

Sept. 24, 1929.

G. F. MYERS

1,729,048

METHOD OF MAKING TALKING MOTION PICTURES

Filed July 10, 1922

2 Sheets-Sheet 1

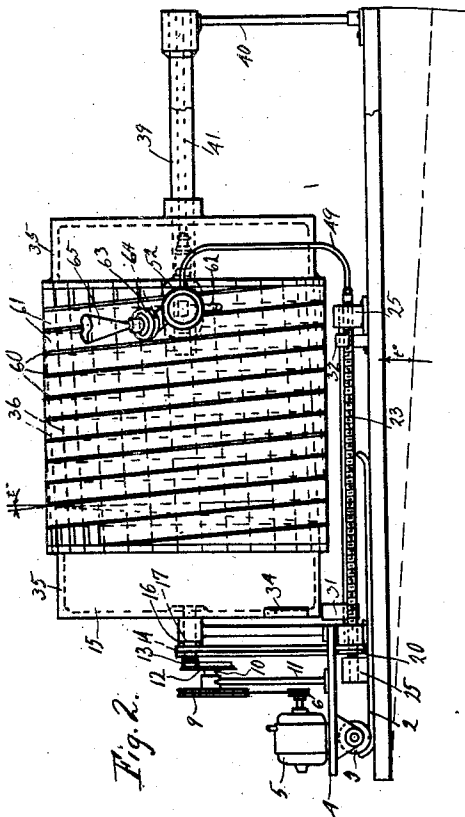


Fig. 2.

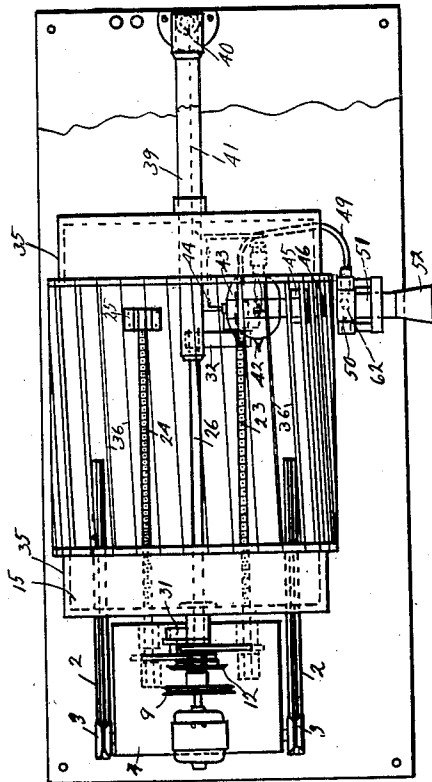


Fig. 3.

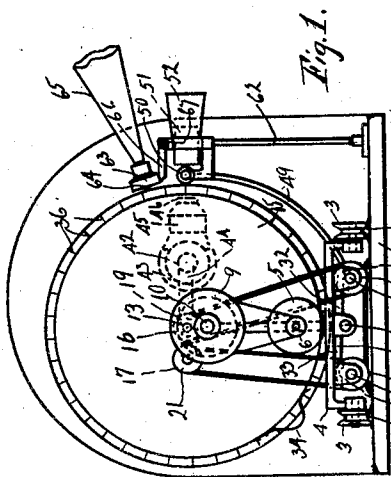


Fig. 1.

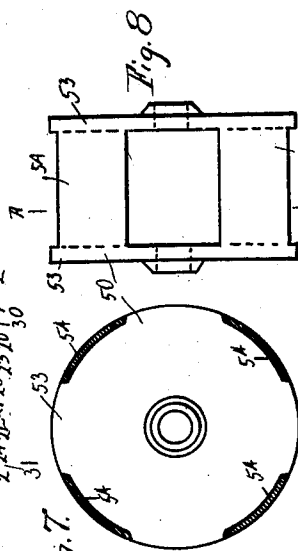


Fig. 7.

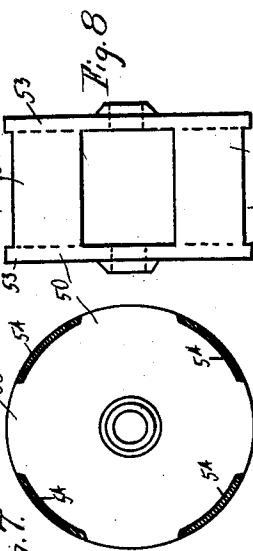


Fig. 8.

