

No. 706,098.

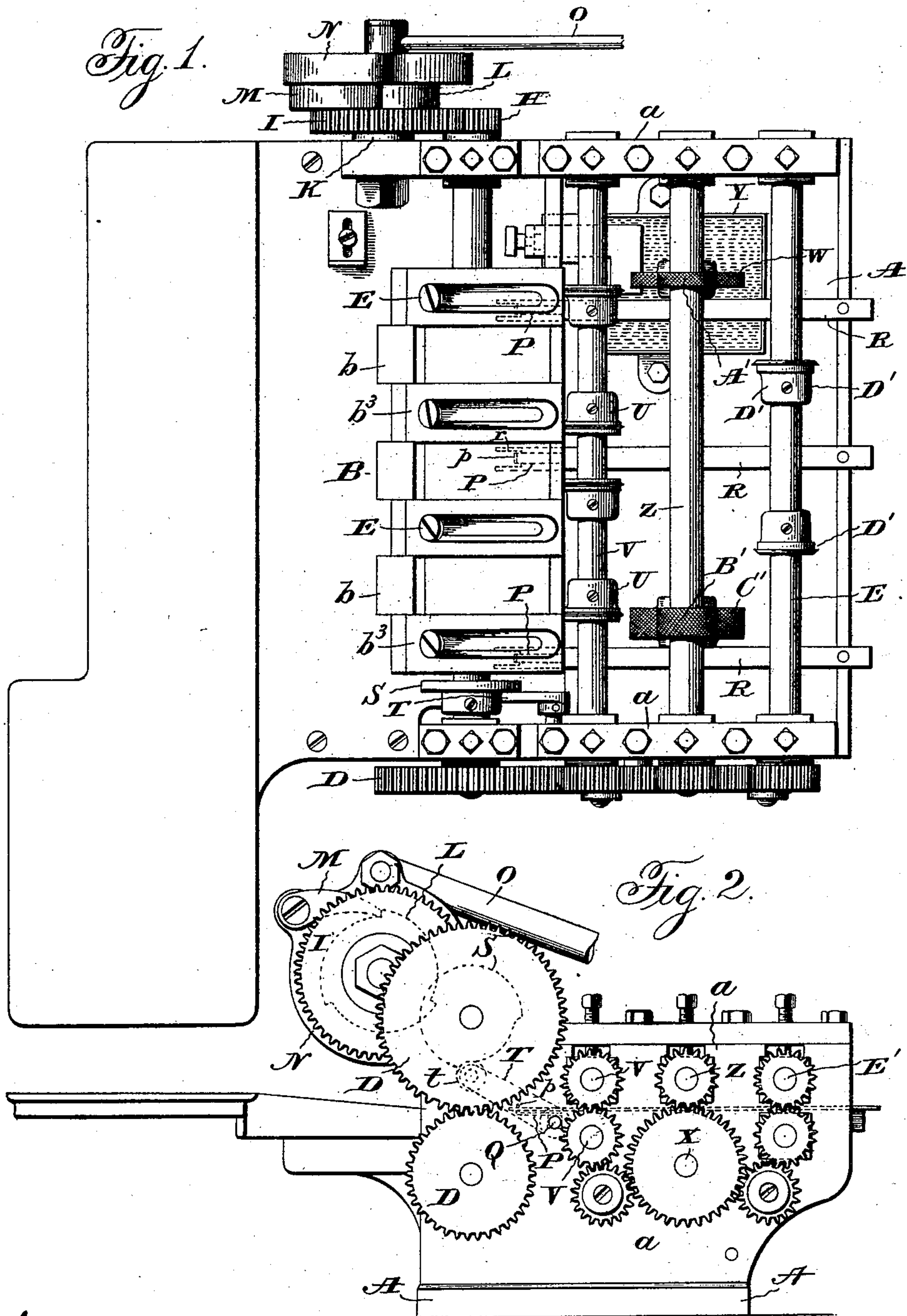
Patented Aug. 5, 1902.

