

957,914.

2 SHEETS--SHEET 1.



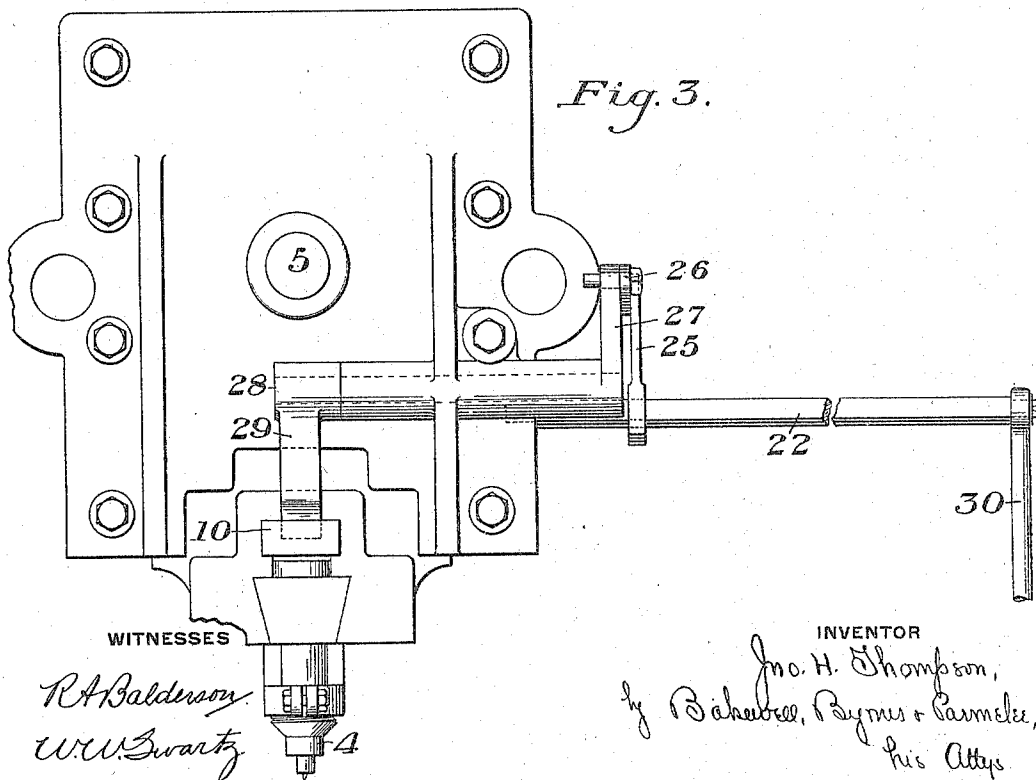
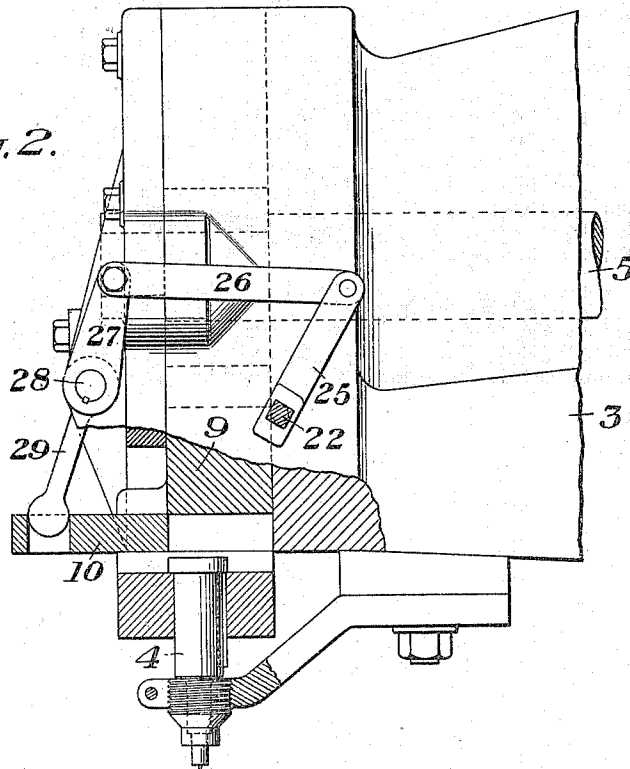
RA Balderson
WW Swartz

INVENTOR

INVENTOR
Jno. H. Thompson,
By Bakerell, Byrnes & Parmelee,
his Attys.

