

(No Model.)

2 Sheets—Sheet 1.

T. P. BROWN.
AUTOMATIC ORGAN.

No. 574,186.

Patented Dec. 29, 1896.

Fig. 1.

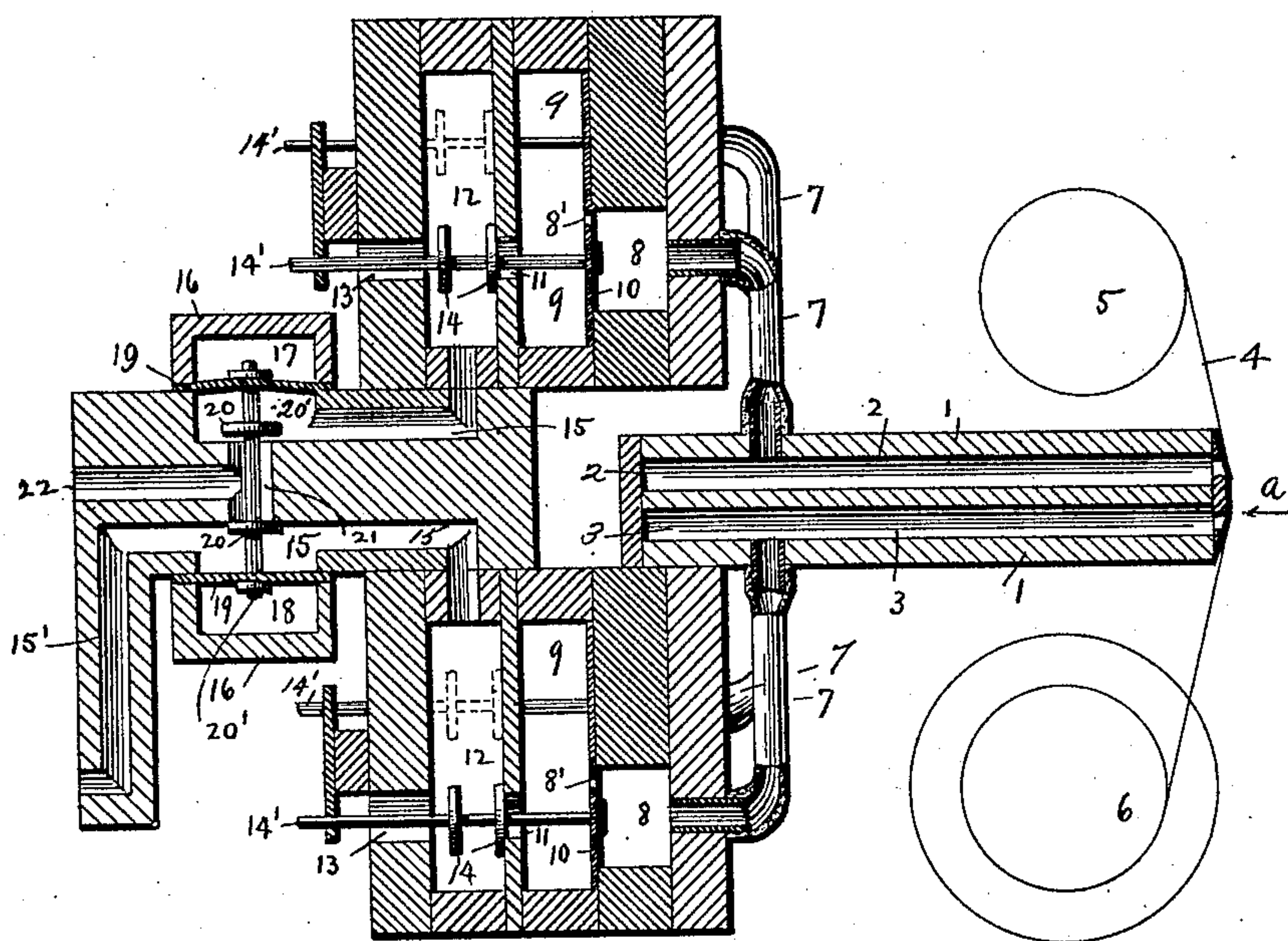
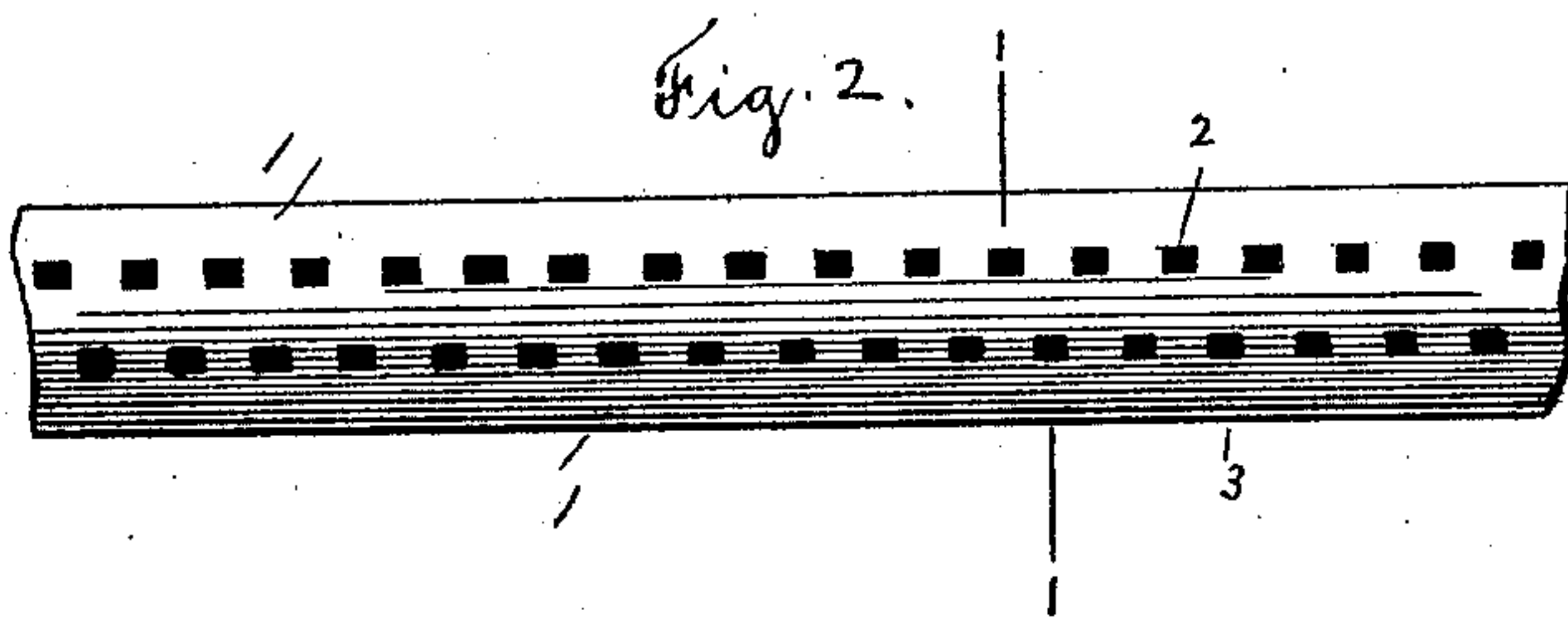


