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G. E. CUMMINS & H. S. FERGUSON.

SANDER.

APPLICATION FILED SEPT. 18, 1905.

Fig. 1.

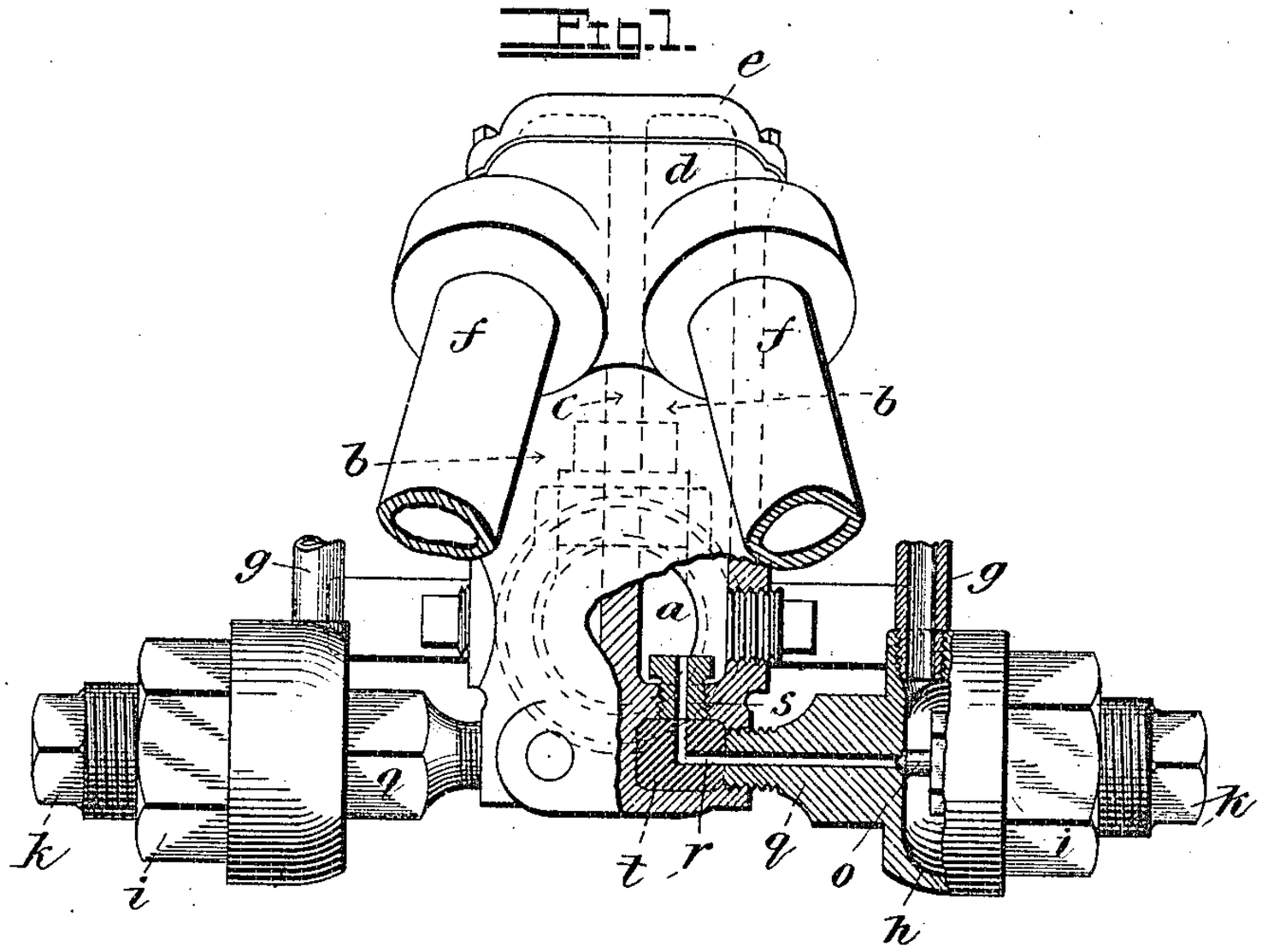
