

(No Model.)

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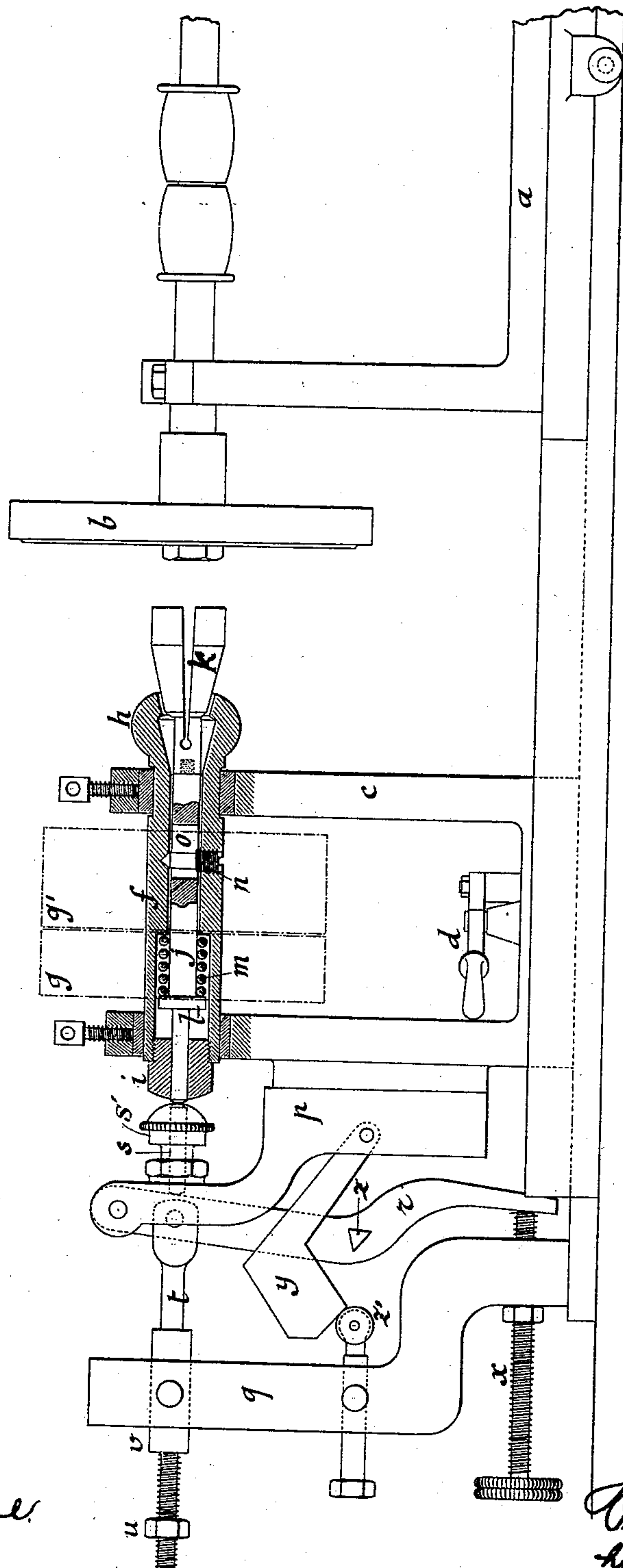
J. CLÉRET.

MACHINE FOR THE MANUFACTURE OF PEARL BUTTONS.

No. 450,095.

Patented Apr. 7, 1891.

Fig. 1.



Witnesses:  
J. B. Cléret  
R. L. Hoyle

Inventor:  
J. B. Cléret, by  
R. L. Hoyle  
his Attorneys.

(No Model.)

