

(No Model.)

A. B. BRADLEY.  
COOLING APPARATUS FOR HORSE POWERS.

No. 429,996.

Patented June 10, 1890.

Fig. 1.

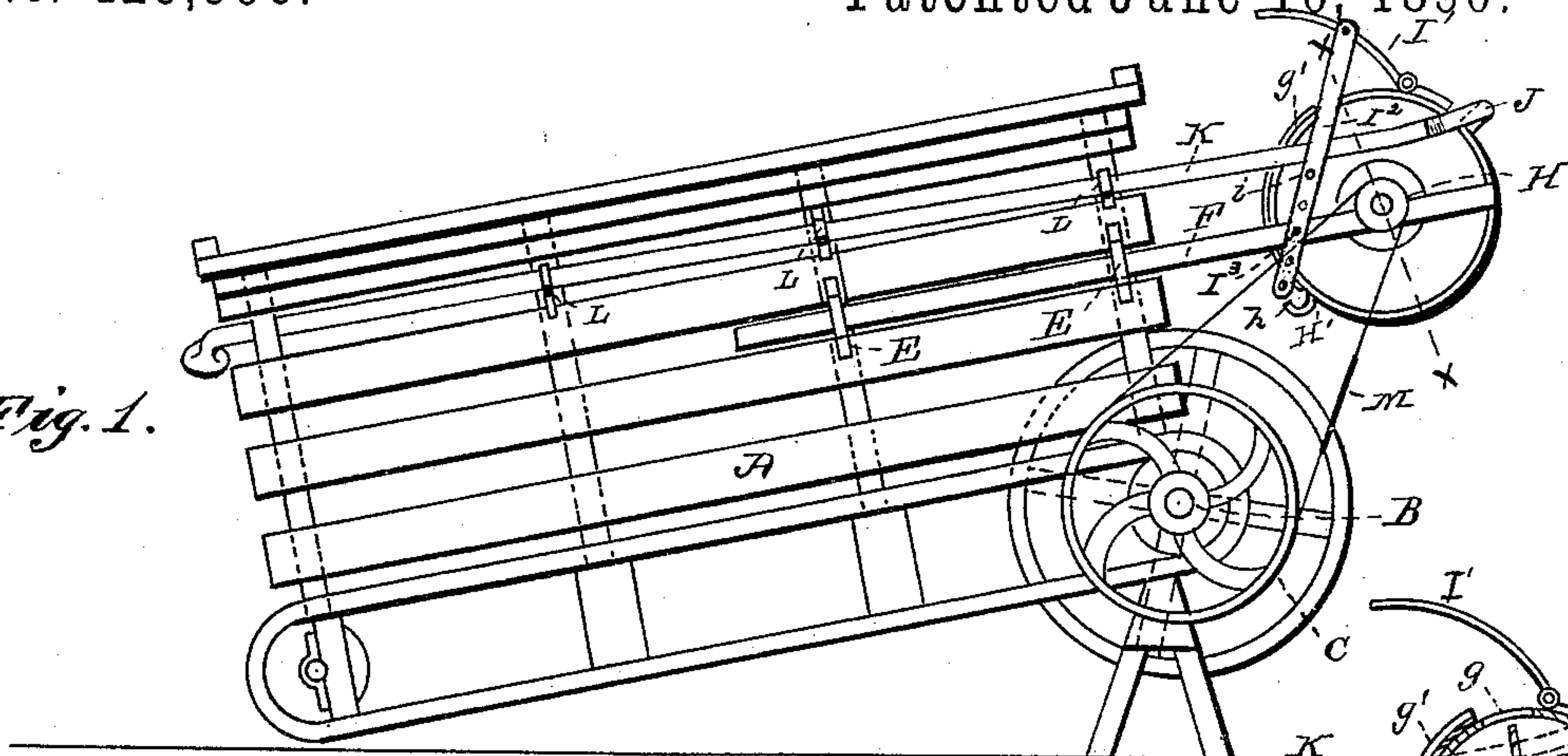


Fig. 3.

