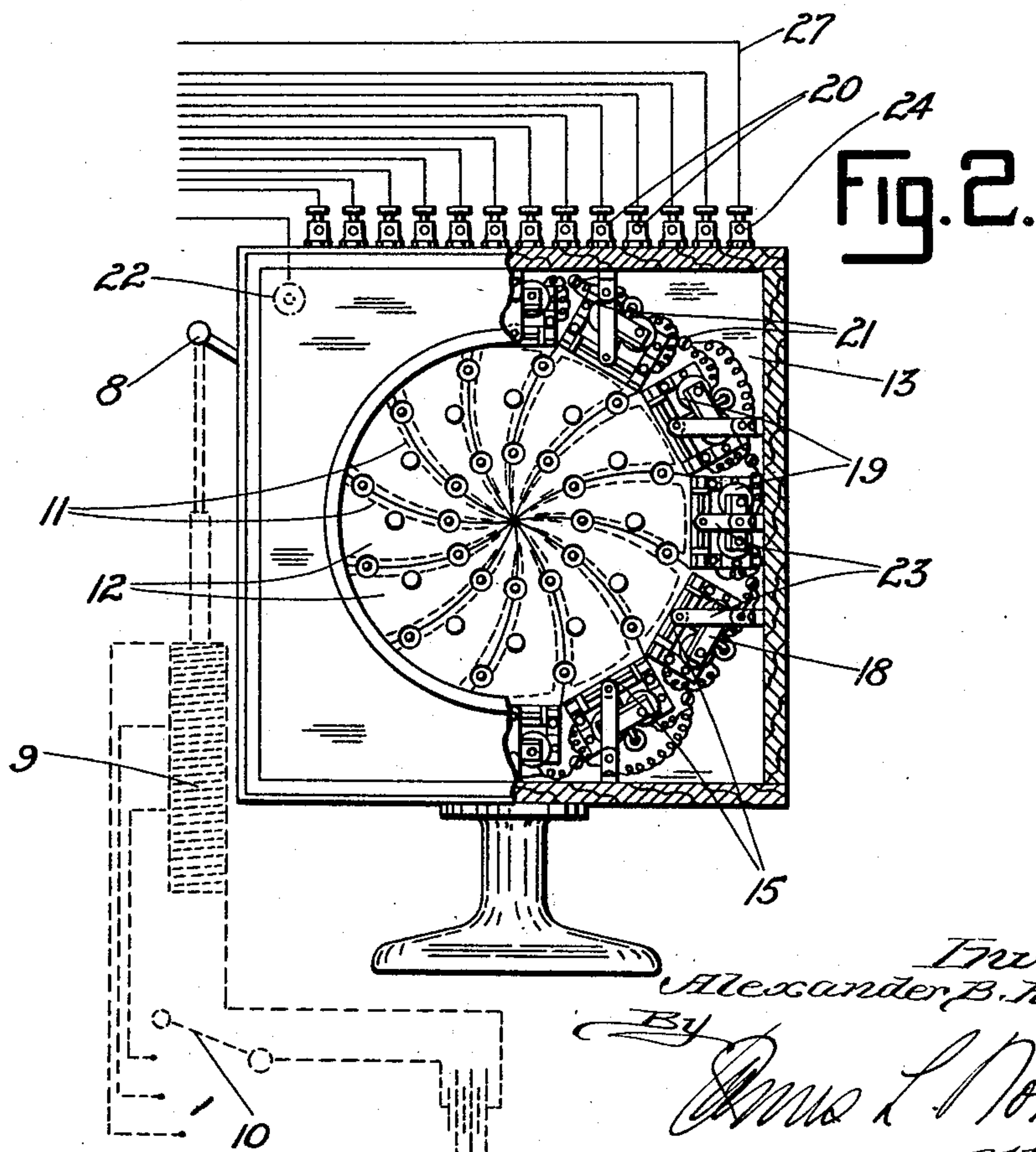