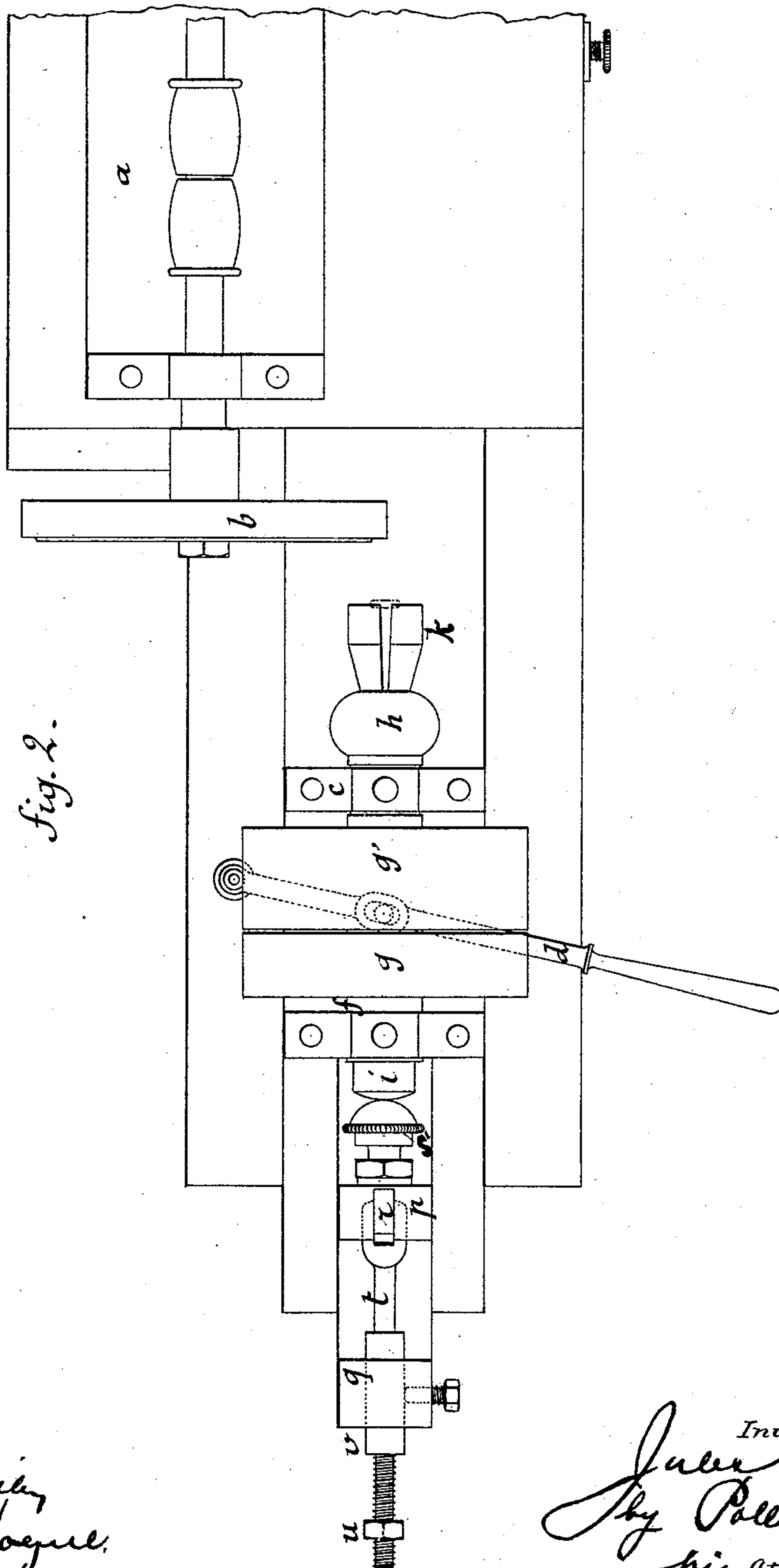
4 Sheets—Sheet 2.

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Witnesses;  
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(No Model.)