957,914.

2 SHEETS—SHEET 2.



WITNESSES

R. A. Balderson
W. W. Swartz

INVENTOR

INVENTOR
Jno. H. Thompson,
by Bechewell, Byrnes & Carmichael,
His Attys.

UNITED STATES PATENT OFFICE.

JOHN H. THOMPSON, OF CHESWICK, PENNSYLVANIA, ASSIGNOR TO AMERICAN BRIDGE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

PUNCHING-MACHINE.

957,914.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed January 21, 1908. Serial No. 411,892.

To all whom it may concern:

Be it known that I, JOHN H. THOMPSON, of Cheswick, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Punching-Machines, 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—

10 Figure 1 is an end elevation of a punching machine embodying my invention, and Figs. 2 and 3 are respectively end and front views of a portion of the machine showing the application of my invention thereto.

15 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. In this class of machines, a support is provided for the plate to be punched, which support is universally movable in a single plane, and which carries a templet or pattern plate located to one side or at one end of the plate to be punched. Centering means are provided which coöperate with the templet or pattern plate to secure the support and the plate relatively to the punch. These centering means consist preferably of a pin carried by a lever and adapted to enter the perforations in the pattern plate or templet. When the pin is entered in any particular perforation of the templet, and the punch is operated, a hole is punched in the plate in the correct position.

35 The present invention is designed to provide improved means controlled by the operation of the centering pin, whereby the punch will be automatically thrown into operation when the pin enters a perforation in the pattern plate; that is to say, to provide means whereby the centering pin and the punch may be operated by one motion of the hand, doing away with separate levers and connections for controlling the operation of the tool, enabling the operation of the machine to be carried out more rapidly, and making it impossible to punch holes at a wrong place in the plate by throwing the plunger into operation prematurely.

50 The precise nature of 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 as defined in the appended claims.

In these drawings, the numeral 2 designates the frame of the punching machine, having an overhanging arm 3 in which the punch 4 and its operating mechanism are supported.

5 designates the punch operating shaft, which is driven from the driving shaft 6 by the pinion 7 and gear wheel 8.

9 is the reciprocating ram of the punch which operates upon the tool 4 by means of the gag plate 10, which is arranged to be interposed between the lower end of the ram and the head of the tool.

The parts as thus far described may be of any ordinary or usual character. My invention is not concerned with the particular construction or character of the punching machine itself.

11 designates the universally movable table or support for the plate to be punched. This is mounted upon the two sets of track wheels 12 and 13, substantially as shown and described in the Weatherson patent above referred to, to which reference may be had for the details. This table or support may, however, be mounted in any suitable manner for the purpose.

14 designates the centering pin, which is adapted to enter the perforations in the pattern plate or templet. This pin is loosely connected at its upper end to a hand lever 15, which is fulcrumed at 16 in a link 17 carried by a supporting arm or bracket 18 fastened to the frame member 2^a which supports the moving table 11.

19 is a spring, which is interposed between the lever and the bracket or support 18 for the purpose of normally holding the lever in its elevated position with the pin 14 withdrawn from the pattern plate or templet.

20 is a link, which has a pin and slot connection 21 at one end portion with the lever 15, and which is connected at its opposite end portion to an arm 21^a of a rock shaft 22 having attached thereto an adjustable counterweight 23. Rigidly secured to the shaft 22 is an upwardly extending arm 25, which is connected by link 26 with an arm 27 on a rocker shaft 28 journaled in bearings on the front end of the overhanging arm 3 and having a depending arm 29 which operatively engages the sliding gag plate 10. The shaft 22 may be conveniently supported

and journaled at one end in the casing of the overhanging arm, and its opposite end portion is journaled in a supporting stud 30 which is carried by the arm or bracket 18.

