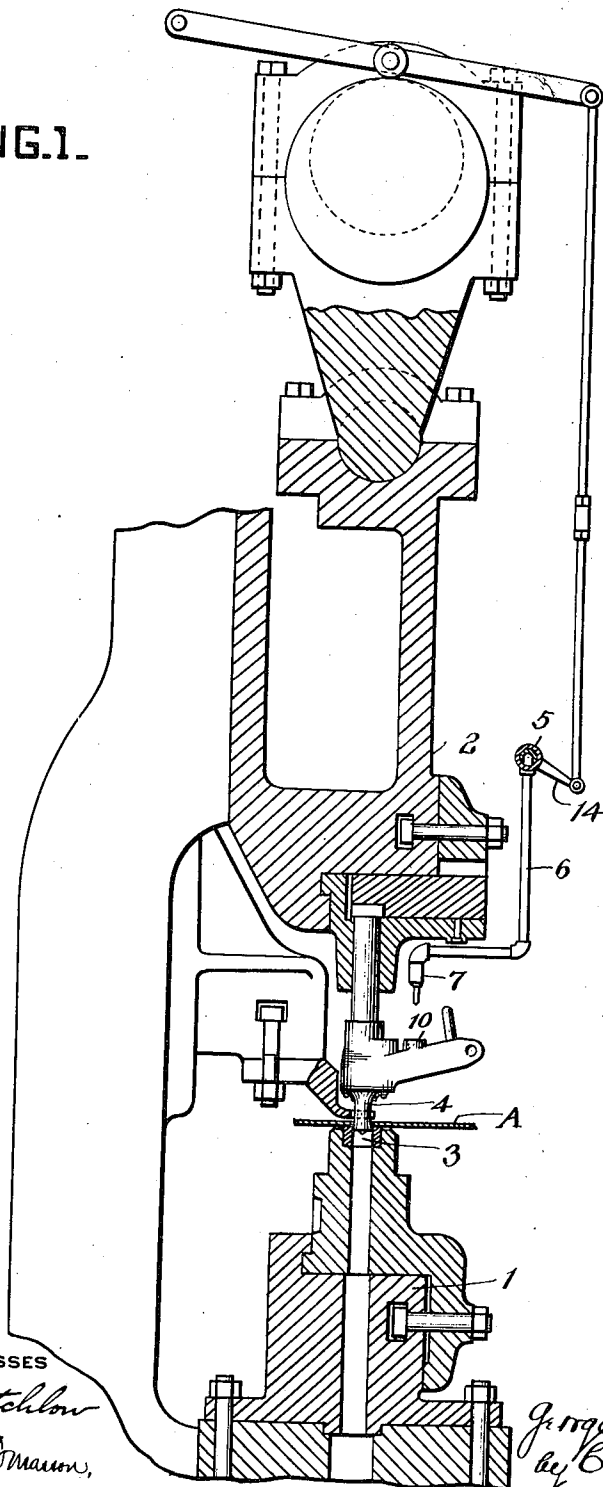


1,179,477.

