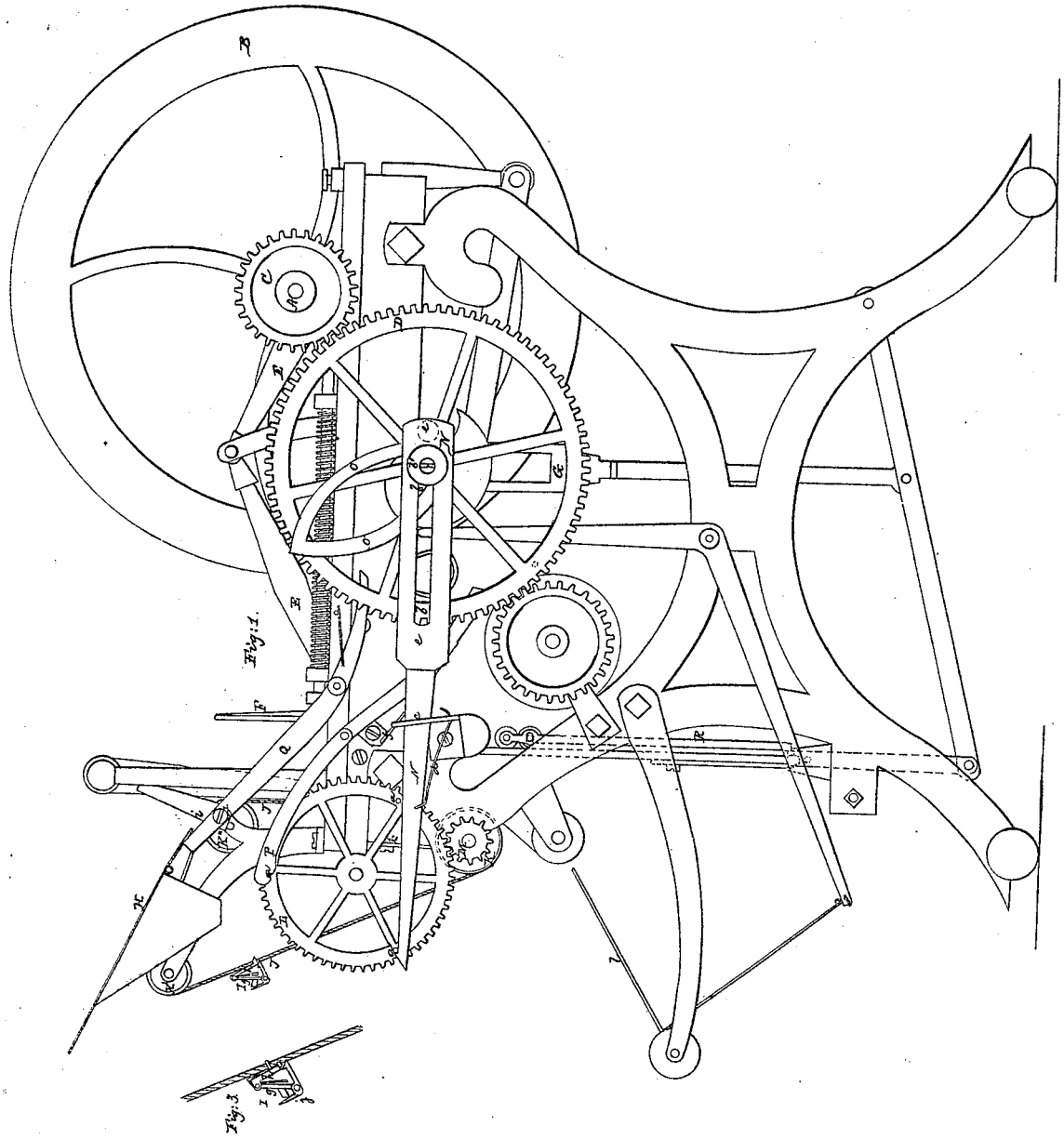
J.C. Kneeland. Sheet 1. 2 Sheets.

Printing Press.

No. 3917. Patented Feb. 20. 1845.



J.C. Kneeland. Sheet 2. 2 Sheets.

Printing Press.

No. 3917 Patented Feb. 20. 1845.