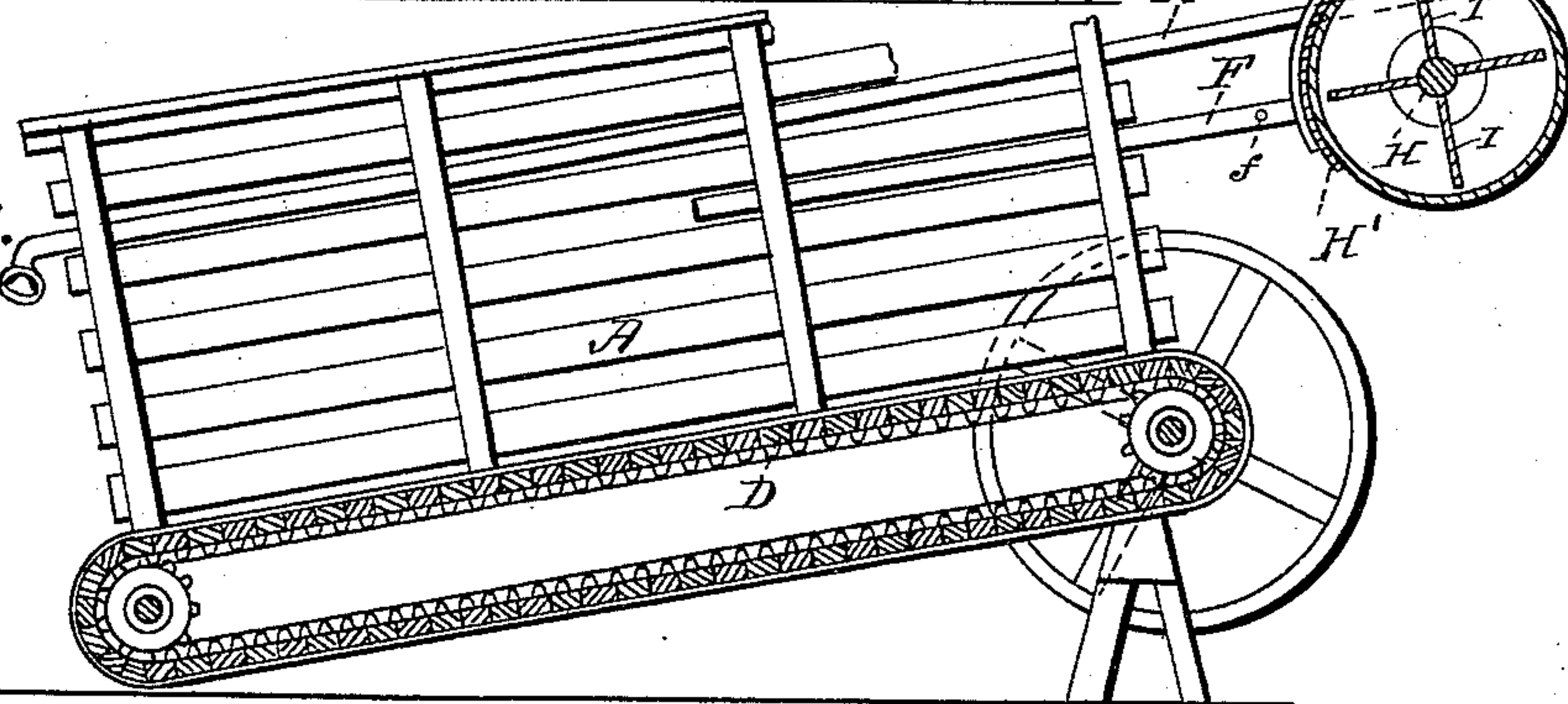


Fig. 2.

