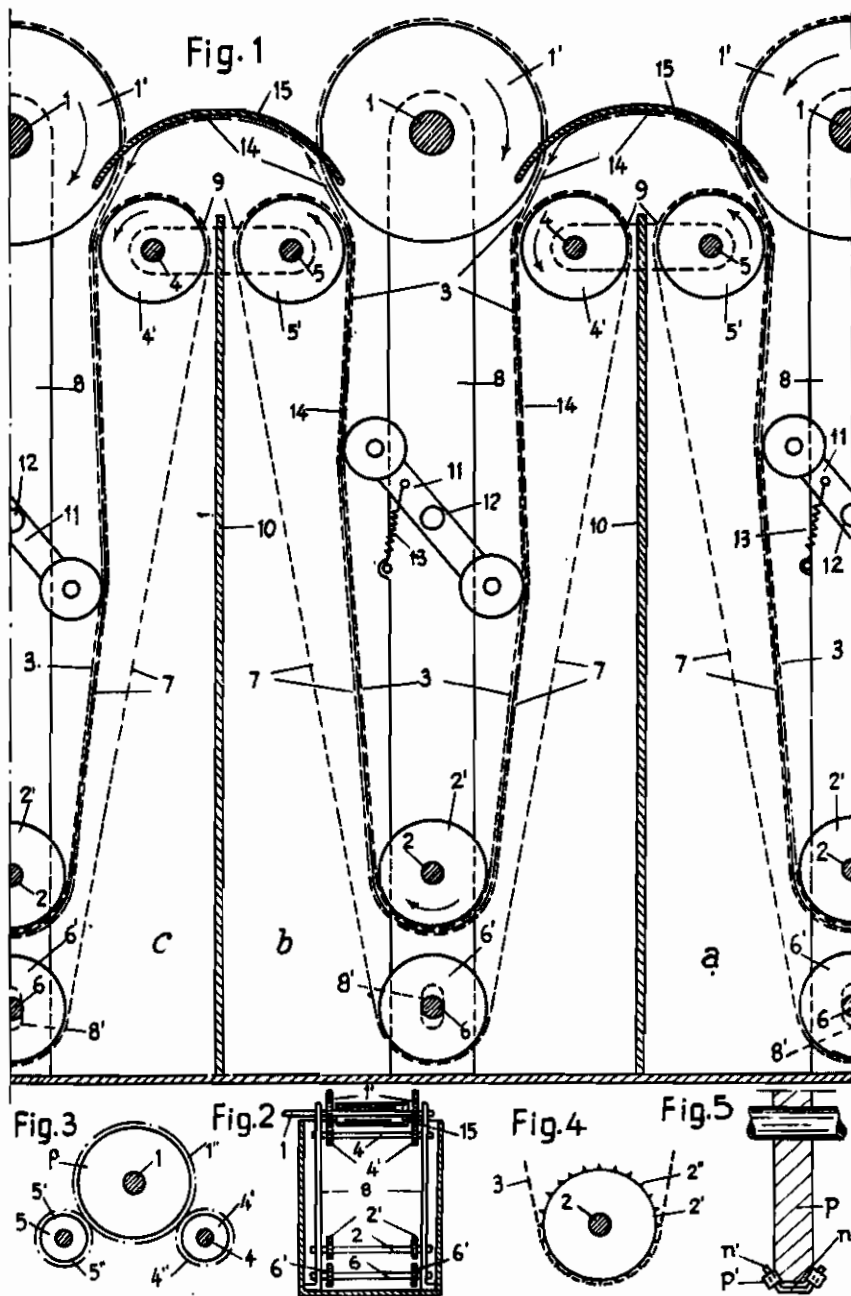


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ALIEN PROPERTY CUSTODIAN

PAPER FILMS CONVEYOR

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This invention relates to a device for conveying paper or films through the known automatic machines for development and other treatments of photographs. A construction of the object of this invention is shown diagrammatically and by way of example in the accompanying drawing, wherein:

Figure 1 is a vertical longitudinal section of the conveyor used in connection with an ordinary automatic machine for development and other treatments of photographs.

Figure 2 is a cross section thereof on a smaller scale,

Figures 3 and 4 show details.

As is well known, automatic machines for development and other treatments of light sensitive photographic material include a plurality of vertical tubs *a, b, c*, arranged beside one another and containing the various baths through which the light sensitive material is successively conveyed by conveyors of various constructions at suitable speeds and in which it undergoes the desired treatment.

