

A. C. CAMPBELL & N. W. CUMMINS.  
 FEED MECHANISM FOR HEADING MACHINES.  
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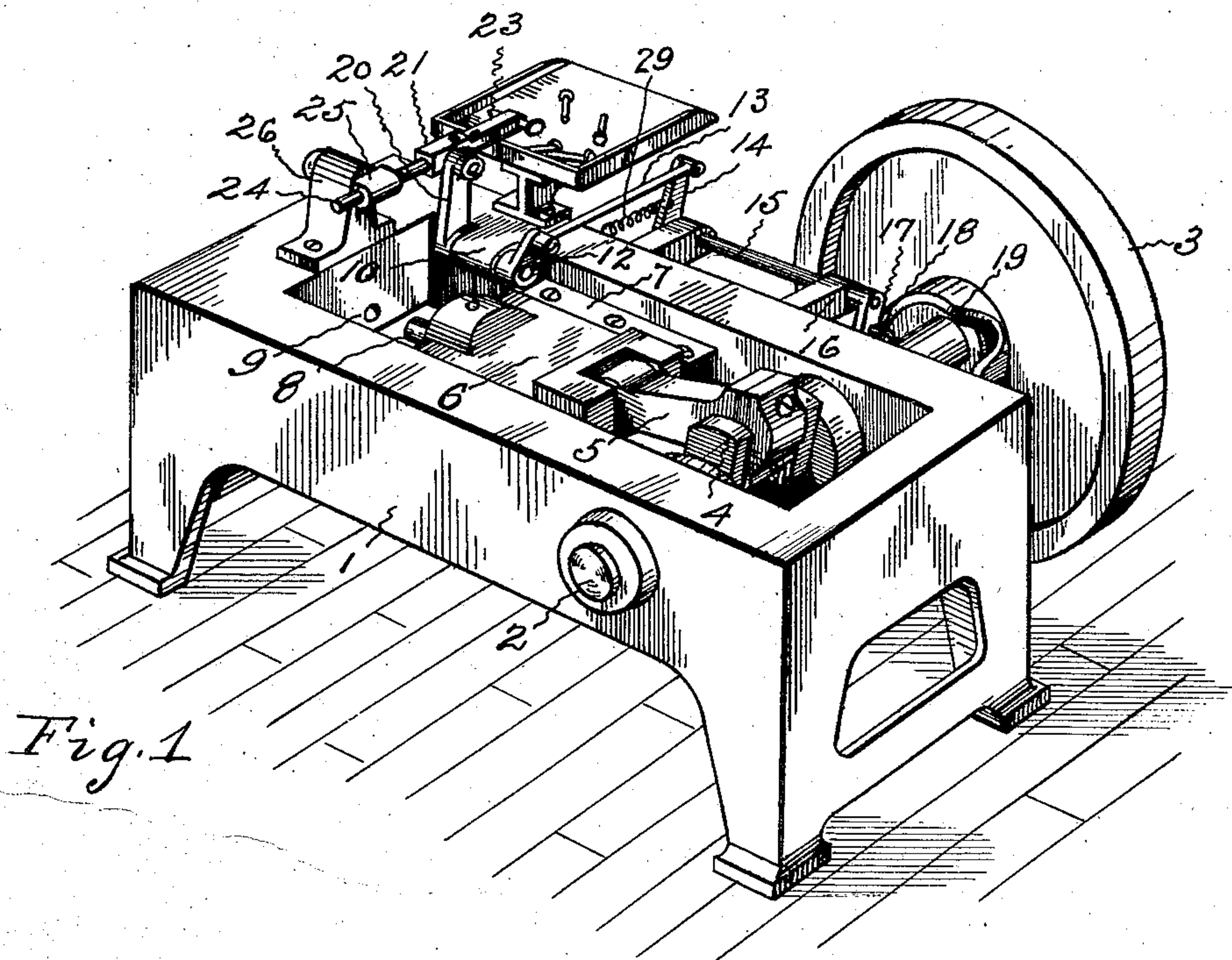


