

(No Model.)

B. W. GADDIS.  
RESPIRATOR.

No. 347,788.

Patented Aug. 24, 1886.

Fig. 1.

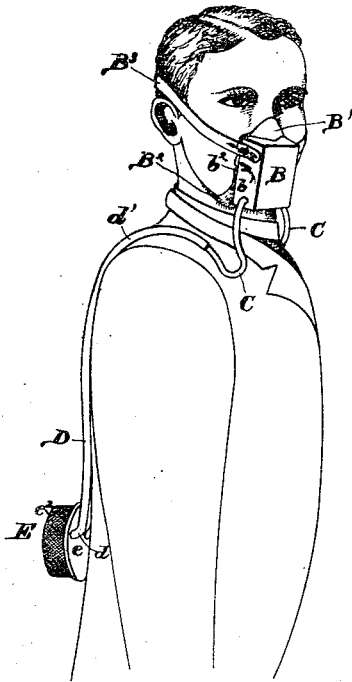


Fig. 2.

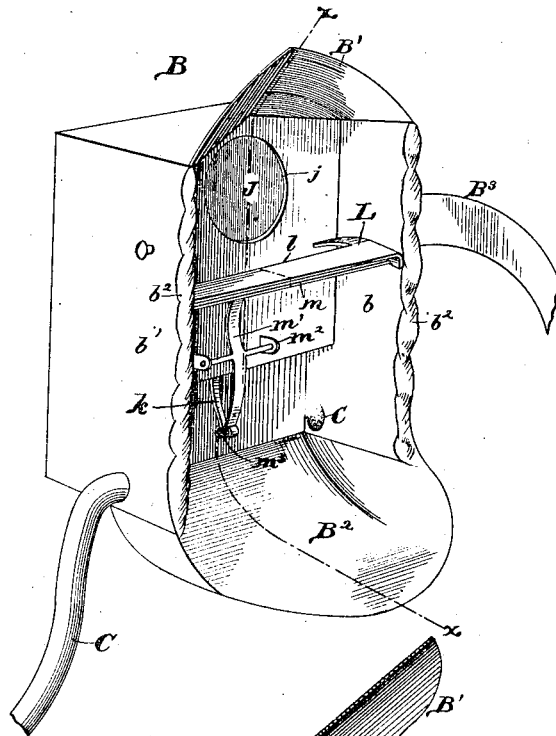


Fig. 4.

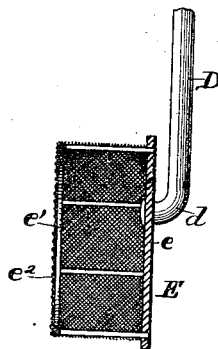
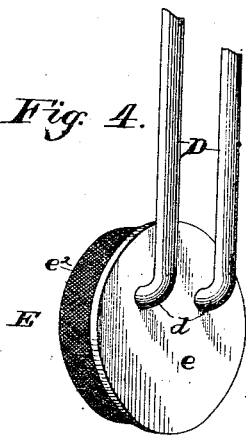
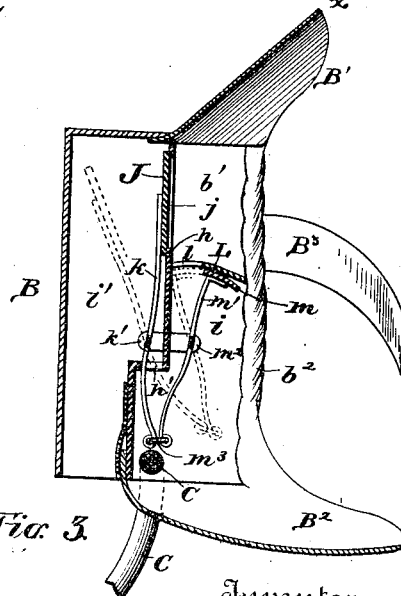


Fig. 5.

Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

BENJAMIN W. GADDIS, OF KINGSTON, KANSAS.

## RESPIRATOR.

SPECIFICATION forming part of Letters Patent No. 347,788, dated August 24, 1886.

