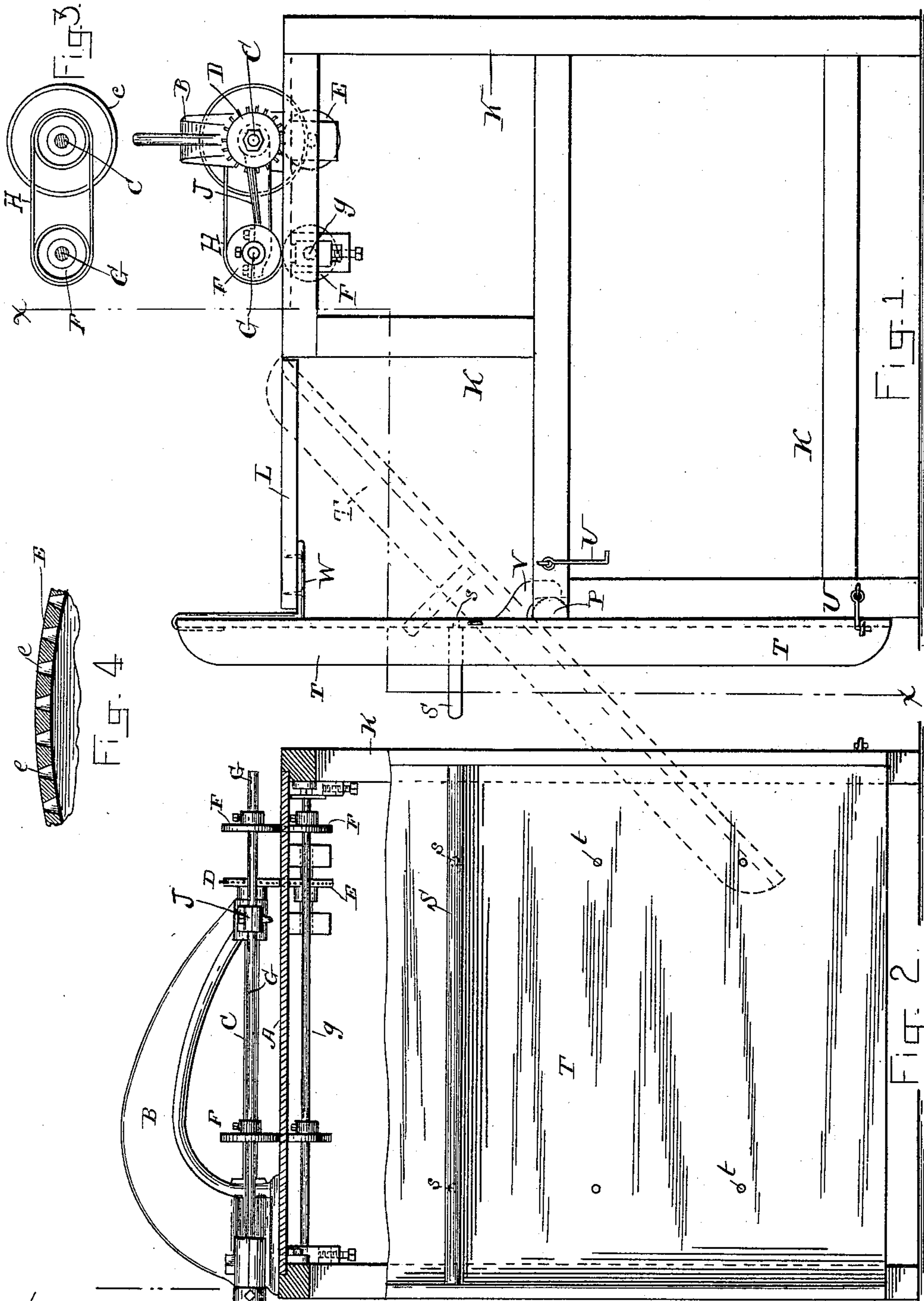


(No Model.)

S. D. LAYMAN.  
PERFORATING MACHINE.

No. 401,038.

Patented Apr. 9, 1889.



WITNESSES:  
*W. H. Crafts.*  
*Adm. H. Spencer.*

INVENTOR:  
*Stephen D. Layman*  
*by N. H. Spencer*  
*attorney*



# UNITED STATES PATENT OFFICE.

STEPHEN D. LAYMAN, OF BOSTON, MASSACHUSETTS.

## PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 401,038, dated April 9, 1889.

Application filed January 13, 1887. Serial No. 224,233. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN D. LAYMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Perforating-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention is in the nature of an improvement upon that for which United States Letters Patent No. 354,913 were granted to S. D. Layman and H. C. Hansen for "perforating-machines," December 28, 1886. Such machines are designed to form in sheets of paper and the like one or more lines of fine perforations, to facilitate separation of the sheet along such lines.

My invention consists in the peculiar combinations and the construction, arrangement, and adaptation of parts, all as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my improved machine; Fig. 2, a front elevation, with the table in section on line *xx* of Fig. 1. Fig. 3 is a detail of the feed mechanism, and Fig. 4 an enlarged section of the rim of the die-wheel.

A represents the bed of the machine, and B an overhanging arm rising from one side thereof and extending over to form a bearing and support for the main shaft C, driven by pulleys.

D is the punch-wheel, fixed on shaft C, and provided with a series of fine projecting punches.

E is the die-wheel, mounted, as set forth in said Layman and Hansen patent, with a slight freedom of movement lengthwise of its shaft. The die-wheel E has its perforations formed through an annular peripheral flange, and in order to more freely discharge the chips punched out, and to protect the points of the punches, I bevel or countersink these perforations *e* from the inner side of the flange, as shown somewhat exaggerated in Fig. 4. By this peculiarity a greater penetration of the punch into the die is possible, with consequent adaptation of the machine to stock of different thicknesses.

F F represent feed-wheels, of which there may be one or more pairs, in diameter equal to the punch-wheel, and suitably mounted

and driven to carry the sheets from the machine. The drawings represent the upper wheels on a shaft, G, prolonged beyond the end of the arm B, and driven by a belt, H, from a pulley on shaft C. In order to keep the table-surface free for sheets of any size, I support the outer end of the feed-shaft G by a bearing-arm, J, extending about horizontally from the extremity of arm B. (See Fig. 1.) The feed-wheels are adjustable along their shafts, and held by set-screws. The lower wheels of each pair need not be positively driven. In the drawings their shaft *g* is shown with bearings adjustable vertically, for more or less of pressure.

My machine stands upon a frame, K, furnished with a removable leaf, L, and a tilting table or tray, T, having an adjustable shelf, S, to receive the sheets in regular succession when punched, and thus to enable one person alone to operate the machine, feeding the sheets in while the tray receives them in order. The table T has a catch, V, engaging with a cross-bar, P, on the frame, so that it may stand vertically, as shown in full lines, or tip forward obliquely, as in dotted lines, Fig. 1, the said cross-bar having its rear corners rounded at the point where the catch engages the same, as shown by dotted lines in Fig. 1. Hooks U hold it fast in either position. When upright, a leaf, L, is supported by a bracket, W, which is fast on the under side of said leaf and hooks on the edge of the bottom of the table, giving a broad flat surface to work on, as when running the machine by hand or when packaging a quantity of perforated work. When the leaf is detached, the table may tilt down obliquely and be so held by the hook U. The shelf S is provided with pins *s* to enter holes *t* in the table, and these may be adjusted to various positions, higher or lower, on the table, as indicated by the holes shown. These changes adapt the tray or table to receive various sizes of sheets as delivered automatically from the machine. It will be observed that by the use of the overhanging arm and the supporting of the shaft G thereon the outer end of the table is unobstructed, adapting the machine for use on sheets of any width.

I claim as my invention—

1. In a perforating-machine, the combina-

tion, with its frame, the bed, and the perforating and feed mechanism, of the table supported by and rocking on the frame, and the detachable leaf L, supported by said table, substantially as and for the purpose specified.

2. In a perforating-machine, the combination, with its frame, the bed, and the perforating and feed mechanism, of the table T, catch V on said table, engaging a cross-bar, P, on said frame, the bracket W on the under side of said table, and the detachable leaf L,

supported by said bracket, substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 8th day of January, A. D. 1887.

STEPHEN D. LAYMAN.

Witnesses:

A. H. SPENCER,  
FRANK T. BENNER.