

E. H. SPERBERG.
MOVING PICTURE MACHINE.
APPLICATION FILED DEC. 11, 1909.

961,655.

Patented June 14, 1910.

3 SHEETS—SHEET 1.

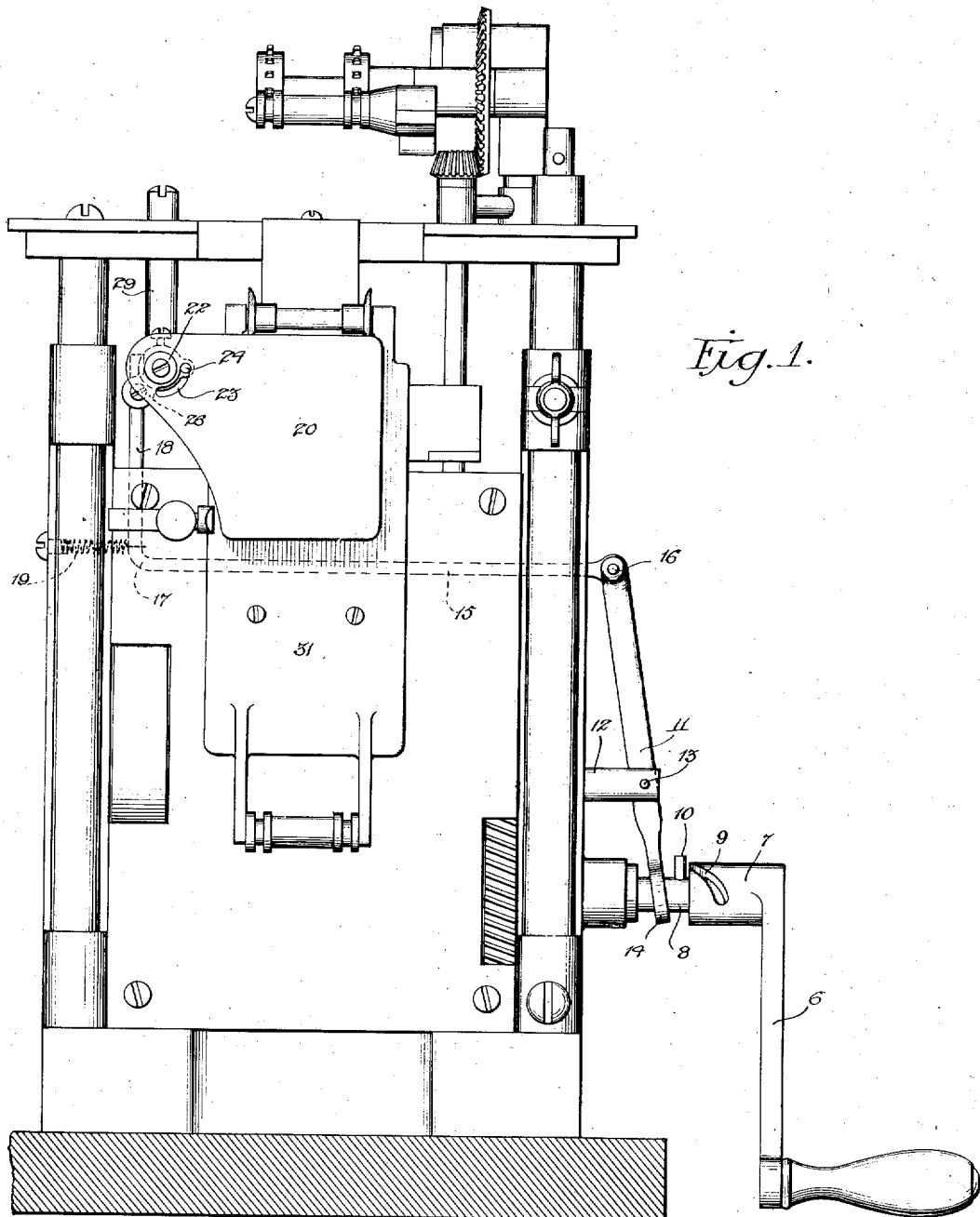


Fig. 1.

