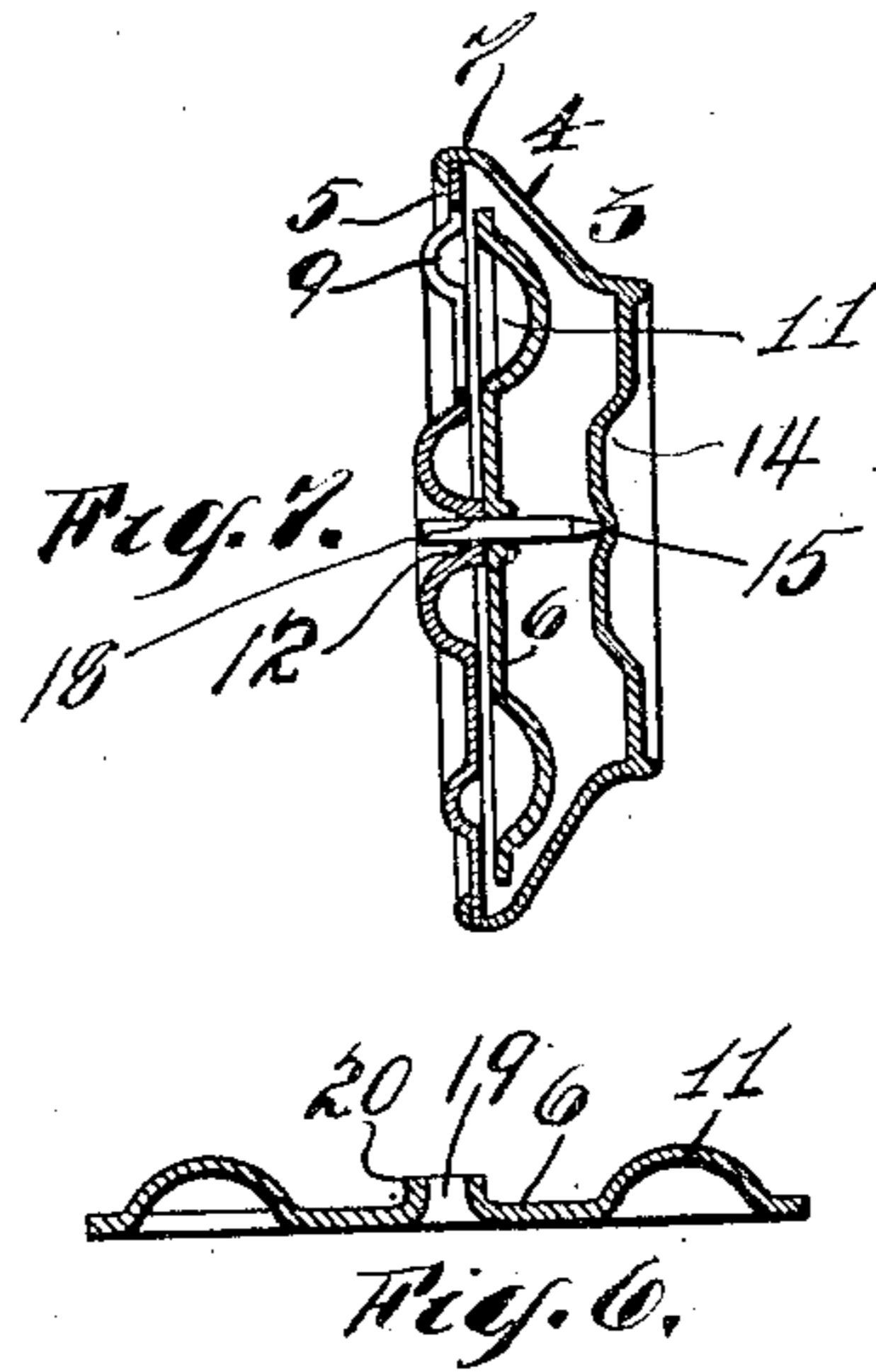