Fig. 2.



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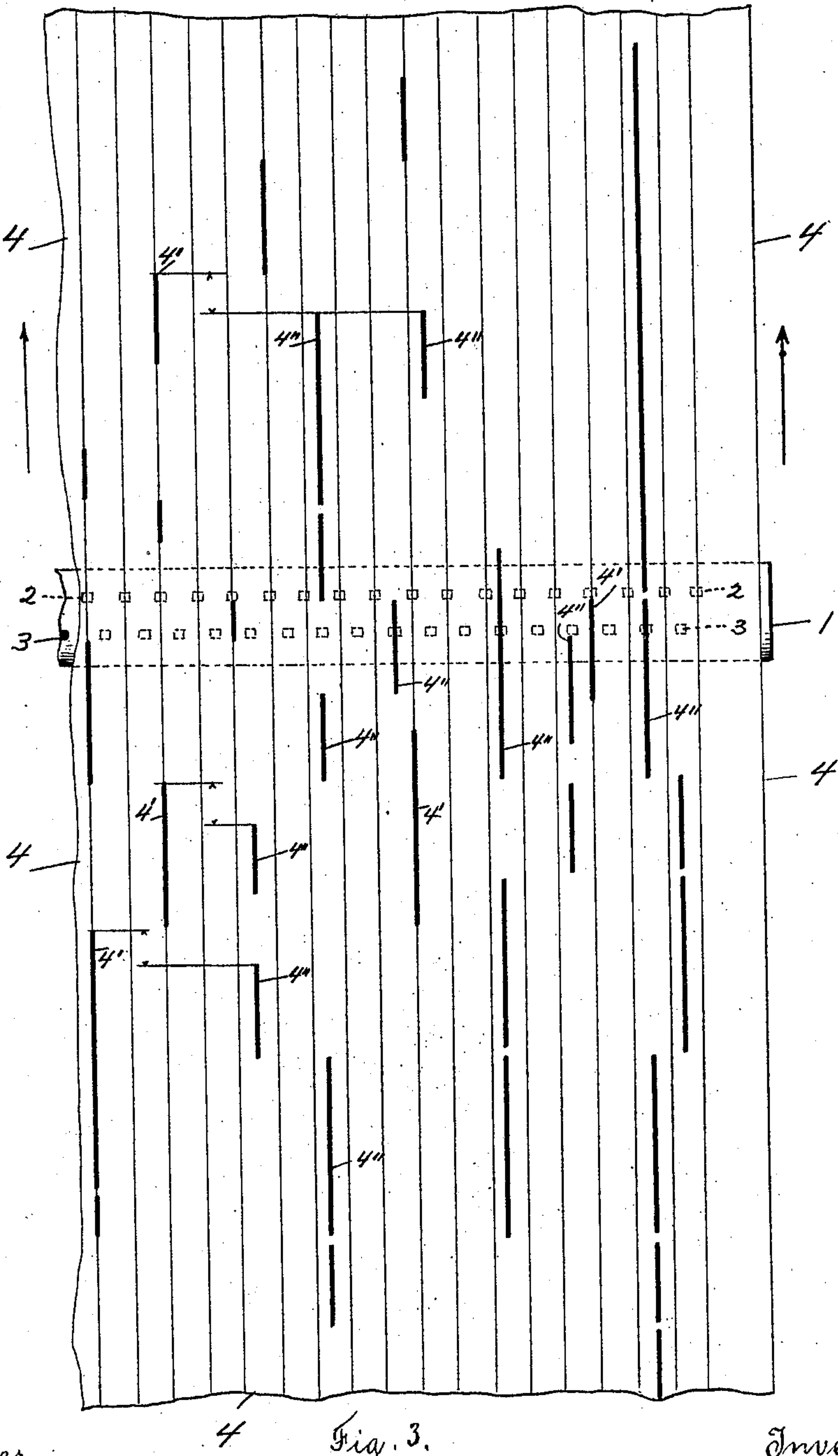
(No Model.)

2 Sheets—Sheet 2.

T. P. BROWN.
AUTOMATIC ORGAN.

No. 574,186.

Patented Dec. 29, 1896.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC ORGAN.

SPECIFICATION forming part of Letters Patent No. 574,186, dated December 29, 1896.

Application filed June 27, 1895. Serial No. 554,204. (No model.)

To all whom it may concern:

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Organs, of which the following is a specification.

My invention relates to a reed-organ or musical instrument provided with an attachment by means of which the action of the reeds or sound-producing devices is controlled by a perforated music-sheet, and particularly to that class of organs or musical instruments shown and described in United States Letters Patent No. 552,796, dated January 7, 1896, in which two perforated music-sheets are used, one of which controls the action of one set or combination of reeds or sound-producing devices used in playing the air of a piece of music, and the other controls the action of another set or combination of reeds or sound-producing devices used in playing the accompaniment.

Heretofore in this class of musical instruments two perforated music-sheets have been used, one of which controls the action of the sound-producing devices used in playing the air, and the other controls the action of the sound-producing devices used in playing the accompaniment, as set out in said patent.

It has been found in practice that in order to have the two perforated music-sheets run in unison and play the air and accompaniment at the same time, when desired, complicated mechanism for running the perforated music-sheets must be employed.

The object of my invention is to do away with one of the perforated music-sheets heretofore used in the class of musical instruments referred to and to accomplish with one perforated music-sheet the same result that has heretofore required two perforated music-sheets; and my invention consists more particularly in combining with one perforated music-sheet provided with two independent systems or sets of perforations a composite double tracker-board or a tracker-board provided with two systems or sets of channels or openings, one of which leads to one set of perforation in the music-sheet and the other leads to the other set of perforations in the

music-sheet. Each set of channels in the tracker-board is connected with a set of valve mechanisms which controls the operation of the reeds or sound-producing devices connected therewith. With my perforated music-sheet and double tracker-board I can produce two sets of notes or combinations of sound-producing devices at the same time, one set for the air and one set for the accompaniment.