C. H. PALMER & J. W. DENMEAD.
PAPER BLANK FEEDING AND SCORING MACHINE.

(Application filed Mar. 26, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
Jas. C. Hutchinson.
Henry C. Hazard

Inventors.
Charles C. Palmer and John W. Denmead, by
Cinder & Russell, their Attys

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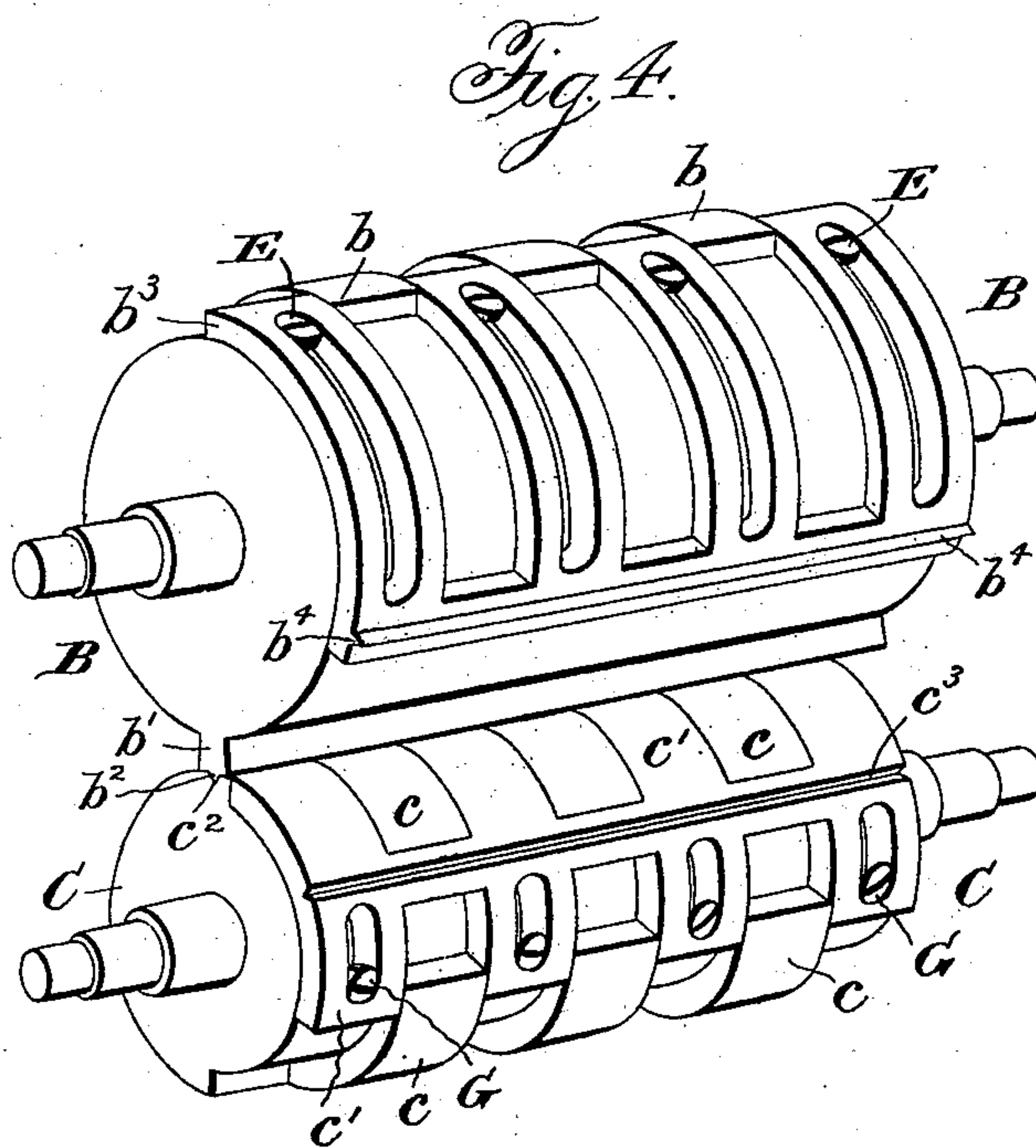
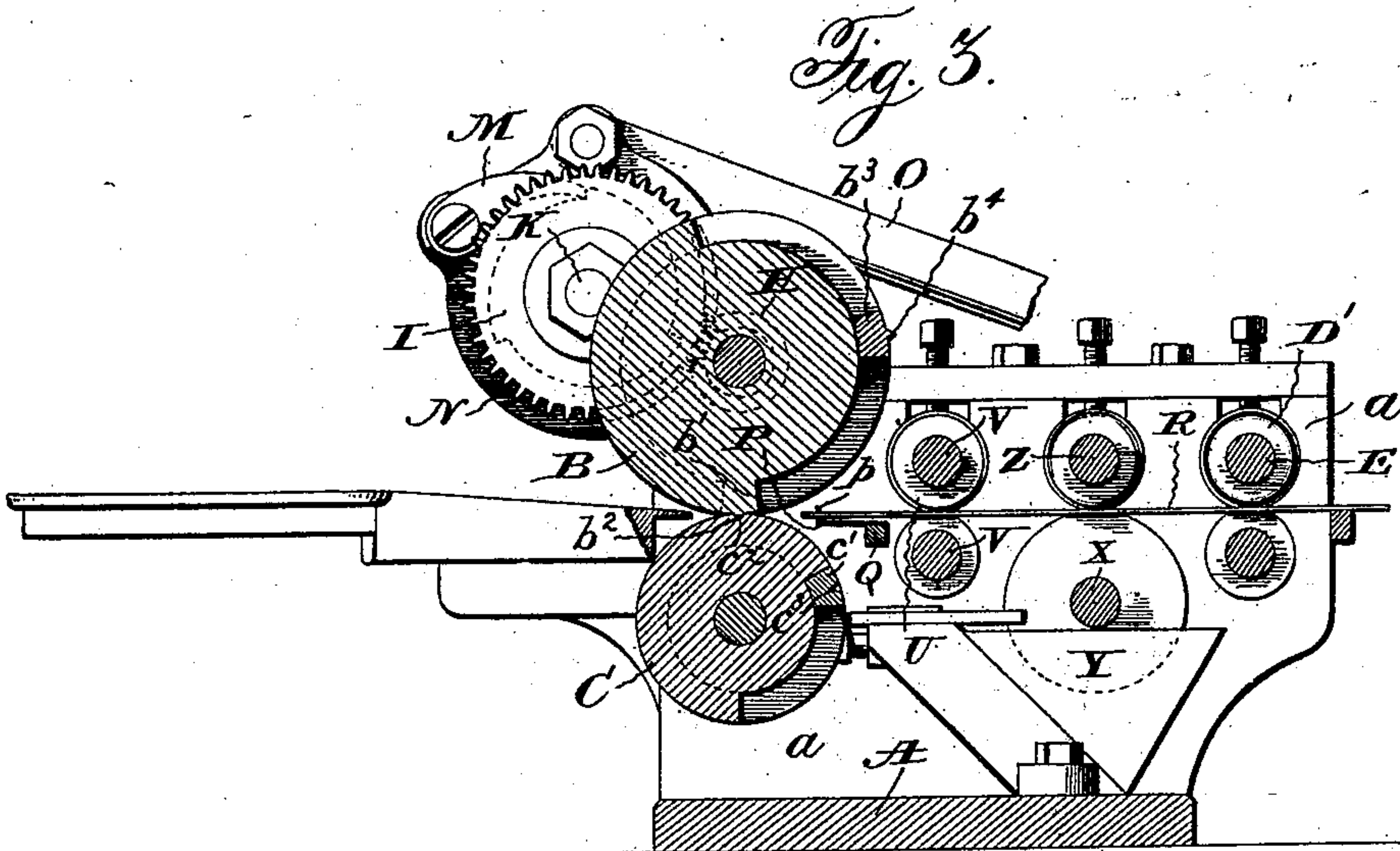
Patented Aug. 5, 1902.

