No. 804,223. PATENTED NOV. 14, 1905.

W. A. HARRISON.

FAN.

APPLICATION FILED APR. 26, 1905.

Fig. 4.

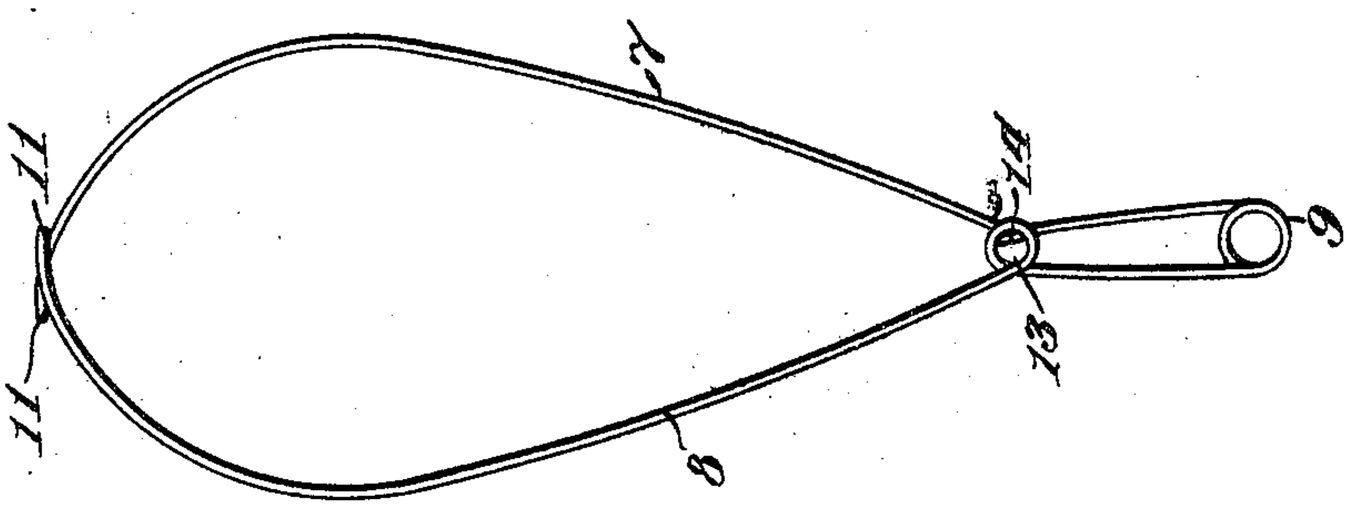


Fig. 3.

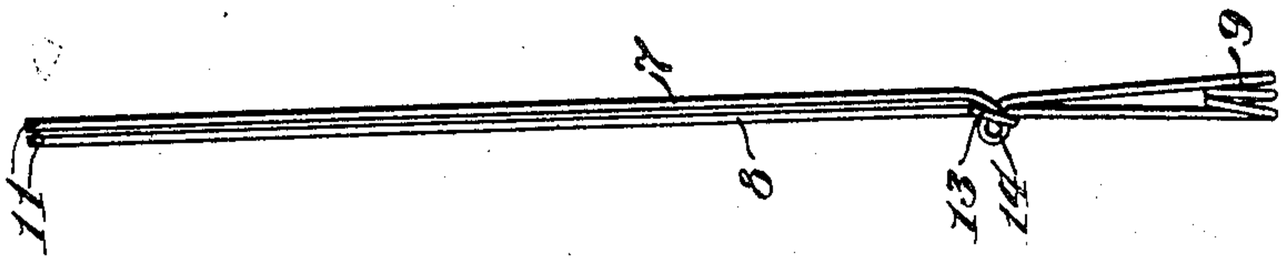


Fig. 2.

