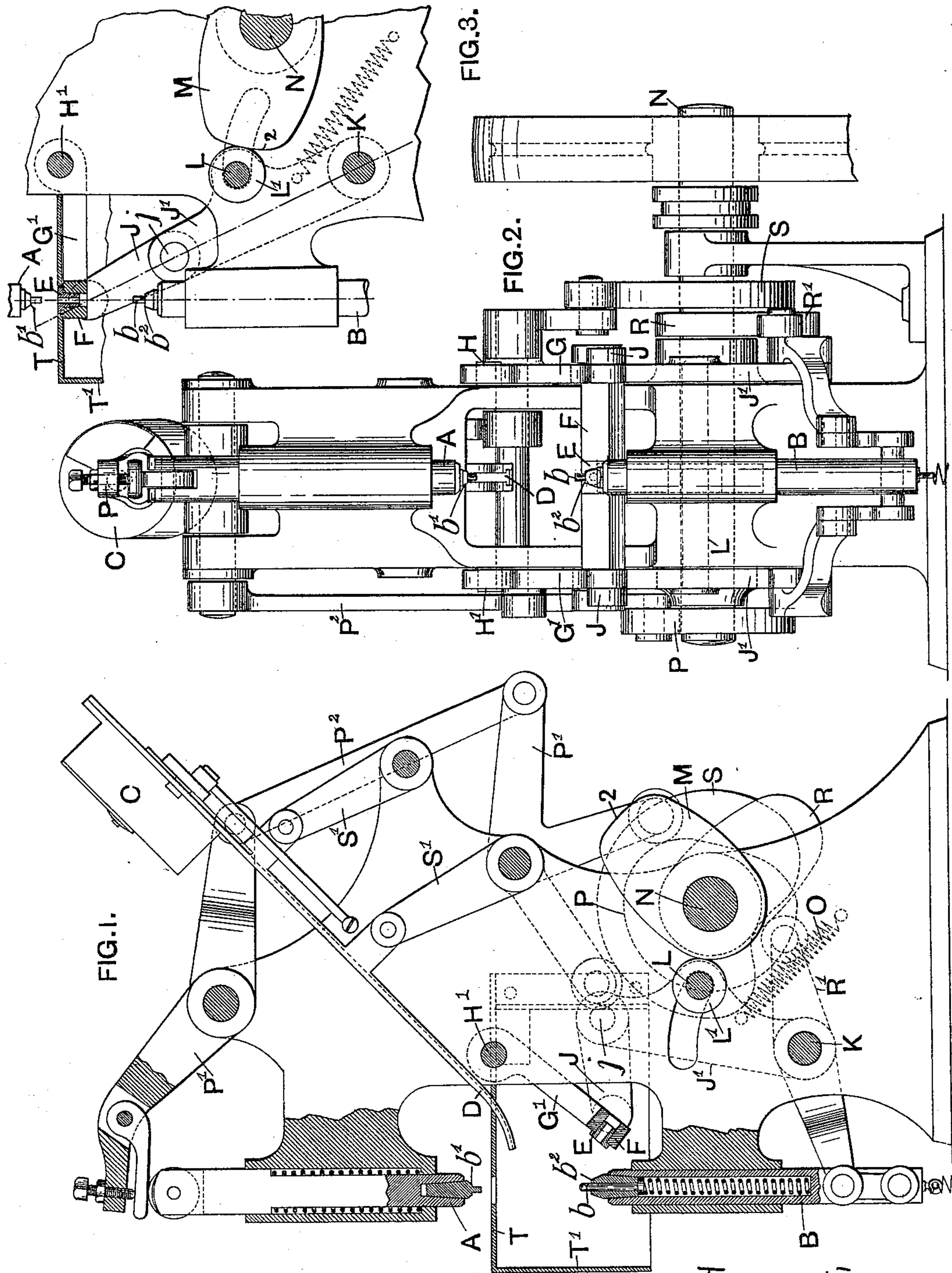


(No Model.)

T. C. & S. THOMPSON.
PUNCHING AND EYELETING MACHINE.

No. 587,023.

Patented July 27, 1897.



Witnesses:
Wm. Stockbridge
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Inventors:
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UNITED STATES PATENT OFFICE.

THOMAS CHAS. THOMPSON AND SYDNEY THOMPSON, OF MANCHESTER,
ENGLAND.

PUNCHING AND EYELETING MACHINE.

SPECIFICATION forming part of Letters Patent No. 587,023, dated July 27, 1897.

Application filed December 30, 1895. Serial No. 573,743. (No model.) Patented in England July 2, 1895, No. 12,727.

To all whom it may concern:

Be it known that we, THOMAS CHARLES THOMPSON and SYDNEY THOMPSON, citizens of the United Kingdom of Great Britain and Ireland, residing at Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Punching and Eyeletting Machines, (for which we have obtained a patent in Great Britain, dated July 2, 1895, No. 12,727,) of which the following is a specification.

This invention relates to a machine for both punching and eyeletting paper, leather, textile material, and the like substances; and its object is to provide means for moving the die out of the way when the punch has made a perforation, so as to enable a plunger to move upward with an eyelet, which is then secured in place.

