

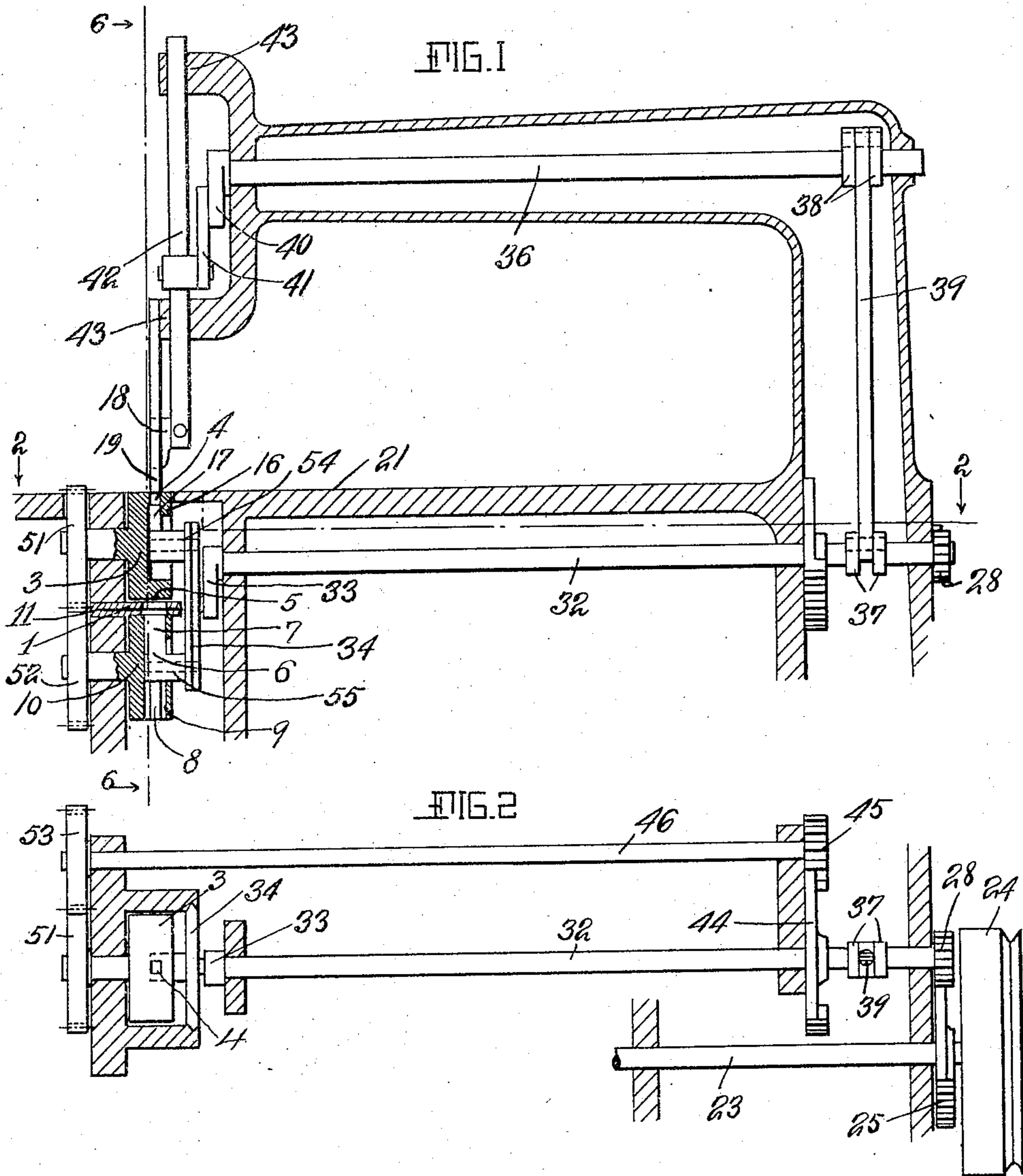
No. 885,012.

PATENTED APR. 21, 1908.

G. W. BINGHAM.
SPANGLE MACHINE.

APPLICATION FILED SEPT. 14, 1906.