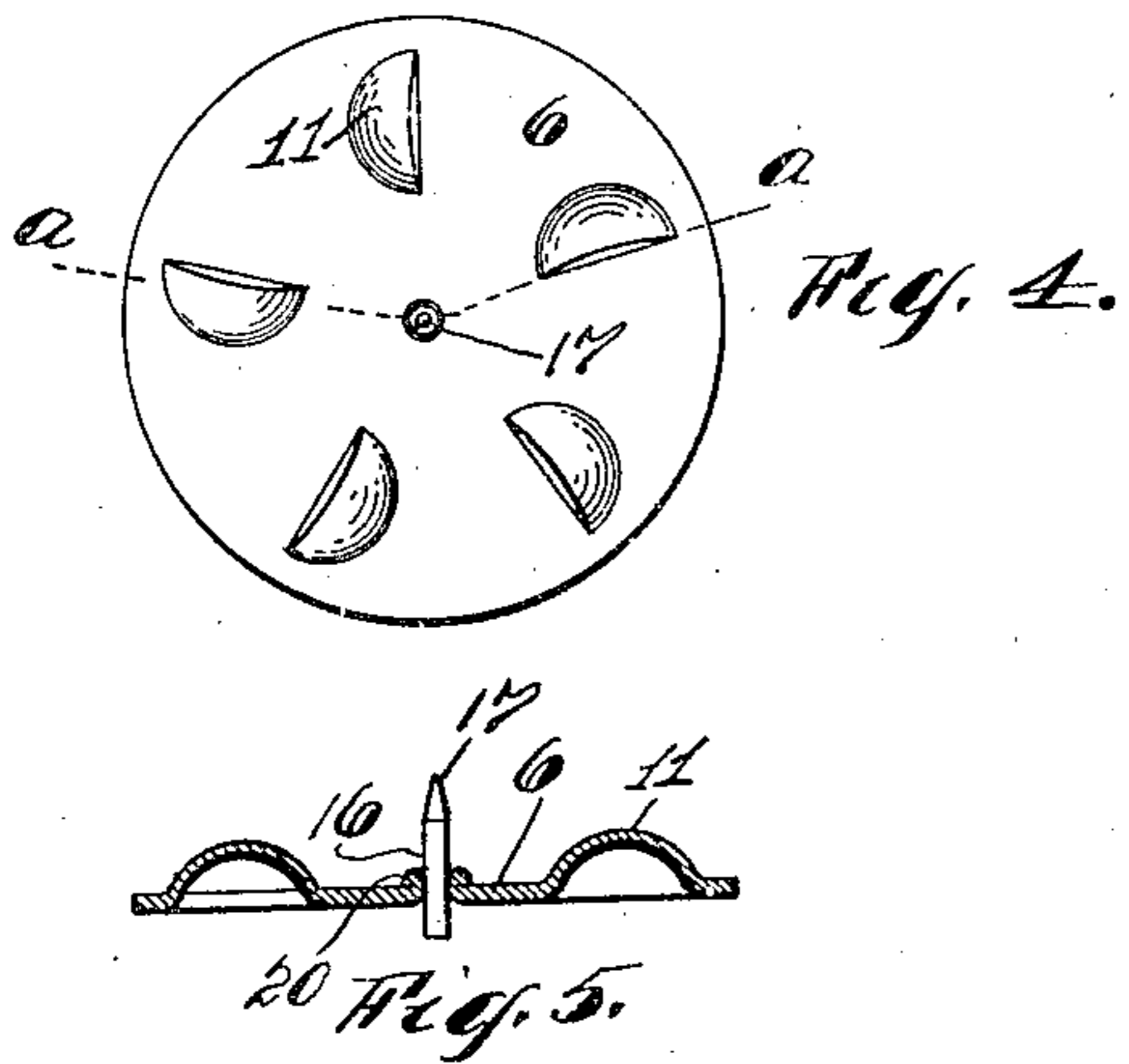
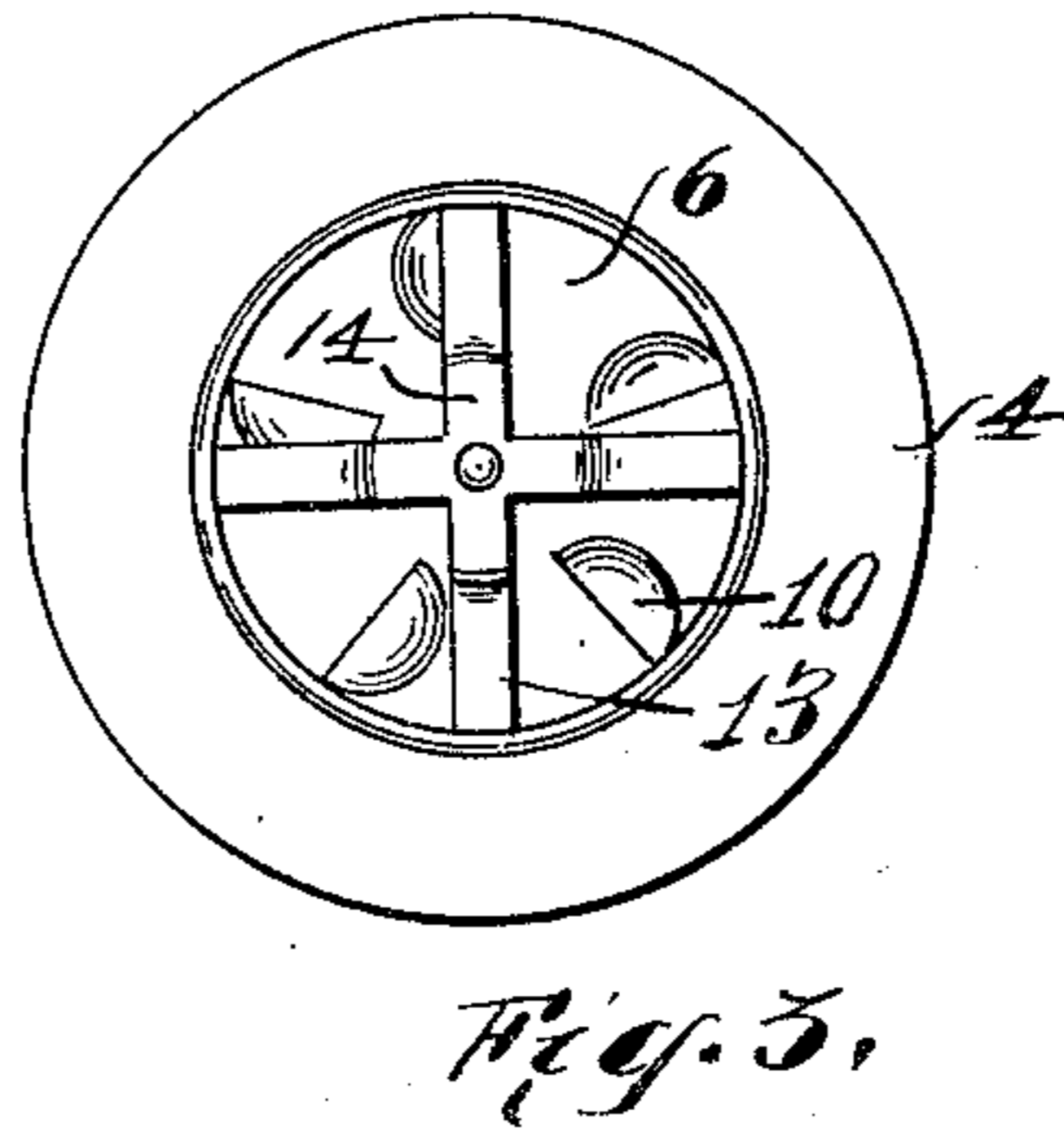
