

(No Model.)

3 Sheets—Sheet 1.

J. T. SHERIDAN & J. DRAHER.
BUTTON MAKING MACHINE.

No. 493,794.

Patented Mar. 21, 1893.

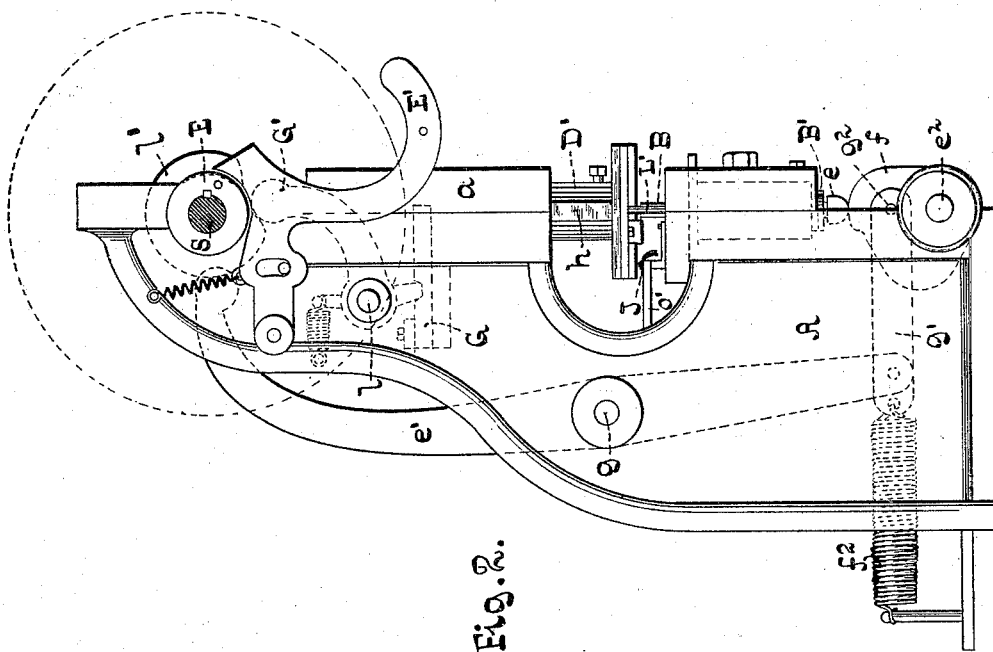


Fig. 2.

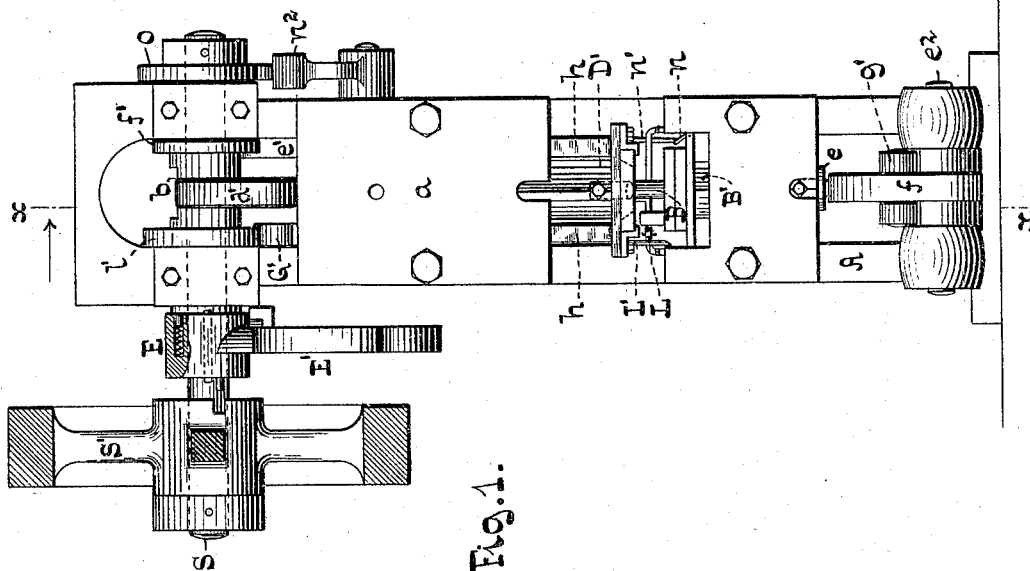


Fig. 1.

