H. F. WAITE.

FILM HOLDER FOR X-RAY APPARATUS.

APPLICATION FILED NOV. 1, 1917.

1,307,386.

Patented June 24, 1919.

2 SHEETS—SHEET 1.

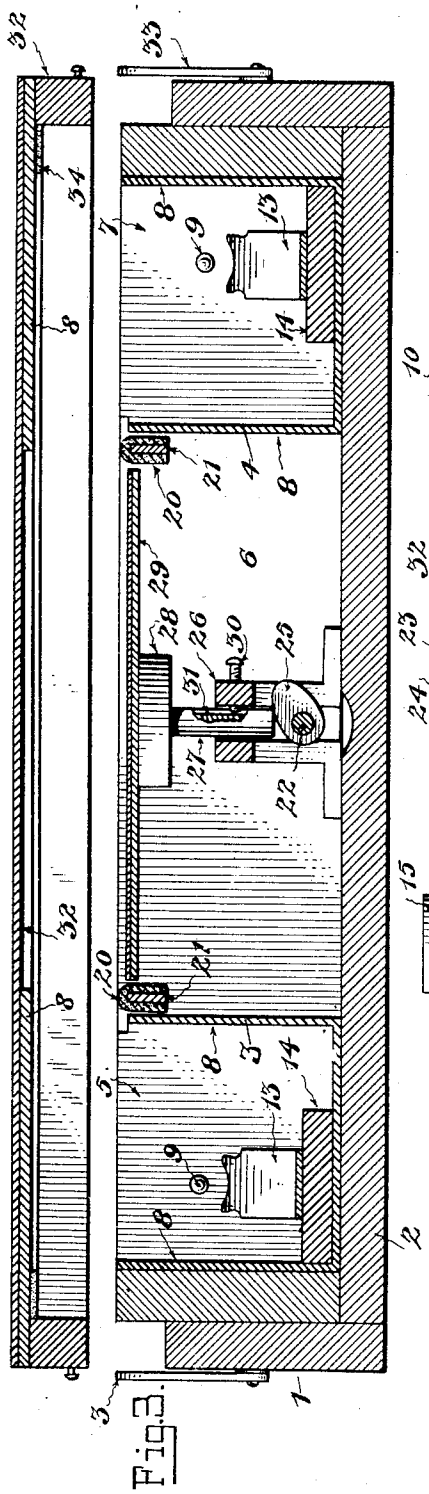


Fig. 2.

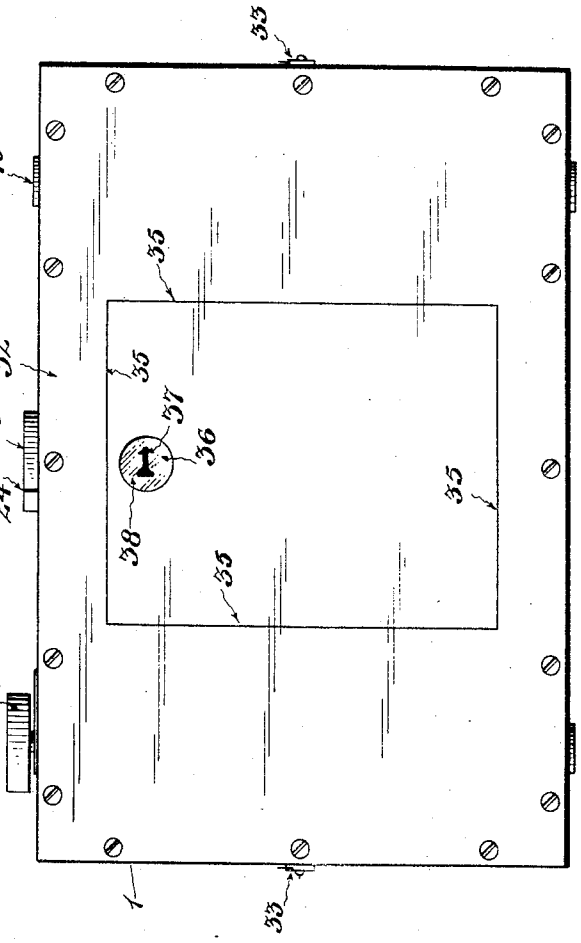


Fig. 1.