- 5 The operation is as follows:—When the operator depresses the lever 15 for the purpose of causing the index or centering pin 14 to enter one of the perforations in the templet, the connections 20, 21, 21^a, 22, 25, 10 26, 27, 28 and 29 are thereby operated to move the gag 10 underneath the ram of the punch so that the reciprocation of the ram will operate the punch. As soon as the operator releases the lever 15, the counter- 15 weight 23 will operate said connections to withdraw the gag plate into the position shown in Figs. 1 and 2, so that the further reciprocation of the ram will not actuate the punch. The slot at the lower end of 20 the link 20 provides for a certain amount of movement of the lever 15 before the connections with the gag are operated, this being for the purpose of insuring the entrance of the index pin into the templet before the 25 punch is thrown into operation.

The advantages of my invention will be apparent. The same motion of the operator which causes the index or centering pin to enter the pattern plate or templet throws 30 the punch into operation, and the withdrawal of the said pin throws the tool out of operation. This not only saves time in the operation of the machine, but it prevents the premature starting of the punch.

- 35 While I have shown my invention as applied to a punching machine, in which the operation of the punch is controlled by a gag, it will be readily understood that it is also adapted to those machines in which 40 the operation of the punch is controlled by means of a clutch, the link 26 being connected to a clutch shifting lever instead of to a gag-shifting lever as shown. It will also be understood that various other 45 changes may be made in the details of construction and arrangement without departing from the spirit and scope of my invention.

I claim:—

- 50 1. In a machine of the character described, the combination of a movable templet and work support, an index pin arranged to co-operate with the templet, a tool acting on 55 the work, a device for throwing the tool into and out of operation, and a system of link and lever connections between the index pin and the said device; substantially as described.

- 60 2. In a machine of the character described, the combination of a movable templet and work support, a lever, an index pin carried by said lever and arranged to coöperate with the templet, a tool for acting on the work, a device arranged to effect the start- 65 ing and stopping of the tool, a counter-

weighted lever connected to said device, and a connection between said lever and the lever which carries the index pin; substantially as described.

3. In a machine of the character described, 70 the combination of a movable templet and work support, an index pin arranged to co-operate with the templet, a tool for acting on the work, a movable gag plate for controlling the operation of the tool, and a sys- 75 tem of mechanical connections between the index pin and the gag plate; substantially as described.

4. The combination with punching mechanism, of a supporting frame and manually 80 operable centering means arranged to effect the operation of the punch simultaneously with the operation of the centering means.

5. The combination with punching mechanism, of a supporting frame and manually 85 operable centering means, and mechanism connected therewith arranged to effect the operation of the punch dependent on the centering means.

6. The combination with a continuously 90 operating punching machine having a normally inoperative punch, of means for rendering the punch operative, and manually operable centering means operatively connected therewith. 95

7. The combination with the moving portion of a punching machine and a normally stationary punch, of an interlocking element, and manually operable centering 100 mechanism connected therewith and arranged to effect simultaneous centering and punching operations.

8. The combination with the reciprocating head of a punching machine and a 105 loosely mounted punch spindle, of an interlocking device, a centering pin, and manually operable actuating mechanism operatively connected therewith.

9. The combination with the reciprocating head of a punching machine and a 110 loosely mounted punch spindle, of a shifting block arranged to be inserted between the reciprocating head and the spindle, a centering pin, a manually operable actuating element, and means operatively connect- 115 ing said element with the shifting block.

10. The combination with an adjustable plate having a reciprocating head carrying a loosely mounted punch spindle and an interlocking block therefor, of a templet pin 120 and its lever, and means connected therewith for actuating the interlocking block; substantially as set forth.

11. The combination with an adjustable plate and templet frame and a punching 125 machine having a reciprocating head carrying a loosely mounted punch spindle and an interlocking block therefor, of a templet pin and its lever, a lever engaging the interlocking block, a counterweighted rock 130

shaft, and lever mechanism connecting the rock shaft with said lever and with the templet pin lever; substantially as set forth.

12. The combination with an adjustable
5 plate and templet frame and a punching machine having a reciprocating head carrying a loosely mounted punch spindle and an adjustable interlocking element for the punch spindle, of a templet pin and its lever,

and operating means connected therewith 10 for simultaneously actuating the interlocking element, substantially as set forth.

In testimony whereof, I have hereunto set my hand.

J. H. THOMPSON.

Witnesses:

C. T. CLACKY,
THOS. C. POWELL.