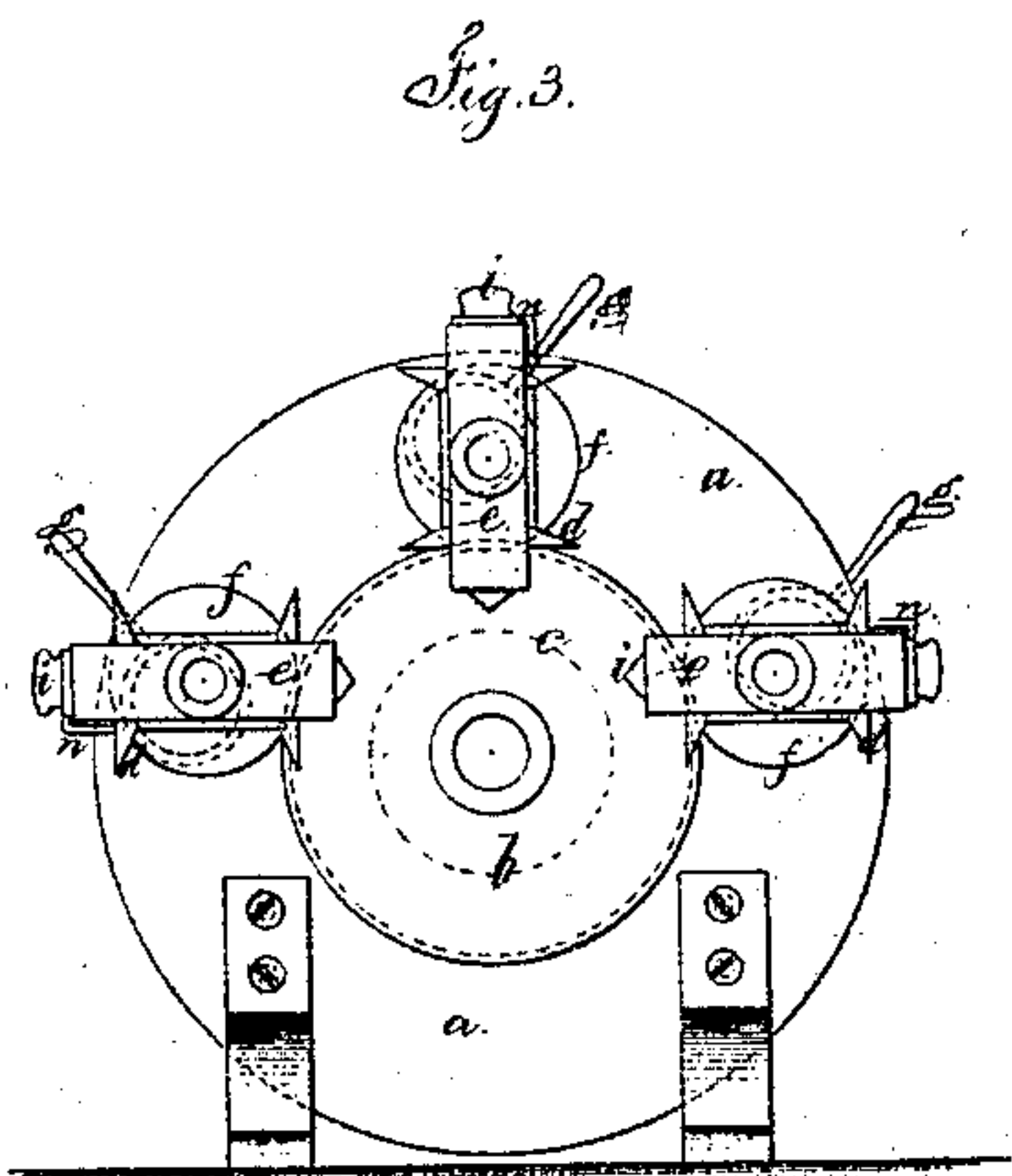