Fig. 1

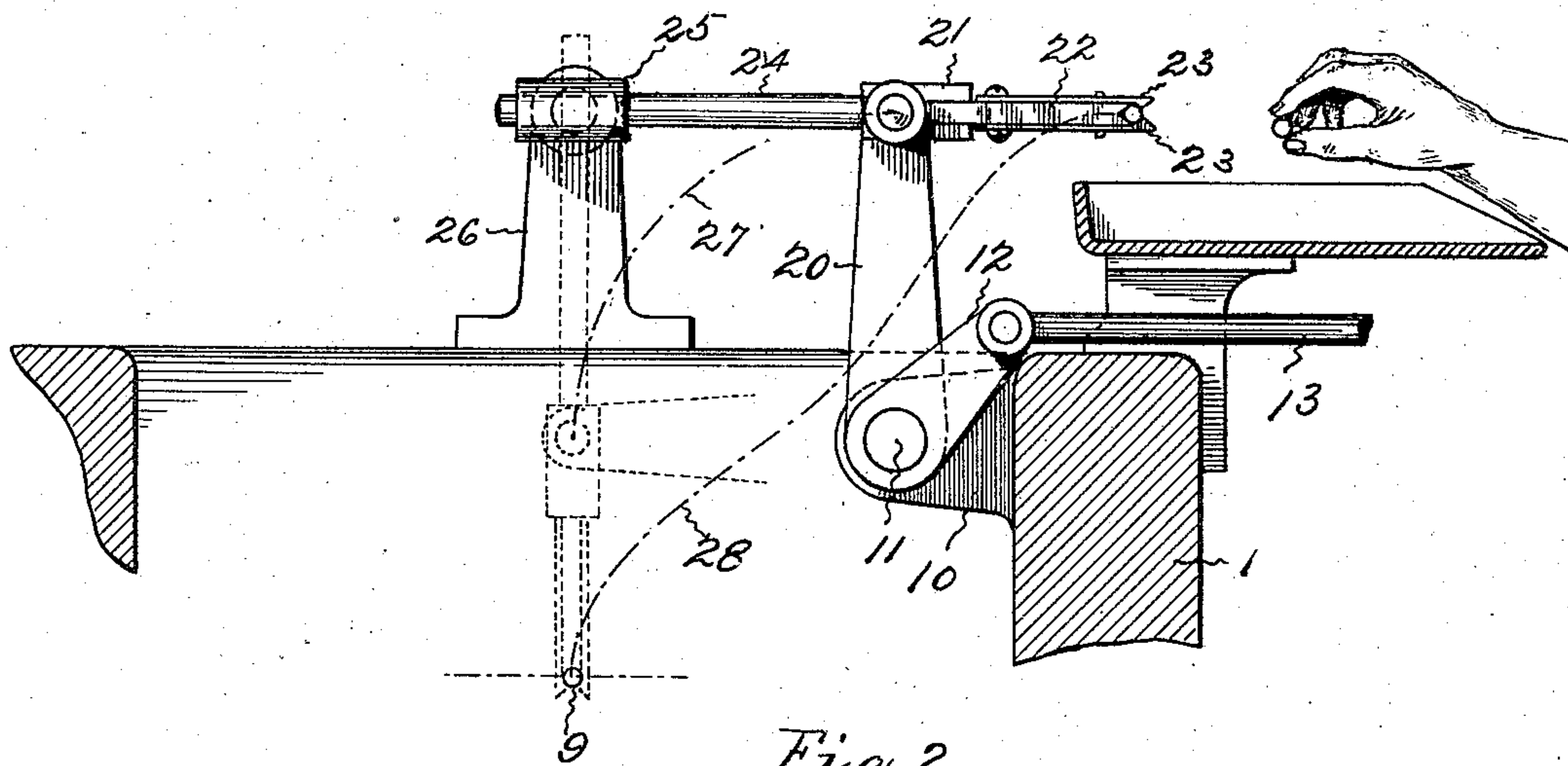


Fig. 2

WITNESSES

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## FEED MECHANISM FOR HEADING-MACHINES.

