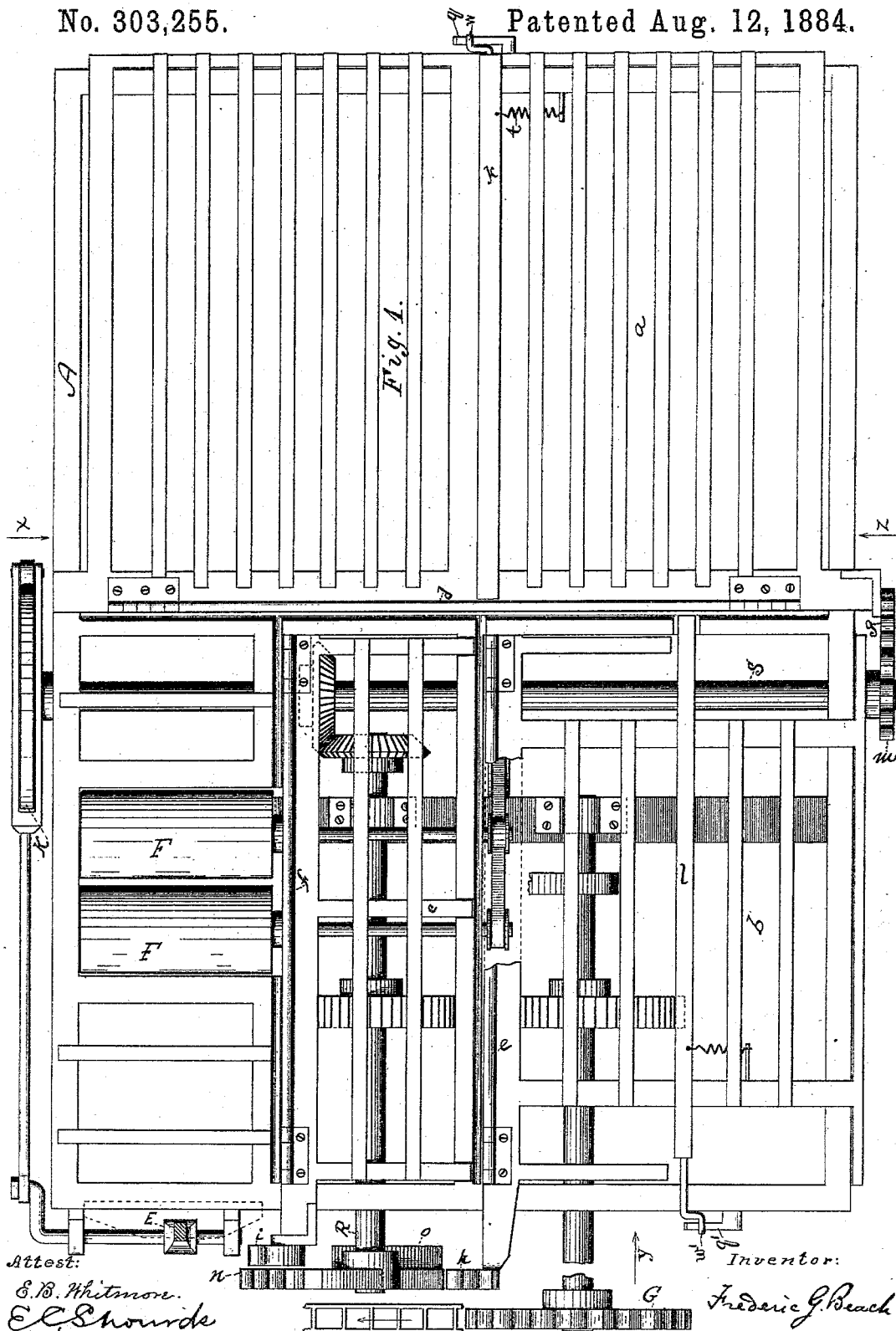


F. G. BEACH.
PAPER FOLDING MACHINE.

No. 303,255.

Patented Aug. 12, 1884.