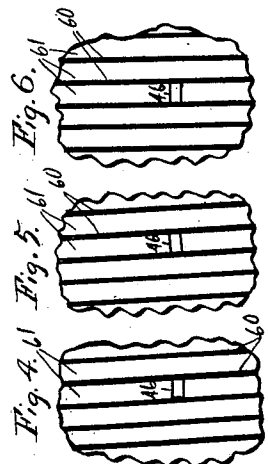


Fig. 4, 5, 6.

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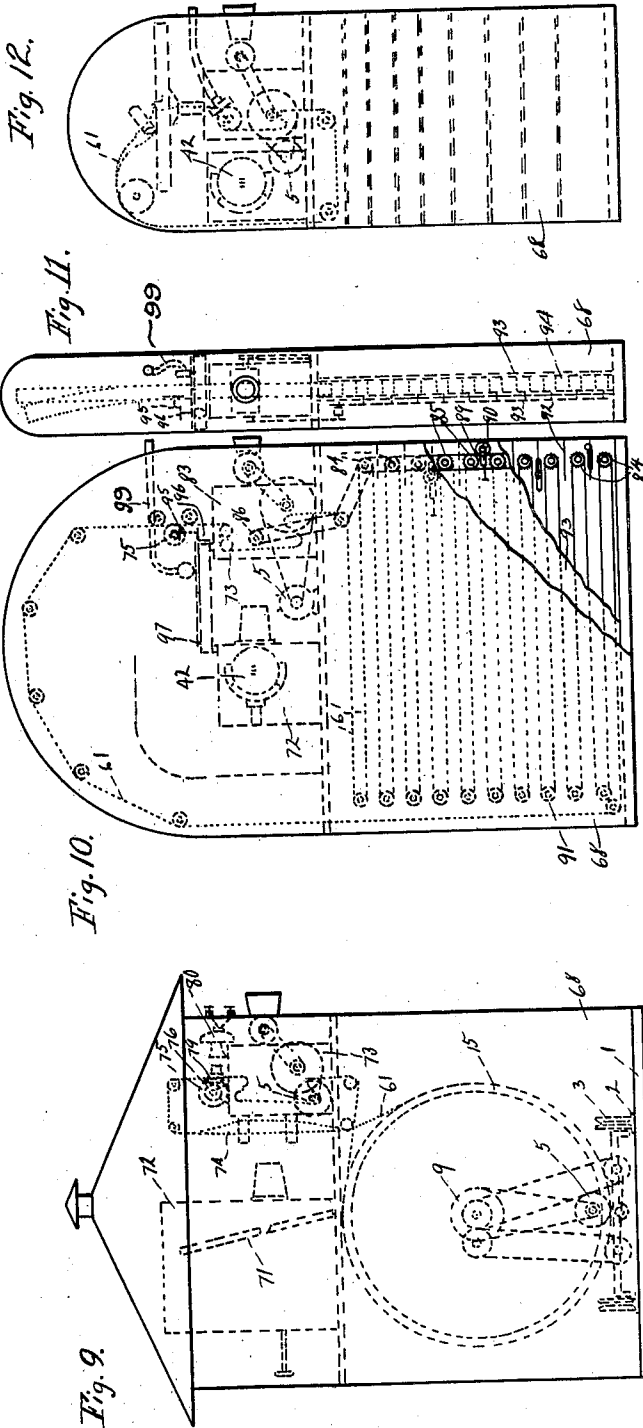
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METHOD OF MAKING TALKING MOTION PICTURES

Filed July 10, 1922

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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METHOD OF MAKING TALKING MOTION PICTURES

Application filed July 10, 1922. Serial No. 573,864.

This invention relates to talking motion pictures and method of making the same.

One of its objects is to provide a process that will enable a moving picture producer to have the voices of his actors recorded at the same time that the picture is being taken, or at any other time,—either before or after.

A second object is to provide a machine that will positively synchronize the visual and the audible portions of a play or speech or advertisement, or the like.

A third object is to produce a picture on the screen without title, or subtitle, or the wasting of many feet of film in recording what the actors say.