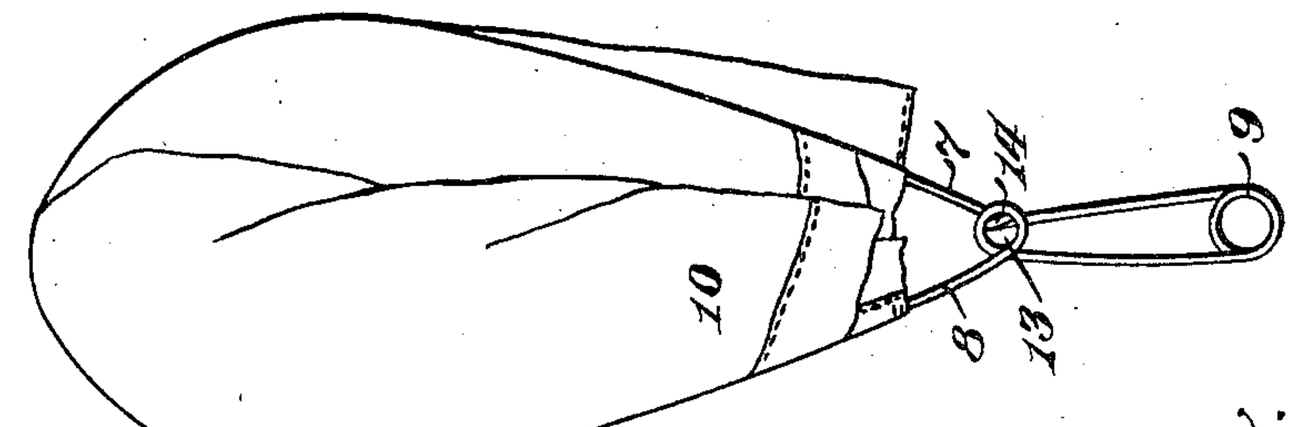
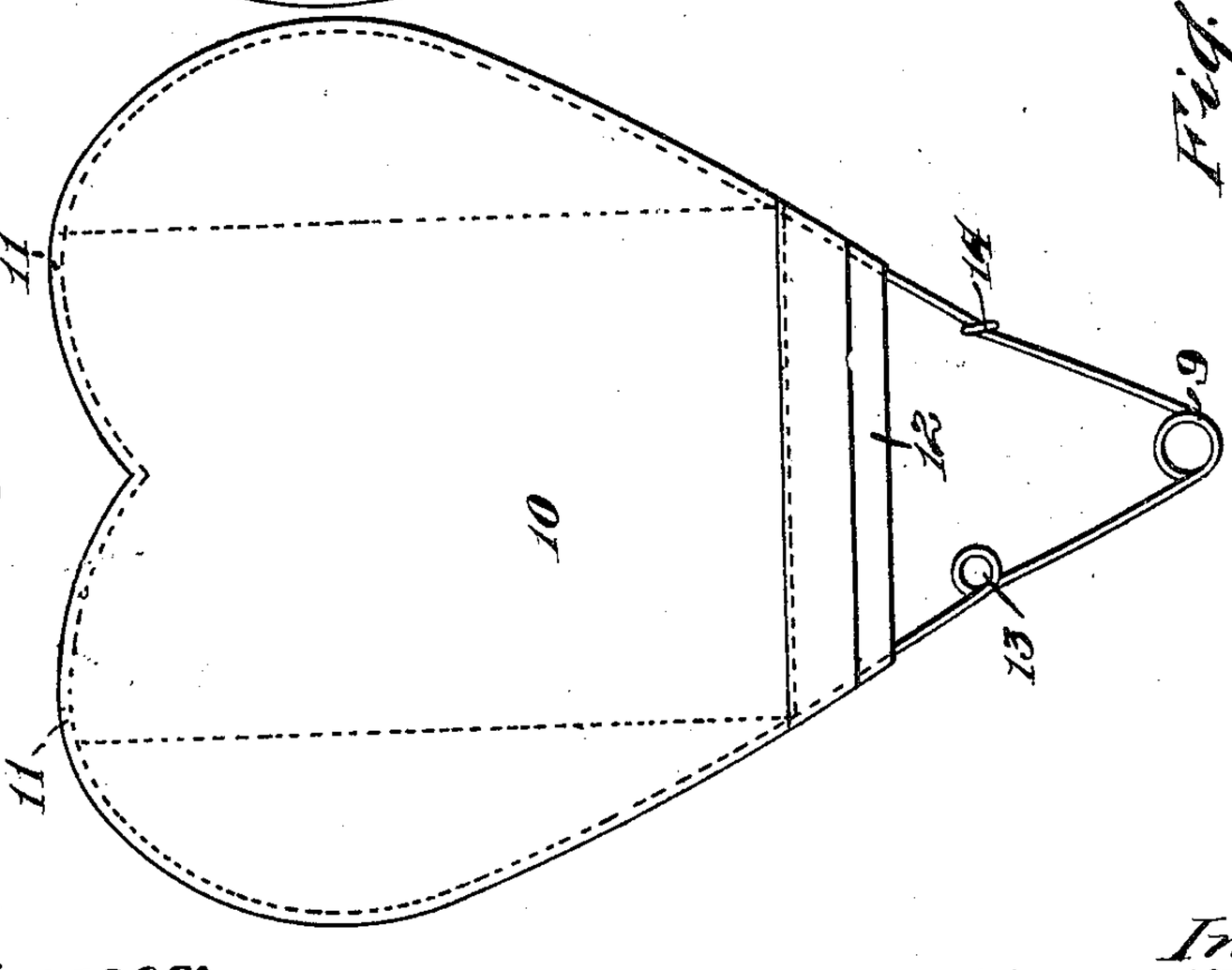


