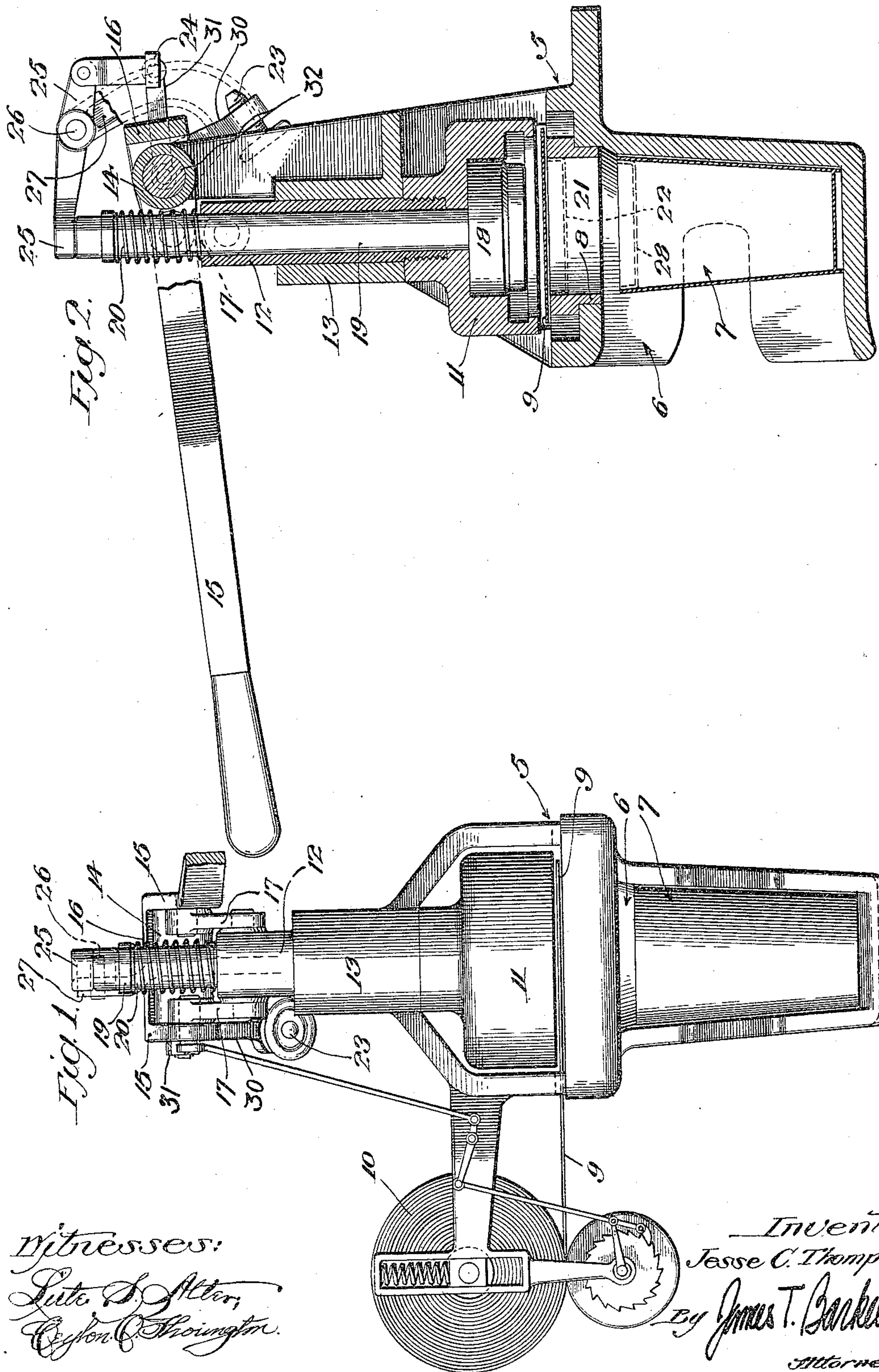


J. C. THOMPSON.
PUNCHING AND FORMING MACHINE.
APPLICATION FILED OCT. 5, 1908.

Patented Jan. 11, 1910.

945,874.



Witnesses:
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UNITED STATES PATENT OFFICE.

JESSE C. THOMPSON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE AMERICAN
SANITARY PAPER CUP COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION
OF ARIZONA TERRITORY.

PUNCHING AND FORMING MACHINE.

945,874.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed October 5, 1908. Serial No. 456,345.

