(No Model.) 2 Sheets—Sheet 1.

W. SCOTT.

PRINTING PRESS.

No. 293,678. Patented Feb. 19, 1884.

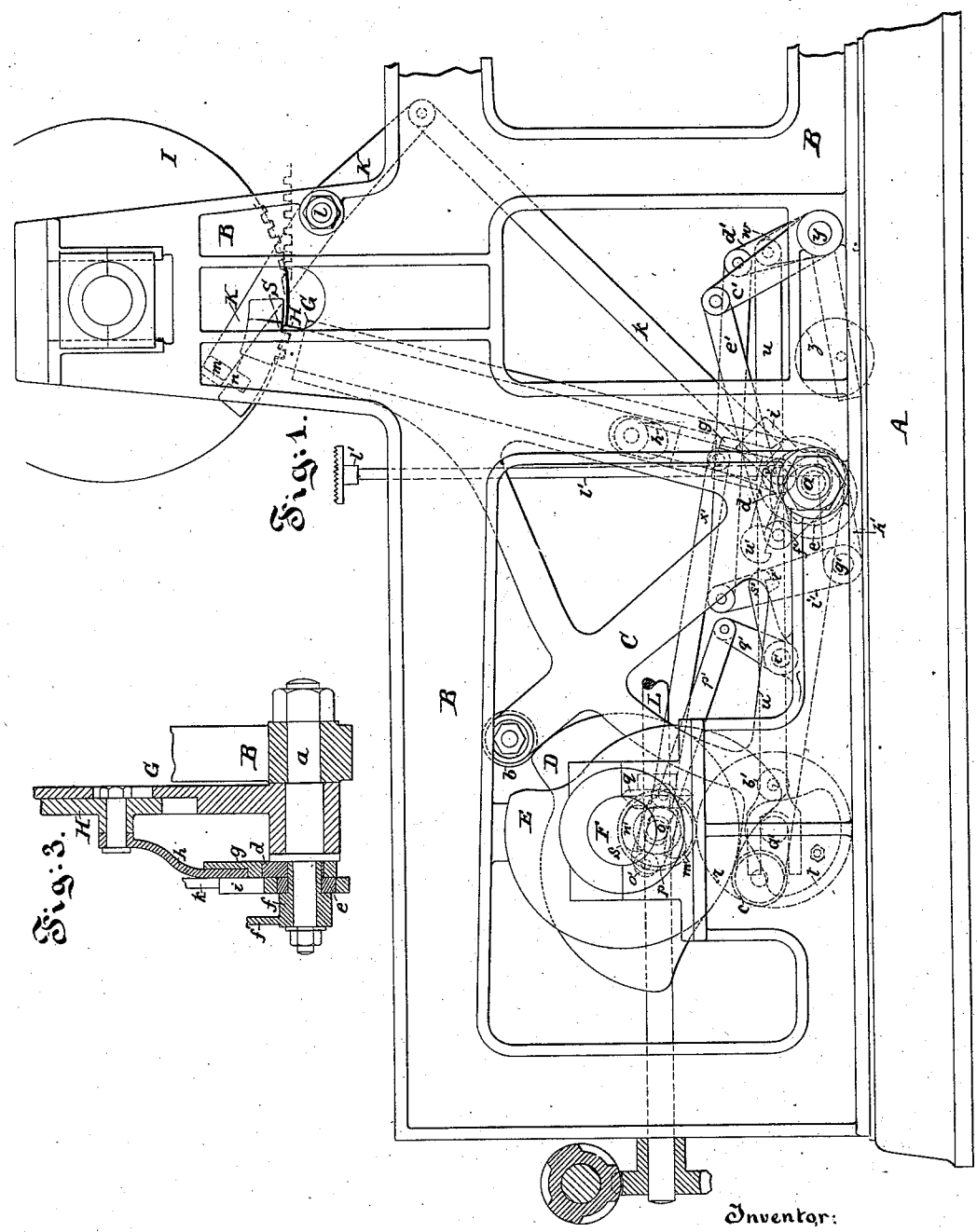


Fig. 1.

Fig. 3.

Witnesses:
A. H. Gentner Jr.
Edward H. Carpenter.

Inventor:
Walter Scott
by his Attorney
Edward Kent Jr.

