

(No Model.)

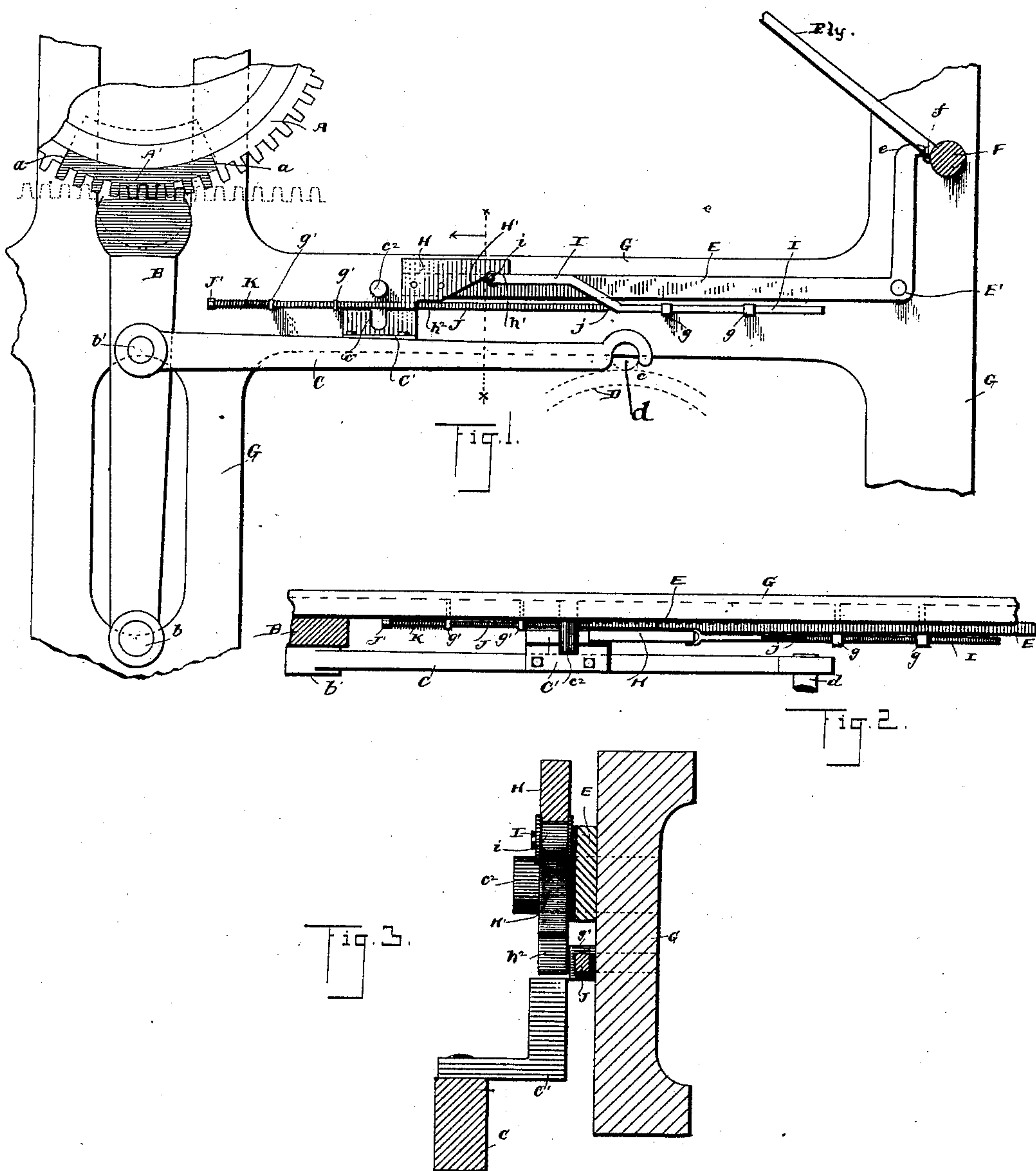
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FLY HOLDING DEVICE FOR STOP CYLINDER PRINTING MACHINES.

No. 359,074.

Patented Mar. 8, 1887.



