

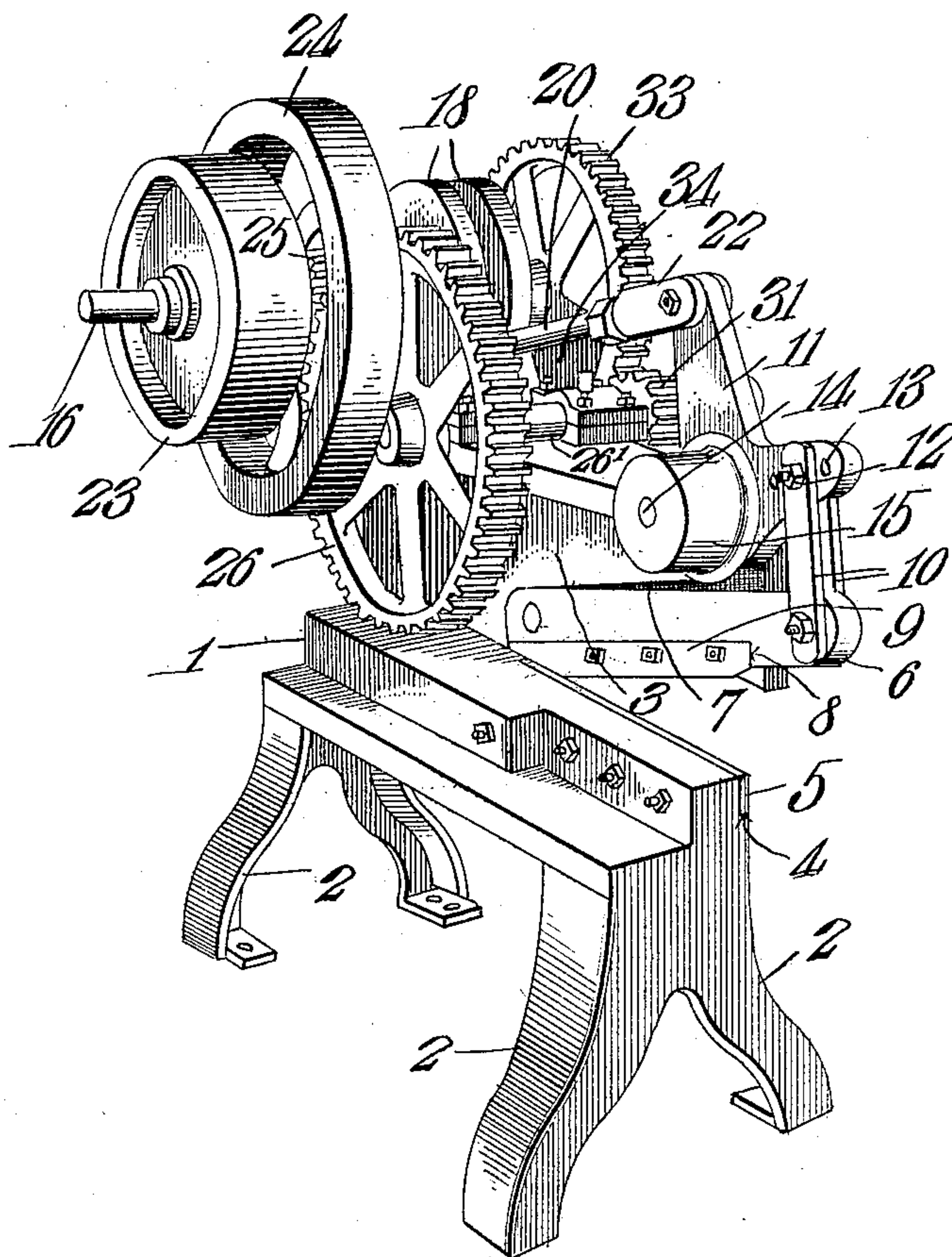
No. 897,179.

PATENTED AUG. 25, 1908.