WITNESSES:

Klas H. Tenckhoff
A. Faber du Faur

BY

INVENTORS
James T. Sheridan
John Draher
A. Faber du Faur
ATTORNEY

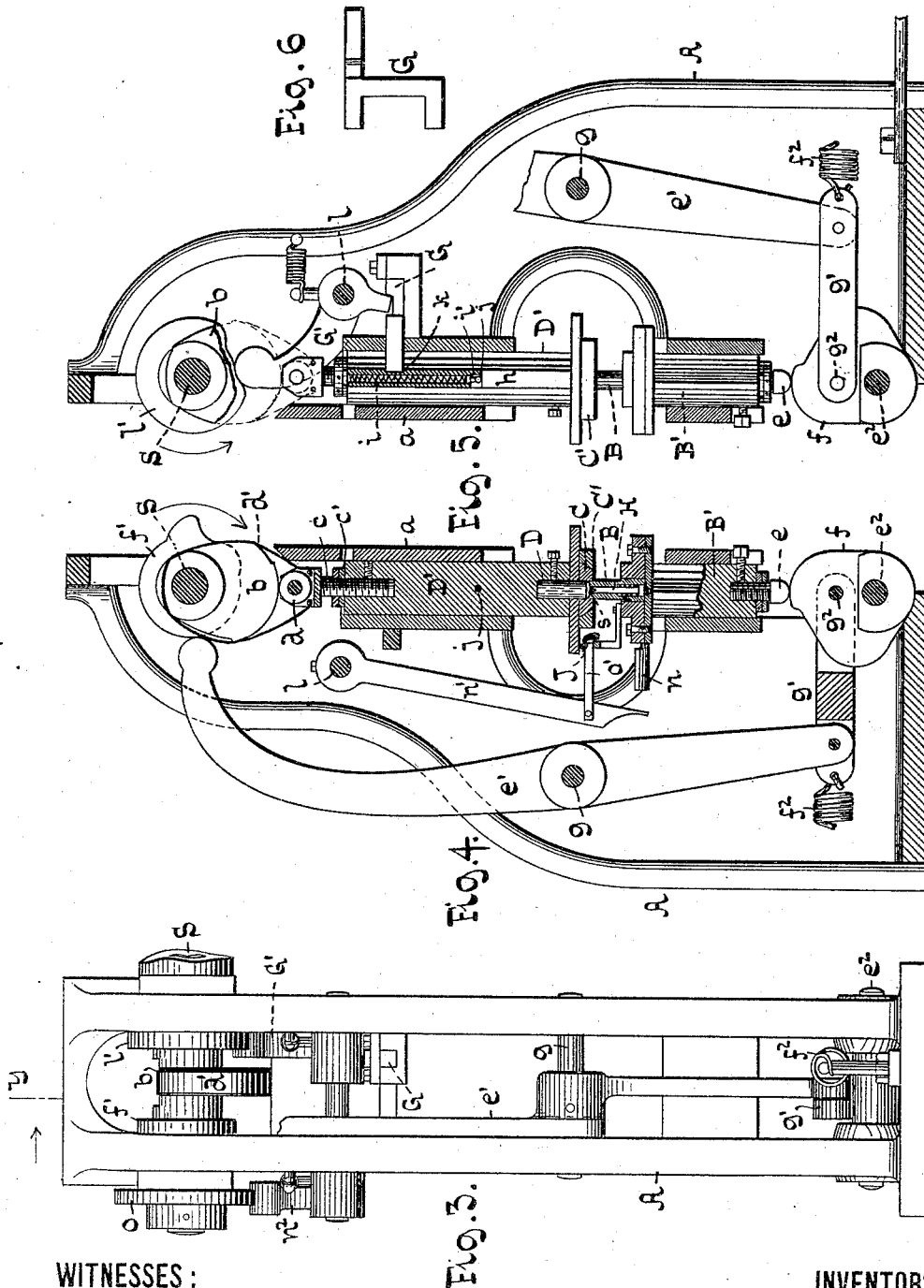
(No Model.)

3 Sheets—Sheet 2.

J. T. SHERIDAN & J. DRAHER.
BUTTON MAKING MACHINE.

No. 493,794.

Patented Mar. 21, 1893.