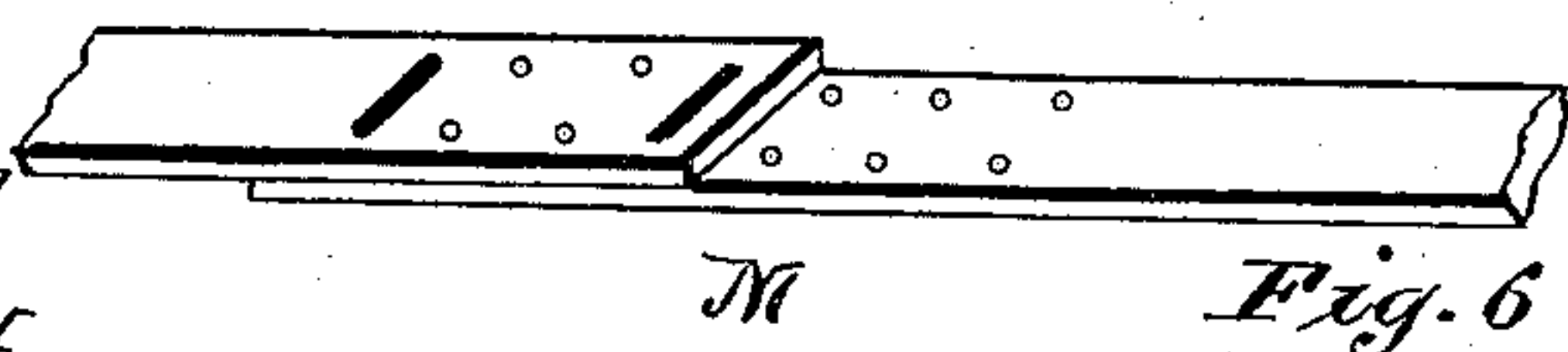
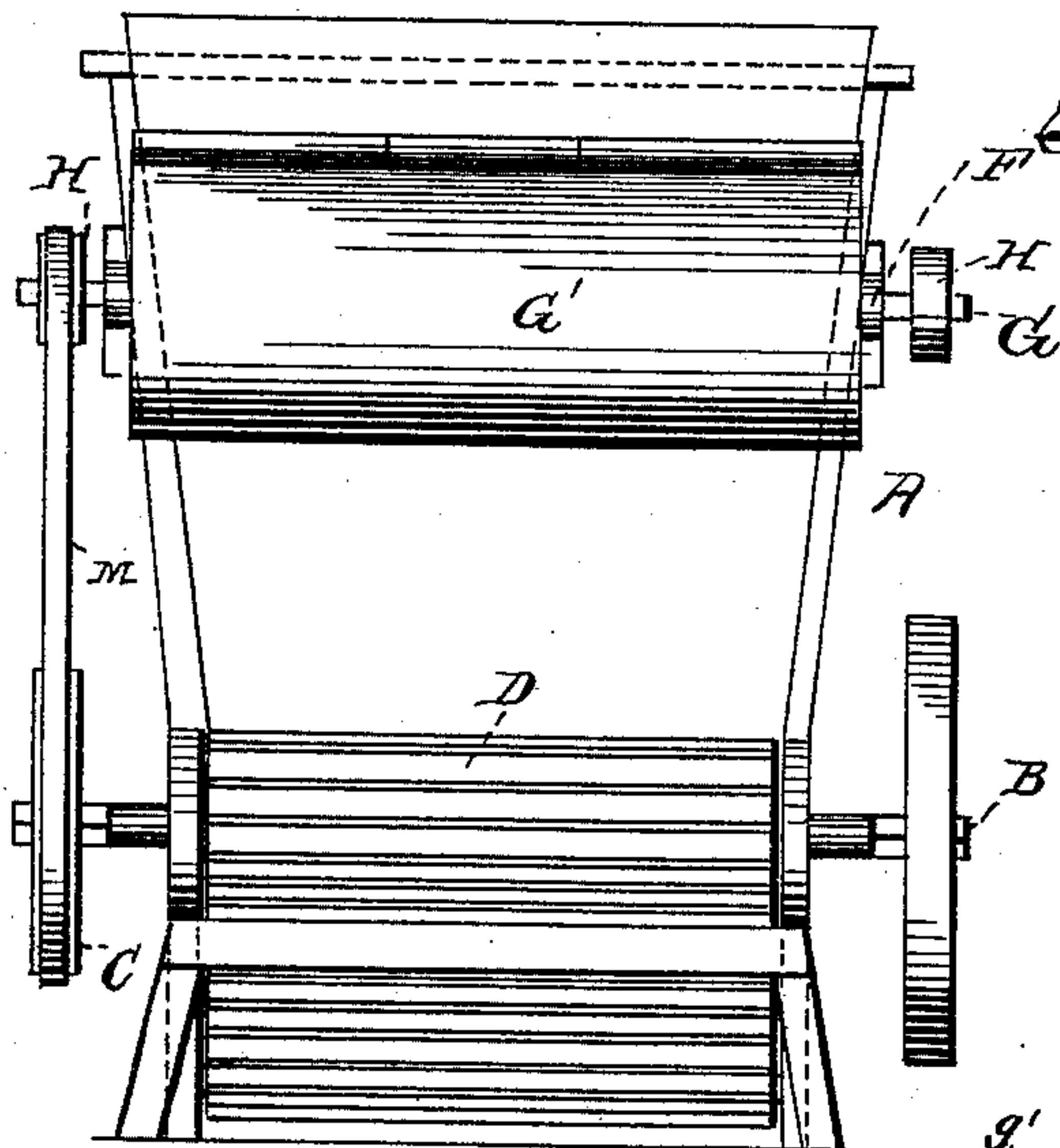
