Sept. 20, 1938. M. FLEISCHER 2,130,541

ART OF MAKING MOTION PICTURE CARTOONS

Filed Dec. 14, 1936

Fig. 1.

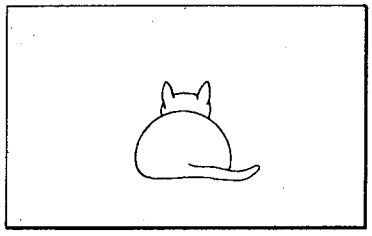


Fig. 2.



Fig. 3.

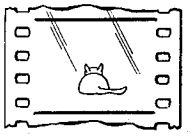


Fig. 4.

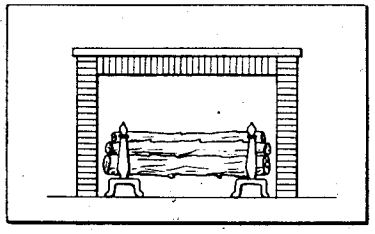


Fig. 5.

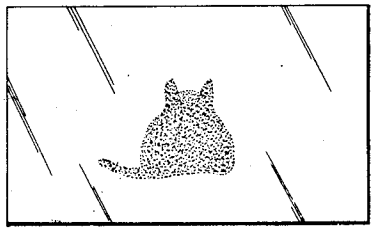


Fig. 7.

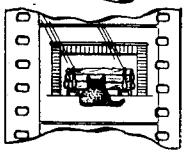
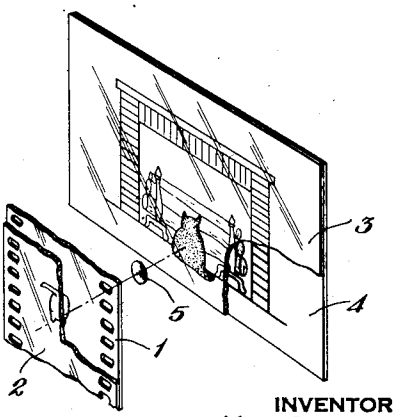


Fig. 6.



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ART OF MAKING MOTION PICTURE CARTOONS

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Application December 14, 1936, Serial No. 115,774

8 Claims. (Cl. 88—16)

This invention relates to improvements in the making of motion picture cartoons containing an outlined animated figure in front of a background, and has for one of its objects in the process of producing said cartoons the elimination of the step of drawing or tracing the outlines and other forming lines of the animated figure in ink upon each of the series of drawings on Celluloid which are photographed in succession on a length of motion picture film. Another object of the invention is the production on a finished cartoon film of an animated figure provided with an outline of a superior and more artistic quality than that now appearing on such films.

In the practice of producing motion picture films heretofore followed the drawings which are photographed usually consist of a large number of sheets of Celluloid or other transparent material containing the animated portions of the complete drawing to be photographed, which are superimposed in succession upon an inanimate background. This avoids the necessity of making a complete drawing of the entire picture for each frame of the finished film, since a separate drawing of only that portion of the whole drawing to appear animated is required for each frame and but one drawing of the inanimate background suffices for a long sequence of frames. In carrying out that practice a series of line drawings of the animated foreground figure in progressive stages of animation are usually first drawn with lead pencil or ink on paper or other suitable material, and to produce an artistic and satisfactory motion picture involving such a combination of an animated foreground figure and a background, it has been the usual practice to provide the drawing of the animated figure with a contrasting outline to make it stand out from and not blend with the background. A tracing of each of these line drawings is then made in black ink upon sheets of transparent Celluloid placed over the drawings and the area within the outline on the Celluloid sheet is rendered opaque by the application of a suitable substance to the back of the sheet which also makes it capable of being photographed by reflected light. This tracing of the outline and other forming lines of the figure of the drawing by hand in ink on each of the Celluloid sheets is a long, tedious and expensive operation due to the extremely large number of such drawings which are required for a motion picture cartoon and requires the services of a large number of artists to complete the work within a reasonable time and also frequently involves a lack of uniformity in the tracings because of the different degrees of skill and individual characteristics of the artists making the tracings, one of whom, for instance, may be disposed to make the lines somewhat broader or heavier than another. Moreover the artistic quality of the lines in the original drawing is frequently lost in the tracing. The series of Celluloid sheets containing the opaqued tracings which form the animated foreground are then placed in succession over the drawing of the background and successively photographed.

