the left of Fig. 1 and engages with sprocket 25 disposed below trough 18. It will be seen that the pins 26d on the conveyor B engage with the grooves in sprockets 25 which are between the grooves engaged by the pins 26d on conveyor A. The ends of the links on one of the conveyors A and B thus are disposed in the space at the concave side of the links on the other conveyor. After conveyor B leaves sprocket 25 at the top of tank 16, it also moves downward into said tank, its pins 26b moving into and guided by grooves 26c. This conveyor B then follows the same course through tanks 16, 15, 14 and 13 as already traced for the conveyor A, said conveyor B passing over the sprockets 25 on shafts 22 with conveyor A. When conveyor B leaves sprocket wheel 25 on the upper right hand shaft 22 it moves upward and runs over sprocket wheel 24 on the shaft 23 at the right of Fig. 1 and passes horizontally to the left in Fig. 1 and over sprocket wheel 24 on the left hand shaft 23 and again downwardly to sprocket wheel 25 and into tank 16. The travel of the conveyors A and B and the rotation of the various sprocket wheels 24 and 25 are indicated by the arrows in Fig. 1.

In the operation of the apparatus and the

carrying out of the method of the invention the prints are taken from the developing solution and laid upon the conveyor A at the portion indicated by the arrow 40, which is between the shafts 21 at the upper left hand end of casing 11, this portion of the conveyor traveling upwardly toward the sprocket 21 below trough 18, the conveyor A traveling as already described. Water is supplied through conduit 38 and fills the tank 14, this water overflowing at the upper left hand portion of tank 14 as shown in Fig. 1 and passing into tank 15. The water leaves the upper left hand portion of tank 15 as shown in Fig. 1 and passes through the conduits 19 into trough 18 and overflows at the outside of said trough as indicated by the arrows adjacent the same, said water flowing down onto the prints on conveyor A as they move upwardly toward sprocket 25 above the left hand upper edge of tank 16. A glazing or ferro-typing liquid may be placed in the tank 13. The prints 41 are thus first acted on by the liquid issuing from trough 18 and are then engaged by the portions 26f on the members 26d of the conveyors A and B and moved down into tank 16. The disposition of the members 26 when the conveyors are moving in a straight line is shown in Figs. 5 and 8. The points or portions 26f are so disposed that they can reach a line or plane passing through the center of the pins 26b or they may project slightly beyond such a plane. These portions 26f face each other on the conveyors A and B and the relative positions of the same on conveyors A and B are shown in the full and dotted lines in Fig. 6. It will be seen that the points or portions 26f on the respective conveyors A and B do not come into alignment. The center projections 26f are disposed a distance apart longitudinally of the conveyors, substantially the distance between adjacent pins 26b as shown in Fig. 5. A print 41 is shown in Fig. 5 and it will be seen that it will be engaged at one side by the central projections or points 26f and at the other side by the central projections or points 26f of members 26d. The prints or films will be slightly bent into reverse curves by the projections 26f and will be carried along thereby. The prints will move downwardly in a straight line at the left hand side of tank 16 and will then be carried around the bottom of said tank below the partition 20a therein. As the links of conveyors A and B swing around the bottom of said tanks, being guided by grooves 20c, they will oscillate to different relative positions about the axes of pins 26b and members 26d will thus be swung to different positions. The prints 41 will be engaged by different projections 26f, but will still be bent to a greater degree and held between said projections as shown in Fig. 8. The central projections rock about the centers of pins 26b and the