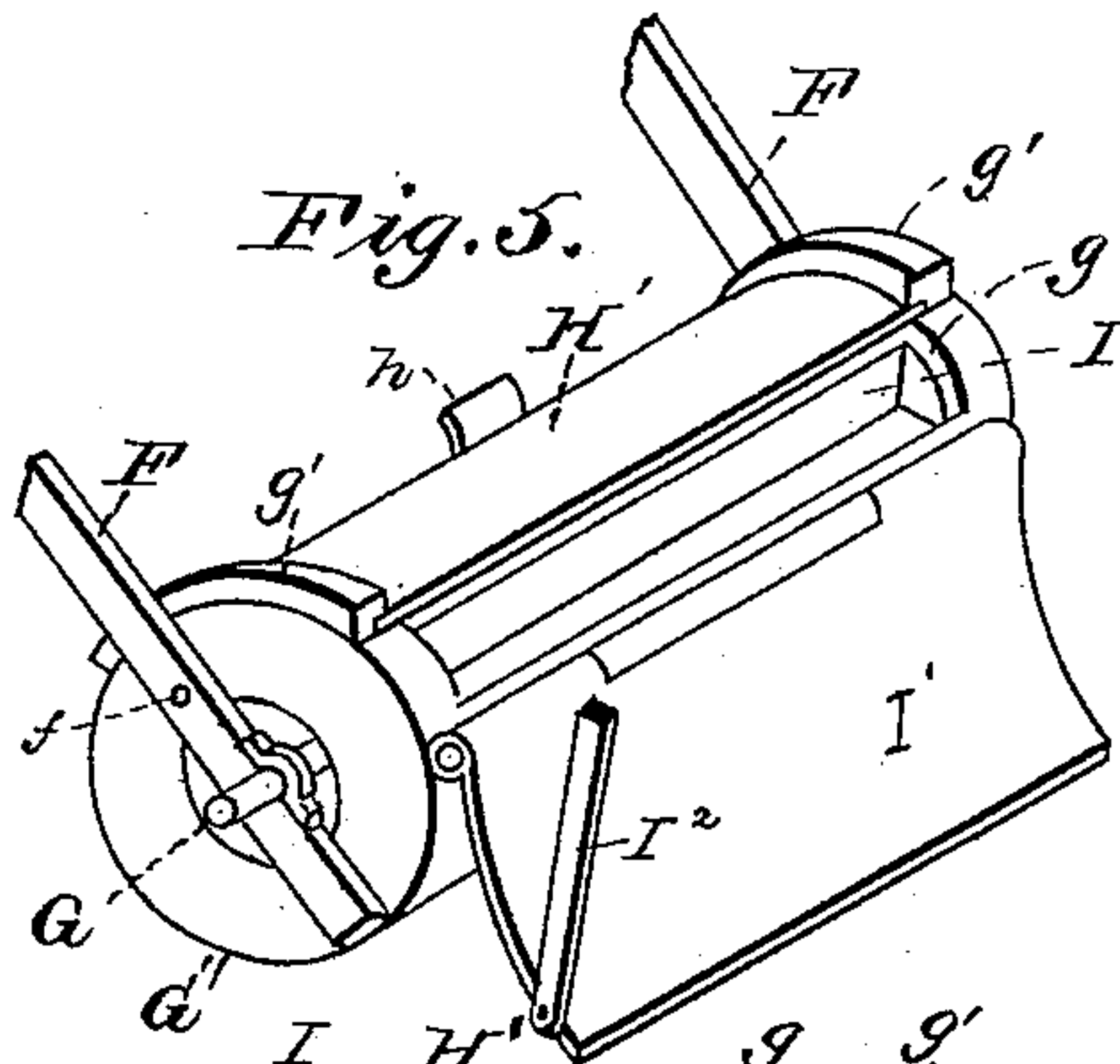


