

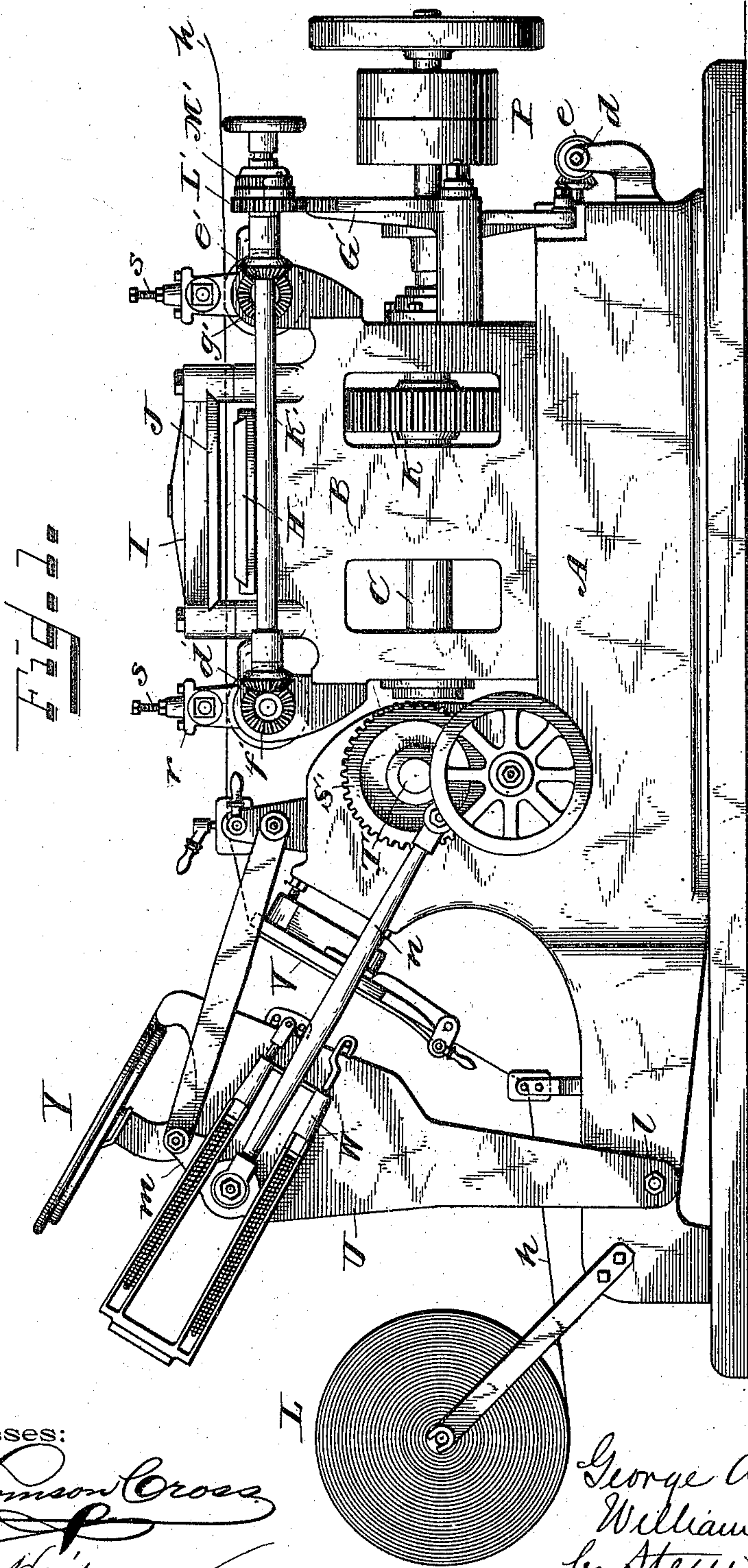
(No Model.)

5 Sheets—Sheet 1.

G. A. HUEWE & W. T. EMMES.
COMBINED PAPER BOX AND PRINTING MACHINE.

No. 575,239.

Patented Jan. 12, 1897.



Witnesses:

Thomson Cross
George Heidman

Inventors

George A Huewe
William T Emmes
by *Steu Allen*
Attorneys.

(No Model.)

5 Sheets—Sheet 2.

G. A. HUEWE & W. T. EMMES.
COMBINED PAPER BOX AND PRINTING MACHINE.

No. 575,239.

Patented Jan. 12, 1897.