WITNESSES

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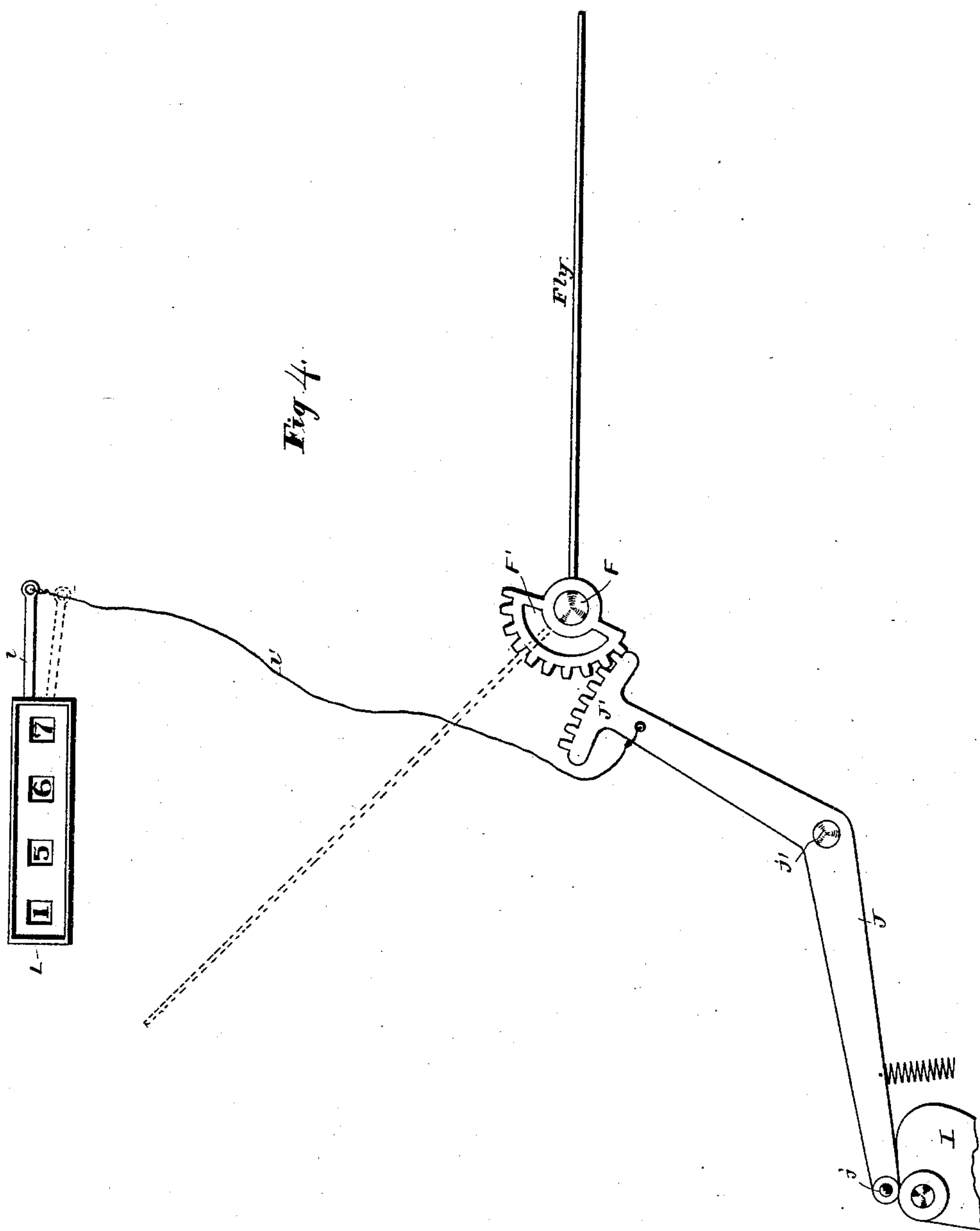
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UNITED STATES PATENT OFFICE.

DENIS J. HALLARAN, OF CLEVELAND, OHIO.

FLY-HOLDING DEVICE FOR STOP-CYLINDER PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 359,074, dated March 8, 1887.

Application filed June 1, 1886. Serial No. 203,779. (No model.)

