Dec. 7, 1943. F. E. OILER 2,335,956

PHOTO RECORDING DEVICE

Filed Feb. 14, 1941 2 Sheets-Sheet 1

Fig. 1.

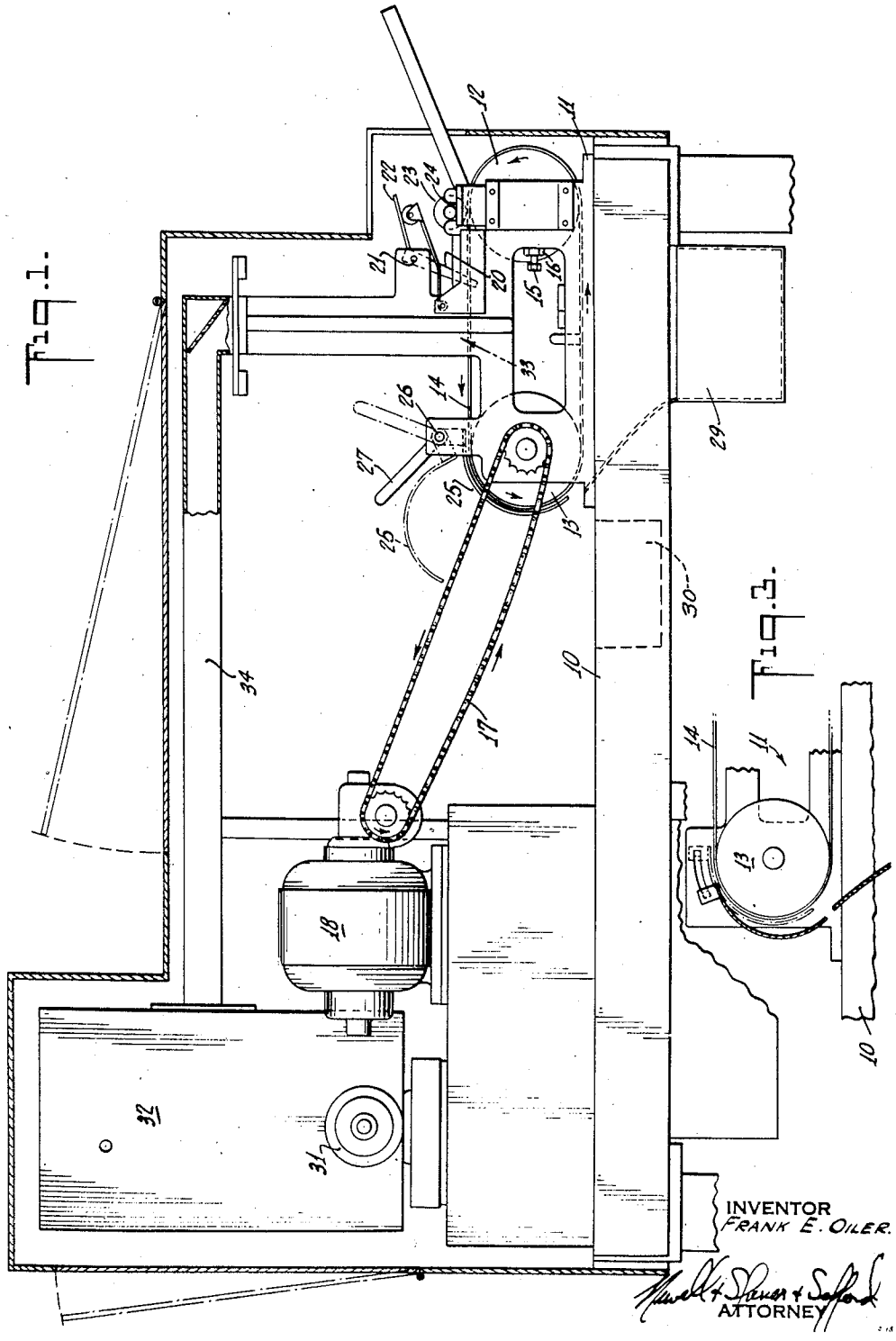


Fig. 2.

