No. 804,312. PATENTED NOV. 14, 1905.

J. C. HAMMER.

PAPER ELEVATOR.

APPLICATION FILED APR. 27, 1905.

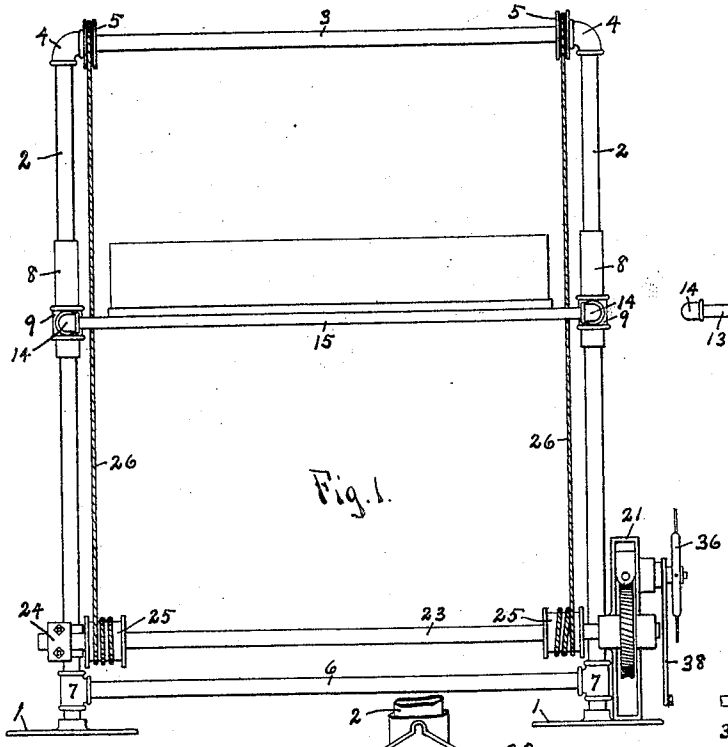


Fig. 1.

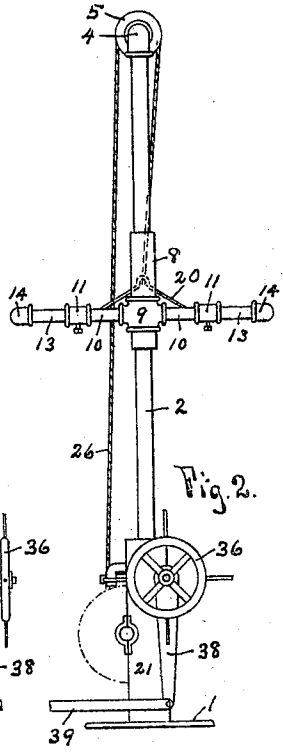


Fig. 2.

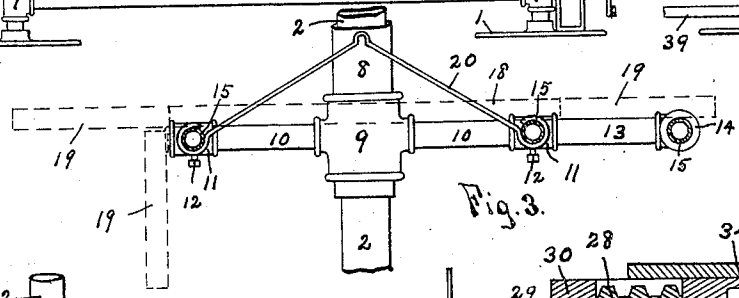


Fig. 3.

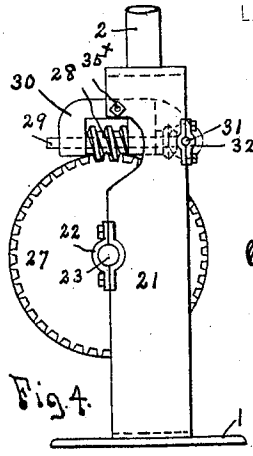


Fig. 4.