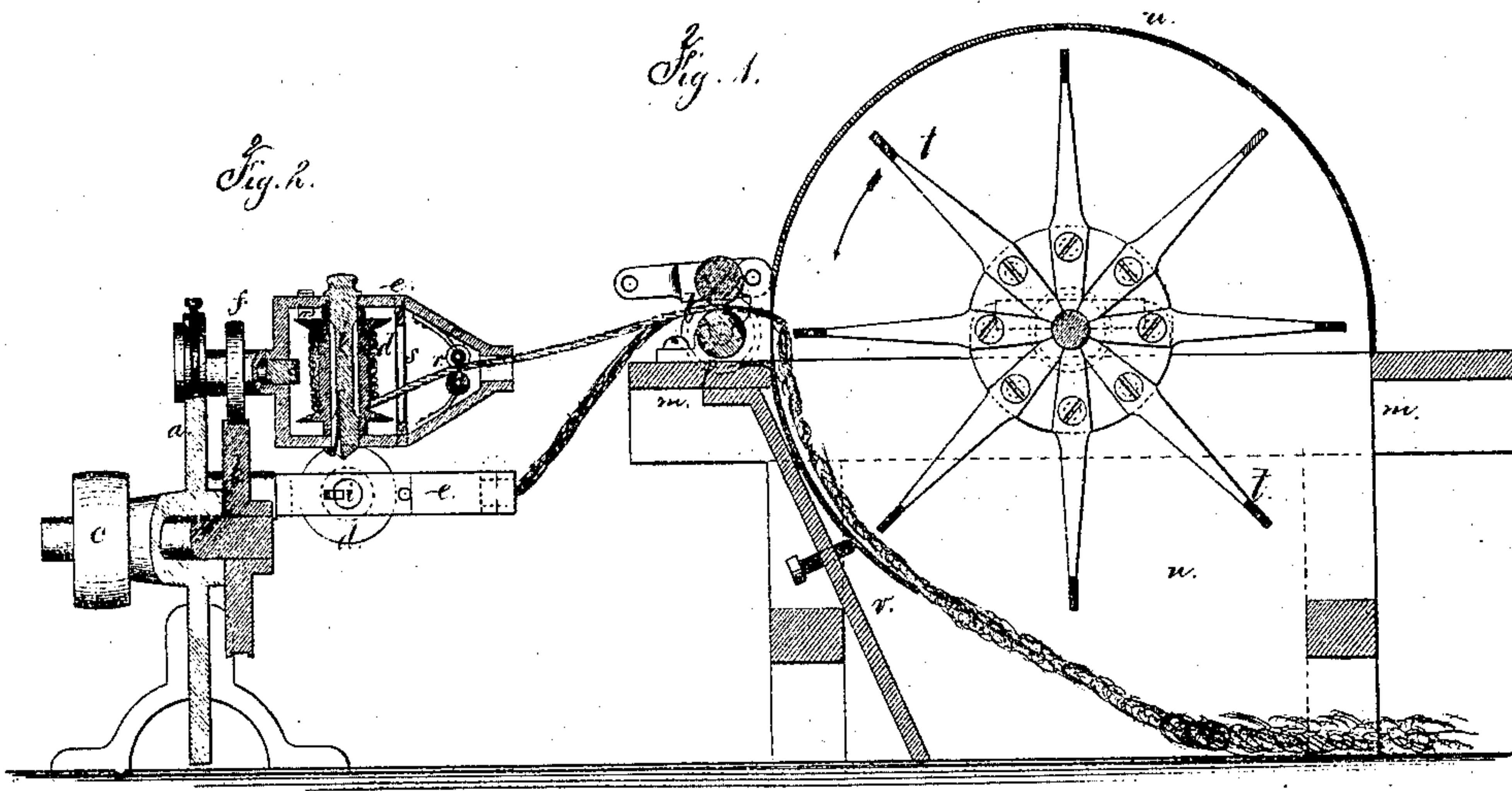


