(No Model.) 2 Sheets—Sheet 1.

G. H. SLOCUM.

PERFORATING ATTACHMENT FOR PRINTING PRESSES.

No. 454,231. Patented June 16, 1891.

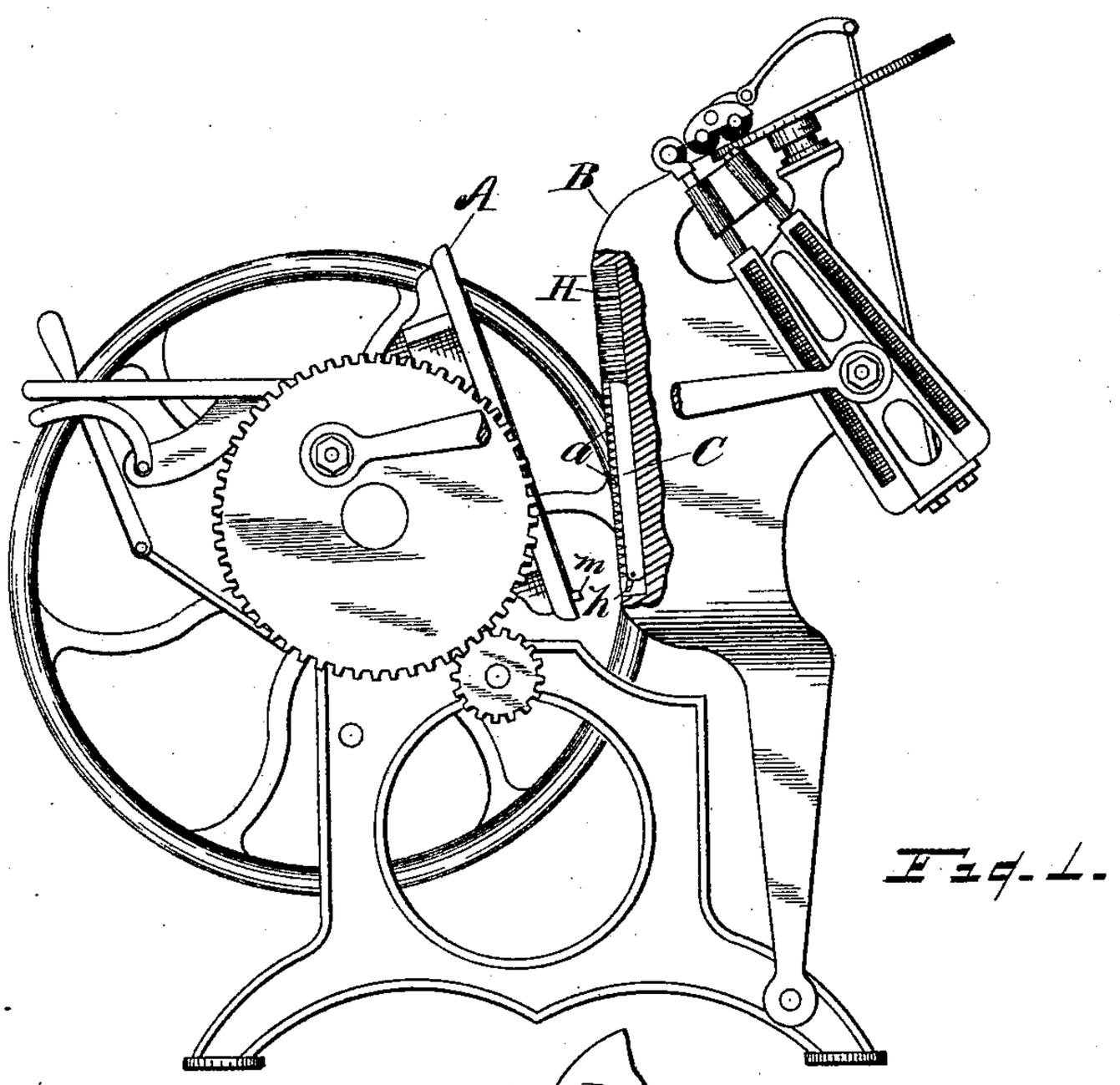

Fig. 1.

