

No. 633,371.

Patented Sept. 19, 1899.

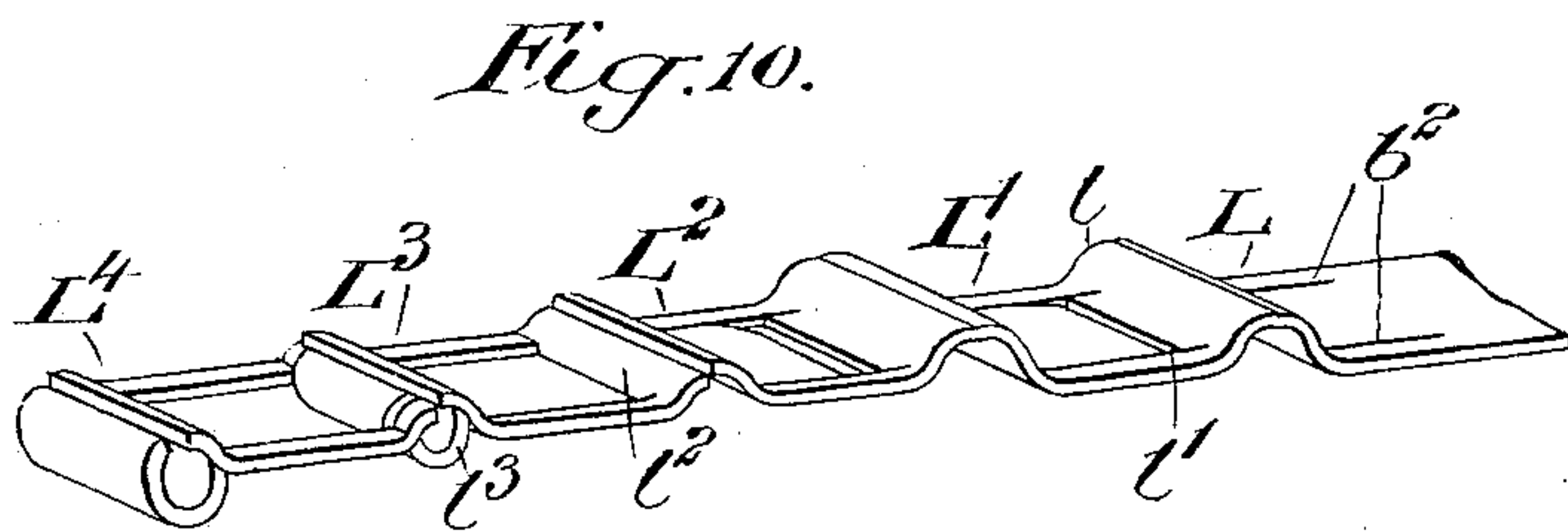
