

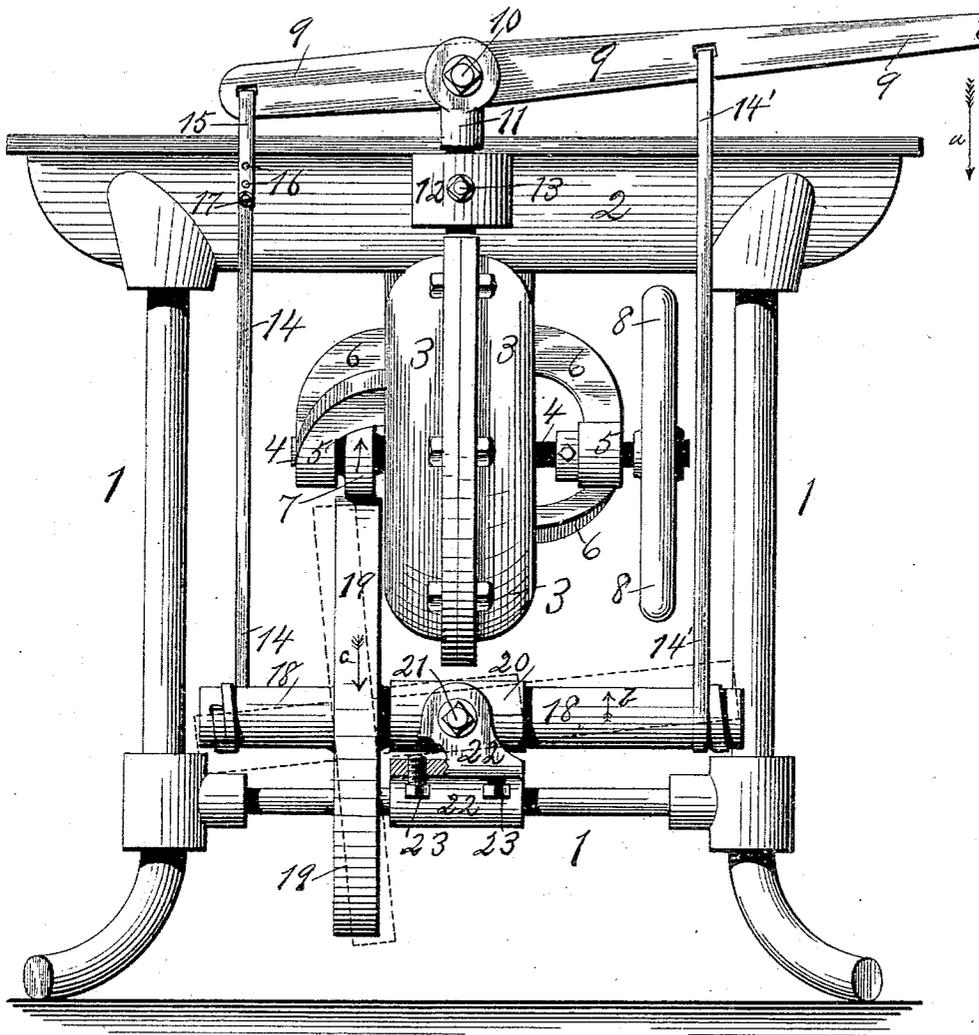
(No Model.)

E. E. WEBB.

DRIVING MECHANISM FOR FORGES.

No. 378,273.

Patented Feb. 21, 1888.



Witnesses  
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# UNITED STATES PATENT OFFICE.

EDWARD E. WEBB, OF FITCHBURG, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO HOSEA STONE, OF SAME PLACE.

## DRIVING MECHANISM FOR FORGES.

SPECIFICATION forming part of Letters Patent No. 378,273, dated February 21, 1888.

Application filed July 8, 1887. Serial No. 243,715. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD E. WEBB, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Driving Mechanism for Blacksmiths' Forges, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawing making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to mechanism for operating the fan of a blacksmith's forge, or for operating the driving-shaft of light-running machines where a small expenditure of manual power will produce a continued and rapid revolution of said fan or of said driving-shaft, and where, by upward and downward strokes of a pivoted lever connected by straps or cords with a shaft supported in a swivel-bearing and carrying a driving-wheel, a continuous motion in one direction is given to a wheel secured upon a driving-shaft with which is connected the mechanism or machine to be operated.

The object of my invention is to produce a simple and effective mechanism for operating at a high rate of speed the shaft of the fan in a blacksmith's forge or the driving-shaft of light-running machines; and my invention consists in certain novel features of construction and operation of said mechanism, as will be hereinafter fully described.

The drawing represents a rear view of a blacksmith's forge of ordinary construction with my improvements applied thereto. The dotted lines represent the normal position of the rocking shaft and driving-wheel secured thereon when the driving mechanism is not in use.

In the accompanying drawing, 1 is the frame of a blacksmith's forge of the ordinary construction, upon the top of which is secured a reservoir or basin, 2, for holding coal.

Upon the under side of the reservoir 2 is secured a case or box, 3, within which is inclosed a revolving fan (not shown in the drawing) of ordinary construction secured upon a shaft, 4, which is supported and turns in bear-

ings 5 in the end of arms 6 supported upon and extending out from the sides of the case or box 3.