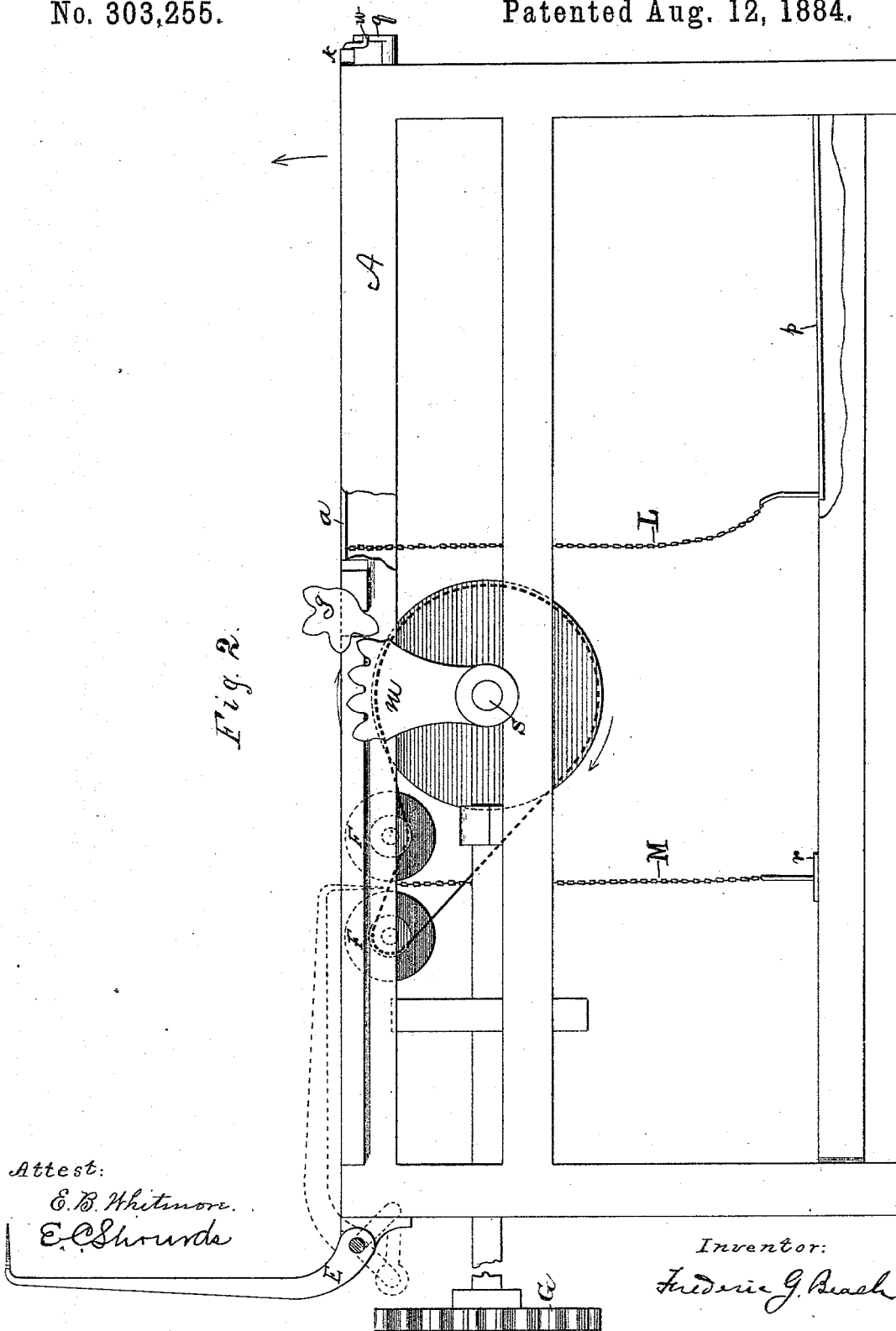


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Fig. 2.