WITNESSES:
Klas H. Tinschke
A. Faber du Faur

BY

INVENTORS
James T. Sheridan
John Draher
A. Faber du Faur
ATTORNEY

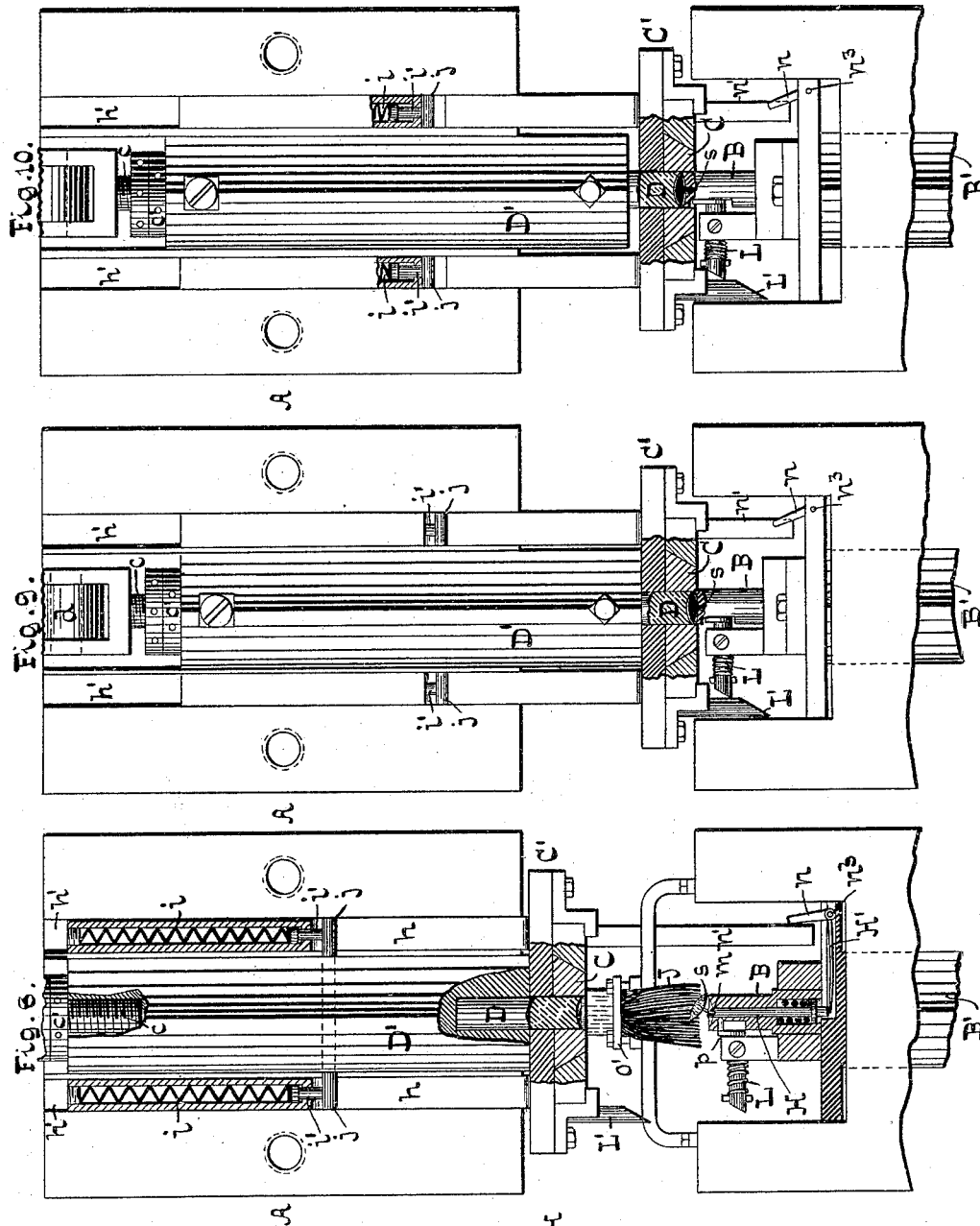
(No Model.)

3 Sheets—Sheet 3.

J. T. SHERIDAN & J. DRAHER.
BUTTON MAKING MACHINE.

No. 493,794.

Patented Mar. 21, 1893.



WITNESSES:

Klas H. Tenstedt
A. Faber du Four

Fig. 7.