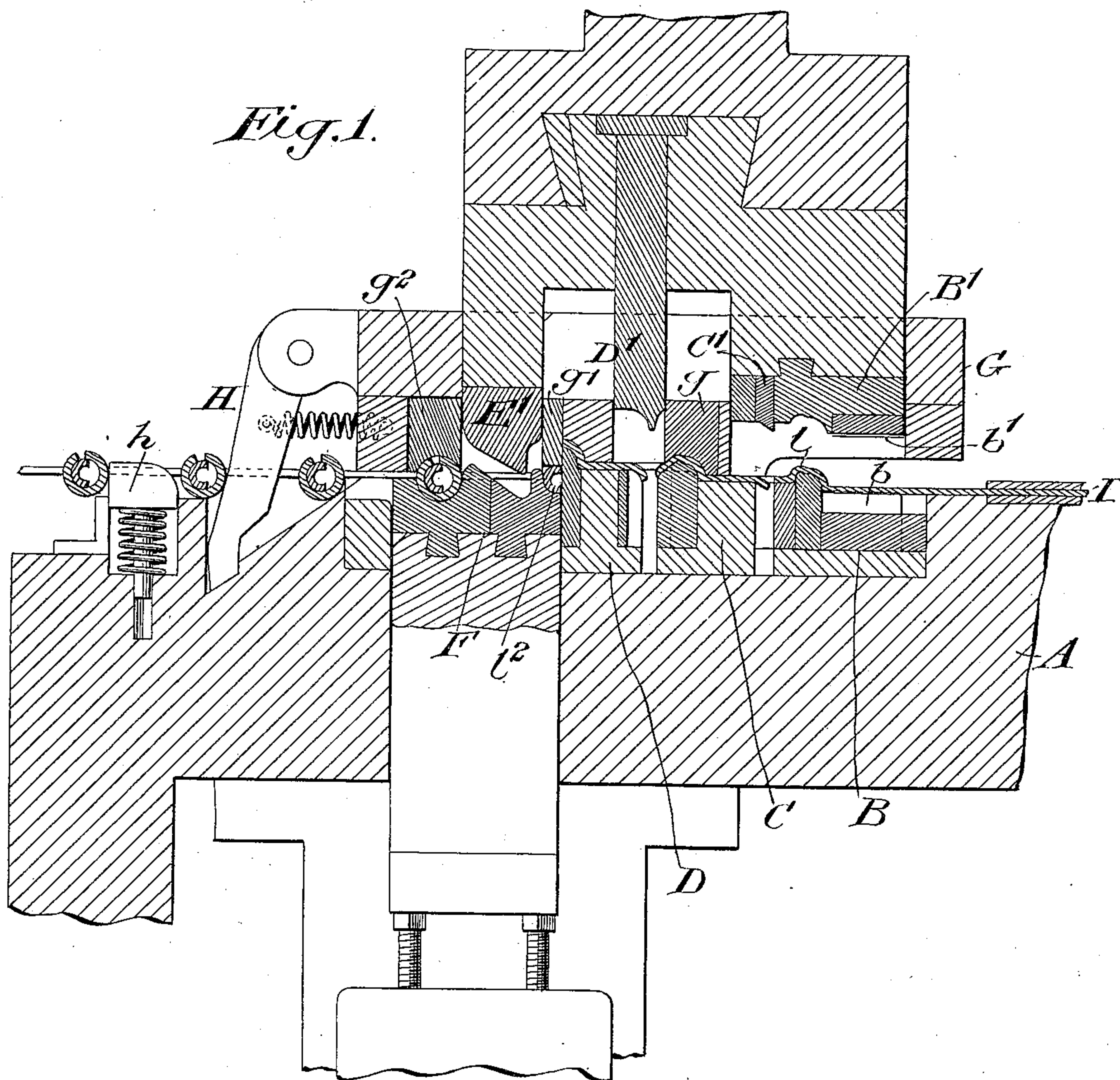
G. SKOGSE.

