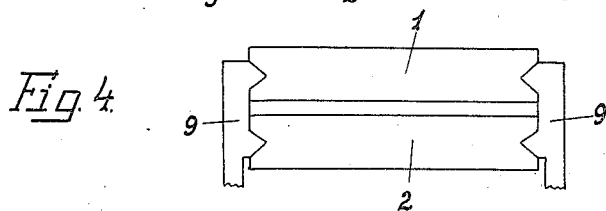
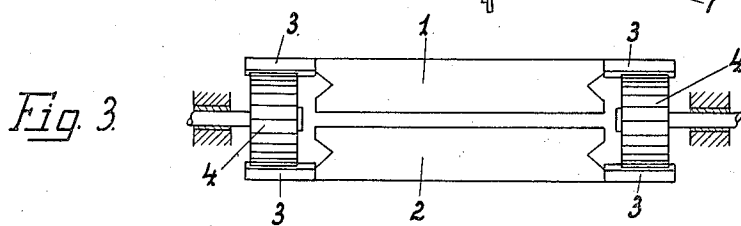
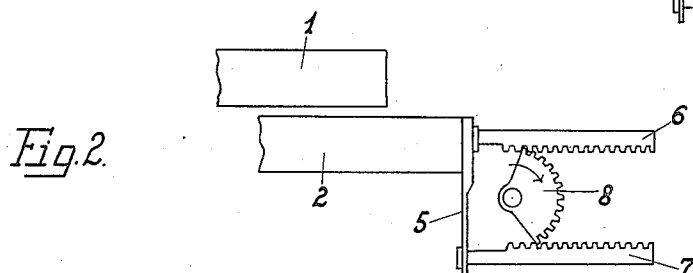
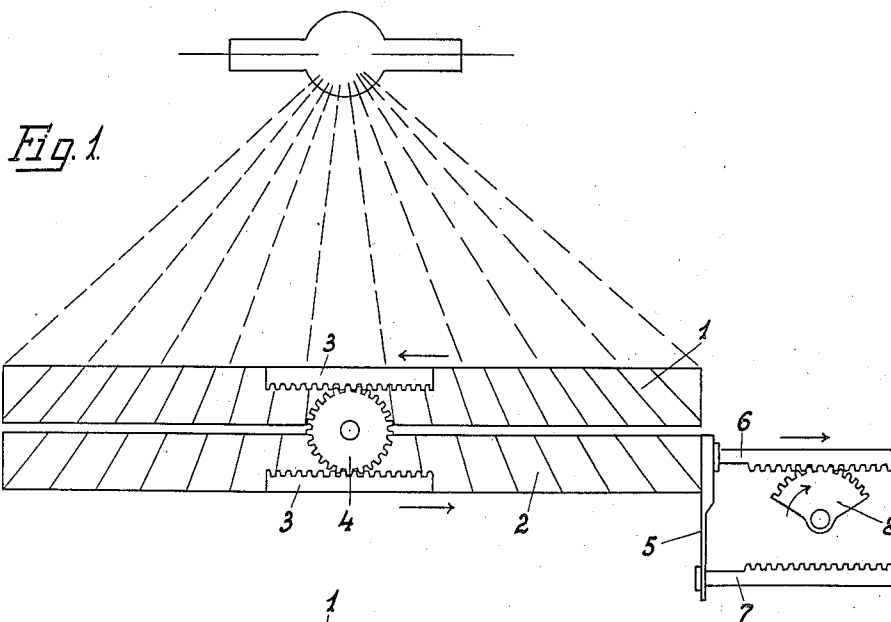


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 APPARATUS FOR SCREENING OUT SECONDARY X-RAYS
 WITH A CONTINUOUSLY MOVED GRID
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APPARATUS FOR SCREENING OUT SECOND-ARY X-RAYS WITH A CONTINUOUSLY MOVED GRID

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3 Claims. (Cl. 250—62)

The present invention relates to an X-ray apparatus having a bucky diaphragm reciprocated by a driving mechanism.

One object of the invention is to move the bucky reciprocating diaphragm in such a way that during an exposure of any length, the production of undesirable shadow lines is avoided.

Another object of the invention is to increase the bucky effect by employing a special multiple diaphragm.

These objects are attained by reciprocating the diaphragms along the whole length of their paths with uniform speed and at the ends of their paths reversing their direction of movement very suddenly, so that objectionable shadow lines are not developed. The invention also relates to a driving mechanism adapted to move one or more diaphragms in this manner; if two or more diaphragms are moved in this way closely and parallel to one another, the bucky effect is increased greatly beyond the results heretofore obtained.

The accompanying drawing shows one preferred embodiment of a double diaphragm and of the driving mechanism according to the invention.

Fig. 1 is a front elevation of the apparatus in the central position of the grids and Fig. 2 shows the driving mechanism in one of its extreme positions. Figs. 3 and 4 are side elevations of the grid.

The parallel grids 1 and 2 are moved in guides 9 along even paths, but they may be moved along curved paths too. Each grid is provided with toothed rods 3 arranged lengthwise in the direction of movement of the grids. The pair of toothed rods at each side of the grids engage a freely rotatable, but not shiftable gear 4. Thus, when one of the grids is moved, its motion is transmitted to the other grid and both are caused to move always with equal speeds in opposed directions.

One of the grids, for instance, the lower one, is provided with a laminated spring 5, which is disposed perpendicularly to the plane of the grid on one side of same. On this spring are fastened two toothed rods 6 and 7 extending parallel to the direction of movement of the grids and which cooperate with a toothed segment 8. This segment is uniformly rotated for example by the aid of an electric motor and in case the direction of rotation corresponds to the arrow of the drawing, when the segment is in engagement with the upper toothed rod 6, the grid 2 is moved to the right (Fig. 1). When the grids have finished

their stroke, the lower one moving to the right (Fig. 2), the segment 8 disengages from the upper toothed rod and engages the lower one, so that the direction of movement is suddenly reversed.

The driving mechanism may be constructed also in such a way that the segment first disengages from one of the toothed rods and then engages the other one, it is, however, preferable to effect the engagement one moment prior to the release from the other toothed rod. The relative movement between the rods 6 and 7 necessary for this mode of operation is afforded by the flexibility of the spring 5. The toothed rod 6 is rigidly fastened on the grid, but it may be also shiftably arranged.

By means of the described mechanism the grids are moved with uniform speed and at the end of their path their movement is reversed so suddenly that an undesirable grid image is not produced. The grids may be arranged very closely adjacent to one another.

The shape and arrangement of the laminations of grid, the length of stroke of grids and the speed of movement may be chosen at will.

I claim:

1. In an X-ray apparatus, a bucky diaphragm, a pair of toothed rods secured to said diaphragm, and a continuously rotating toothed segment situated between said toothed rods and engaging them alternately for reciprocating said diaphragm at uniform speed and for suddenly reversing its direction at the ends of its path.

2. In an X-ray apparatus, a bucky diaphragm, a pair of toothed rods secured to said diaphragm, spring means connecting said toothed rods permitting relative displacement of the latter and a continuously rotating toothed segment situated between said toothed rods and engaging them alternately for reciprocating said diaphragm at uniform speed and for suddenly reversing its direction of movement.

3. In an X-ray apparatus, two substantially parallel bucky diaphragms situated close to one another, a pair of toothed rods secured to one of said diaphragms, a continuously rotating toothed segment situated between said toothed rods and engaging them alternately for reciprocating one of said diaphragms at uniform speed and for suddenly reversing its direction at the ends of its path, and means for moving the other of the said two diaphragms with the same speed as the first mentioned diaphragm, but in an opposed direction.

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