(No Model.)

R. S. JUDSON.

RACK CLEANER FOR WATER RACES.

No. 591,767. Patented Oct. 12, 1897.

Fig. 1.

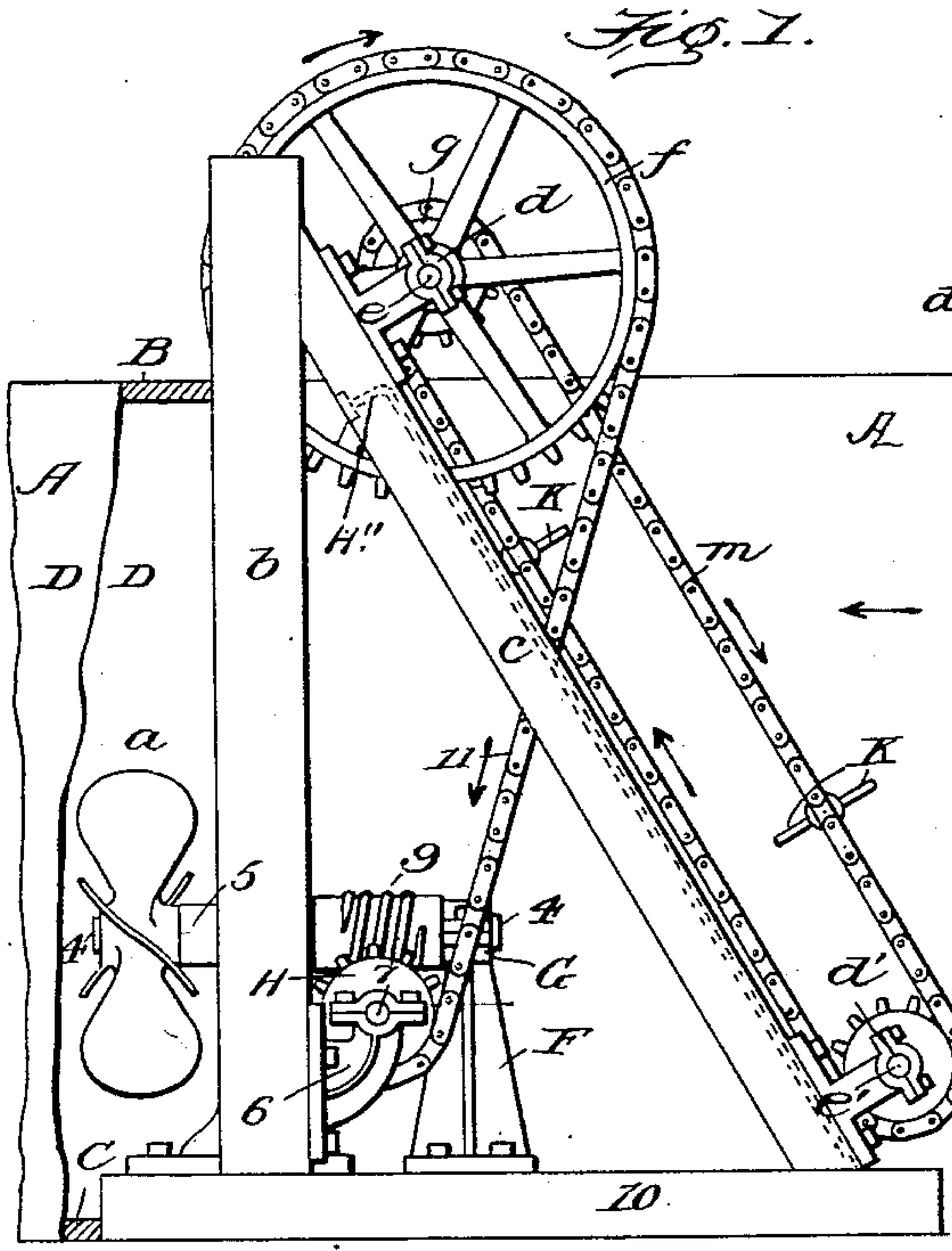


Fig. 2.