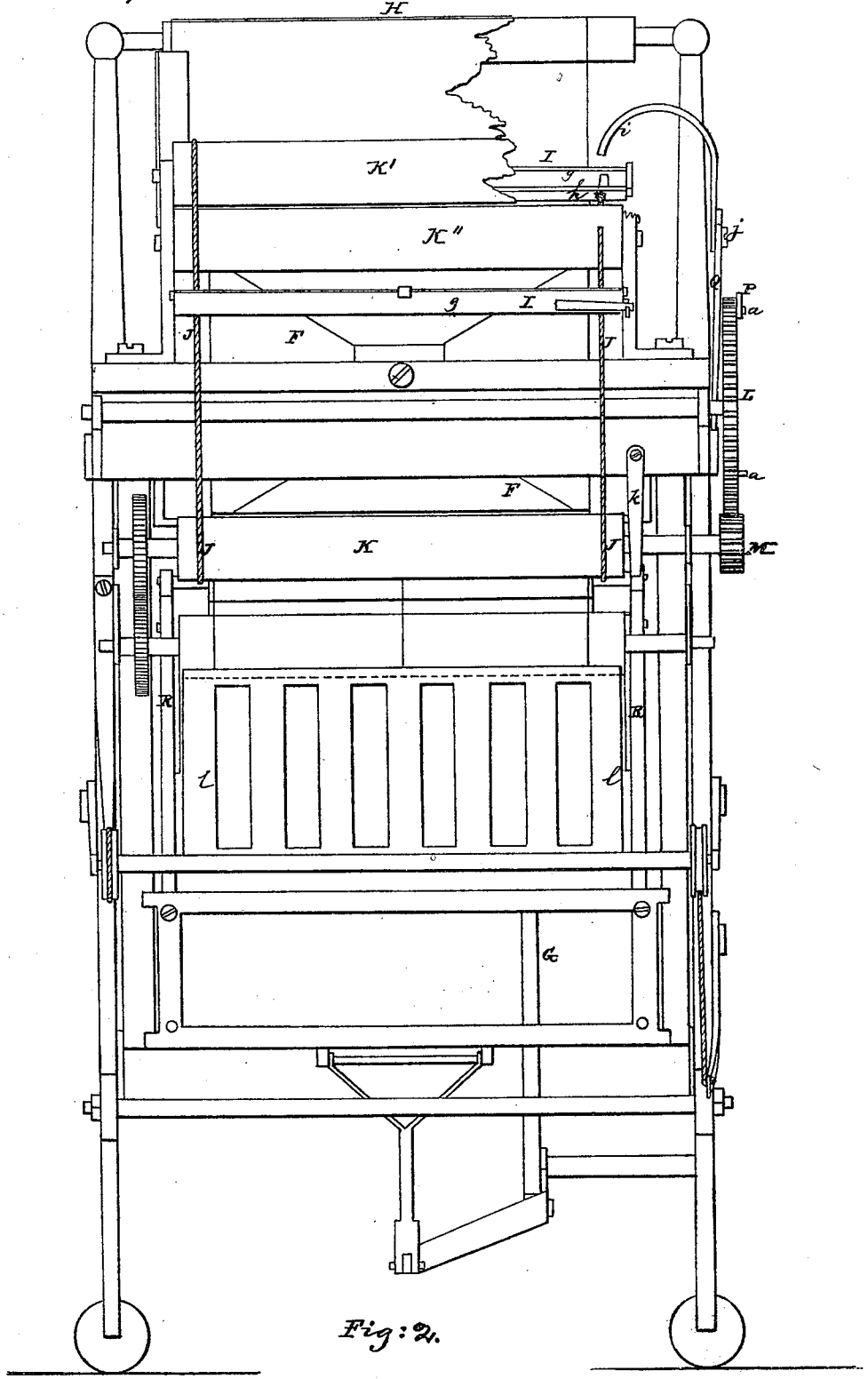


Fig: 2.

UNITED STATES PATENT OFFICE.

J. C. KNEELAND, OF TROY, NEW YORK.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **3,917**, dated February 20, 1845.

To all whom it may concern:

Be it known that I, J. C. KNEELAND, of the city of Troy, in the county of Rensselaer and State of New York, have made certain new and useful Improvements in the Manner of Constructing a Printing-Press; and I do hereby declare that the following is a full and exact description thereof.

In my press, as represented in the drawings accompanying this specification, I place the form vertically; but it may, if preferred, be placed horizontally by arranging the toggle-joint and the other parts concerned in giving the impression in such manner as to operate in that position, my improvement not relating to that part of the apparatus by which the platen, the frisket, the inking apparatus, and their immediate appendages are operated, or in which they are arranged, these being similar to such as are well known, but consisting, principally, in a novel arrangement of the apparatus for gripping the sheet which is placed on the feeding-board, and for carrying it into the proper position for and holding it while it is receiving the impression.

In the accompanying drawings, Figure 1 is a side elevation of my press, and Fig. 2 an elevation of its fore end, or that at which the impression is taken and the sheet fed and delivered.

A is the driving-shaft, having on it a fly-wheel B at one end and a pinion C at the other, which pinion gears into a wheel D on the main cam-shaft, said shaft having on it a cam that operates the progressive levers or toggle-joint E E, which act upon a vertical platen F, and another cam that acts upon a lever G, that gives motion to the inking-roller frame.

H is the feeding-board, and I one of the grippers by which the sheet is carried to the form. These grippers are attached to two endless belts or chains J J, there being one such belt or chain passing around each end of the three rollers K K′ K″.

The apparatus for giving motion to the platen, to the inking-rollers, and their appendages, is similar to such as has been previously known and used, and does not, therefore, require to be particularly described.