C. E. WEEKS.
METAL CUTTING SHEARS.
APPLICATION FILED APR. 13, 1908.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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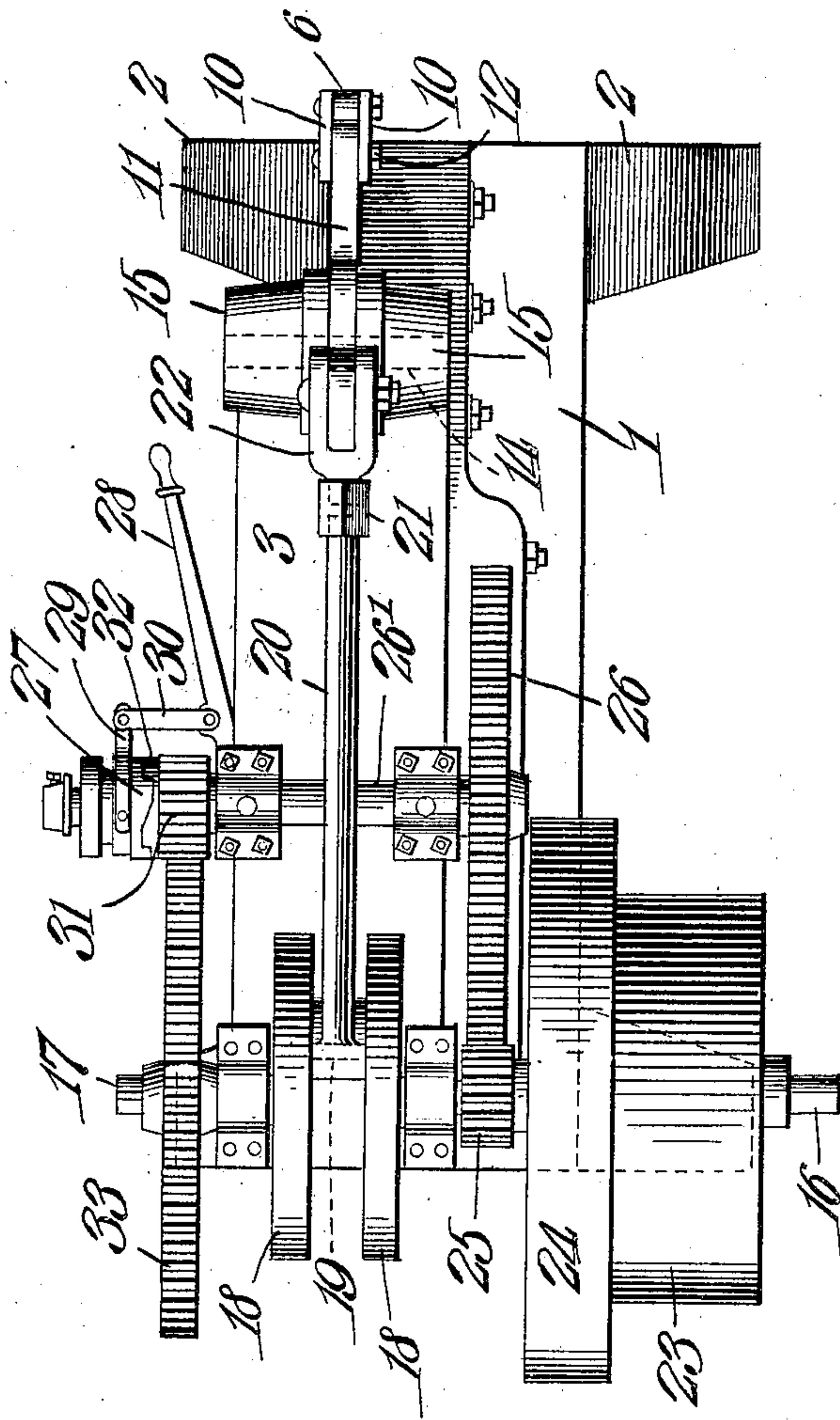
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES E. WEEKS, OF PROSPERITY, MISSOURI.

METAL-CUTTING SHEARS.

No. 897,179.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed April 13, 1908. Serial No. 426,797.

To all whom it may concern:

Be it known that I, CHARLES E. WEEKS, a citizen of the United States, residing at Prosperity, in the county of Jasper and State of Missouri, have invented a new and useful Metal-Cutting Shears, of which the following is a specification.

This invention relates to machines for shearing sheet metal and its object is to provide a simple, durable, and efficient device of this character capable of shaping sheet metal without buckling, crimping or otherwise distorting that portion of the metal cut from the sheet. One of the objectionable features of machines of this character such as heretofore used has been the tendency thereof to bend or otherwise distort cut metal strips particularly if said strips are comparatively narrow.

As heretofore stated one of the objects of the present invention is to overcome this objectionable result.

A further object is to provide means whereby the length of the cut produced by the shears can be regulated so that the shears can cut any desired distance into a sheet of metal.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a perspective view of the machine. Fig. 2 is a plan view thereof.

Referring to the figures by characters of reference, 1 designates the bed of the machine supported upon suitable legs or standards 2 and this bed has an upstanding bearing portion 3 preferably cast integral therewith and extending from one longitudinal edge of the bed, said bearing portion being spaced from the bed for the greater portion of its length. A longitudinal recess 4 is formed in one side of the bed for the reception of the stationary knife 5 of the shears, said knife being secured in the recess by means of bolts or in any other preferred manner.

An arm 6 is pivotally mounted at one end in a recess 7 formed in one face of the bearing portion 3 and said arm has a longitudinal recess 8 in one face in which the movable blade 9 of the shears is secured by means of

bolts or in any other preferred manner. This blade is so positioned that when the arm 6 is swung downwardly it will lap the blade 5 so that the meeting edges of the two blades co-act to cut any material which may be placed between them. The inner end of the blade 9 constantly laps the corresponding end of blade 5.

