

H. A. MANLEY.
Oscillating Printing-Press.

No. 215,011.

Patented May 6, 1879.

Fig. 1.

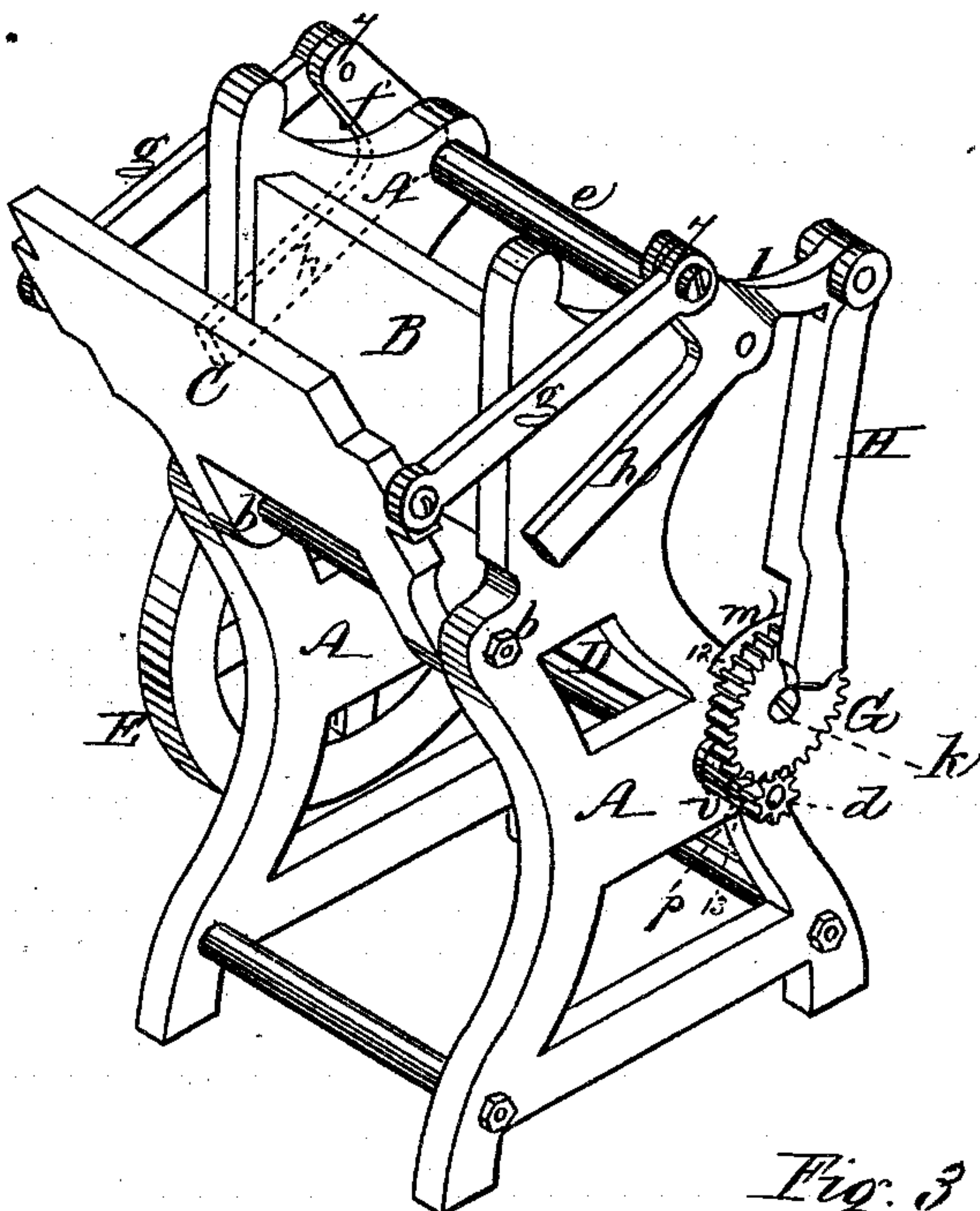


Fig. 3.