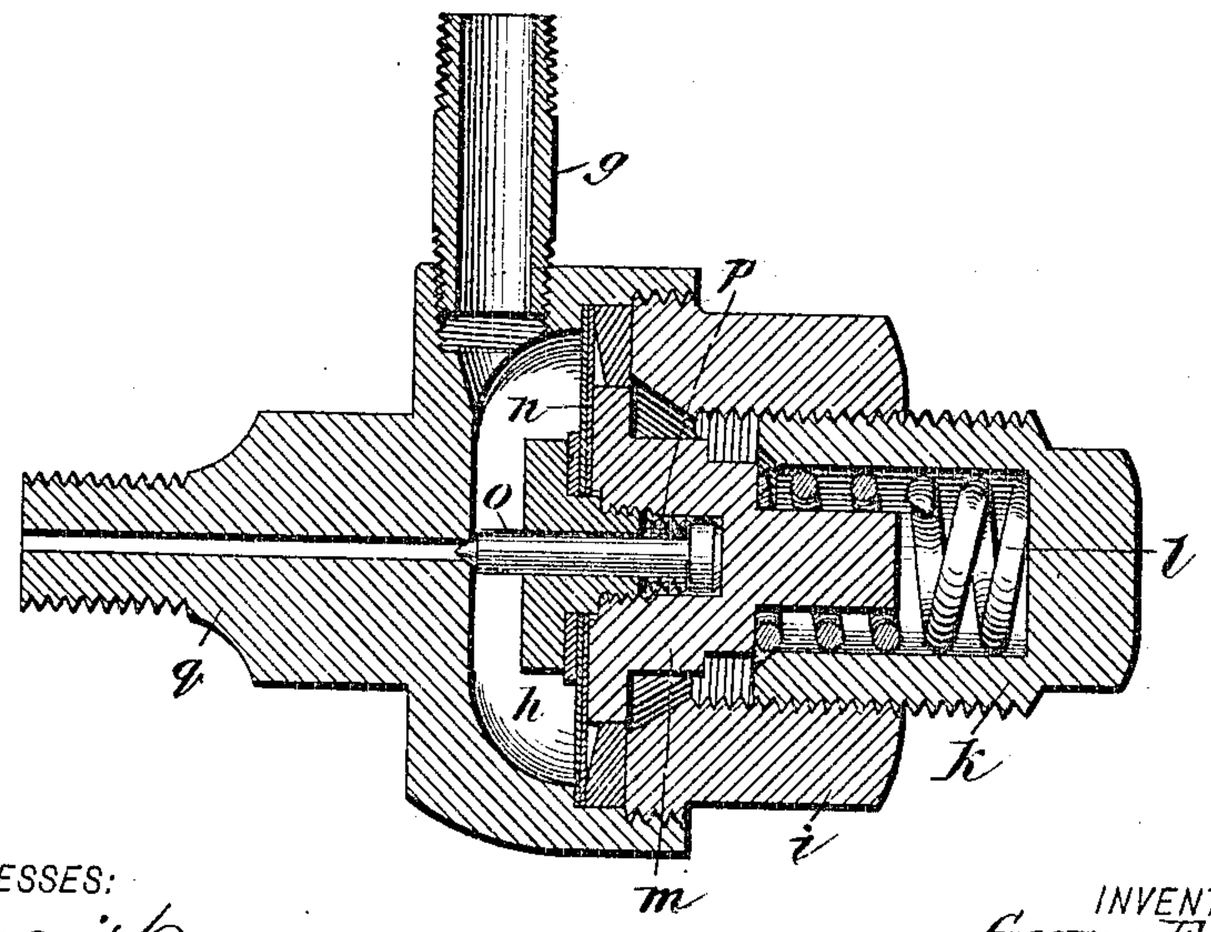


Fig. 2.



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SANDER.

No. 831,837. Specification of Letters Patent. Patented Sept. 25, 1906.