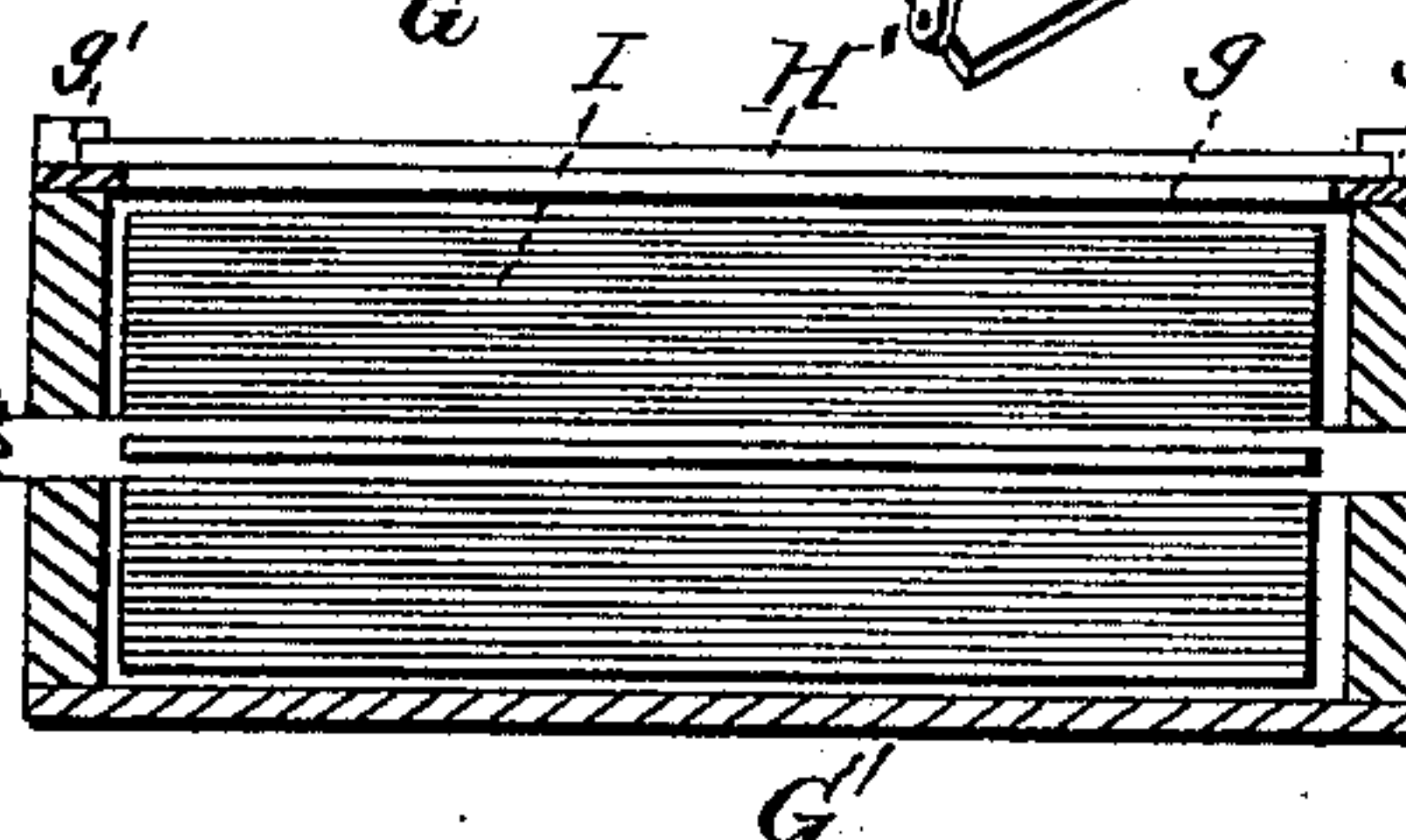
Fig. 6.