To all whom it may concern:

Be it known that I, DENIS J. HALLARAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Fly-Holding Devices for Stop-Cylinder Printing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improved throw-off for the fly of printing-presses, more especially that class of presses that is used in making lithographs, in which is provided a throw-off for the fly, that is operated automatically from the throw-off of the impression-cylinder, to the end that the fly is rendered inoperative except when an impression is taken, and consequently the registering device, that is operated by the movement of the fly, only records the impressions actually taken.

A further object is to arrange the throw-off for the fly so that it can be attached to a class of presses now in use with little trouble and expense, and without materially changing the press.

A large number of presses are now in use in which the fly is depressed by the action of a spring and is elevated by a cam, the latter being timed to the reciprocation of the bed with a registering device connected with and operated by the fly. These presses have treadles for disconnecting the mechanism so as to stop the impression-cylinder, and usually have a combination of mechanism whereby the cylinder is made to operate only with alternate movements of the bed, in which cases the register records the movements of the fly instead of the number of impressions taken. Lithographs are usually made in large numbers to fill orders, and the register is relied on to do the counting. It frequently occurs that the lithographs, when ready for delivery, fall short fifty or a hundred, or even more, if the order was large, owing to the fact that the operator, through carelessness or other cause, did not always get the blank in position for taking the impression, but, instead, used the cylinder throw-off, and the fly continuing to act, all of the movements of the fly were recorded. Such mistakes in the count, quite likely, are not

discovered until after the press has been changed for other work. I have therefore devised a throw-off for the fly that can be readily attached to the presses now in use, by means of which, while the impression-cylinder remains idle, the fly is held suspended and inoperative, and consequently only the impressions actually taken are recorded.

In carrying out my invention, none of the mechanism of the press is changed, but only new members added. As these presses are well known and in common use, it is considered necessary to show only so much thereof as is directly connected with my improvements.

In the accompanying drawings, Figure 1 is a side elevation of the inside of the rear side frame of the press with my improvements attached, showing, also, adjacent portions of the press and mechanism with which my device is connected or co-operates. Fig. 2 is a plan view. Fig. 3 is an enlarged elevation in transverse section on the line *x x*, Fig. 1. Fig. 4 is a side elevation showing the mechanism for operating the fly and register.

The press, as heretofore used, has a reciprocating bed and an impression-cylinder. (Not shown.) The bed has a rack on the side, a portion of which is shown in dotted lines, that engages the gear *A*, the latter being mounted on the trunnion of the impression-cylinder. On the one side of the gear—for instance, from *a* to *a'*—the teeth are omitted, by reason of which, when this side of the gear is turned down, the rack of the bed passes without contact with the gear. A block, *A'*, (shown in dotted lines,) is attached to the outside of the gear, and so as not to engage the rack of the bed. The block has teeth that correspond with those of the gear.

An oscillating lever, *B*, known as the "fork," is fulcrumed at *b*, and has teeth on the upper end that engage the teeth of the block *A'*.

C is a link pivoted at *b'* to the lever *B*. The link has a notch, *c*, that engages a stud, *d*, of the intermittently-reciprocating block *D*, only a portion of the latter being shown.

The link *C* has an angle-plate, *C'*, secured on top, as shown more clearly in Fig. 3. The upper leg of the plate has a notch, *c'*, that embraces the pin *e* when the link is raised, the

pin being rigidly secured to the frame G; consequently the link C can only be raised when the notch c' is under the pin c^2 , and when so raised the pin holds the link from moving end-
 5 wise. The block D is actuated by a cam (not shown) and is caused to move the lever B by means of the connecting-link C at the proper time, first, to turn the gear A, so that the latter will engage the rack of the bed, and, second,
 10 to reverse the lever B in time for the teeth thereof to engage the teeth of the block A' at the end of a revolution of the impression-cylinder. The fly is mounted on the rock-shaft F, the latter being shown in section in Fig. 1.
 15 The fly is turned down by the action of a spring, and is elevated by a cam, I, that is mounted on the same shaft with the cam that operates the block D. The register is connected with the fly, or with some of the con-
 20 necting mechanism that operates the fly, and consequently registers when the fly is turned down.

