C. D. PAGE.

HYDRAULIC ENGINE.

No. 189,380. Patented April 10, 1877.

Fig. 1.

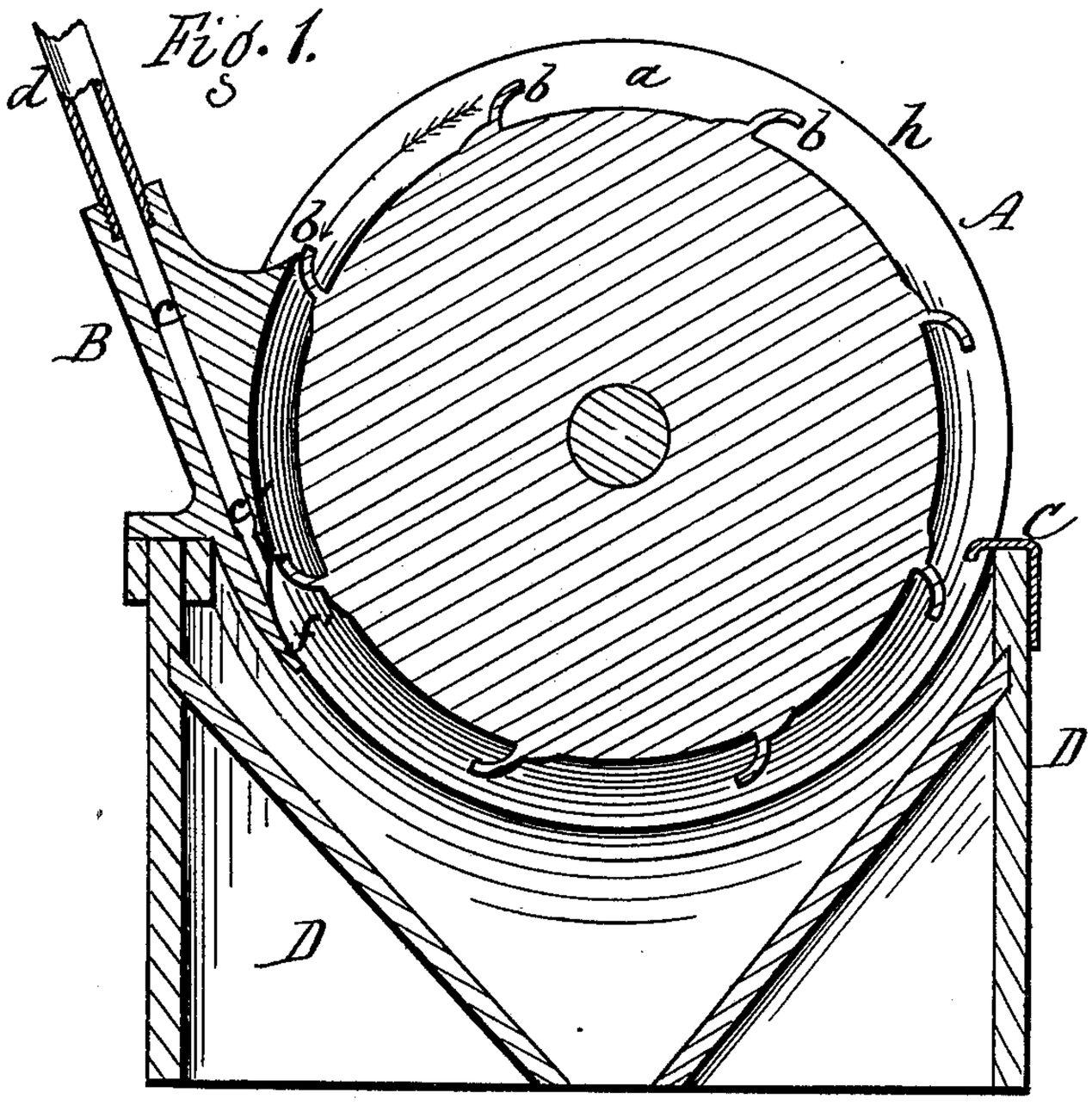


Fig. 2.

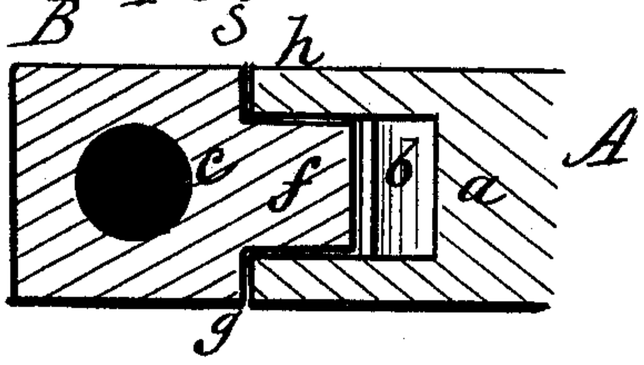


Fig. 3.

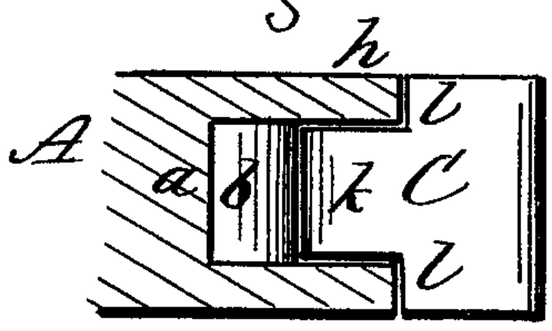


Fig. 4.