BY

INVENTORS
James T. Sheridan
John Draher
A. Faber du Four
ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES T. SHERIDAN, OF EAST ORANGE, NEW JERSEY, AND JOHN DRAHER,
OF WATERBURY, CONNECTICUT, ASSIGNORS TO THE CITY BUTTON
WORKS, OF NEW YORK.

BUTTON-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,794, dated March 21, 1893.

Application filed March 25, 1892. Serial No. 426,388. (No model.)

To all whom it may concern:

Be it known that we, JAMES T. SHERIDAN, residing at East Orange, in the county of Essex and State of New Jersey, and JOHN DRAHER, residing at Waterbury, in the county of New Haven and State of Connecticut, citizens of the United States, have invented certain new and useful Improvements in Machines for Making Articles of Glass, of which the following is a specification.

Our invention has reference to improvements in machines for manufacturing centers, buttons and other like articles of glass, and it consists in certain novel features in the construction, arrangement and operation of the dies and cutter and co-operating parts, as fully pointed out in the following specification and claims and illustrated in the accompanying drawings, in which:

Figure 1 represents a front elevation of a machine constructed according to our invention. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a rear elevation. Fig. 4 is a vertical section in the plane xx , Fig. 1. Fig. 5 is a vertical section in the plane yy , Fig. 3. Figs. 6 and 7 are detail views. Figs. 8, 9 and 10 are sectional elevations, on a larger scale than the preceding figures, illustrating the operation of the dies and cutter. Similar letters indicate corresponding parts throughout the several views.

In the drawings the letter A designates a frame suitably constructed to support the several operating parts of the machine.

S is the main shaft having bearings in the upper part of the frame, S', the driving pulley mounted loosely on said shaft and E a clutch for throwing the driving pulley into and out of connection with the shaft; said clutch being preferably operated by a suitable connection with a treadle (not shown) located near the floor.

D is the upper die having a recessed front of any suitable shape and ornamentation to correspond to the desired configuration for the front of the center or button. Said die is secured in a head D' mounted in vertical ways in the frame and in a cap a secured to the latter. A reciprocating motion is im-

parted to the head from a cam or eccentric b mounted rigidly on the main shaft S, (Figs. 1 and 4.) In this instance the head is entered by a screw shank c made adjustable by a nut c' , and provided with a roller stud d in engagement with the cam or eccentric. A spring strap d' encompasses the cam or eccentric and the roller stud and keeps the latter in engagement with the former.

B is the lower die constructed to form the back portion of the button, the same being secured in a head B' to which a reciprocating motion is imparted at determined intervals by a cam f upon which an adjusting screw e secured in the said head bears. The cam is mounted on a shaft e^2 ; a vibratory motion is imparted to the same from a cam f' (Figs. 2 and 4), by means of a lever e' , mounted on a rock shaft g , engaging said cam f' and connected to an eccentric pin g^2 on the cam f by a link g' . A spring f^2 holds the upper end of the lever e' in contact with the cam f' .

C is the cutter, bored out to fit about the die D, and secured in a suitable cross head C'. From the cross head extend two vertical rods h h guided in suitable recesses or ways h' h' in the frame. These rods are bored out longitudinally to receive spiral springs i i , the lower ends of which are arranged to act upon tappets i' i' in contact with the opposite ends of a pin j extending transversely through the die head D'. In the back of the rods h h are formed recesses k k adapted to be engaged by a forked detent G, (Figs. 3, 5 and 6) arranged to slide in a horizontal plane and engaged by a spring pressed lever G' loosely mounted on a shaft l . The upper end of the lever bears upon an actuating cam l' mounted on the main shaft S.

When the machine is intended for the manufacture of buttons, provisions are made for holding the shank or shanked back in the lower or back die. In the example illustrated in the drawings, (Figs. 4, 7, 8, 9 and 10.) the lower die is bored out centrally to receive a spring pressed plunger H provided at its upper end with a recess or slot m to receive the shank s of the button back. Normally the upper end of the plunger, which plunger we

shall hereinafter term the shank holder, is held flush with the concavity in the lower die by its spring. The lower end of the shank holder rests upon one arm of a lever H' pivoted at n^3 to the die head B', its other arm n being arranged to be engaged by a lever n' rigidly mounted on the shaft l and engaging a cam o on the shaft S. The upper end of the shank holder is beveled or inclined so that when it is lifted above the die the button turns to one side. Near the upper end of shank holder is formed a transverse slot p' through which can enter a pin p on the inner end of a horizontal spring pressed bolt L guided in suitable bearings in the lower die head B'. The outer end of the bolt is beveled and is adapted to be engaged by a beveled rod L' carried by the upper die head D'.