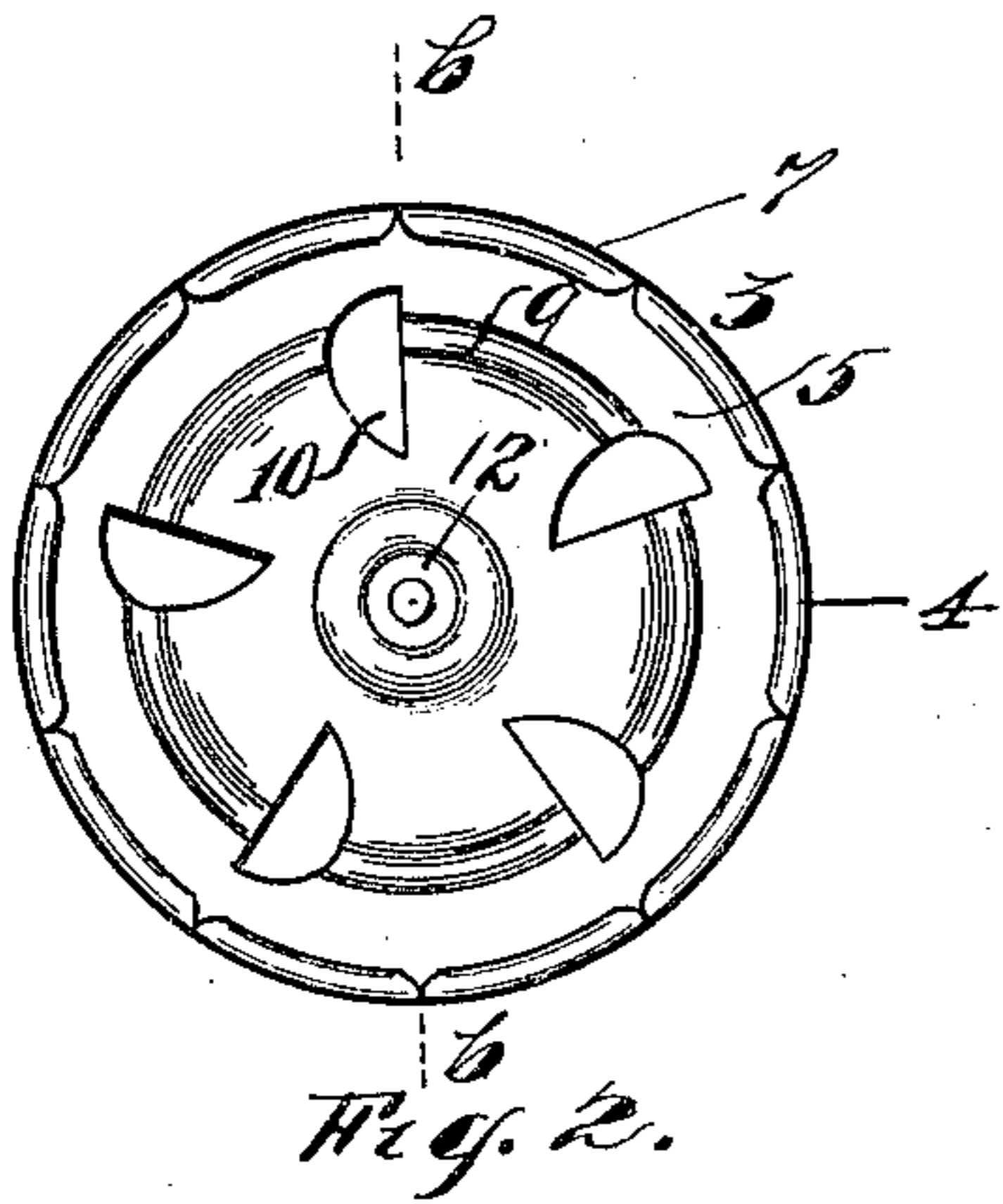