Application filed September 18, 1905. Serial No. 278,915.

To all whom it may concern:

Be it known that we, GEORGE E. CUMMINS and HUBERT S. FERGUSON, citizens of the United States, and residents of Cherokee, in the county of Crawford and State of Kansas, have invented a new and Improved Sander, of which the following is a full, clear, and exact description.

The invention relates especially to a sander for locomotives, but is useful in other connections, as will fully appear hereinafter.

In sanding devices operated by compressed air, particularly locomotive-sanders, the sand tends to clog the air-passages and interfere with the proper operation of the device.

It is the object of our invention to overcome this disadvantage, and this end we attain by certain peculiar features of construction and relative arrangement of parts, which will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a front view of the invention with parts broken away, and Fig. 2 is an enlarged section of the automatic air-valve.

a (see Fig. 1) indicates the connection of the sander with the sand-supply, and this leads into two passages *b*, so formed by a partition *c* running through the sander. The sander terminates in an elbow *d*, which is fitted into a cap *e* and which communicates with pipes *f*, carrying the sand to the rails or other point of application. The sand is impelled through the passages *b* by air-blasts respectively directed into the same. These blasts are controlled by separate, but duplicate, automatic valves, as shown in Fig. 1. To these valves air-pipes *g* lead from the air source, and said pipes are commanded by suitable cocks, (not shown,) so as to control the movement of air through the pipes. The pipes *g* lead into housings *h*, (see Fig. 2,) and each housing is fitted with a cap *i*, in which is a screw-plug *k*. The screw-plugs *k* regulate the tension of springs *l*, which act on the caps *m* of diaphragms *n*. Said diaphragms are located in the housings *h* and are subject to the pressure from the pipes *g*. The diaphragm-caps *m* carry loosely needle or pin valves *o*, to which springs *p* are applied, as shown. Projecting from the housings are nipples *q*, and these are commanded by the pin-valves *o*. Said nipples are screwed into the sander-body and communicate with passages *r*, leading, respectively, to nozzles *s*, which discharge into the passages *b*.

When it is desired to blow sand through either or both of the passages *b*, air is turned on in one or both of the pipes *g*, as the case may be. Normally the valves *o* close the nipples *q* by the action of the springs *l*; but as the air-pressure enters the housings *h* the springs *l* are overcome and the diaphragms move outward, allowing the springs *p* to unseat the valves. The air now has a free blow through the nipples *q*, passages *r*, and nozzles *s* and by an injector-like action forces the sand through the passages *b* and out through the pipes *f*. The air-passage afforded by the nipple *q*, passage *r*, and nozzle *s* is, it will be observed, of uniform diameter and does not, therefore, afford pockets for the collection of sand nor interfere with the free blow of the air-blast.

In case the invention is adapted to sanders already built, in which pockets were formed in the air-passages, these pockets are filled by a mass *t*, of Babbitt or other metal, and the passage *r* drilled through said mass. It will also be observed that the pin-valves *o* are normally seated and do not allow any of the sand to back up in the air-pipes *g* and housing *h* to clog and hinder the operation of the same.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A sander comprising a casing divided into two compartments by a vertical partition and having an opening for communicating with a source of sand-supply, said opening communicating with both compartments, delivery-pipes leading from each compartment, a housing connected to each side of the casing below said opening and having an opening communicating with the adjacent compartment, a diaphragm within each housing, a movable valve connected to the diaphragm and normally closing the opening between the housing and the adjacent compartment, and air-pipes connected to the housing between the diaphragm and the casing.

2. A sander comprising a casing composed of a plurality of compartments and having an opening for communicating with a source

of sand-supply, said opening communicating with all of the compartments, delivery-pipes leading from each compartment, a housing adjacent to each compartment and having an opening thereinto, an air-pipe leading to the housing, and means within the housing for admitting air to an adjacent compartment, said means being controlled by the pressure of air within the housing.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE E. CUMMINS.
HUBERT S. FERGUSON.

Witnesses:
ORVILLE RUSSELL,
HARRY B. PRICE.