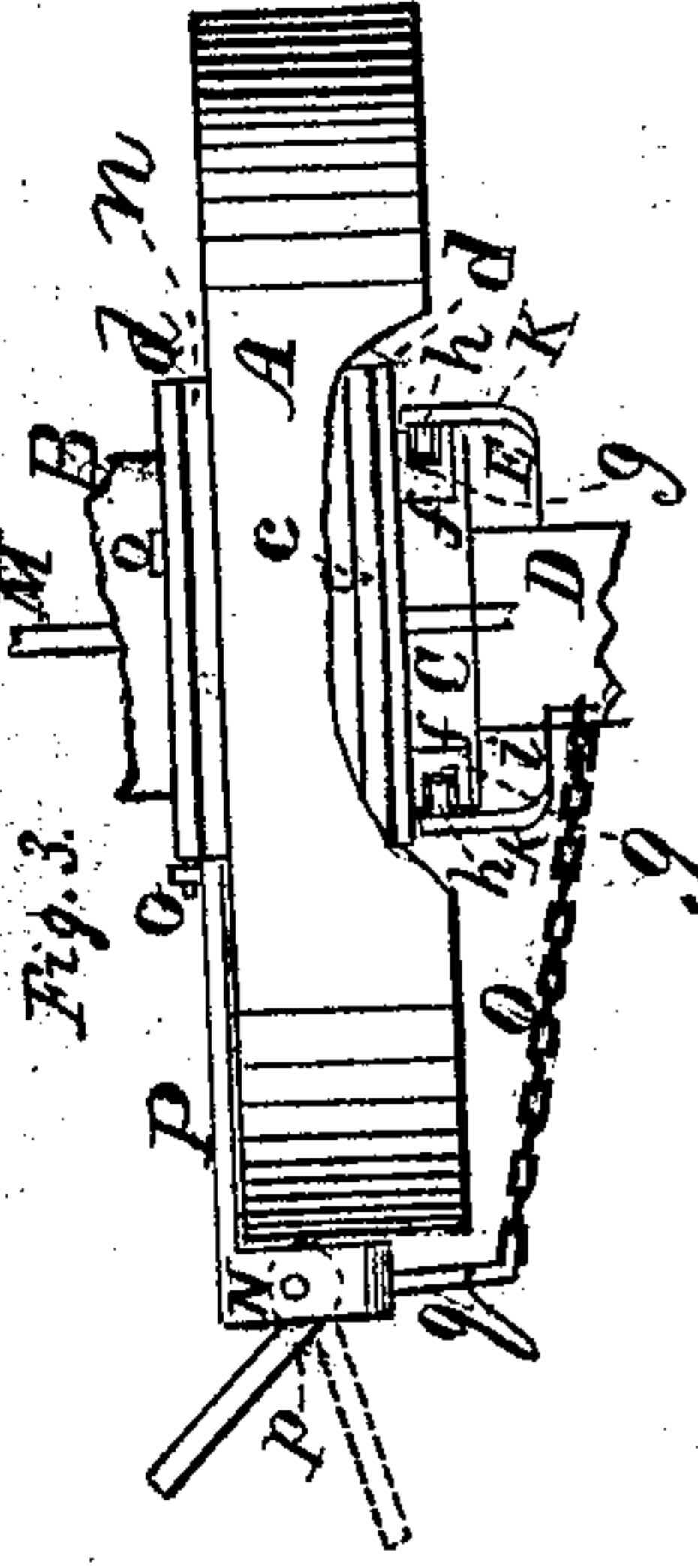