Pivotally connected to the outer end of arm 6 are links 10 extending upward and fastened to one arm of a bell crank lever 11 by means of a bolt 12 designed to be placed in any one of a series of openings 13 in said arm. The bell crank lever 11 is fulcrumed upon a pin 14 extending through bosses 15 upon the upstanding portion 3 of the bed 1.

Journaled upon the upstanding bearing portion 3 are alining shafts 16 and 17 spaced apart at their inner or adjoining ends and provided at said ends with disks 18 connected by a pin 19 on which is mounted a pitman 20 adjustably connected as by means of a coupling sleeve 21 to a fork 22 pivotally attached to the upstanding arm of bell crank lever 11. A drive pulley 23 is loosely mounted on shaft 16 and is secured to and rotates with a fly-wheel 24 and a small drive gear 25. This gear meshes with a large intermediate gear 26 keyed or otherwise secured to a countershaft 26' journaled upon the bearing portion 3 and having a clutch member 27 feathered thereon and designed to be actuated in any suitable manner as by means of a lever 28, a clutch engaging member 29 and a link connection 30. A gear 31 is loosely mounted on the countershaft and has an integral clutch member 32 designed to be engaged by the clutch member 27 so as to couple said gear to the shaft 26'. Gear 31 meshes with a large gear 33 keyed or otherwise secured to the shaft 17.

Motion is designed to be transmitted to pulley 23 through a belt from any suitable source and as the pulley is loose on shaft 16 and the fly wheel 24 and gear 25 are fastened to said pulley it will be obvious that the gear and fly wheel will rotate with the pulley and cause shaft 26' and gear 26 to rotate. The balance of the machine, however, will remain stationary until the clutch member 25 is shifted into engagement with clutch member 32. This will result in gear 31 being coupled to shaft 26' and motion will therefore be transmitted through this gear to gear 33 and shaft 17. As the two disks 18 are connected by means of pin 19 and one of them is attached to shaft 17 it will be apparent that said

disks will thus be rotated and will cause the oscillation of pitman 20. The bell crank lever 11 will therefore be rocked on its bearing pin 14 and an up and down swinging movement imparted to arm 6 and blade 9. The length of movement of blade 9 will of course be regulated by the distance of the bolt 12 from pivot 14. By connecting the links 10 to the bell crank lever close to its fulcrum the stroke of the blade 9 will be less than when the links are connected to the outer end portion of the bell crank lever. It will be seen therefore that the shears can be adjusted so as to cut an incision of any desired length. Moreover, the parts can be further adjusted by means of the coupling sleeve 21 which can be turned so as to shift the head 22 toward or away from pitman 20.

A machine such as described is simple, durable, and efficient and is advantageous in that the length of the cut can be controlled thus making it possible to cut into sheet metal up to any predetermined mark thereon. The mechanism is under the constant control of the operator who can promptly stop the cutting action of the machine by manipulating lever 28. In order that the upper blade 9 may be maintained normally elevated as shown in Fig. 1 the gear 33 is provided with a weighted portion 34 which serves to operate by gravity to pull arm 6 upwardly through the intermediate mechanism whenever the gear 31 is uncoupled from countershaft 26'.

What is claimed is:

1. The combination with a bed having an upstanding bearing portion thereon and spaced from the bed for a portion of its length; of a relatively fixed blade upon the bed, a pivotally supported blade carried by the upstanding portion, a bell crank lever connected to and disposed to actuate said pivoted blade, a train of gears, means actuated thereby for

rocking the bell crank lever, a drive element for actuating the gears, and means for shifting one of the gears to place the bell crank lever into or out of operative relation with the drive element.

2. The combination with a bed having an upstanding bearing portion thereon and spaced from the bed for a portion of its length; of a relatively fixed blade upon the bed, a pivotally supported blade carried by the upstanding portion, a bell crank lever connected to and disposed to actuate said pivoted blade, a train of gears, means actuated thereby for rocking the bell crank lever, a drive element for actuating the gears, means for shifting one of the gears to place the bell crank lever into or out of operative relation with the drive element, said train of gears including a gear having a weight for maintaining all of the gears and the pivoted blade normally in a predetermined position.

3. The combination with a bed, and an upstanding bearing portion thereon spaced from the bed for a portion of its length; of a relatively fixed blade upon the bed, a relatively movable blade pivotally mounted upon said upstanding portion, a bell crank lever, an adjustable connection between said lever and the pivoted blade, mechanism upon the bearing portion for regulating the lever, said mechanism including means for holding the lever and the pivoted blade normally in a predetermined position, and means for placing said mechanism in or out of operative relation with the lever.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. WEEKS.

Witnesses:

F. B. BLACK,
A. L. STALTER.