Fig. 5.



Witnesses  
N. B. Harris  
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Fig. 4.



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# UNITED STATES PATENT OFFICE.

ALLEN BURR BRADLEY, OF ST. ARMAND, QUEBEC, CANADA.

## COOLING APPARATUS FOR HORSE-POWERS.

SPECIFICATION forming part of Letters Patent No. 429,996, dated June 10, 1890.

Application filed January 6, 1890. Serial No. 336,020. (No model.)

*To all whom it may concern:*

Be it known that I, ALLEN BURR BRADLEY, a citizen of the Dominion of Canada, residing at St. Armand, in the county of Missisquoi and Province of Quebec, Canada, have invented certain new and useful Improvements in Cooling Apparatus for Horse-Powers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention has relation to cooling attachments for horse-power treads used in connection with thrashing-machines and the like.

Heretofore in devices of this character, where the horses operating the power walk upon a bridge formed by cross-pieces linked together and traveling in the manner of an endless belt, it has been found that the animals, especially in warm weather, become very much overheated, and thus rendered unfit for severe labor.

It is the object of my invention to overcome the above-named disadvantage in a simple and efficient manner, and also at the same time to provide suitable mechanism when the apparatus is used in connection with thrashing-machines and the like whereby currents of air are also directed to the attendant in charge, in order to prevent the dust from settling on him.

With these and other objects in view my invention consists in the improved construction and combination of parts, as hereinafter more fully set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of an ordinary horse-power tread with my improvement applied thereto. Fig. 2 is a front elevation. Fig. 3 is a longitudinal sectional view. Fig. 4 is a transverse section on the line  $x x$ , Fig. 1. Fig. 5 is a detail view of the fan drum or casing; and Fig. 6 is an enlarged detail view of the ends of the belt, showing the manner in which they are connected.

Like letters of reference denote like parts throughout the several views.

Referring to the drawings, the letter A in-

dicates the box or casing of the tread of a thrashing-machine or ordinary horse-power.

Passing beneath the floor of the machine, and journaled in suitable bearings in the sides thereof, is a transverse shaft B, said shaft provided on one end with an interchangeable belt-pulley C.

The letter D indicates an endless traveling belt, which, being of the ordinary construction and operated in the usual manner, requires no specific description.

Upon the opposite sides of the frame or box of the tread are secured guides E E, through which arms F F pass freely. Through the forward ends of these arms passes a transverse shaft G, said shaft carrying upon opposite ends small belt-pulleys H H. The shaft has formed thereon, intermediate these end pulleys, a series of radial blades or wings I, which form the fan proper.

Rigidly secured between the forward ends of the arms F F is a cylindrical casing or drum G', which incases that portion of the transverse shaft G which carries the radial blades or wings. This drum or fan-casing is provided upon its upper portion with a longitudinal slit or opening  $g$ , which is adapted to be closed or partly closed, as desired, by means of a sliding cover H', which moves in ways or guides formed by flanges  $g' g'$ , extending inwardly from the annular ends of the drum. The sliding cover is also provided at its lower end with a finger-piece  $h$ , by means of which it may be conveniently manipulated. This device, as will be readily understood, serves the purpose of regulating the amount of air, as it is obvious that by increasing or decreasing the width of the opening the current of air is likewise either increased or decreased. A curved deflecting-plate I' is hinged to the top of the frame at a point forward of the opening  $g$ . By providing this plate the current of air passing through the slit or opening of the frame may be conveniently regulated, so as to be directed to the heads of the animals or to lower portions of their bodies, as the farther down the plate is pressed the lower the current will be directed. It will be seen that this plate is provided upon one of its side edges, near the top thereof, with a pivoted arm I<sup>2</sup>, said arm being pro-



vided at its lower end with recesses or perforations *i*, which are adapted to register with a perforation *f* in one of the rearwardly-extending arms *F*. After the plate is adjusted  
 5 to the desired inclination a transverse pin *I*<sup>3</sup> is inserted through the registering perforations and the plate thus held securely in place, the plurality of perforations of course admitting of different adjustments.

10 When employing my invention in connection with thrashing-machines or similar devices, I provide elbow-pipes *J J*, which extend outwardly from the front portion of the periphery of the cylindrical casing or drum,  
 15 and are provided with screw-threaded ends adapted to couple with rearwardly-extending air-flues *K K*, which pass through guides *L L*, secured to the sides of the frame above the lower guides *E*. These pipes are designed to  
 20 convey the blast of air to the attendant, so as to scatter the dust and prevent the same from settling on him.