Fig. 5.

Fig. 1.



Witnesses:
H. G. Fuss,
R. W. Pattinson

Inventor:
William A. Harrison,
By his attorney,
F. H. Richards

UNITED STATES PATENT OFFICE.

WILLIAM A. HARRISON, OF NEW YORK, N. Y.

FAN.

No. 804,223. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed April 26, 1905. Serial No. 257,408.

To all whom it may concern:

Be it known that I, WILLIAM A. HARRISON, a citizen of the United States, residing in borough of Manhattan, New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Fans, of which the following is a specification.

This invention has reference to a fan composed of a sheet of flexible material, such as a piece of fabric, that is normally held distended by an elastic frame.

One of the objects of the invention is to provide an elastic frame that will normally hold a piece of fabric secured at opposite sides to the frame in a taut or distended position.

A further object of the invention is to provide such a frame with means for retaining it and the fabric in a closed position.

A further object of the invention is to provide a form of integral frame in which two members will be diverged by means of the inherent elasticity to thereby distend a piece of fabric attached to such members and which frame will also comprehend means for retaining or locking the members in closed position.

In the drawings accompanying this specification and forming part thereof is represented one embodiment of my invention, wherein—

Figure 1 is a plan view of the fan in an open position. Fig. 2 shows the fan in the closed position. Fig. 3 is a side elevation. Fig. 4 is a plan view of the frame separate from the flexible member; and Fig. 5 is a fragmentary side elevation of the frame, showing a modified form of the retaining-loops.

The frame is preferably formed from a continuous length of a resilient rod or wire; but, if preferred, the two arms (denoted generally by 7 and 8) may be rigid instead of elastic and connected at their extremities so as to open and close and provided with suitable means for distending the arms. In the form shown the arms 7 and 8 are integral with a helical spring 9, the arms extending tangentially therefrom at the extremities of the coil portion and from substantially opposite sides thereof.

A suitable flexible member, such as a piece of fabric 10, is secured on opposite sides thereof to the arms 7 and 8 in any convenient manner, so that when the arms are distended or forced to the open position by virtue of the resiliency of the coil-spring the fabric will be distended or drawn taut, as indicated in Fig. 1. From this figure it will be observed that a fan-shaped article is formed that can be readily grasped at the coil portion and the portions of the arms adjacent thereto. It is found preferable to bend or curve the extremities of the arms 7 and 8 inward and toward each other, as indicated in Fig. 1, a line joining the extremities of which in the distended position will be substantially tangential to such curved ends. By thus curving the ends the edge of the wire or rod will not tend to unduly strain the fabric or to tear or pierce the same. The fabric, which may, if desired, be made of a suitable strong yet light material, such as silk, may have its edges provided with a hem, into which the arms may be inserted and may be secured therein in any suitable manner. If desired, the fabric 10 may have at the outer edge a reëntrant angular shape, as shown in Fig. 1, thereby producing a substantially heart-shaped device.

The fan may also be made to serve as a receptacle by providing a pocket therein whose opening is indicated at 12, and this may be conveniently formed by making the fabric double. When used as a pocket, the device will be carried by or suspended from the spring end thereof—that is, in inverted position.

The fabric portion also forms a convenient place to receive advertising matter or any suitable inscription or ornamentation.