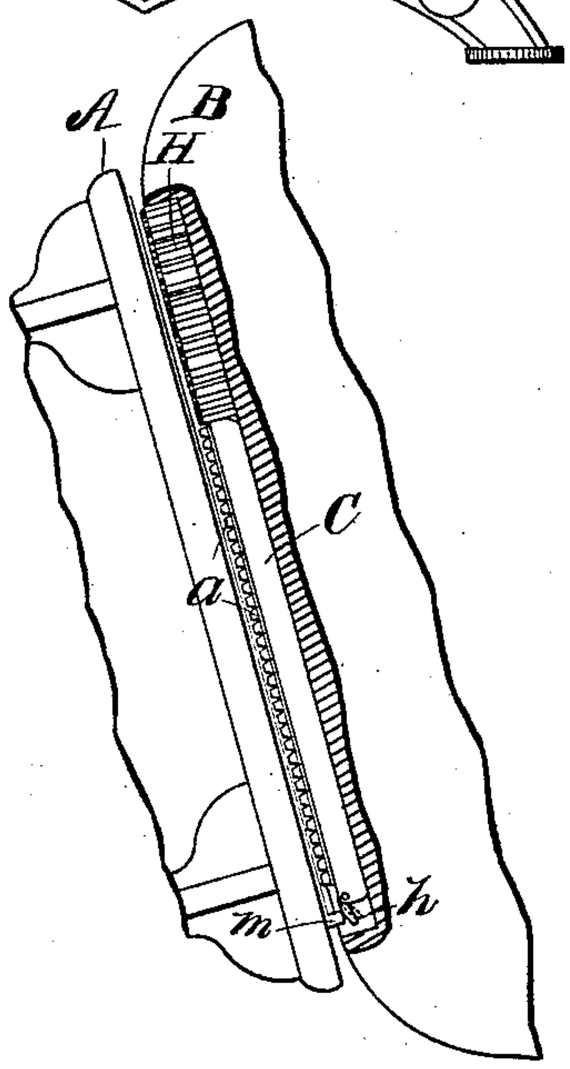

Fig 2

WITNESSES.
B. D. Wheeler
E. D. Wheeler

INVENTOR.
G. H. Slocum
By Roscoe B. Wheeler

(No Model.) 2 Sheets—Sheet 2.

G. H. SLOCUM.

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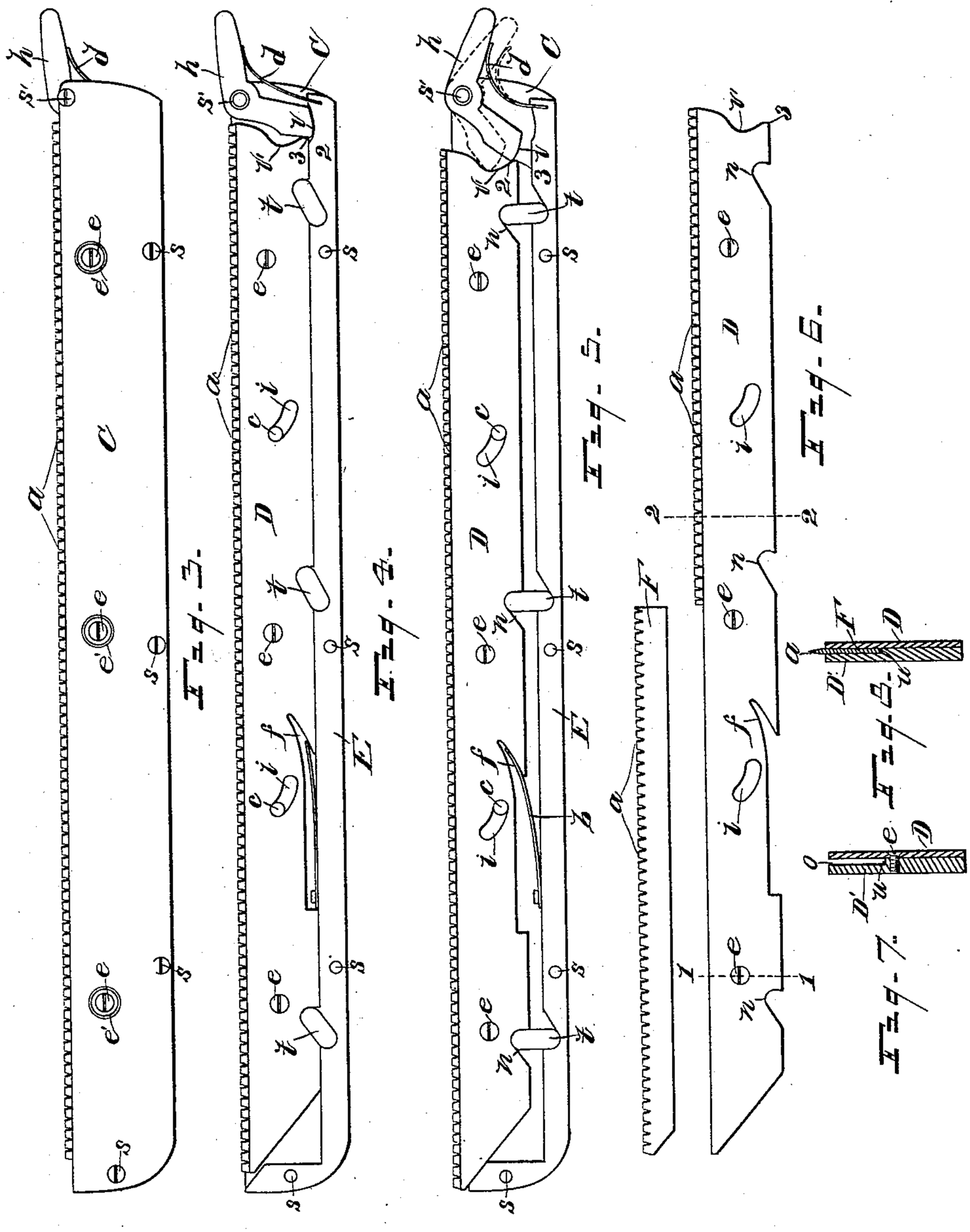