points on the print which were engaged as it moved downward in a straight line are thus uncovered and the points at which it was contacted on the emulsion side are now uncovered so that they will be open to the action of the liquid in tank 16. The projections 26f being somewhat pointed or rounded at their ends, engage a very small part of the emulsion side of the film and the same can be acted on practically over its entire surface even when engaged. However, the shifting of the points of engagement and the making of new points of engagement insures that all parts of the print will be accessible to the treating liquid. As the conveyors pass upward at the right hand side of tank 16 the points of engagement are again shifted and the print carried upward and over the sprockets 25 above tanks 16 and 15. The links 26 swing on their pivot pins 26b as the conveyors pass over the sprocket, but the prints are still engaged by the points 26f and pass downward into tank 15, around the bottom thereof and upward, as already described in connection with tank 16. The print then passes up out of tank 15 and over the sprocket 25 above tanks 15 and 14 and passes downwardly into tank 14 and through the same as described in connection with tank 16. It will be seen that the water delivered by conduit 38 passes into the right hand side of tank 14 and must then pass downward around the partition 20a and upward at the left hand side thereof to be discharged into the right hand side of tank 15. The water must then pass downward around the partition 20a in tank 15 before it can pass upwardly and flow out of conduits 19.

The freshest water is therefore brought into contact with the prints most nearly through the washing liquid. The water passing out of tank 15 will have a little fixing solution therein and this passing onto the prints 41 on the portion 40 of the conveyor from trough 18 acts as a short-stop solution for said prints. The prints are often run through a glazing machine which puts a high gloss thereon. A solution is sometimes used for this process and such a solution can be placed in the tank 13 so that after the prints leave said tank they are all ready to be placed in the glazing machine.

As the prints are carried up out of the tank 13 they will usually stay on conveyor A and pass downwardly on said conveyor over the sprocket 24 at the right of Fig. 1 and will drop onto the conveyor 39. Should any of the prints tend to stick to the members 26d, they will be pushed therefrom by the points or teeth on the wheels 27. Also should any of the prints adhere to conveyor B and tend to pass up over sprocket wheel 25 on the right hand shaft 23 as shown on Fig. 1 they will also be pushed off by the teeth on the wheels 27 on shaft 23 and will fall down onto

the conveyor A and be delivered to conveyor 39. The members 26d of course are spaced so that the distance between the same is much less than the width of the print and the length of the print is of course greater than the distance between pins 26b so that it will be assured that the print will always be properly engaged. The members 26d could, if desired, be made in rights and lefts, the rights and lefts being disposed respectively on conveyors A and B so that said members would then be disposed parallel to each other on the respective conveyors instead of being at an angle to each other as shown in Fig. 6.

By uncoupling the links at portion 40 of the conveyors A and B and at the portion between sprockets 25 on the right hand shafts 21 and 22 as shown in Fig. 1, frame 20 can be lifted, and shafts 21 and 22 supported thereon, together with shafts 23 may be lifted bodily from the tanks 13 to 16. By so removing the conveyor it can be inspected or repaired and the tanks cleaned.

The casing 11 will receive the water discharged from trough 18 and will receive any drippings from the conveyors A and B after leaving tank 13 and moving thereover. The water is discharged from casing 11 through the outlet at the bottom thereof.

From the above description it is seen that applicant has provided a very simple, efficient and automatic apparatus and a simple and efficient method for handling photographic sheets and progressing them successively through different receptacles containing treating liquids. The prints are uniformly progressed, but are engaged very lightly at spaced points and these points are changed so that the entire sensitized surface of the sheet is accessible to the treating liquid. The sheets are thoroughly treated after passing through the machine and the time of treatment is governed by the speed of the conveyors A and B. The prints are treated in the various fluids without being touched by the hands of the operator and the action of the apparatus is thus entirely automatic. The device has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the apparatus and in the steps and sequence of steps of the method, without departing from the scope of applicant's invention, which generally stated, consists in a method and apparatus capable of carrying out the objects above set forth, such as disclosed and defined in the appended claims.

What is claimed is:

1. A device for handling sensitized photographic sheets having in combination, a conveyor constrained to follow a sinuous course and comprising cooperating oppositely dis-

posed oscillating unconnected members having sheet-engaging portions constructed and arranged to engage a sheet therebetween at spaced points and progress the same.

2. A device for handling sensitized photographic sheets having in combination, a pair of cooperating moving conveyors one of which comprises oscillating spaced print-engaging members having print-engaging portions for engaging the prints at spaced points in cooperation with the other conveyor for moving the same through a straight or curved path.