Inventor

Harry F. Waite

By his Attorney

O. Harry Edwards

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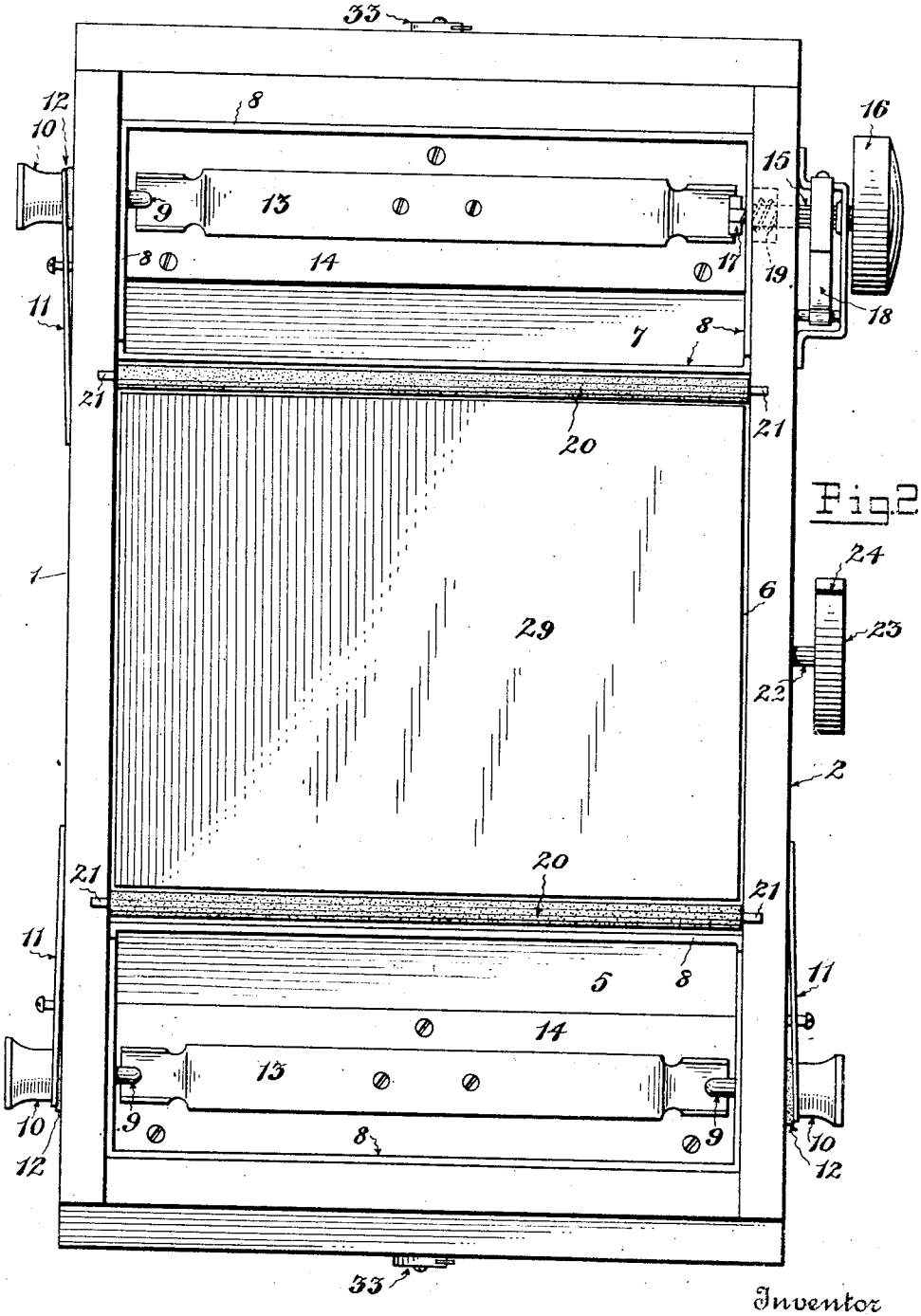



Fig. 2.

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By his Attorney

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# UNITED STATES PATENT OFFICE.

HARRY F. WAITE, OF WHITESTONE LANDING, NEW YORK.

## FILM-HOLDER FOR X-RAY APPARATUS.

1,307,386. Specification of Letters Patent. Patented June 24, 1919.

Application filed November 1, 1917. Serial No. 199,723.

*To all whom it may concern:*

Be it known that I, HARRY F. WAITE, a citizen of the United States, and a resident of Whitestone Landing, county of Queens, and State of New York, have invented a new and useful Improvement in Film-Holders for X-Ray Apparatus, of which the following is a specification.

The object of my invention is to provide a device of this character in which a film may be placed and a radiograph made either with or without an intensifying screen. This and other objects are accomplished by my invention, one embodiment of which is hereinafter more particularly set forth.

For a more particular description of my invention reference is to be had to the accompanying drawings, forming a part hereof, in which;

Figure 1 is a plan view of my film holder.

Fig. 2 is a plan view of the same with the cover removed.