I may combine with my perforated music-sheet, double tracker-board, and two sets of valve mechanisms a supplemental attachment or switch device by means of which all the sound-producing devices may be connected with or switched onto the valve mechanism connected with one set of channels or openings in the double tracker-board, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a vertical section through my double tracker-board, two puppet-valve mechanisms, and a supplemental attachment or switch device, the section through the tracker-board being taken at a point indicated by line 1 1, Fig. 2. Fig. 2 is a detached front view of the tracker-board, looking in the direction of arrow *a*, Fig. 1. Fig. 3 is a section of my music-sheet passing over the front edge of the double tracker-board, showing two independent systems or sets of perforations in the music-sheet, one set for one set of openings in the tracker-board and the other set for the other set of openings.

In the accompanying drawings two sets of puppet-valve mechanisms of similar construction are shown. The lower one is intended to be used in controlling the action of the sound-producing devices in playing the accompaniment, and the upper one is intended to be used in connection with the lower one when it is desired to play a solo, &c., at the same time the accompaniment is played by the lower attachment.

By means of the supplemental attachment or switch device, which in this instance is of the same construction and operation as the switch device described in my previous application for a patent, filed June 21, 1895, Serial No. 553,567, the set of sound-producing devices controlled by the upper set of channels in the double tracker-board may be connected

with or switched onto the sound-producing devices controlled by the lower set of channels in the double tracker-board, so that said lower set of channels will control the action
5 of all the sound-producing devices.

In the drawings, 1 is a double tracker-board, that is, a tracker-board provided with two sets of channels or openings 2 and 3, open at their front ends, and the outer openings alternate
10 with each other across the tracker-board and are arranged one set in advance of the other. Said channels are arranged in two rows, one over the other, and the open ends of one row of channels come between the open ends of the
15 other row of channels, as shown in Fig. 2, that is, the openings in the two rows do not come opposite each other in a vertical plane.

4 is a perforated music-sheet adapted to be wound on or unwound from the rolls 5 and
20 6 in the usual way.

The perforated music-sheet 4 extends over the front end or edge of the tracker-board 1, as shown in Fig. 1, and said sheet is provided with two sets of perforations 4' and 4'', which
25 alternate with each other transversely of the sheet. One set of perforations, as 4', is adapted to control the channels 2 in the upper part of the tracker-board 1 to operate the sound-producing devices used in playing the air, and
30 the other set of perforations, as 4'', is adapted to control the channels 3 in the lower part of the tracker-board to operate the reeds used in playing the accompaniment, and the perforations are so made in the sheet 4 that one
35 set of perforations, as 4', will only pass over the open ends of the channels 2 in the upper part of the tracker-board 1, and the other set of perforations, as 4'', will only pass over the open ends of the channel 3 in the lower part
40 of the tracker-board.

It will be seen by referring to Fig. 3 that in case it is desired to begin to sound a note in the air and a note in the accompaniment at the same time the perforation in one set of
45 perforations, as 4', is made in advance of the perforation in the other set, as 4'', so that as the music-sheet moves in the direction indicated by the arrow the beginning of the perforation in each set will reach its respective
50 opening or channel in the two sets of channels at the same time. The channels 2 and 3 in the tracker-board 1 are connected by tubes 7 with their respective set of puppet-valve mechanisms.

55 The puppet-valve mechanisms are of similar construction and operation, and therefore a description of one will answer for both, and similar figures of reference are employed.

Each tube 7 is connected with a chamber 8.
60 It will be understood that there is a chamber 8 for each note. Between the chamber 8 and the chamber 9 in the primary box, which extends the full length of the action, is a flexible diaphragm 10. A small opening 8' in the
65 diaphragm 10 between the chambers 8 and 9 allows for the exhaust of the chamber 8 in the operation of the puppet-valve mechanism.

From the chamber 9 an opening 11 leads into the puppet box or chamber 12, and from said chamber 12 an opening 13 leads to the
70 outer air. The passage of air through the openings 11 and 13 is controlled by the action of the puppet-valve 14, which is of the ordinary construction and consists of the two disks which are fast on a stem 14', the inner
75 end of which is secured to the flexible diaphragm 10.

It will be understood that the chamber 9 in the primary box is under constant suction from the suction-bellows, (not shown,) and
80 the disks on the stem 14' of the puppet-valve 14 are adapted to close the openings 11 or 13 by the movement of the diaphragm 10, according as a non-perforated or a perforated portion of the music-sheet comes opposite the
85 opening 2 in the tracker-board in the usual way.