A fourth object is to produce talking cartoons, shadowgraphs or the like.

With these and other objects in view the invention consists in certain novel features of construction and in certain parts and combinations therewith to be described and then more particularly pointed out in the claims.

It has been found a very difficult matter to synchronize the moving picture and the human voice, not only from a mechanical standpoint but from an artistic one as well. For it often happens that an actor although well versed in the acoustics of the stage finds it very difficult to pitch his voice correctly in the open air, or in scenes or surroundings unfamiliar to him. On just the day that the picture producer can obtain a first class picture, the artist or actor has a cold or his voice is weaker than usual; and as most pictures are taken in the open, it would be impossible to hear many otherwise good actors.

But with the present invention the picture can be made by movie actors, and then independent of them and under far better circumstances as far as acoustics are concerned, other actors with better voices can make the oral record. This is done by having the film with the action portrayed thereon taken as usual and then run through the moving picture machine two or three times so that the vocal actors can get the correct conception of the piece, and then as it is being run through another and final time the vocal actors talk at the exact moment that the pictures are shown on the screen. This vocalization is

then made into a record, either cylindrical or flat, and the same after being placed on the phonograph is driven either by the film itself or by the same mechanism that drives the film. As the two were synchronized in the making, they must necessarily synchronize afterwards.

For talking cartoons this process is especially advantageous.

In advertising with talking pictures the apparatus may be made automatic, although there is not the call for the same lengths of film. But in railway and ferry stations, hotel and theatre lobbies, or in halls and churches the reels can be made longer. For educational institutions where the exact movement of the hand or body is needed to be shown and described over and over again so that every one in the room or hall can see it plainly and have it impressed firmly on his mind, the film can be still longer,—whether it be in the kindergarten or in the lecture hall of medical students at a surgical lecture.

Political speeches—short and pithy—with the accompanying gesticulations of the orator, can be recorded as well as sermons and lectures.

In the accompanying drawings:

Figure 1 is a side elevation of one of the preferred forms of the invention with its cover in section, the talking machine being mounted peripherally to the film.

Fig. 2 is a side elevation thereof with the film in place.

Fig. 3 is a plan view thereof.

Fig. 4 is a fragmentary portion of several wraps of film mounted at an angle to the vertical, but with the aperture of the machine placed horizontally.

Fig. 5 is a similar view showing the aperture at an angle to the horizontal but in line with the film, the machine taking the picture being placed at that angle intentionally while operating.

Fig. 6 is the same portion of film as in Fig. 5, but the film is now placed vertically and the aperture of the projecting machine is placed horizontally.

Fig. 7 shows a novel form of shutter, be-

ing a section thereof taken on the line A—B of Fig. 8.

Fig. 8 is an end elevation of Fig. 7.

Fig. 9 is a modification of Figs. 1 to 3 enclosed in a booth and provided with an arc lamp. The film may be run through the ordinary head of a standard motion picture machine, the talking arrangement being of the type driven by the film.

Figs. 10 and 11 are side and front elevations respectively of another modification showing means for holding the unused portion of the film so that the same will not foul; the talking arrangement being of the ordinary disc type and driven by the film or by a metal backing registering with the perforations in the film; the sound being transmitted through a tube to a horn as usual.

Fig. 12 is another modification showing a compact arrangement of the picture and talking machines, with the latter being driven by a shaft of the former; there being accommodation for extra films and records below.

The invention is constructed substantially and preferably as follows: 1 is a baseboard having tracks 2 laid thereon over which run wheels 3 holding platform 4 with motor 5. This motor by pinion 6 drives the band wheel 9 on shaft 10 and is supported by post 11. On shaft 10 is the cam wheel 12 driving the star wheel 13 on shaft 14 and which is connected directly to the cylinder frame 15. Also on said shaft 14 is the gear 16 driving the gear 17 and the sprocket wheel 19 which drives the sprocket wheel 20 in one direction while the sprocket wheel 21 drives the sprocket wheel 22 in the opposite direction. Both sprockets 20 and 22 drive screw shafts 23 and 24 respectively and are held by bearings 25. A rod 26 extends parallel with 23 and 24 and has a rocker arm 29 with nuts 30 and 31 and also carries two rocker arms 32 and 33. A spring cam finger 34 on the cylinder frame contacts with these two short rocker arms 32 and 33 at either end of the travel of the cylinder.