3. A device for handling sensitized photographic sheets having in combination, a pair of cooperating movable conveyors comprising connected oscillatable links carrying spaced sheet-engaging members oppositely disposed on said respective conveyors and adapted to engage the prints at spaced points at opposite sides thereof as said conveyors move through straight and curved paths.

4. A device for handling sensitized photographic sheets having in combination, a pair of conveyors adapted to move over sprocket wheels and be guided in rectilinear guides, said conveyors carrying spaced sheet-engaging members, said members being alternately disposed on the respective conveyors and having sheet-engaging portions which are out of alignment on the respective conveyors, said sheet-engaging portions extending substantially to a plane disposed centrally between said conveyors whereby a sheet may be engaged at opposite sides by said portions and slightly bent thereby to progress said sheet.

5. A device for handling sensitized photographic sheets having in combination, a pair of cooperating movable conveyors each comprising connected and relatively swinging links, said links carrying a plurality of spaced print-engaging members swingable therewith, disposed in alternate relation in the travel of said conveyors, and having print-engaging portions extending substantially to the central plane between said conveyors to engage a sheet at spaced points at opposite sides thereof and progress the same.

6. A device for handling sensitized photographic sheets having in combination, a pair of cooperating conveyors constrained to follow a sinuous course, each having cooperating sets of oscillating members, said members each having a plurality of spaced print-engaging portions which are out of alignment on the respective conveyors and which are disposed at opposite sides of and terminate substantially in a plane mid-way between said conveyors whereby a sheet will be engaged between said portions and at spaced points at opposite sides thereof and progressed with said conveyors.

7. A device for handling sensitized photographic sheets having in combination, a pair of cooperating conveyors each comprising

pivottally connected relatively swinging links, said links each carrying in rigid relation thereto a plurality of spaced print-engaging members having print-engaging portions disposed in a convex curve, said curves on the respective conveyors being oppositely disposed and adapted to extend to a plane substantially mid-way between said conveyors whereby a print is engaged at opposite sides by said portions at spaced non-aligned points and progressed thereby.

8. A device for handling sensitized photographic sheets having in combination, a pair of conveyors constrained to move in a sinuous course and each comprising swinging members disposed in opposite relation to each other on the respective conveyors and each having spaced sheet-engaging projections arranged in a curve, said projections as said members swing moving substantially into a plane disposed centrally between said conveyors whereby a print may be engaged at spaced points at opposite sides thereof by said portions and held and progressed thereby.

9. A device for handling sensitized photographic sheets having in combination, a pair of conveyors, one of which comprises swinging links and having a plurality of spaced members carried thereby, said members each having a plurality of spaced print-engaging portions disposed in a convex curve swingable about the axis of said links, said portions terminating substantially in a plane mid-way between said conveyors as said members swing whereby a print will be engaged at spaced points by said portions, in cooperation with the other conveyor and progressed by said portions.

10. A device for handling sensitized photographic sheets having in combination, a pair of cooperating conveyors each comprising swingably connected links, sprockets over which said conveyors pass and rectilinear guiding means through which said conveyors pass, said links supporting for swinging movement therewith spaced members each having a plurality of print-engaging portions thereon disposed in a curve and adapted to terminate substantially in a plane passing through the axes about which said links swing, said portions being arranged in alternate relation in the movement of said conveyors and engaging a print at spaced points at opposite sides thereof, said members swinging as the conveyors travel about said sprockets to bring other of said portions into engagement with said sheets.

11. A device for handling sensitized photographic sheets having in combination, means constrained to move through straight and curved paths and having spaced members constructed and arranged to swing as said means travel said curved paths, said members having sheet-engaging portions some of which engage said sheets when said means is travel-

ing said straight path and others of which engage said sheets when said means is traveling said curved path whereby all parts of said sheets will be exposed to a liquid through which it travels.

12. A device for handling sensitized photographic sheets having in combination, conveyors constrained to move in straight and curved paths, each having swinging means comprising members with sheet-engaging portions adapted to swing during the travel of said conveyor through said curved paths, said members being so disposed that a sheet is held therebetween and progressed by engagement therewith of certain of said portions, said sheet being disengaged by said certain portions and engaged by other portions as said members swing when said conveyors travel said curved paths.