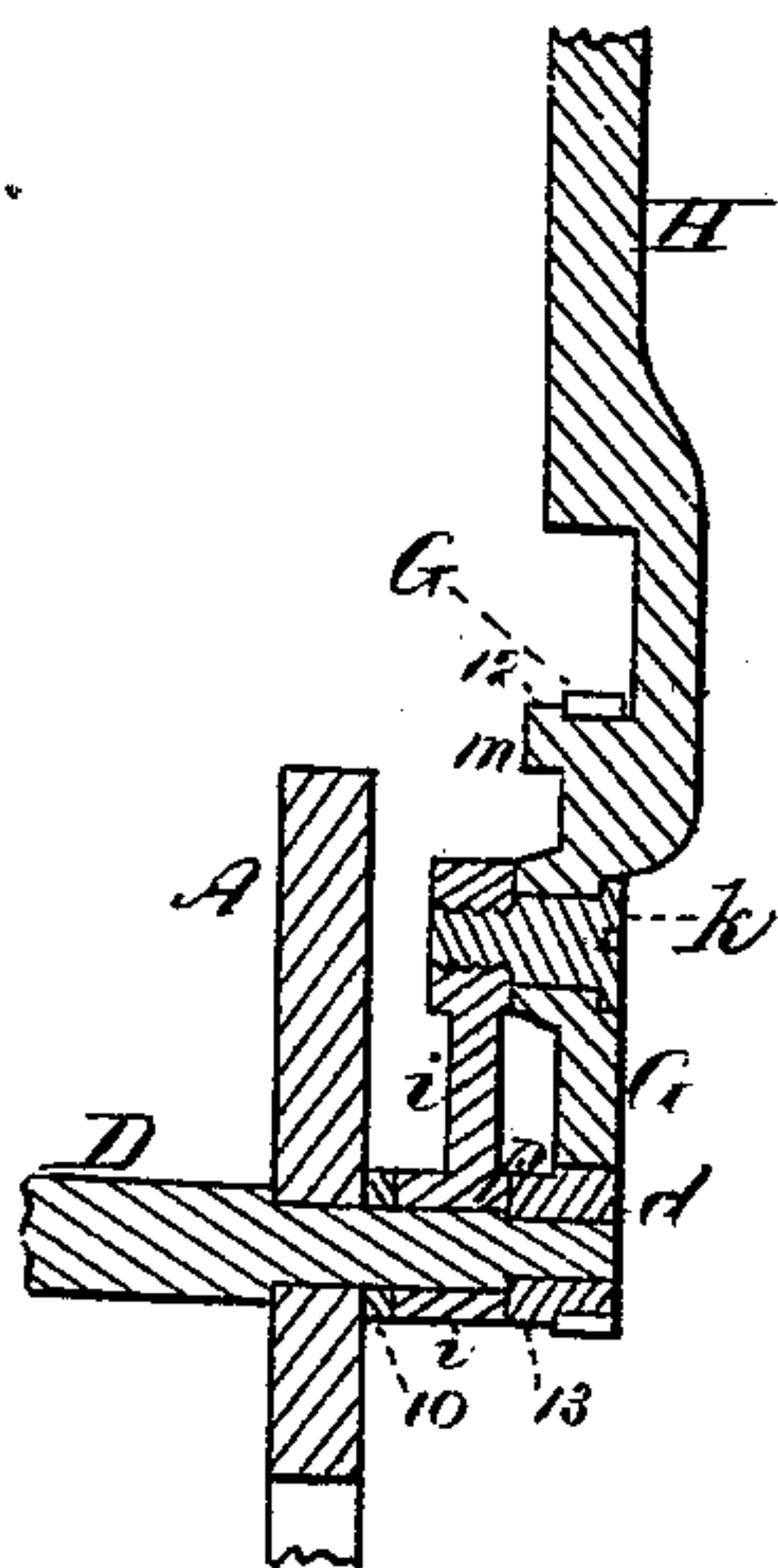