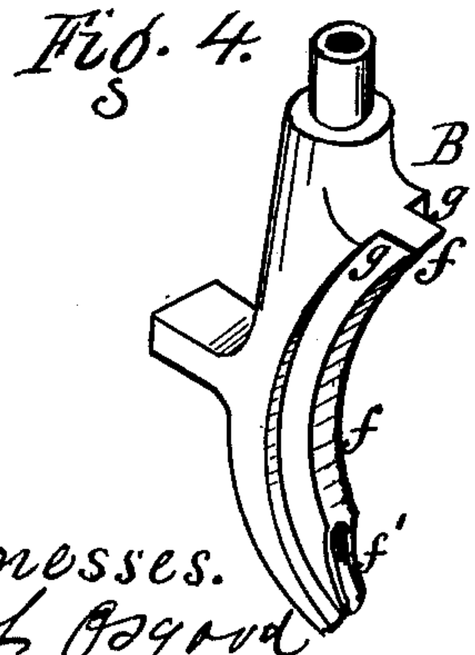
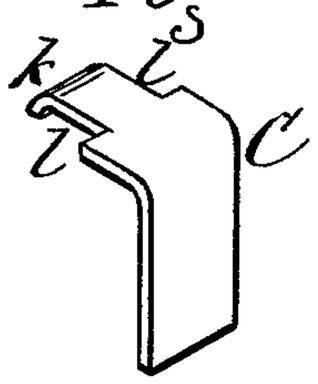


Fig. 5.



Witnesses.
R. F. Osgood
E. B. Scott

Inventor.
C. D. Page

UNITED STATES PATENT OFFICE.

CLARK D. PAGE, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN HYDRAULIC ENGINES.

Specification forming part of Letters Patent No. **189,380**, dated April 10, 1877; application filed April 2, 1877.

To all whom it may concern:

Be it known that I, CLARK D. PAGE, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section longitudinally through the wheel. Fig. 2 is a horizontal section through one edge of the wheel in line *x x*. Fig. 3 is a similar section through the opposite edge of the wheel in line *y y*. Figs. 4 and 5 are perspective views, respectively, of the butment-block and dash-plate removed from place.

My improvement relates to those wheels which are run by water taken from water-pipes in cities and towns. Wheels of this kind are already known.

My invention consists of a butment-block and dash-plate of peculiar construction, combined with the wheel, as hereinafter described.

A is the wheel, which is mounted in a curb, D, and has a pulley on its shaft, by which the power is transferred. The wheel is made narrow transversely, and has a groove, *a*, cut in its periphery, in which is situated a series of concave buckets, *b b*. The whole may be cast in one piece. The wheel should be turned true, and should be set in its bearings accurately, to allow close fitting of the butment-block and dash-plate, as hereinafter described.

B is the butment-block. It has a water-passage, *c*, bored through it, opening at the lower end into groove *a* by a contracted nozzle, *c'*. It is fed by a pipe or hose, *d*, which connects with the main. It also has a rib, *f*, which fits closely in the groove *a*, and rests close up to the buckets as they revolve. This portion *f* forms a butment, and its length is just equal to the distance of the buckets apart, so that when one bucket comes in coincidence with the nozzle *c'* to receive the impact of water from pipe *d*, the next bucket comes in coincidence with the top of the butment, thereby closing the space between the two buckets, and preventing back action of the water by reason of one bucket always resting within the butment. The position of the buckets is clearly shown in Fig. 1.

The bottom of the butment is depressed or hollowed out, as shown at *f'*, in curved form, to allow free escape of water from the nozzle downward, and also to direct it properly in a curved direction onto the bucket as it passes forward from the nozzle. The rabbets *g g* of the block fit the rims *h h* of the wheel accurately, and prevent escape of the water at the sides.

C is a metal dash-plate, formed with a tongue, *k*, which fits the groove *a*, and two offsets, *l l*, which fit the rims of the wheel. It is secured on top of the curb, and its object is to prevent the water from being dashed out or carried up by the buckets under the rapid motions of the wheel. The inner end of the tongue may be turned down, as shown, to oppose the water.

Water-wheels of this kind have been before known; but, so far as I am aware, the discharge from the nozzle is directly against the buckets, and no butment is used to prevent back action. The prime feature in my invention is the butment-block B, serving the double purpose of a nozzle and a butment, as described, to prevent back action.

The buckets in the wheel might be extended out to fill the whole diameter of the groove, flush with the periphery of the rim; and the butment-block and dash-plate might be fitted thereto, the former having flanges, which would overlap and embrace the rims of the wheel. The effect would be the same as before described.

What I claim as new is—

1. The butment-block B, constructed with the butment *f* and the internal water-passage *c*, in combination with the wheel A, in the manner and for the purpose specified.

2. The butment *f* of the block B, made concentric with the wheel to an extent equal to the distance of the buckets apart, and formed at the bottom with the curved depression or offset *f'*, for allowing the proper discharge of water upon the buckets as they pass forward, as shown and described.

3. The combination, with the wheel A, of the dash-plate C, as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

C. D. PAGE.

Witnesses:
R. F. OSGOOD,
E. B. SCOTT.