

Israel Lancaster, Harvester,

Nº 74,552.

Patented Feb. 18. 1868.

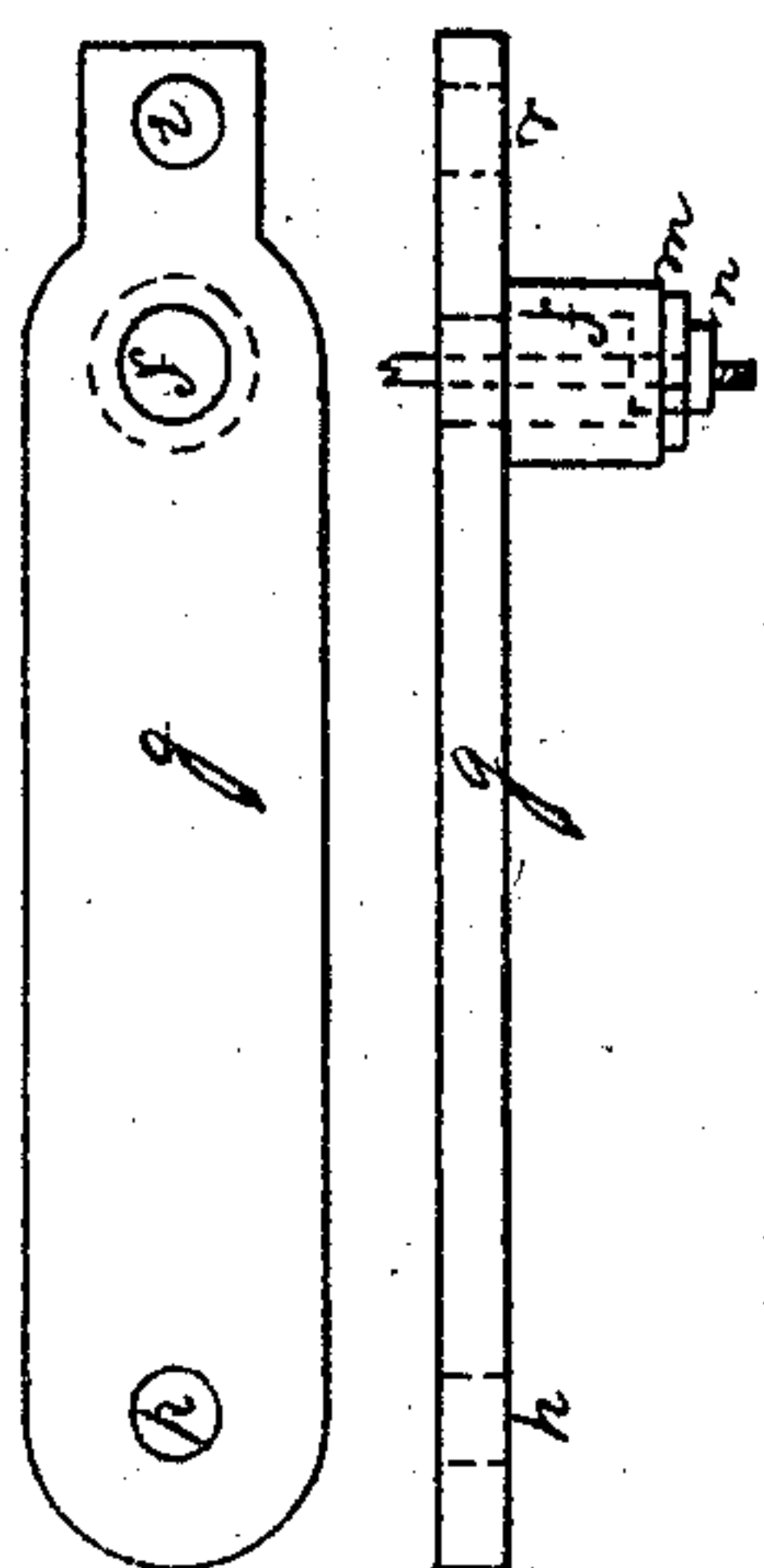
