

(No Model.)

G. L. JAEGER.

SHEET DELIVERY APPARATUS.

No. 246,514.

Patented Aug. 30, 1881.

Fig. 1.

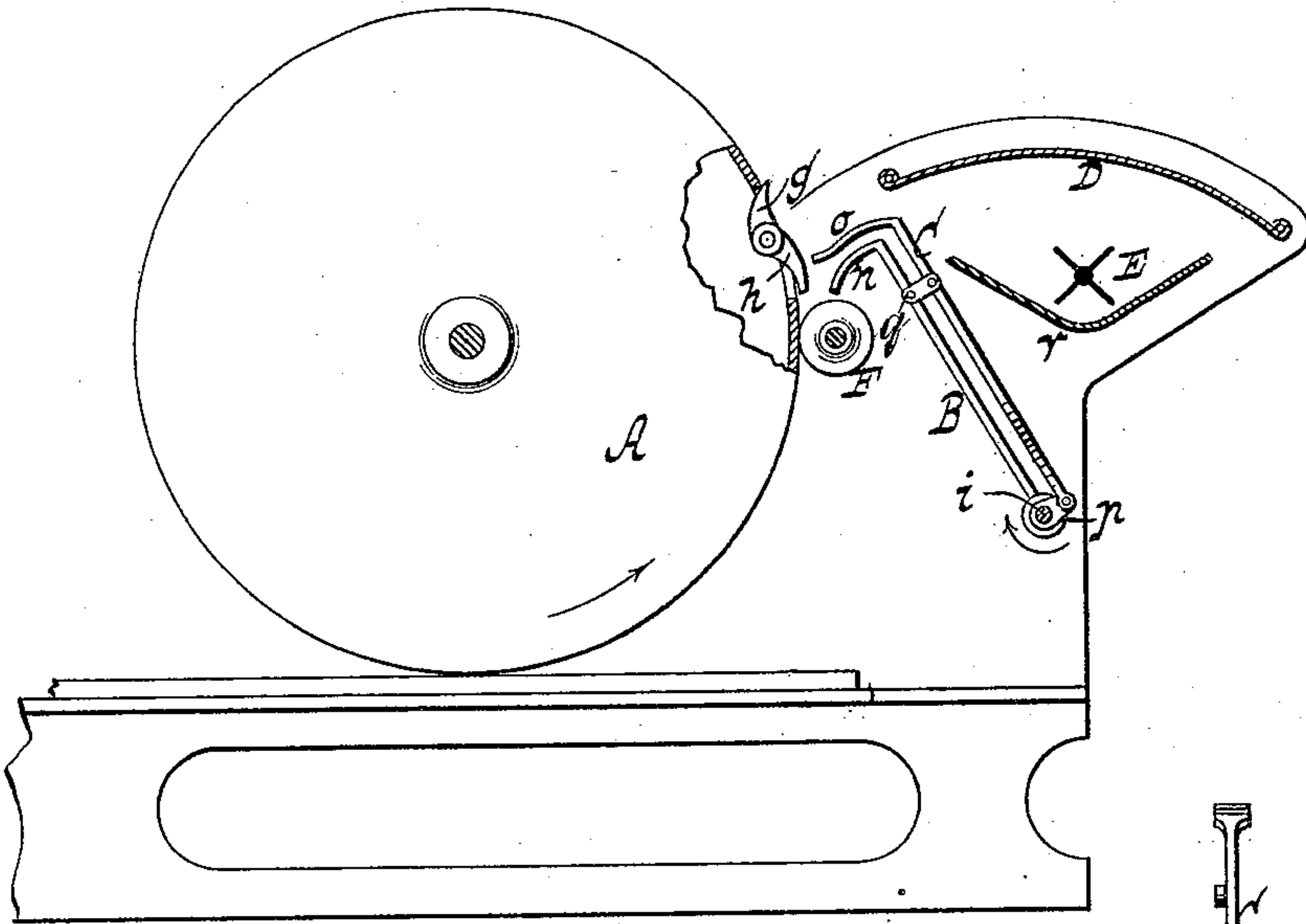


Fig. 2.