4 Sheets—Sheet 3.

J. CLÉRET.

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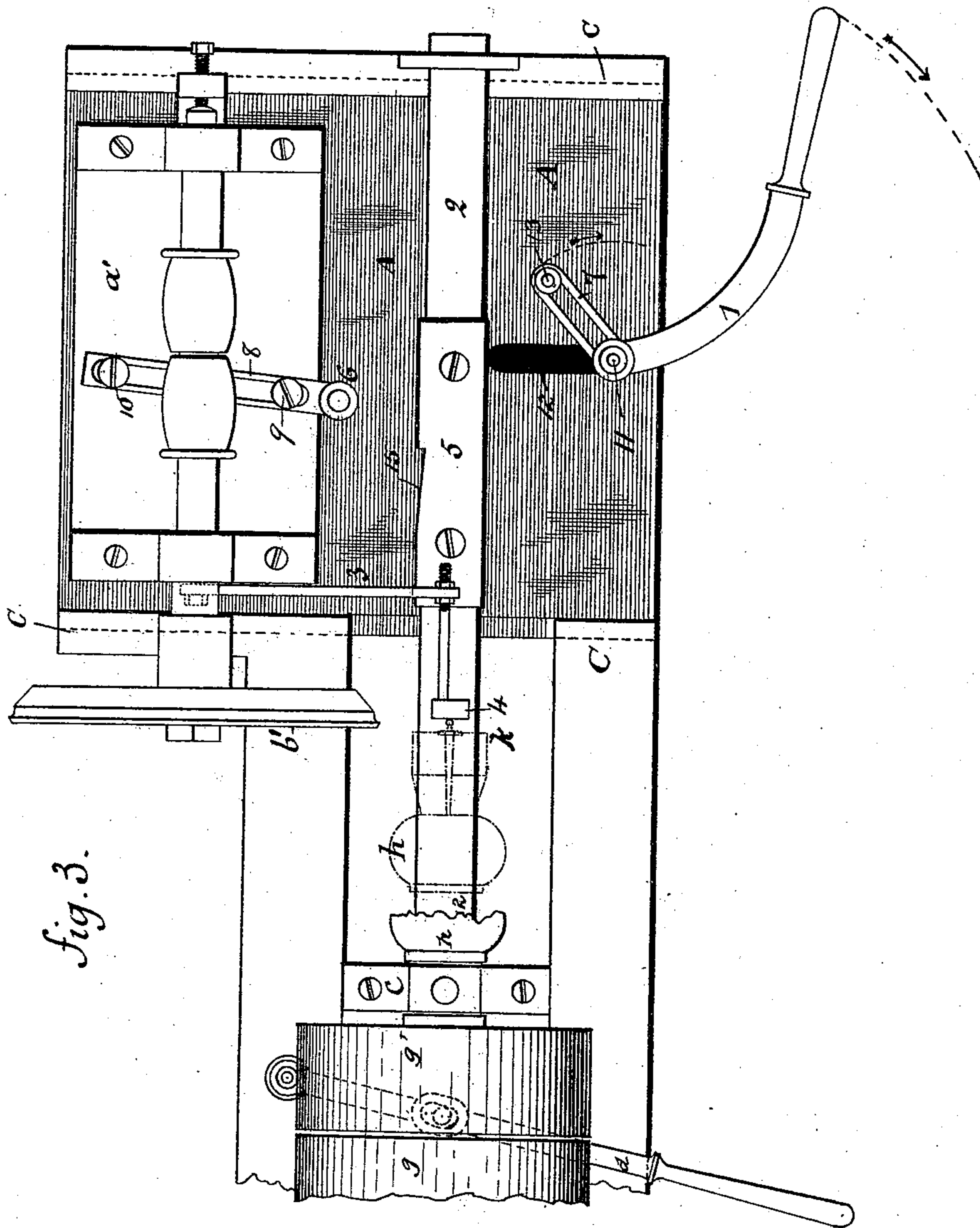


Fig. 3.

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(No Model.)

