

(No Model.)

H. DRESES.
METAL SHAPING MACHINE.

No. 544,569.

Patented Aug. 13, 1895.

Fig. 1.

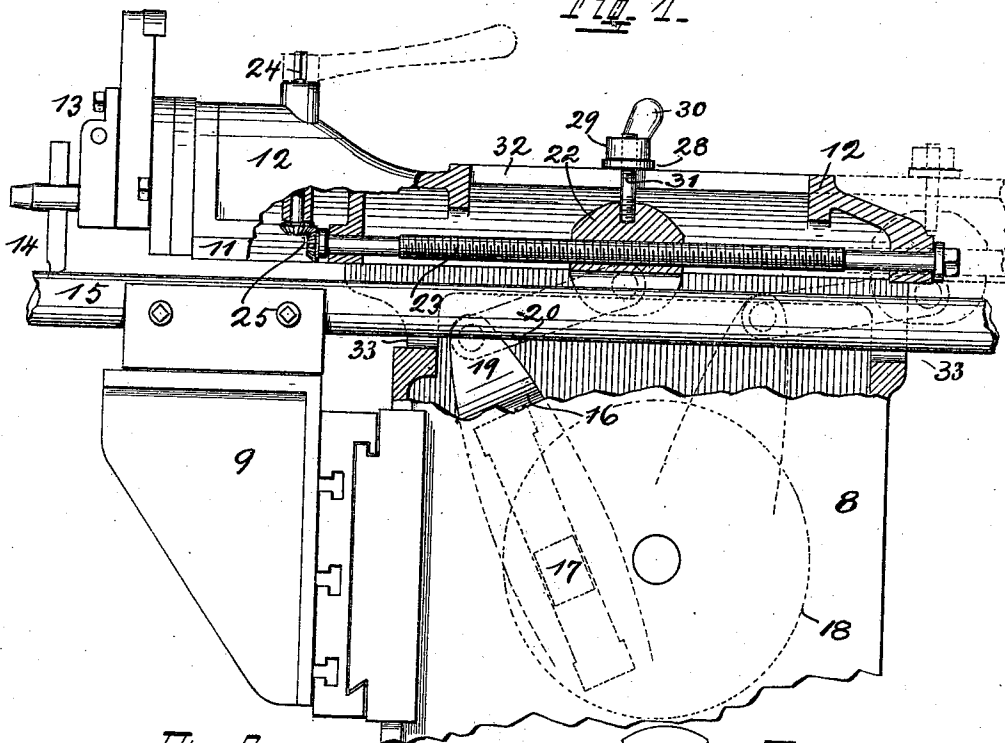


Fig. 2.

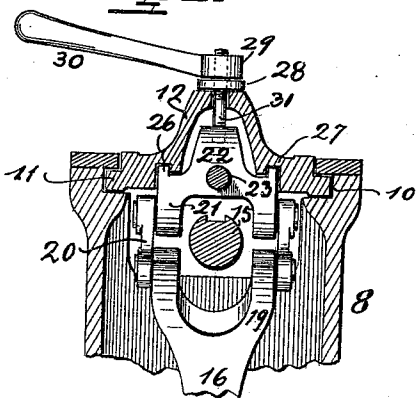


Fig. 3.

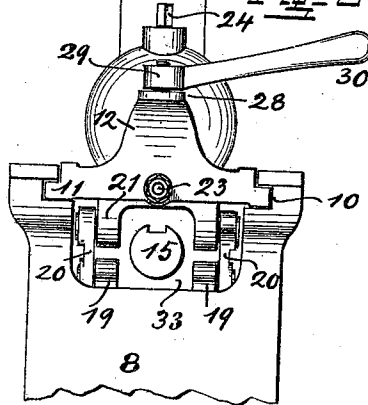
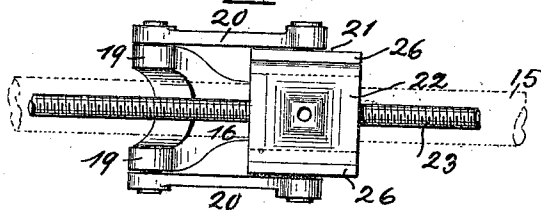


Fig. 4.



Attest
A. L. Kline.
Witness

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UNITED STATES PATENT OFFICE.

HENRY DRESES, OF CINCINNATI, OHIO.

METAL-SHAPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 544,569, dated August 13, 1895.

Application filed January 21, 1895. Serial No. 535,685. (No model.)

To all whom it may concern:

Be it known that I, HENRY DRESES, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Shapers; 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, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to improvements in shapers, crank-shapers, and all similar machine-tools where a cutting-tool carried by a reciprocating tool-carrier or so-called "ram" acts upon the work supported in a fixed position within the range of its movement. The tool is adjustable to various positions, particularly to and from the work, to cut more or less deep, while the stroke of the ram is adjustable in a manner to vary the length over which the tool acts upon the work.

