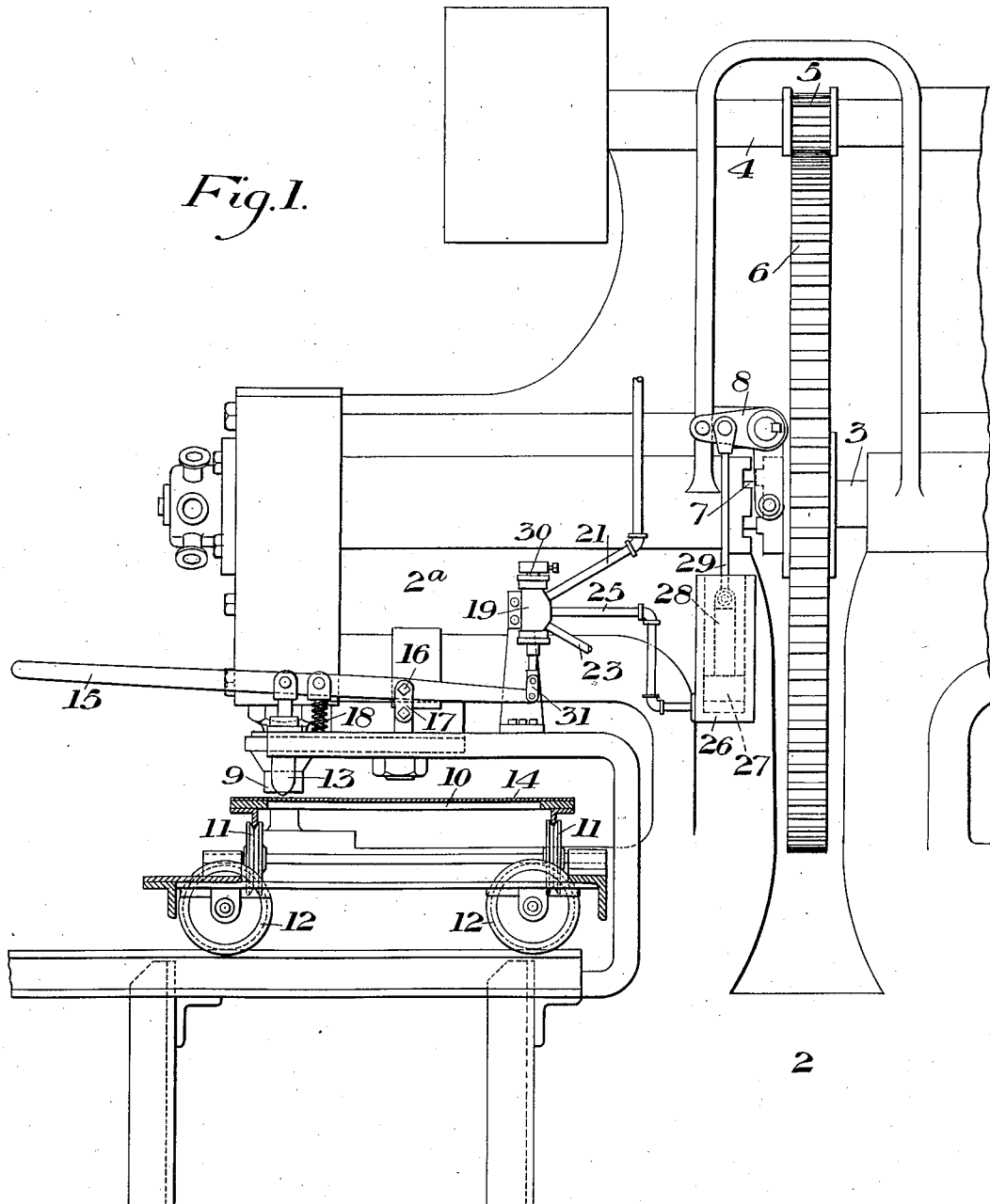


J. H. HEALD, JR.
PUNCHING MACHINE.
APPLICATION FILED JULY 16, 1907.

933,560.

Patented Sept. 7, 1909.

2 SHEETS—SHEET 1.



WITNESSES

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John Miller

INVENTOR

James H. Heald, Jr.
by Gardner, Dymes & Parmelee
his attys

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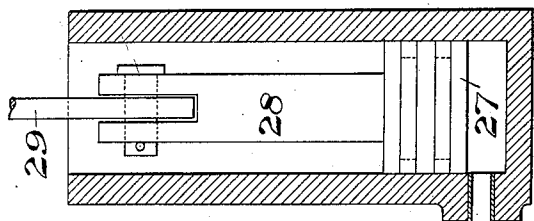


Fig. 2.