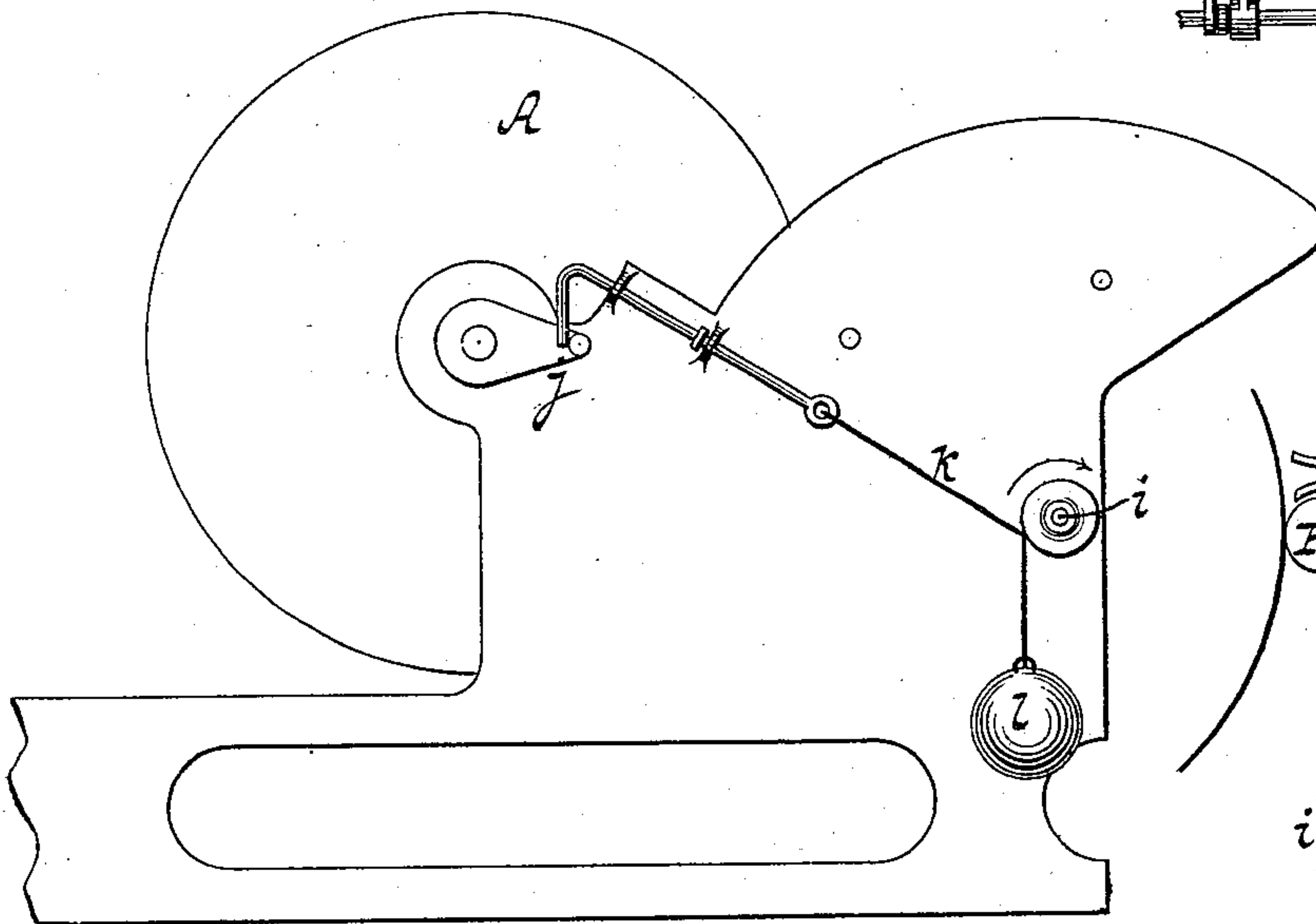


Fig. 3.