Witnesses:-

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Inventor:-

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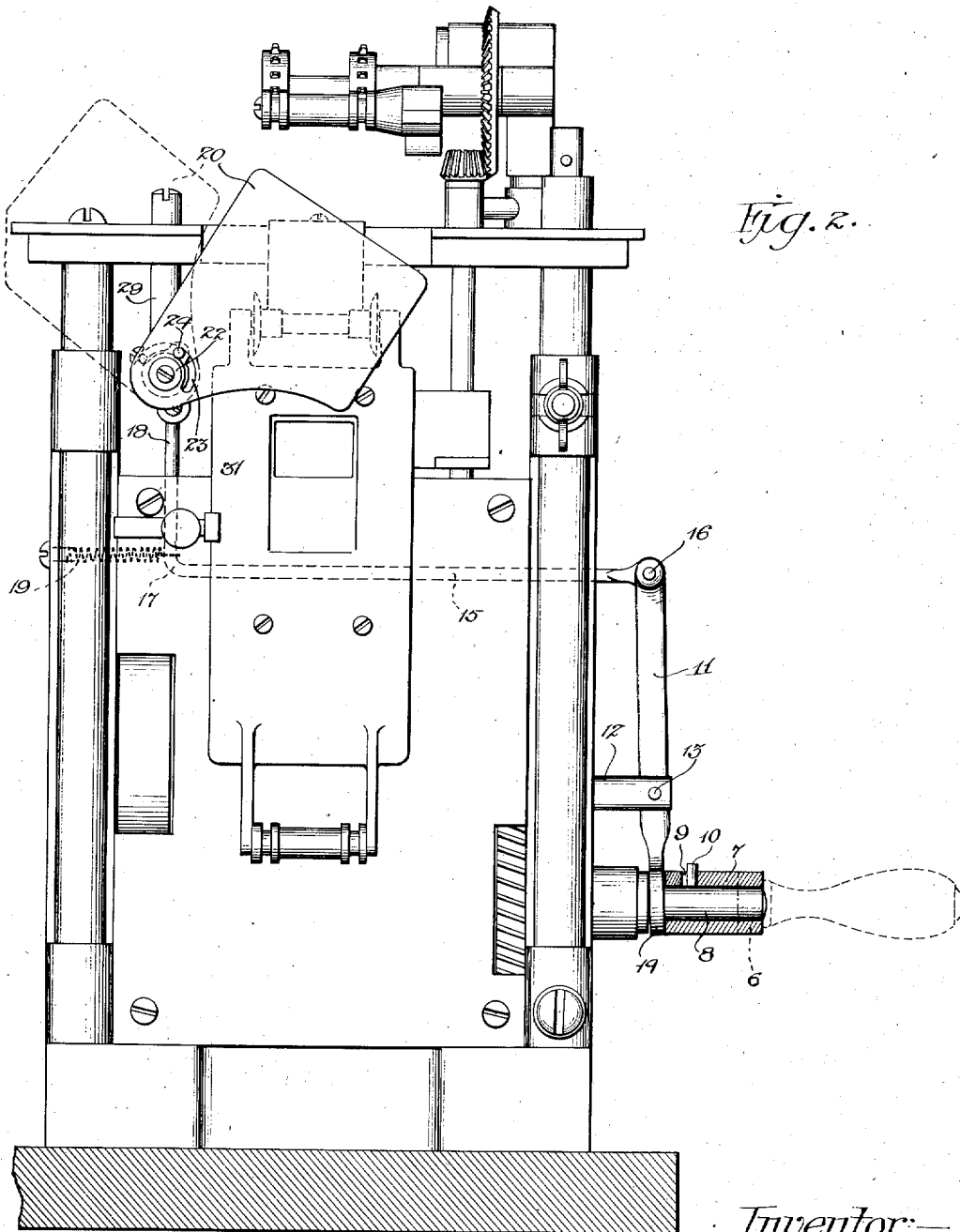


Fig. 2.

Witnesses:—

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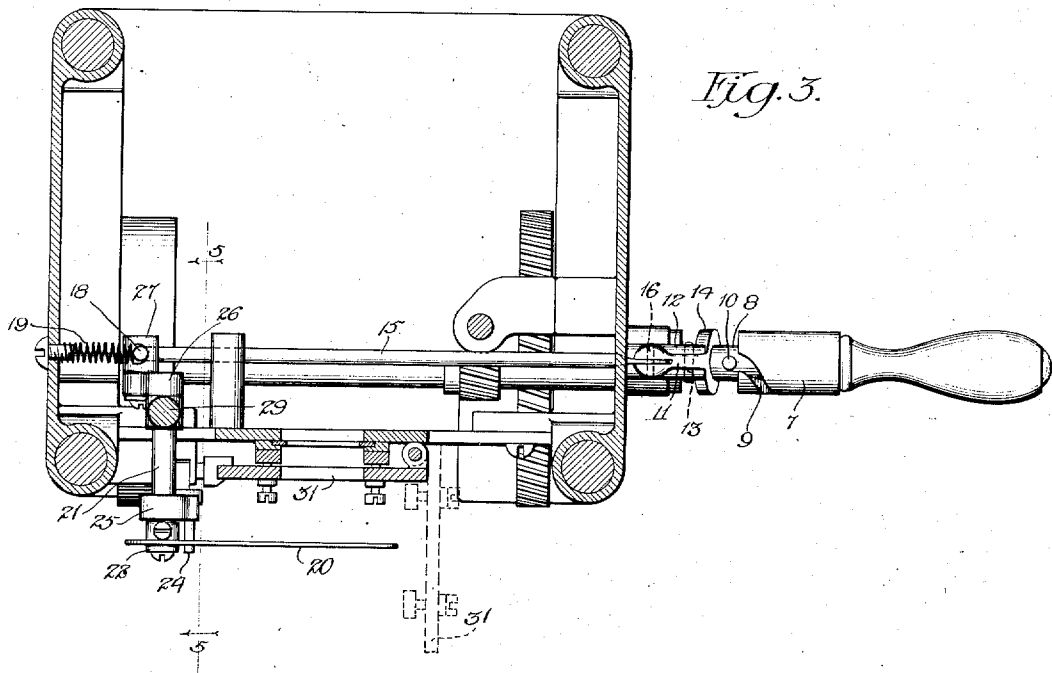