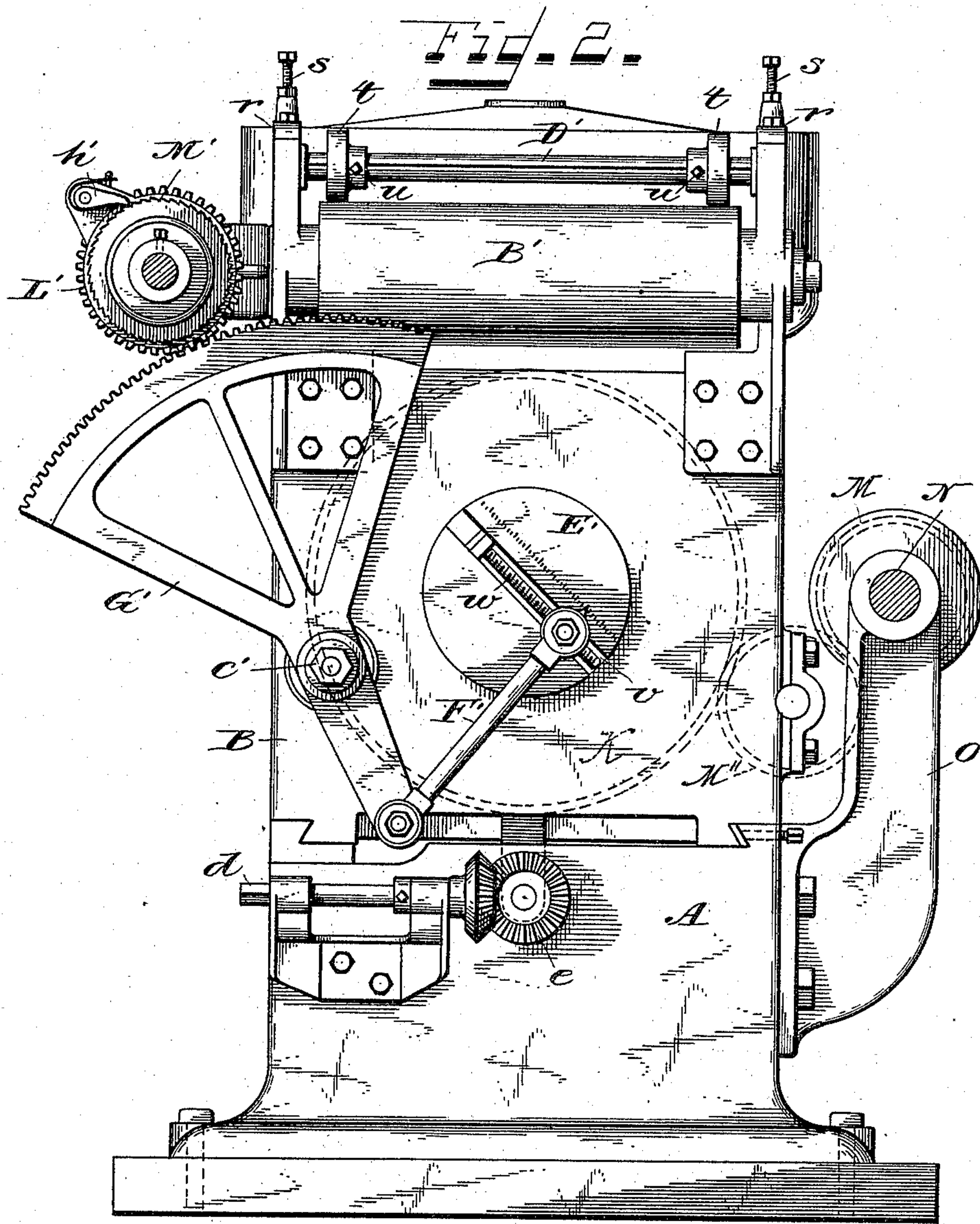