LINK AND CHAIN MAKING MACHINE.

(Application filed Feb. 15, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:-

George Barry Jr.
Edward Kieser

Inventor:-

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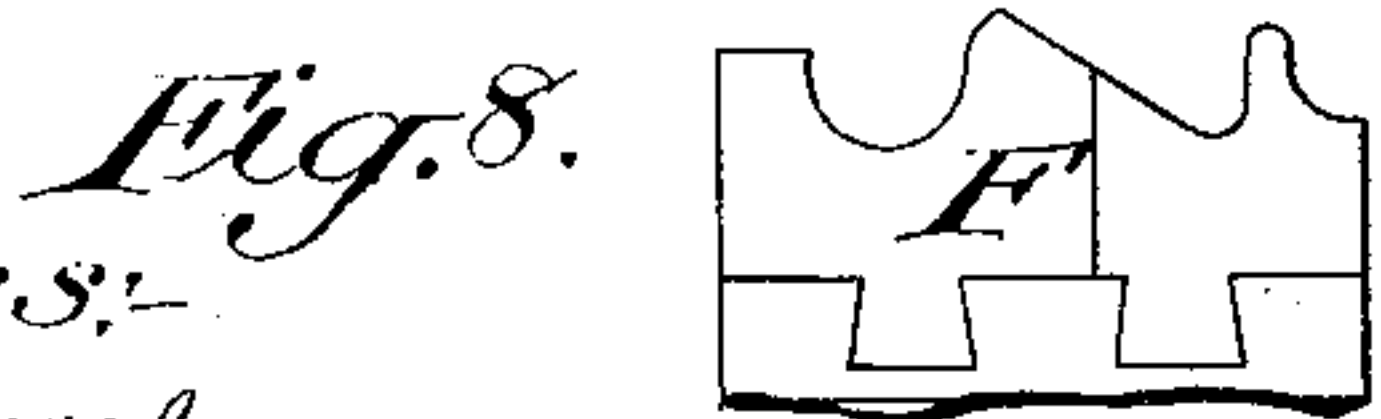