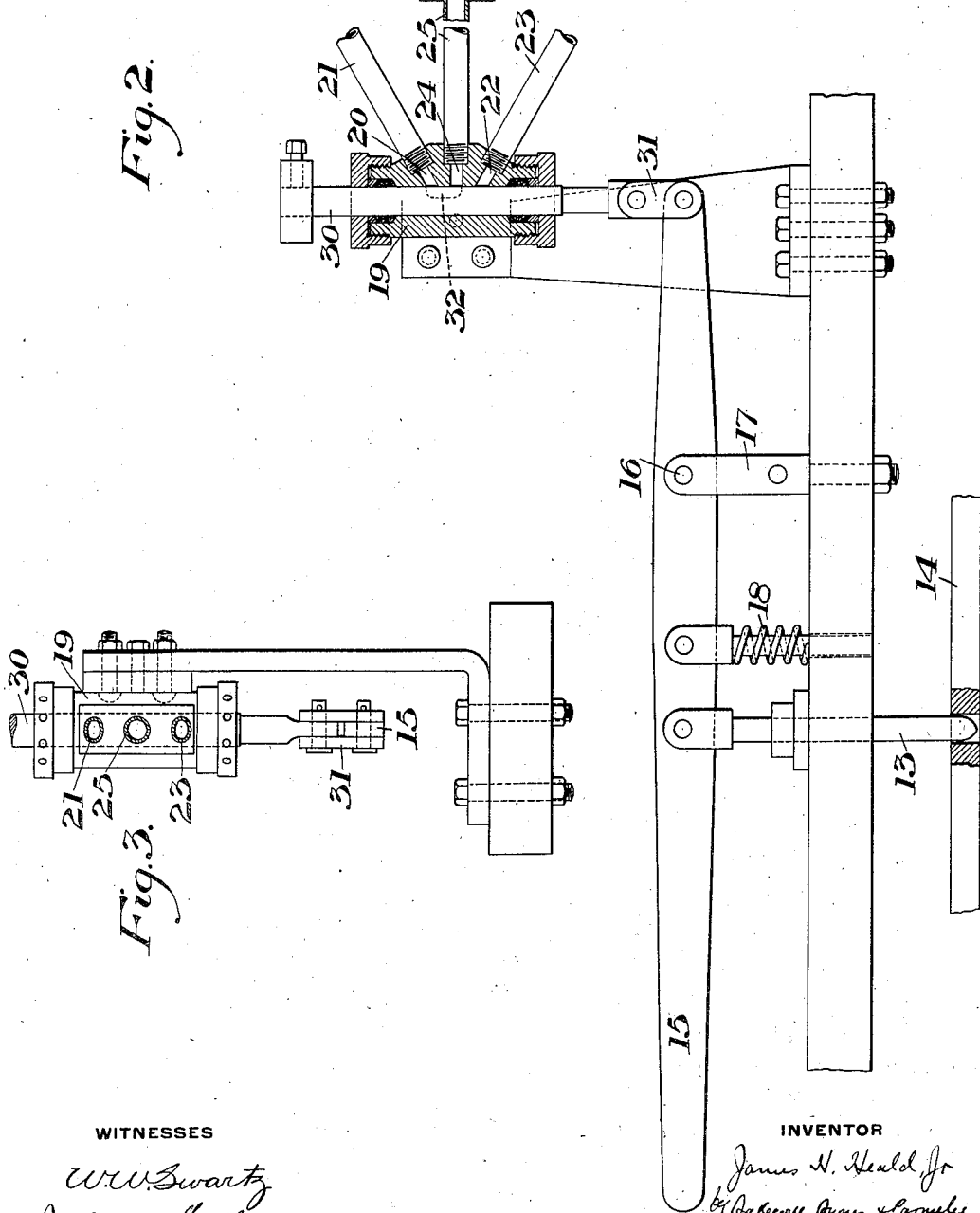


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

JAMES H. HEALD, JR., OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN BRIDGE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

PUNCHING-MACHINE.

933,560.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed July 16, 1907. Serial No. 384,064.

To all whom it may concern:

Be it known that I, JAMES H. HEALD, JR., of Chicago, Cook county, Illinois, have invented a new and useful Attachment to a Punching-Machine, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end elevation, partially in section, of a punching machine embodying my invention; Fig. 2 is an end view on a larger scale, with certain of the parts in section, showing the centering punch, and the valve mechanism operated in connection therewith; and Fig. 3 is a detail view showing the manner of supporting the valve.