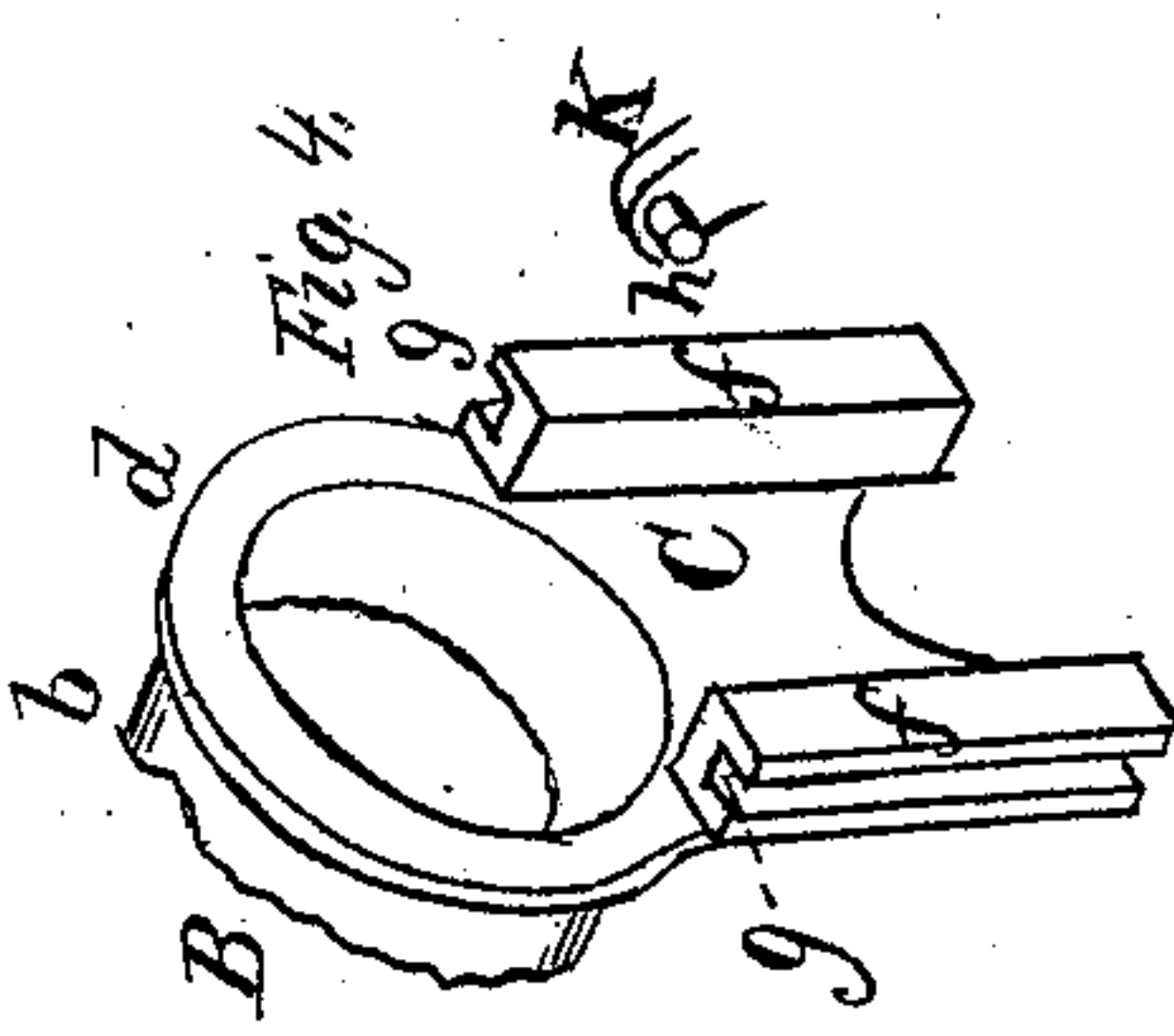
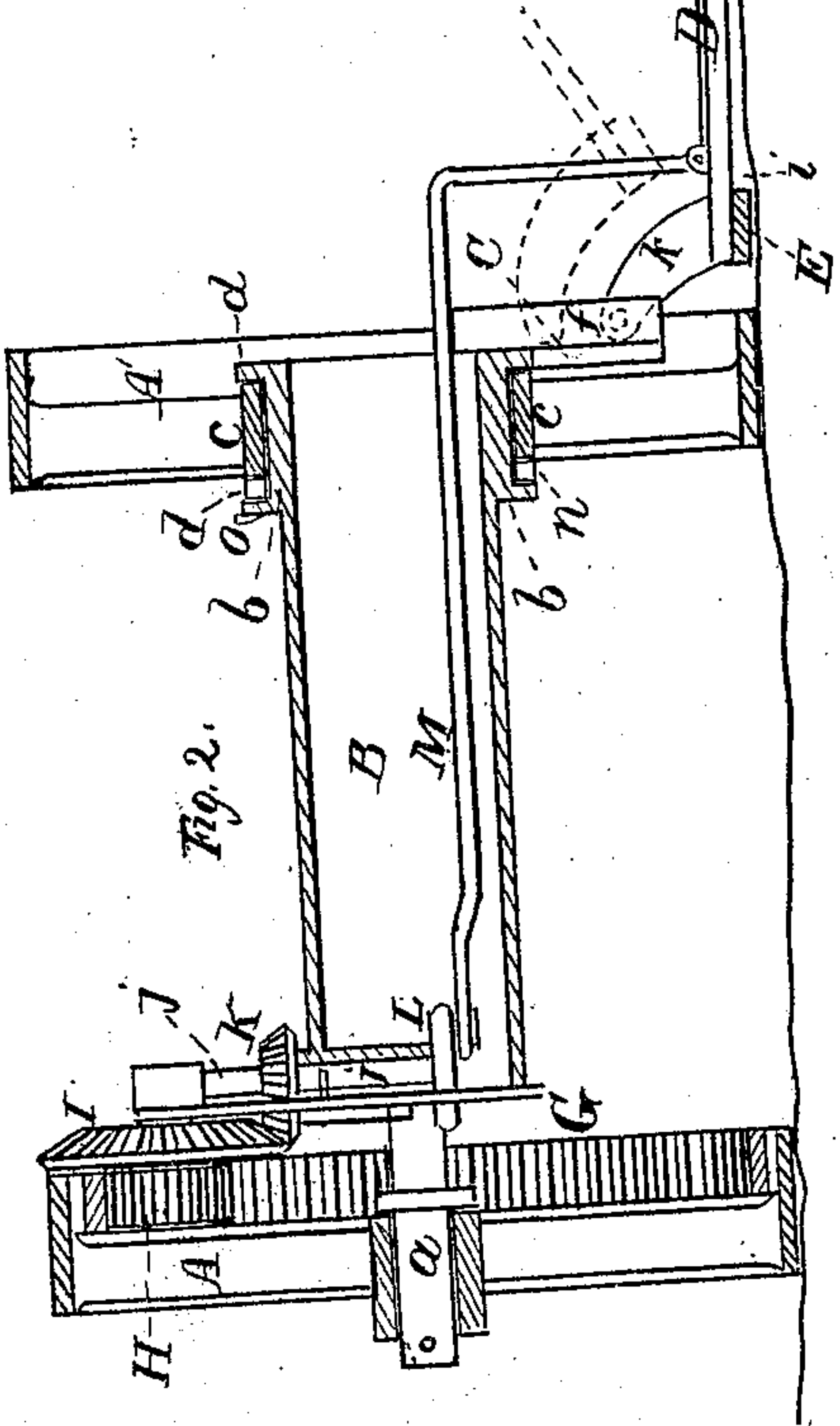