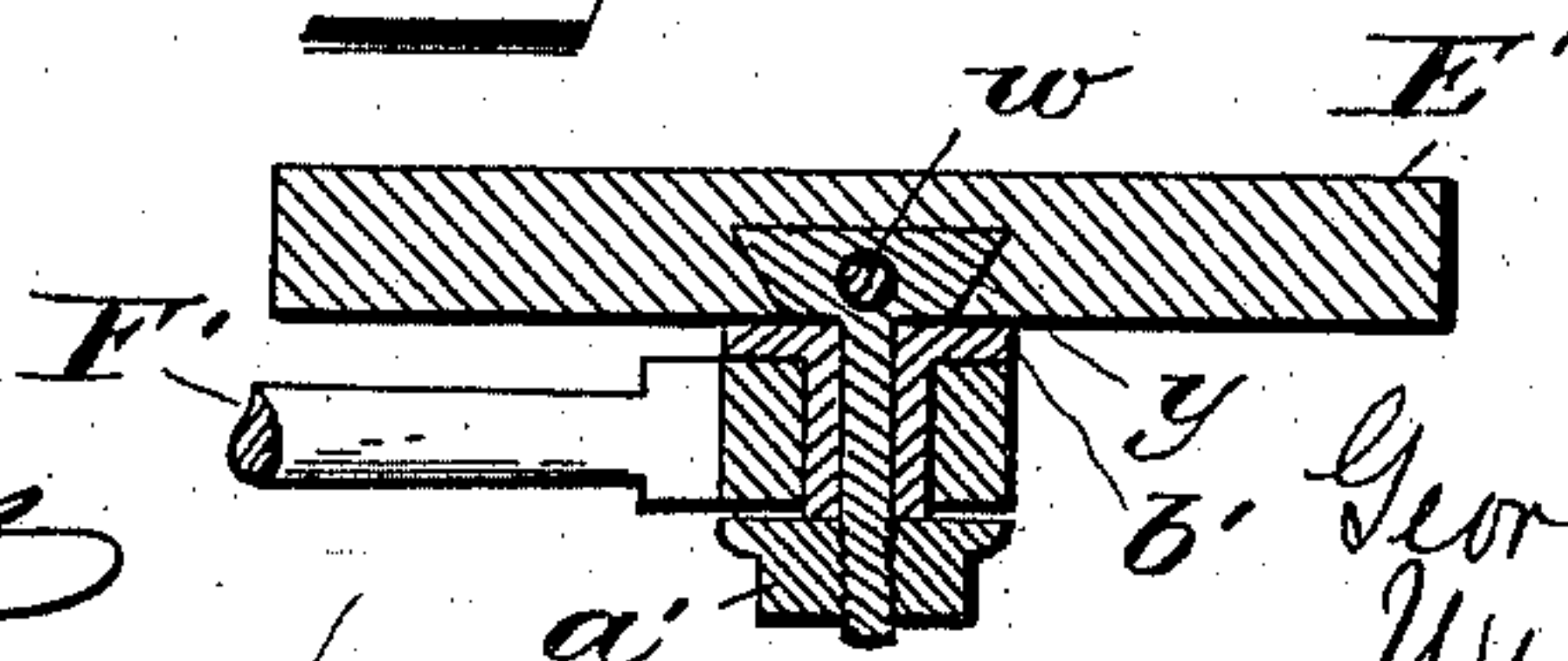