A small wheel, 7, is secured upon the shaft 4 of the fan, and a fly-wheel, 8, may be secured upon the outer end of said shaft. The operating-lever 9 is pivoted by a bolt, 10, in a swivel-bearing, 11, supported and turning in a stand, 12, secured to and extending out from the reservoir or basin 2 directly over the box or case 3 of the fan. In this instance a set-screw, 13, extends through the stand 12, with its inner end extending into a groove in the spindle of the swivel-bearing 11 to prevent said bearing from being raised out of its supporting-stand 12.

To the operating-lever 9 is secured the upper ends of the two straps or cords 14 and 14', one of which, 14, is shown, in this instance, adjustably connected to the lever 9 by means of a link, 15, provided with holes 16 and a bolt, 17, securing the end of the strap to said link. The end of the strap 14' may also be adjustably connected with the lever 9, if desired.

The lower ends of the straps 14 and 14' are secured to the outer ends of the revolving shaft 18 in such a manner that they will extend upon the opposite side of said shaft, and as said shaft is revolved, first in one direction and then in the other, the ends of said straps will be wound thereon and unwound therefrom respectively.

The shaft 18 is preferably cast in one piece with a driving-wheel, 19, forming a part thereof. Said shaft is supported and revolves in a swivel-bearing, 20, made in two parts, inclosing said shaft. The swivel-bearing 20 is pivoted upon two bolts, only one of which, 21, is shown in the drawing, extending through the stand 22, supported and secured upon the frame 1, directly beneath the fan case or box 3. Check-bolts 23 in the stand 22, one upon each side of the swivel-point of the bearing 20, regulate the rocking motion of said bearing and the shaft 18 supported therein.

The operation of my mechanism for driving the fan inclosed within the case or box 3 will be readily understood from the above description in connection with the drawing, and is

as follows: The operator grasps the end of the lever 9 (shown broken away in the drawing) and raises said lever up to its highest elevation. This upward motion of the lever 9 tightens up the strap 14' and loosens the strap 14, causing the shaft 18 and wheel 19 thereon to take the position shown by dotted lines, and to be revolved in the direction of arrow *b*, by reason of the strap 14' being unwound from the inner end of the shaft 18. The strap 14 is wound around the outer end of said shaft by said revolution of the shaft 18. In the drawing, the lever 9 is shown at about the middle point between its highest and lowest point of elevation. When the lever 9 has reached its highest point of elevation, it is then pushed down by the operator, as indicated by arrow *a*. The downward motion of the lever 9 tightens up the strap 14 and loosens the strap 14', and causes the shaft 18 and wheel 19 thereon to assume the position shown by full lines in the drawing, and to be revolved in the direction of arrow *c*, by reason of the unwinding of the strap 14 from the shaft 18. The revolution of the shaft 18 and wheel 19, said wheel being raised into contact with the wheel 7 on the shaft 4, as above indicated, causes said wheel 7 to be revolved by the friction from wheel 19. The revolution of the shaft 18 in the direction of arrow *c* causes the end of the strap 14', previously unwound from said shaft by its revolution in the opposite direction, to be again rewound on said shaft, and thus by upward and downward strokes of the lever 9 motion is imparted, by means of the straps 14 and 14', to the rocking shaft 18 and driving-wheel 19 thereon, causing said shaft and wheel to be revolved first in one direction and then in the other, and the driving-wheel 19 to be first held out of contact with the wheel 7 and then brought into contact with said wheel, imparting to said wheel 7 and the mechanism connected therewith a continuous motion in one direction.

It will be understood that the details of construction of my mechanism may be varied somewhat from what is shown in the drawing and above described without departing from the principle of my invention.

My mechanism is adapted to be used in connection with any light-running machine for operating the same, the driving-shaft of said machine being operated by the driving-wheel secured on the rocking shaft of my mechanism through the intervention of a wheel secured on the shaft of said machine.

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

1. The combination, with a rocking shaft carrying a driving-wheel, of a lever, and straps or cords connecting said lever with said shaft for imparting a revolving motion to said shaft, first in one direction and then in the other, and causing said shaft and the driving-wheel thereon to be tilted down and raised up, for the purpose stated, substantially as set forth.

2. The combination, with a shaft carrying a driving-wheel and supported in a swivel-bearing, and said bearing, and check-bolts for regulating the swivel motion thereof, of two straps or cords connected at one end with the ends of said shaft and adapted to be wound and unwound thereon, and connected at their other ends with a lever pivoted at a point between said shaft and adapted to be wound and unwound thereon, and adapted to be wound and unwound thereon, and secured at their upper ends to a lever, 9, and said lever 9 pivoted at a point between said straps and adapted to operate the shaft 18 through the intervention of said straps, in the manner substantially as set forth.

3. The improved mechanism for operating the fan of a blacksmith's forge, consisting of a rocking shaft, 18, carrying a driving-wheel, 19, in combination with straps or cords 14 and 14', secured at their lower ends to the ends of said shaft 18, and adapted to be wound thereon and unwound therefrom, and secured at their upper ends to a lever, 9, and said lever 9 pivoted at a point between said straps and adapted to operate the shaft 18 through the intervention of said straps, in the manner substantially as set forth.

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