

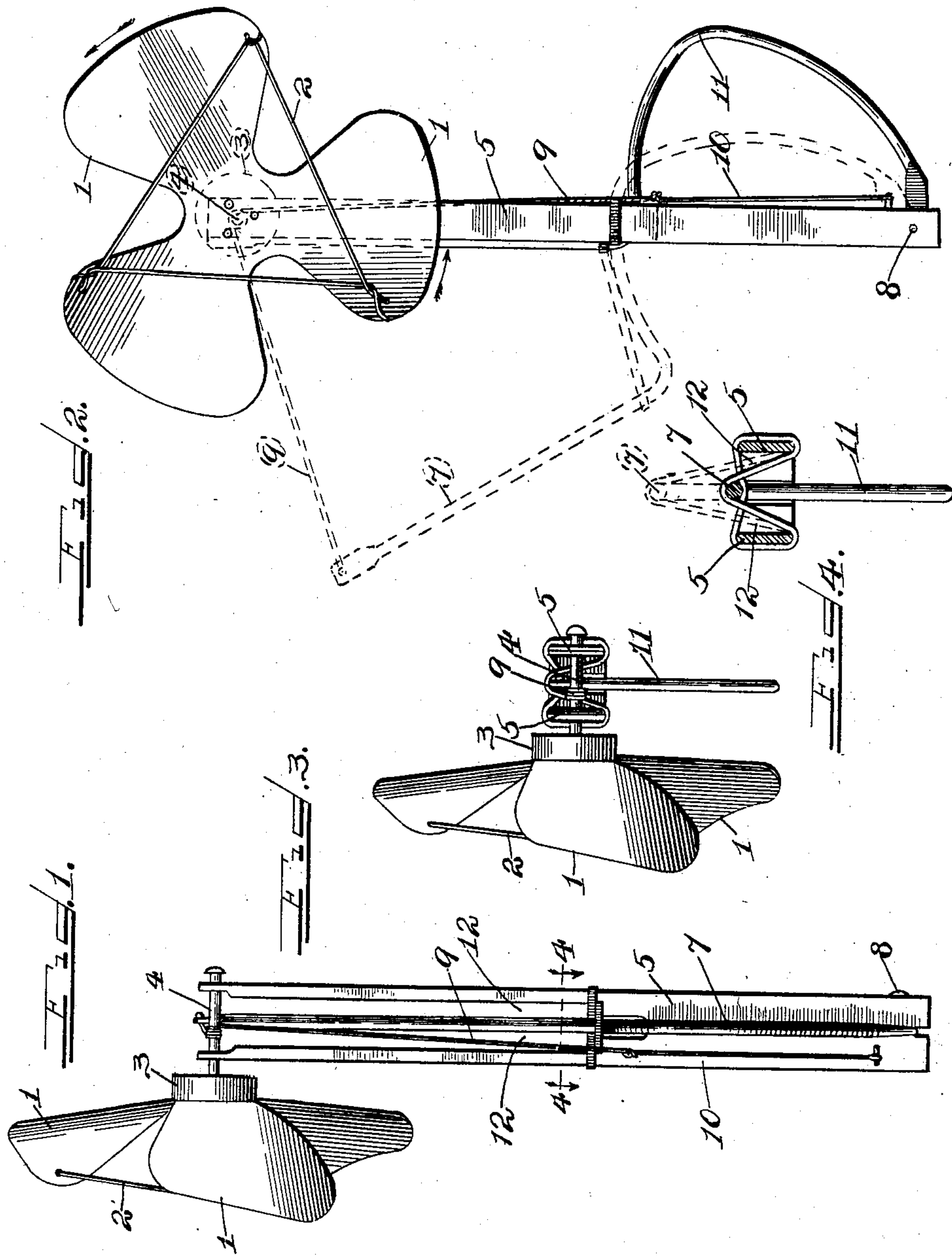
No. 708,091.

Patented Sept. 2, 1902.

B. D. STRAIGHT.  
ROTARY HAND FAN.

(Application filed Oct. 7, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

BENNETT D. STRAIGHT, OF CHICAGO, ILLINOIS.

## ROTARY HAND-FAN.

SPECIFICATION forming part of Letters Patent No. 708,091, dated September 2, 1902.

Application filed October 7, 1901. Serial No. 77,801. (No model.)

*To all whom it may concern:*

Be it known that I, BENNETT D. STRAIGHT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Hand-Fans, of which the following is a specification.

This invention relates to improvements in small rotary fan devices of that class in which the fan is mounted upon a handle provided with a driving mechanism adapted to be operated to set the fan in motion by the alternate opening and closing of the hand upon the handle.

The object of the invention is to provide an improved and simplified construction in devices of this character and one which can be readily manufactured at such a low cost as to enable it to be widely used for advertising purposes and as an article of sale by street-venders.

The invention consists in the matters herein set forth, and particularly pointed out in the appended claims, and will be fully understood from the following description of the accompanying drawings, in which—

Figure 1 is a side elevation of a rotary hand-fan embodying the invention. Fig. 2 is a front elevation thereof. Fig. 3 is a top plan view thereof. Fig. 4 is a sectional detail taken on line 4 4 of Fig. 1.