Rotation is imparted to the fan-shaft by means of an extensible belt *M*, which passes  
 25 around the large pulley and thence around the small pulley upon the same side of the machine. This belt is made extensible by having one of its ends overlapping the other, said ends being provided with a series of  
 30 registering perforations adapted to receive a belt-staple, the ends of which, after insertion through the belt, are bent so as to clinch the same securely. The shaft carrying the large pulley is, of course, rotated in the manner  
 35 common to machines operated by horse-power, and as this large pulley is interchangeable, as previously stated, it may be transferred from one end of the shaft to the other, as may be found most convenient.

40 Many advantages arise from a cooling apparatus constructed according to my invention. Not only do I provide means for keeping the horses constantly cool, whereby their working hours are greatly increased, but I  
 45 also provide convenient means for regulating the air-blast, so as to either increase or diminish the current of air or, furthermore, entirely cut off the same. It is also obvious that it will often be found desirable to change  
 50 the direction of the current of air, so that the blast may be directed against the animal at any desired angle. By providing the hinged deflecting-plate this is readily accomplished. It will be further noticed that the arms *F F*,  
 55 which carry the fan-drum, are adjustable longitudinally—that is to say, said arms are free to slide within their guides, so that the drum may be brought close to or some distance from the frame of the machine, or, further, said arms may be entirely withdrawn  
 60 from the guides. This latter is a convenient arrangement when it is found necessary to repair or inspect the fan mechanism. The adjustable feature, too, also has its advantage,  
 65 inasmuch as by bringing the fan close to the end of the machine the full current of air may be utilized, while the farther away the

fan is drawn the direct action of the current is correspondingly decreased.

My invention may be applied with equal 70 facility to almost any form of machine employing horse-power treads, such as thrashing-machines, wood-sawing machines, and the like.

Having thus fully described my invention, 75 what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a cooling apparatus for horse-powers, the combination, with a frame or box, of fan mechanism arranged at the forward end of 80 said frame, a cylindrical drum incasing the fan mechanism and provided with a longitudinal exit opening or throat, a curved deflecting-plate hinged to said drum, means for holding said plate to its various adjustments, 85 and inwardly-extending arms for connecting the fan-casing with the frame of the machine, substantially as set forth.

2. In a cooling apparatus for horse-powers, the combination, with a frame or box, of fan 90 mechanism arranged at the forward end of said frame, an adjustable drum incasing said fan mechanism and provided with an elongated opening or slit therein, and means for rotating the fan, substantially as set forth. 95

3. In a cooling apparatus for horse-powers, the combination, with a tread-power frame, of a transverse rotatable shaft journaled in the sides of the frame, carrying on one end a belt-pulley, rearwardly-extending arms passing loosely through guides in the sides of the frame, a transverse shaft journaled in the ends of said arms and provided with radial wings or blades, and also with end pulleys, a cylindrical casing or drum surrounding said 105 wings or blades and provided with the usual exit-opening, and a belt connecting the large pulley with one of the pulleys upon the end of the fan-carrying shaft, substantially as set forth. 110

4. In a cooling apparatus for thrashing-machines and the like, the combination, with a tread-power frame, of a fan mechanism arranged at the forward end of said frame, a drum incasing the fan mechanism and provided with a longitudinal exit opening or throat, and also provided with inwardly-extending lugs or flanges, a sliding partly-cylindrical cover having its ends passing beneath the inwardly-extending lugs or flanges of the 120 drum and adapted to regulate the width of the escape-opening, and means for rotating the fan, substantially as set forth.

5. In a cooling apparatus for horse-powers, the combination, with a tread-power frame, of 125 a transverse rotatable shaft journaled in the sides of the frame, carrying on one end a belt-pulley, rearwardly-extending arms passing through guides in the sides of the frame, a transverse shaft journaled in the ends of said arms 130 and provided with radial wings or blades, and also with end belt-pulleys, a cylindrical casing or drum surrounding said wings or blades and provided on its upper portion with a longi-



5 tudinal slit or opening, a curved adjustable  
deflecting-plate hinged to one side of said  
opening, a partly-cylindrical and adjustable  
cover for regulating the blast of air from the  
fan, and a belt connecting the large pulley  
with one of the pulleys upon the end of the  
fan-carrying shaft, substantially as set forth.

In testimony whereof I affix my signature in  
presence of two witnesses.

ALLEN BURR BRADLEY.

Witnesses:

L. G. BURNELL,  
CALVIN DRUEY.