Application filed December 10, 1885. Serial No. 185,323. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN W. GADDIS, a citizen of the United States, residing at Kingston, in the county of Labette and State of Kansas, have invented a new and useful Improvement in Portable Mouth-Protectors, of which the following is a specification, reference being had to the accompanying drawings.

My invention has relation to a portable air-purifying apparatus to be used or worn by the attendants of thrashing or clover-hulling machines; and the novelty consists in the peculiar construction, combination, arrangement, and adaptation of the various parts for service, substantially as hereinafter fully set forth, and specifically pointed out in the claims.

As is well known, it is very objectionable and exceedingly injurious to breathe the air around thrashing and clover-hulling machines when they are in action, owing to the fact that the air is filled or impregnated with fine particles of dust, chaff, &c., arising from said machine; and my invention has for its objects, among other things, to provide a portable air-purifying apparatus, which can be easily worn or carried by the attendants upon said machines without inconvenience or hindrance to their free movements, and to provide a plentiful supply of air to the person, and which shall be free from dust and other impurities, and to combine simplicity, strength, and durability of construction, in an apparatus of the class named, with thorough effectiveness of operation and comparative cheapness of manufacture.

In the annexed drawings, Figure 1 is a view showing my device adjusted in position upon a person. Fig. 2 is a detail perspective view of the mouth-piece. Fig. 3 is a sectional view thereof on the line *x x* of Fig. 2. Figs. 4 and 5 are views of the purifying-drum, showing the manner of securing the supply-tubes thereto.

Like letters of reference denote corresponding parts in all the figures of the accompanying drawings, referring to which, A designates my improved portable air-purifying apparatus adapted to be worn by thrashing or

clover-hulling machine attendants, and which consists, essentially, of a mouth and nose piece or guard, B, flexible conducting-tubes C thereto, supply pipes or tubes D, that extend over the shoulders of the wearer and down his back and support the air purifying or cleaning drum E, the peculiar construction of which I will now proceed to describe more fully in detail.

The mouth and nose guard B consists of a case or shell, rectangular, semi-cylindrical, or of any other preferred shape, *b*, having inwardly-extending walls *b'*, which are provided with a packing, *b''*, to prevent the edges of said casing hurting the face of the wearer when adjusted thereon, a nose-guard, *B'*, that extends upwardly from the casing and fits snugly and tightly over the nose, to exclude air from entering at that point, a chin-guard, *B''*, that fits beneath the chin to prevent the entrance of air, a band or strap, *B'''*, securely connected at one end to the case, and having its free end passed around and embracing the head of the wearer, and detachably connected at its opposite free end to said case or shell, to hold the device in position over the nose, chin, and mouth securely and firmly, to prevent or exclude the entrance of air thereto. The casing or shell is divided into two compartments, *i i'*, by means of a vertical partition, *h*, having an abutment, *h'*, to throw the lower half of said partition farther to the rear to allow of the free insertion and action or movement of the lips.

The compartment *i'* of the mouth-guard is open at its lower end and communicates with the outer air to conduct the waste breath of the wearer away from the chamber *i'*, and the forward edge of the chin-guard *B''* is secured or connected to the lower edge of the vertical partition *h*, so that the chamber *i* is rendered air-tight or cut off from communication with the chamber *i'* and the outer air.

*j* designates an opening in the upper end of the vertical partition *h*, which serves to bring the chambers *i i'* in communication, and this opening serves as a discharge-port through which escapes the waste breath exhaled by the wearer of the device.

*J* designates a valve arranged in the cham-

ber *i'* and adapted to close the discharge-port *j*, which is secured on a stem or rod, *k*, that is pivoted at or near its middle to lugs *k'*, and extends through an opening in the abutment *h'* of the partition into the chamber *i*. (See Fig. 3.)

*L* designates a horizontal partition located in the chamber *i* at a point just below the discharge-port *j*, and this partition is either rigidly or pivotally secured to the side walls of the mouth-guard, and has an inlet-port, *l*, at its inner edge. This port *l* permits the supply of fresh air from the lower half of the chamber *i*, in which the supply-pipes discharge, and the port is closed by a movable valve, *m*, that is secured on a rod, *m'*, which is pivoted at or near its middle to the lugs *m''*, and connected by means of a link, *m''*, at its lower end to the lower end of the valve-rod *k*. (See Fig. 3.)