J is a brush adapted to sweep across the lower die to throw the finished button to one side, said brush being connected by a link o' with the lever n' .

The operation of the machine in producing buttons is now as follows: The machine being in its normal position, the shank or button back is first placed into the lower die B, said shank being received in the slot m in the shank holder H. The end of the heated glass rod is then placed across the lower die B and the clutch E caused to throw the pulley S' into connection with the shaft. The upper die D and the cutter C now descend simultaneously to the positions shown in Figs. 4, 5 and 9, and the said die in conjunction with the lower die B presses and forms the button head. In this position the recesses $k k$ in the rods h (Fig. 5 especially) are engaged by the detent G and the cutter is prevented from moving,—at the same time the rod L' engaging with the bolt L causes the pin p to enter the shank holder H to retain the shank therein. On continued motion of the shaft S the upper and lower dies move upward together and into the cutter while the latter remains stationary, until they assume the position shown in Fig. 10. During this movement the surplus glass is removed by the cutter C and the edge of the button is rendered perfectly smooth. At the end of the upward movement of the dies, the detent G is withdrawn from the recesses in the rods $h h$ and the cutter is drawn upward against the end of the die head D' by the springs $i i$, tappets $i' i'$ and pin j . The dies B and D now recede to their normal positions, and when the bolt L clears the rod L', the former is thrown outward by its spring and the pin p is caused to release the shank. The lever H' is then turned by the lever n' to lift the shank holder H (Fig. 7), whereupon the brush J is caused to sweep across the die and removes the button, after which it is returned to its normal position.

In the drawings, Figs. 4 and 9, we have shown the upper die so set that its lower edge is above the level of the bottom of the cutter,

consequently during the downward stroke of the die and cutter the edge of the said die does not perform the operation of severing, and it is prevented from being rapidly worn down or spoiled by the work which it would otherwise do, in conjunction with the effects of the heat. In general the dies are so arranged with respect to each other that their edges do not come quite together in pressing the button, and the thickness of the button can be regulated by setting the dies more or less apart, this adjustment of the dies can be effected by either of the screws c and e' , preferably by adjusting the upper die within the cutter by the screw c .

What we claim as new, and desire to secure by Letters Patent, is—

1. In a glass button machine, the combination of an upper die, a cutter fitted closely to the same, the two being movable independently of each other, a lower die of the same diameter as the upper die, and movable toward the same, means for moving the cutter and upper die toward the lower die for severing the blank and pressing the button, means for moving the two dies, while together, into the cutter for removing surplus material, a detent for holding the cutter stationary during the said movement of the dies, and means for subsequently returning the cutter to its normal position, substantially as described.

2. In a button machine, a die, a cutter arranged concentric with the same, a spring connection between the two, a detent adapted to engage with the cutter for holding the same stationary while the dies are moving upward, and a release, substantially as described.

3. In a button machine, the combination with the back or shank holding die, of a shank holder movable longitudinally in the die and provided with a recess at its upper end for the reception of the shank, and with a transverse slot intersecting the recess, a pin arranged to pass through said slot into the recess to secure the shank, and means substantially as described for operating the pin and shank holder, substantially as described.

4. In a button machine, the combination with a back or shank holding die bored out longitudinally, of a spring pressed shank holder fitted into the bore of the die and movable longitudinally therein, said holder being provided with a recess at its upper end for the reception of the shank, and with a transverse slot intersecting the recess; a bolt provided with a cam surface and carrying a pin arranged to pass through said slot to secure the shank, a rod engaging with said bolt, a lever engaging with the holder for lifting the same, and a brush arranged to sweep across the die for removing the button, substantially as described.

5. In a button machine, the dies B, D combined with adjusting screws for setting the same, and cams engaging respectively with

said adjusting screws for actuating the dies, substantially as described.

6. In a button machine, the cutter having rods *h h*, springs inclosed within said rods, tappets *i i* engaging a pin in the die head, and a detent engaging said rods, substantially as described.

In testimony that we claim the foregoing as

our invention we have signed this specification in the presence of the subscribing witnesses.

JAMES T. SHERIDAN.
JOHN DRAHER.

Witnesses:

ELIAS R. PECK,
GEO. H. HUGHES.