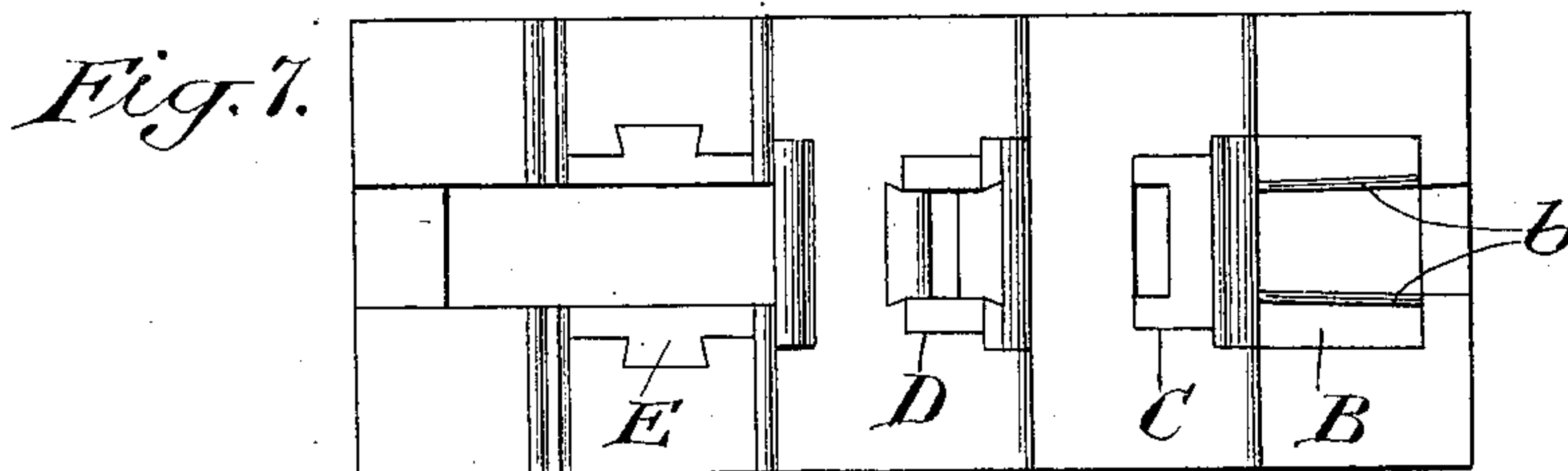
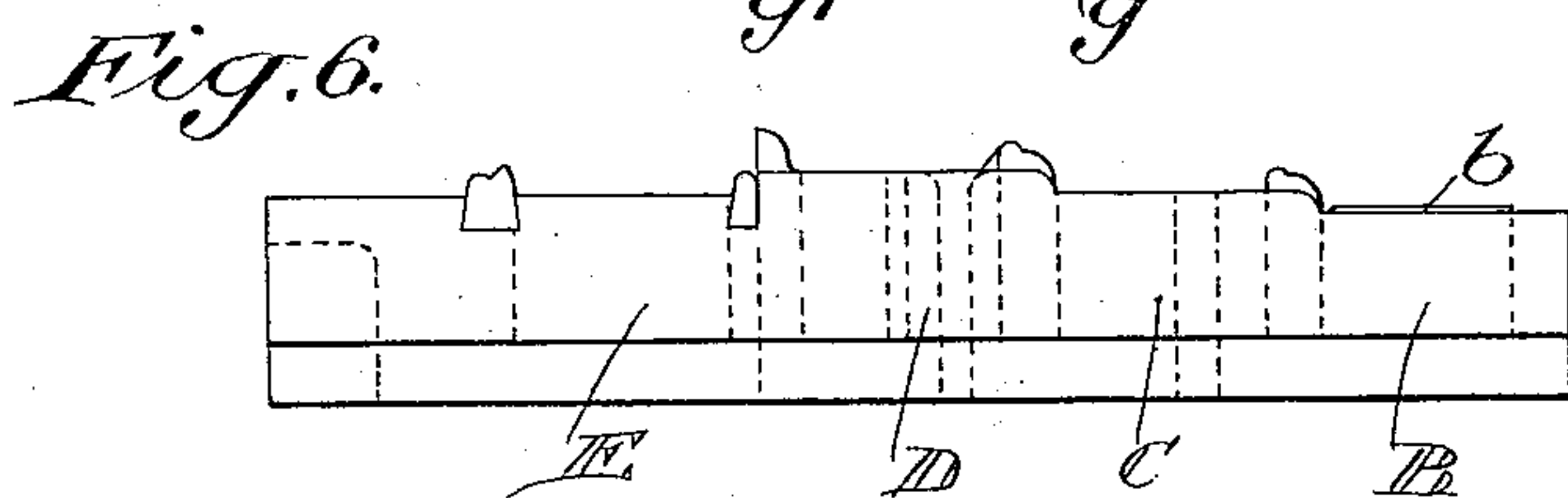
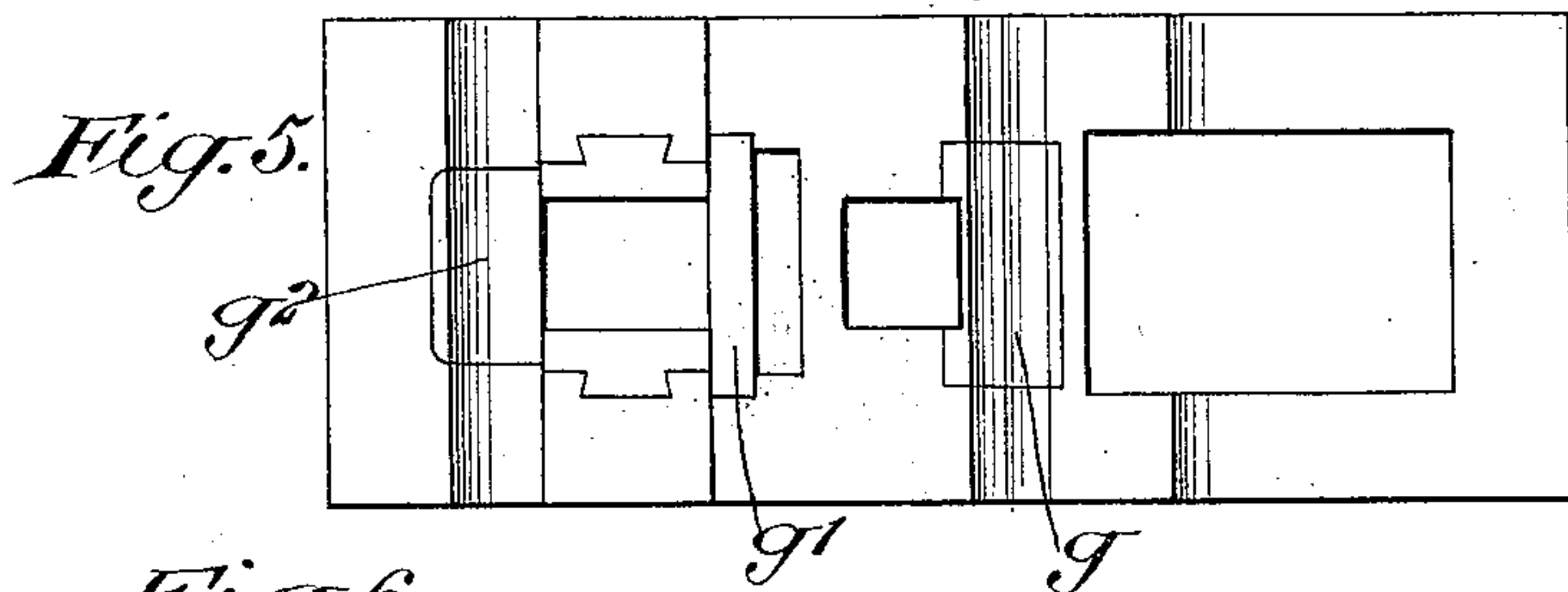