WITNESSES.

D. A. Wheeler

E. D. Wheeler

INVENTOR

G. H. Slocum

By Royce B. Wheeler

UNITED STATES PATENT OFFICE.

GRANT H. SLOCUM, OF CARO, MICHIGAN, ASSIGNOR OF ONE-HALF TO TIMOTHY C. QUINN, OF SAME PLACE.

PERFORATING ATTACHMENT FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 454,231, dated June 16, 1891.

Application filed August 11, 1890. Serial No. 361,624. (No model.)

To all whom it may concern:

Be it known that I, GRANT H. SLOCUM, a citizen of the United States, residing at Caro, in the county of Tuscola and State of Michigan, have invented certain new and useful Improvements in Perforating Attachments for Printing-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in perforating attachments for printing-presses; and it consists in a certain construction and arrangement of parts whereby the perforating may be accomplished simultaneously with the printing and in such manner as not to smut or blur the printing. The perforator is secured in the bed of the press, and its toothed blade is adapted to be projected for the purpose of perforating by contact of the actuating-lever of the perforator with a pin set in the platen of the press as the bed and platen are brought together in the operation of printing, the perforator being provided with a spring that returns the toothed blade below the surface of the type as the bed and platen rock apart, so that the inking-rollers will not be cut and injured by the teeth of said blade when passing over the face of the type.

The novel features of the device lie in the employment of an outer and an inner case, the inner case being slidingly coupled to the outer case and having means for detachably holding the perforating-blade or a series of perforating-blades, all of which will be more fully hereinafter set forth, and the essential features of the device pointed out particularly in the claims.

In the accompanying drawings, forming a part of the specification, Figure 1 is a side elevation of a press, a portion of the bed being broken away, showing my improved perforator secured therein. Fig. 2 is an enlarged detail of the bed and platen of the press, a portion of the bed being broken away, showing the position of parts when printing and perforating. Fig. 3 is a side elevation of the perforator. Fig. 4 is a view of Fig. 3 with one side of the outer case removed, showing the inner case containing the perforating-blade in its normal position. Fig. 5 is a view of Fig. 4, showing the perforating-blade raised. Fig. 6 is a side elevation of the inner case, showing a section of the perforating-blade removed therefrom. Fig. 7 is a transverse section on dotted line 1 1 of Fig. 6. Fig. 8 is a transverse section on dotted line 2 2 of Fig. 6.

Referring to the letters and figures of reference, A indicates the platen of the common press, and B the bed thereof.