Fig. 3.

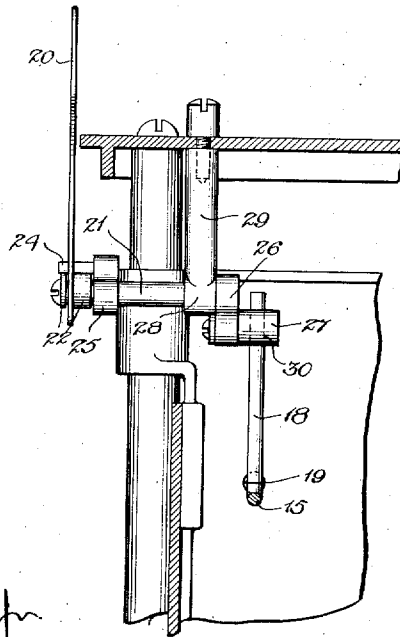


Fig. 4.

Witnesses:-

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UNITED STATES PATENT OFFICE.

EDWARD H. SPERBERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE SELIG POLYSCOPE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

MOVING-PICTURE MACHINE.

961,655.

Specification of Letters Patent. Patented June 14, 1910.

Original application filed April 17, 1909, Serial No. 490,465. Divided and this application filed December 11, 1909. Serial No. 532,676.

To all whom it may concern:

Be it known that I, EDWARD H. SPERBERG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Moving-Picture Machines, of which the following is a specification, and is a division of application Serial No. 490,465, filed April 17, 1909.

This invention relates to moving picture machines of the film type, in which it is necessary to make provision for cutting off the rays of light from the film in case of stoppage of the machine, so that the film will not become overheated by being allowed to stand inoperative for any appreciable length of time, in the rays of light. At the present time use is made of devices for accomplishing this purpose, but as far as I am aware they have always been in the nature of centrifugal shutters of such design that sufficient reduction of the speed causes them to close the light opening. It is found, however, that the use of a device acting in more positive manner than such shutters is desirable.

The object of the present invention is to provide a more positively acting fire shutter or door than that now used, and one which may be easily applied to the ordinary type of moving picture machine.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is an elevation of a moving picture machine of the ordinary type, partly in section, having a fire door attached to it, the door being in closed position such as it assumes when the driving handle is not completely inserted; Fig. 2, a front elevation of such moving picture machine, partly in section, showing the fire door in the open or operating position which it assumes when the driving handle has been completely inserted into driving position, and showing also, in dotted lines, the position into which the door may be thrown for the purpose of changing the film; Fig. 3, a plan view of such moving picture machine, partly in section, showing the fire door in closed position, and showing also, in dotted lines, the aperture plate of the machine when it has been swung out for the purpose of changing or removing the film; and Fig. 4,

a side elevation of a portion of the machine, taken on line 5—5 of Fig. 3, looking in the direction of the arrow, and showing in detail the lever mechanism for raising and lowering the fire door, the door being thrown into its uppermost position.

A driving crank 6 is attached to a sleeve 7 which slides upon a driving shaft 8, the sleeve being provided with a helical groove 9 adapted to engage with a pin 10 on the shaft, so that when the pin is entered into the groove and the sleeve is rotated the sleeve will be driven inwardly toward the machine, as shown in Fig. 2. A lever 11 is fulcrumed to the frame of the machine on a lug 12 by a pin 13, and said lever is provided at its lower end with a collar 14 which surrounds the driving shaft 8 and of which the hole is of such size that the collar can move freely back and forth between the positions shown in Figs. 1 and 2. It is evident that a complete insertion of the driving crank 6 and its rotation into the driving position will cause the lever 11 to be moved from the position shown in Fig. 1 to that shown in Fig. 2, by reason of the engagement of the sleeve 7 with the collar 14.