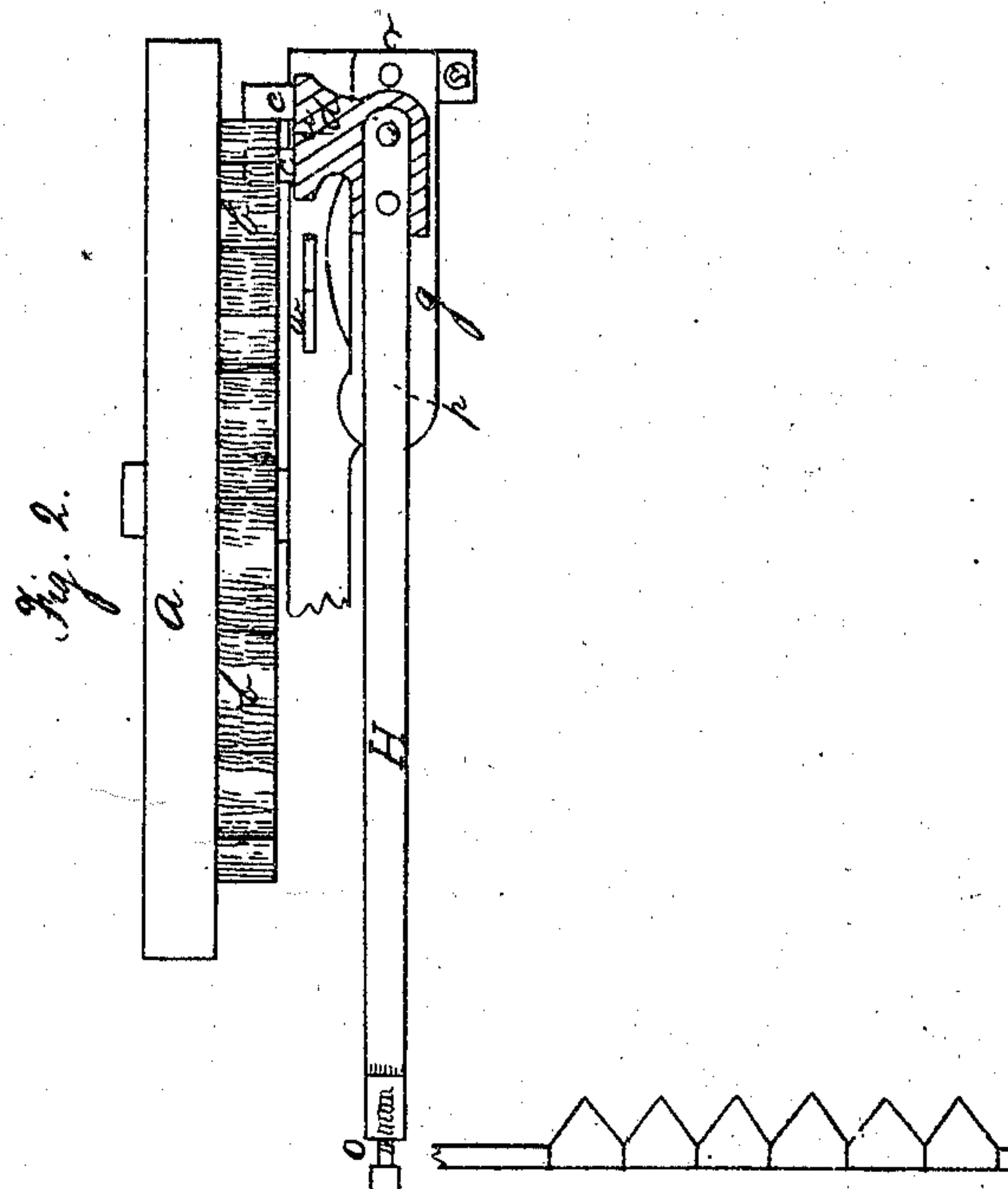
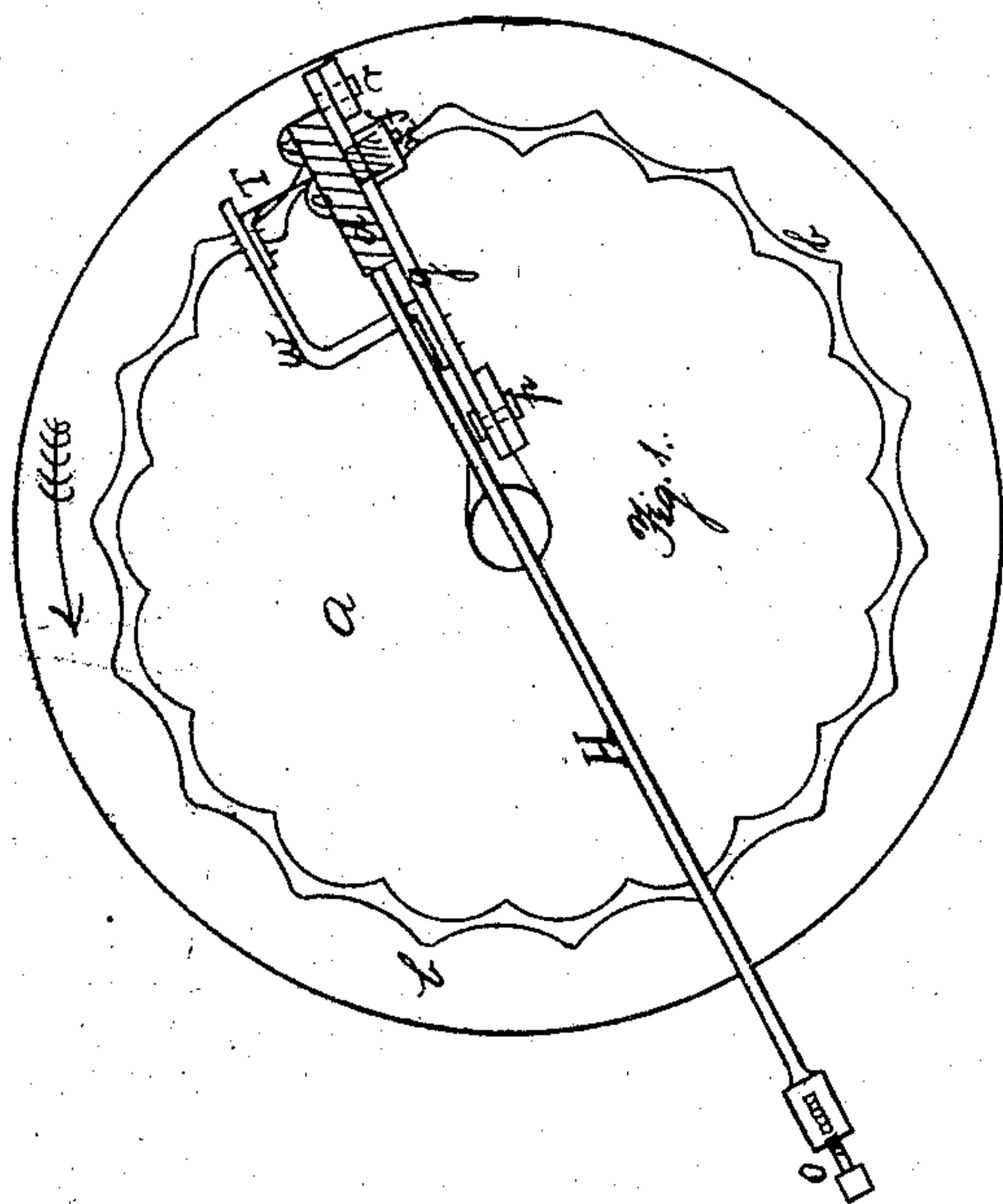