The improved perforator is composed of an outer and an inner case, the outer case inclosing the inner case and the inner case containing the perforating-blade. The outer case is composed of two side plates C and the dividing-rail E, said plates being secured to the dividing-rail, one on each side thereof, by means of screws or rivets *s*. The inner case is composed of two plates D D′, secured together by the screws *e*, as shown in Figs. 7 and 8. The inner face of the plate D′ is provided with the shoulder *u*, which forms an opening *o* between the adjacent faces of the plates D D′ when placed together, as clearly shown in Fig. 7, in which opening the perforating-blade F is set, as clearly shown in Fig. 8 and which may be firmly secured therein by means of the screws *e*, which draw said plates tightly together upon said blade. The plates D D′, forming the inner case and carrying the perforating-blade, are set in the outer case between the adjacent faces of the plates C and are secured therein by the pins *c*, that are secured to the plate C and pass through the inclined slots *i* in the plates D D′. (Clearly shown in Figs. 4 and 5.) By this means the inner case while secured in the outer case is permitted to rise and fall obliquely therein.

t t indicate steel tumblers, the upper ends of which lie in bearings *n* in the under edge of the inner case and their lower ends in like bearings in the dividing-rail E. These tumblers support the inner case and rock or oscillate as said case rises and falls.

h indicates an elbow-lever pivoted at *s′*

between the ends of the plates C of the outer case. The inner end of said lever bears against the end of the inner case and is adapted to actuate said case to project the perforating-blade therein, as shown in Fig. 5.

b indicates a spring secured at one end of the rail E, its free end lying in the inclined recess *f* in the under edge of the inner case, by means of which the inner case is returned to the position shown in Fig. 4 when relieved by the lever *h*.

The perforator is adapted to be keyed in the chase with the type H and secured in the bed of the press, and is actuated by contact of the lever *h* with a pin *m*, set in the platen of the press, as the bed and platen are brought together in the act of printing, as shown in Figs. 1 and 2. As the pin *m* strikes the outer end of the lever *h*, the inner end thereof is brought against the end of the inner case, carrying said case upward, riding on the tumblers *t t*, and guided by the pins *c*, traveling in the inclined slots *i*, whereby the perforating-blade is projected above the surface of the type, causing the teeth *a* thereof to enter and perforate the paper simultaneously with the printing. When the pin *m* releases the lever *h* after the impression, the spring *d*, secured in the end of the rail E and bearing upward on the outer end of said lever, will throw said outer end of the lever upward, drawing the inner end thereof from contact with the end of the inner case, when the spring *b* will force said case down, carrying the teeth *a* of the perforating-blade below the surface of the type, so as not to injure the inking-rollers when passing over the surface thereof.

As there is a slight end motion to the action of the perforating-blade, it is necessary that said blade shall remain stationary during the operation of perforating, or while the paper remains in contact therewith, to avoid drawing the paper and blurring the printed matter. To accomplish this the end of the inner case is provided with the concave *v'* and the end of the actuating-lever *h* with the rounded portion *v*, adapted to be received therein, the arrangement of parts being such that the perforating-blade is raised to its maximum height before the paper comes in contact therewith. Then as the impression is made the end 2 of the lever *h* slips past the lower corner 3 of the inner case, the end *v* of said lever sliding in the concave. This imparts a slight lost motion to the lever *h* and permits the outer end thereof to be still further depressed during the operation of printing without moving the perforating-blade, but at the same time securely retaining said blade in place, as clearly shown by dotted lines in Fig. 5. By this means, also, the perforating-blade is held after the impression until the paper is withdrawn from the teeth thereof, when the lever *h* relieves the inner case and the spring *b* returns the perforating-blade to the position shown in Fig. 4. It will be seen on looking at Fig. 5 that when the perforating-blade is raised to its maximum height the tumblers *t t* stand slightly past the vertical center, in which position they form a solid base to withstand the pressure of the press when making the impression and perforating the work. It will also be seen on looking at Fig. 6 that the perforating-blade is made in sections, of which there may be two or more, and which are secured to the inner case between the plates D D' by the screws *e*, as before described. This is a very important feature, as the blade may then be made with much less cost, and in perforating short work but one section of the blade may be used and permits the blade to be readily removed and sharpened, and in case of injury to the blade the injured section may be readily removed and a new one quickly replaced. The openings *e'* through the plate C of the outer case permit access to the screws *e*, so that the perforating-blade or any portion thereof may be removed without removing the inner case.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a perforating device, the combination of the outer case, the inner case located slidingly therein, and the perforating-blade detachably secured to the inner case, substantially as specified.

2. In a perforating device, the combination of the outer case having an opening through the side thereof, the inner case carrying a perforating-blade, and a screw passing through said case for detachably securing said blade thereto, the inner case being located in the outer case, so that said screw in the inner case will register with the opening in the side of the outer case, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GRANT H. SLOCUM.

Witnesses:
ED. STREETER,
H. J. GRAHAM.