July 13, 1948. L. VON CSEH 2,445,093

SELF CENTERING GAUGE FOR PERFORATING DEVICES

Filed April 24, 1946 2 Sheets-Sheet 1

Fig. 1.

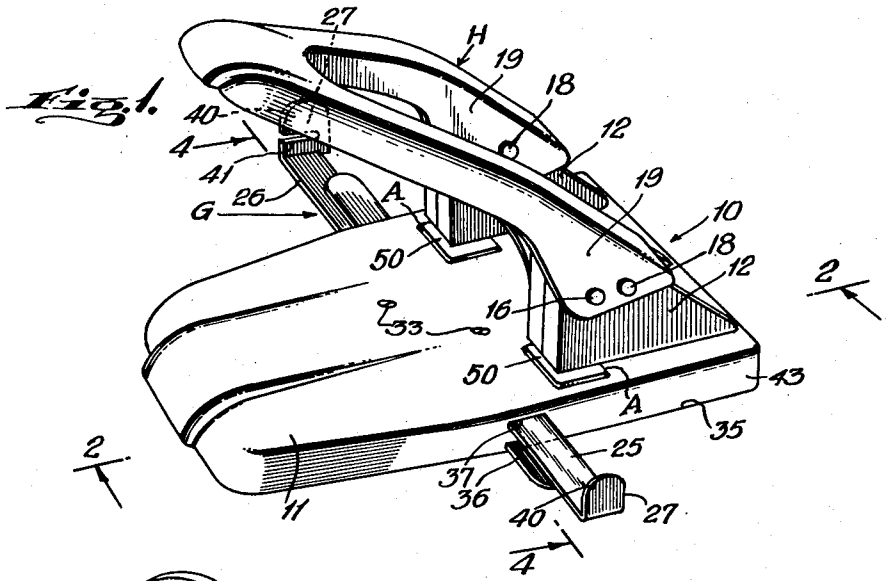


Fig. 2.

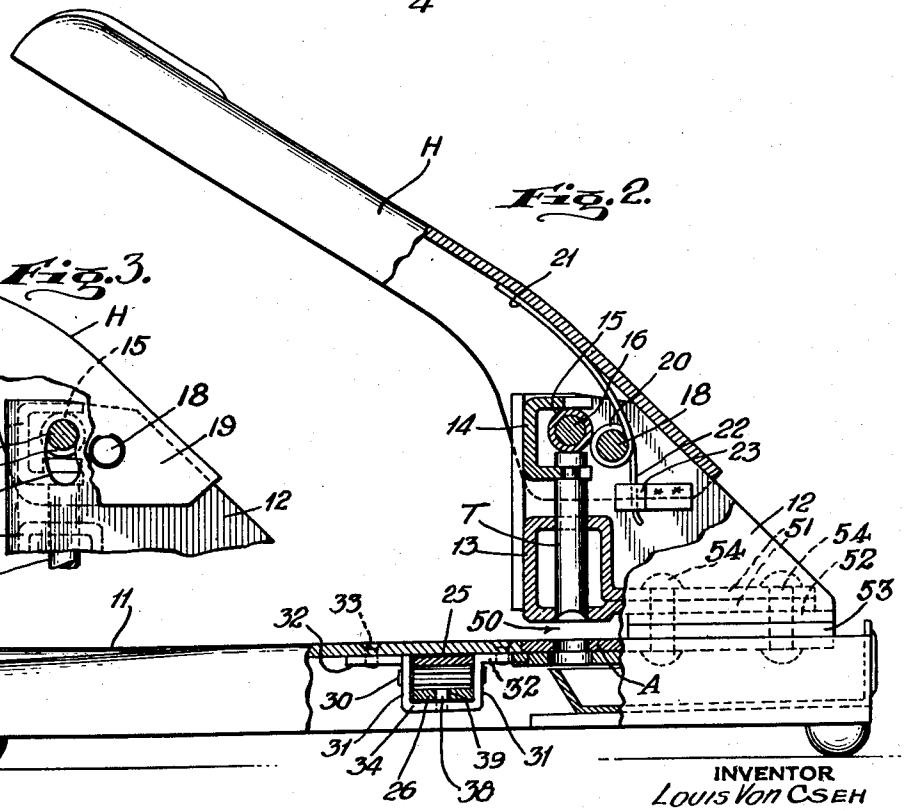


Fig. 3.

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Fig. 4.