According to the method of my invention, it has been made possible to dispense with the necessity of tracing in ink upon the Celluloid sheets the outline and other forming lines of the animated drawing, which will be apparent from the following description of my invention and by reference to the accompanying drawing in which:

Fig. 1 is a line drawing of an animated foreground figure.

Fig. 2 is a photographic negative on motion picture film of the drawing of Fig. 1.

Fig. 3 is a positive print on motion picture film of Fig. 2.

Fig. 4 is a drawing for a background scene.

Fig. 5 is a sheet of transparent Celluloid having thereon an opaqued area corresponding in reverse to the line drawing of the animated foreground figure shown in Fig. 1.

Fig. 6 is a diagrammatic view in perspective of an arrangement of various elements used in practicing my invention.

Fig. 7 is a view of one frame of a motion picture film made in accordance with my invention.

A series of outline drawings representing the animated foreground figure in progressive stages of animation are first drawn in any convenient size with a black lead pencil or other suitable means capable of producing a substantially opaque line on thin white paper or similar translucent material, one of which is shown in Fig. 1, which drawings may also contain other forming lines within the outline. These outline drawings are then photographed seriatim on successive frames of motion picture film, and in doing this, I prefer to use what is known as positive stock and somewhat over-exposed it so as to produce a negative of great contrast in which the pencil outline and any other forming lines that may be within the outlines on the drawings will appear as transparent lines and the remaining portions of the drawings substantially opaque as shown in Fig. 2. From this negative, I print in the usual way, a positive on motion picture film in which

the lines will be substantially opaque and the balance transparent as shown in Fig. 3.

A sheet of transparent Celluloid is placed over the back of each of the aforesaid line drawings shown in Fig. 1, and the area of the Celluloid sheet circumscribed by the outline visible through the thin paper and Celluloid is then rendered opaque by the application of a suitable substance such as an ink or pigment which will also present a smooth surface through the Celluloid sheet that is capable of being photographed by reflected light. The result of the operation is shown in Fig. 5. It should be observed that where the drawing of the animated figure contains other forming lines within the outline the color or shade of the opaquing substance used should not be such as to produce a denser image when photographed on the final negative film than that produced thereon by printing from the positive film shown in Fig. 3 and thus obliterate the forming lines within the outline of the drawing. Moreover, in the opaquing operation different colors or shades of the pigment may be used on different portions of the area within the outline and thus give greater detail to the picture of the animated figure in the finished cartoon.

Referring to Fig. 6, 1 is the positive film shown in Fig. 3 which is then placed in the camera with and in front of the raw or unexposed negative film 2 to be used in making the final negative of the cartoon with the emulsion sides of both films in contact. 3 is one of the Celluloid sheets with the opaque figure thereon as shown in Fig. 5. These sheets are then placed one by one upon the background drawing 4, also shown in Fig. 4, with the side containing the pigment towards the background drawing and in proper sequence so that each of said Celluloid sheets will correspond with the particular frame on the positive film photographically produced from the same original outline drawing such as shown in Fig. 1. Each of the sheets 3 and the positives 1 are so positioned that the image of the said opaque portion of each of the Celluloid sheets 3 will be in register with and occupy the area on the film 2 embraced within the opaque outline on the film 1, with the result that when the said background drawing and the opaqued animated foreground figure on the Celluloid sheet placed over it are photographed by the lens 5 the outline as well as other forming lines of the animated foreground drawing is at the same time printed on the said film 2 thus securing a finished negative of an animated figure with a circumscribing outline and other forming lines in combination with the background from which a finished positive such as shown in Fig. 7 may be printed in the usual way for projection purposes.