Fig. 5.



Witnesses:

Thomson Cross
George Heidman

Inventors

George A. Huewe
William T. Emmes
by *Stein & Allen*
Attorneys.

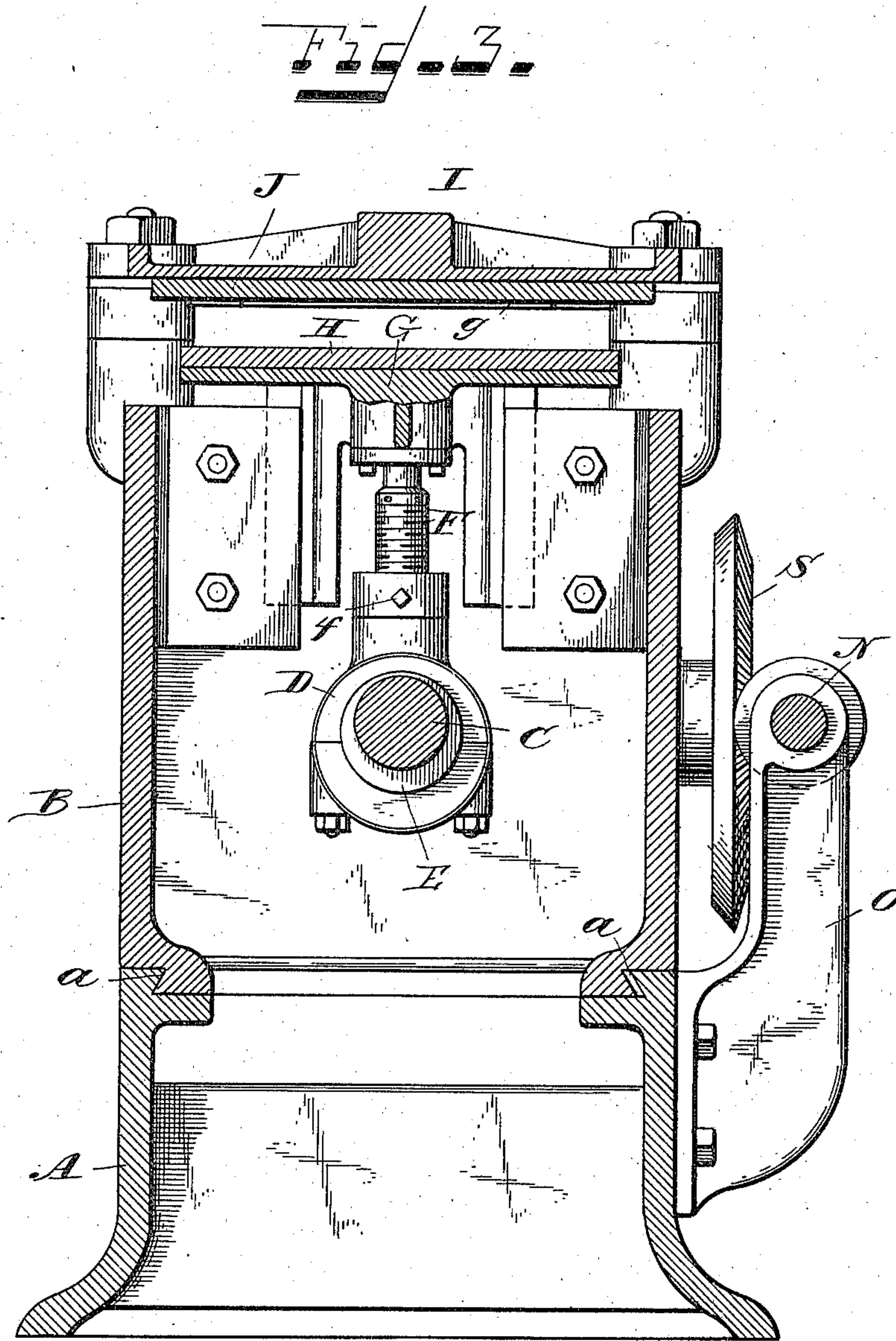
(No Model.)

5 Sheets—Sheet 3.

G. A. HUEWE & W. T. EMMES.
COMBINED PAPER BOX AND PRINTING MACHINE.

No. 575,239.

Patented Jan. 12, 1897.



Witnesses:

Thomson Cross
George Heidman

Inventors

Inventors
George A. Hume
William J. Emmes
by Steve Allen
Attorneys

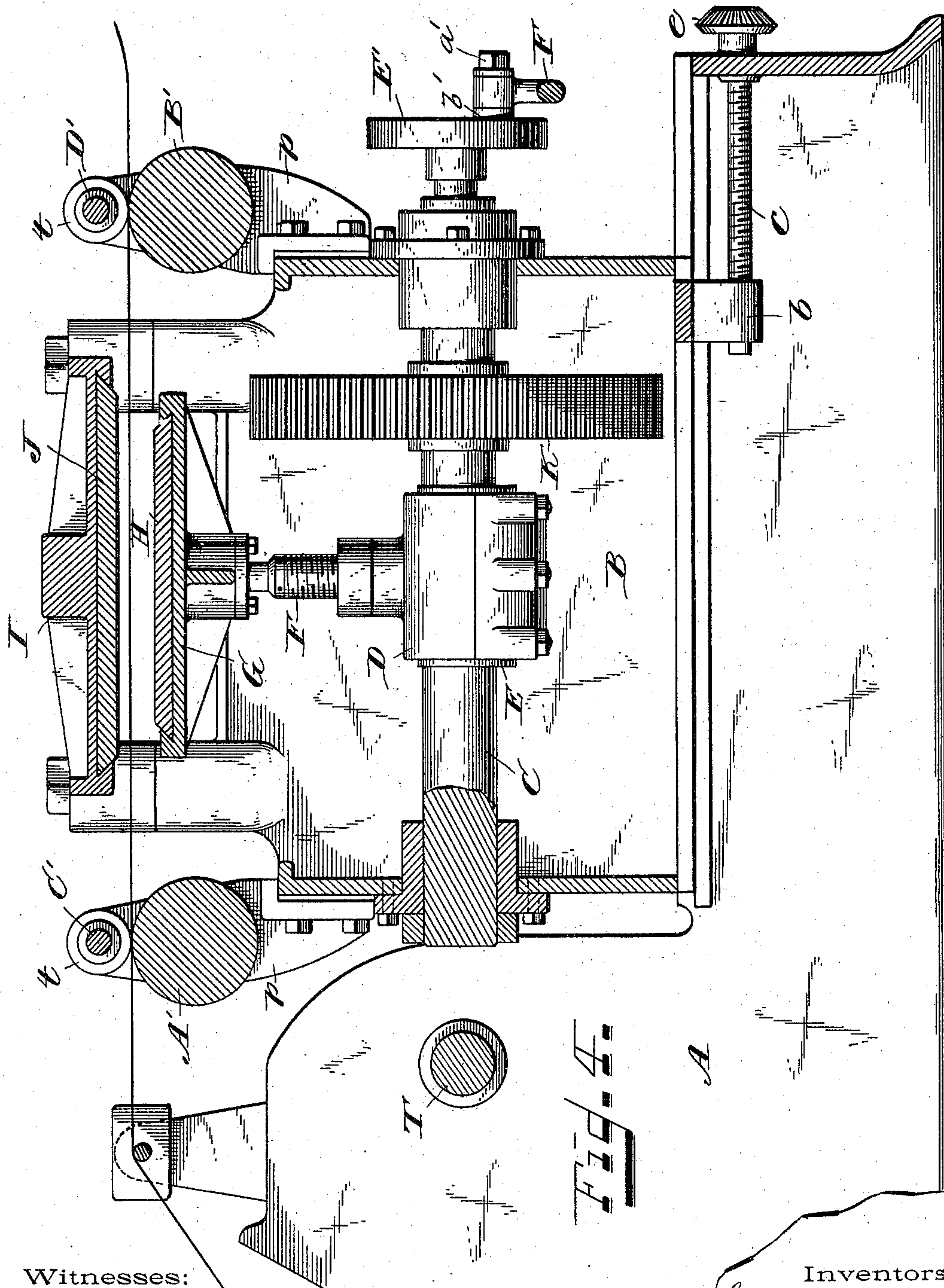
(No Model.)

5 Sheets—Sheet 4.

G. A. HUEWE & W. T. EMMES.
COMBINED PAPER BOX AND PRINTING MACHINE.

No. 575,239.

Patented Jan. 12, 1897.



Witnesses:

J. Thomson Cross
George Keidman

Inventors

George A. Hume
William T. Emmes
by Steve Allen
Attorneys

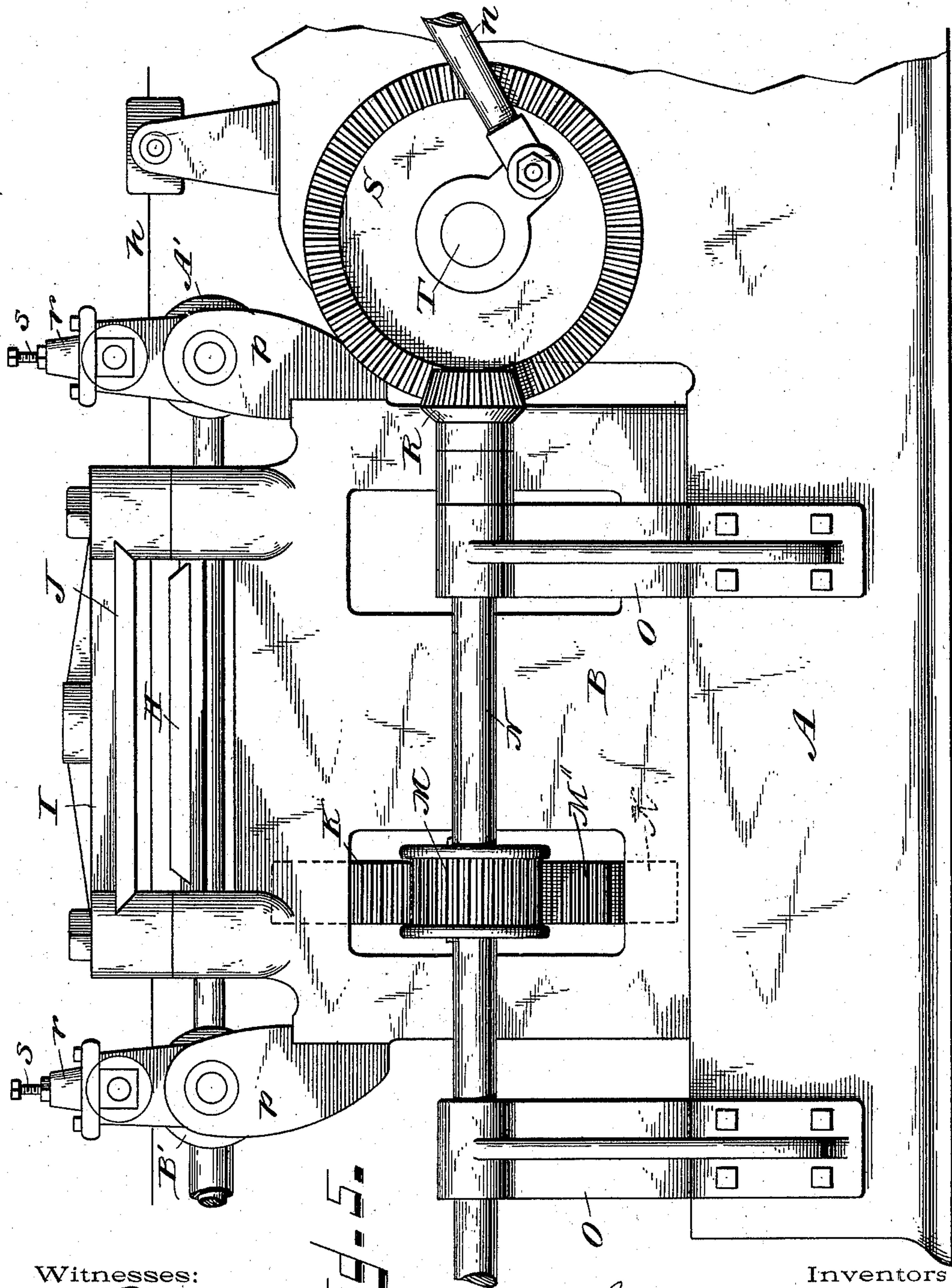
(No Model.)

5 Sheets—Sheet 5.

G. A. HUEWE & W. T. EMMES.
COMBINED PAPER BOX AND PRINTING MACHINE.

No. 575,239.

Patented Jan. 12, 1897.



Witnesses:

Thomson Cross
George Heidman

Inventors

George A. Huewe
William T. Emmes
by *Steu Allen*
Attorneys,

UNITED STATES PATENT OFFICE.

GEORGE A. HUEWE AND WILLIAM T. EMMES, OF CINCINNATI, OHIO, ASSIGNORS TO THE KEYS, LEE & HUEWE COMPANY, OF SAME PLACE.

COMBINED PAPER-BOX AND PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,239, dated January 12, 1897.

Application filed October 24, 1895. Serial No. 566,726. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. HUEWE and WILLIAM T. EMMES, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in a Combined Paper-Box and Printing Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to improvements in machinery for the scoring and cutting of blanks for paper boxes combined with printing machinery for printing addresses, designs, and advertisements on the blanks.

In the manufacture of boxes from paper, cardboard, and the like it is necessary to cut the blanks on certain lines and score them on others to provide edges and folds for the formation of the box. This has usually been accomplished by machines in which the cutting and scoring knives are set up, as in a printer's chase, so as to form a suitable die, cooperating with the platen, for the knives to act against, the blanks being fed to the machine and being cut and scored by the action of the die. It is also usual to print various advertisements, designs, or addresses on these blanks, either before or after they have been cut and scored, but such is the difficulty of obtaining perfect registration of the printing-forms with the cutting-die that it is usual to perform these two operations by means of separate machines.

Our invention has particular relation to the combining in one machine of the printing and cutting and scoring operations; and it consists particularly in the novel construction, combination, arrangement, and adaptation of parts herein described, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of our improved machine. Fig. 2 is a front elevation of same. Fig. 3 is a vertical cross-section of the machine, taken through the cutting and scoring mechanism. Fig. 4 is a vertical longitudinal section of the cutting and scoring portion of the machine. Fig. 5 is a rear side elevation of same, and Fig. 6 is

a detail sectional view of the adjusting device for the feed mechanism.