4 Sheets—Sheet 4.

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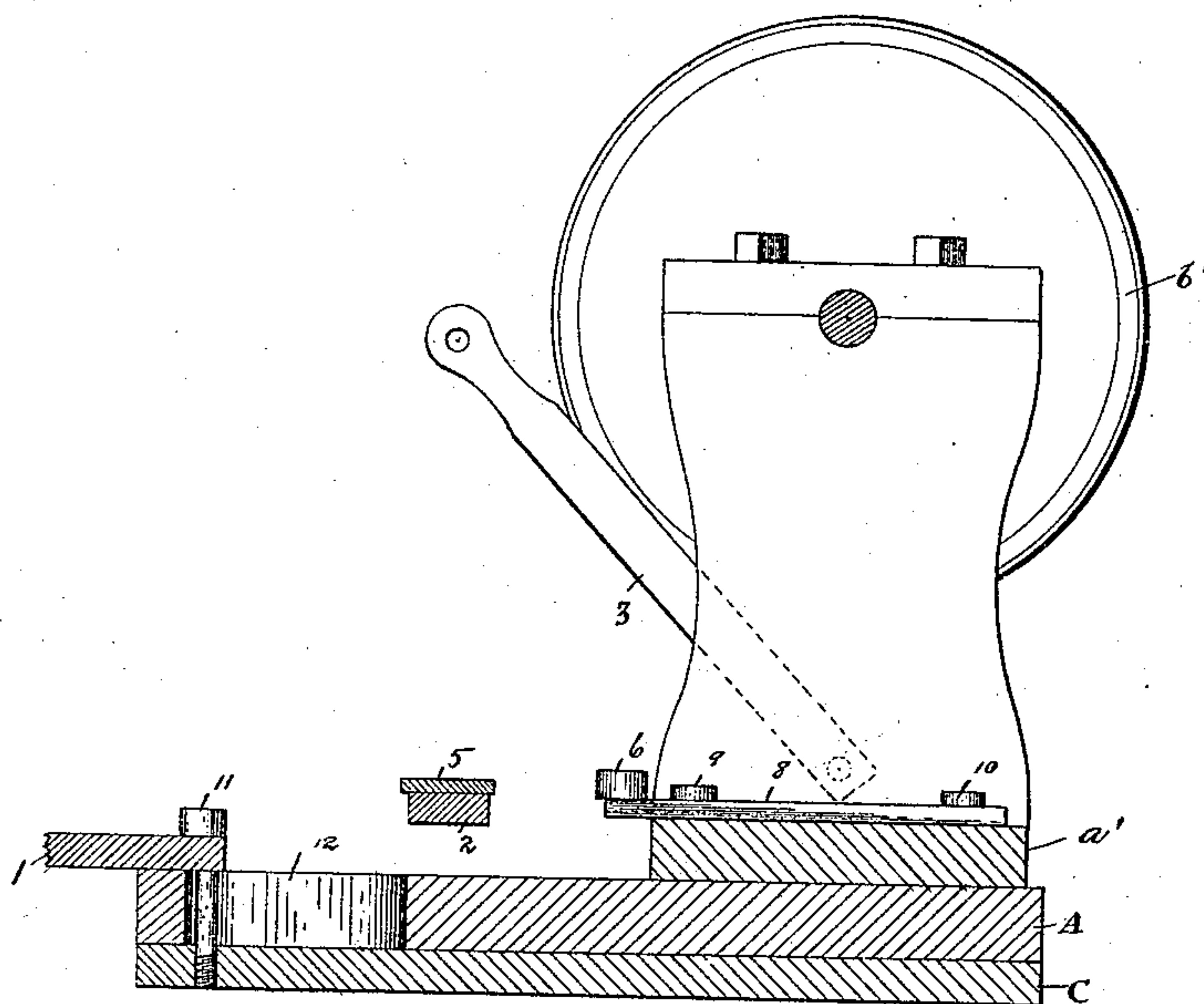


Fig. 4.

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*James B. Kelly*

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Inventor:

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# UNITED STATES PATENT OFFICE.

JULES CLÉRET, OF BEAUVAIS, FRANCE.

## MACHINE FOR THE MANUFACTURE OF PEARL BUTTONS.

SPECIFICATION forming part of Letters Patent No. 450,095, dated April 7, 1891.

Application filed October 29, 1890. Serial No. 369,710. (No model.)

To all whom it may concern:

Be it known that I, JULES CLÉRET, of Beauvais, in the Republic of France, have invented a new and useful Improvement in Machines for the Manufacture of Pearl Buttons, which improvement is fully set forth in the following specification.