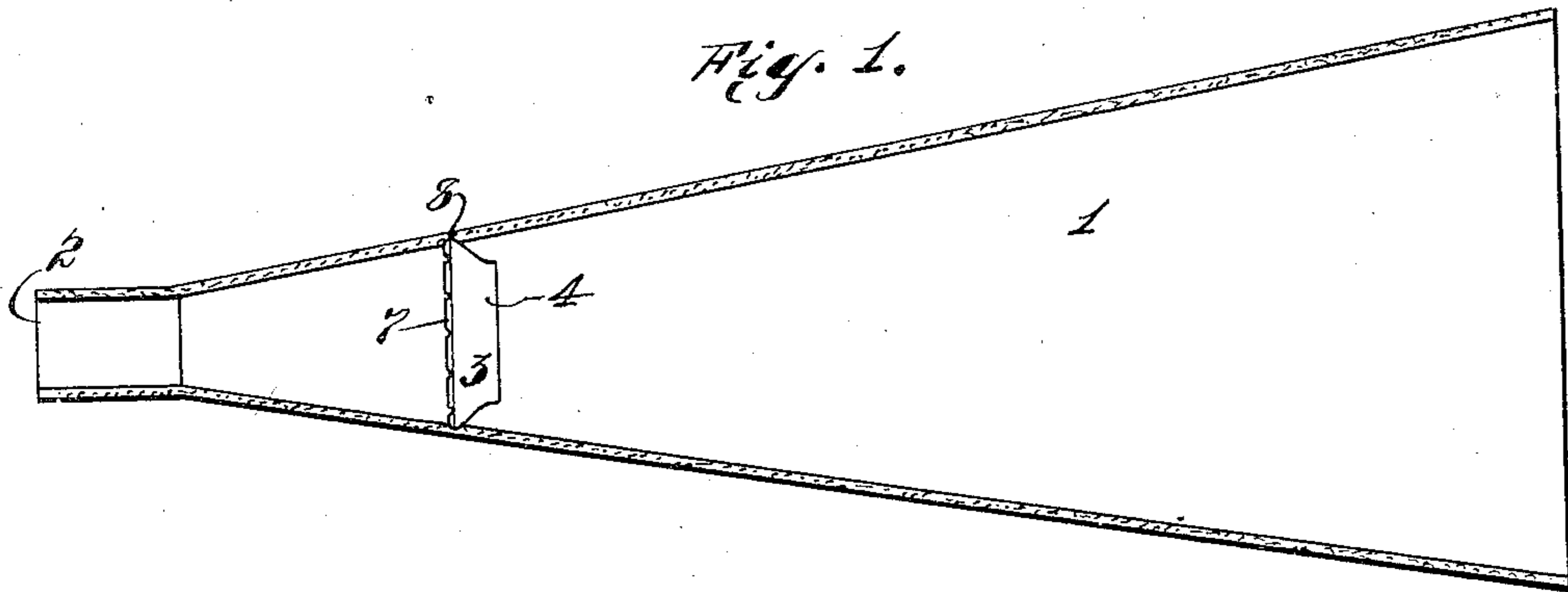


