ABSTRACT: An automatic classifying apparatus for segregating unsatisfactory prints from satisfactory prints subsequent to severing of a strip which consists of randomly distributed satisfactory and unsatisfactory prints. Each unsatisfactory print is identified by a graphite line or another suitable mark which is detected by a scanning unit and serves to initiate the generation of a signal transmitted to a motor for a pivotal platform which directs satisfactory prints into a first tray and defective prints into a second tray. The trays are located downstream of the station where the strip is severed during intervals between stepwise advances by the length of a print.
APPARATUS FOR CLASSIFYING PHOTOGRAPHIC PRINTS OR THE LIKE

BACKGROUND OF THE INVENTION

The present invention relates to apparatus for classifying photographic prints or like reproductions according to quality. More particularly, the invention relates to improvements in automatic apparatus for segregating satisfactory or unsatisfactory reproductions from a succession of randomly distributed satisfactory and unsatisfactory reproductions.

It is known to convey a strip of satisfactory and unsatisfactory photographic prints past a control stand where a punching apparatus provides each unsatisfactory print with one or more holes to thus indicate that the perforated print is not acceptable for delivery or mailing to the customer. The strip is then passed to a second position on which it directs the second reproductions to a second collecting station.

SUMMARY OF THE INVENTION

An object of the invention is to provide a classifying apparatus wherein all unsatisfactory reproductions appearing on a strip in random distribution with satisfactory reproductions are segregated and stacked or otherwise accumulated in a fully automatic way.

Another object of the invention is to provide an apparatus wherein satisfactory photographic prints are segregated from unsatisfactory prints with substantial savings in time and man hours.

A further object of the invention is to provide an apparatus wherein satisfactory prints are not only segregated from unsatisfactory prints but the two sets of prints are neatly stacked or otherwise arrayed to facilitate further processing.

The apparatus of the present invention is utilized for classifying photographic prints or like reproductions wherein first reproductions exhibiting first characteristics are in random distribution and form a succession of reproductions with second reproductions exhibiting different second characteristics, and wherein the second reproductions are provided with detectable identifying indicia. The apparatus comprises transporting means arranged to transport successive sets of randomly distributed first and second reproductions along a predetermined path, severing means arranged to subdivide each succession into discrete parts each encompassing one of the reproductions, scanning means adjacent to the path and arranged to produce signals in response to detection of such indicia, and a sorting device arranged to segregate the second reproductions from the first reproductions in response to the respective signals.

The scanning device preferably comprises a guide which is adjacent to the discharge end of the path and is movable in response to the signals from a first position in which it directs the first reproductions to a first collecting station to a second position on which it directs the second reproductions to a second collecting station.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved classifying apparatus itself, however, both as to its construction and its mode of operation, together with additional features and advantages thereof, will be best understood upon perusal of the following detailed description of certain specific embodiments with reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary perspective view of certain components of a classifying apparatus which embodies the invention; and FIG. 2 is a smaller scale diagrammatic plan view of the entire classifying apparatus.
like, they can be detected by a mechanical, photoelectric or pneumatic scanning element. The signals produced by the scanning device 13 are delayed to ensure that the platform 4 is pivoted at an optimum time for directing the respective unsatisfactory print 3A into the tray 5.

The motor 9 receives signals from a control circuit 10 which is responsive to signals from the scanning device 11 and which also serves to control the operation of the motor 12 for the movable component of the cutter 2. The line 10e represents an operative connection between the control circuit 10 and the motor 14 for the platform 4. This connection insures that the electromagnet of the motor 14 remains energized for a certain interval of time following severing of an unsatisfactory print 3A, i.e., an interval which is long enough to ensure that the unsatisfactory print 3A slides along the top surface of the platform and into the tray 5. The motor 14 comprises one or more springs which permanently bias the platform 4 to one of its end positions, preferably to that position in which the platform directs satisfactory prints 3 into the tray 6.

An important advantage of the improved apparatus is that the segregation of defective prints 3A from satisfactory prints 3 takes place in a fully automatic way. Also, the trays 5, 6 insure proper stacking of the respective prints. The prints 3A which accumulate in the tray 5 are thereupon replaced with freshly produced prints of acceptable quality.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features which fairly constitute essential characteristics of the generic and specific aspects of our contribution to the art and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

We claim:

1. Apparatus for classifying photographic prints or analogous reproductions wherein first reproductions exhibiting first characteristics as to quality are in random distribution and form a succession of reproductions with second reproductions exhibiting different second characteristics as to quality and wherein the second reproductions are provided with detectable identifying indicia, comprising transporting means arranged to transport successions of randomly distributed first and second reproductions along a predetermined path located in a substantially horizontal plane and having a discharge end, serving means arranged to subdivide each succession into discrete parts each of which encompasses one of the reproductions; scanning means adjacent to said path and arranged to produce signals in response to detection of said indicia; and a sorting device arranged to segregate said second reproductions from said first reproductions in response to said signals, said sorting device comprising a guide which is adjacent to the discharge end of said path and is movable in response to said signals from a first position in which it directs said first reproductions to a first collecting station to a second position in which it directs said second reproductions to a second collecting station, said guide being disposed at a level below said plane and including a platform which is pivotable between said first and second positions about a substantially horizontal axis which is at least substantially parallel to the direction of transport of reproductions along said path, said platform including two elongated edge portions substantially parallel with and flanking said axis, one of said edge portions being closely adjacent to said plane in one position and the other edge portion being closely adjacent to said plane in the other position of said platform.

2. Apparatus as defined in claim 1, wherein each of said successions of reproductions forms a strip of exposed photographic prints and wherein said transporting means is arranged to transport the strips stepwise, always by the length of a print.

3. Apparatus as defined in claim 1, wherein said sorting device further comprises means for biasing said guide to one of said positions.

4. Apparatus as defined in claim 1, wherein said platform is pivotable between said first and second positions through an acute angle.

5. Apparatus as defined in claim 4, wherein said angle is between 60° and 70°.

6. Apparatus as defined in claim 1, further comprising first and second receptacles respectively disposed at said first and second collecting stations and respectively arranged to receive and to stack said first and second reproductions.

7. Apparatus as defined in claim 6, wherein said receptacles are immediately adjacent to each other.

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