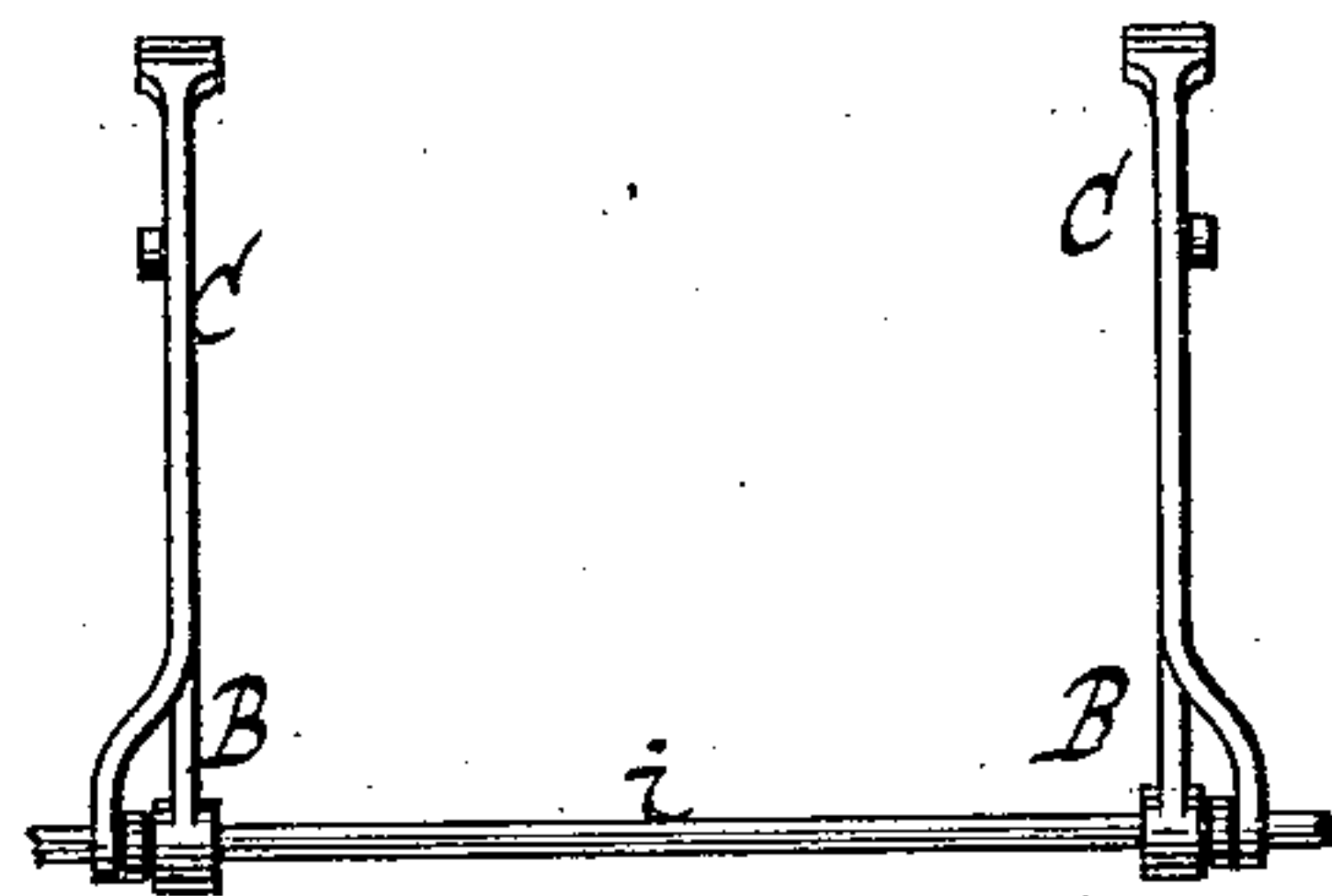