C. H. PALMER & J. W. DENMEAD.
PAPER BLANK FEEDING AND SCORING MACHINE.

(Application filed Mar. 28, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

Jas. E. Hutchinson
Henry C. Hazard

Inventors:

Chas. H. Palmer & John H. Denmead by
Chas. H. Russell their Attys

UNITED STATES PATENT OFFICE.

CHARLES H. PALMER AND JOHN WILLIAM DENMEAD, OF AKRON, OHIO, ASSIGNORS TO THE DIAMOND MATCH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF ILLINOIS.

PAPER-BLANK FEEDING AND SCORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 706,098, dated August 5, 1902.

Application filed March 26, 1901. Serial No. 52,955. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. PALMER and JOHN WILLIAM DENMEAD, of Akron, in the county of Summit, and in the State of Ohio, have invented certain new and useful Improvements in Paper-Blank Feeding and Scoring Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of a machine embodying our invention; Fig. 2, a side elevation thereof; Fig. 3, a vertical section, and Fig. 4 a perspective view of the combined feeding and scoring rolls.

Letters of like name and kind refer to like parts in each of the figures.

The object of our invention is to provide a sheet feeding and scoring machine of simple construction, one capable of easy and extensive adjustability for blanks of different lengths and of accurate work; and to this end said invention consists of the machine having the features of construction as hereinafter specified.

In the embodiment of our invention which we have selected for illustration a frame is employed comprising a base or bed A and vertical sides a and a . Mounted in bearings in the latter is a pair of rolls B and C, placed one above the other and geared to rotate in unison by gear-wheels D and D at one end thereof. One-half of the circumference of the upper roll is provided with a series of fixed circumferentially-extending raised or rib-like segments b and b , that at one of their ends are joined to a longitudinally-extending rib b' , which reaches from end to end of the roll and upon the face of which is a longitudinally-extending scoring rib or ridge b^2 . Attached to the periphery of the roll by screws E and E is a series of other circumferentially-movable rib-like segments b^3 and b^3 , separated by spaces each equal to the width of one of the segments b , so that the two sets of segments may interlock. The segments b^3 and b^3 are united at one end, and extending across

them and their connecting-piece is a scoring rib or ridge b^4 .

The lower roll C may be a duplicate of the upper roll in respect to size and arrangement of segments, but as shown it is of smaller diameter and has two sets of fixed segments c and c and movable segments c' and c' , that are connected at their mid-length, so that their opposite ends may enter the spaces between the two sets of fixed segments. Screws G and G secure the movable segments to the roll. Extending from end to end of the lower roll is a groove c^2 to cooperate with the scoring-rib b^2 on the upper roll, while to cooperate with the rib b^4 on the shiftable segments is a groove c^3 in the face of the segments c' and c' and the connection between them.

It will be seen by shifting the segments b^3 and b^3 of the upper roll in a circumferential direction within the limits wherein they continue to overlap the fixed segments that the extent of circumferential feeding-surface of the roll will be varied, though kept continuous, and so enabling variation in the quantity of paper fed, and that the distance between the scoring-ribs will be varied, enabling the position of the scores or creases to be varied to suit the length of paper fed. The segments c' and c' of the lower roll are shifted circumferentially to place the scoring-groove c^3 in position for cooperation with the rib b^2 . It will be noted that by the arrangement and connection of the movable segments whereby the scoring rib or groove may be applied thereto the one pair of rolls serves both for feeding and scoring and one adjustment serves to both fix the extent of feed and the relative position of the scores or creases.

On the upper-roll shaft is a pinion H, that meshes with a gear I, loosely mounted on a stud-shaft K, and fastened to the gear is a ratchet-wheel L, with the teeth of which engages a pawl M, carried by a disk N on the shaft K, to which an oscillatory motion is imparted by a pitman O, connected with suitable operating means.

The two rolls by the described gearing are revolved intermittently, and their starting and stopping positions are with the space on the upper roll that has no segments adjacent to the lower roll. Into the space thus provided between the rolls the forward edge of the blank to be fed and scored is thrust, and for gaging it a stop device is provided comprising, preferably, three arms P, P, and P, having each an upturned end *p* and attached to a horizontal rock-shaft Q, by the movement of which the arms may be depressed to remove their ends from the path of the blank or raised to interpose said ends in such path. The ends *p*, *p*, and *p*, respectively, play through slots *r*, *r*, and *r* in light bars or rails R, R, and R, which support the blank and over which it passes when moved onward by the feed-rolls. The movements of the stop-arms in proper time with the feed-rolls are secured by means of a cam S on the upper-roll shaft and a crank-arm T on the rock-shaft Q, one end of which arm carries a roller *t*, that engages the cam.