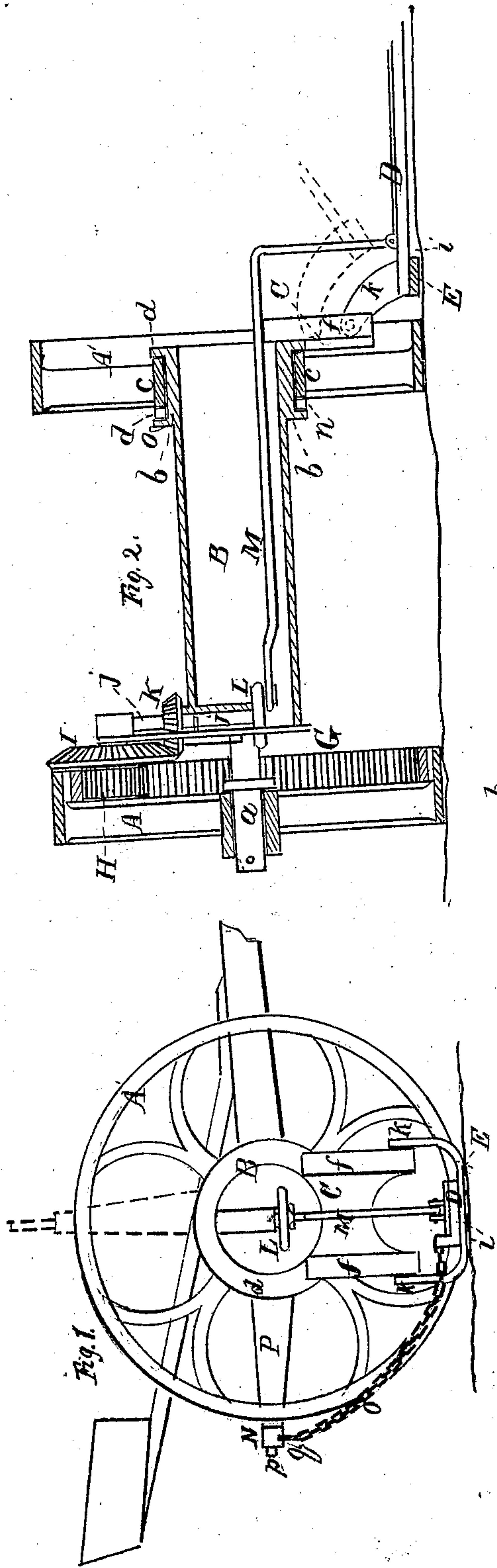