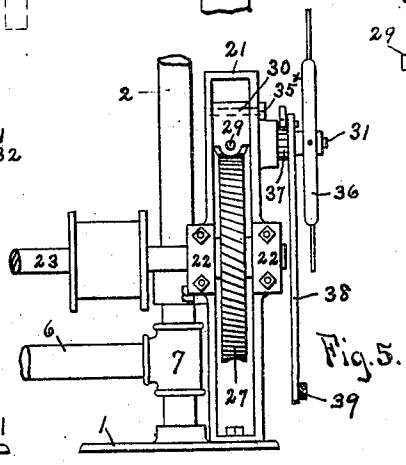


Fig. 5.

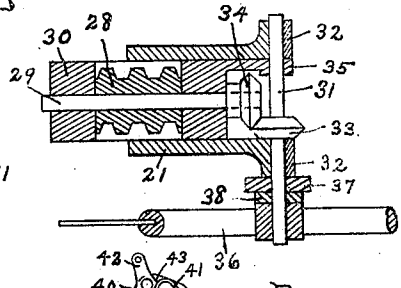


Fig. 6.

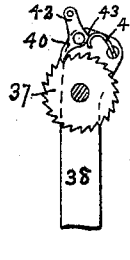


Fig. 7.

Witnesses:

Louis Ott.

Inventor

J. C. Hammer.

By his Attorney

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# UNITED STATES PATENT OFFICE.

JOHN C. HAMMER, OF DETROIT, MICHIGAN.

## PAPER-ELEVATOR.

No. 804,312. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed April 27, 1905. Serial No. 257,590.

*To all whom it may concern:*

Be it known that I, JOHN C. HAMMER, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Paper-Elevator, of which the following is a specification.

This invention relates to elevators for raising sheets of printing-paper to the feed-table of front-delivery and other printing-presses; and the objects of my improvements are to provide an elevator for this purpose that may be easily and quickly raised and lowered, thus avoiding stops of the press, to provide an elevator which will readily hold one day's supply of paper, and to provide an elevator of this kind that may be attached to the operating mechanism of the press, so that it may be operated in connection with the same. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the elevator. Fig. 2 is an end view of the same. Fig. 3 is an enlarged detail of the platform. Fig. 4 is a side view of the operating mechanism. Fig. 5 is an end view of the same. Figs. 6 and 7 are details of the operating mechanism.

Similar reference characters refer to like parts throughout the several views.

The operators of the usual front-delivery printing-presses used in the better class of printing, such as magazine and fine catalogue work, are called upon to carry the paper up a short flight of steps to the feeding-platform. This consumes a number of minutes each time, which loss is repeated many times each day, as the operator cannot carry a heavy load up the steps. In small establishments it does not pay to have a separate helper for this work. The elevator here shown is adapted to be placed adjacent to the feeding end of the press. The paper is placed on the platform at the beginning of each day's run and is raised as desired.

In the drawings, 1 represents two flanges or feet, into which the uprights 2 are secured, preferably by screwing, when the frame is made of tubing. The upper cross-piece 3 is secured to the uprights by means of the elbows 4. On the cross-piece 3 the wheels 5 are journaled. The lower ends of the uprights are connected by the cross-piece 6, which screws into the T's 7.

Slidable on the uprights 2 are the sleeves 8, which connect to the crosses 9. Short lengths of tubing 10 screw into these crosses and into the T's 11. These T's are connected across by tubes 15, and the T's are provided with set-screws 12, which serve to secure the short tubes 13, which are adapted to slip into the T's in place. The tubes 13 screw into elbows 14, which are in turn connected across by the tubes 15. These tubes and connections form a frame to support the platform for the paper, and this frame consists, mainly, of four parallel tubes which extend across the width of the elevator, the two outer tubes being removable to narrow the frame. The platform is built up of the central portion 18 and the two side leaves 19, which are permitted to hang down when one of the cross-tubes 15 and its connections are removed, as shown in Fig. 3.

A rope passes over each of the wheels 5, one end of which is connected to the metal strap 20 on its side of the platform, which strap is connected to the two inner cross-tubes 15, as shown in Fig. 3.

Secured to one of the uprights 2 and to its flange 1 is a gear-case 21, provided with bearings 22 for the shaft 23. The other end of this shaft is journaled in the bearing 24, which is secured to the other upright 2. On this shaft are secured two drums 25, adapted to wind up the ropes 26, and so raise the frame and platform.