L is a wheel which gives motion to the belts or chains J J, that carry the grippers, of which I have said there are three. This number, however, may be increased, provided there be a corresponding change in the parts with which they are connected, as in the wheel L, which, as represented, is arranged for three grippers. The wheel L revolves on an independent shaft and gears into a pinion M on the shaft of the roller K. Upon the wheel L there are three pins *a a a*, that project from its face, and by the aid of these pins and of a sliding catch this wheel is to be carried round one-third of a revolution after an impression has been made; but it is to be held at rest during the time that the form is being inked and while it is giving the impression. The moving of this wheel is effected by means of the sliding catch N N. This catch has a slot *b b* in it, which embraces a pin or stud *b′* on the axis of the wheel D, on which pin it slides back and forth. It also passes through a slot in a guide piece *c*, and is borne up by a spring *d*, which causes it to latch on one of the pins *a*. The sliding catch is moved back and forth by means of a cam O O, attached to the wheel D, this cam operating on friction-rollers on the inside of the sliding catch in the position shown by the dotted lines *e e*. During the time that the catch is being carried forward and until the impression is completed, the cam O being then out of action, the wheel L is kept stationary by means of the tumbling catch P, which falls upon and holds one of the pins *a*, and when the sliding catch N is ready to be moved back, so as to rotate the wheel L, the tumbling catch is lifted from the pin *a* by means of a pin acting on its tail on the inside of the wheel D. *f* is a spring to insure the catching of the end of the lever P upon the pin *a*. In the positions in which the catches N and P are shown in the drawings the catch N has just engaged with its pin and the catch P is about being lifted, so as to allow the sliding catch N, on being retracted, to rotate the wheel L.

I will now proceed to describe the manner of forming and operating the grippers I. One of these grippers I have already referred to as shown on the endless belt in Fig. 1. Two of them are seen in Fig. 2, and the end of one of them separately in Fig. 3, drawn on a larger scale than the former figures, and in a position ready to receive and be closed upon a sheet. One of these grippers is seen in a like position in Fig. 2, a part of the feeding-

board H and one of the endless chain rollers being removed for that purpose. As the sheet is placed on the feeding-board, it is passed in between the upper and the lower leaves *g* and *h* of the gripper, which leaves are hinged together. As the sheet is passed in, a closing-lever Q is brought down by a pin on the inside of the wheel D, and a piece *i* on the outer end of this lever, which is bent over for the purpose and may be adjusted by a screw *j*, bears upon the upper leaf of the gripper and forces it down. In Fig. 2 the piece *i* is seen above the gripper in a position ready to be brought down to close it.

A latch *j*, Fig. 3, works on a joint-pin on the end of the upper leaf *g* of the grippers, and when this leaf is forced down said latch takes hold on the under side of the lower leaf and confines the two together. The action of the latch is insured by means of a spring made to bear upon it. The latch is disengaged at the proper time by being made to press against a piece of metal *k*, and the sheet is deposited on a table, the end of which is seen at *l*, Fig. 1, and is shown fully at *l l*, Fig. 2. This table, after receiving the sheet from the guide-rollers in the ordinary way, is made to turn over and lay it on a pile, as in the Adams press and some others.

Instead of moving the sliding catch N back and forth by means of the cam O O, I have sometimes attached the inner end of it to a crank-pin on the wheel D; but, as in this case the motion of the sliding catch is given by a crank, it will be continuous. It must be made of such length as to pass to a considerable distance beyond the pin *a*, upon which it is to catch on its return. During the period that it is moving forward and until it encounters the pin on its return the wheel L will be at rest, being held in the manner already described, and the operations of inking and of taking the impression will be performed. I however prefer the manner first described, and represented in the drawings, of moving this slide.

I have essayed another manner of giving motion to the endless bands which carry the grippers, in which I dispense with the sliding catch N, the wheel L, and their appendages, which method I have found to answer the purpose; but from its complexity it is inferior to that herein first described, and I refer to it for the purpose of preventing its being claimed as an improvement by others. It is as follows: R R, Figs. 1 and 2, is the inking-roller frame, which is moved up and down, as before stated, by means of a cam on the cam-shaft. Upon the face of this frame, as seen in Fig. 2, I have sometimes placed a rack taking into a pinion on the end of the roller K, said pinion having a ratchet allowing it to turn freely on its axis in one direction in a manner well known. By this arrangement it will be seen that the required motion may be attained.

Having thus fully described the nature of my improvements in the printing-press, what I claim as new therein, and desire to secure by Letters Patent, is—

The manner in which I combine, arrange, and operate the apparatus for governing the motion of the sheet on which an impression is to be made, said apparatus consiting of the sliding catch N, the wheels L and D, the cam O, and the catch P, these parts being arranged and operating substantially as described.

J. C. KNEELAND.

Witnesses:
THOS. P. JONES,
EDWIN L. BRUNDAGE.