No. 889,345.

PATENTED JUNE 2, 1908.

F. STRAUSS.
WHISTLE.

APPLICATION FILED JULY 6, 1907.



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WHISTLE.

No. 889,345.

Specification of Letters Patent.

Patented June 2, 1908.

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To all whom it may concern:

Be it known that I, FERDINAND STRAUSS, a citizen of the United States, residing at New York city, Manhattan borough, county and State of New York, have invented certain new and useful Improvements in Whistles, of which the following is a full, clear, and exact description.

This invention relates to siren whistles, the object being to provide a whistle of this character that can be cheaply manufactured and still be durable and reliable in action; a still further object being to employ a horn or casing, which forms part of the whistle, that can be made of paper or other plastic material that can be easily molded, said horn being adapted to retain the sound producer without the necessity of any fastening device.

To these and other ends which will hereinafter appear, my invention comprises the novel features of improvement and the combination and arrangement of parts which I will now proceed to describe and finally claim, reference being had to the accompanying drawing, forming part hereof, wherein—

Figure 1 is a longitudinal central sectional view of my improved siren whistle, the sound producer being shown in elevation; Fig. 2 is an enlarged detail front view of the sound producer; Fig. 3 is an enlarged rear view thereof; Fig. 4 is an enlarged detail face view of the rotary disk which forms part of the sound producer; Fig. 5 is a cross-sectional view thereof, the section being taken on line *a—*a** in Fig. 4; Fig. 6 is a cross-sectional view of the disk, the section being taken on line *a—*a** in Fig. 4, and shows the struck up central bur before the spindle or pivot-pin is inserted; and Fig. 7 is a vertical sectional view of the sound producer complete, the section being taken on line *b—*b** in Fig. 2.

Like numerals are intended to indicate corresponding parts in the several views.

Referring to the drawing, the numeral 1 indicates the horn or casing of my improved siren whistle, which is preferably formed out of plastic moldable material, such as paper pulp, or the like, while 2 indicates the mouth-piece thereof. Within the horn or casing 1, I place, in any convenient position, a siren sound producer or whistle 3, which comprises the casing 4, the head 5, and the rotatable disk 6 (see Fig. 7). The parts which form the sound-producer are preferably struck from thin metal by means of suitable dies, the construction of the said parts being such as to

produce strength and other advantages to be hereinafter explained.