*A. Palmer.*  
*Mower.*

*Patented May 1, 1866.*

*Nº 54,396.*



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# UNITED STATES PATENT OFFICE.

AARON PALMER, OF BROCKPORT, NEW YORK.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 54,396, dated May 1, 1866.

*To all whom it may concern:*

Be it known that I, AARON PALMER, of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Harvesters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a side elevation of my improved machine; Fig. 2, a vertical section through the axis of the driving-wheels; Fig. 3, a plan of the grain-side wheel and its connecting parts, showing more particularly the brake arrangement for raising the finger-bar; Fig. 4, a perspective view of the hanger for connecting the finger-bar.

Like letters of reference indicate corresponding parts in all the figures.

In ordinary two-wheeled harvesters the finger-bar is usually situated either in front or rear of the supporting-wheels, or, if located on a line with the vertical plane of the axis of the wheels, it is connected with the usual main frame by a complicated and inconvenient arrangement passing around the wheels.

It is the object of my improvement to connect the finger-bar directly with the main frame, through the medium of the shoe, without passing around the wheel; and my invention consists in the arrangement of the parts whereby this result is accomplished.

As represented in the drawings, A A' are the supporting-wheels, and B the main frame, which is peculiar in its construction, being in the form of a tube of comparatively large diameter. The axle *a* of the driving-wheel A may be secured to the tube in any convenient manner; but I prefer to make it eccentric, so that the gearing may be engaged or disengaged at pleasure by simply turning it by a lever.

The end of the tube itself forms the axle of the grain-wheel A', as shown at *b*, the enlarged hub *c* of the wheel resting thereon in a suitable groove or bearing formed by two rims, *d d*. Under ordinary circumstances the friction of the hub will not be great; but if any difficulty is experienced from this source friction-rollers may be placed within the hub or axle.

Outside the hub of the grain-wheel a hanger, C, is formed on the end of the tubular frame for connecting the finger-bar D. It may be

formed entire with the frame, or it may be formed a separate piece and fastened thereto, as may be desired. This hanger is provided on opposite sides with vertical ways *f f*, of suitable length, having grooves *g g*, in which rest and slide pins *h h* of a shoe, E, with which the inner end of the finger-bar D is connected. This shoe is formed of a single piece having a flat portion, *i*, resting upon the ground, and supporting the finger-bar and two arms, *k k*, bent upward, to which the pins *h h* are secured.

It will be seen that the shoe thus answers a double purpose—viz., as a shoe in the ordinary way and as a joint for the finger-bar in its direct attachment to the hanger. I connect the finger-bar with the hanger direct, by means of the shoe, without intervening parts, and when thus hung the pins resting in the grooves allow not only the finger-bar to be raised and lowered to any desirable height, but also secure a perfect joint around the pins, which is equivalent in every respect to the double-rule joint of ordinary two-wheeled harvesters made up of several parts. The joints thus produced allows the finger-bar to be turned up at any height, and also allows the bar to adjust itself to any inclination in passing over the surface—an effect that is produced in ordinary two-wheeled harvesters by a double joint. The feature of my invention having a particular relation here does not consist alone in the simple joint thus produced, but in connecting the finger-beam directly to the frame of the harvester by the intervention of the shoe alone on a line with the vertical plane of the axis of the driving-wheels, so as to avoid a connection around the wheel, and at the same time forming the simple and universal joint described. Such an arrangement I do not believe was ever known prior to my invention. The advantage of thus securing the finger-bar to the main frame without connecting around the grain-side wheel is obvious. The draft of the machine is much more easy, regular, and uniform, which is a matter of much consequence in two-wheeled machines.

Another advantage is that the finger-beam, being on a line with the central vertical line of the wheel, will always follow the latter, and in passing over undulating or irregular surfaces will rise or fall with it, thus keeping the fingers or guards at a proper pitch for cutting at a uniform height, which is not the case



where the finger-beam is located in front or rear. This is a new and important feature in two-wheeled harvesters.