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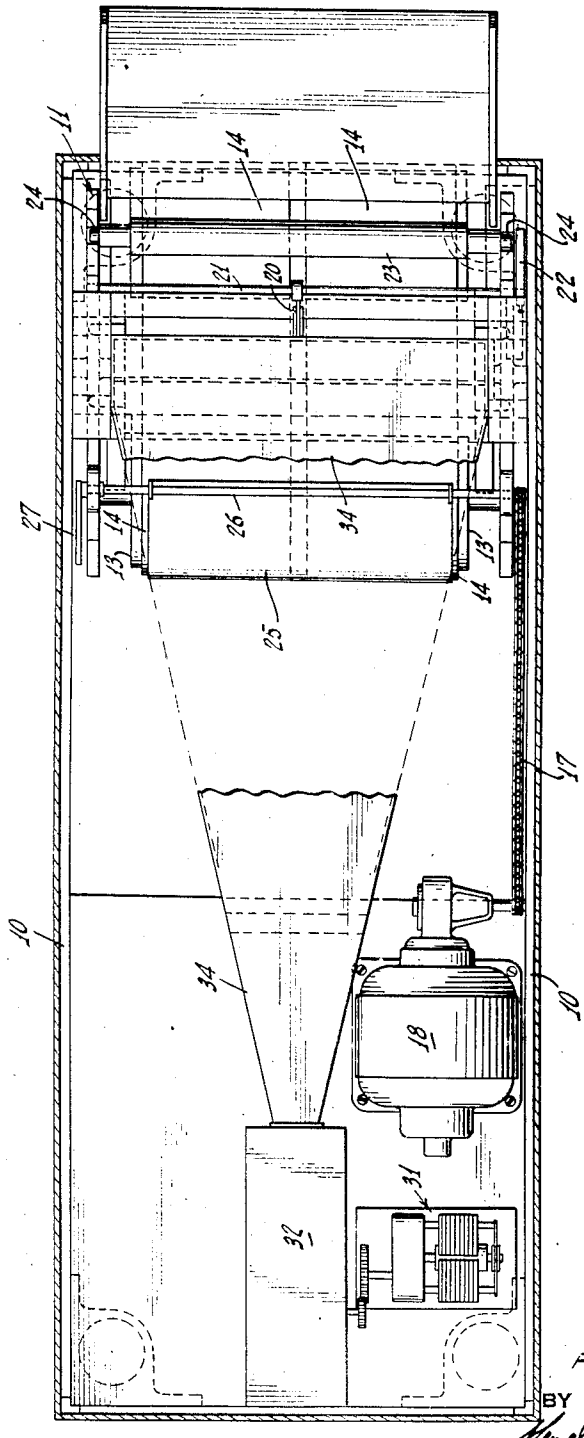


Fig. 2.

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UNITED STATES PATENT OFFICE

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PHOTO RECORDING DEVICE

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Application February 14, 1941, Serial No. 378,858

1 Claim. (Cl. 88—24)

This invention relates to a device for feeding and sorting sheets with or without performing other operations with respect thereto; and more particularly to a device for photographing records with continuous feeding and sorting thereof.

It is an object of my invention to provide for the photo-recording of sheets of various kinds, including stiff cards as well as flexible paper.

Another object of my invention is to provide for sorting sheets fed through a device in order to collect together sheets of one class and to collect separately sheets of another class.

Another object of my invention is to provide for feeding sheets individually and successively from a pile and to repile them in the same order from face to base of the pile.

With these objects in view as well as other objects which will be apparent from the following specification and the accompanying drawings, my invention contemplates feeding sheets in a flat condition over a table where a desired operation to the sheets may be performed and subsequently discharging the sheets at the end of the table from a roll, either directly in approximately the same plane or by guiding them around the roll, whereby they are discharged at a different level and in a different direction from that of the table. I have also found that, by mounting laterally spaced belts on a pair of rotating rolls, such belts constitute a moving table peculiarly adapted to the purposes of my invention, whereas, the space between the belts permits the introduction of a feeler or other suitable sensing device for controlling the operation of a camera, or any other suitable device, in response to the passing of a sheet on the table.

In the accompanying drawings, I have shown a preferred embodiment of my invention by which the above objects are attained. In selecting and presenting this preferred embodiment and the various modifications and alternatives suggested in this application, I wish it to be understood that these are not intended to be exhaustive nor limiting of the invention, but on the contrary they are given with a view to illustrating the invention and explaining the principles thereof and the best manner of embodying the same in use, in order that others may fully understand the same and may be enabled to embody the invention in numerous other forms and in numerous other modifications, each as may be best adapted to the conditions of a particular use.

In these drawings:

Fig. 1 is a view in side elevation and partly in section;

Fig. 2 is a top plan view; and

Fig. 3 is a fragmentary view partly in section and partly in elevation of another embodiment of my invention.

Referring first to Figs. 1 and 2, the frame 10 carries at one end a feeding device 11, having rolls 12 and 13 journaled therein at opposite ends. The roll 12 is provided with adjustable journals adapted to be moved outward to tension of the belts 14 by means of adjusting screws 15 provided with lock nuts 16.

The roll 13, and by it the belts 14 and the roll 12, are driven, through the sprocket chain 17, from the motor 18.

In the embodiment of my invention shown in these figures, two belts 14 are used, side by side but spaced a short distance to receive the finger or feeler 20, which is connected through the shaft 21 to the micro-switch 22. A pressure roller 23 is held in slots 24 at opposite sides of the feeding device 11, and thus presses by its own weight onto the belts 14 at the top of the roll 12.