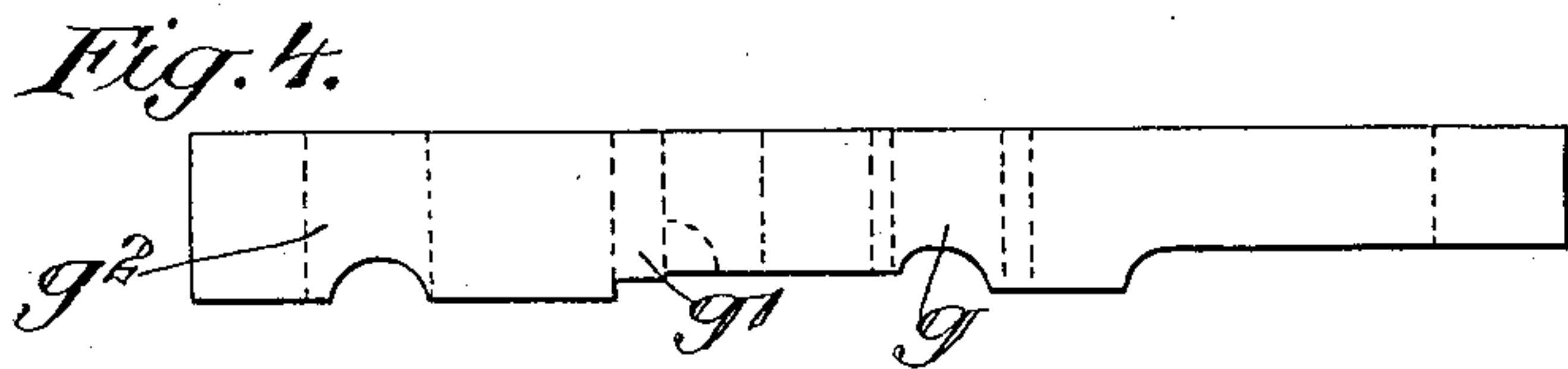
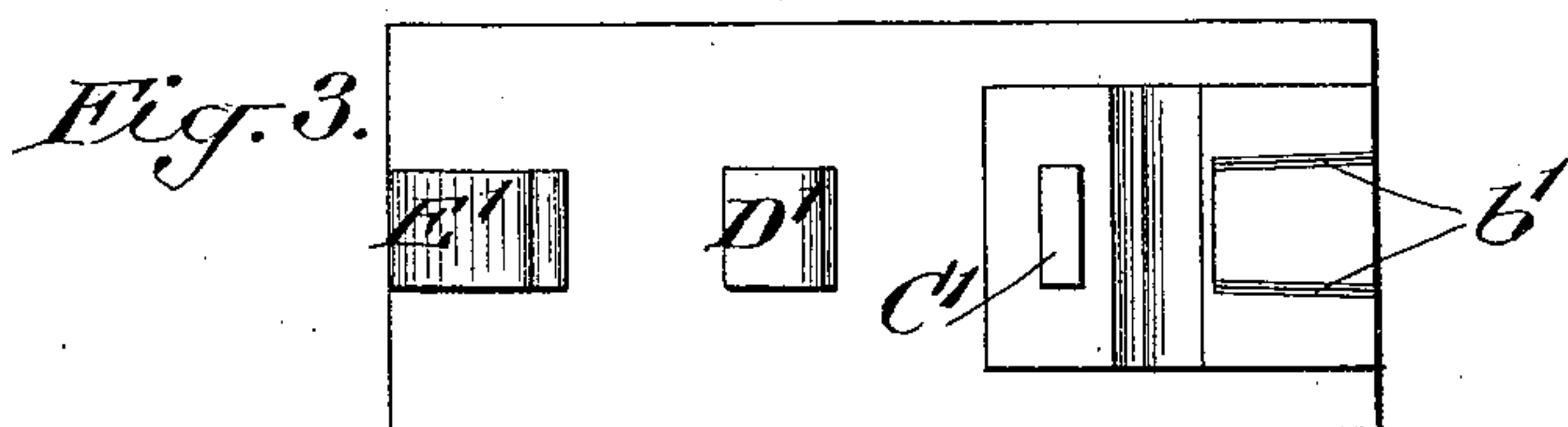
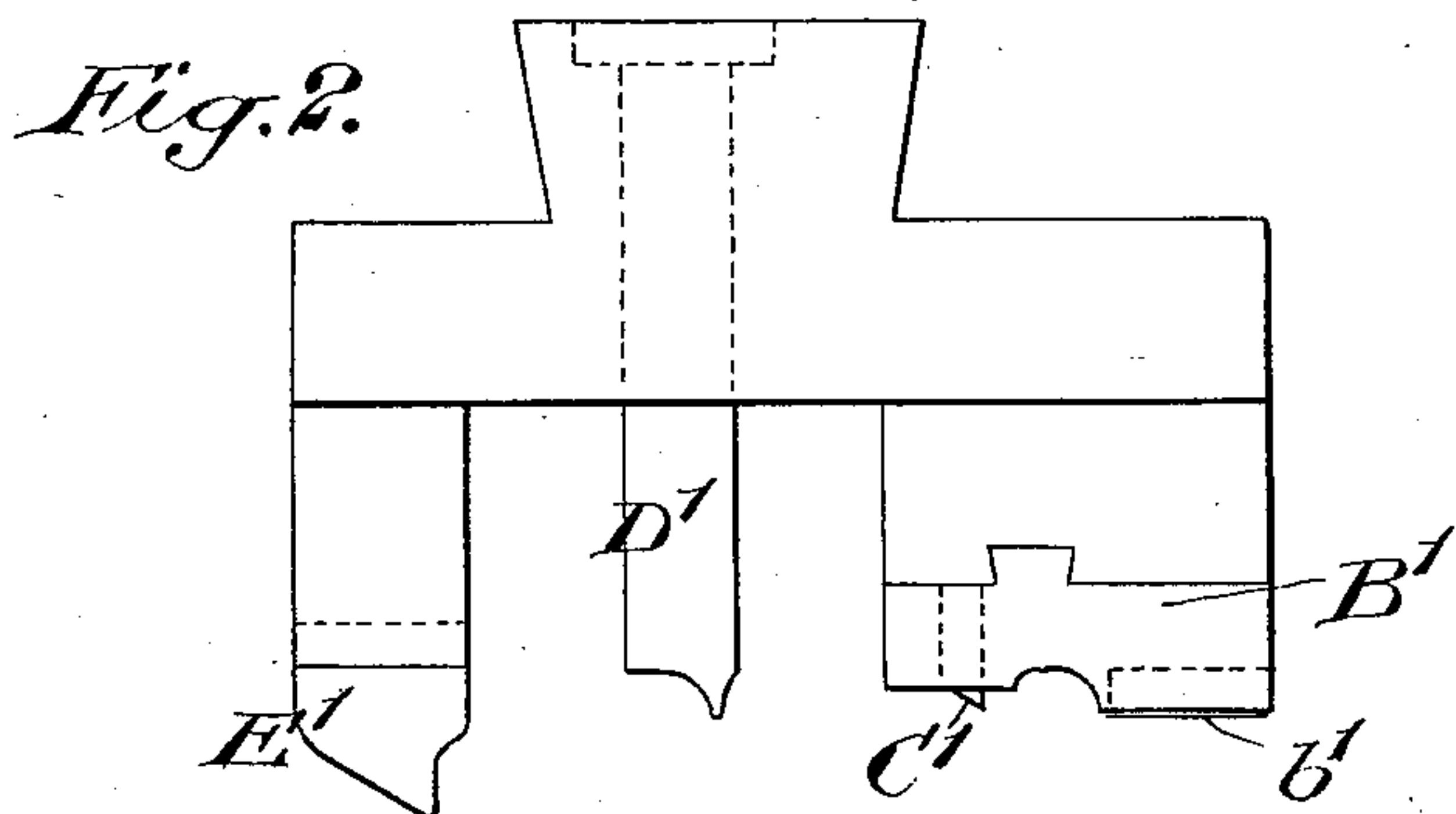
G. SKOGSE.