The cylinder frame 15 is made up of the castings 35 and a number of thin steel blades 36 set edgewise in 35. The outer end of 35 rests on the horizontal support or tube 39 held by standard 40. Through 39 wires 41 lead to the lamp 42 with reflector 43 held by brace 44 to 39. 44 also holds the condenser 45 and the aperture block 46.

From the end of the screw shaft 23 is fastened the end of the flexible shaft 49 which drives the revolving shutter 50 mounted back of the lens 51 and protector or hood 52. The said shutter is made of two circular walls 53 holding four thin segments 54, cutting off the light passing through the lens.

The phonographic record 60 is wound spirally around the blades 36 in and between the spiral windings of the film 61; and the standard 62 which holds the shutter and lens also

holds the diaphragm 63 with its stylus 64 and horn 65. The brace 66 is hinged at 67.

The said record 60 is made by cutting an ordinary wax record of corresponding diameter to the diameter of the cylinder into strips and fastening the said strips over the said blades between the film record.

In Fig. 9 the incandescent lamp is replaced by the arc light 71 in case 72 and the mechanism for showing the picture is mounted in the case 73. The film 61 is twisted sidewise at 74 to escape the direct rays and heat of 71.

The film perforations engage the sprocket or pin wheel 75 and drives the cylinder 76 on which is the ordinary wax phonograph record, the stylus and sound box 79 being the same as usual. 80 is a common telephone receiver leading to an amplifier or loud speaking telephone situated adjacent to the screen as at 82 in Fig. 14.

In Fig. 10 the film is led downwardly through the projector head 83 and then over a series of live rollers 84 some or all of the same having teeth thereon registering with the perforations in the film. These are driven by sprockets 85 from the interrupter sprocket 86 of the machine by chain 89 with take-ups 90. The rollers 91 may or may not be live. Guards 92 prevent the film from catching on the live rollers underneath the same. It is to be observed however that the film is not stretched tightly in practice as shown in said figure, but will lay more in folds, it has been found.

The film is hedged in on either side by partitions 93 which keep the film from sliding edgewise and becoming entangled with itself. And the said compartment or narrow slot 94 for the film may be used without any live rolls, or even without any rolls whatsoever.

The phonograph in this case is shown of the ordinary disc type 97, and is driven by the film through the sprocket or pin wheel 75 and a pair of miters 95 and 96. A tube 99 is intended to lead to a horn that is to be mounted adjacent to the screen upon which the pictures are to be projected.

In Fig. 12 the film is brought down from the inside of the reel and immediately after leaving the film case is brought back into the reel making an endless film of any length desired. In the bottom of the cabinet 68 are shelves both for reels of film and talking records. The phonograph is run from one of the shafts of the picture machine, both when making the record and when exhibiting the same.

As the invention is in some of its aspects generic, it is not to be limited to the exact details as shown or described, but is entitled to the employment of such equivalents as fairly fall within the scope of the claims.

In this connection it may be stated as aforesaid that while the ordinary film and projection apparatus, as well as any sound

reproducer may be used: As for instance when the aluminum film and its peculiar lighting arrangement comes into use, it now being in its experimental state, the same is
5 to be covered in the claims as far as its use is concerned with the present invention. Rear projection is shown and described, but projection from the front of the screen can also be used with good effect with the pres-
10 ent invention. Radio photography and sound production may also be employed, when found desirable.

Therefore it will be understood that various changes may be made in the form,
15 proportion, size and detail of the several structures shown and described, the number and position of certain elements used, as well as the character of the motive power employed, without departing from the spirit
20 of the invention.

I claim:

1. A method of producing sound synchronously with the actions in a motion picture film that is being projected, consisting
25 in running the film containing a picture record through a projection machine, making a separate and independent sound record synchronously while the film is being shown, and operating the sound record synchro-
30 nously with the picture record.

2. A method of producing sound synchronously with the actions in a motion picture film that is being projected, consisting
35 in taking the pictures with a movie actor, developing the film therefrom, exhibiting the film while synchronously making a separate and independent talking record by a speaking actor, and adapting the talking record to act synchronously with the film.

40 GEORGE FRANCIS MYERS.