My invention has relation to punching machines of the class described and claimed in the patent to Weatherson, No. 823,148, dated June 12th, 1906. Machines of this type are provided with a support for the plate to be punched, which is universally movable in a single plane, and which carries a templet or pattern plate, located to one side of the plate to be punched. Centering means are provided coöperating with the templet or pattern plate to effect the position of the support and the plate relatively to the punch, such centering means consisting preferably of a pin adapted to enter the perforations in the pattern plate or templet. When the pin is entered in any particular perforation, and the punch is operated, a hole is punched in the plate in a correct position.

My present invention is designed to provide means controlled by the operation of the centering pin, whereby the punch is automatically thrown into operation when the pin enters a perforation in the pattern plate or templet; or, in other words, to provide means whereby the centering pin and the punch are operated by one motion of the hand, thereby enabling the operation of the machine to be carried out much more rapidly, and making it impossible to punch holes at a wrong place in the plate.

My invention will be best understood by reference to the accompanying drawings, which will now be described, it being premised, however, that various changes may be made in the details of construction and arrangement by those skilled in the art, without departing from the spirit and scope of my invention.

Referring to these drawings, the numeral 2 designates the frame of the punch having an overhanging arm 2^a in which the punch and its operating mechanism are supported.

3 designates the punch-operating shaft, which is operated from the drive shaft 4 through the pinion 5 and gear wheel 6. The gear wheel 6 is loosely mounted on the drive shaft, and is arranged to be connected therethrough through the medium of a suitable clutch 7 actuated by a bell crank lever 8 in the manner presently described. The punch shaft 3 lies within the overhanging arm 2^a of the frame and actuates at the forward end of the same the usual mechanism, (not shown), for imparting a reciprocating motion to the punch, the perforating end of which is indicated at 9.

10 indicates the universally movable table or support for the plate to be punched, and which is mounted upon the two sets of track wheels 11 and 12, substantially as shown and described in the Weatherson patent above referred to, to which reference may be had for the details.

13 designates the centering pin, which is adapted to enter perforations in the pattern plate or templet 14, (see Fig. 2), in the manner described in said patent. This pin is pivotally connected to a hand lever 15, which is fulcrumed at 16 upon a supporting arm or bracket 17, a spring 18 being arranged to normally hold said lever in its elevated position.

19 designates a valve casing having a supply port 20, to which is connected a supply pipe 21, and an exhaust port 22, to which is connected an exhaust pipe 23. Said casing also has a port 24, which is connected by a pipe or passage 25 with one end portion of a cylinder 26. Working in this cylinder is a piston 27, whose rod 28 is connected by a link 29 with the clutch operating bell crank lever 8 before referred to. Working through the valve casing 19 is a piston valve 30, which is connected to the lever 15 by a link 31, and which is provided with a port 32, (shown in dotted lines in Fig. 2), which is normally in a position to connect the cylinder 26 with the exhaust port 22. When, however, the lever 15 is depressed to cause the centering pin 13 to enter one of the holes or perforations in the pattern plate or templet, as shown in Fig. 2, said valve is moved to bring the port 22 into position to connect

the supply pipe 21 and admission port 22 with the cylinder 26, thereby admitting power to said cylinder. This actuates the bell crank 8 to throw the clutch 7 into engagement and start the punch. The reverse movement of the lever for withdrawing the pin 13 returns the valve to its exhaust position, and the piston 27 falls and throws the clutch 7 out of connection.

10 The advantages of my invention will be readily understood. The same motion of the operator which enters the centering pin in the pattern plate automatically throws the punch out of operation. This not only effects a large saving of time in the operation of the machine, but it makes it impossible to punch a hole in the wrong plate, or to start the punch at the wrong time.

Any suitable power may be used in the cylinder 26. Various changes may also be made in the connections for operating the clutch, in the form and character of the clutch, and in the construction and arrangement of the valve mechanism.

25 What I claim is:—

1. In a punching machine, a device for controlling the operation of the punching tool, a motive cylinder connected to the said device, a valve for controlling the operation of the motive cylinder, a centering pin, a lever for actuating said pin, and actuating

connections between the lever and pin; substantially as described.

2. In a punching machine of the character described, a clutch for controlling the operation of the punch, a motive cylinder for shifting the clutch, a valve for controlling the operation of the motive cylinder, a centering pin, a lever for actuating said pin, and connections between said lever and the valve; substantially as described.

3. In a punching machine, a device for controlling the operation of the punching tool, a motive cylinder connected to the said device, power connections for said cylinder, a valve for controlling such connections, a centering pin connected with the stem of said valve; substantially as described.

4. In a metal working machine, a tool, a device for throwing the tool into and out of operation, a power cylinder connected to said device, power connections for the cylinder, and a manually controlled valve for controlling the power connections; substantially as described.

In testimony whereof, I have hereunto set my hand.

JAMES H. HEALD, JR.

Witnesses:

P. J. CUNNEEN,
A. J. JACOBY.