(No Model.)

J. S. WILLIAMS.

BELLOWS.

No. 298,261. Patented May 6, 1884.

Fig 1

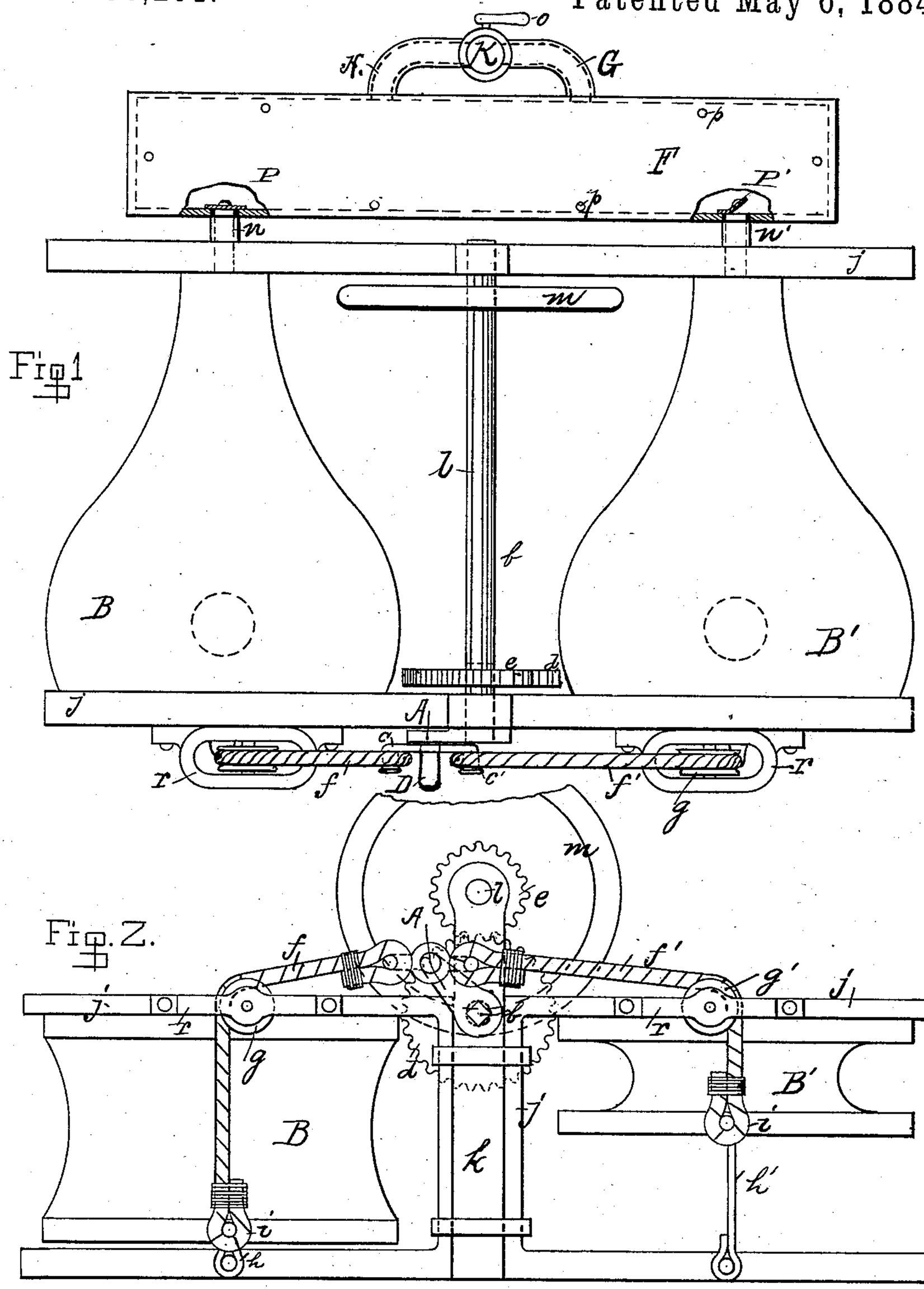

Fig. 2.

Fig 3.

WITNESSES:

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BELLOWS.

SPECIFICATION forming part of Letters Patent No. 298,261, dated May 6, 1884.

Application filed August 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. WILLIAMS, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented new and useful Improvements in Bellows, of which the following is a specification, reference being had to the accompanying drawings, illustrating the device, in which—

Figure 1 is a plan or top view of a mechanism embodying my improvements. Fig. 2 is an end elevation thereof. Fig. 3 is a section of the bellows-muzzle.

The nature of the present invention consists in mechanism whereby two bellows are manipulated to produce a continuous air-blast, as hereinafter more fully described and shown.

j j represent a suitable frame at both ends of the bellows B B′, to support the mechanism of the device.

l represents a shaft which supports a balance-wheel, *m*, and a single cog-gear, *e*, and has bearings in standards *k*, attached, respectively, to both frames. The blast ends of the bellows are attached, respectively, to the frame *j* nearest to the reservoir F, and the upper wing of the bellows at their receiving ends are attached to the frame which supports the brackets *r r*, leaving the rear end of the lower wings or bottoms, *i i*, to the bellows to have the ordinary free movement.

The reservoir is made of such size as to equalize the force of the blast, and for this purpose double reservoirs may be employed with double connections with each of the bellows B B′, instead of the single connecting-pipes *n n′*. These connections *n n′* are of rubber, which, being flexible, will allow of connecting the bellows with the reservoir when in any position relative to each other. To readily make an air-tight joint in attaching this pipe or hose to the bellows, I insert a pipe or thimble, S, into the muzzle *t* of the bellows, over which one end of the hose is placed. The other end of the hose is connected with the reservoir by any convenient means. In Fig. 3 the muzzle *t* is shown provided with two of these thimbles S, to connect with double hose where two reservoirs are to be used. At the entrance of the pipes or hose *n n′* are placed ordinary valves, P P′, to prevent the air from re-entering the bellows from the reservoir. Better to direct the blast to the forge, air is taken at two points from the reservoir F by means of pipes G, and discharged into a single forge-pipe, K. A large cog-gear, *d*, is attached to the shaft *b*, and meshes into cog *e*, and a crank, A D, is also attached to the said shaft, for the purpose of rotating the balance-wheel *m*, and for forcing air from the bellows. To accomplish this latter purpose ropes *f f* are respectively attached to the ends of the bottoms *i i* of the bellows, and are brought over pulleys *g g*, which are journaled to brackets *r r*, and are connected together centrally by means of a link attachment, *c c′*. The handle D to the crank passes through the center of this link, and as a result the turning of the crank will rotate the wheel *m* and alternately force the air from the bellows B B′ into the reservoir F. Rubber straps *h h*, attached to the bottoms *i* of the bellows and to the lower supporting-frame, facilitate the expansion of the bellows to take in air.

I do not claim that operating two bellows alternately is new; but I claim the means herein described and shown to attain that end.

I claim and desire to secure by Letter Patent—

The bellows B B′, inclosed in the frame *j j*, and connected by pipes *n n′* to the reservoir F, in combination with means for operating the bellows, said means consisting of the elastic strips *h h′*, cords *f f′*, pulleys *g g′*, link *c*, and crank A, all arranged and operating substantially as shown and described.

JOHN S. WILLIAMS.

Witnesses:
WM. F. HOWE,
C. H. WOOD.