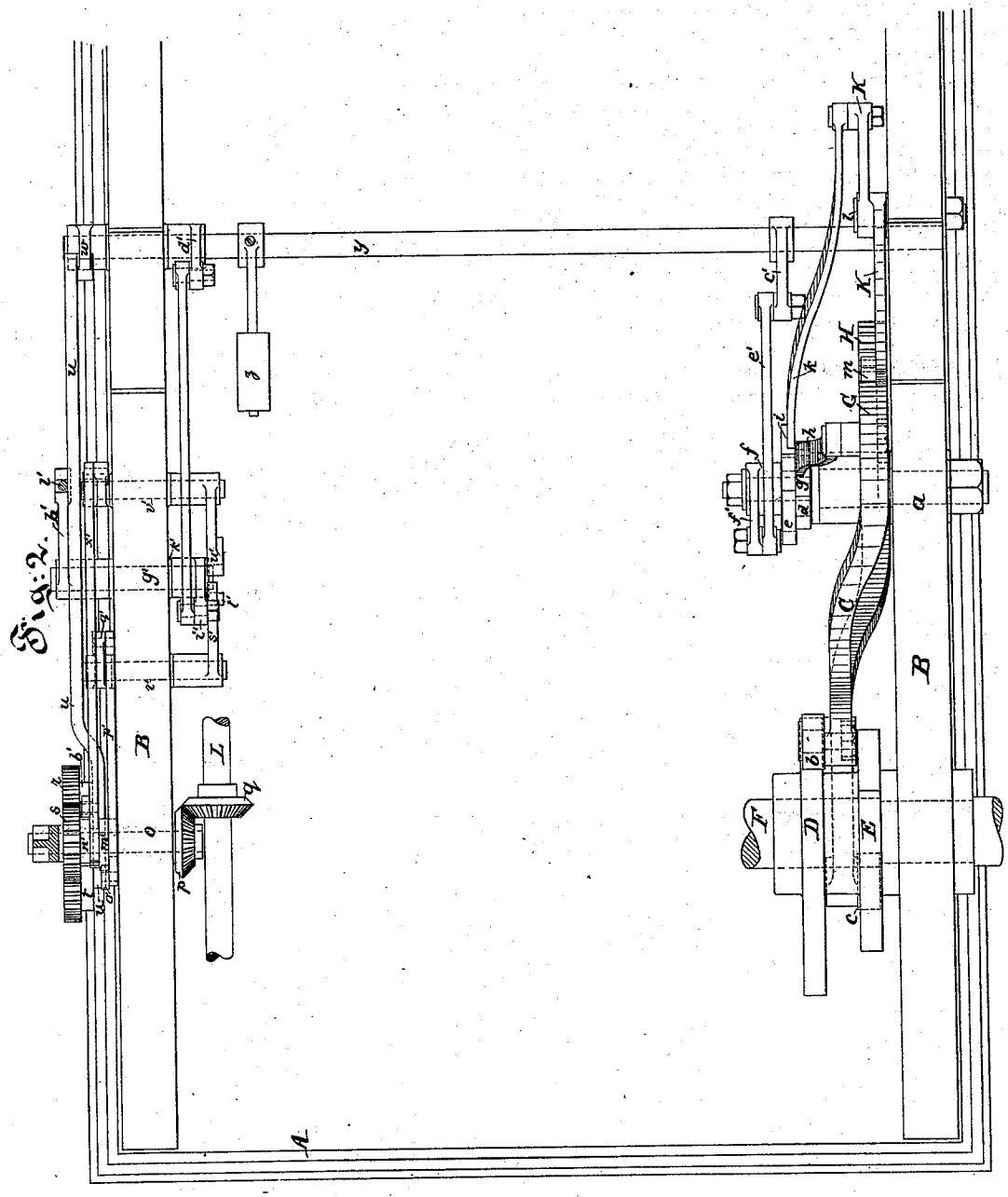
N. PETERS, Photo-Lithographer, Washington, D. C.

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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 293,678, dated February 19, 1884.

Application filed April 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT, a subject of the Queen of Great Britain, residing at Plainfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Printing-Presses, of which the following is a specification.

My invention relates to that class of devices which are used to control the action of the impression-cylinder of stop-cylinder presses; and the object of my invention is to provide a mechanism for stopping the impression-cylinder, for starting it at the proper time to cause it to register with the rack on the bed, and for holding it stationary when it becomes necessary to pass the form beneath the inking-rollers more than once for each impression taken. This object I accomplish by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a portion of a press with my invention applied thereto. Fig. 2 is a plan view of the same; and Fig. 3 is a view, on an enlarged scale, of certain details of construction.