When the arms 7 and 8 are brought together to the closed position, the device will appear substantially as indicated in Fig. 2, in which the arms appear with their extremities somewhat overlapping, as indicated in Fig. 4. Various means may be used for retaining the arms in the closed position. In Figs. 1 to 4 the frame is shown provided with integral means for such purpose, comprising a detent or loop 13 on the arm 8, formed by bending this arm upon itself for one revolution, the loop lying in a plane substantially coincident with or parallel to the plane of the arms and extending toward the arm 7. The latter arm is provided with a detent or loop 14, that may also be formed by bending the wire upon itself for one revolution; but this loop extends transversely to the plane of the arms, and hence substantially at right angles to the plane of the loop 13. The two loops are formed at an equal distance from the coil 9, and when the arms are brought together by

giving the arms, or one of them, a slight bend the loop 13, that is of smaller diameter than the loop 14, can be passed into the latter loop, whereupon the divergence of the arms by the coil 9 when released will cause the top portion of the loop 13 to engage the bottom portions of the loop 14 adjacent the arm 7 and be retained in such position. To release the arms from such locking or retaining means, it is merely necessary to move the arms, or one of them, so that the loop 14 is moved out of the other loop, whereupon the coil 9 will distend the arms to the open position of Fig. 1; but, if desired, the loop 13 may be omitted and the arm 7, be moved across the other arm, so that the loop 14 will engage the outer side of the arm 8, and thereby lock or retain the arms in the closed position.

In Fig. 5 is shown a slight modification in which a different form of loop or detent 15 is formed on the arm 7, the arm being first bent upward substantially at a right angle, then bent upon itself and downward to the original line of the arm, and then bent at a right angle to extend in substantial alinement with the arm from the detent to the coil.

From the above it will be seen that the whole frame is constructed of one continuous rod or piece of wire, of which the portion constituting the coil 9 is resilient; but the whole frame may be of resilient material. The frame can be readily formed by coiling it at an intermediate portion to form the helix 9, with the two arms 7 and 8 extending tangentially therefrom, as indicated in Fig. 1. Thereupon the two loops 13 and 14 can be easily formed by coiling the wire once around a suitable rod or by other means and thereupon bending the extremities inward to form the curved end portions. The fabric can be readily and quickly attached by any suitable means, such as providing it with pockets or hems along the edges, into which the arms 7 and 8 are inserted.

Having thus described my invention, what I claim is—

1. A fan comprising a pair of arms integrally connected at their ends by a spring arranged to cause divergence thereof, a flexible member attached to the arms and held taut by them when diverged, and an integral part on one arm arranged to engage the other arm to hold the arms closed.

2. A fan comprising a pair of arms integrally connected at their ends by a spring arranged to cause divergence thereof, a flexible member attached to the arms and held taut by them when diverged, and an integral part on each arm arranged to coöperate to hold the arms closed.

3. A fan comprising a pair of arms integrally connected at their ends by a spring arranged to cause divergence thereof, a flexible member attached to the arms and held taut by them when diverged, and a detent fast on one arm at its connecting end portion and arranged to engage the other arm and retain them in closed position.

4. A fan comprising a pair of arms integrally connected at their ends by a spring arranged to cause divergence thereof, a flexible member attached to the arms and held taut by them when diverged, and an integral part on one arm arranged to engage the other arm to hold the arms closed, the outer ends of the arms being curved inward toward each other.

5. A fan comprising a pair of arms connected at their ends to open and close, a spring arranged to cause divergence of the arms, a flexible member attached to the arms and held taut by them when open, a loop on one arm extending toward the other arm, and a detent on the other arm extending transverse to the plane of the arms and arranged to engage said loop when the arms are closed and retain them in such position.

6. A fan comprising a pair of arms integrally connected at their ends by a coil-spring arranged to cause divergence of the arms, a piece of fabric attached to the arms and held taut by them when open, an integral loop on one arm extending toward the other arm, and an integral detent on the other arm extending transverse to the plane of the arms and arranged to engage such loop when the arms are closed and retain them in such position.

7. A fan comprising a pair of arms integrally connected at their ends by a spring arranged to cause divergence of the arms, and a piece of fabric attached to the arms and arranged to be held taut by them when diverged, an integral loop on one arm extending toward the other arm, an integral loop on the other arm extending transverse to the plane of the arms and arranged to engage said loop when the arms are brought together and retain them in such position.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 14th day of April, 1905.

WILLIAM A. HARRISON.

Witnesses:
ALFRED FORNANDER,
WILLIAM H. REID.