Fig. 3 is a longitudinal section of this device, the bottom and cover being separated.

Throughout the various views of the drawings, similar reference characters designate similar parts.

My film holder 1 consists of a bottom 2 and a top 32. This bottom is preferably in the form of a shallow box or tray with cross partitions 3 and 4 that divide it into chambers 5, 6 and 7. These partitions 3 and 4 are preferably made of lead and so are the inner walls of the chambers 5 and 7 which have lead sheeting 8 to prevent X-rays from intruding when the device is in use so that the film rolls will never be ruined or injured by improper exposure while in the apparatus. These chambers 5 and 7 are also made light proof so as to prevent injury to the film rolls from light.

The chamber 5 has spindles 9 which are adapted to receive a spool of a film and these spindles may be provided with handles 10 and are pressed by leaf springs 11 which are secured to the box 2 in any suitable manner. These springs press against light excluding packing 12 as shown in Fig. 2.

The chambers 5 and 7 are each provided with a retarding spring 13 mounted on a base 14 which is secured to the lining 8 in any suitable manner and this spring 13 has its upwardly splayed ends bearing against the film carrying spool which is in the same chamber.

The chamber 7 has two spindles, one 9 with attendant parts 10, 11 and 12 as above described and another 15 which has a driving disk 16 with a knurled edge so that it may be turned rapidly. The inner end of this spindle has out spreading wings 17 adapted to take in a corresponding recess in the end of a spool and drive the same when the disk 16 is turned. A suitable ratchet mechanism 18 prevents the spindle 15 from turning in the wrong direction and a coil spring 19 normally keeps this spindle in proper relation to the spool but permits this spindle to be withdrawn when necessary.

The upper edges of the partitions 3 and 4 are adjacent to buffers which consist of fabric or felt 20 resting on bars 21 let into corresponding recess in the top edges of the box 2 so that the film will never get in contact with the lead partitions 3 and 4. This is important because the apparatus is preferably used with the emulsion side down and against the felt 20.

The center chamber 6 is provided with a laterally extending spindle 22 which is mounted in suitable bearings and is provided at its outer end with a disk 23 by which it may be turned and a mark 24 by which the exact position of a cam 25 at the other end of this spindle 22 may be determined. This cam 25 is at the bottom of a casting or socket 26 which guides a spindle 27, at the top of which is a bracket 28, and on this is a fluorescent screen 29 which may be raised or lowered by turning the cam 25. A set screw 30 with its end in a straight groove 31 in the spindle 27 prevents the screen 29 from turning and allows only a vertical movement when the cam 25 is turned. This mechanism permits the screen 29 to be raised or lowered so that it may be adjusted against the emulsion surface of a film when the film is ready for a radiograph to be taken thereon and away from this film when it is shifted or this screen may be altogether removed from the apparatus, if desired.

The cover 32 is made to fit the box 2 as shown, with light tight joint and is secured at each end by suitable fasteners 33. Packing 34 is against the upper edge of the box 2 and lead sheets 8 line the ends of the cover 32 over the chambers 5 and 7 and prevent all X-rays from entering therein. This top 32 has a boundary line 35 for defining on the outside where a radiograph may be taken,

and where the chamber 6 is which is not protected by lead shields 8 and where the screen 29 may be found. A hole 36 covered with red, translucent material is placed at any convenient location to show the numeral 37 which must be exposed before a film 38 is in a position for a radiograph. This film 38 is provided with the conventional signs as a hand and then the numeral.

In view of the foregoing the use of my improved device will be readily understood. Assuming the parts to be as indicated in Fig. 1, object to be radiographed is placed within the boundary indicated by the line 35 and the X-rays applied in the conventional manner. Then after the screen 29 is removed from the film 38, this film is shifted by turning the disk 16 and a new part brought into the proper position as indicated by the numeral 37, the screen 29 is then placed against the film 38 and a new radiograph is taken and this series of operations is repeated until the film is exhausted. Then the cover 32 is removed, the used film taken out, a new film inserted in the same manner as in film cameras, the cover 32 is restored and secured and additional radiographs may be taken as before care always being had to have the film properly placed.

While I have shown one embodiment of my invention it is obvious that it is not restricted thereto but that it is broad enough to cover all structures that come within the scope of the annexed claim.

What I claim is

In a device of the class described, a box of opaque material with centers at each end adapted to receive the spools of the film, lead linings surrounding the spaces occupied by said spools, an opaque cover adapted to fit said box which cover is provided with lead for said chambers, a fluorescent screen between said chambers and a socket, stem and cam for raising and lowering the screen.

Signed in the city, county and State of New York, this 29th day of October, 1917.

HARRY F. WAITE.