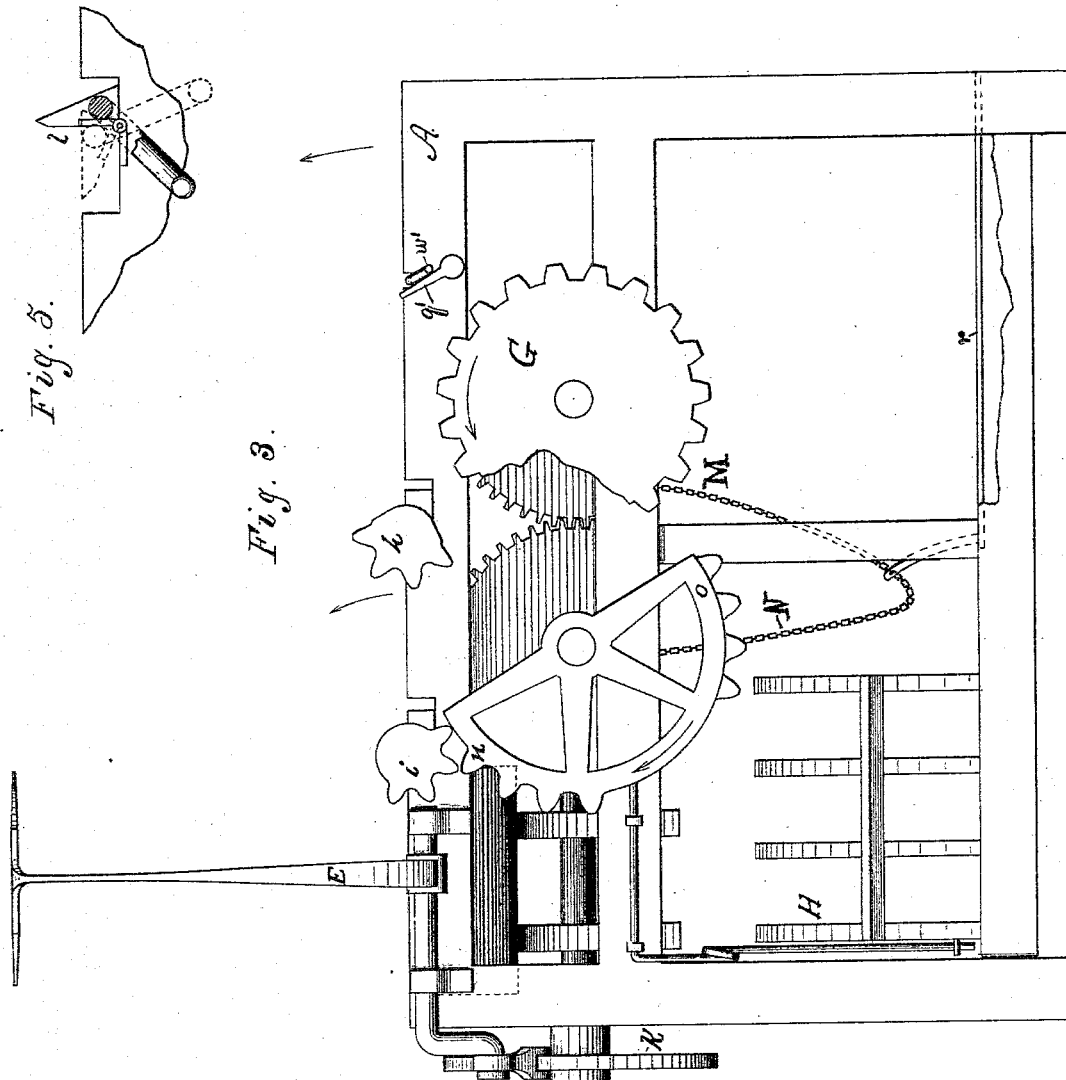
(No Model.)

4 Sheets—Sheet 3.

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Attest:

E. B. Whitmore.

E. C. Shoups.

Inventor:

Frederic G. Beach.

(No Model.)