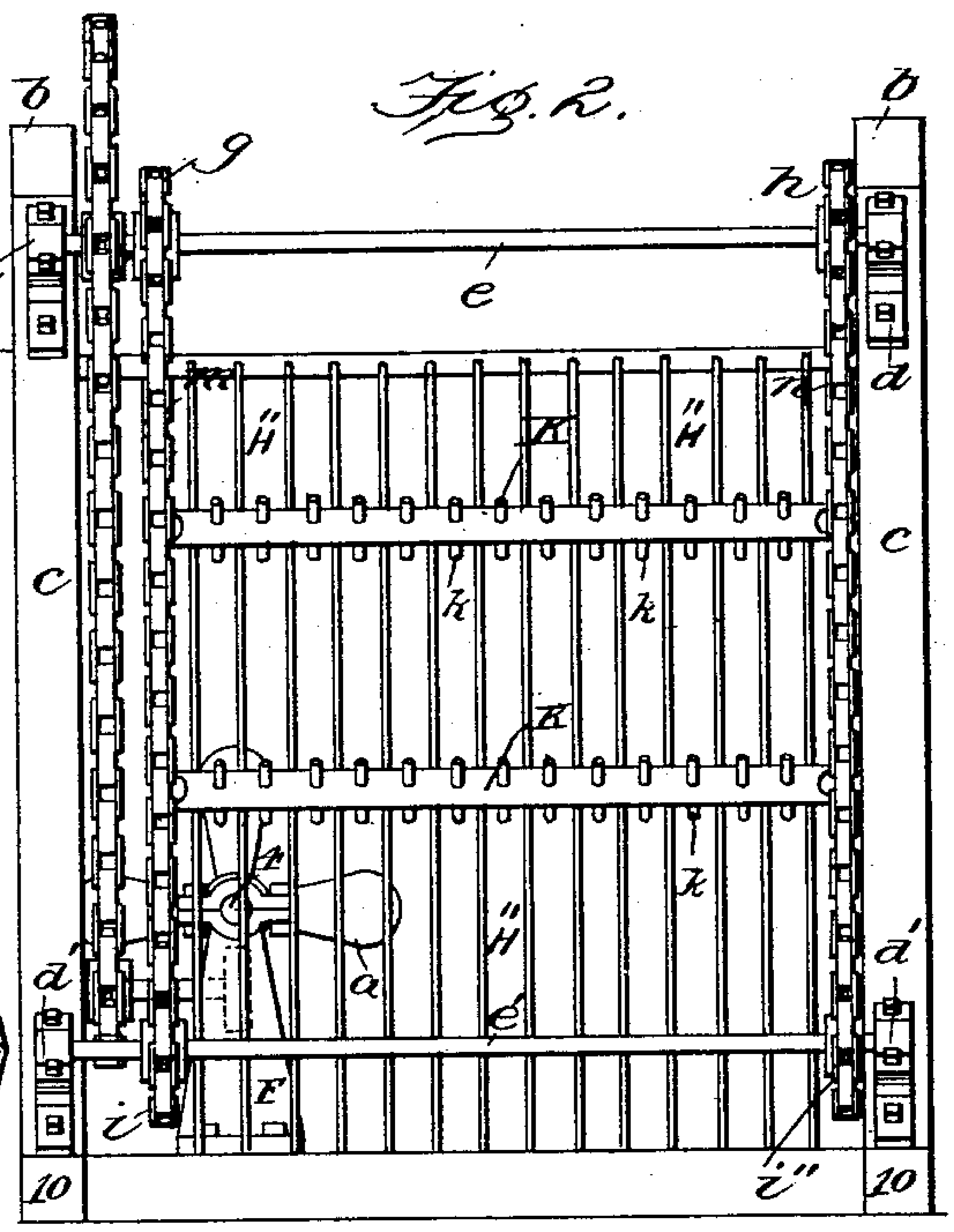


Fig. 3.