To all whom it may concern:

Be it known that I, JESSE C. THOMPSON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Punching and Forming Machines, of which the following is a specification.

This invention relates to punching and forming machines, adapted especially for producing cup shaped caps or tops for paper containers.

In the drawings the invention is shown embodied in a device operated manually for punching and forming the caps from the strip of paper, and for inserting the caps after formation into the container, which has been previously filled. It will be obvious however, from the following specifications that the invention may be used on other machines, in other situations.

The invention consists in the combination of a die and former, with a mechanical movement which enables both to be operated by one lever, or other operating means. In this form of machine it is desirable that the die and former be first operated by a slow and powerful downward movement while the sheet is being cut and formed, and then by a faster, less powerful movement while the finished cap is being ejected or inserted in the container.

In the accompanying drawings:—Figure 1 is a front elevation of the machine. Fig. 2 is a central vertical section of the same.

In the drawings, 5 designates a frame which forms the body of the machine. A pocket or receptacle, 6 is formed in the lower part of the frame, this receptacle being conveniently shaped for the reception of a container 7, which is placed in the position illustrated. Directly above the container, die shoe 8 is held in frame 5, sheet 9 entering the frame from the roll 10, and passing directly over the die shoe as illustrated. Die 11 is mounted on a sleeve 12, reciprocating vertically in bearing 13. At the upper end of frame 5 a bearing 14, is formed on which handle lever 15 is pivoted. This handle lever extends around bearing 14 at the rear, as at 16, and is pivoted on both sides thereof. Links 17 connect lever 15 with sleeve 12, so that any downward movement of the lever

will force die 11 over die shoe 8, and will cut a portion from sheet 9.

Movably mounted inside of die shoe 11, is a former 18, of the general configuration illustrated. This former is mounted on a stem 19, which passes upwardly through sleeve 12, the former being supported in the position shown by a spring 20, resting upon the upper end of sleeve 12. When the lever 15 is moved downwardly, both the die and former are moved to such a position that the lower part of the former enters the cylindrical opening 21 in die shoe 8, and a portion of the sheet is forced into the form shown in dotted lines at 22. At this time lever 15 is close to the vertical position and the movement of the die and former is comparatively small for any movement of the lever. At this time in the operation an adjustable screw 23, set in an extension 30 of lever 15 and operated thereby, contacts with the lower end of part 24, which is pivoted at its upper end to the short arm of the lever 25, pivoted at 26 to a supporting arm 27 forming a part of the frame. Part 24 is held in position so as to be engaged by screw 23 by means of a link 31 connecting the part with shaft 32 in bearing 14. The long arm of lever 25 extends forwardly and rests upon the upper end of stem 19, and the movement of screw 23 is thus multiplied so that stem 19, moves downward at about six times the speed of its former movement relatively to the movement of lever 15. By this means the cap is forced to a position shown in dotted lines at 28, being placed in the container as illustrated.

Having described my invention, I claim:—

1. A sheet punching and forming machine, comprising a die, a former, a single lever for operating both the die and the former, connecting means between the lever and the former, yielding connecting means between the former and the die, and connecting means between the former and the lever whereby the former is moved at a higher rate of speed than the die during a portion of the motion of the lever.

2. A sheet punching and forming machine, comprising a die, a former arranged within the die, yielding means for holding the former and die together, an operating

lever, connecting means between the lever and the die, a motion multiplying leverage system connected to the former, and an extension on the operating lever adapted to engage with and operate the leverage system during a portion of the movement of the operating lever.

3. A sheet punching and forming machine, comprising a die, a former, an operating lever, connecting means between the lever and the die, yielding connecting means between the die and former, a motion multiplying leverage system connected to the former, and means connected with the lever to engage with and operate the leverage system during a portion of the movement of the lever.

4. A sheet punching and forming machine, comprising a die, a former, yielding means for holding the die and former normally together, an operating lever, permanent connecting means between the lever

and die, a motion multiplying leverage system connected to the former, and means on the lever for engaging and operating the leverage system.

5. A sheet punching and forming machine, comprising a die, a former arranged within the die, a spring holding the former normally within the die, an operating lever, links connecting the lever with the die, a motion multiplying leverage system connected to the former, and an extension on the lever adapted to engage and operate the leverage system, whereby the former is moved independently of the die during a portion of the lever movement.

In witness that I claim the foregoing I have hereunto subscribed my name this 29th day of September 1908.

J. C. THOMPSON.

Witnesses:

MARY M. DILLON,
JAMES T. BARKELEW.