In a machine constructed according to this invention the punch and the plunger may be constructed and operated in the usual or in any suitable manner.

The die is carried upon an arm or arms, which are rotatable with or upon a rock-shaft or the like mounted in the frame of the machine. Hinged or pivoted to the die-carrying arm or arms is the upper end of a toggle or jointed strut, the lower end of which is pivoted upon the framework and carries a friction-bowl to engage with a cam fixed upon a shaft. In its operative position the die is exactly under the punch and is supported by the jointed strut, which is preferably as nearly vertical as possible. In its inoperative position it occupies a lower and more backward position and leaves a clear passage for the vertical movement of the plunger, by means of which an eyelet is carried up into place and clenched.

The accompanying drawings illustrate in what manner this invention may be carried into effect, similar letters and figures of reference being used to indicate similar parts where they occur in the different figures.

Figure 1 is a vertical section of the machine, all the cams, however, being shown for the sake of greater clearness. Fig. 2 illustrates the machine in front elevation with the table removed. Fig. 3 is a view of part of the ma-

chine, showing the die in position for punching.

The machine is furnished with a punch A, which may be arranged and operated in the manner usual in punching-machines, and with a plunger B of the construction usual in eyeletting-machines. An eyelet box or hopper C, from which the eyelets are delivered one at a time through the chute D, is also provided.

The die E is carried by the cross-bar F of the arms G G', which are pivoted at H H', or which may be mounted upon a shaft extending across the frame. Pivoted to each of the arms G G' is the upper end of a jointed strut. Each strut consists of two parts J J', hinged together at j, the lower parts J' being mounted upon the frame of the machine at K and being joined together by a cross-rod or shaft L, carrying a friction-bowl L', which engages with a cam M, mounted upon the main shaft N of the machine.

As shown by the drawings, the die E may assume two extreme positions, the inoperative one shown in Fig. 1 and the operative one illustrated by Fig. 3. In the former it occupies its lowest and most backward position. In the latter it occupies its highest position and is held rigidly by the struts directly under the punch, which then descends and perforates the material placed between them.

The die is moved by the cam M, which in its rotation moves the lower parts of the struts J', through the medium of the bowl L', to the left of the position occupied by them in Fig. 1. This movement of the lower parts of the struts imparts a similar and upward movement to the die E and its carrying-arms G G' through the upper parts J, which act as connecting-rods. This movement is continued until the two parts of each strut are in line and the die is rigidly supported directly under the punch, as shown in Fig. 3, by which time the dwell 2 upon the cam M has come into contact with the bowl L'. The continued movement of the cam then allows the struts and the die to be withdrawn to their former positions by the spring O, the ends of which are attached, respectively, to one of the lower parts J' and to the frame or a fixed

part of the machine. The cross-rod L passes through are slots formed in the sides of the frame.

The punch is operated from the cam P by means of the levers P' P' and the connecting-rod P². The plunger B, by means of which the eyelets are carried up to and clenched against the punch, is provided with a spring-controlled pin b and is operated from the cam R through the lever R', which is pivoted at K. The eyelet-box C and its attached chute D are mounted upon the two arms S' and are operated from the cam S. These cams are mounted upon the main shaft, and the parts controlled by them are of the construction usual in punching or eyeleting machines.

The operation of the machine upon the rotation of the shaft is as follows, taking the commencement of the cycle of movements when the die E is supported directly under the punch, as illustrated in Fig. 3: The punch A descends, perforates the material placed between the punch and the die, and remains in its lowest position. The die is then withdrawn to the position illustrated in Fig. 1. The eyelet box and chute move forward and the end of the latter intercepts the path of the plunger B, which now rises. The spring-controlled pin b is inserted within an eyelet and the eyelet box and chute are withdrawn. The plunger B continues its upward movement, carrying the eyelet, which is inserted within the perforated material and surrounds the cylindrical perforating part of the punch. As the punch and plunger meet the pin b is pressed downward, and the eyelet is riveted in place between two suitably-shaped shoulders b' b², formed upon the punch and plunger, respectively. The punch and plunger

are then withdrawn, the material is free to be fed forward, and the die returns to its operative position under the former. A suitable easily-removable feed-table T is arranged over the die and under the punch and is furnished with a guard-flange T'.

It will of course be understood that multiple dies and punches and plungers may be employed, so that any number of holes may be punched and eyeleted at one stroke.

A releaser of the usual or any suitable pattern may be combined with the punch to disengage the punched and eyeleted material.

Having now described our invention, we declare that what we claim is—

1. In a combined punching and eyeleting machine the combination of a punch, an eyeleting-plunger, a die and a toggle or jointed strut for adjusting and holding the die in punching position and for moving said die out of the range of the plunger substantially as described.

2. In a combined punching and eyeleting machine the combination of a punch, an eyeleting-plunger an eyelet-chute automatically adjustable in and out of range with the punch, a die and a toggle or jointed strut to automatically adjust the die into range of the punch and out of range of the plunger substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 5th day of September, 1895.

THOMAS CHAS. THOMPSON.
SYDNEY THOMPSON.

Witnesses:

GEO. HEYS,
ARTHUR H. BAKER.