In said drawings, 1 designates the fan-wheel, which is herein shown as shaped somewhat like an ordinary three-bladed screw-propeller, although it may be otherwise shaped and made with a different number of blades, if so desired. For the sake of cheapness and lightness of construction and to enable it to be more readily printed upon when the device is employed as an advertising novelty such fan-wheel is desirably made of paper, in which case it may be stiffened and made to keep its shape by strands or wires 2, which are herein shown as extending between the rear corners of the blades. Any other suitable sheet material or metal may, however, be used in its construction, if so desired.

The hub 3 of the fan is rigidly secured upon a shaft 4 to rotate therewith, and this shaft is revolubly mounted in the bifurcated upper end of the handle 5, which will conveniently be made of wood and of a length con-

siderably longer than the diameter of the fan, so that its remote end can be readily grasped in the hand without interfering with the fan's motion. This handle 5 supports the driving mechanism, which consists of a bent-wire lever 7, pivoted at 8 to the lower end of the handle, and of a cord 9, one extremity of which is secured to the free end of the lever 7, while its other extremity is secured to a yielding spring or elastic 10 on the handle, the cord between the extremities being wound one or more times around the shaft 4. The pivoted lower end 11 of the wire lever 7 is bent in the shape of a bow, as shown, and the upper portion of this bow passes through the bifurcation or slot 12 in the handle, so that when the bow and handle are grasped and squeezed together by the hand the upper portion of the wire to which the cord 9 is attached will be swung out away from the shaft 4, drawing with it the cord 9 and causing the shaft and fan to rotate because of the cord's being wound about the shaft, as stated, the elastic or spring 10 yielding meanwhile to permit the cord to be drawn out and afterward contracting, so as to pull back the cord to its original position. Such contractile action of the elastic 10 would also serve to pull back the lever 7 against the handle; but this operation would involve a continuing tautness of the cord 9 between the lever and shaft that would result in a reversal of the direction of rotation of the shaft and fan, due to the pull of the elastic during such return movement. To prevent this, an independent returning spring or elastic 12 is applied to the lever 7 to swing the latter back against the handle independently of any pull exerted upon it by the cord 9 and so rapidly as to cause a slackness in the cord and a consequent loosening of the coils of the cord about the shaft. This permits the shaft to revolve freely within the coils of the cord during the return movement and enables the fan to continue its forward rotation by reason of the momentum which it has previously attained until by a subsequent grip of the hand the lever is swung out again and the cord tightened upon the shaft to repeat the rotary impulse by which the fan is urged forward.

The simplicity and cheapness of the construction thus described will be obvious. No



rack, pinion, or ratchet is required in its make-up, and it is contemplated that the springs or elastics 10 and 12 will be made of ordinary rubber bands, which can be readily procured in all localities, and with the exception of the cord and elastics, which may be readily renewed without difficulty by the most unskilled persons, none of the parts are of a character likely to break or get out of order.

10 The device can be manufactured at the lowest possible cost and at the same time is durable and efficient in its operation, the friction losses of the mechanism being so small and the driving movement required so

15 smooth and easy that any person of ordinary strength of grip can keep the fan in rotation at a high rate of speed for a considerable time without undue fatigue, during which time the fan will deliver a very noticeable

20 current of air in any direction toward which it may be directed.

Obviously the arrangement of the parts might be readily changed so that the actuating impulses on the fan would be effected

25 by the elastics or springs, while the gripping movements of the hand would serve merely to return the parts in opposition to the spring action. The essential construction and operation of the device in such case would, however, remain unaltered, and various other

30 changes may be made in the details of the mechanism shown without departing from the broad spirit of the invention claimed.

I claim as my invention—

35 1. A rotary hand-fan comprising a handle, a fan supported on a shaft mounted to rotate in the handle, a cord wrapped around the

shaft and secured at one end to the handle through an elastic connection, a lever pivoted to the handle and having its free end secured to the other end of the cord, and elastic means applied to normally hold the lever against the handle, substantially as described.

2. A rotary hand-fan comprising a handle, a fan supported on a shaft mounted to rotate in the handle, a cord wrapped about the shaft and secured at one end to the handle through an elastic connection, and a lever pivoted to the handle and secured at its free end to the other end of the cord, said lever being provided with a bow-shaped bend near its pivoted end, substantially as described.

3. A rotary hand-fan comprising a handle, a fan supported on a shaft mounted to rotate in the handle, a cord wrapped about the shaft and secured at one end to the handle through an elastic connection, and a lever pivoted to the handle and secured at its free end to the other end of the cord, said lever being provided with a bow-shaped bend near its pivoted end, and elastic means applied between the handle and lever to normally force the bow portion of the lever away from the handle, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two subscribing witnesses, this 4th day of October, A. D. 1901.

BENNETT D. STRAIGHT.

Witnesses:

HENRY W. CARTER,  
K. A. COSTELLO.