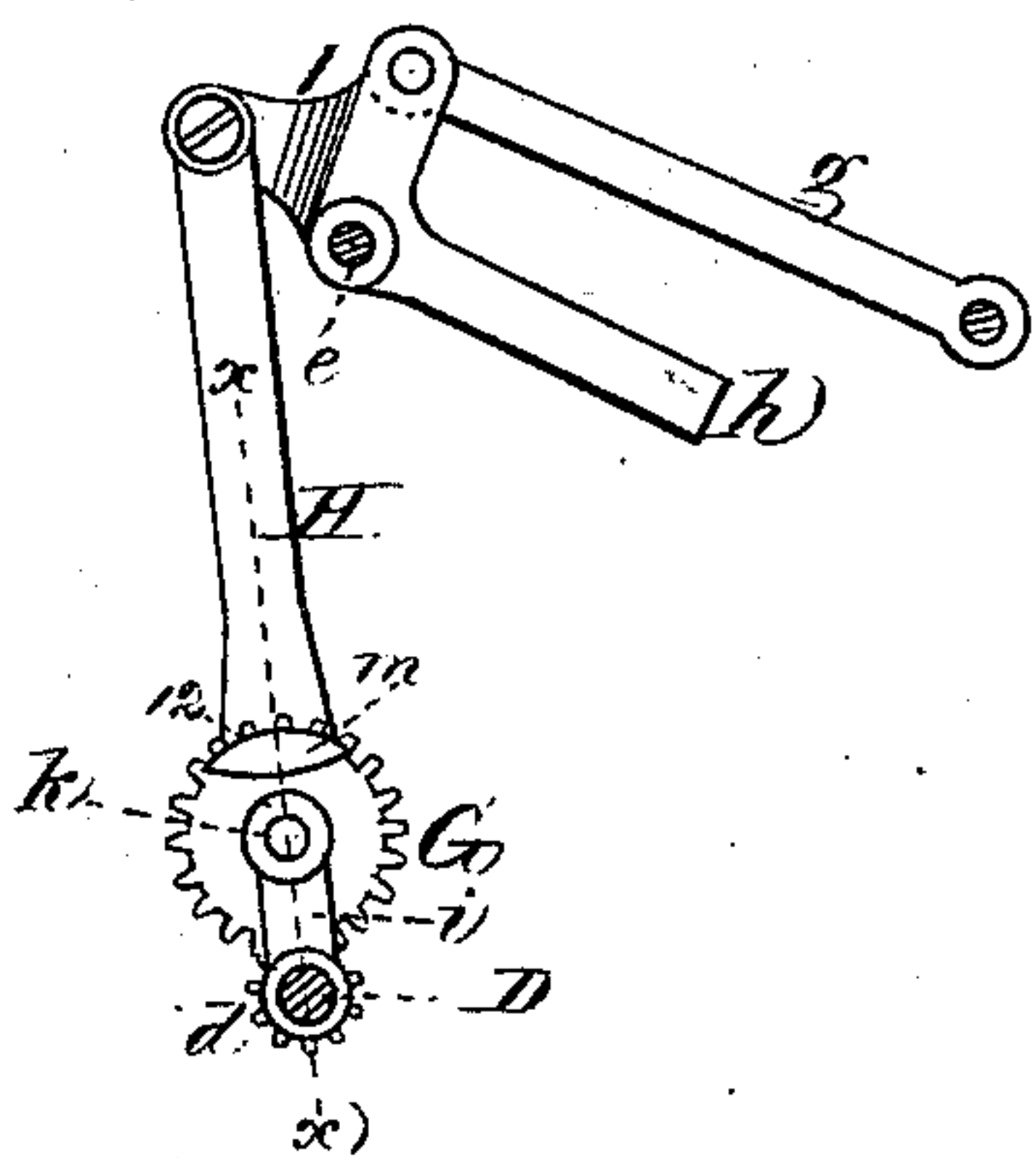