The upper end of the lever 11 is attached to a rod 15 by means of a pin 16. The rod 15 is bent upwardly at 17 to form a pin 18, and a spring 19 tends to normally maintain the pin and rod in the position shown in Fig. 1, so that when the driving crank is not forced into the driving position of Fig. 2 the spring 19 will tend to retract the pin 18 into the position of Fig. 1. A fire door 20 is loosely mounted on a shaft 21 (see Figs. 3 and 4) by means of a collar 22, and a circular groove 23 formed in the fire door 20 engages with a pin 24 carried by a collar 25 which is rigidly attached to the shaft 21. It will be seen that the door 20 may be rotated about the shaft 21 from the full line position of Fig. 2 to the dotted line position shown in the same figure. The shaft 21 carries rigidly on its inner end a crank 26 which is provided at its outer end with a rotatable pin 27, and said shaft is journaled at 28 to a lug 29 rigidly attached to the frame of the machine. The pin 27 is provided with a hole 30 for receiving the upper end of the pin 18. It will thus be seen that the movement of the pin 18 from the position of Fig. 1 to that of Fig. 2 will

cause the pin 27 to be carried over, thereby rotating the crank 26 and the shaft 21, and rotating the sleeve 25 and carrying the pin 24 upwardly from the position of Fig. 1 to that of Fig. 2. This upward movement of the pin will carry with it the fire door 20, thereby uncovering the film aperture, as shown in Fig. 2. The slot 23 is of such size and is so positioned in the fire door that the latter may be rotated into the position shown in dotted lines in Fig. 2, in which position it will remain, and in which position the aperture plate 31 will clear the fire door and can be swung outwardly to the position shown in dotted lines in Fig. 3. However, if the driving crank is removed when the fire door is in the position shown in dotted lines in Fig. 2 the pin 24 will come into contact with the lower end of the slot 23 and will cause the fire door to drop into the closed position of Fig. 1.

It is evident that this device is one of great simplicity, necessitating the use of but few parts, and that it can be applied to many types of moving picture machines which are now in use, inasmuch as it does not necessitate the use of a new shutter, and inasmuch as the parts are of such construction that they can be easily applied to the ordinary moving picture machine. The operator generally removes the driving handle from the machine when not in use, and in this way causes the fire door to be closed, so that if the light is not turned off the film will not be endangered. Furthermore, a sudden stoppage of driving tendency on the part of the operator will cause the sleeve 7 to become disengaged from the pin 10 by reason of the inertia of the machine carrying the shaft 8 for at least a portion of a revolution.

Although I have shown the several parts applied to a machine in which the aperture plate 31 swings out, as shown in Fig. 3, and which construction necessitates the special design of the slot 23, still I do not limit my invention to such design, inasmuch as it is evident that the machine could be made without any slot whatever, the fire door 20 being rigidly attached to the shaft 21. Other arrangements of levers might also be employed for transmitting motion from the driving sleeve to the fire door, etc., but the fundamental principle of my invention resides in the combination of means for actuating the fire door by the insertion or removal of the driving crank or other device used for driving the machine.

I claim:

1. The combination of a machine driving

shaft, a pin mounted on said shaft, a driving sleeve for insertion on the shaft and having therein a slot for cooperating with the pin, a collar surrounding the shaft and pivoted to the machine frame and adapted to be contacted by the driving sleeve, a rotary fire door, and a link mechanism for transmitting motion from the collar to the rotary fire door, substantially as described.

2. The combination of a machine driving shaft, a pin mounted on the shaft, a driving sleeve for engaging the driving shaft and having therein a slot for engaging the pin, a collar surrounding the driving shaft and pivoted to the machine frame and adapted to be contacted by the driving sleeve, said collar connected with a link mechanism, a spring for retracting the link mechanism, a rotary fire door, and means connecting the link mechanism with the fire door, said means adapted to rotate the fire door when the driving sleeve engages the collar, substantially as described.

3. The combination of a machine driving shaft, a pin mounted on the shaft, a driving sleeve for engaging the driving shaft and having therein a slot for engaging the pin, a collar surrounding the driving shaft and adapted to be contacted by the driving sleeve, said collar connected with a link mechanism, a spring for retracting the link mechanism, a rotary fire door loosely mounted on a shaft and having therein a circular slot, said shaft connected with the link mechanism by means of a crank, and a pin attached to the shaft and engaging the slot in the fire door, substantially as described.

4. The combination of a shaft, a crank pin attached to said shaft, a collar on said shaft, a fire door rotatably mounted on said collar, there being a segmental slot in said fire door, the crank pin being adapted to engage said slot, and means for rotating said shaft and crank pin when the machine driving mechanism is inserted or retracted, said crank pin adapted to maintain the fire door in open position when the machine driving mechanism is inserted, and adapted to close said fire door when the machine driving mechanism is retracted, said segmental slot adapted to permit the fire door to be rotated away from the aperture door when the machine driving mechanism is inserted, substantially as described.

EDWARD H. SPERBERG.

Witnesses:

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THOS. Q. BANNING, Jr.