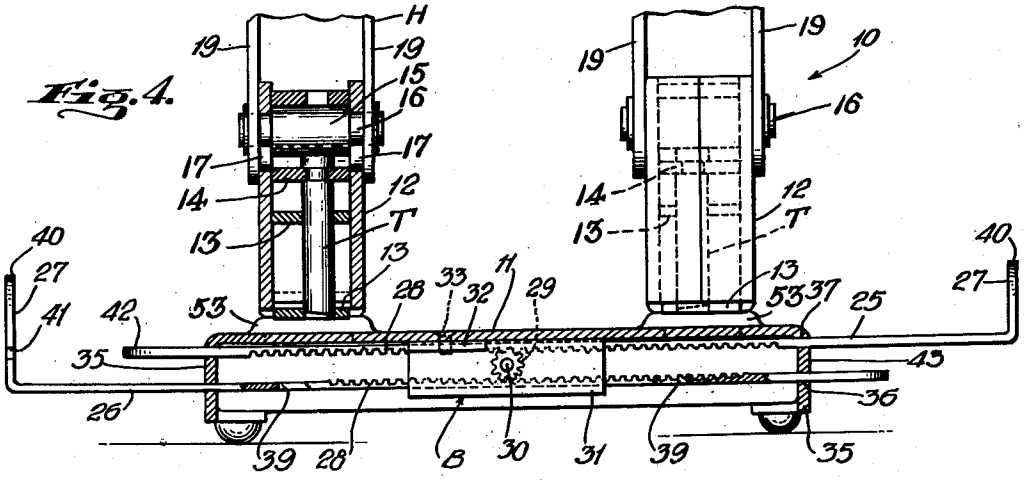


Fig. 5.

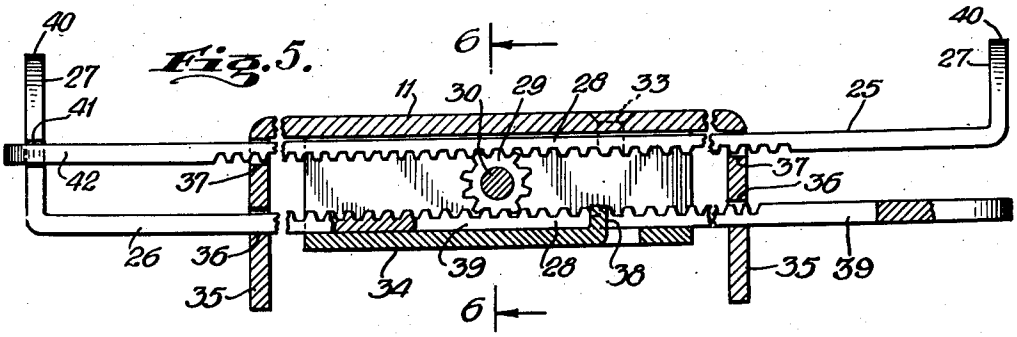


Fig. 7.

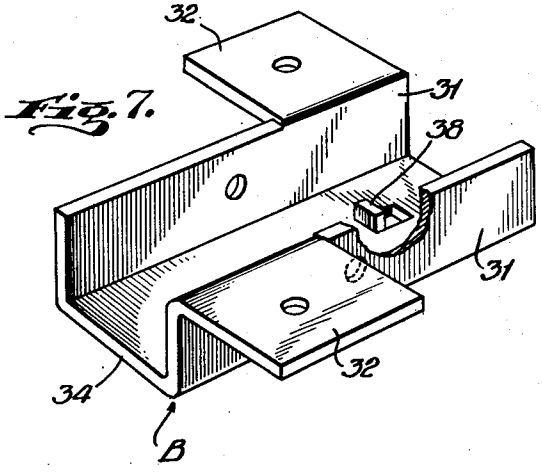
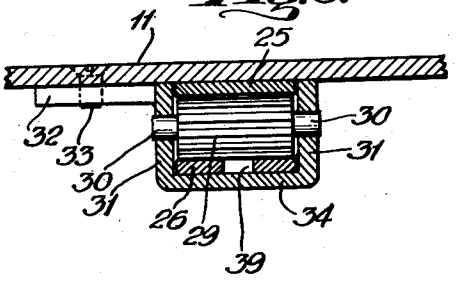


Fig. 6.