LINK AND CHAIN MAKING MACHINE.

(Application filed Feb. 15, 1899.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

GUSTAV SKOGSE, OF NEW YORK, N. Y., ASSIGNOR TO THE LOCKE STEEL
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LINK-AND-CHAIN-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 633,371, dated September 19, 1899.

Application filed February 15, 1899. Serial No. 705,532. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV SKOGSE, a citizen of the United States, and a resident of New York, in the county of Kings and State
5 of New York, have invented a new and useful Improvement in Link-and-Chain-Making Machines, of which the following is a specification.

My invention relates to an improvement in
10 link-and-chain-making machines, and more particularly to a machine for simultaneously making the link and assembling the links into a chain from a strip of sheet metal fed to the machine.

15 My present invention is particularly adapted to use in connection with the link-and-chain-making machines shown, described, and claimed in Letters Patent No. 580,564, granted to Viellard and Osswald on the 13th day of
20 April, 1897, and only so much of the machine is shown in the accompanying drawings as will be sufficient to illustrate the practical application of this invention.

In the use of the machine shown and de-
25 scribed in the patent above referred to it has been necessary to keep the edges of the dies and punches sharp in order to shear the central portions of the links from the marginal portions along the proper lines, and the re-
30 sult has been that the punches and dies have required sharpening or replacement at comparatively short intervals.

My present invention is directed to means
35 for scoring the blank of metal which is subsequently to form the link in such a manner and simultaneously with the operations on preceding links that when the center of the link reaches that stage in the formation of
40 the link where it is to be severed from the sides and one end of the link it may be torn from the sides by a comparatively blunt-edged punch, and the die may be a trifle wider than the center of the link, so as to leave a free clearance, notwithstanding the
45 tapered shape of the center, thereby materially lengthening the life of the punch and die without sharpening and at the same time assuring a free clearance of the central portion of the link from the interior of the die
50 during the operation of curling the central

portion or tongue of the link around the bar of a preceding link.

In the accompanying drawings, Figure 1 is a view in vertical longitudinal section of so much of the chain-making machine as will
55 suffice to show the location and operation of the scoring device which forms the subject-matter of my present invention. Fig. 2 is a view in side elevation of the several punches and the scoring device which simultaneously
60 operate upon successive links during their formation. Fig. 3 is a bottom plan view of the same. Fig. 4 is a view in side elevation of the clamp-plate through which the punches and scoring device operate. Fig. 5 is a bot-
65 tom plan view of the same. Fig. 6 is a view in side elevation of the stationary die. Fig. 7 is a top plan view of the same. Fig. 8 is a view in side elevation of the vertically-movable die. Fig. 9 is a top plan view, and Fig.
70 10 is a view in perspective of a series of links, showing their gradual formation and assemblage to form a chain.

A represents the bed of the machine, in which the stationery dies are set and through
75 which the movable die reciprocates. The several sets of stationary dies located in the bed A for operating upon the successive links are denoted by B C D E, and the reciprocating die or set of dies which operates through
80 the bed A between the set of dies E is denoted by F.

The clamping-plate through which the punches work is denoted by G, and the several
85 sets of punches which operate through the plate G independently of the plate are denoted by B', C', D', and E'.

The spring-actuated feed-arm H for drawing the assembled links of the chain rear-
90 wardly as the clamp-plate G is reciprocated, the stop h, cooperating with the feed-arm H to hold the chain distended, and the several connections (not shown in the present
95 drawings) for operating the punches, clamp-plate, and movable die at the proper times relative to one another may be quite similar in their structure and arrangement to those shown, described, and claimed in Letters Patent to Viellard and Osswald hereinabove re-
ferred to.

My invention relates, primarily, to the means for scoring the strip I of steel or other sheet metal at the moment the forming and severing punches B', C', D', and E' are brought into
5 engagement with the strip I, held in position on the die in the bed A by the clamp-plate G.

As in the patent hereinabove referred to, so in the present instance the clamp-plate G is to some extent a forming-plate and to this
10 end is provided with certain parts g , g' , and g'' , which press the strip of metal onto the forming-dies in the bed A and hold it there during the operation of the punches and the movable die F.

As a part of the set of dies B, which operate upon the strip of metal at the initial step of the formation of the link, I provide a pair of scoring-knives b , set with their edges upward in position to engage the lower side of the
20 strip of metal I and cut it to a certain depth—as, for example, one quarter of its thickness, more or less, when the strip is pressed flatly upon the bed A.

The knives b are set slightly tapering, converging toward each other as they extend toward the left or in the direction of the feed of the chain, in order to give sufficient clearance for the entrance of the tongue of the succeeding link between the side bars of the
30 preceding link at the step where the links are assembled.

The punch or set of punches B' includes a pair of scoring-knives b' , set with their edges downward and in positions directly opposite
35 knives b in the die, so that when the several punches are brought simultaneously into engagement with the links being formed the knives b' will score the link which is at its initial step of formation on the upper side of
40 the strip of metal I, cutting it one quarter of the way through, more or less.

The scores made by the knives b' are indicated in Fig. 10 by b^2 , and it is to be understood that the knives b will form similar
45 scores on the under side of the link simultaneously with the formation of the scores b^2 on the upper side.

