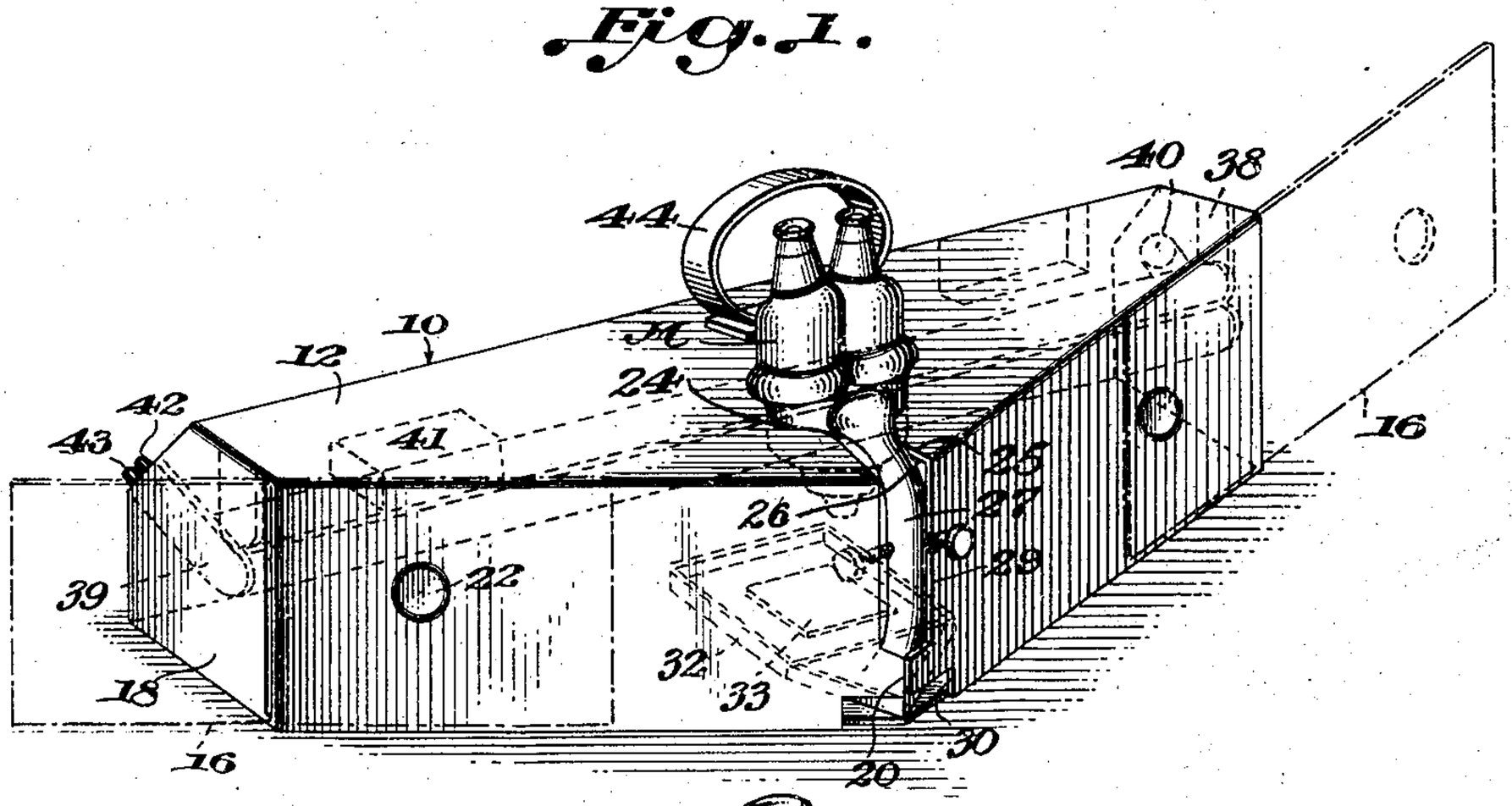
Oct. 25, 1949. J. M. HILLS 2,486,026

EXAMINATION BOX

Filed July 16, 1946

Fig. 1.