On the shaft 23 is secured the worm-wheel 27. This wheel meshes with the worm 28, secured to the shaft 29, which shaft is journaled in the small frame 30. A shaft 31 is journaled in bearings 32 on the other side of the case from the shaft 23. This shaft 31 carries the bevel-gear 33, which meshes with the bevel-gear 34, which is secured to the shaft 29. The frame 30, which carries the shaft 29, is provided with a bearing 35, which is journaled on the shaft 31, so as to hold the frame 30 in position relative to the shaft 31. The other end of the frame 30 is usually held in place by the bolt $35^{\times}$, which passes through the frame 30 and the gear-case; but when it is desired to lower the elevator-platform instead of the slow method of turning back the worm-gear 27 by means of the worm 28, bevel-gears 34 and 33, and the driving mechanism of the shaft 31 the bolt $35^{\times}$ is removed, the frame 30 lifted until the teeth of the worm-wheel 27 no longer mesh with the worm-wheel 28, when the weight of the platform and its frame will cause them to descend. As all parts are made light, no

damage is done by allowing the elevator-platform to run down, particularly when the ropes 26 are of wire.

A wheel 36, having handles or exterior spokes, is secured to the outer end of shaft 31, so the mechanism may be manually operated. On the shaft 31 is secured the ratchet-wheel 37. A lever 38 is pivoted on the shaft 31, and its lower end is connected to the link 39, which connects to the driving mechanism of the press. The pawl 40 is carried by the upper end of the lever 38. This pawl is held in operative position by the spring 41, which presses against the shoulder 43. An arm 42 projects from the upper side of the pawl, to which may be secured a light rod or other desirable connection by means of which the pressman on his platform may throw the pawl into and out of engagement with the ratchet-wheel.

The operation of the elevator is as follows: The platform having been lowered, the desired amount of paper is piled thereon and the platform is raised to the desired position by means of the hand-wheel 36. As the press is started, the load is raised to the proper height and the paper-stock is rolled off onto the feed-board, the platform being raised by means of the lever 38 and the pawl-and-ratchet mechanism. Should the feed be too fast, the pawl is temporarily thrown out.

Having now explained my construction, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In an elevator, the combination of two uprights, sleeves slidable thereon, cross-pieces connected to said sleeves, other connecting cross-pieces extending between the uprights, a cross-bar at the upper ends of the uprights, wheels journaled on said cross-bar, a shaft journaled at the lower portions of the uprights, drums secured on said shaft, ropes extending over the wheels on the cross-bar and connecting to the drums, straps connecting said ropes to the cross-bars carried by said sleeves, a platform carried by said cross-bars, and mechanism for operating said shaft.

2. In an elevator, the combination of uprights, sleeves slidable thereon, a frame extending between said sleeves, said frame comprising parallel tubes and connections for their ends, the outer tubes being removable, a platform carried by said frame, said platform formed of hinged leaves, a cross-bar connecting the upper ends of the uprights, wheels journaled on said cross-bar, a shaft journaled in bearings secured to said uprights, rope-drums secured to said shaft, ropes extending from said drums over said wheels and connecting to said frame carrying the platform, and gears to operate said shaft.

3. In an elevator, the combination of uprights, a platform slidable thereon, a cross-bar connecting the upper ends of the uprights, wheels journaled on said cross-bar, a case secured to the lower end of one upright, a bearing secured to the other upright, a shaft journaled in said case and bearing, a worm-wheel secured to said shaft, a second shaft journaled in said case, a bevel-gear carried thereon, a frame pivoted on said second shaft, a cross-shaft carried thereby, a bevel-gear secured to the cross-shaft and meshing with the bevel-gear on the second shaft, a worm carried by the cross-shaft and adapted to mesh with the worm-gear, said cross-shaft frame adapted to be moved to engage or disengage the worm and wheel, and means to drive said shafts.

4. In an elevator, the combination of uprights, sleeves slidable thereon, a frame connected to said sleeves, a platform resting on said frame, a cross-bar connecting the upper ends of said uprights, wheels journaled on said cross-bar, a case secured to one upright, a bearing secured to the other upright, a shaft journaled in said case and bearing, drums secured to said shaft, ropes extending from said drums over said wheels and connecting to the frame carrying the platform, a gear mounted on said shaft within the case, and mechanism to operate said gear.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN C. HAMMER.

Witnesses:

EDWARD N. PAGELSEN,

RALPH E. PRESTON.