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*To all whom it may concern:*

Be it known that we, ANDREW C. CAMP-  
BELL and NORMAN W. CUMMINS, citizens of  
the United States, residing at Waterbury,  
in the county of New Haven and State of  
Connecticut, have invented a new and use-  
ful Improvement in Feed Mechanism for  
Heading-Machines, of which the following  
is a specification.

This invention relates to a feed mechan-  
ism for those machines in which, by means  
of a punch and die, small metallic pieces or  
blanks are upset and headed, or punched, or  
trimmed, or re-headed. This feed mechan-  
ism is designed to receive the blanks to be  
headed, re-headed or trimmed, and carry  
them laterally into accurate alinement with  
the axis of the die opening and punch.

The object of this invention is to provide a  
very simple, easily operated, and accurate  
feed mechanism, which will take the blanks  
from one side of such a machine, and carry  
them inwardly and downwardly into the de-  
sired position, the movements of the parts  
of the feed mechanism being such that the  
fingers carrying the blanks, in their upper  
position move substantially horizontal, for  
a short distance, so that the blanks and  
fingers will clear the frame, and all mech-  
anism mounted thereon, and in their lower  
position move substantially vertical, for a  
short distance, so that the blanks will be  
carried into exact position and the fingers  
will avoid the die and punch mechanism.

Figure 1 of the accompanying drawings  
shows a feed mechanism which embodies this  
invention applied to a simple type of head-  
ing machine. Only so much of the general  
mechanism of this header is shown as is  
necessary to illustrate the relation and ac-  
tion of the feed mechanism. Fig. 2 shows,  
on larger scale, a side elevation of the feed  
mechanism, and a portion of the machine  
frame. In this view the upper or receiving  
position of the feed mechanism is shown in  
full lines, and the lower or delivery position  
is indicated by dotted lines.

Mounted transversely of the frame 1, of  
the machine illustrated, is the main shaft 2,  
which has the usual fly wheel 3 at one end,  
and, between the sides of the frame, the  
crank 4. This crank is connected by a pit-  
man 5 with a gate 6 that is adapted to move  
back and forth in ways 7 that extend along

the inside walls of the sides of the frame. 55  
The gate carries a punch 8, which, as the  
shaft is rotated and the crank revolved, is  
reciprocated toward and from the die open-  
ing 9. The punch and die may be construct-  
ed in any common way and may have any 60  
desired conformation.

The feed mechanism which embodies the  
present invention, is capable of receiving  
blanks from any common form of delivery  
mechanism, or from the hand of the oper- 65  
ator. For simplicity, as the blank present-  
ing mechanism forms no part of the present  
invention, the feed mechanism is illustrated  
as receiving blanks passed to it by hand.

Supported by a bracket 10, projecting in- 70  
wardly from the side of the frame, is a short  
rocker shaft 11. On one end of this rocker  
shaft is an arm 12, which is connected by a  
link 13, with a rocker arm 14 that is mount-  
ed on a rocker shaft 15. This shaft, which 75  
is supported by brackets 16, has a rocker  
arm 17 bearing a roll 18, which is held in  
engagement with the cam 19 on the main  
shaft. A spring 29 may be arranged be-  
tween the arm 14 and the frame, for the 80  
purpose of keeping the roll 18 against the  
cam 19.