The valves *J* and *m* alternately open and close their respective ports, and being connected together they are operated simultaneously, by the exhalation of the waste breath of the wearer striking the valve *J*, to open the same to permit the escape of the breath into the open air through the open-ended chamber *i'*. The valve *J* is closed when the valve *m* is open, and the valve *m* is closed to cut off the supply of fresh air to the mouth and nostrils of the wearer when the valve *J* is opened to permit the escape of the exhaled breath.

The valves close automatically when the force of the exhaled breath has spent itself, and they are operated simultaneously, as described.

The supply pipes or tubes *D* are preferably made of some rigid and strong material, and are arranged on opposite sides of the wearer's neck to rest on his shoulders. The lower ends of said tubes or pipes are bent, as at *d*, and pass up the wearer's back and support a cleaning or purifying drum, *E*, which consists of a back plate, *e*, to which the pipes or tubes *D* are secured and pass therethrough, a frame, *e'*, of wire or other material, and a screen, *e''*, of wire, cloth, or other suitable material, stretched over and secured to the frame *e'* and adapted to permit of the passage of a current of air to the tubes or pipes *D*, the air being cleansed or purified of all impurities, by means of the screen *e''*, before passing to said supply-pipes.

The front ends of the supply-pipes *D* are bent, as at *d'*, and receive the lower ends of flexible pipes *C*, of leather, rubber, or other material, that communicate with and are secured to the casing of the chambers in the mouth and nose guard and convey air from the tubes *D* to the said mouth-guard chamber.

The lower ends of the flexible tubes *C* fit in the bent ends *d'* of the rigid supply-pipes *D* for a considerable distance, and permit the operator to turn his head in either direction without hinderance or inconvenience, which it

would be very difficult to do were the rigid tubes connected directly to the mouth piece or guard.

The partitions between the two compartments of the mouth or nose guard are rigidly and closely connected together to render the chambers air-tight, and the only communication between said chambers is through the port *h'* in the partition *h* thereof.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings.

I am aware that the device may be used or worn for other purposes than those herein mentioned where it is necessary or desirable to prevent impure air from entering the mouth and lungs of the person, and that various changes in the form and proportion of parts and details of construction may be made without departing from the principle or sacrificing the advantages of my invention.

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

1. The combination of a detachable mouth-guard, the bent rigid supply-pipes adapted to rest on the shoulders of the wearer, and an open purifying-drum rigidly secured and suspended from the free ends of said pipes, substantially as described.

2. The mouth guard or protector having a vertically-disposed partition, *h*, to form two compartments therein, and provided with a port, *j'*, in combination with a pivoted valve, *J*, normally closing the port to cut off communication between the chambers and adapted to be opened by the exhaled breath of the wearer, substantially as described.

3. A mouth-guard having a vertically-disposed partition, *h*, to provide two compartments, *i* and *i'*, one of which is open to the external air and the other closed against the admission of the air, in combination with the supply-pipes leading into the closed compartment, a port, *j'*, in the partition, and a movable valve, *J*, normally closing the port and adapted to be opened by the exhaled breath of the wearer, to permit the escape thereof through the port into the open chamber *i'*, substantially as described.

4. In combination with the air-supply pipes of a mouth-guard having a nose-piece, and detachably secured over the mouth of the wearer, a partition in said guard to provide compartments, and having an opening to permit communication between the said compartments, a valve arranged to close said opening and mounted on a pivoted rod, and a supplemental valve secured on a pivoted rod, which rod is connected to the free end of the valve-rod, substantially as described.

5. In an apparatus of the character described, the combination of a mouth-guard detachably fitted over the mouth and having a soft packing for the nose, two compartments and a valve

within the casing thereof, flexible pipes in communication with said chambers of the mouth-guards, rigid supply-pipes arranged over the shoulders of the wearer, and having two bent arms, *d d'*, and a drum secured to the arms *d'* of the air-supply pipes, and having a frame and a screen secured thereto, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

BENJAMIN W. GADDIS.

Witnesses:

W. R. KIZER,  
F. M. CROWDER.