By reason of the peculiar construction of these machines, particularly of their frame and the location of the parts thereon which support the work, only work of limited size, or such where the cutting is to be done near the end lines thereof, can be shaped on them, while otherwise where the portion to be cut is remote from the end lines such part cannot be brought close enough to come within the reach of the tool. When cutting key-seats in shafts, for which purpose these machines are well adapted and extensively used, this limitation makes itself felt when such key-seats are located remote from the ends of the shaft, which causes the intervening shaft part to interfere by preventing the part to be cut out from coming within reach of the tool. To overcome this defect and adapt such machines for working pieces of metal of limited thickness, but of considerable lengths and at any point of the latter, is the object of my invention, which latter is described in the following specification, together with its operation, parts, and construction, and illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of the upper part of a crank-shaper, being a well-adapted representative type of this class

of machines. Fig. 2 is a vertical cross-section, and Fig. 3 an end view, of Fig. 1. Fig. 4 is a top view of internal details removed.

8 is the upper part of the frame of such a machine, carrying at one end the adjustable work-support 9. Inside at its top are provided two grooved guideways 10, opposite each other and adapted to receive the flanges or slides 11 of the tool-carrier or ram 12. One end of this latter overhangs the work-support and is provided with the tool-holder 13 and the tool 14, secured to it adjustably with reference to the work. This latter may represent in this case a shaft 15, requiring the cutting of a key-seat located at a considerable distance from the end. This shaft is supported and held by the work-support in the usual manner. Ram 12 is reciprocated in its guideways by a rocker or vibrating arm 16, swinging on a fixed center and receiving its motion from a wrist or crank pin 17, carried around by a rotating crank-wheel 18. This crank-pin is adjustable in its position on the crank-wheel to change the length of motion of the vibrating arm, and thereby also the length of the stroke of the ram to produce cuts of different lengths. The structural details of this adjustment, together with the general construction of the ram and the adjustable tool-holder thereon, do not form any features of my invention.

The upper end of vibrating arm 16 is forked, each branch 19 connected to a link 20, the other ends of which connect each to a flange 21, depending from a nut 22, bored and threaded lengthwise and supported on a screw 23, which is longitudinally confined within the ram. By means of these links 20, nut 22, and screw 23, the vibrating arm is connected to the ram. The position of this latter on nut 22 may be adjusted by turning screw 23, which then moves in either direction, according to the manner of its operation, through said nut and assumes a different position therein. Being longitudinally confined to the ram, this latter moves with the screw, and by its position determines the location of the points on the work between which the tool cuts. This adjustment is independent of and is not affected by nor does it affect the adjustment of the length of the stroke. The turning of screw 23 for this adjustment is by a

suitable implement turning an upright spindle 24, having its bearings in the ram and connecting to screw 23 by miter-gearing 25. To prevent nut 22 from exerting any unequal
 5 binding or springing strains within and against the sides of the ram, induced by its tendency to turn with screw 23, feathers 26 are provided on each side of the former, which take into grooves 27 on the inside of the ram,
 10 by which parts ram and nut 22 are confined to a longitudinal movement on each other and on which parts they slide. The adjusted position of ram 12 or nut 22 is fixed by a washer 28, caused to impinge on the former by means
 15 of a lock-nut 29, operated by a handle 30 on a lock-screw 31, which reaches through a slot 32 in the ram and passes into nut 22, to which it is secured.

As will be seen, by reason of the forked upper end of the vibrating arm 16, the two links 20, and the two flanges 21 on nut 22, a clear passage is provided centrally below the tool-carrier. This passage is lengthwise extended
 20 by providing openings 33 33 at proper height and in line therewith in the opposite ends of the upper part of frame 8, so that no obstruction whatever intervenes to the introduction
 25 below the tool-carrier of work of any length which may be passed in and readily adjusted to any position wherever it may be required.
 30

Having described my invention, I claim as new—

1. In a shaper or similar machine-tool, the combination of the reciprocating tool-carrier, the vibrating arm 16, and the two links 20, to
 35 connect the vibrating arm to the tool-carrier, said vibrating arm spreading at its upper end in two branches or forks to the outside of each of which links 20, connect, to provide an open clear space for the purpose described. 40

2. In a shaper, or similar machine-tool, the combination of a tool-carrier or ram 12, a nut 22, adjustably supported within ram 12, flanges 21 depending therefrom on each side, a vibrating arm 16, having the two fork-
 45 branches 19 at its upper end, two links 20, each connecting one of the fork-branches 19 to one of the depending flanges 21 of nut 22, to connect it to arm 16 for the purpose of reciprocating it with ram 12, a frame 8, on which
 50 this latter is supported, having openings 33, in opposite ends in line with each other and in line with the open space between the forked end of arm 16, links 20 and flanges 21 depending from nut 22, thereby providing a continuously open and unobstructed passage
 55 clear through the machine.

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

HENRY DRESES.

Witnesses:

C. SPENGLER,
 C. FINN.