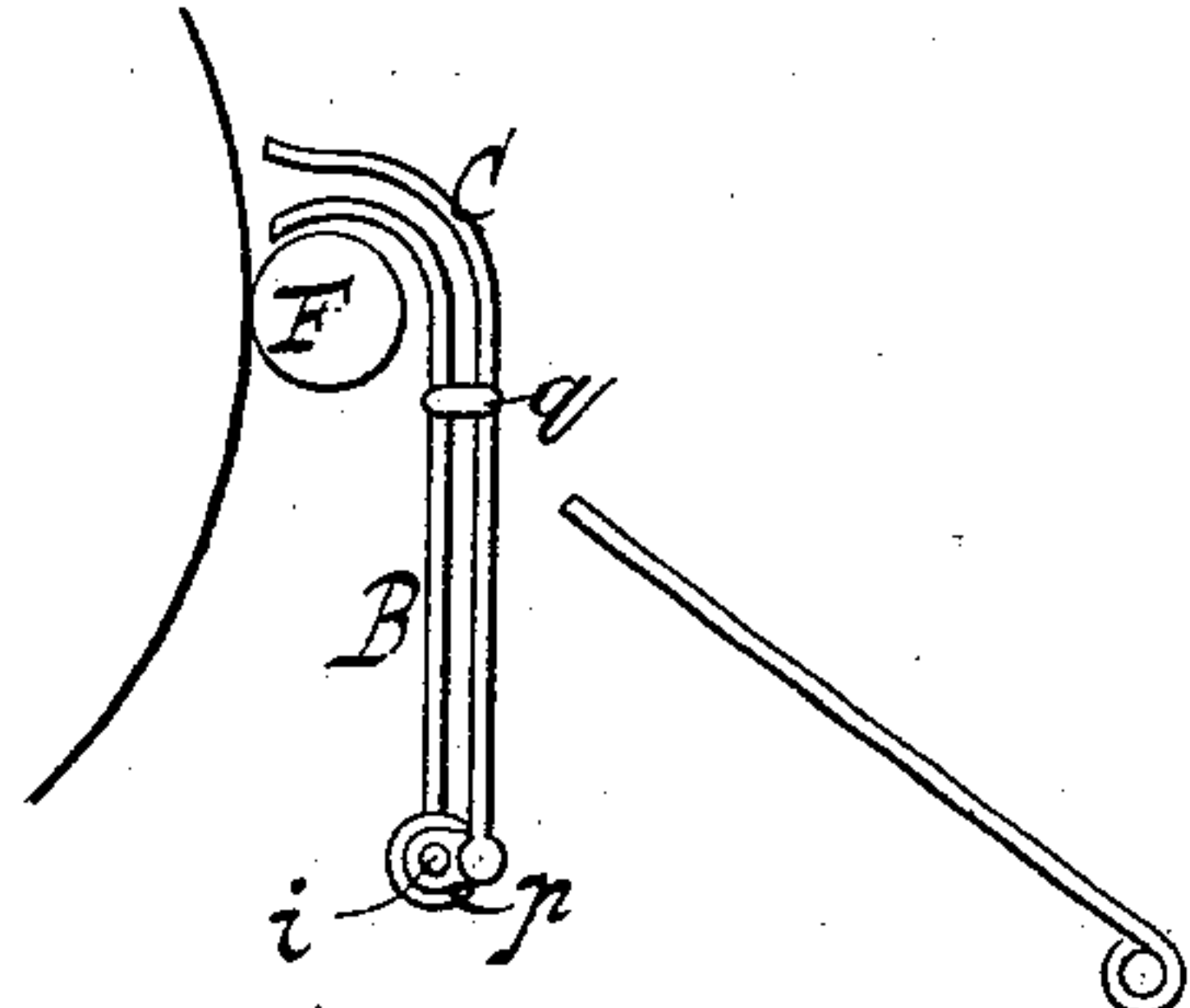