The present invention has reference to the manufacture of pearl buttons; and its object, generally stated, is to produce these articles by machinery in quantities, uniform in size and appearance, with the least possible waste of the raw material, at greatly-reduced cost, and without the assistance of skilled workmen.

The present invention more particularly relates to machinery for shaping from the blanks buttons which may be flat, convex, or partly convex on their faces, or of other similar shapes in which pearl buttons are ordinarily found upon the market, or which may be of mushroom form, as those sold for collar and cuff buttons.

The machine comprises two frames or carriages mounted on the same bed or bench. One of these frames or carriages supports an emery-wheel or wheel of other suitable abrading or grinding substance and having *in intaglio* or *in rilievo* the counterpart of the form to be given. Upon the other frame is mounted chuck mechanism of suitable construction to grasp and hold the blank and present it to the action of the grinding-wheel. This chuck is combined with automatic devices for opening and closing the chuck-jaws to seize or release the button and with automatic regulating mechanism to limit the forward motion of the frame or carriage—that is, its motion toward the grinding-wheel.

In the accompanying drawings, which form part of this specification, Figure 1 is a side elevation, partly in section, of a machine constructed in accordance with the invention; Fig. 2, a plan view of the same; Fig. 3, a similar view of the frame carrying the emery-wheel as designed for the manufacture of collar-buttons, and Fig. 4 is a cross-section through the point of lever 1.

The arrangement shown in Figs. 1 and 2 is that designed for use in making ordinary buttons having a flat or slightly-rounded surface. In this case the frame *a*, which carries

the grinding-wheel *b*, is stationary. This grinding-wheel is cut upon the face near the edge, the profile corresponding with the shape to be given to the button. Frame or carriage *c* is movable by means of lever *d* toward and away from the wheel *b*. In the latter movement the chuck-jaws *k*, which hold the button-blank open automatically, as hereinafter described, permit the button to drop. The jaws *k* are formed on the end of a rod *j*, which is loosely surrounded by the tube or sleeve *f*. The latter is journaled in bearings in the frame *c* and carries the fast and loose pulleys *g g'*. At its forward end the tube *f* has a spherical head *h*, hollowed out in the form of a cone. At its other end it is closed by a stopper *i*. The outer surface of jaws *k* is shaped to correspond with the bore of head *h*, so that when the jaws move into the head they will be compressed upon and tightly grasp any object placed between them. A collar *l* on rod *j* forms a bearing-surface for one end of a coiled spring *m*, which bears at the other end against an annular shoulder in sleeve *f*. This spring tends to draw jaws *k* into the head *h*. A screw-pin *n*, passing through a slot *o* in rod *j*, connects the rod and sleeve *f* together, so that the latter rotates the former; but this pin does not interfere with the movement of the rod lengthwise of the sleeve.

To the rear of carriage *c* is attached a bracket *p*, and behind it is another bracket or standard *q*, fixed to the work bench or table on which carriage *c* travels. In the upper end of bracket *p* is pivoted a lever *r*, against which bears the end of a rod *s*, passing loosely through a sleeve *s'*, attached to bracket *p* and bearing at its forward end against the rod *j*. To the other side of lever *r* and in the same line with rods *j* and *s* is attached another rod *t*, which passes freely through a sleeve *v*, fixed in bracket *q*. Rod *t* is screw-threaded at its end and provided with a nut *u*, which by contact with sleeve *v* limits the forward movement of carriage *c*. This nut *u* is adjusted initially to arrest the carriage at the proper point determined by the thickness of the button; but the parts have, in addition, an automatic adjustment, as will be hereinafter explained, to compensate for any variations in the thickness of the button-blanks.



In the lower end of bracket *q* is a stop-screw *x*, which arrests the carriage *c* at the proper point in its reverse motion by the contact therewith of the lower end of lever *r*. This stop-screw is also adjustable. In bracket *p* is pivoted an arm *y*, having on its under side an incline or cam-face, which, when carriage *c* moves to the right, rests upon the knife-edged projection *z* of lever *r*. A small friction-roller *z'*, carried by a rod attached to bracket *q*, serves to let the cam *y* down gradually as the carriage moves forward, and also to raise it out of contact with the projection *z* when the carriage returns.