According to this invention an individual conveyor is provided for each compartment or tub *a, b, c*; all the conveyors operate synchronously and means are provided between the individual compartments for transferring the material under treatment from one compartment to another. Each conveyor comprises an upper shaft *1*, which is in this case a driving shaft, carrying near its ends two pulleys *1'* or similar members; a lower shaft *2* carrying two pulleys *2'*. An endless flexible band *3*, supported beach driving pulley *1'* descends in a loop form towards the bottom of the tub over the transmission pulley *2'*. The conveyor further comprises two top shafts *4, 5* situated on opposite sides of the middle plane of the compartment or tub and carrying in the planes of the pulleys *1' 2'* the pairs of supporting pulleys *4' 5'*; a lower shaft *6* carrying in the above mentioned planes two further pulleys *6'*. Each pair of supporting pulleys *4', 5'* cooperate with a further endless flexible band *7* descending towards the bottom of the tub in the form of two loops, one of which passes over the transmission pulley *6'*, while the other passes over the pulley *2'* and contacts with the band *3* on the pulley *2'* and on the two portions moving from this pulley up to the pulleys *4', 5'*.

The unit comprising the shafts *1, 2* and *5* is supported by way of example by the uprights *8* (see Figs. 1, 2), while the shafts *4, 5* may be supported by arms extending from the same uprights *8* or by independent supports *9* secured

to the walls *10*. The contacting portions of the bands *3, 7* travelling together on the transmission pulleys *2'* are kept stretched by stretching means *11* mounted for oscillation at *12* on the uprights *8* and pressed by spring means *13*. The portions of the bands *7* descending from the pulleys *4', 5'* down to the transmission pulleys *6'* may also be stretched by the weight of the pulley *6'* and their shaft *6* mounted for vertical displacement within slits *6'* in the uprights.

The shafts *1* are rotated all in the same direction as for instance, the direction shown by the arrows on Fig. 1, and at the same speed. The bands *3* carried by the pulleys *1'* are driven and as they rotate the transmission pulleys *2'*, they also carry along by friction the bands *7* and actuate the pulleys *4', 5'* and the transmission pulleys *6'*. If desired, the side pulleys *4'* and *5'* may also be operated as driving pulleys by providing on the shaft *1* a toothed wheel *1''* meshing with toothed wheels *4'', 5''* of suitable diameter mounted on the shafts *4, 5* as shown in the modification of Fig. 3. In this case the bands *7* are also positively operated instead of being indirectly driven by friction by the bands *3*.

The paper strip or film *14* to be treated is fitted by its longitudinal edges between the portions of the bands *3, 7* extending in contact with each other and travelling together between the pulleys *4', 5'* and the pulley *2'*.

The paper or film strip held by its longitudinal edges only between the two bands *3, 7* performing a concordant translational movement, is successively conveyed through the various compartments or vertical tubs *a, b, c*, in the following manner. The strip *14* is caught between the pulleys *1'* and *4'* at a point where the bands *3* having left the pulleys *1'* pass over the pulleys *4'*; the strip *14* is caught by its longitudinal edges between the two contacting portions of the bands *3* and *7* and is conveyed through the bath contained in the tub; the strip *14* is again released from the bands *3* and *7* at the point where the bands *3* again pass over the pulleys *1'* and the bands *7* on the pulleys *5'*; the strip then issues tangentially to the pulley *5'*, is guided by an inverted trough *15* arranged between two succeeding tubs and is again caught between the pulleys *1'* and *4'* of the next tub at a point where the bands *3* having left the pulleys *1'* pass on the pulleys *4'* and is caught again between the contacting portions of the bands *3* and *7*. The strip *14* passes in this manner through all the tubs.

The flexible bands *3, 7* may be in the form of

a band or belt of any suitable material adapted to withstand the action of the various baths. The various guide and driving pulleys, or part of them, may be grooved pulleys. The flexible bands may also be replaced by sprockets, in which case the various pulleys may have teeth adapted to engage with the sprockets, like the teeth 2'' shown in Figure 4 on the pulley 2'.

According to the modification shown in Figure 5, the conveyor n in the form of a band is formed laterally with ribs or teeth n' inwardly

bent for retaining the edge of the pulley p and engaging therewith. Moreover, the pulley may be formed on its periphery with pins or teeth p' adapted to engage in the hollows between the teeth n' of the band in order to positively drive same.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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