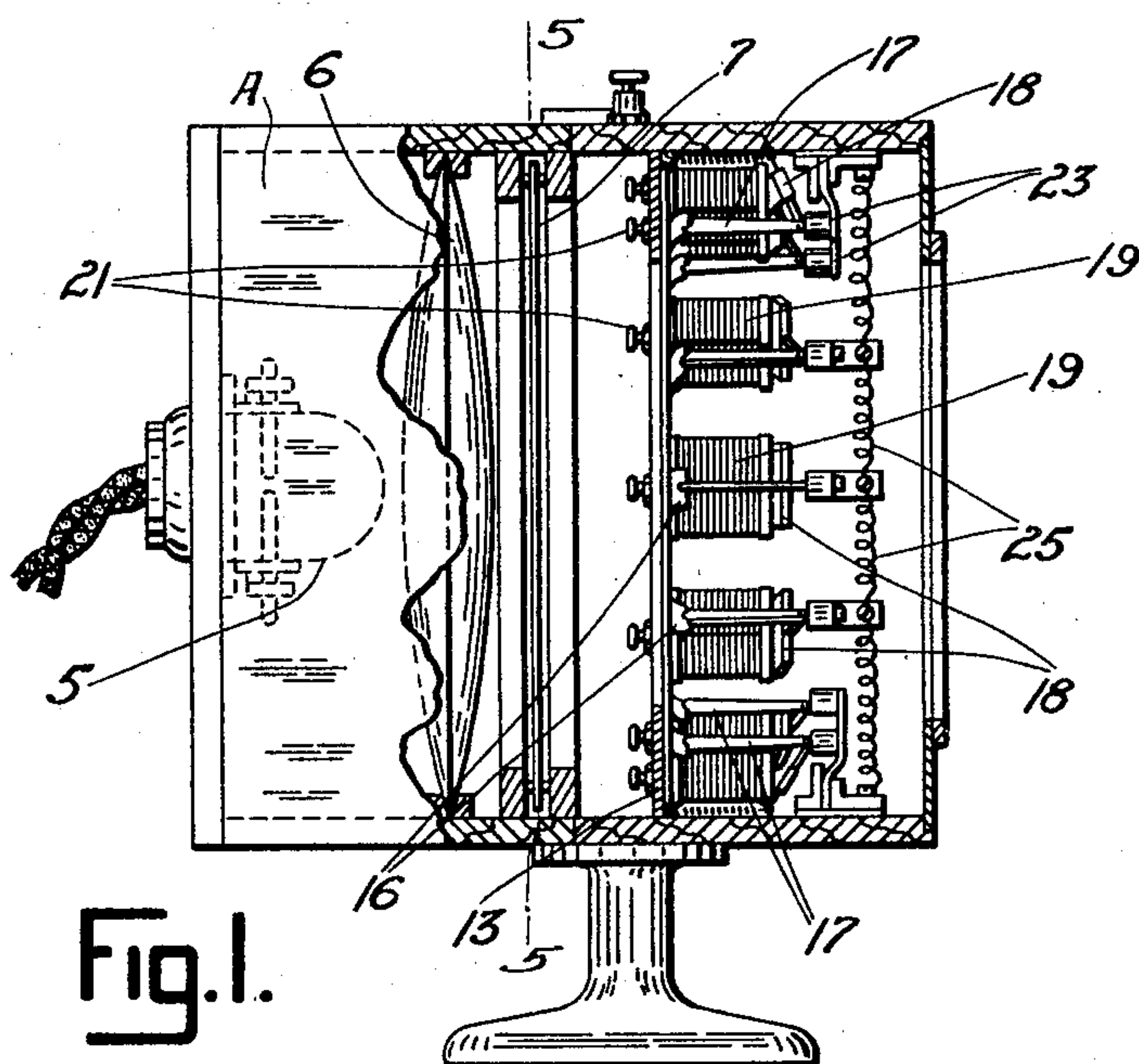