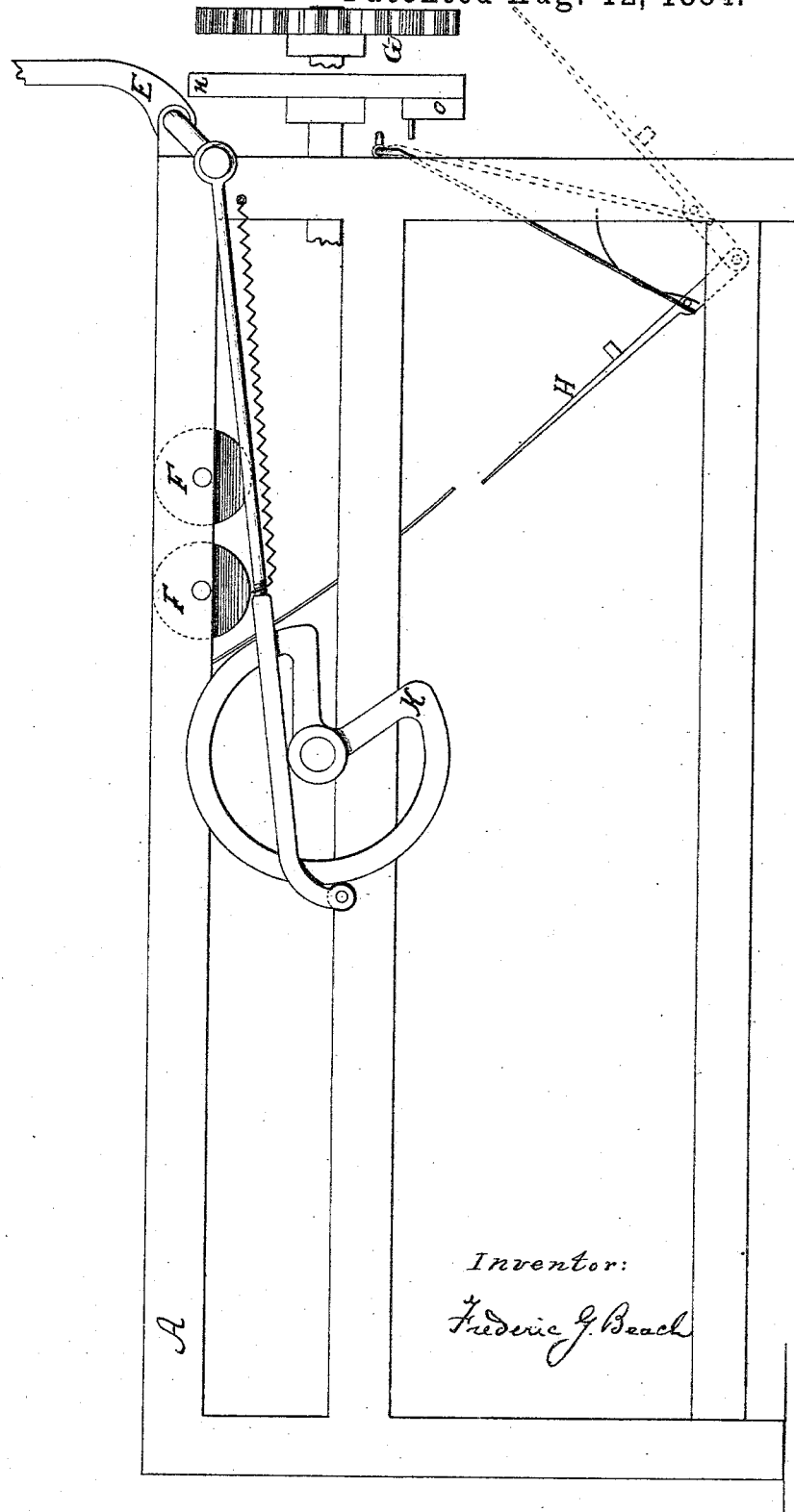
4 Sheets—Sheet 4.

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Fig. 4.



Attest:

E. B. Whitmore.

E. C. Shoups.

Inventor:

Frederic G. Beach

UNITED STATES PATENT OFFICE.