The operation is as follows: The machine being in the position shown in the drawings, the operator with his right hand inserts a blank in the jaws *k* and with his left hand turns lever *d* in the direction to move carriage *c* toward the grinding-wheel *b*. As lever *r* moves away from stop *x*, its pressure against rod *s* is relieved and spring *m* expands, drawing the jaws *k* into head *h*, by which the jaws are compressed firmly upon the blank. Cam *y* comes down upon the knife-edge *z*, and the motion of the carriage is finally arrested by the contact of nut *u* against sleeve *v*. Thus the amount of material removed by the grinding-wheel, and consequently the thickness of the button, is determined and is uniform in each case. When the button is finished, the operator reverses the lever *d*, moving the carriage back until lever *r* strikes the end of stop *x*, forces rods *s* and *j* forward against the pressure of spring *m*, and pushes jaws *k* farther out of head *h*. The jaws *k* then relax by their own elasticity, and the finished button drops from them.

If in the mass of blanks there should be one of somewhat larger diameter than the others, it is evident that the jaws *k* would enter a less distance into head *h*, and consequently the carriage *c* would have to travel a shorter distance before bringing the button into contact with the wheel *b*; but from the fact that jaws *k* protrude from head *h* a greater distance than usual the nut *u* will be by so much nearer to the sleeve *v*, and therefore the motion of the carriage will be arrested at the proper point, provided lever *r* is maintained in contact with rod *s*. To maintain this contact is the function of the cam *y*, for when the latter rests with all its weight on the knife-edge *z* of lever *r* it maintains constant the distance between this lever and the jaws *k*. In this way the arrangement described provides automatically the necessary compensation for variations in the size of the button-blanks.

The apparatus, as shown in Fig. 3, is designed to turn articles of the shape of collar-buttons. The work on these buttons is performed in two operations. The first is to reduce the blank, with the exception of the base or disk at the bottom, to the diameter of the head. The second is to make the shank.

Both operations are performed on the same machine by simply changing the grinding-wheel. In this apparatus the carriage *c* (a part of which is shown) and the parts connected with it are the same as in the other figures. The frame *a'*, corresponding to the frame *a* of Fig. 1, instead of being stationary, is mounted upon a sliding support *A*, movable transversely on the bed or bench *C* by means of a lever 1. Carriage *c* is provided with a long bar 2, carrying a guide 5, whose function will presently be explained. This guide limits the transverse motion of the slide *A* and frame *a* by contact of the roller 6 against the guide. Frame *a'* has an arm 3, which carries adjustably a stop 4, which is in the path of the chuck-jaws *k* of the carriage *c*. This stop is used to determine the limit of the forward motion of the button-carrying chuck. The roller 6 is carried on the end of a slotted bar 8, held adjustably in place by the screws 9 10. The operating-lever 1 is fulcrumed at 11, the fulcrum-pin passing through a slot 12 in slide *A* and fixed in the stationary bed *C* beneath. Said lever is provided with an arm 7, which is slotted longitudinally, and in the slot is a pin 13, attached to the slide *A*. When lever 1 is turned on its center, the slide *A* and all parts carried thereby will be moved back or forth transversely to the axis of chuck-jaws *k*. Of course any other convenient means for moving the slide *A* may be adopted instead of those described.