It is obvious that various modifications of the method as illustrated and described may be made without departing from the spirit of my invention, for instance, the line drawing instead of being made in black on a white surface as shown in Fig. 1 may be made in white on a black or equivalent surface so that the photographic lines of the foreground figure shown in Fig. 3 may be produced upon the film without the necessity of making the negative shown in Fig. 2, and when I use the terms "black" and "white" with respect to the drawing of the foreground figure, I wish to be understood as including any contrasting shades or colors from which the lines of the drawing may be photographically reproduced as opaque lines on a transparent surface. Again, the background need not be a drawing but may be of any description, and the transparent positive of the line drawing need not be placed in contact with the sensitive film in the camera but may be positioned at a distance therefrom and either within or without the camera.

What I claim is:

1. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline substantially black upon a substantially white surface, photographically making transparent positives of said drawings on a strip of motion picture film with said outline on said positives substantially opaque and positioning said positive film in front of and in contact with a strip of unexposed motion picture film in a camera; superimposing a separate sheet of transparent material upon each of said series of drawings and rendering the portion of said sheet appearing within the outline of said drawing opaque to and reflective of light, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said positives upon said strip of unexposed film in the camera.

2. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline substantially black upon a substantially white surface, photographically making transparent positives of said drawings on a strip of motion picture film with the lines thereof including said outline on said positives substantially opaque and positioning said positive film in front of and in contact with a strip of unexposed motion picture film in a camera; superimposing a separate sheet of transparent material upon each of said series of drawings and rendering the portion of said sheet appearing within the outline of said drawing opaque to and reflective of light, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said positives upon said strip of unexposed film in the camera.

3. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline, photographically reproducing the lines of said drawings including said outline substantially opaque on a strip of transparent motion picture film and positioning said strip in front of and in contact with a strip of unexposed motion picture film in a camera; superimposing a separate sheet of transparent material upon each of said series of drawings and rendering the portion of said sheet appearing within the outline of said drawing opaque to and reflective of light, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said line reproductions of said drawings upon said strip of unexposed film in the camera.

4. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline, photographically reproducing the outlines on said drawings substantially opaque on a strip of transparent motion picture film and positioning said strip in front of and in contact with a strip of unexposed motion picture film in a camera; superimposing a

separate sheet of transparent material upon each of said series of drawings and rendering the portion of said sheet appearing within the outline of said drawing opaque to and reflective of light, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said reproduced outlines of said drawings upon said strip of unexposed film in the camera.

5. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline substantially black upon a substantially white surface, photographically making transparent positives of said drawings on a strip of motion picture film with said outline on said positives substantially opaque and positioning said positive film in front of and in contact with a strip of unexposed motion picture film in a camera; rendering opaque to and reflective of light the portion of each of a series of separate sheets of transparent material corresponding in shape to the portion of each of said series of drawings contained within the outline of said drawing, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said positives upon said strip of unexposed film in the camera.

6. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline substantially black upon a substantially white surface, photographically making transparent positives of said drawings on a strip of motion picture film with the lines thereof including said outline on said positives substantially opaque and positioning said positive film in front of and in contact with a strip of unexposed motion picture film in a camera; rendering opaque to and reflective of light the portion of each of a series of separate sheets of transparent material corresponding in shape to the portion of each of said series of drawings contained within the outline of said drawing, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said positives upon said strip of unexposed film in the camera.

7. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline, photographically reproducing the lines of said drawings including said outline substantially opaque on a strip of transparent motion picture film and positioning said strip in front of and in contact with a strip of unexposed motion picture film in a camera; rendering opaque to and reflective of light the portion of each of a series of separate sheets of transparent material corresponding in shape to the portion of each of said series of drawings contained within the outline of said drawing, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said line reproductions of said drawings upon said strip of unexposed film in the camera.

8. The method of making motion picture cartoons which includes making a series of drawings of an animated foreground figure with a circumscribed outline, photographically reproducing the outlines on said drawings substantially opaque on a strip of transparent motion picture film and positioning said strip in front of and in contact with a strip of unexposed motion picture film in a camera; rendering opaque to and reflective of light the portion of each of a series of separate sheets of transparent material corresponding in shape to the portion of each of said series of drawings contained within the outline of said drawing, successively positioning said transparent sheets in front of a background, and successively photographing said sheets and said background through successive of said reproduced outlines of said drawings upon said strip of unexposed film in the camera.

MAX FLEISCHER.