3 SHEETS—SHEET 1.



Witnesses
Frank Koenigsberg
John W. Martin

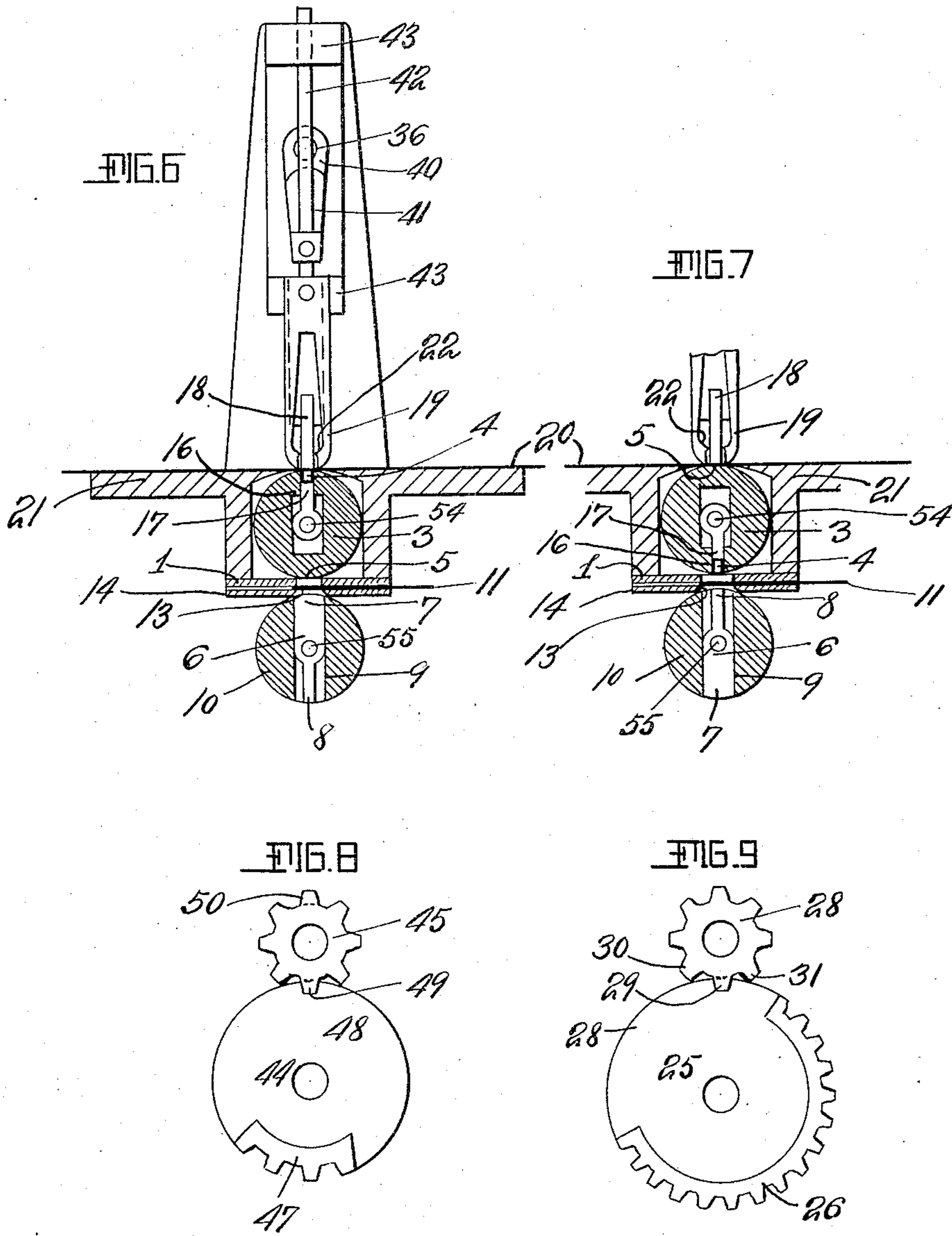
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George W. Bingham
By his Attorney
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No. 885,012.

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3 SHEETS—SHEET 2.



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No. 885,012.

PATENTED APR. 21, 1908.

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SPANGLE MACHINE.

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3 SHEETS—SHEET 3.