Extending from the rocker shaft 11 is a  
rocker arm 20. A block 21 is swiveled to,  
or pivotally connected with, the upper end 85  
of this rocker arm. This block has a for-  
wardly extending arm 22 carrying a pair of  
spring fingers 23. Projecting backwardly  
from the block 21 is a rod 24. This rod ex-  
tends through and is free to move longitudi- 90  
nally in an opening through the guiding  
block 25. This guiding block is swiveled  
in the top of the bracket 26, that is attached  
to the top of the end of the frame of the  
machine. The axis of the swiveled guiding 95  
block 25 is located directly over the axis of  
the punch and the die opening. The length  
of the arm 20, from the axis of the rocker  
shaft 11 to the axis of the pivot of the block  
21, is equal to the distance from the axis of 100  
the rocker shaft 11 to the vertical plane  
passing through the axis of the swivel block  
25 and the punch and the die opening.

With this mechanism the pieces or blanks  
to be headed, re-headed, or trimmed, are in- 105  
serted, one at a time, horizontally, by hand,  
or any common mechanism, between the  
horizontally extending spring fingers. When



the machine is in operation, the rocker arm 20 turns on the arc indicated by the dotted line 27. As this arm moves through this arc, the rod to which the spring fingers are connected reciprocates longitudinally through the swivel block mounted on the fixed bracket, which block at the same time turns on its axis, so that the rod with the spring fingers moves from the horizontal position shown in full lines, to the vertical position shown in dotted lines in Fig. 2. This movement of these parts causes the fingers to carry the blank through the course indicated by the dotted line 28, from the horizontal position, where the fingers receive the blank, to the vertical position between the punch and die. When the rocker arm moves upward the blank holding fingers move through the same path, but of course in the reverse direction.

As the arm 20 starts when feeding a blank, from a vertical position, the downward trend of the arc is at first but little, consequently, for a short distance the first part of the movement of the fingers is practically horizontal. This carries the blank so that it clears the frame and any mechanism mounted thereon. As, during the last portion of its movement, the arm 20 is almost horizontal, and the rod and fingers are in a vertical position, the last part of the movement of the fingers and blank is practically vertical. This action causes the fingers to bring the blank into accurate line with the punch and die and to snap off from the blank after it has been grasped, without interference with the die and punch or any of the operating mechanisms connected therewith. With this organization, the arm 20 might stop more or less above or below an exact horizontal position, in order to aline the blank horizontally with the die, without carrying the blank materially out of the vertical plane which passes through the axis of the die. As a result of this, the blanks are fed accurately and are always passed properly to the die.

The invention claimed is:

1. The combination in a feed mechanism for a header, of fingers adapted to receive a blank, an oscillatory support for said fingers,

a swiveled guide for said fingers, and mechanism for oscillating the support.

2. The combination in a feed mechanism for a header, of fingers adapted to receive a blank, a rocker arm supporting said fingers, a pivotal connection between the rocker arm and the fingers, a swiveled block for guiding the fingers, and means for oscillating the rocker arm.

3. The combination in a feed mechanism for a header, of fingers adapted to receive a blank, a rocker arm, a pivotal connection between the rocker arm and the fingers, a block for guiding the fingers, a rotary support for said block, and mechanism for oscillating the rocker arm.

4. The combination in a feed mechanism for a header, of spring fingers adapted to receive a blank, a block to which said spring fingers are connected, a rocker arm, a pivotal connection between said block and rocker arm, a rod connected with the finger block, a guiding block in which the rod has a longitudinal movement, a rotary support for said guiding block, and mechanism for oscillating the rocker arm.

5. In combination in a blank feed mechanism, a rocker arm, mechanism for rocking the arm, a fixed support, fingers adapted to receive a blank, a swivel connection between fingers and the rocker arm, and a swivel connection between the fingers and the fixed support.

6. A feed mechanism for a header, having fingers adapted to receive blanks, an oscillatory support for said fingers, and a rotary guiding support for said fingers.

7. A feed mechanism for a header having fingers adapted to receive blanks, an oscillatory support, mechanism for oscillating the support, a pivotal connection between the fingers and said support, and means for swinging the fingers on the pivotal connection, as the support is oscillated.

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Witnesses:

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