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UNITED STATES PATENT OFFICE

2,445,093

SELF-CENTERING GAUGE FOR PERFORATING DEVICES

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Application April 24, 1946, Serial No. 664,540

8 Claims. (Cl. 164—91)

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The subject matter of this invention is a perforating device wherein movably guided punch means is adapted to be actuated for desirably punching relatively light and heavy sheets of paper either singly or in stacks thereof. The object of the invention is realized in the provision of novel stabilized and telescopically associated means for self centering the sheets on the base of the perforating device prior to the punching operation. Specifically another object of the invention is to provide a self-centering gage comprising superimposed and spaced bars slidably guided widthwise of the base and having facing but spaced rack means coacting with an intervening rotatable pinion common to the spaced rack means and carried by a bracket or support concealed from view and sustained within the base of the perforating device. A further object is concerned with an improved self centering gage having spaced and superimposed gage bars movable in unison towards or away from each other and adapted to conveniently straddle a sheet of paper or a stack thereof on the base of a perforating device to properly position or self center the sheets of paper or stack relative to the punch means prior to perforating of the paper or stack. A further object is to preclude outward separation of the superimposed and slidably guided gage bars. Another object has to do with removably telescoping the superimposed and slidably guided gage bars to stabilize the latter. Other important objects and advantages will appear from the accompanying drawings taken with the following detailed specification wherein:

Fig. 1 is a perspective view of the perforating device according to my invention, illustrating the self centering gage.

Fig. 2 is a transverse sectional view on the line 2—2 of Fig. 1 showing one of the fixed guides for a companion slidable punch.

Fig. 3 is a fragmentary view of Fig. 1.

Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 1.

Fig. 5 is a fragmentary enlarged and broken view of Fig. 4, showing the gage bars in an interlocking relation.

Fig. 6 is a sectional view on the line 6—6 of Fig. 5 and

Fig. 7 is a perspective view of the bracket or rack housing.

The perforating device is broadly denoted 10 and comprises a base 11 and spaced stanchions 12 appropriately fixed to the base and each housing a fixed loop shaped bearing 13 for slidably guiding a punching tool T carried by a U-shaped tool lifting member 14 and in part enclosing bearing 15 surrounding pin 16 slidably guided in the spaced cam slots 17 in the spaced side walls of a stanchion which carries the fulcrum pin 18 to which a pair of depending portions or ears 19 of the handle H is pivotally retained. Although pins 16 are movably guided in the spaced cam slots 17 of the stanchions they are carried by the depending ears 19. Consequently if the handle H is pivoted, pins 16 are actuated to shift slidably guided tool lifting members 14 to raise or lower the punch means T in the spaced stanchions. Surrounding each fulcrum pin 18 is a coiled spring 20 having a free end 21 abutting the handle and having another end retained against an offset lug 23 secured to a stanchion. The foregoing structure is more fully described in United States Letters Patent to Calvin P. Kipp Patent No. 2,328,558, issued September 7, 1943, and is merely set out herein to disclose the relationship of the self centering gage broadly designated G and the spaced punching punches or tools T slidably guided in the spaced and fixed bearings 13. The gage G comprises superimposed, vertically spaced and slidably guided gage bars 25 and 26 each having an upstanding or manipulator lug 27 either of which may be grasped and actuated for automatically shifting the bars either towards or away from each other. If the gage bars move towards each other the manipulators 27 straddle the sheets of paper or stock (not shown) on the base and centers the sheets relative to the punch means.

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More specifically, each of the gage bars is provided with a plurality of teeth 28 defining rack means meshing with a toothed pinion 29 fixed to shaft 30 journalled in or rotatably carried by the spaced sides 31 of a bracket or support B having diagonally disposed but laterally extending wings 32 appropriately secured by screws 33 to the base 11. The bracket B may be considered as a one piece channeled shaped member or housing having the bottom wall 34 from which the sides 31 project in parallelism.

The base 11 also embodies depending sides 35 having the horizontally alined but vertically spaced openings 36 and 37 for slidably guiding the lower and upper gage bars 26 and 25 also slidably retained between the parallel sides 31 of the bracket B.

By the present arrangement, if one of the manipulators 27 is controlled to slidably shift its gage bar, the other gage bar is correspondingly displaced but in an opposite direction. For example, if an outward thrust be applied to the

manipulator 27 of the upper gage bar, the latter is projected outwardly a certain distance and of course the pinion 29 is rotated, thus causing displacement of the lower gage bar in an outward direction and to a distance equal to the outward displacement of the upper gage bar. The coaction of the rotatable pinion with the upper and lower racks causes these bars to move in unison at all times. Consequently, if an inward thrust be applied to either of the manipulators each of the guide bars is projected an equal distance into the base. Conversely if either of the manipulators has applied thereto an outwardly directed thrust, the gage bars as previously stated are slidably displaced an equal distance but outwardly relative to the base. If therefore a sheet of paper or a stack of sheets (not shown) be placed on the base and if the manipulators be brought towards the sides of the paper or stack thereof, the latter will be automatically centered relative to the spaced punches or cutting or perforating tools T slidably guided in the fixed spaced stanchions 12.