G. P. THOMAS.
METAL PUNCHING MACHINERY.
APPLICATION FILED JUNE 29, 1914.

Patented Apr. 18, 1916.
2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES

Paul W. Critchlow
Maurice J. Morrison

INVENTOR

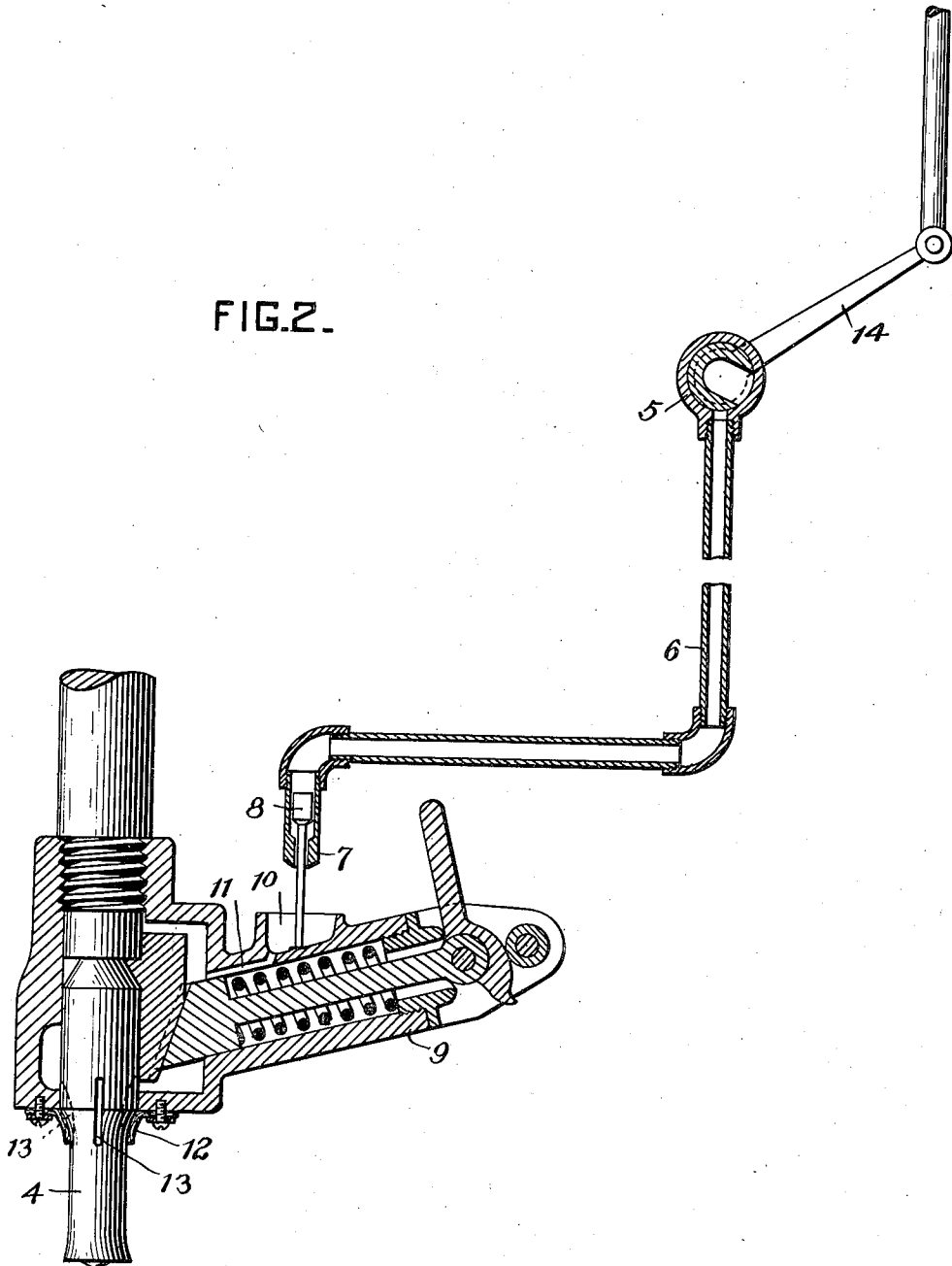
George Paul Thomas
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FIG. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE PAUL THOMAS, OF GLENSHAW, PENNSYLVANIA.

METAL-PUNCHING MACHINERY.

1,179,477.

Specification of Letters Patent.

Patented Apr. 18, 1916.

Application filed June 29, 1914. Serial No. 847,977.

To all whom it may concern:

Be it known that I, GEORGE PAUL THOMAS, residing at Glenshaw, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Metal-Punching Machinery, of which improvements the following is a specification.

My invention consists in improvements in metal-punching machinery and specifically in an automatic oiler for the punches.

In the use of metal-punching machinery it is necessary to proper and economic operation that the cutting surfaces of the punches themselves shall be coated with oil. The oiling of these surfaces has heretofore been done by hand. In the use particularly of multiple punching machinery, where there may be a great number of punches arranged side by side in the punching head in transverse row, and when the punching head is reciprocated at a large number of strokes per minute, it is practically impossible to keep the punches properly lubricated, so long as lubrication is performed by the manual work of attendants.