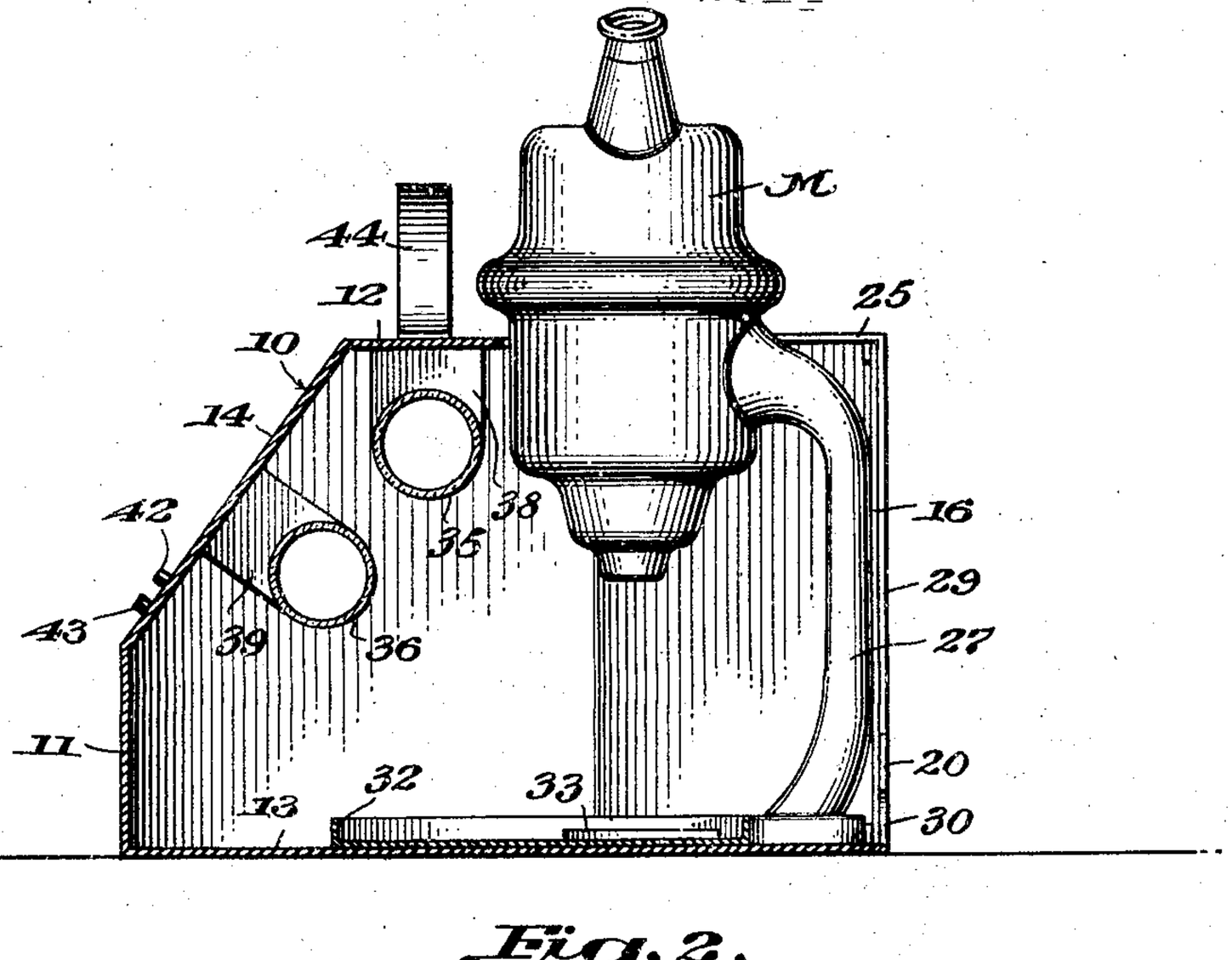


Fig. 2.

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EXAMINATION BOX

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2 Claims. (Cl. 250—78)

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This invention relates generally to a device for facilitating the examination of well cutting samples and more particularly to a box especially constructed to receive a microscope and selectively illuminate its sample supporting pan with both visible and ultra-violet light rays.

The presence in cuttings or samples of oil and certain minerals in minute quantities is extremely difficult to detect under normal or visible light rays but when subjected to ultra-violet light rays, the fluorescence of the oil or mineral particles may readily be detected. While it is known in the art to examine samples under ultraviolet light with the aid of a simple lens, such devices are usually cumbersome elementary affairs lacking in the precision and refinements necessary to assure detection of the presence of the minute particles in question.

Accordingly, the chief object of the present invention is to provide an improved device for detecting minute particles in well cutting and other samples by a microscope.

Another important object of the present invention is to provide a visible-light excluding device which will enclose a microscope and illuminate the sample holding tray thereof.

A further important object of the invention is to provide a light box for selectively inspecting well cutting samples under both visible and ultraviolet light.

Another object of the invention is to provide a box including a pair of fluorescent tubes for illuminating well cutting samples, and having sliding light excluding doors for insertion of a microscope and easy manipulation of the sample to be examined.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing:

Figure 1 is a perspective view of the light box showing a microscope enclosed thereby, and

Figure 2 is a central transverse vertical sectional view thereof.