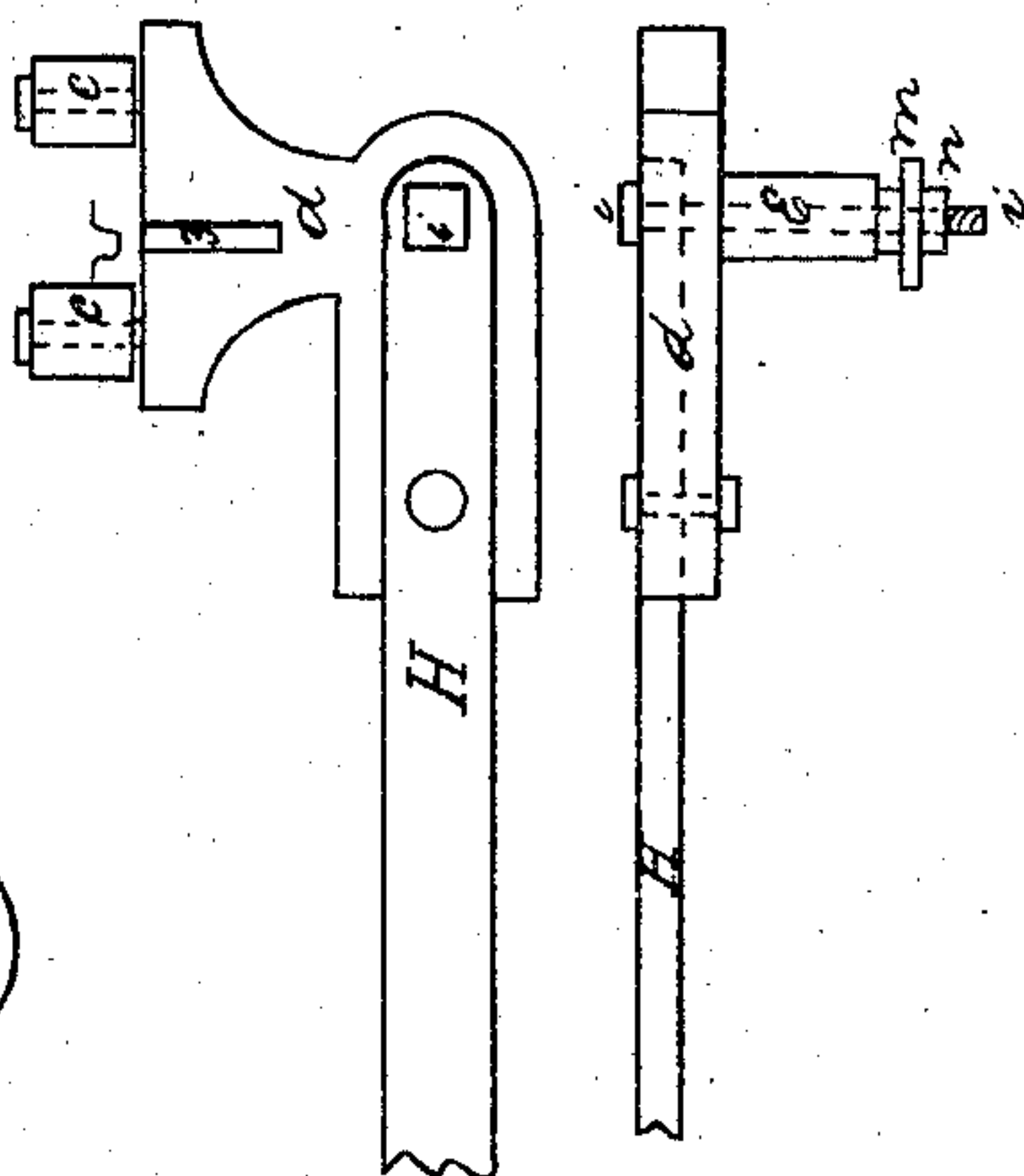