The gearing for actuating the parts may be arranged and operated in any desirable way; but I prefer that represented in the drawings. In this case the ordinary internal gear, G, is secured to the wheel A, into which meshes the usual spur-pinion H. To the latter is connected a bevel-wheel, I, that meshes with a similar pinion, K, situated on a vertical shaft, j. If desirable, the gearing may also have a connection with the grain-side wheel.

The shaft j passes down through the tubular frame, and has secured to its lower end, within the tube, the ordinary pitman-wheel L, whose rod M passes entirely through the tubular frame and connects at the opposite end with the cutter-bar, as usual. It is obvious that the pitman might be extended through from one side to the other if the tubular frame were dispensed with, it only being necessary that the axle or bearing on which the hub of the grain-side wheel rests should be hollow for the passage of the pitman. There are several advantages secured by this arrangement of the pitman. First, I run the pitman in a direct line from the gearing to the cutter-bar, and still allow the finger-bar to be attached opposite the center of the wheel. In ordinary devices the pitman runs either in front or rear of the grain-side wheel. Second, the pitman-wheel and pitman are both inclosed in the tubular frame in such a manner as to be entirely protected from the cut grass over which the machine passes, so that they cannot be obstructed from this or any other obstacles. In ordinary harvesters much difficulty is experienced from the exposure of the pitman and wheel, they frequently becoming clogged, and also striking other obstructions, such as stones. The gearing in my harvester is placed so high that there is no difficulty from obstruction. By inclosing these parts I also protect them from rain.

While the tubular frame serves this important purpose of inclosing the pitman and allowing it to pass centrally directly to the cutter-bar, it has some advantages of its own. It can be made of cast-iron, and comparatively very light, and when so constructed it combines a great degree of strength. The same amount of metal in the form of a tube is much stronger than in any other form.

At a suitable position a brake-lever, P, is connected by means of a ring, n, to the tubular frame, in such a position as to turn around, its turning motion being limited by stops o o. Its outer end is provided with a right-angled arm, N, that shuts just past the rim of the grain-side wheel, and in this projection is pivoted an eccentric-lever, p, that I denominate the "brake," since it is brought in contact with the periphery of the wheel at any time by simply turning the handle.

To a hook, q, or equivalent, of the arm N is secured one end of a connection, O, (prefer-

ably a chain,) the opposite end passing downward and attaching to the heel of the finger-bar. The connection O has sufficient slack to enable the finger-bar to adapt itself to the irregularities of the surface; but when the brake is brought in contact with the periphery of the wheel, or an equivalent rim of the same, the friction will raise the brake-lever P to the position indicated by red lines in Fig. 1, and consequently straighten the connection and raise the finger-bar into an upright position.

If it is desirable to raise the bar to run over small obstructions, the brake can be thrown out at any time. Thus I am enabled to raise the finger-bar either for transportation or to pass an obstruction—by simply bringing the brake in contact with the wheel, and by the propelling power of the machine, without the usual great outlay of manual exertion. The driver simply operates the brake by his hand.

If desirable, the handle of the brake may be weighted, so that when fully raised to the top of the wheel and a trifle past the center the weight will overcome the contact of the brake with the wheel, and thus allow the finger-bar to retain its upright position. Then, at any time, a slight effort of the driver will throw the whole back to their normal position.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Forming a movable self-adjusting single joint to connect the finger-beam, by the medium of the shoe E, to the hanger C, without an intervening gate, by means of the grooves g g and pins h h, or equivalent, when the said arrangement is used in combination with a pitman, M, passing through the axle of the grain-side wheel to operate the cutter, substantially as set forth.

2. Raising the finger-bar from the ground by the forward motion of the machine by throwing the weight of said finger-beam upon the periphery of the wheel, or upon an auxiliary rim of the same, by means of a connection, O, that connects it with any suitable mechanical arrangement for producing contact with the wheel or rim, substantially as described.

3. A brake-lever, P, and brake p, in combination with a finger-bar, D, and supporting-wheel A', in such a manner that the driver can raise the finger-beam by merely bringing the brake in contact with the wheel, substantially as specified.

4. Making the main frame B of a two-wheeled harvester tubular, to secure lightness and strength, and to allow the passage of the pitman, said frame being stationary or non-revolving, and having the wheels turning on each end, substantially as described.

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

AARON PALMER.

Witnesses:

R. F. OSGOOD,  
J. A. DAVIS.