The operation is as follows, the parts being in the position shown—that is to say, slide *A* and frame *a'* at the extreme position away from the button-carrying chuck and carriage *c* at its extreme position to the left or away from grinding-wheel *b'*: For the first operation a wheel is used having on its periphery the counter part of the form to be given to the button-blank, so as to simply reduce the shank for its full length to the diameter of the head. The first step is to move up carriage *c* until the end of the blank touches stop 4, which has been properly set. Head *h* and jaws *k* are indicated in this position in dotted lines. This motion brings the incline 15 of guide 5 opposite roller 6. The next step is to swing lever 1 to the left, advancing slide *A*, frame *a'*, and the grinding-wheel. In this motion the stop 4 passes away from in front of the button-blank, and the edge of the grinding-wheel comes in contact with the side of the revolving blank, cutting it away until sufficiently reduced, the cutting being stopped when roller 6 strikes guide 5. Slide *A* is then moved back for the next operation, the position of carriage *c* not being disturbed. The grinding-wheel is removed and replaced by one such as *b'* for cutting down the shank to a conical form. Slide *A* is again brought forward, the edge of wheel *b'* cutting into the blank the proper depth to form the head, this depth being determined by the striking of roller 6 against the guide 5. The roller strikes the incline 15 of said guide, which was



brought opposite to it by the motion of the carriage *c* to the right. The operator now continues to move carriage *c* still farther to the right, so that the edge of wheel *b'* cuts from the head toward the base of the shank; but in this motion the incline 15 pushes back frame *a'*, so that a conical shank is formed, the angle of the side of the shank being determined by the angle of inclination of the inclined edge 15, as will be readily understood.

It is obvious that modifications may be made in the details of construction and in the means for moving the carriages without departing from the principles of the invention.

I have described the two operations being performed on the same machine. In practice, however, it is not usual to change the grinding-wheels, but is more convenient to use one machine for the operation of turning down the blanks to the diameter of the head and then to pass these blanks to another operator, who, with a similar machine, gives the button its final shape, as above described. In the first operation the inclined guide is not used.

I claim as my invention—

1. In a machine for making pearl buttons and analogous articles, the combination, with the grinding-wheel, of the carriage movable toward and away from said wheel, the rotatory sleeve supported in bearings of said carriage, the rod passing through said sleeve and having chuck-jaws projecting from the head thereof, a spring tending to press said jaws into the head, so as to close the same, a stop for limiting the forward motion of the carriage, mechanism, such as specified, between said stop and the rod carrying said jaws, and means, as indicated, for releasing the jaws upon the return movement of the carriage, substantially as described.

2. The combination of the movable carriage, the chuck-jaws carried by a rotatable support thereon and movable longitudinally, a stop for arresting said carriage in its forward motion, and connections, as described, between the said stop and the jaws for maintaining constant the distance between them, substantially as described.

3. The combination of the movable carriage, the sleeve rotating in bearings thereof, the rod movable longitudinally in said sleeve and

carrying elastic chuck-jaws, the spring for moving said rod in the direction to close said jaws, the lever pivoted to said carriage and connected with a stop which arrests the forward motion of the carriage, and a second stop for arresting the return thereof by contact with said lever, the latter being adapted to move the chuck in opposition to its spring when actuated by the last-named stop, substantially as described.

4. The combination of the carriage, the chuck-rod and its supporting-sleeve, the stop for arresting the forward motion of said carriage, the lever serving as a connection between the stop and chuck-rod, a cam for pressing the lever toward the chuck-rod, so as to maintain their relative positions, and means, as indicated, for throwing said cam into and out of action, substantially as described.

5. The combination, with a grinding-wheel, of a carriage movable toward and away from the same, a button-holding chuck having elastic jaws projecting from the head of a sleeve, a spring for drawing the jaws into the sleeve and so compressing them upon the blank, and a stop for forcing the jaws out of the sleeve when the carriage returns, so that the button is released automatically, substantially as described.

6. The combination, with the carriage supporting the chuck and with means, as indicated, for advancing said carriage and for opening and closing the chuck-jaws, of a second carriage supporting the grinding-wheel and movable transversely with respect to the axis of the chuck, substantially as described.

7. The combination of the carriage supporting the chuck and movable in the direction of the axis of the chuck-spindle, the carriage supporting the grinding-wheel and movable transversely to the former, so as to act with its edge against the side of the button-blank, and an inclined guide carried by the first-named carriage for pushing back the second carriage as the base of the blank approaches the cutting-edge, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JULES CLÉRET.

Witnesses:

WM. FARRIEY,  
ROBT. M. HOOPER.