

(No Model.)

N. HOFFMAN, H. ELLIS & S. Z. SCHWENK.

HORSE POWER TREAD.

No. 298,971.

Patented May 20, 1884.

FIG. 1.

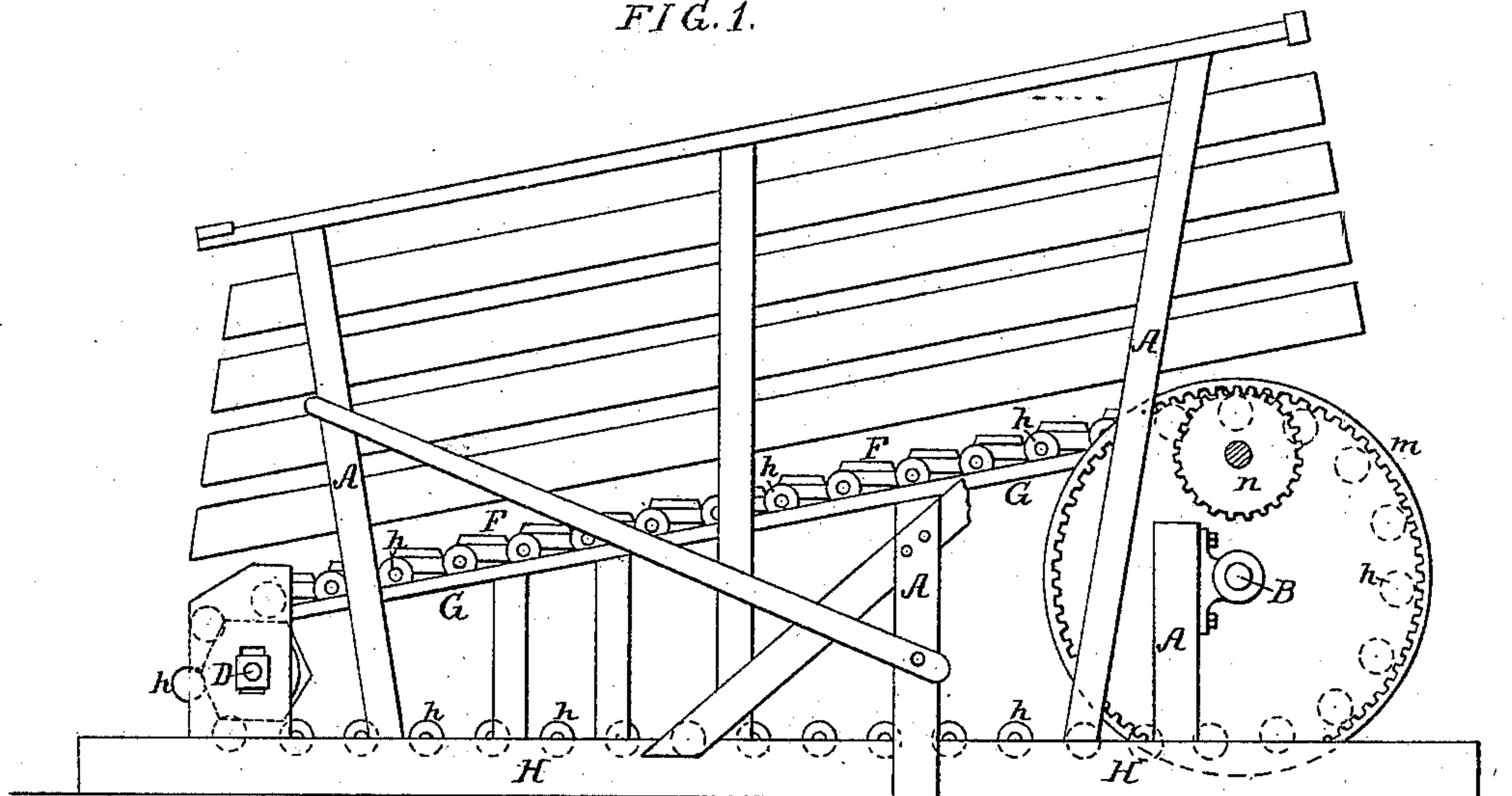


FIG. 2.