*Paradis & Drew,*

*Opening Hair Rope.*

*No. 104,058.*

*Patented June 7. 1870.*



*Joseph Paradis*  
*Wm. H. Drew*

*Witness.*

*Chas. H. Smith*  
*Geo. A. Warren*



# United States Patent Office.

JOSEPH PARADIS AND WILLIAM H. DREW, OF BROOKLYN, NEW YORK.

Letters Patent No. 104,058, dated June 7, 1870.

## IMPROVEMENT IN MACHINES FOR UNTWISTING AND SEPARATING HAIR-ROPE.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that we, JOSEPH PARADIS and WILLIAM H. DREW, of Brooklyn, in the county of Kings and State of New York, have invented and made an Improvement in Machines for Opening Hair-Rope; and the following is declared to be a correct description thereof.

Hair-rope has heretofore been opened principally by hand, because the mechanism that has been devised for performing that work has done the work very imperfectly, leaving the hair in a tangled, knotty condition, as well as breaking and injuring the fiber by the beating operation to which the untwisted rope has been subjected.

The machine heretofore made for this purpose has also occupied a large space, and required considerable attention.

Our invention is for opening the hair by the action of a blast of air, thereby avoiding injury to the same, and thoroughly separating the curled hair; at the same time the machine takes but little space, and requires a small amount of attention.

In the drawing—

Figure 1 is a vertical section of the blowing and separating-apparatus.

Figure 2 is a section of the untwisting mechanism; and

Figure 3 is a front view of the last-named mechanism.

We have shown our untwisting device as adapted to three spools of rope, but the same may have more than that number, or only act upon one spool; we will therefore describe the mechanism with reference to one spool.

A head or frame, *a*, supports a friction-wheel, *b*, and its shaft, that are revolved by the pulley *c*, and the reel or spool *d*, that contains the twisted hair-rope, is mounted in the frame *e*, which frame *e* is revolved by the contact of the pulley *f* with the friction-wheel *b*.

The axis upon which the frame *e* revolves is made as a gudgeon that projects eccentrically from a disk that is set in the frame *a*, so that the pulley *f* can be brought into contact with the wheel *b* by turning the eccentric disk by the lever *g*, or the reverse motion stops the revolution of the frame *e*.

The pin *i*, that passes through the reel *d*, is made with a head at one end, and a latch at the other, so as to be held in place, and the rope is led off between the spring clipping rollers *r r* that are employed to keep the rope from untwisting between the spool and these rollers *r*.

A cross-bar may be employed, at *s*, for the hair-rope to pass beneath, and a ring-formed opening may be made at the apex of the frame *e* for the rope to pass through, so as to prevent the rope slipping out from between the rollers *r*; but this ring may be dispensed with.

We apply a friction-spring, at *n*, to the reel *d*, so as to prevent the rope unwinding too fast.

The rope of hair passes from the unwinding-frame to the pair of feeding and drawing-rollers *l l*, that are mounted upon a suitable frame, *m*, and driven by power applied to the wheel *p*, or otherwise.

The upper roller is to be weighted sufficiently to hold the hair-rope against the untwisting action of the frame *e*, and cause the rope to be drawn along with regularity.

It will now be understood that the hair-rope passes out of the rollers *l l* in an untwisted condition, and is to be opened or separated so as to prevent the hair twisting or coiling together again.

We have discovered that a powerful current of air directed upon the hair at this point is the most effective means of separating the same, because the hair is not matted or knotted thereby, but it is kept constantly opened and drawn out until the separate fibers are detached and blown away into a receiving-room.

This operation is more perfect, rapid, and cheap, than the picking performed by hand.

As a convenient means for directing a current of air upon the hair, we employ, and have shown, the revolving blower *t* within the case *u*, and driven by competent power.

The case at *v* may be adjusted by set-screws so as to place the same nearer to or further from the revolving fans, and thereby increase or diminish the action of the air upon the fiber.

We do not desire the hair to come in contact with the edges of the fans, because the air is sufficient for the separation of the hair, and hence the hair cannot be cut or injured.

We claim as our invention—

1. The means herein specified for untwisting hair-rope, consisting of the holding-rollers *r r* in the revolving frame *e* that carries the reel of the rope, in combination with the drawing-rollers *l l*, substantially as specified, so that the hair shall be delivered from these rollers *l* in an untwisted condition, as set forth.

2. In combination with the foregoing, the friction-wheel *b*, pulley *f*, and eccentric, as and for the purposes specified.

3. The combination, with mechanism for untwisting hair-rope, of a fan-blower for creating and directing a current of air upon the untwisted hair as delivered from the feeding or drawing-rollers, to open and separate the same, the blower being arranged in such relation with the rollers that it does not act as a beater, substantially as set forth.

Dated February 26, A. D. 1870.

JOSEPH PARADIS.  
WM. H. DREW.

Witnesses:

CHAS. H. SMITH,  
GEO. T. PINCKNEY.