With the sheets of paper or stack centered, the handle H is pivoted downwardly to direct the punches to perforate the paper or stack. Upon removal of manual pressure from the handle, the latter elevates automatically due to the action of the free ends 21 of the coiled springs 20, thus raising the cutting tools T from the perforated and spaced anvils A fastened to the base 11.

The bottom wall 34 of the bracket is provided with an upstanding lug or stop 38 projecting into the elongated longitudinally arranged slot or gap 39 in the slidably guided and lower gage bar 26, lug 38 cooperating with the ends of slot 39 to limit displacement of the gage bars towards or away from each other. Lug 38 and slot 39 also provide suitable interlocking means to preclude involuntary disconnection of the lower rack from the pinion.

Manipulator 27 of the lower gage bar 26 is slightly longer than the manipulator 27 of the upper gage bar 25 so that terminals 40 thereof are at the same elevation. The manipulator of the lower gage bar also embodies a suitable slot 41 for slidably receiving and interlocking with the free end 42 of the upper gage bar. Hence when the manipulators straddle a narrow sheet of paper or narrow stack to be perforated, the gage bars may be said to be telescoped, and such action stabilizes these bars.

By the present invention, the gage bars may be quickly assembled with the base 11 and the bracket B and in this connection, the latter is first fastened to the base after which the superimposed gage bars are projected into the slots 35 and 36 and automatically mesh with the rotatable pinion 29 carried by the bracket. Subsequently lug 38 is bent to project into slot 39 in the lower gage bar, thus precluding separation of the gage bars from the fixed bracket B desirably concealed within the depending rim 43 of the base of which the spaced sides 35 are a part.

It should be understood that the U-shaped yokes or tool lifting members 14 are reciprocated in the stanchions 12 when the pivoted handle H is depressed and raised. Thus on the downward stroke of the handle, the spaced tools T are forced through the paper or stack and through the perforated anvils A, thus piercing or punching the paper or stack. Pursuant to such operation, the pivoted handle automatically retracts due to the restoring action of spring terminals 21 and consequently the spaced tools T retract into the guide 13. Moreover the latter are spaced from the anvils A to provide the gaps 50 to permit insertion of a sheet of paper or stack thereof under the guides 13, which include the superimposed legs 51 (Fig. 2) positioned on the bottom wall 52 of the stanchions 12 and the latter on the spacer means 53 of the base 11, and spaced rivets 54 secure legs 51 of the guides 13 to the bottom wall 52 of the stanchions and the latter to the spacer means 53.

Various changes may be made in details of construction and arrangement of parts without departing from the spirit of the invention or sacrificing any of the advantages thereof inherent therein.

I claim:

1. In a perforating device wherein punch means is adapted to be reciprocated relative to perforated anvil means; a base fixedly carrying said anvil, a housing secured within and to and underneath said base, a pinion within and having means journaled to said housing, superimposed and vertically spaced bars having rack means disposed in opposition and in mesh with said pinion and slidably guided by said base, and upstanding manipulator means extending from each of said bars.

2. In a perforating device wherein punch means is adapted to be reciprocated relative to perforated anvil means and sheet material; a base fixedly carrying said anvil and removably sustaining said material, a channel shaped housing within and secured to and underneath said base, a pinion within and journalled to said housing, superimposed and vertically spaced bars having rack means disposed in opposition and in mesh with said pinion and slidably guided by said base and adapted to be moved in unison but in opposite directions, and terminal manipulator means extending upwardly from each of said bars for removably straddling said material.

3. In a perforating device wherein punch means is adapted to be reciprocated relative to perforated anvil means and sheet material interposed between said punch and anvil means; a base carrying said anvil means and having a depending rim including vertically spaced and horizontally alined upper and lower slots; a channel shaped housing comprising a bottom wall and spaced sides extending upwardly from said wall and having alined bearing means; a rotatable pinion interposed between said sides and having means rotatably guided by said bearing means; an upper gage bar slidably guided by said upper slots and having rack means in mesh with said pinion and including an upstanding manipulator, and a lower gage bar having rack means slidably guided by said lower slots and in mesh with said pinion and including an upstanding manipulator.