Like letters refer to like parts in the several views.

It will be understood that the form-bed is driven in the ordinary manner by a toothed wheel, which engages with a rack on the base of the press, and also with a rack on the under side of the form-bed, motion being imparted to the toothed wheel by a rod, one end of which is secured to the main crank, while the other end is connected to the axle of the toothed wheel. It will also be understood that the impression-cylinder is driven by a rack on one side of the form-bed, which meshes with a gear-wheel secured to the end of the cylinder, and that in order to prevent any retrograde movement of the cylinder when the bed is traveling backward the teeth of the gear-wheel by which it is driven are cut away, so that the rack on the bed moves under the gear-wheel without turning it, thus leaving the cylinder stationary.

A is the base of the press, and B B are the side frames. A three-armed lever, C, is studded to the side frame of the press at *a*. Two of the arms of this lever C carry friction-rollers, as *b* and *c*, which bear upon the cams D and E, mounted on the crank-shaft F, so that as the shaft F is revolved a rocking motion is imparted to the lever C. The third arm, G, of the lever C projects upward toward the impression-cylinder I, and is provided with a groove, in which there is fitted a toothed bar, H, arranged to slide up and down in said groove, and adapted to engage with a toothed segment, S, bolted to the end of the impression-cylinder I. The cams D and E are so adjusted and are so shaped that just as the bed and cylinder are completing their forward movement they act upon the lever C so as to bring the teeth of the bar H into engagement with the segment S and stop the cylinder at the proper time. The continued rotation of the cams causes the lever to be held stationary until the bed is again about to start on its forward travel, when the cams act upon the lever, so that it starts the cylinder and throws it into accurate gear with the rack on the bed.

The above is the ordinary operation of the press when a sheet is being printed for each revolution of the crank; but when it is necessary to double-roll the form—that is, to pass it beneath the inking-rolls twice for each impression taken—I employ the following-described mechanism: Two eccentrics, *d* and *e*, are made integral with or mounted on a sleeve, *f*, carried by the stud which supports the lever C. In a socket, *g*, which forms part of the strap of the eccentric *d*, there is secured the lower end of a rod, *h*, the upper end of which is studded to the sliding bar H, so that the rocking of the eccentric *d* will raise and lower the said sliding bar. In a second socket, *i*, forming part of the strap of the eccentric *e*, there is secured the lower end of a rod, *k*, the upper end of which is pivoted to the lower arm of a catch-lever, K, said lever being pivoted to the frame B at *l*. The upper end of the lever K is provided with a projection, *m*, which is arranged to enter a slot, *n*, formed in a block bolted to the end of the cylinder I, the object being to hold the cylinder stationary at such times as the form is being passed beneath the inking-rollers more than once for each impression taken. Upon a short shaft, *o*, there is secured a beveled gear, *p*, which meshes with a similar beveled gear, *q*, mounted on the longitudinal shaft L, said shaft be-

ing arranged to revolve once for every revolution of the crank-shaft F. A gear, *r*, is studded to the frame of the press in such position as to engage with a gear, *s*, one-half the diameter of *r*, said gear *s* being carried by the shaft *o*. A cam, *t*, which is arranged so as to be secured to the gear *r* by a set screw or bolt, is loosely mounted on the stud *a'*, which carries the gear *r*. A connecting-rod, *u*, one end of which is forked to straddle the stud *a'*, reaches and is secured to an arm, *w*, of a rock-shaft, *y*, which reaches across the press and carries two other arms, *c'* and *d'*. A friction-roller, *b'*, which is carried by the rod *u*, runs in contact with the cam *t*, so that when the cam is secured to the gear *r* a rocking motion will be imparted to the shaft *y*. The arm *c'* of the rock-shaft *y* is connected by a rod, *e'*, to an arm, *f'*, which projects from the sleeve *f*, and as the shaft *y* is thrown over from the lever C by the action of the cam *t* this arm *f'* will be carried up and the eccentrics *d* and *e* partially rotated. The partial rotation of the eccentric *d* lowers the rod *h*, thereby withdrawing the teeth of the sliding bar H from engagement with the teeth of the segment S; but before the teeth of the bar H are entirely withdrawn from the teeth of the segment S, the eccentric *e* will have acted, through its connecting-rod *k*, so as to lower the free end of the catch-lever K and bring its projection *m* into engagement with the slot *n*.