Fig. 2.



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UNITED STATES PATENT OFFICE.

HORACE A. MANLEY, OF BOSTON, ASSIGNOR TO AUSTIN J. COOLIDGE, OF
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IMPROVEMENT IN OSCILLATING PRINTING-PRESSES.

Specification forming part of Letters Patent No. **215,011**, dated May 6, 1879; application filed
February 19, 1879.

To all whom it may concern:

Be it known that I, HORACE A. MANLEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Printing-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a printing-press constructed in accordance with my invention. Fig. 2 is a vertical section through a portion of the press represented in Fig. 1. Fig. 3 is a section on the line *x x* of Fig. 2.

My invention has for its object to simplify the construction of printing-presses and materially reduce their cost; and consists in operating the platen or bed by means of a circular toothed disk firmly attached to a rod or pitman, and actuated by and traveling around a pinion on the end of the driving-shaft, the toothed disk being kept in gear with the pinion by a link or strap, one end of which encircles the driving-shaft, and the other end a pin or stud passing through the center of the toothed disk.

My invention also consists in providing the toothed disk with a bearing-surface on the side, which, when the impression is being taken, runs in contact with a corresponding bearing-surface on the side of the driving-shaft pinion by which it is driven, by which construction the teeth of both the pinion and disk are relieved from strain and wear, and the press rendered almost noiseless.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the frame-work of a printing-press; B, the bed; and C, the platen, pivoted at *b* to the frame-work. D is the driving-shaft, to one end of which is secured the fly-wheel E, and at the opposite end a pinion, *d*, the shaft being rotated by a treadle, or by power applied in any suitable manner. The pinion *d* engages with a circular toothed disk, G, which is cast in the same piece with or firmly secured to the lower end of a rod or pitman, H, the upper end of which is pivoted

to a bell-crank or bent lever, I, keyed to one end of a rocker-shaft, *e*, having its bearings in the frame-work, the other end of this shaft *e* having secured to it a crank, *f*, and to these cranks I *f* are pivoted, at 7 7, the connecting-rods *g g*, which are also pivoted to the platen C, which is thus caused to advance toward and recede from the bed B as the shaft *e* is oscillated.

The arms *h h* are intended to carry, at their outer ends, the inking-roller frame and rollers. (Not shown.) The teeth of the disk G are maintained at all times in gear with those of the pinion *d* by means of a link or strap, *i*, one end of which is provided with a hub, which is bored out, so as to fit snugly over the turned-down end of the driving-shaft D, and rests against the washer 10, this link, within which the shaft D turns, being held in place by the pinion *d*, which is keyed to the shaft outside the link. The opposite end of this link is secured to the center of the toothed disk G by a stud or bolt, *k*, which is screwed firmly into the end of the link, the circular head of the bolt being countersunk in the outer face of the disk, so as to lie flush therewith, the bolt turning within the disk as the latter is carried around the pinion.

If preferred, the stud or bolt *k* may be keyed to the disk and turn freely within the end of the link.

As the driving-shaft is rotated the disk G is continuously carried around the pinion *d* without being revolved upon its axis, and the pitman H, through the connections described, is thus caused to oscillate the shaft *e* and operate the platen as desired.

It is evident that other mechanism than that described may be employed, if desired, for communicating the motion of the pitman H to the platen C without departing from the spirit of my invention.

The bearing of the hub at the end of the link *i*, which encircles the driving-shaft, is of sufficient width to keep it perfectly steady as it is rotated and prevent the toothed disk G from having any lateral movement toward or from the frame-work A. On the inner side of the disk G is a projection, *m*, extending only partially around it, and having a smooth concentric surface, 12, which, at the time the im-

pression is being taken by the platen, runs in contact with the corresponding smooth surface 13 of a hub or collar, *p*, on the inner side of the pinion *d*, the contact of these two bearing-surfaces, which roll over each other at the same surface-speed, serving to relieve the strain upon the teeth of the disk and pinion which would otherwise occur when the impression is taken, and also serving to prevent their points from coming into contact with the bottoms of the spaces between contiguous teeth known as "walking," and consequently the wear of the teeth is greatly diminished and the durability of the press materially increased, while it is also rendered almost noiseless in its action.

If desired, the press may be so constructed that four revolutions of the driving-shaft will produce a single impression; or the number of revolutions necessary for this purpose may be increased from four upward, according to the size of the press, and the platen can be stationary and the bed movable, or both may be made to move, if desired, the mechanism being constructed to suit the requirements of the case.

The above-described printing-press has the advantages of ease and extreme rapidity of motion, simplicity, and cheapness, combined with great strength and durability and the capability of taking an impression by revolv-

ing the driving-shaft in either direction, which, where an inexperienced person is employed, is a matter of considerable importance.

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

1. In a printing-press, the combination, with the platen C and its intermediate actuating-mechanism, of the pitman H, with its toothed disk G, operated by and traveling around the pinion *d* on the shaft D, and the link or strap *i*, one end of which encircles the driving-shaft and the other end a pin or stud passing through the center of the toothed disk, for keeping the disk and pinion in gear, substantially as and for the purpose described.

2. In a printing-press, the combination, with the platen C and its intermediate actuating mechanism, the pitman H, toothed disk G, pinion *d* on the shaft D, and the connecting-link *i*, of the bearing-surfaces 12 13 on the disk and pinion, for relieving the strain and wear upon the teeth while the impression is being taken, substantially as set forth.

Witness my hand this 14th day of February, A. D. 1879.

HORACE A. MANLEY.

In presence of—

P. E. TESCHEMACHER,
W. J. CAMBRIDGE.