Dec. 2, 1930.

A. B. HECTOR  
 APPARATUS FOR PRODUCING COLOR MUSIC OR OTHER  
 SPECTACULAR LUMINOUS EFFECTS  
 Original Filed July 7, 1927

1,783,789

2 Sheets-Sheet 1



Inventor  
 Alexander B. Hector

By *Amos L. North*  
 Attorney

**Dec. 2, 1930.**

**A. B. HECTOR**  
**APPARATUS FOR PRODUCING COLOR MUSIC OR OTHER**  
**SPECTACULAR LUMINOUS EFFECTS**  
 Original Filed July 7, 1927      2 Sh

**1,783,789**

2 Sheets-Sheet 2

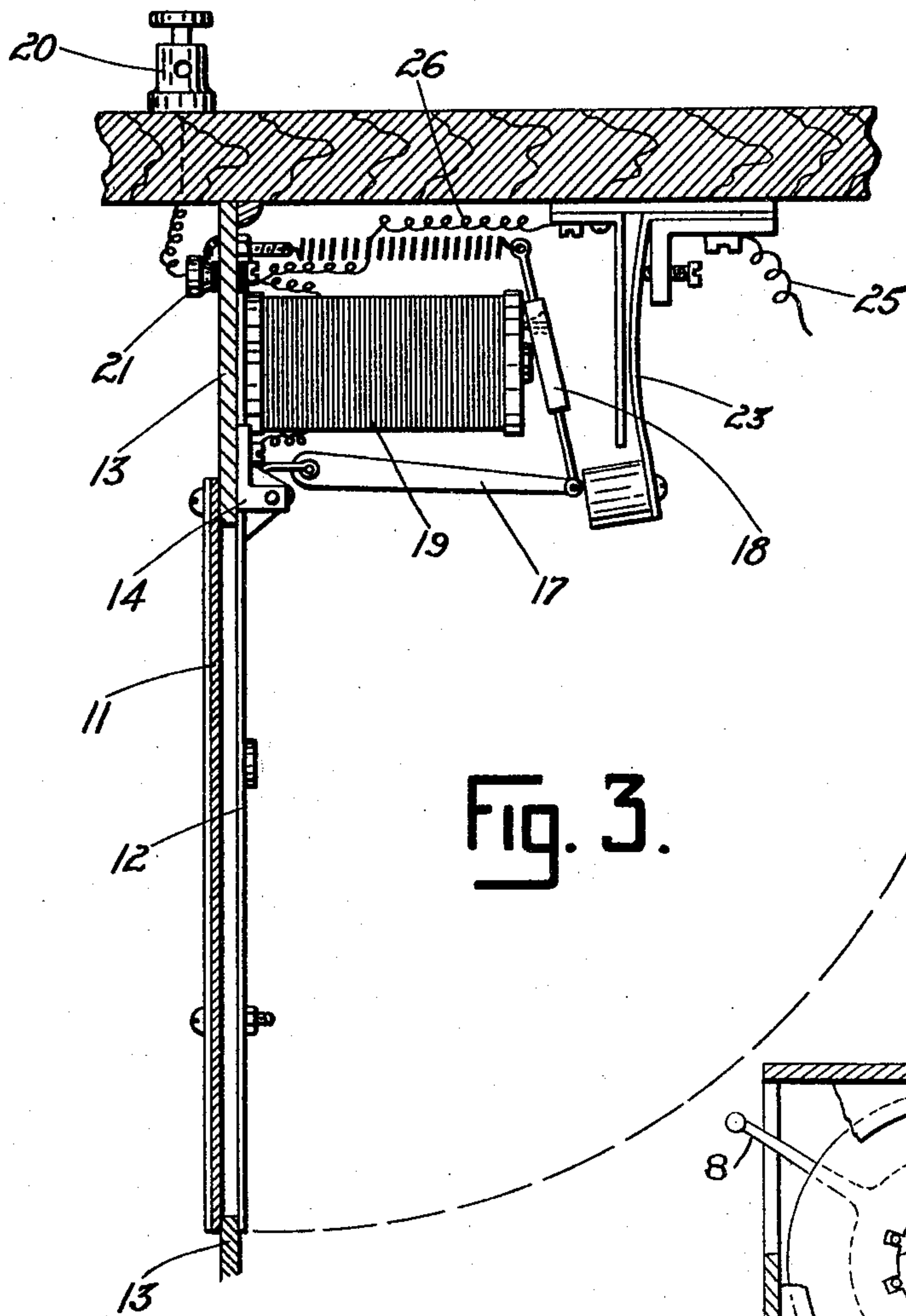
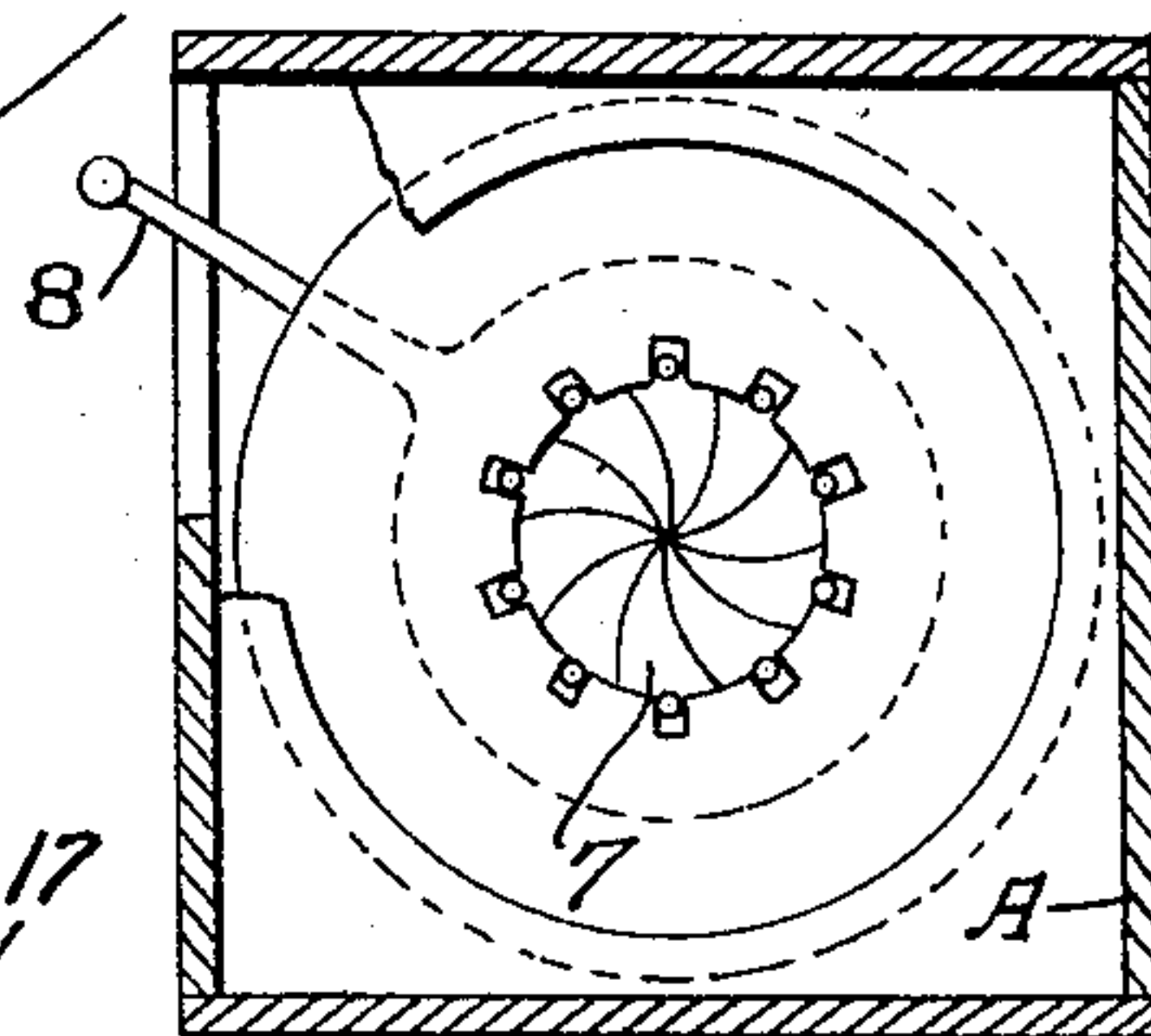