My present invention is designed to dispense with hand lubrication and provides for the efficient oiling of the punches automatically.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view in vertical section through a metal punch equipped with my automatic oiler, and Fig. 2 is a view on larger scale showing a portion of the mechanism of Fig. 1.

Referring first to Fig. 1, the machine consists essentially of an anvil member 1, and a punching head 2, the anvil being provided with a recess 3 and the punching head with a punch 4. The punching head reciprocates while the piece of work A is intermittently fed across the face of the anvil, and by the conjoint action of the parts 3 and 4 punching is effected.

An oil supply 5, which may be a receptacle in the form of a pipe or otherwise, is provided with a discharge pipe 6, terminating in a nozzle 7, which nozzle is closed by a gravity check valve 8. These parts are so arranged that the nozzle 7 extends immediately above a lateral arm borne by the punch when the punch is at the upper end of its stroke, and the stem of the gravity valve 8

extends so far downward that when the punching head rises to the upper end of its stroke the lateral arm referred to, engaging the valve stem, will open the valve and permit a discharge of oil to a suitable receptacle in the arm. The arm itself is provided with a duct through which oil may pass to the punch and particularly to those surfaces which require lubrication.

In regard to the arm, its specific construction and the functioning of parts which it may or may not carry are quite immaterial to this invention.

In a copending application filed June 29, 1914, Serial No. 847,976, I have described and claimed a particular kind of chuck for securing the punch to the punching head, and in that particular kind of a chuck there is a lateral extension, and that lateral extension may be taken advantage of, to obtain the benefits of this invention. Fig. 2 shows such an arm 9 extending laterally with respect to the axis of punch 4. This arm 9 is provided with a bearing surface in the form of a cup 10, from which leads a duct 11. As the punching head reciprocates, the bottom surface of cup 10, bearing against the stem of valve 8, opens the valve, and a discharge of oil flows into the cup. From this cup the discharged oil passes through duct 11 and through suitable chambers or ducts to the tool 4. The tool 4 is borne in a seat in a casing and extends through an orifice in that casing. Wicks 12 may be provided extending from the oil duct within the casing across the perimeter of this orifice and against the surface of the introduced punch. The body of the punch itself may be grooved as at 13 to permit the more ready flow of oil from the wicks 12 to the cutting surfaces of the punch.

When a punching machine is standing idle between jobs the punching head is raised, and of course when the punching head is raised the arm 9 is holding the valve 8 open. I provide a second valve in the line of flow of oil from the source of supply 5 through the pipe 6, which second valve is operated through an arm 14 by the punching head itself, and so operated that when the head rises to the upper end of its stroke this second valve is closed. The two valves accordingly coöperate and, while valve 8 at the point of discharge opens when the head rises, the second is by the same movement closed. Accordingly, there is with each

stroke of the head a discharge of a small charge of oil, but there cannot be a discharge of any more oil than a certain small quantity. Furthermore, while the punching head continues in elevated position the second valve continues in closed position, shutting off further flow of oil to the punch. When the punch descends again that second valve is opened, and with the return of the punch to its raised position there is a new discharge of a measured quantity of oil.

I claim as my invention:

1. In a metal-punching machine, the combination of a reciprocating head and a stationary oil receptacle, a laterally extending arm borne on said head and provided with an oil duct, and a valve in said oil receptacle

shifted by reciprocation of said head and controlling discharge of oil from said receptacle to the duct in said arm.

2. In a metal punching machine the combination of a reciprocating head, an oil supply provided with a discharge orifice, two valves controlling the flow of oil from said supply through said discharge orifice, and means whereby the punching head in its reciprocation opens the two said valves in alternation.

In testimony whereof I have hereunto set my hand.

GEORGE PAUL THOMAS.

Witnesses:

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FRANCIS J. TOMASSON.