Such being the operation of the parts, it will be seen that at each second revolution of the crank-shaft the sliding bar H will be out of engagement with the segment S, and the impression-cylinder will be held firmly in position by the catch-lever K while the form-bed is passing beneath the inking-rollers. When it is desired to reciprocate the form more than twice for each revolution of the cylinder, or at the will of the operator, the following mechanism is employed: A short rock-shaft, *g'*, carrying two arms, *h'* and *i'*, is journaled in the frame of the press at *k'*. The arm *h'* passes beneath the foot-treadle *l'*, and the arm *i'* is connected to the arm *d'* of the rock-shaft *y*, so that when the foot-treadle is depressed the rock-shaft *y* will be thrown over and the sleeve *f* partially rotated, and with it the eccentrics *d* and *e*, so that the sliding bar H will be lowered and the catch-lever K brought into engagement with the slot *n*; but to prevent the depression of the arm *h'* except at proper times, and to hold the parts in position until it is time to release them, I employ the following mechanism:

On the shaft *o* there are mounted two cams, *m'* and *n'*, the cam *m'* being arranged to bear against the friction-roller *o'*, carried on the end of the connecting-rod *p'*, said rod being slotted, so as to embrace the shaft *o*. The other end of the rod *p'* is pivoted to the arm *q'* of the rock-shaft *r'*, which carries a second arm, *s'*, formed in the shape of a hook, and arranged to engage with a catch, *t'*, on the arm *i'* of the rock-shaft *g'*. The cam *m'* is timed so as to actuate the rod *p'* just prior to the commencement of the retrograde movement of the bed. The hook *s'* is then drawn up and the treadle can be depressed, which movement would throw the arm *i'* over and rock the shaft *y*, thereby withdrawing the bar H from engagement with the segment S, and bringing the projection *m* on the catch-lever K into the slot *n*, in which position the parts can be held as long as is necessary. As the arm *i'* is thrown over by the rotation of the shaft *g'*, its catch *t'* is caught by the hook *u'*, formed in one of the arms of a rock-shaft, *v'*, the other arm of the rock-shaft *v'* being connected by the rod *x'* to the cam *n'* on the shaft *o*, which cam is so timed as to actuate the rod *x'*, and thereby raise the hook *u'* just prior to the starting of the bed on its forward travel, when, if the treadle is released, the parts are returned to their normal position by the action of a spring, or of a weight, *z*, as shown in the drawings, it being understood the weight *z* could be attached to the arm of the sleeve *f* or any other appropriate place.

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

1. The combination, with the impression-cylinder having a toothed segment, of a three-armed lever provided with a toothed sliding bar, and mechanism for operating said lever, all substantially as described.

2. The combination, with the impression-cylinder having a toothed segment, of the three-armed lever C, provided with a toothed sliding bar, H, and cams D and E, for actuating said lever, substantially as described.

3. The combination, with the impression-cylinder, of a lever, as C, provided with a bar, as H, an eccentric-strap having a socket, as *g*, eccentric, as *d*, and its actuating mechanism, substantially as described.

4. The combination, with the impression-cylinder, of a lever, as C, provided with a bar, as H, eccentric, as *d*, and its operating mechanism, an eccentric, as *e*, a catch-lever, as K, and actuating-cams, as D and E, substantially as described.

5. The combination, with the impression-cylinder, of a lever, as C, bar, as H, and its actuating mechanism, a lever, as K, and its actuating mechanism, and a mechanism, substantially as described, for operating the parts at every second revolution of the crank-shaft.

6. The combination, with the impression-cylinder, of a lever, as C, bar, as H, and its actuating mechanism, a lever, as K, and its actuating mechanism, and a mechanism, substantially as described, for operating the parts so that the form-bed can travel beneath the inking-rolls any number of times for each impression taken, substantially as described.

7. The combination, with the impression-cylinder, of a lever, as C, bar, as H, and its actuating mechanism, a lever, as K, and its actuating mechanism, a mechanism, substan-

tially as described, for operating the parts so that the form-bed can be reciprocated any number of times for each impression taken, and a mechanism, substantially as described, for preventing the tripping of the parts except at proper times, substantially as described.

8. The combination, with the impression-cylinder, of a lever, as C, bar, as H, and lever, as K, and their actuating mechanisms, substantially as described, of a mechanism, substantially as described, for operating the parts so that the form-bed can be reciprocated any number of times for each impression taken, and a mechanism, substantially as described, for preventing the return of the parts except at proper times, substantially as described.

WALTER SCOTT.

Witnesses:
EDWIN L. KERR,
EDWARD KENT.