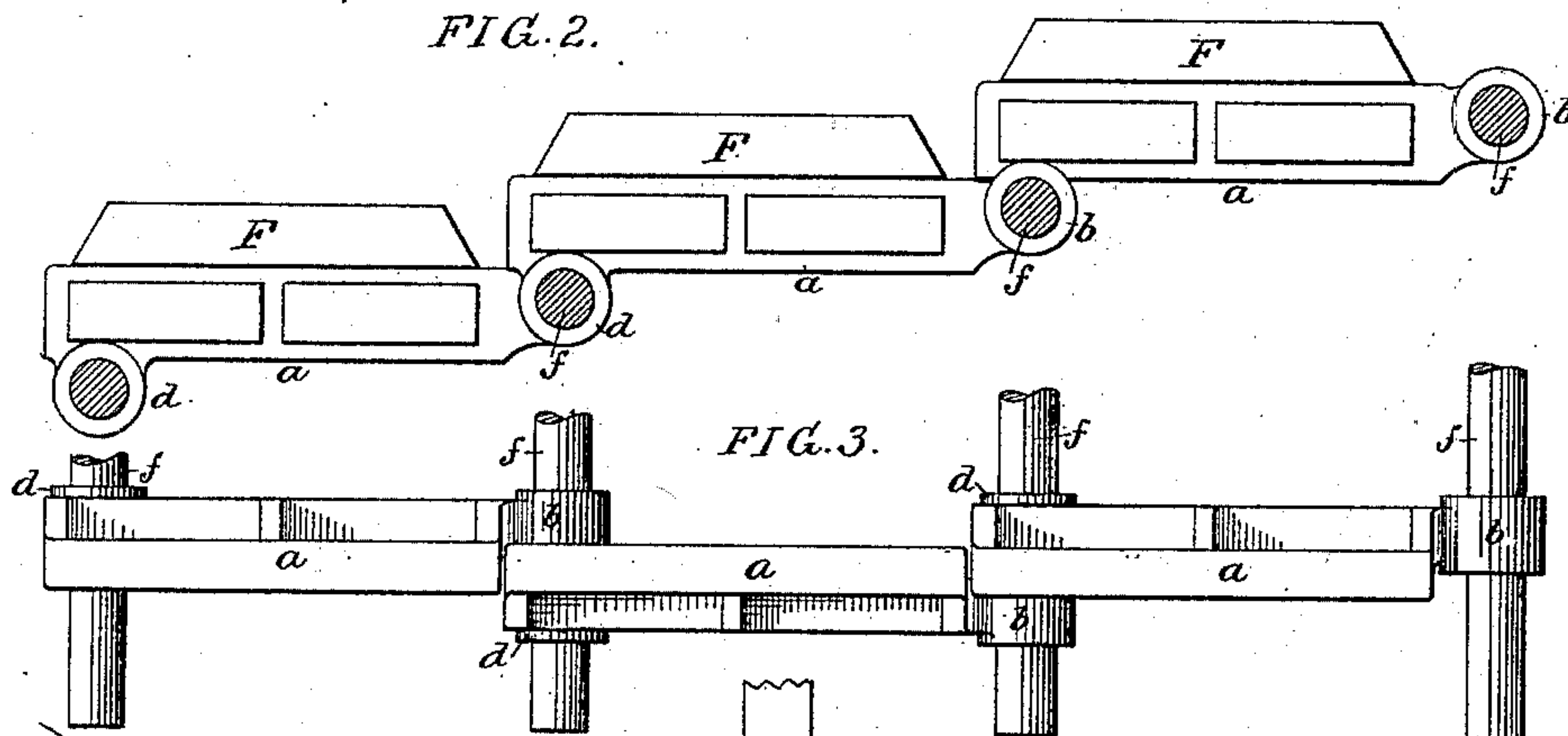


FIG. 3.