A is the bed-frame of the machine, of sufficient weight and solidity to sustain the operating parts. Mounted on this bed-frame and adapted to slide in beveled grooves *a a* is the frame B of the cutting and scoring machinery. A stud *b*, Fig. 4, projects downward from this frame B, into which the screw *c*, journaled in the end of the bed-frame A, takes, so that as the screw is turned the frame B and the cutting and scoring machinery may be shifted in its beveled grooves in the bed-frame A, the screw being turned by the crank-shaft *d* and beveled gearing *e*.

Journaled lengthwise in the frame B is the shaft C, carrying an eccentric E. Surrounding this eccentric is the box D, carrying the screw F, adjustable in the box D and held at any desired position by the set-screw *f*. This screw F carries on its upper end the plate G, which is recessed on its upper surface and beveled on two of its sides to receive the platen H. Held rigidly on the standards extending upward from the frame B is a similar plate I, recessed and beveled in the same manner as the plate G. This upper plate I carries the chase J, in which are mounted the cutting and scoring knives *g* in the usual way.

The paper blank *h* is fed from the roll L by devices to be hereinafter more particularly described, between the cutting and scoring die and the platen, and the platen is raised to cut and score the blank by the revolution of the shaft C, the eccentric E acting on the box D to cause this movement.

K is a gear-wheel mounted on the shaft C, which meshes, through an intermediate gear M', with the pinion-gear M, which is keyed on the driving-shaft N, so that it will turn with the shaft but be adjustable along it. This driving-shaft N is journaled in standards O, secured to the bed-frame A and is driven by belt and pulleys P.

The farther end of the shaft N is provided with a beveled gear R, meshing with the gear-wheel S, journaled on shaft T, by means of which the printing-machine is operated.

Any form of printing-press designed to print from a roll of paper may be used, and

the printing-press need not be further described than to say that the chase is clamped to the body U of the press, which body rocks on the pivot *l* at the base of the machine.

5 V is the platen, which is adjustably secured to the body-frame of the machine. The arms W are the roll-carriers, which are connected with the crank *m* and carry the rollers alternately over the printing-form and the revolving disk Y, which distributes the ink. The
10 press-body is rocked and the roller-carriers oscillated by the pitmen *n n*, pivoted to the studs on the gear-wheels S and S'.

A' B' are rollers journaled in standards *pp*,
15 secured to the frame B of the cutting and scoring machine on opposite sides of the dies. Coöperating with these rollers are the shafts C' D', journaled in boxes *rr*, adjustable by the set-screws *ss*. These shafts are provided
20 with roller-disks *tt*, keyed to the shafts C' D' and secured at any desired position on the shafts by the set-screws *uu*. By means of these rollers the paper blank is fed from its roll to be operated upon by the machine.
25 The diameter of the roller B' is a shade greater than that of A', so that although both of these feed-rollers are driven positively, as will be further explained, there is always a tension on the paper.

30 Mounted on the shaft C outside of the frame B is the disk E'. This disk E' is provided with a beveled groove *v*, within which is secured lengthwise the screw *w*, upon which is mounted the block *y*, fitting in the beveled
35 groove *v*, so as to be adjustable to and from the center of the disk. This block *y* carries the collar *b'* and nut *a'*, to which collar the pitman F' is pivoted. This pitman is connected with the sector-gear G', pivoted to
40 the frame B of the machine at *c'*. It will be evident that as the connection of the pitman F' with the disk E' is adjusted to or from the center the throw of the sector-gear will be increased or diminished accordingly.

45 Journaled to suitable bearings on the frame B, in the same plane with and at right angles to the rollers A' and B', is the shaft K', carrying beveled gears *d' e'*, meshing with the gears *f' g'* on the rollers A' B'. Mounted
50 loosely on the shaft K' is the gear-wheel L', which meshes with the sector-gear G'. This gear L' carries the pawl *h'*, which engages with the ratchet-wheel M', keyed to the shaft K'. It is evident from this construction that
55 the shaft K', and with it the feed-rollers A' B', will be rotated a certain distance with each forward movement of the sector-gear G', while during the back movement of the sector-gear the pawl *h'* will slide over its ratchet-wheel M', allowing the shaft K' and the feed-rollers to remain stationary and inactive during the back movement. In this way the
60 paper *h* is fed intermittently from the roll.

The operation of the machine will be sufficiently evident from the foregoing description.