FREDERIC G. BEACH, OF ALBION, NEW YORK.

PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 303,255, dated August 12, 1884.

Application filed October 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC G. BEACH, of Albion, in the county of Orleans and State of New York, have invented a certain new and useful Improvement in Paper-Folding Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1, Sheet 1, is a plan of the paper-folder; Fig. 2, Sheet 2, a side elevation of the same, viewed as indicated by arrow *z* in Fig. 1; Fig. 3, Sheet 3, an end elevation of the same, viewed as indicated by arrow *y* in Fig. 1; Fig. 4, Sheet 4, a side elevation viewed as indicated by arrow *x* in Fig. 1; and Fig. 5, Sheet 3, a detached figure drawn to a larger scale, showing more clearly the operation of some of its parts.

Similar letters of reference indicate corresponding parts.

My improvement relates to that class of paper-folders in which a series of swinging frames are employed for folding the sheets of paper; and my improvement consists in combining with the frames a knife and two cylinders, also automatic knives of peculiar construction combined with the frames, for creasing the sheet preparatory to the operation of folding. The posts and cross-pieces of the table A constitute the frame-work of the paper-folder. When in operation, the folder stands in front of and near the printing-press, from which it receives motion by means of a chain connecting the sprocket-wheel G with a similar wheel attached to the cylinder-shaft of the printing-press. The position of the folder is so adjusted in relation to the press that the press-fly will deposit the sheet accurately upon the folder.

The manner of operation is as follows: The sheet of paper having been deposited upon the folder by the press-fly, the folder-fly *a* is caused to describe a half-revolution by the operation of the segmental gear *m*, which engages with the segmental gear *g*, attached to the folder-fly. The sheet is thus folded once, and the folder-fly is caused to return to the place by the spring *p*. As the folder-fly moves forward, the creasing-blade *k*, which consists of a long prism-shaped knife, is actuated by the spring *t*, so that its sharp edge is adjusted at such an angle that it will form a deep crease in the sheet along the edge of the rod *e* as the folder-fly is brought down upon the

other folder-flies. The folder-fly *a* having been returned to its place, the segmental gear *n* then engages with the segmental gear *h* to operate the folder-fly *b*, another fold being made in the sheet, and the creasing-blade *l* forming the crease for the next fold along the edge of the rod *f*. The fly *b* is returned to its place by the spring *r*, and a second series of teeth on the side of the segmental gear *n* engage with the segmental gear *i* to operate the folder-fly *c* and make the third fold. The fly being returned by the spring *r*, the knife E, which is operated by the cam K, in connection with springs, is caused to fall and forces the sheet between the cylinders F F, which convey it to the discharging-fly H, by which it is thrown into a suitable receptacle. The springs *p* and *r* are connected to the folding-flies by the chains L M N. The creasing-blades are hinged below the surface of the folder-flies. The outside ends of each are provided with a small crank, *w w'*, which rests upon a trip of suitable shape when the fly is at rest to cause the creasing-blades to be so inclined that its sharp edge does not project above the surface to interfere with the proper operation of the preceding fly; but as the fly is moved forward the creasing-blade, being released from the trip, is thrown, by the operation of a spring, into position for forming a crease. In the drawings, *t v* represent the springs, and *q q'* the trips, which govern the position of the creasing-blades. A similar creasing-blade may also be applied to the press-fly, so as to form a crease along the edge of the rod *d* for the first fold. The driving-shaft imparts motion to the shaft R, which is connected to the shaft S by beveled gearing. The cylinders F F are constantly rotated by means of a belt which connects them with a wheel on the shaft S.

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

1. In a paper-folding machine, the combination of a series of folding-flies with a knife and cylinders, substantially as described, and for the purpose specified.

2. In a paper-folding machine, oscillating blades combined with folding-flies, for creasing the sheets preparatory to the operation of folding the same.

FREDERIC G. BEACH.

Witnesses:

E. C. SHOURDS,
EDWIN BRONSON.