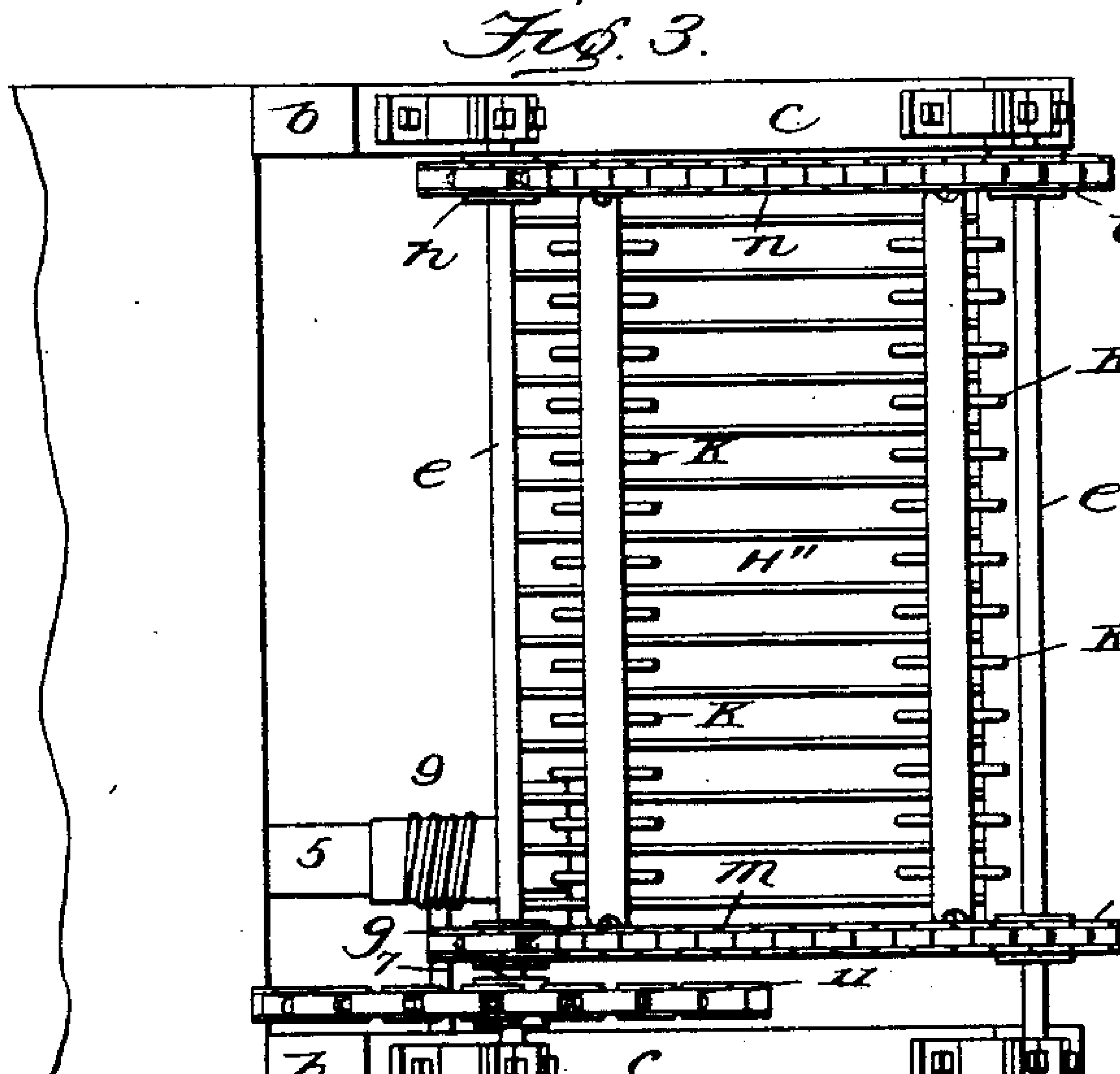