Out of the chamber 12 in the upper and lower puppet-valve mechanisms a channel or opening 15 leads to my supplemental attach-
90 ment or switch device, which is located intermediate the puppet-valve mechanisms and the sound-producing devices. (Not shown.)

The supplemental attachment or switch device shown in the drawings is, as above stated,
95 of the same construction and operation as that shown in my previous application above referred to, and consists of an inclosed box 16, having an upper chamber 17 and a lower chamber 18, each having a flexible diaphragm
100 19, extending transversely therein, to which are attached the opposite ends of the stem 20' of the puppet-valve 20. Said stem has two disks thereon adapted to seat alternately on the outer ends of an opening 21, connecting
105 the channel 15 from the upper puppet-valve mechanism with the channel 15 from the lower puppet-valve mechanism.

It will be understood that one of the chambers 17 or 18 of my supplemental attachment
110 or switch device is always under suction from suction-bellows. (Not shown.) Said suction is controlled by the operation of a stop. (Not shown.)

From the opening or channel 21 a channel 22
115 leads to one set of sound-producing devices (not shown) which are controlled through the upper set of channels in the double tracker-board.

From the opening or channel 15, leading
120 from the lower puppet-valve mechanism, a continuation 15' of said opening or channel leads to the other set of sound-producing devices, (not shown,) which are controlled through the lower set of channels in the track-
125 er-board.

The operation of the mechanism shown in the drawings will be readily understood by those skilled in the art.

It will be understood, as above stated, that
130 the chamber 9 in the primary boxes of each puppet-valve mechanism is under constant suction from suction-bellows, (not shown,) and when a perforated portion of the music-

sheet comes opposite the open end of a channel 2 in the double tracker-board 1 the diaphragm 10 will move inwardly to raise one disk from the opening 11 and seat the other disk on the opening 13 to close said opening, thus reversing the position of the puppet-valve 14 (shown in the drawings) and causing the proper sound-producing devices to operate.

In case at the same time the perforation in the sheet 4 comes opposite the open end of a channel 3 in the double tracker-board 1 the puppet-valve 14 of the lower puppet-valve mechanism will operate in a similar way to cause the proper sound-producing devices to operate to play the accompaniment. It will thus be seen that both puppet-valve mechanisms and the sound-producing devices (not shown) connected therewith will be operated at the same time, causing the air and the accompaniment to be played by one perforated music-sheet.

When it is desired to operate my supplemental attachment or switch device to connect the lower puppet-valve mechanism with all the sound-producing devices, a stop (not shown) is operated to bring into action the suction in the lower chamber 18 of my supplemental attachment or switch device and shut off the suction in the upper chamber 17 of said attachment, causing the puppet-valve 20 to reverse its position (shown in Fig. 1) and connect the lower channel 15, through the opening 21, with the channel 22, thus connecting all of the sound-producing devices with the lower puppet-valve mechanism, and causing them to be operated through the lower set of channels in the double tracker-board.

The advantages of my improvements will be readily appreciated by those skilled in the art.

I do away entirely with the use of a second perforated music-sheet ordinarily employed in the class of musical instruments above referred to, and I accomplish with one perforated music-sheet and a composite double tracker-board, that is, a tracker-board provided with two sets of channels, (each set leading to a separate set or system of perforations in the music-sheet,) what has heretofore

required two perforated music-sheets and two separate tracker-boards.

It will be understood that I do not limit myself to the particular construction of the mechanism shown in the drawings. Instead of puppet-valve mechanisms any other ordinary form of valve mechanism used in musical instruments may be substituted. Instead of the supplemental attachment or switch device shown any other suitable switch device for the purpose stated may be employed, and in some cases the switch device may be dispensed with, if preferred.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a musical instrument, the combination with a tracker-board provided with two sets of openings or channels, and two sets of valve mechanisms, one set for each set of channels in the tracker-board, of a supplemental attachment or switch device located intermediate the valve mechanisms and the sound-producing devices, for disconnecting one set of valve mechanisms from the sound-producing devices controlled thereby, and connecting said sound-producing devices to the other set of valve mechanisms, so that all the sound-producing devices may be operated, substantially as set forth.

2. In a musical instrument, the combination with a tracker-board provided with two sets of channels, the outer openings of which alternate with each other across the tracker-board, and are arranged one set in advance of the other, a set of valve mechanisms for each set of channels, each channel communicating with a separate and independent valve mechanism, of a music-sheet provided with two sets of perforations, the perforations of the two sets alternating with each other transversely of the sheet, and the perforations of one set being in advance of the perforations of the other set, substantially as set forth.

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