Several successive links are represented in Fig. 10, showing the different stages of operation of forming the link from the initial step
50 of its formation to its uniting with a previously-formed link. These successive links are denoted by L, L', L², and L³, respectively.

It is to be understood that the link L³, which, like its preceding link L², with which it is coupled, is a completed link, has passed through the several successive stages of formation denoted by L, L', L² before reaching its finished condition L³, where at the time of its comple-
60 tion it is assembled with the link L⁴.

The scoring of the link L on its upper and lower sides takes place simultaneously with the shaping of its advanced end into a partially-rounded form, and at this same operation the rearward end of the preceding link L' has been rounded, as shown at l , Figs. 1
65 and 10. Simultaneously with this operation

upon the links L and L' the central or tongue portion of the link L' is severed between the scores b^2 and at a short distance in advance
70 of the rear ends of the scores, as shown at l' . Simultaneously with these operations upon the links L, L' the link L² is operated upon to further separate the rear end of the central or tongue portion of the link L² from the side
75 bars of the link and crimp its end and at the same time to crimp a short part of the central or tongue portion of the link L² integral with the rear end of the link into form to be subsequently rounded into shape as a part of the
80 rear end bar of the link. At the same time that these operations are taking place on the links L, L', and L² the link L³ has been severed from the link L² and its central portion or tongue has been torn from the side bars and
85 depressed into position to engage the movable die F, while that part of its central portion or tongue integral with the rear end bar of the link has also been further depressed into position to engage the movable die F. The operation
90 of the movable die F then takes place while the plate G is held in its clamping position, and in its movement toward the plate G it curves the tongue l^3 , which has been severed from the side bars of the link L³, around the rear
95 end bar of the link L⁴, and at the same time curls the portion l^2 of the central part of the link L³ rearwardly, as clearly shown in Fig. 1, ready for receiving the tongue of the following link when the strip shall have been
100 advanced another step. These operations have been thus briefly referred to in order that attention may be intelligently called to the action of the punches D' and E', as well as the die E, in their action upon the links
105 which have been already scored. The punches D' and E' are no longer required to be sharp-pointed and sharp-edged, since the tongue or central portion of the link may be torn from its side bars along the lines where it has
110 been previously scored by the simple pressure of the punch upon the central portion of the link while the latter is sustained upon the bed or edges of the die. Furthermore, it does not require that the edges of the die
115 be so near the path of the punch as to produce a shearing action, since the metal will be torn along the lines where it has been scored even though the edge of the die be located a slight distance away from the path of
120 the punch. This admits of forming the edge of the punch and the edges of the die of rounded or blunt form and no longer requires that they be kept sharp in order to perform perfect work, and at the same time the liability
125 of cramping the tongue between the walls of the die is avoided, as they are placed with sufficient clearance to permit the tongue to pass freely between them as it is depressed by the punch and the chain itself to be fed
130 along freely, even though the tongue, which is depressed into the die, be tapered with its edges converging in the direction in which the chain is fed. The scoring also furnishes

smooth blunt corners on the inner edges of the sides and prevents the cutting of the sprocket-teeth when in use, and no bur or fin is produced. Hence the operation of tumbling may be dispensed with. The accumulation of chips and consequent clogging of the dies are also avoided and the clearance of the partially-formed tongues assists the feed, while the alining of the dies and gaging of the strip are not required to be so exact, and hence save time and labor.

What I claim is—

1. Means for simultaneously operating upon a strip of metal to form a series of connected links comprising means for scoring the strip of metal from which the links are to be cut, and means for shaping the ends of the links and severing the center of the links along the lines where the strip has previously been scored, substantially as set forth.

2. In combination means for scoring a metallic link-blank to determine the boundary of the central portion to be removed, means for severing one end of the central portion be-

tween the lines of scoring and means for tearing the central portion from the side bars along the lines where the blank was scored, substantially as set forth.

3. The combination with means for scoring a blank of metal to form a link, of means for separating the central portion of the blank from the side bars along the lines where the blank has been scored comprising a punch and a die arranged to cooperate with the punch, the said die having a width materially greater than the width of the metal between the lines of scoring whereby the metal is torn along the lines of scoring as distinguished from shearing, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 3d day of February, 1899.

GUSTAV SKOGSE.

Witnesses:

LOUIS HAUBT,
HERMAN OSSWALD.