An important feature of my invention, which adds greatly to its commercial value, especially when the device is manufactured in large quantities, is the manner by which the whistle or sound-producer 3 is held in the horn 1. As has been stated, the horn or casing 1 is formed out of plastic material, and when in the plastic state, or wet, the horn is molded. Before the plastic material has hardened enough to take it out of the plastic condition, I take it from the mold and insert the sound-producer 3, and I then apply enough pressure to the sound producer to set it firmly in place. After having inserted the sound-producer, I allow the horn to dry, or I may bake it. After the horn has thoroughly dried, it will contract, whereby the edge 7 of the casing 4 of the sound-producer will be embedded in the wall of the horn, as shown at 8 in Fig. 1; in other words, the sound-producer is caused to remain fixed in place by the force of contraction.

It frequently occurs in whistles of this character, or when so constructed that air has to be forced through openings to form jets to operate the disk which it is intended to rapidly rotate at an increasing speed, that the openings in the disk come to a stop between the openings in the cooperating head or plate, whereby said disk becomes stuck on center, thus rendering the device difficult to start and often inoperative. To obviate this difficulty, I have provided in the head 5 of the casing 4 an annular groove or supplementary air-chamber 9, which is in communication with all the air-inlets 10 in said head 5. The disk 6 is provided with usual cups or wings 11, which, when impinged upon by air that comes through the openings 10 will cause the disk 6 to rapidly rotate, whereby a siren whistling effect will be produced. As the chamber 9 communicates with all the openings or inlets 10, the air, as it comes through the inlets 10, will tend to circulate in said chamber and therefore will not act to retard the rotation of the disk 6, as it is quite obvious that if air comes through the openings in the head in a steady flow, only that part of the air which strikes the cups adds to the force of the disk and the surface within the said cups gets a direct impact, which tends to force the disk backward in the manner of a piston. The presence of the chamber 9 acts in a great measure to prevent this,

as a volume of air will travel around in said chamber with the revolving disk. If the disk should stick on center, as hereinbefore mentioned, the air as it comes through the inlets 10 will divide and travel in the air-chamber 9 until it finds an outlet through the cups, whereby the disk 6 is started.

When the head 5 is formed, the central-portion or bearing 12 is forced slightly beyond the face of the head 5, as shown in Fig. 7, whereby the disk 6 is kept out of frictional contact with said head 5. End thrust of the disk 5 is also prevented by the bearing 12. The rear of the casing 4 is provided with a spider 13, between the arms of which the air from the cups 11 can escape. The spider 13 is bent inwardly, as at 14, and is provided with a centrally located needle-point bearing 15. This form of spider makes a strong and durable brace for the rear of the casing. The inwardly bent portion 14 decreases the length of the disk spindle.

The disk spindle 6 carries a spindle or pivot-pin 16, which is provided with a point 17 to fit the bearing 15 in the spider 13, the other end of the pivot-pin 16 being carried in the opening 18 of the bearing 12 of the head 5. When the disk 6 is formed, the central opening 19 will be surrounded by a bur 20, which I utilize in the following manner: The opening 19 will be substantially the same diameter as the pivot-pin 16, which necessitates driving the said pin in. When the pin 16 is driven into the proper position, I then force the bur 20 downwardly against the disk 6 and around the pivot-pin 16, whereby said pin is rigidly held in place, and

thus forming a collar around the pivot-pin 16 after the bur 20 has been swaged. By this means I not only obviate soldering or riveting, but provide an unusually firm setting for the pivot-pin. It is highly important in whistles of this character that the disk 6 be firmly secured to its pivot, as the loosening of the disk renders the device inoperative. By my improvement I have accomplished this object in a cheap and simple manner.

Having now described my invention, what I claim and desire to secure by Letters Patent is:

1. A siren-whistle adapted for insertion into a horn or casing, comprising a head having openings, a rotatable cupped disk, a casing for said head and said disk, said head being provided with an air-chamber in communication with the openings therein and adjacent to the cups of said disk.

2. A siren-whistle adapted for insertion into a horn or casing, comprising a head having openings, a rotatable cupped disk, a casing for said head and said disk, said head being provided with an air-chamber in communication with the openings therein and adjacent to the cups of said disk, said disk being provided with a pivot-pin having a point in one end adapted to enter a bearing in said casing, the other end of said pivot-pin being rotatably supported by said head.

Signed at New York city, N. Y., this 5th day of July 1907.

FERDINAND STRAUSS.

Witnesses:

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