13. A device for handling sensitized photographic sheets having in combination, a plurality of tanks arranged adjacent each other, a frame disposed above said tanks and having partitions depending therefrom extending into said tanks for dividing the same into compartments and a conveying means including sprockets on said frame and pivotally connected links movable successively through said tanks and below said partitions, said frame and partitions with said sprockets being removable from said tanks by disconnecting certain of said links.

14. A device for handling sensitized photographic sheets having in combination, a plurality of tanks arranged adjacent each other, a frame disposed above said tanks and having partitions depending therefrom extending into said tanks for dividing the same into compartments, sprockets carried by said frame, and a conveyor running over said sprockets and through said tanks beneath said partition, said frame being removable upwardly from said tanks with said sprockets and the portion of said conveyor carried thereby.

15. A device for handling sensitized photographic sheets having in combination, a casing, a plurality of tanks disposed adjacent each other in said casing, a plurality of sprocket wheels carried in said casing, a frame disposed above said tanks and having plates depending therefrom into said tanks respectively forming partitions dividing said tanks into compartments, sprocket wheels carried by said frame, a conveyor movable over the sprockets in said casing and said last mentioned sprockets, said frame being movable upwardly from said tanks with said partitions and sprocket wheels carried by said frame, with the portion of the conveyor carried by said last mentioned sprocket wheels.

16. A device for handling sensitized photographic sheets having in combination, a plurality of tanks disposed adjacent each other, a frame disposed above said tanks hav-

ing plates depending therefrom into said tanks from end to end thereof and dividing said tanks respectively into compartments, a conveyor movable through said compartments and beneath the partitions in said tanks, said partitions having means at the ends of said tanks forming guiding means for said conveyor.

17. A method of handling sensitized photographic sheets which consists in engaging the same at spaced points at one side and at a localized point intermediate said points at the other side, bending said sheets by such engagement and moving the same in straight and curved paths through treating liquids, disengaging the prints at the points first engaged when moving through said curved paths, engaging the sheets at other points and continuing the motion through said liquids whereby all parts of said sheets are accessible to said liquids.

18. A method of handling sensitized photographic sheets which consists in engaging said sheets at one or more points at the emulsion sides thereof and moving the same through treating solutions while so engaged, disengaging the sheets at said points during said motion and engaging them at other spaced points whereby all portions of said sheets are made accessible to said solutions.

19. A method of handling sensitized photographic sheets which consists in engaging the sensitized sides of said sheets at one or more points and progressing the same through treating liquids, in straight and curved paths, disengaging the sheets at said points as they are moved through the curved path and engaging them at other points whereby all portions of said sensitized sides of said sheets are accessible to said treating liquids.

20. A method of handling sensitized photographic sheets which consists in engaging the same at spaced points at opposite sides thereof and moving the same through treating liquids in straight and curved paths, disengaging said sheets at said points as the same are carried in said curved paths and engaging the same at other points to continue the motion thereof whereby all parts of said sheets may be accessible to said liquids.

21. A device for handling sensitized photographic sheets having in combination, a pair of cooperating conveyors, each comprising pivotally connected relatively swinging links, said links each carrying in rigid relation thereto a segmental member with its convexly curved surface directed outwardly whereby said convex surfaces on said conveyors are adjacent and oppositely disposed, said member having spaced print-engaging projections on its convex surface, the said sheets being engaged at opposite sides by said

projections on adjacent oppositely facing members.

22. In a device of the class described, a conveyor comprising a member having an
5 arcuate surface with spaced projections extending therefrom adapted to engage a print.

23. In a device of the class described, a conveyor having members thereon each having an arcuate surface with projections extending therefrom, said projections on said
10 respective members cooperating to hold a print therebetween.

24. In a device of the class described, a conveyor including a bar with spaced members thereon each having arcuate surfaces with projections extending therefrom to engage a print.
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25. A structure set forth in claim 24, said bar having curved arms at its ends each
20 formed adjacent one end as a hook adapted to receive a pivot member.

In testimony whereof I affix my signature.
GLEN M. DYE.

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