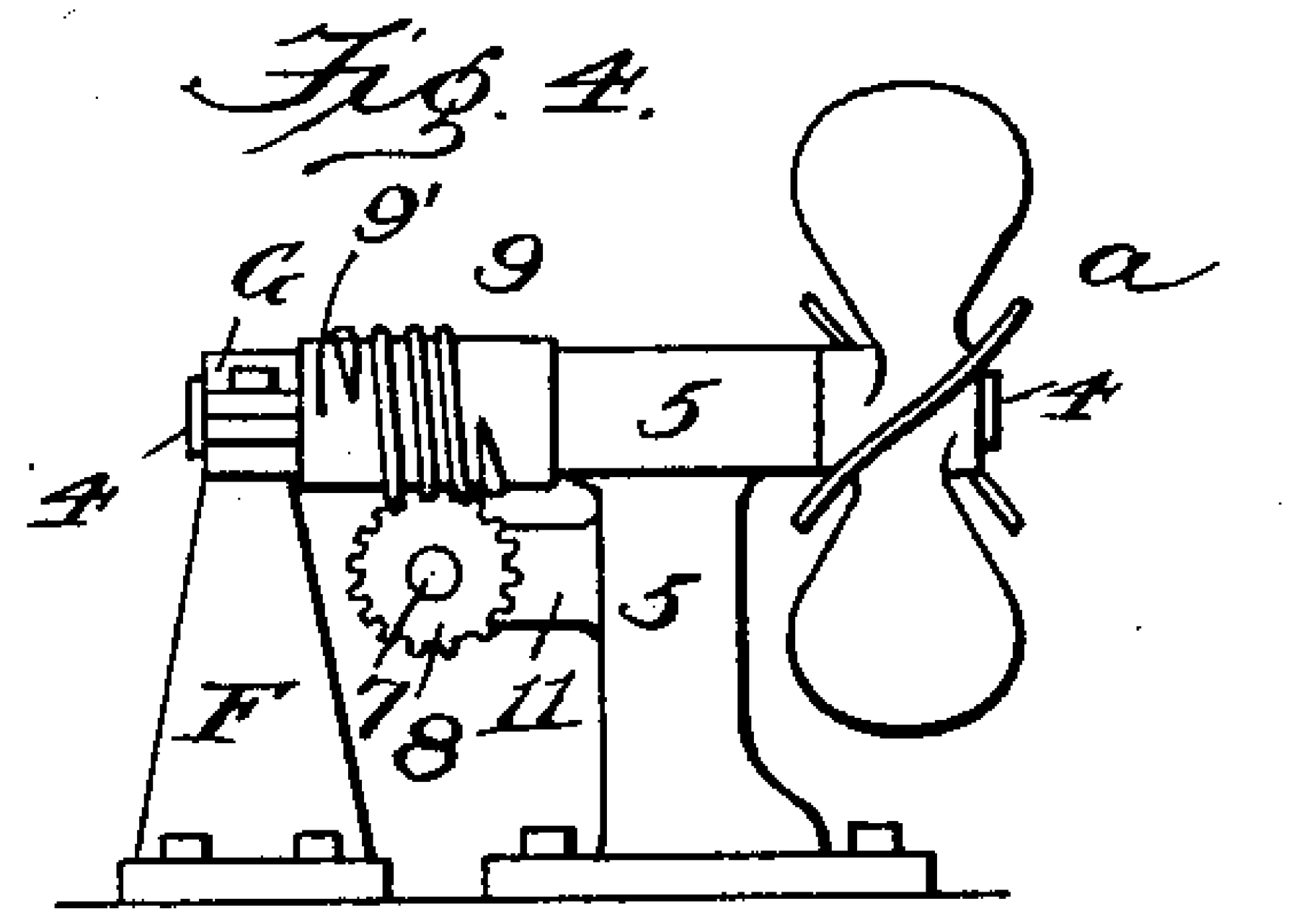