Referring to the drawings, numeral 10 designates the light box which is generally rectangular in shape and includes a rear side 11, a top 12, and a bottom 13. The top 12 and the rear side 11 are connected by an inclined rear side 14. The box 10 is provided with a pair of access doors 16 slidably mounted in the front edges of the top 12 and the bottom 13, and the box is further enclosed by a pair of end members 18.

The doors 16 are angularly disposed with respect to the rear side 11 and their adjacent edges abut as at 20 when closed at a point of maximum width of the box which is midway of its longitudinal dimension. Each door is provided with a circular recess 22 for convenience in sliding them to open or closed position and ready access to the interior of the box 10 is had when the doors 16 are in the open position as indicated by their dotted line position in Figure 1.

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A microscope M, preferably of the binocular type, is positioned within the box 10 midway of the ends 18 and within a closely fitting circular aperture 24 formed in the top 12. A slot 25 connects the aperture 24 with the front edges of the top and is of such width that its edges 26 are also closely spaced from the microscope stand 27. The upper portions of the abutting edges of the sliding doors 16 are cut away to form a vertical slot 29 whose edges are also closely spaced from the stand 27 when the doors are in closed position.

The edge portions of the doors 16 are also cut away below the abutting portions 20 at 30 to conform with and be closely spaced from the base 32 of the microscope. It will thus be seen that the doors 16 may be slid to open position away from each other, the microscope M inserted within the box 10 by lowering the upper portion through the aperture 24 and placing the base on the bottom 13. The doors are then slid to closed position about the microscope to substantially exclude visible light from the interior of the box. If complete exclusion of light from the box is desired, fur or other napped material may be placed in the openings about the microscope although small amounts of light are completely predominated by the intensity of the lights provided within the box.

It will be readily apparent that any samples to be inspected can be easily manipulated, placed in or removed from a pan 33 in the base of the microscope by opening either or both of the sliding doors 16.

In order that the specimen or cutting in the pan may be compared under visible and ultraviolet light, a pair of fluorescent tubes 35 and 36 are mounted longitudinally of the box 10 by means of pairs of brackets 38 and 39 respectively. The tube 35 is a standard lighting tube emitting white or visible light while the tube 36 emits a near visible ultraviolet light. These tubes 35 and 36 are equipped with standard starters 40 and ballast 41 and are individually controlled by means of switches 42 and 43 respectively.

The box 10 is provided with a plug-in cord (not

shown) for electrical connection with a suitable source of power. A handle 44 is suitably secured to the top 12 so that the box 10 with or without the microscope M may be readily transported from place to place.

The fluorescent tubes 35 and 36 provide an excellent means for examining and comparing well cutting samples when searching for minute traces of oil or minerals. Perfect illumination of the samples by visible or ultraviolet light is obtained due to the extension of the tubes longitudinally through the box and the danger of overlooking traces of oil or minerals due to "spot" lighting of the sample is eliminated.

The use of the device is believed to be obvious and suffice it to say that a cutting sample is placed on the tray 33 under the microscope M within the aperture of the box 10 and the doors 16 slid together to exclude external light.

Fluorescing materials may be detected by energizing the ultraviolet light 36 by the switch 43 and gazing into the lenses of the microscope at the sample. The oil or minerals therein then become visible by fluorescence. Oil may be distinguished from greasy materials by switching the ultraviolet light off and the visible light on whereupon the greasy materials will appear as dark spots.

The box 10 may be formed of any desired materials which are preferably strong but light in weight to enhance its portability.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departure from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. A device for visually detecting minute particles of well-cutting samples, comprising a box having top, bottom, side and end portions, slidable access doors having lateral abutting edges forming two adjacent sides of the box for introducing and removing samples from the box, slots formed in the box above and below said abutting edges, a microscope having a support, a base and a light tube, the light tube projecting through the top of the box and the base and support, fitting respectively into said lower and upper slots in the box, a viewing lens for the miscroscope directed towards the bottom portion of the box and a pair of fluorescent tubes, one of said tubes being mounted on the inner surface of the top of the box above the lens of the microscope and the remaining tube being mounted on the inner surface of one side of the box at one side of the lens of the microscope.

2. A device for viewing well-cutting samples, comprising a box having top, bottom, side and end portions, slidable doors forming two adjacent sides to the box movable between open and closed positions and having abutting edges when in closed position, the doors being cut away above and below the abutting edges to form upper and lower slots, a microscope having a support and a base fitting respectively into said upper and lower slots in the doors when the doors are in closed position, a viewing lens for the microscope directed towards the bottom of the box, and a source of light mounted in said box for illuminating samples placed on the bottom of the box beneath the lens of the microscope.

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