An approximately semi-cylindrical guide 25 fits loosely over a forward end of the roll 13 with sufficient clearance to permit the passage of sheets between the belts 14 and the guide member. The guide 25 in the embodiment illustrated is secured to the shaft 26 which at its end is provided with a handle 27 by which the guide may be thrown up above the plane of the table formed by the straight portion of the belts 14 between the rolls 12 and 13.

A receptacle 29 is positioned below the roll near the end of the guide 25 and a receptacle 30 is positioned to receive sheets which pass directly off the table formed by the belts 14 when the guide 25 is lifted to its uppermost position.

I have already referred to the micro-switch 22 controlled by the finger 20. In the example shown, this switch is connected in the circuit of the motor 31 which operates the camera 32, feeding the sensitized film through the focus of an optical system including the light tube 34 focused at 33 upon the table formed by the belts 14.

Inasmuch as such a camera structure is already known and is given here as an example of a device for operating upon a sheet fed by the belts 14, I shall not here describe its structure in detail.

As an example of the use of this device, I may describe the recording of checks and statements in commercial bank practice. The checks for each customer are collected and entered by means of billing machines on a monthly statement. The checks and statement then go together to the recording machine for photo-recording on micro-film. The operator feeds the checks one at a time into the device herein shown and described, between the pressure roller 23 and the belts 14 on the roll 12. These checks pass in a flat condition along the belts 14 into contact with the finger 20 which is lifted as each passes beneath it to operate the micro-switch 22 to energize the motor 31 and thereby to operate the camera 32 for exposing the light sensi-

tive film therein to a focused image of the check as it passes beneath a focal area at 33 on the table formed by the belts 14. These checks pass in rapid succession, and as they move beyond the photographing position 33 on the table 14 they pass under the guide 25 around the end of the roll 13 and are delivered into the receptacle 29 face downward, thus being re-piled in the receptacle 29 in the same order as the pile from which they have been taken when fed into the device.

When the customer's checks have all been run through the machine in this way, the monthly statement is then run through in the same way except that the switching handle 27 will be thrown back to lift the guide 25 above the plane of the belts 14. The statement, therefore, is discharged in a flat condition and in approximately the same plane as that of the table 14. When the statement or statements have been photographed and passed into the receptacle 30 the switching handle 27 is restored to the position shown in Fig. 1, and the machine is ready for photographing the next batch of checks. Likewise, in department store procedure, sales slips for the month for each customer are collected and are entered on a monthly statement by a billing machine. The sales slips may be fed into the receptacle 29 and collected for temporary filing or for immediate disposal, whereas, the customer's statements are fed forward with the guide 25 lifted out of the way and collected in the receptacle 30 for mailing to the customer.

This arrangement also has the advantage of being adapted for multiple uses. With ordinary flexible sheets it will be desirable to feed the sheets around the end of the roll 13 under the guide 25 in order to re-pile in the same order as the sheets are fed into the device, but many stiff cards could not be so fed around the roll, and in such case it is possible with the device of my invention merely to move the guide 25 out of the way to discharge the sheet directly in the same plane from the device.

In Fig. 3, I have shown a modified form of guide which instead of being pivoted as shown at 26 in Fig. 1, is mounted on a slide such that the guide 25 is moved a short distance downward and forward so as to bring its upper edge a little below the plane of the table formed by the belts 14 and close to the surface of the belts. In this position the sheets moving along on the surface of the belts 14 will pass over the top of the guide 25, whereas, in the upper position shown in broken lines in Fig. 3, the sheets will be caught under the upper edge of the guide and will be guided around the end of the roll 13 with the belts 14 and delivered from the lower portion, substantially as already described in connection with Fig. 1.

What I claim is:

A photographic recording device which comprises a pair of laterally spaced interconnected conveyor belts forming a flat table, means for moving said belts to carry sheets thereon over said table, a camera having an optical system including lenses for focusing an image of a narrow area extending across said table onto a photographic film and a reflector for reflecting said image at an angle to said area, an opaque tube enclosing said optical system extending perpendicularly from said table to said reflector and therefrom at an angle corresponding to the angle of reflection to the vicinity of said photographic film and an electrical motor, independent of said belt moving means, for moving the film through the focused image at a velocity in the same proportion to that of the sheets across the table as the width of the sheet is to the width of the film, a finger extending into the space between said belts adjacent said narrow area, freely pivoted and accurately balanced with a small part thereof extending beyond the plane of said table whereby to be readily moved back to said plane by a passing sheet, and a micro-switch connected to said finger and electrically connected to said camera motor to energize it when said finger is moved, whereby said camera normally operates only when a sheet is passing into or through said narrow area, and a guide at the end of said table movably mounted to extend across the plane of said table to engage sheets passing therefrom and divert them therefrom, or to be away from the plane of the table leaving sheets free to pass therefrom in the same plane.

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