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROSWELL S. JUDSON, OF MATTEAWAN, NEW YORK.

RACK-CLEANER FOR WATER-RACES.

SPECIFICATION forming part of Letters Patent No. 591,767, dated October 12, 1897.

Application filed September 9, 1896. Serial No. 605,308. (No model.)

To all whom it may concern:

Be it known that I, ROSWELL S. JUDSON, a citizen of the United States, residing at Matteawan, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Rack or Grating Cleaners for Mill-Races; and I do hereby declare the following to be a full, clear, and exact description of the same, 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, forming a part of this specification.

My invention has relation to improvements in rack or grating cleaners for mill-races; and the object is to provide a simple and effective automatic device for this purpose.

To this end the novelty consists in the construction, combination, and arrangement of the several parts of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same reference-characters indicate the same parts of the invention.

Figure 1 is a side elevation of my improved rack or grating cleaner. Fig. 2 is a front elevation of the same. Fig. 3 is a top plan view, and Fig. 4 is a detail side elevation of the propeller-gearing.

A represents the mill-race, *b b* vertical standards arising from the longitudinal sills 10 10, and *c c* rearwardly-inclined braces connecting the forward ends of the sills with the upper ends of the standards *b b*.

a a represent brackets secured at the upper ends of the inclined braces *c c*, and *d d* represent similar braces secured at the lower ends thereof, and *e e'* represent parallel shafts journaled in the upper and lower alined brackets.

The shaft *e* is provided with a fixed sprocket-wheel *f* and two smaller sprocket-wheels *g* and *h* and the shaft *e'* with a pair of sprocket-wheels *i' i''*.

The alined sprocket-wheels *g i* are encompassed by an endless sprocket-chain M and the alined wheels *h* and *i''* by a corresponding chain *n*.

K K represent transverse parallel bars or rods, their outer ends fixed in the sprocket-chains *m* and *n*, so as to extend horizontally across the race, and they are provided with a series of rake-teeth *k k*, projecting at a right angle to the path of said bars, as shown.

4 represents a longitudinal horizontal shaft journaled in the brackets F^5, and its rear end carries a propeller-wheel *a*.

9' represents a fixed hub on the shaft 4, provided with a worm-screw 9, which meshes with a worm-wheel 8 on a shaft 7, the inner end of which is journaled in an integral arm on the bracket 5, and its outer end has a bearing in the bracket 6, secured to the lower end of one of the standards *c*.

H represents a sprocket-wheel fixed on the shaft 7 and in line with the overhead sprocket-wheel *f* and connected thereto by an endless sprocket-chain 11.

H'' represents the usual rack or grating which forms a barrier for the floating debris in the mill-race.

The operation of the device is as follows: The water-current rotates the propeller-wheel, which in turn rotates the shaft 7, sprocket-wheel H, and sprocket 11 to drive the large sprocket-wheel *f* in the direction of the arrows shown in Fig. 1. This motion carries the sprocket-chains *m n* and the bars *k k* upward contiguous to the rack or grating H'', the rake-teeth *k* on the bars extending or projecting between the parallel members of the grating to gather the refuse or debris and elevate it over the upper end of the grating and deposit it on the platform B.

It will thus be seen that the rack-cleaner is entirely automatic in its action, and after its installation there is no expense or attention connected with it.

By locating the propeller-wheel below the level of the water I obviate all danger of derangement by floating debris, and by arranging it behind the rack it is fully protected by the rack against all foreign substances, floating or submerged.

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

1. The combination with the race, provided with the rack or grating, of the endless sprocket-chains, *m n*, the bars K, provided with rake-teeth *k*, fixed to said chains and adapted to travel contiguously parallel to said

rack or grating, and a prime motor located in the race in the rear of said rake-teeth and adapted to operate said chains, as and for the purpose set forth.

2. The race, the grating extending across said race, in combination with a traveling rake and the water-motor located below the level of the water in said race, and means substantially as described for communicating a continuous motion from said motor to the rake, as and for the purpose set forth.

3. The race A, the grating H″, extending across said race, the transverse parallel shafts, *e e′*, provided with fixed sprocket-wheels on their outer ends and the endless sprocket-chains, *m n*, connecting the respective sprocket-wheels on said parallel shafts, the bars, K, provided with transverse rake-teeth *k*, and having their opposite ends connected to said sprocket-chains, in combination with the sprocket-wheel, *f*, fixed on the shaft *e*, the shaft, 7, provided with the worm-wheel 8, and the sprocket-wheel H, the sprocket-chain 11, connecting said sprocket-wheels, *f* and 8, and the longitudinal shaft 4, the worm-screw, 9, fixed thereon to mesh with the worm-wheel 8, and the propeller-wheel, *a*, fixed on the projecting end of said shaft 4, substantially as and for the purpose set forth.

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

ROSWELL S. JUDSON.

Witnesses:
JOHN F. MOSE,
MARIE E. SMITH.