The usual arrangement of mechanism for operating the fly and register is shown in Fig.
 25 4. The cam I engages a roller, j , the latter being mounted on a rock-arm, J, the rock-arm being pivoted at j' and having on the other end a toothed sector, J'. This latter engages a mutilated pinion, F', the latter being mounted
 30 on the shaft F of the fly. The register L has a lever, l , for operating the same, the latter being connected by a cord or strap, l' , with the lever J, for instance, as shown, the cord or
 35 or strap having sufficient slack to limit the movement of the register-lever, as required, and the lever l being depressed by the cord and elevated by a spring. (Not shown.) The
 40 mechanism for operating the fly of such presses varies somewhat, and sometimes the lever of the register is connected with an arm that is attached to the shaft F. A treadle and connect-
 45 ing mechanism (not shown) are arranged, by means of which the operator can elevate the free end of the link C and disengage the same from the stud d , thus forming a throw-off for the impression-cylinder.

The parts thus far described are, as afore-
 said, well-known and in common use, and will be readily understood by persons familiar
 50 either with building or operating this class of presses. Also, various United States patents have been granted covering different parts of the mechanism, in which patents the press has been fully illustrated and described.

55 My improvement is as follows: A bell-crank lever, E, is pivoted at E' to the frame G of the press. The short upright arm of the lever has a hook end, e , for engaging a laterally-pro-
 60 jecting pin or lug, f , that I secure to the shaft F, usually by drilling a hole into the shaft and driving in a steel plug, the projecting end of which is shown. The long arm of the lever E extends along the side frame, G, just at the
 rear of and slightly above the line of the link
 65 C when the latter is in its normal position engaging the stud d . The lever E has a block,

H, attached that serves as a weight. The block H extends over the plate C', by means of which, when the link is raised, the lever E is tilted and hook e is made to engage the lug
 70 f to hold the fly from turning down. Whenever, therefore, the link C is raised to stop the impression-cylinder, the fly remains stationary in its elevated position, and consequently the
 75 registering device does not act. To time the fly to the movements of the impression-cylinder after the levers have been stopped, I have arranged the following: An under-cut incline, H', is made on the edge of the block H, facing
 80 the fly, with horizontal faces h' and h^2 at either end of the incline. A sliding block, I, operating in ways g , the latter being secured to the frame G, has at the inner end thereof a small
 85 pulley, i , that, when the lever is in its normal or depressed position, fits under the face h' and holds the block H slightly separated from the plate C'. A rod, J, is connected at j with the
 rod I. The rod J slides in ways g' , connected with the frame G. Between the one of the
 90 ways g' and the head J' of the rod J is mounted on the rod a spiral spring, K, the latter being compressed in the position shown in Fig. 1. The recoil of the spring when the block H is
 95 elevated draws the rods I and J toward the fork B until the roller i is brought under the face h^2 , and thus holds the block H elevated. When the link C is lowered by reason of the
 operator removing his foot from the treadle, the block H cannot descend until the roller i is
 100 moved back into the position shown in Fig. 1, and this movement is accomplished by the lever B striking the head J'. By this means the lever E is allowed to descend at the proper
 time to release the fly just when the cam that
 105 elevates the fly is in position to hold the latter, after which the fly is actuated by the cam and spring in the usual manner.

In attaching my device a hole is drilled in the shaft F for inserting the lugs f ; also, holes are drilled in the frame G for inserting the
 110 ways g and g' and for the pivot of the bell-crank lever E. These are all the changes that are made on the press, and it will there-
 fore be seen that my device can easily be at-
 115 tached to presses now in use, a ratchet, drill, hammer, and wrench being the only tools needed, and an expert workman being able to do the work complete in perhaps an hour's
 time.

What I claim is—

1. The combination, with a printing-press
 120 having a fork for starting the impression-cylinder, a throw-off link for actuating the fork, a rock-shaft for the fly, substantially as heretofore used, of a locking-lever for locking
 125 the fly, the locking-lever being arranged substantially as indicated, whereby the lever is actuated automatically from the impression-cylinder throw-off, substantially as set forth.
2. The combination, with a printing-press
 130 having a fork, link, throw-off, rock-shaft for fly, and lever for locking the fly, said lever

being actuated by the throw-off of the impression-cylinder, of a spring-actuated blocking device, substantially as indicated, for holding the locking-lever elevated, said blocking device being removed from its engagement with the locking-lever by the movement of the fork, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 15th day of May, 1886.

DENIS J. HALLARAN.

Witnesses:

CHAS. H. DORER,
GEO. W. KING.