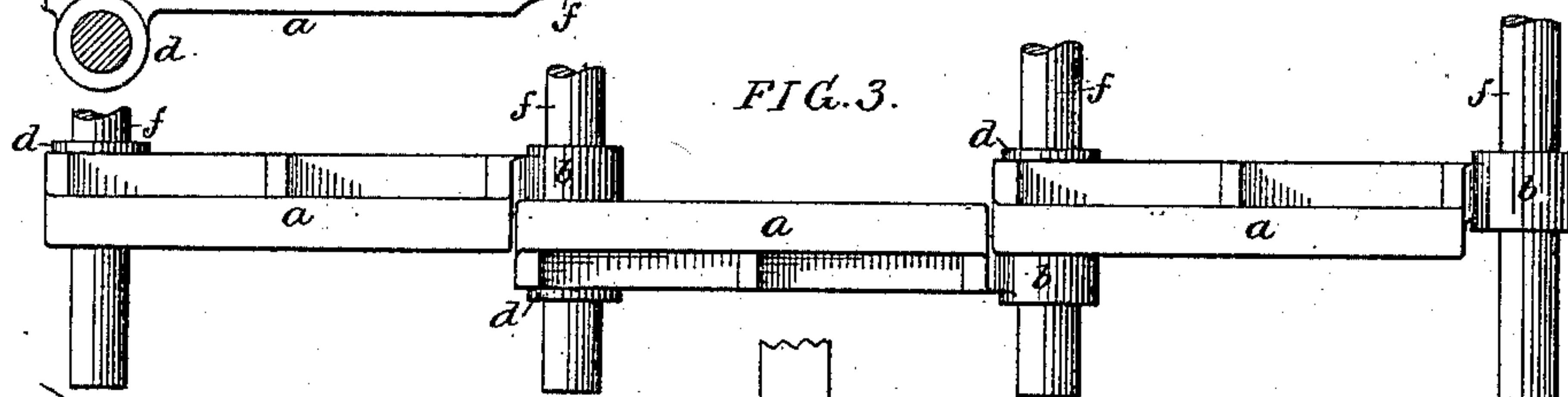


FIG. 4.