Fig. 3.



**FIG. 5.**

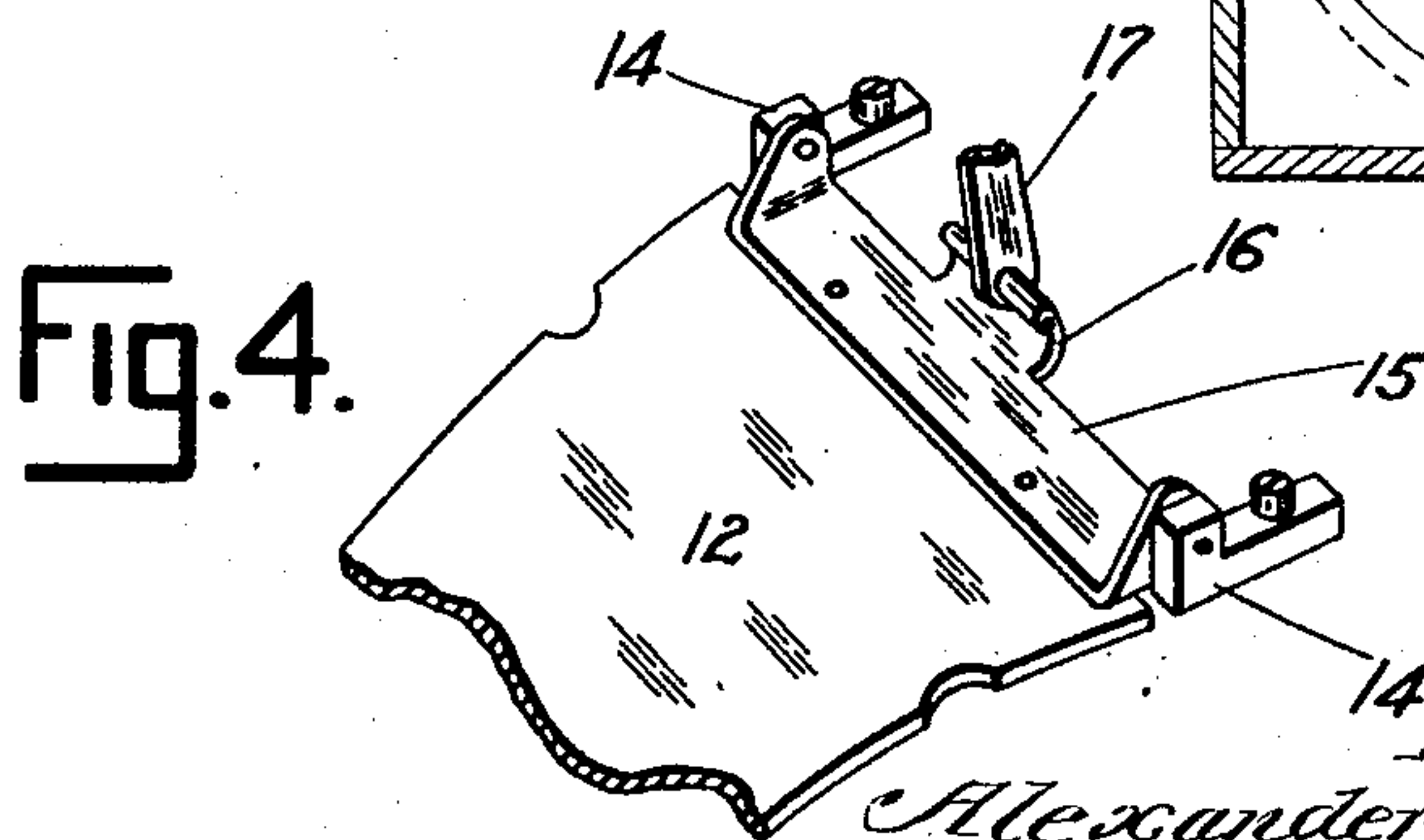


Fig. 4.

14  
Inventor  
Alexander B. Hector  
By *Amos L. Norris*  
Attorney.



## UNITED STATES PATENT OFFICE

ALEXANDER BURNETT HECTOR, OF GREENWICH, NEAR SYDNEY, NEW SOUTH WALES,  
AUSTRALIAAPPARATUS FOR PRODUCING COLOR MUSIC OR OTHER SPECTACULAR LUMINOUS  
EFFECTSOriginal application filed July 7, 1927, Serial No. 204,086, and in Australia July 15, 1926. Divided and  
this application filed August 31, 1928. Serial No. 303,306.

This invention has reference to improve-  
ments in, and relating to the production of  
color music or the harmony of color and  
musical sounds, and other spectacular effects  
and apparatus therefor in which the move-  
ments of the keys of a piano, piano player,  
organ, or other keyboard are made to op-  
erate a series of switches and electromagnets  
so as to display or project colored lights in  
such manner as to harmonize with musical  
sounds.

The main object of the invention is to ex-  
press more effectively by means of lights  
the emotions of a musician, through the key-  
board of a musical instrument or the like. I  
may in some instances use a silent keyboard,  
that is without the agency of sound, to pro-  
duce luminous displays.

The invention consists briefly of the ar-  
rangement and/or projection of colored  
lights according to a color scale of treble  
and bass notes and in apparatus whereby the  
mechanism of piano players, organs, or other  
keyboard instruments may be conveniently  
utilized to obtain the desired effects, and in  
means for the reflection and diffusion of  
light and the production of shadows.

It is well known that if the space occu-  
pied by the normal spectrum be divided the  
various colors occupy different proportions  
of this space. The ratios of each color may  
be determined and form the basis for a color  
scale.

Advantage of this is taken by me to con-  
struct what I term a color scale of treble  
and bass notes.

In applying the color scale to the keys  
of a keyboard musical instrument I start  
at the lowest bass note and proceed up-  
wardly.

The scale or ratio of the spectrum colors  
may be arranged over the various keys and  
octaves in several ways.