The paper-stock is mounted on the roll L

and fed by the feed-rollers to the printing-press and cutting and scoring machine. The form for the printing-press having been set
70 up, the operator then sets up his cutting and scoring die to properly form the box-blank. The cutting and scoring machine with all its parts being mounted in the frame B by turning the shaft *d*, the operator can adjust the
75 scoring-machine so that the printing-form will properly register with the cuts and scores to be made in the blank. In thus adjusting, the pinion M will slide on the driving-shaft N to any position into which the cutting and
80 scoring machine may be brought. The two machines being thus adjusted so that their operations will register exactly, the feeding devices above described are then adjusted so that the amount fed will be exactly sufficient
85 to carry the printed portion of the blank to the cutting and scoring knives. This adjustment being made, the feeding devices keep the two operations in register, because both are positively operated by a single shaft
90 through the action of similar and identical gearing.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a paper-box machine, the combination
95 of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the
100 line of its adjustment, scoring and cutting mechanism operated by the rotation of said shaft, a gear-wheel mounted on this shaft, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and
105 geared with the press, and a pinion-gear movable longitudinally thereon and connected with the aforesaid gear-wheel, substantially as described.

2. In a paper-box machine, the combination
110 of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, an eccentric on said
115 shaft, a box surrounding the eccentric, a screw connecting the box with scoring and cutting mechanism, said scoring and cutting mechanism, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally thereon and connected with a gear-wheel mounted on the first-mentioned shaft, and the said gear-wheel, substantially as described.
125

3. In a paper-box machine, the combination
of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the
130 line of its adjustment, scoring and cutting mechanism operated by the rotation of said shaft, a gear-wheel mounted on this shaft, a shaft journaled in the main frame parallel

with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally thereon and connected with the aforesaid gear-wheel, paper-feeding mechanism on the adjustable frame, and a disk on the shaft in the adjustable frame and a crank-arm adjustably secured to said disk for operating the feeding mechanism, substantially as described.

4. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw connecting the box with scoring and cutting mechanism, said scoring and cutting mechanism, a shaft journaled in the main frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally thereon and connected with the aforesaid gear-wheel, paper-feeding mechanism on the adjustable frame, and a disk on the shaft in the adjustable frame and a crank-arm adjustably secured to said disk for operating the feeding mechanism, substantially as described.

5. In the herein-described machine, the combination of a printing-press, a frame adjustable to and from said press, a shaft journaled therein in the line of its adjustment, a disk on said shaft, a crank-arm adjustably secured to the disk, a sector-gear mounted on the adjustable frame and pivotally connected with the crank-arm, a shaft for operating the paper-feeding mechanism, said feeding mechanism, a gear loose on the last-named shaft and engaged by the sector-gear, with a pawl-and-ratchet connection between the loose gear and its shaft, substantially as described.

6. In the herein-described machine, the combination of a printing-press, a frame adjustable to and from said press, a shaft jour-

naled therein in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw for connecting the box with scoring and cutting mechanism, the said scoring and cutting mechanism, a disk on the said shaft, a crank-arm adjustably secured to the disk, a sector-gear mounted on the adjustable frame and pivotally connected with the crank-arm, a shaft for operating the paper-feeding mechanism, said feeding mechanism, a gear loose on the last-named shaft and engaged by the sector-gear, and a pawl-and-ratchet connection between the loose gear and its shaft, substantially as described.

7. In a paper-box machine, the combination of a main bed-frame, a printing-press, a frame adjustable in the main frame to and from the press with means for adjusting the same, a shaft journaled in the adjustable frame in the line of its adjustment, an eccentric on said shaft, a box surrounding the eccentric, a screw for connecting the box with scoring and cutting mechanism, the said scoring and cutting mechanism, a disk on the said shaft, a crank-arm adjustably secured to the disk, a sector-gear mounted on the adjustable frame and pivotally connected with the crank-arm, a shaft for operating the paper-feeding mechanism, said feeding mechanism, a gear loose on the last-named shaft and engaged by the sector-gear, a pawl-and-ratchet connection between the loose gear and its shaft, a shaft journaled in the main bed-frame parallel with the shaft in the adjustable frame and geared with the press, a pinion-gear movable longitudinally on the shaft in the main frame and connected with a gear on the shaft in the adjustable frame, and the last-mentioned gear, substantially as described.

GEORGE A. HUEWE.
WILLIAM T. EMMES.

Witnesses:

ALFRED M. ALLEN,
GEORGE HEIDMAN.