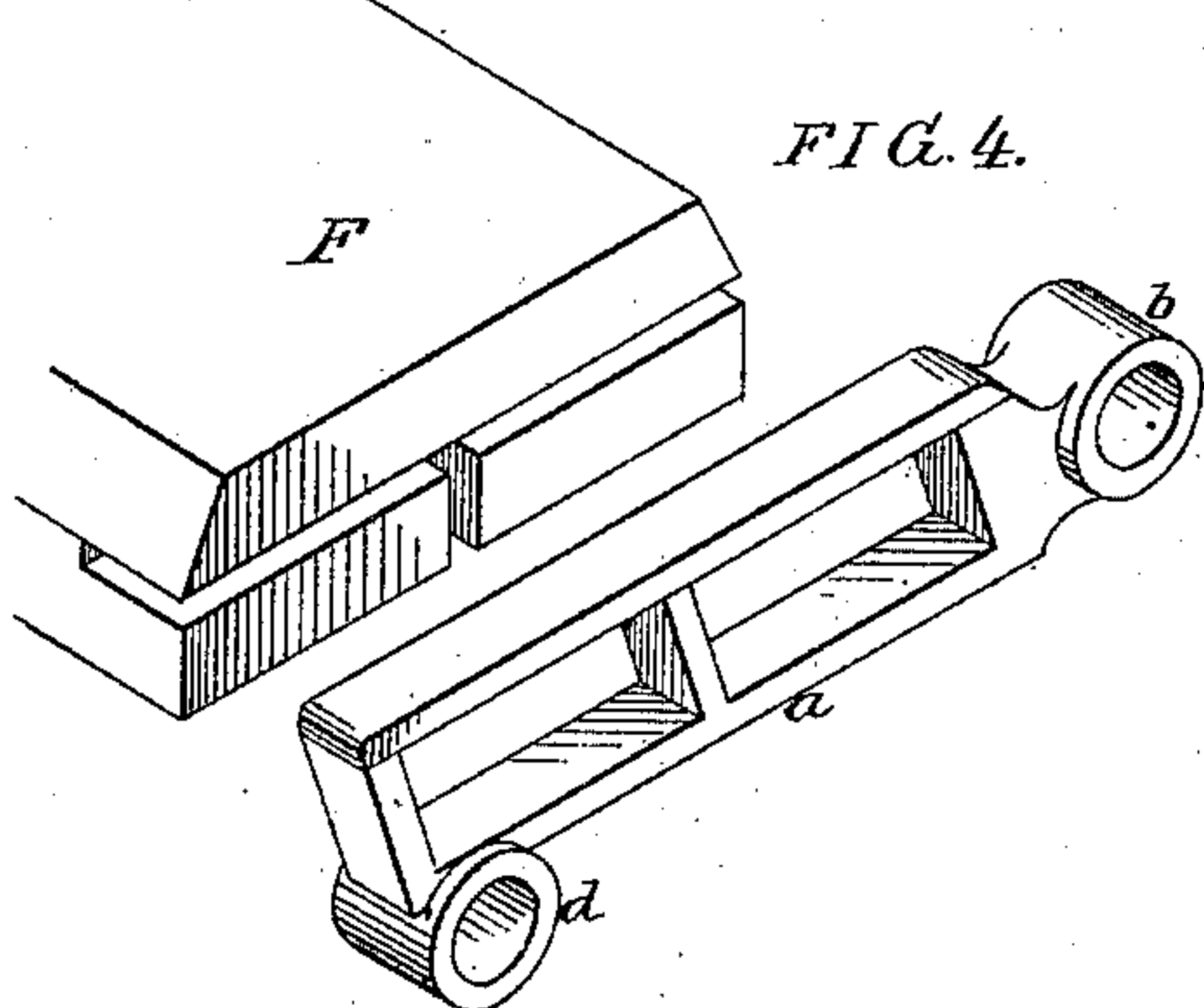
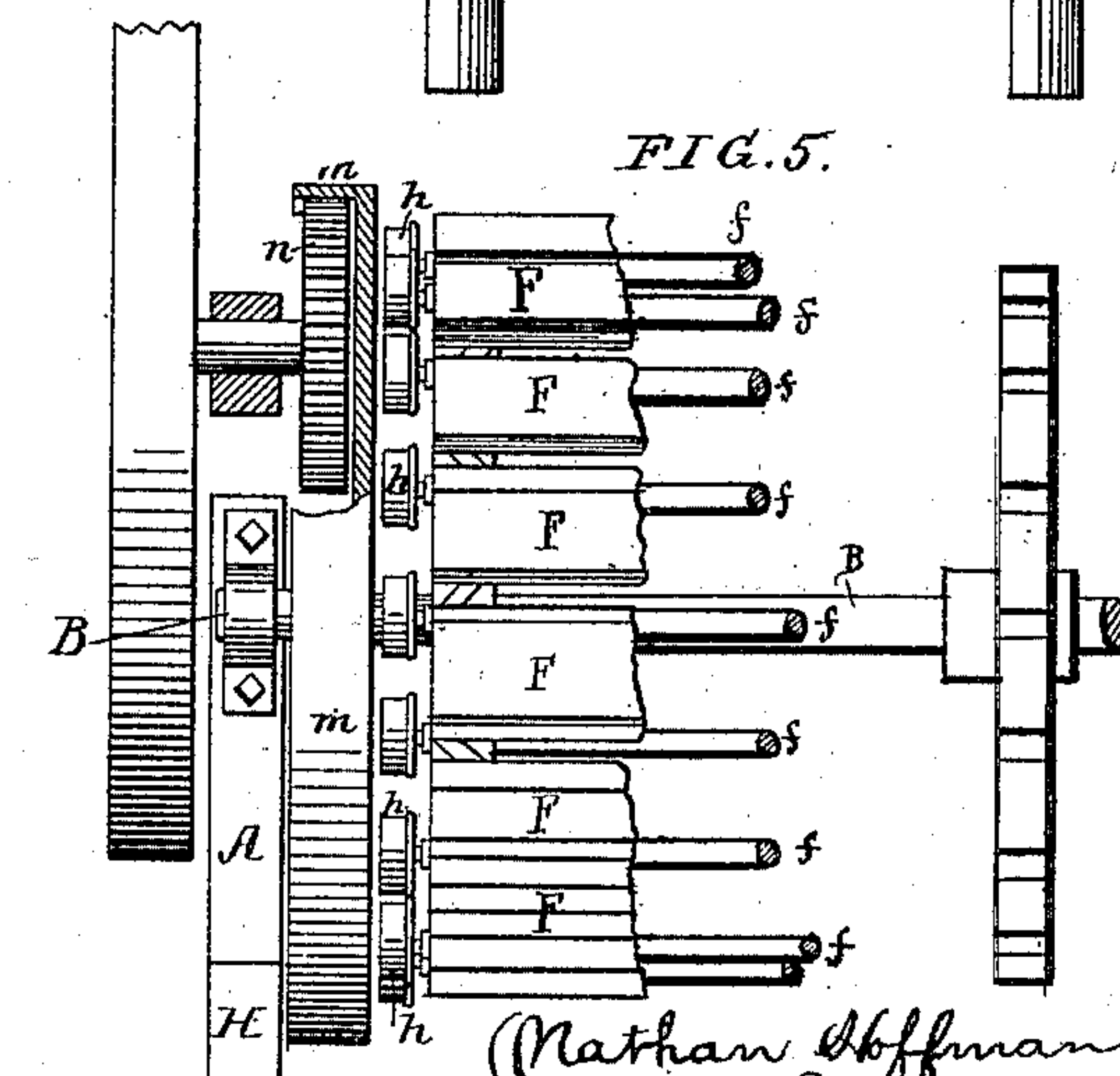


FIG. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

NATHAN HOFFMAN, HIRAM ELLIS, AND SAMUEL Z. SCHWENK, OF POTTS-
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HORSE-POWER TREAD.

SPECIFICATION forming part of Letters Patent No. 298,971, dated May 20, 1884.