According to the present invention a series  
of projector apparatus is used to display  
colored lights under the control of a musician  
or mechanical player by the use of electro-  
magnetically controlled shutters which may  
be of varying sizes according to the respec-

tive areas of the different colors shown in  
the spectrum.

The apparatus may be portable and the  
keys or hammers of a keyboard instrument  
may be provided with metal contact strips  
to close an electric circuit on their depres-  
sion.

But in order that the invention may be  
more readily understood, reference will now  
be made to the accompanying drawings  
wherein:—

Figure 1 is a side elevational view, part-  
ly in section, of one of a number of pro-  
jectors having electromagnets controlled  
from a keyboard.

Figure 2 is a front elevational view there-  
of, also partly in section.

Figures 3 and 4 are detail views, on an en-  
larged scale, of parts of the shutter mecha-  
nism of Figures 1 and 2.

Figure 5 is a view of the iris diaphragm  
taken on the line 5—5, Figure 1.

The construction illustrated shows one of  
the series of projectors used to display col-  
ored lights under the control of a musician  
or mechanical player. Electromagnetically  
controlled shutters of various sizes accord-  
ing to the respective areas of the different  
colors shown in the spectrum are used to dis-  
play the colors, one source of light being  
utilized to display twelve colors or the rep-  
resentation of one octave in color music.  
A keyboard instrument having seven oc-  
taves would require seven of the projectors  
illustrated in Figures 1 to 5.

Each projector comprises a casing A in  
which is mounted a source of light 5 and  
a condenser 6 in front of which is an "iris",  
or contracting diaphragm 7 having a lever  
8 adapted to be controlled by a solenoid 9  
and a three position switch 10 which may  
be arranged as a swell pedal on the key-  
board instrument.

The color screens 11, twelve in number, one  
for each note of an octave, are arranged in  
sections in front of the diaphragm 7, as best  
shown in Figure 1, and are covered by electro-  
magnetically controlled shutters 12. Each  
shutter is hinged to the partition 13 by lugs  
or brackets 14 and has secured to it a member



15 having an extension 16 which is connected to a coupling 17 adapted to be depressed on the attraction of the armature 18 of the electromagnet 19.

5 In this invention relays are not provided for operation by each note of the keyboard instrument, the instrument being connected directly to the electromagnet of its particular color screen. The connecting wires for  
10 one octave are shown in Figure 2 leading to the terminals 20. Each of these terminals is connected to its respective insulated terminal 21 leading to the coil of the particular one of the twelve electromagnets.

15 The return wire from each electromagnet is grounded to its respective lug brackets 14, the path leading by way of the metallic partition 13 to the return terminal 22.

20 The sustaining of the shutters in their open position is effected by a switch 23 controlled by the coupling 17 which is so arranged that on raising a shutter 12 the switch is closed allowing current to flow to the respective relay from a common terminal 24 by way  
25 of a common wire 25 connected to each of the switches 23. The opposite sides of the switches 23 are connected by wires 26 to their respective insulated terminals, the return circuit being completed by way of the earth  
30 terminal 22.

The common terminal 24 of the sustaining switches is connected by a wire 27 to a suitable sustaining switch capable of being operated from the keyboard instrument.

35 I claim:

1. In improvements in the production of color music and other spectacular luminous effects, a source of light, a series of color screens in front of the light, a condenser and  
40 contracting diaphragm between said screens and light, shutters for covering and uncovering the color screens, electromagnetic means for actuating said shutters, means for sustaining any of the shutters in the open position and electrically actuated means for  
45 operating the diaphragm.

2. Apparatus according to claim 1 wherein the electromagnetic means for actuating the shutters comprises an electromagnet for  
50 each of the shutters and an armature for each of said electromagnets, each of said armatures being operative when its associated electromagnet is energized, to move its associated shutter into open position, and wherein the  
55 means for sustaining the shutters in open position comprises a plurality of electric switches each associated with one of the shutters and operable by the opening movement of such shutter to close the electric circuit to the electromagnet associated there-  
60 with.

3. In an apparatus for the production of color music and other spectacular luminous effects, a source of light, a series of color  
65 screens in front of said source of light, a

light condenser and a contractible diaphragm between said color screens and said source of light, and shutters selectively operable for exposing and covering said color screens.

In testimony whereof I have hereunto set my hand.

ALEXANDER BURNETT HECTOR.

75

80

85

90

95

100

105

110

115

120

125

130