Fig. 3.



Witness
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ISRAEL LANCASTER, OF BALTIMORE, MARYLAND

Letters Patent No. 74,552, dated February 18, 1868.

IMPROVEMENT IN HARVESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ISRAEL LANCASTER, of Baltimore, in the county of Baltimore, in the State of Maryland, have invented 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, and to the letters of reference marked thereon.

The nature of my invention has reference solely to communicating a reciprocating motion to the cutting-bar; and to enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure I is a side elevation, showing the edge of the cam-flange, and the reciprocating lever and its connections.

Figure II is a top view, showing the outer side of the cam-flange, and the lever and its connections.

Figure III shows different views of the shifting or fulcrum-plate, and the head (angular head) containing the friction-rollers, and forming a part of the lever.

On the side of the driving-wheel *a*, Figs. I and II, is placed the cam-flange *b b*. The front edge of this flange is shown at Fig. I. Its walls are parallel to the shaft of the driving-wheel, and about two inches in depth. It is so constructed that the highest point of either side is immediately opposite the lowest point of the other side. This flange actuates the vibrating-lever, giving motion to the knives. At *c c* are shown two friction-rollers, revolving on a stud, fastened to the block *d*. These rollers work on each side of the cam-flange, and are placed so that their centres are on a straight line to the centre of the driving-wheel. The block *d* has a shaft, *e*, Fig. III, projecting from its under side, and working in the socket *f* of the fulcrum-plate *g*. To the upper part of this plate the lever *H* is fastened by rivets or bolts, the bolt *i* passing through the end of the lever, through the shaft *e* and socket *f*, thus holding the block *d* to the plate *g*. At *m* is seen a block, setting up against the end of *e*, its shoulder impinging on the end of *f*. Against this block is firmly screwed the nut *n* of the bolt *i*, preventing the block *d* from bouncing up while the machine is in motion. At *k* is seen an edge view, and at *L* a top view of the block *m*.

It will be seen that the rollers *c c*, the block *d*, and the arm *H*, taken together, form a reciprocating lever, with the power applied at *c c*, the fulcrum at *i*, and the resistance at *o*, where the knife-bar is attached. The plate *g* is pivoted at *p* to the frame of the harvester, and also, while in gear, is fastened to the same frame at *r*. To throw the machine out of gear, the end of the plate *g* at *r*, Fig. II, is brought out to the point *s*, thus removing the rollers *c c* from contact with the cam-flange *b*.

It is evident that in the movement of the machine the cam-flange will have a constant tendency to elevate the end of the block *d* containing the rollers. This movement is very wearing on the journals and bearings of the fulcrum. To remedy this defect I employ a combined spring and bearing, seen at *T*, Fig. I. The lower end of this bearing works in the slot *u* of the block *d*; the other end is riveted to the stand *w*, which in its turn is securely fastened to the harvester-frame. The only place where any wear is possible is at the slot *u*, which is not very great. This is the only kind of bearing I have ever found which would for any great length of time withstand the very rough movement of this part of the mechanism. The bearing should be thin enough to allow it to spring, say one-tenth of its length. This spring assists in overcoming the inertia of the different parts forming the vibrating-lever, at each extremity of the stroke. Both the combined spring and bearing *T*, and the support *w*, may be made in one piece, fastened to the harvester-frame.

The advantage of two rollers and a cam-flange over one roller and a cam-groove, which last have been long in use, is, that with the groove the roller is reversed at every stroke, and as the stroke is very rapid, the roller often does not move at all, but is stationary and wears off each side so as to become flat. There is also great waste of power in overcoming the inertia of a roller, weighing from two to five pounds, from eight to twelve hundred times a minute. This is all obviated by the use of two rollers, as they each revolve in one direction continuously.

There is another feature of this invention to which I wish to call attention, and which I consider valuable. I am convinced that the proper way to construct a "cam-movement harvester" is to have a very short throw at the cams, and a long vibrating-arm to get up the proper throw of knife-bar. Now, if both the fulcrum of

the lever and the cutting-bar are upon one side of a vertical line drawn through the centre of the driving-wheel, the point *o* or knife-bar attachment will be thrown so far before or behind the driving-wheel as to make a very clumsy machine. Even when the fulcrum is upon the driving-wheel shaft, as it is in some varieties of "cam-movement," the length of arm makes the machine clumsy. I remedy this by putting the fulcrum upon one side of a vertical line drawn through the driving-wheel shaft, and the knife-bar on the other side, thus making a very compact machine.

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

1. I claim placing the fulcrum of the reciprocating lever *H d*, which is between the points at which the power and resistance are applied to the said lever, upon one side of a vertical line drawn through the driving-wheel centre and the knife-bar upon the other side.
2. I claim the fulcrum-plate *g*, constructed and operated as described and for the purpose mentioned.
3. I claim the lever *H d* and friction-rollers *e e*, acting in combination with the cam-flange *b b*.
4. I claim the combined spring and bearing *T*, constructed and operating as described and for the purpose mentioned.

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Witnesses:

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