4. In a perforating device wherein punch means is adapted to be reciprocated relative to perforated anvil means and wherein sheet material is adapted to be interposed between said punch means and anvil means; a base carrying said anvil means and having a depending rim including vertically spaced and horizontally alined upper and lower slots, a channel shaped housing comprising a bottom wall and spaced sides extending upwardly from said wall and having alined bearing means; means securing said housing within said base; a rotatable pinion interposed between said sides and having means rotatably guided by said bearing means, an upper gage bar slidably guided by said upper slots and having rack means in mesh with said pinion and including an upstanding manipulator, a lower gage bar

slidably guided by said lower slots and having rack means in mesh with said pinion and including an upstanding manipulator, and means common to said wall and one of said bars to limit the displacement of said bars towards or away from each other widthwise of said base.

5. In a perforating device wherein punch means is adapted to be reciprocated relative to perforated anvil means and wherein sheet material is adapted to be interposed between said punch means and anvil means; a base carrying said anvil means and having a depending rim including vertically spaced and horizontally alined upper and lower slots, a channel shaped housing comprising a bottom wall and spaced sides extending upwardly from said wall and having alined bearing means; means securing said sides within said base, a rotatable pinion interposed between said sides and having means rotatably guided by said bearing means, an upper gage bar slidably guided by said upper slots and having rack means in mesh with said pinion and including an upstanding manipulator, a lower gage bar slidably guided by said lower slots and having rack means in mesh with said pinion and including an upstanding manipulator and embodying a relatively elongated gap, and means extending from said housing and projecting into said gap to limit the displacement of said bars towards or away from each other widthwise of said base.

6. In a perforating device wherein punch means is adapted to be reciprocated relative to perforated anvil means and wherein sheet material is adapted to be interposed between said punch means and anvil means; a base carrying said anvil means and having a depending rim including vertically spaced and horizontally alined upper and lower slots, a channel-shaped housing comprising a bottom wall and spaced sides extending upwardly from said wall and having alined bearing means, means securing said housing within said rim, a rotatable pinion interposed between said sides and having means rotatably guided by said bearing means, an upper gage bar slidably guided by said upper slots widthwise of said base and having rack means in mesh with said pinion and including an upstanding manipulator, a lower gage bar slidably guided by said lower slots widthwise of said base and having rack means in mesh with said pinion and including an upstanding manipulator, one of said bars having a longitudinally disposed gap, and a lug extending from said housing and projecting into said gap to limit the displacement of said bars in unison either towards or away from each other widthwise of said base.

7. In a perforating device wherein punch means is adapted to be reciprocated relative to a perforated anvil means and wherein sheet material is adapted to be interposed between said punch means and anvil means; a base carrying said anvil means and having a depending rim embodying spaced sides including vertically spaced and horizontally alined upper and lower slots, a channel shaped housing comprising a bottom wall and spaced sides extending upwardly from said wall and having alined bearing means, spaced lugs extending from the spaced sides of said housing and fastened to said base within said rim, a rotatable pinion interposed between said sides and having means rotatably guided by said bearing means, a gage comprising an upper gage bar slidably guided by said upper slots widthwise of said base and having rack means in mesh with said pinion and including an upstanding manipulator, a lower gage bar disposed in opposition to said upper bar and slidably guided by said lower slots widthwise of said base and having rack means in mesh with said pinion and including an upstanding manipulator; means common to said housing and one of said bars to limit the displacement of said bars towards or away from each other widthwise of said base, and means for removably interlocking one of said bars with the manipulator of its opposing bar.

8. In a perforating device wherein spaced punch means is adapted to be reciprocated relative to perforated anvil means and wherein sheet material is adapted to be interposed between said punch means and anvil means, a base carrying said anvil means and having a depending rim embodying spaced sides including vertically spaced and horizontally alined upper and lower slots, a channeled shaped housing disposed within said rim comprising a bottom wall and spaced sides extending upwardly from said wall and having alined bearing means and including laterally extending flanges, means securing said flanges to said base, a rotatable pinion interposed between said sides and having means rotatably guided by said bearing means, an upper gage bar slidably guided by said upper slots widthwise of said base and having rack means in mesh with said pinion and including an upstanding manipulator, a lower gage bar slidably guided by said lower slots having rack means in mesh with said pinion and having a longitudinally arranged gap and including an upstanding manipulator, a lug extending from said wall and projecting into said gap to limit the displacement of said bars towards or away from each other widthwise of said base, the aforesaid manipulator of said lower bar having a slot for slidably receiving said upper bar, and said manipulators movably straddling said base and extending appreciably thereabove to removably straddle said sheet material.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,424,895	Girard	Aug. 8, 1922
1,611,960	Thomas	Dec. 28, 1926

FOREIGN PATENTS

Number	Country	Date
163,237	Germany	Oct. 3, 1905