It will be seen that by the location of the feed-gage or stop device on the side of the rolls B and C opposite that from which the blank is fed there is no danger of accidental derangement of the position of the blank before the blank-engaging portions of the rolls engage therewith, because no movement of the blank by the operator is necessary to place the blank in position for engagement by the rolls after the blank is arrested by and engages the stop device.

The object of the set of fixed segments on the lower roll C and the portions of the movable segments interlocking therewith which come opposite the space on the upper roll having no segments is to provide a smooth or continuous supporting-surface for the blank when thrust between the rolls, so that there will be no projection for the paper to strike.

In addition to the two transverse scores or creases made by the two rolls it is desired to score or crease the blank longitudinally, and for this purpose there are several pairs of scoring-rolls U and U, mounted, respectively, on upper and lower shafts V and V, journaled in bearings in the frame sides *a* and *a*. After passing from said rolls U and U the blank has glue applied to one edge of it by a glue-wheel W on a shaft X, journaled in bearings in the frame sides *a* and *a*, which wheel takes glue from a pot Y in an ordinary way. Above the glue-wheel on a shaft Z, also journaled in bearings on the frame sides *a* and *a*, is a feed-wheel A', and on said shaft is another feed-wheel B', that coacts with a feed-wheel C' on the glue-wheel shaft. The blank next passes between and is cut into strips by pairs of circular cutters or knives D' and D', mounted, respectively, on shafts E' and E', journaled in bearings on the two frame sides *a* and *a*. The various shafts carrying the

scoring-rolls, the glue and feed wheels, and the cutters are geared together by a train of gears, and all are continuously driven by power taken from a suitable source.

Having thus described our invention, what we claim is—

1. A paper feeding and scoring machine having a combined feeding and scoring roll, on the periphery of which are interlocking segments movable relative to each other, substantially as and for the purpose described.

2. A paper feeding and scoring machine having a combined feeding and scoring roll on the periphery of which are series of interlocking segments, one of the series being movable relative to the other and the segments thereof joined, and carrying, where they are joined, a scoring device, substantially as and for the purpose described.

3. In a paper-feeding machine, a feeding-roll on the periphery of which is a series of segments shiftable on the roll, and interlocking at both ends with other segments on the roll, substantially as and for the purpose described.

4. In a paper-feeding machine, a roll on the periphery of which is a series of segments shiftable on the roll, and united between their ends, and interlocking at both ends with other segments on the roll, substantially as and for the purpose described.

5. In a paper-feeding machine, the combination of a pair of rolls each of which has a variable, peripheral feeding portion formed of interlocking segments, substantially as and for the purpose described.

6. In a paper-feeding machine, the combination of a pair of rolls, each of which has a variable, peripheral feeding portion formed of interlocking segments that carry a scoring device, substantially as and for the purpose described.

7. In a paper-feeding machine, the combination of a pair of rolls, one of which has a non-feeding peripheral portion, and the other has a peripheral portion that comes opposite the latter, which is formed of interlocking segments that are movable relative to each other, substantially as and for the purpose described.

8. In a paper-feeding machine, the combination of intermittently-acting feeding mechanism, comprising coacting parts between which is a space for non-feeding, and a feed-gage located on the side of said feed mechanism opposite that from which paper is fed thereto in position to engage the forward edge of the paper after the same has been passed through said space, substantially as and for the purpose described.

9. In a paper-feeding machine, the combination of a combined feeding and scoring roll having a depressed, non-feeding peripheral portion, and a feed-gage on the side of the roll opposite that from which paper is fed to

the roll, adapted to engage the forward edge of the paper, substantially as and for the purpose described.

5 10. In a paper-feeding machine, the combination of a combined feeding and scoring roll having a non-feeding peripheral portion, a feed-gage, and operating means therefor connected with the roll, substantially as and for the purpose described.

In testimony that we claim the foregoing 10
we have hereunto set our hands this 2d day
of February, 1901.

CHARLES H. PALMER.

JOHN WILLIAM DENMEAD.

Witnesses:

TOM A. PALMER,

B. C. ROSS.