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## SHEET-DELIVERY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 246,514, dated August 30, 1881.

Application filed June 11, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAV L. JAEGER, a citizen of the United States, residing at New York, in the county and State of New York,

5 have invented new and useful Improvements in Sheet-Delivering Apparatus for Printing-Presses, of which the following is a specification.

This invention relates to apparatus for delivering the printed sheets from a printing-press; and it consists in certain novel combinations, hereinafter fully set forth, with the impression-cylinder, of a fly constructed with a griper (one or more) adapted to seize the sheet

15 as it leaves the cylinder and release it at the desired place, the fly having a vibrating motion and the griper closing in the forward or delivery movement and opening in the return movement thereof, a sheet-guard, an air-blast device adapted to force the tail end or portion of the sheet against the guard, and a delivery-roller arranged in superficial contact with the cylinder.

This invention is illustrated in the accompanying drawings, in which Figure 1 represents a vertical longitudinal section. Fig. 2 is a side elevation. Fig. 3 shows the fly detached. Fig. 4 illustrates a modification of the fly.

30 Similar letters indicate corresponding parts.

The letter A designates the impression-cylinder; B, the fly; C, the fly-griper; D, the sheet-guard; E, the air-blast device, and F the delivery-roller.

35 The cylinder A is provided with a griper, *g*, for seizing the sheet to be printed, and also, preferably, with a throwing-off dog, *h*, acting on the leading end of the sheet when it is released by the cylinder-griper. The fly B is

40 hung on a rock-shaft, *i*, to which motion is imparted in one direction by a cam, *j*, which is fixed to the shaft of the impression-cylinder and acts on a cord, *k*, wound on the rock-shaft, and in the other direction by a weight, *l*, at-

45 tached to such cord or by any other suitable mechanism.

At its free end the fly B is bent toward the impression-cylinder, forming a jaw, *n*, and the griper C is provided with a similar jaw, *o*, while

50 the shank of the griper is connected at its lower end to an arm, *p*, fixed to the rock-shaft, and at an intermediate point to the fly by a link,

*q*. When the rock-shaft *i* turns in the direction of the arrow marked opposite to it, the arm *p* acts on the shank of the griper and causes its jaws to close on the jaw of the fly, thus seizing the sheet of paper that may be presented to it, while the fly then moves forward to deliver the sheet, and when the rock-shaft turns in the opposite direction the griper is actuated to bring its jaw away from the jaw of the fly, the latter thereupon performing its return movement. The delivery motion of the fly B is timed to correspond in speed with that of the printed sheet leaving the cylinder A, and the extent of its delivery motion is such that the printed sheet is thereby deposited on the fly-table (not shown) in a reversed condition—namely, face uppermost—while at the end of its return movement the fly is brought to a position for receiving the leading end of the sheet under the jaw *o* of the griper as the sheet leaves the cylinder.

If desired, the griper-jaw *o* may be swiveled and combined with a cam for throwing it out away from the jaw *n* of the fly and allow the unobstructed delivery of the sheet at the selected place. The fly B, moreover, may be arranged to receive a revolving or a reciprocating motion instead of a vibrating motion, and it may also be composed of disks and arranged to release the sheet at a given point beneath the fly-shaft.

I construct the fly B with its griper or grippers of independent sections, as shown in Fig. 3, and make these sections adjustable lengthwise to the shaft *i*, so that the place at which the fly-griper takes hold of the sheet may be varied to avoid contact thereof with a printed portion of the sheet; but it may be constructed in a continuous piece.

The guard D consists of a plate or a series of strips secured to the machine-frame above the path of the fly B, and it is preferably made concentric with the fly-shaft *i*, as shown, and the air-blast device E is arranged opposite to the guard, the same consisting of a revolving fan partially surrounded by a shell, *r*, whereby the air-blast is spread or diffused over the guard. When the tail end or portion of the printed sheet leaves the impression-cylinder it is forced against the guard D by the air-blast, and by this means the sheet is sustained or guided, while the face thereof is kept entirely



free of contact with the fly, which is a desideratum, especially in chromatic printing. The guard D terminates at a suitable point to allow the reversal of the sheet after its tail end has left the guard, and the fan E is located forward of and between the independent sections of the fly; but, if desired, the fan may be arranged in rear of the fly.

The delivery-roller F is composed of the usual disks, (one or more,) arranged in superficial contact with the cylinder A, and it is placed at such a part of the cylinder that the leading end of the sheet is caught by the delivery-roller when it is released by the cylinder-griper g, and is thereby presented to the fly-griper.

The griper-fly C may be arranged, as shown in Fig. 4, to deposit the sheet directly on another fly, which turns the sheet and brings it onto the receiving-table.

When the throwing-off dog is used the jaw of the fly-griper, as well as the throwing-off dog, may be constructed with teeth or fingers, allowing the edge of one to pass within or beyond the edge of the other, and thus insuring the seizure of the printed sheet by the fly-griper.

If desired, the shell r of the fan may be made adjustable, to allow the direction of the air-blast to be varied; or it may be made movable, to cause the air-blast to follow the sheet; and if desired, moreover, a perforated pipe may be substituted for the fan and shell, this pipe being connected to a fan-blower.

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

1. The combination, substantially as hereinbefore set forth, with the impression-cylinder, of the griper-fly, the sheet-guard, and the air-blast device, adapted to force the tail end or portion of the sheet against the guard.

2. The combination, substantially as hereinbefore set forth, with the impression-cylinder, of the delivery-roller, arranged in superficial contact with the cylinder, and the griper-fly co-operating with such roller.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GUSTAV L. JAEGER. [L. S.]

Witnesses:

W. HAUFF,  
CHAS. WAHLERS.