Application filed February 25, 1884. (No model.)

To all whom it may concern:

Be it known that we, NATHAN HOFFMAN, HIRAM ELLIS, and SAMUEL Z. SCHWENK, citizens of the United States, and residents of Pottstown, Montgomery county, Pennsylvania, have invented certain Improvements in Horse-Powers, of which the following is a specification.

The objects of our invention are, first, to protect the pivot-pins of the links from injury, and to prevent accidents due to the shoes of the horses catching on said pins; second, to support the lags in a lower position than usual in respect to the eyes of the links; and, third, to prevent friction between the supporting-wheels of the links and the guard therefor as said links are passing around the sprocket-wheel at the front end of the machine or around the rear wheel. These objects we attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a horse-power with our improvements; Fig. 2, a side view of a series of links on a larger scale; Fig. 3, a plan view of Fig. 2; Fig. 4, a perspective view of one of the links and of the end of a lag adapted thereto; and Fig. 5, an end view of the machine, partly in section, and illustrating one of the features of our invention.

In Fig. 1, A represents the frame of the machine, having bearings for the end shafts, B and D, the former being the driving-shaft, and being furnished with the usual sprocket-wheels for carrying the links, and engaging with the eyes of the same, one of these wheels being shown in Fig. 5, while the shaft D is provided with pulleys for supporting the rear ends of the chains, as shown by dotted lines in Fig. 1. Each link of the chain comprises a body, *a*, slotted for the reception of the lugs at the ends of the foot-boards or lags *F*, in the usual manner, and having eyes *b* and *d* at the opposite ends, the front eye of one link lying alongside of the rear eye of the preceding link, and the eyes being connected by rods *f*, which extend across the machine from one chain to the other. Usually the eyes *b* and *d* project beyond the ends of the body *a* of the link, and are beneath the latter—a construction which has two disadvantages, the first being the ex-

posure of the connecting-rod *f*, and the second the undue elevation of the tread above the eyes. The rod, being exposed, is liable to be struck and bent by the shoes of the horse, or, on the other hand, is liable to catch the long toes or calks of the shoes and cause the tearing of the shoe from the hoof. The elevation of the tread causes the weight of the horse to exercise an undue leverage upon the link, thus straining and injuring the link or the joint between the links in the event of a lateral pressure upon the lag. These objections we overcome by locating the eyes as shown in Figs. 2, 3, and 4, the front eye, *b*, being in line with the body *a*, and the rear eye, *d*, being beneath said body—that is to say, on a lower level and in advance of the rear edge of the link. By this means the lag *F* is partly below and partly above the center line of the front eye, thus overcoming the objectionable leverage above alluded to, and the connecting-rod *f* is advanced so as to be beneath the rear edge of the lag, by which it is thus protected and prevented from being injured or causing injury.

The frame A has an inclined rail, G, and a horizontal rail, H, for the guidance of the supporting-rollers *h* at the ends of the rods *f*. Where the chains pass around the sprocket and carrier wheels these rails are discontinued, and it has been usual to provide a guard-plate to prevent the wheels from slipping off of the ends of the rods at these points. Considerable friction is caused by the contact of the wheels with these stationary guard-plates; hence we dispense with the latter and use a rotating guard-plate moving at the same speed as the wheels, so as to prevent any friction between the two. This rotating guard-plate is preferably the shell of the internal gear-wheel, *m*, which is carried by the shaft B, and engages with the pinion *n* on the fly-wheel shaft *p*; but, if desired, a special plate secured to the shaft B between the fly-wheel and sprocket-wheel may be used, and rotating guard-plates may be combined with the carrying-wheel shaft D as well as with the sprocket-wheel shaft.

We claim as our invention—

1. The link having the rear eye, *d*, below and in advance of the rear edge of the body,

whereby the connecting-rod *f* is covered and protected by the lag *F*, as set forth.

2. The link having the front eye, *b*, in line with the body, and the rear eye, *d*, below and
5 in advance of the rear edge of the body, as set forth.

3. The combination of the chain and its supporting-rollers *h* with an end shaft having wheels for supporting the chain, and with a
10 rotating guard-plate, whereby the rollers *h* are retained in place while the chain is passing around the wheels, as set forth.

4. The combination of the shaft *B* and its

sprocket-wheels, the chain having supporting-rollers *h*, and the gear-wheel *m*, forming a 15 guard for said rollers, as set forth.

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

NATHAN HOFFMAN.
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SAMUEL Z. SCHWENK.

Witnesses:

JOHN A. WEBER,
J. HARRY WEBER.