Fig-12-

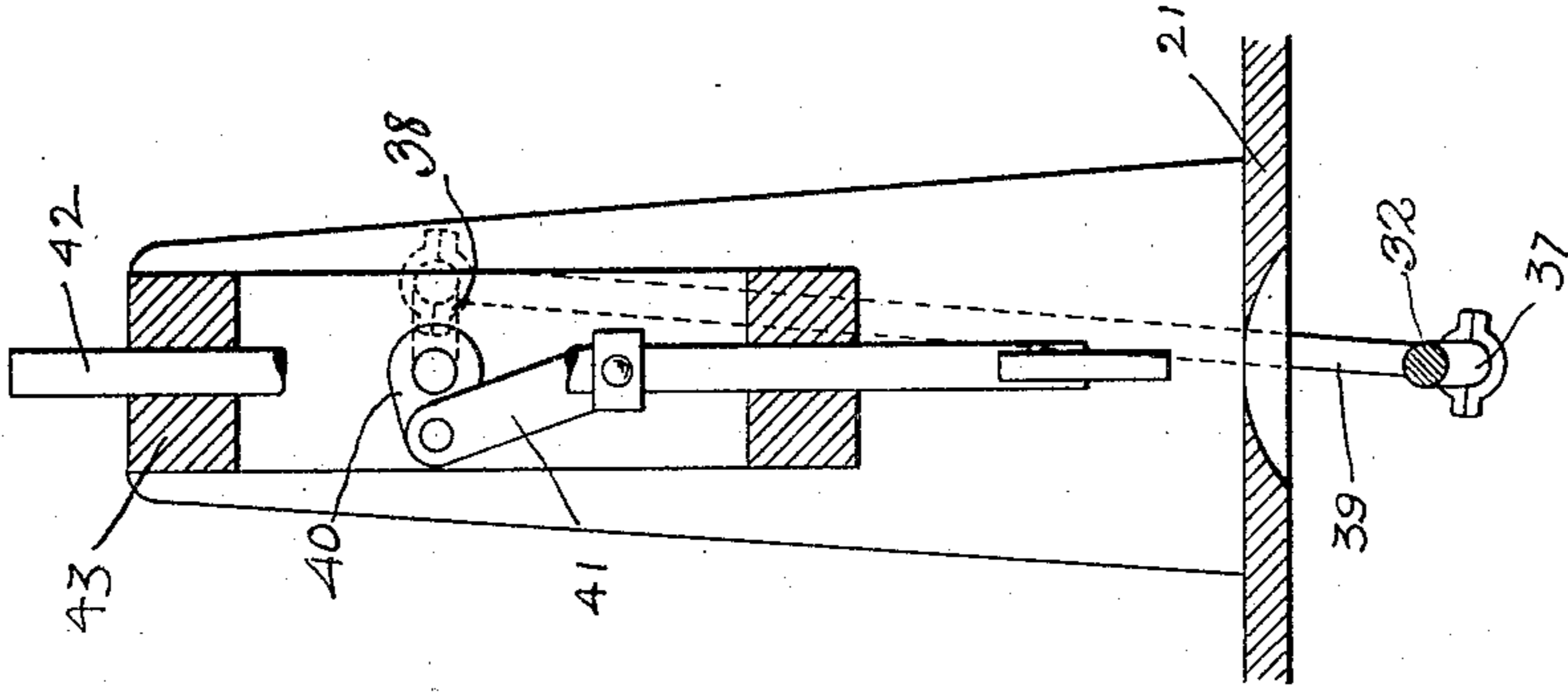


Fig-11-

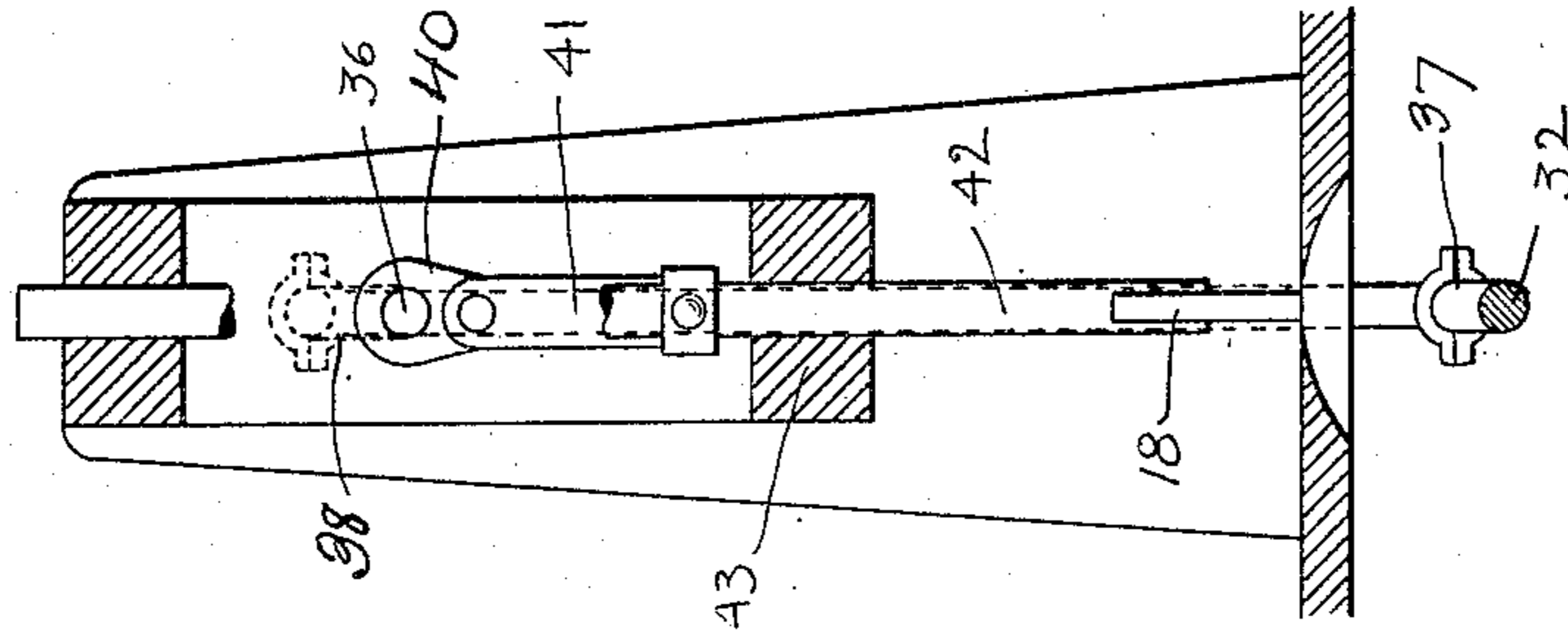
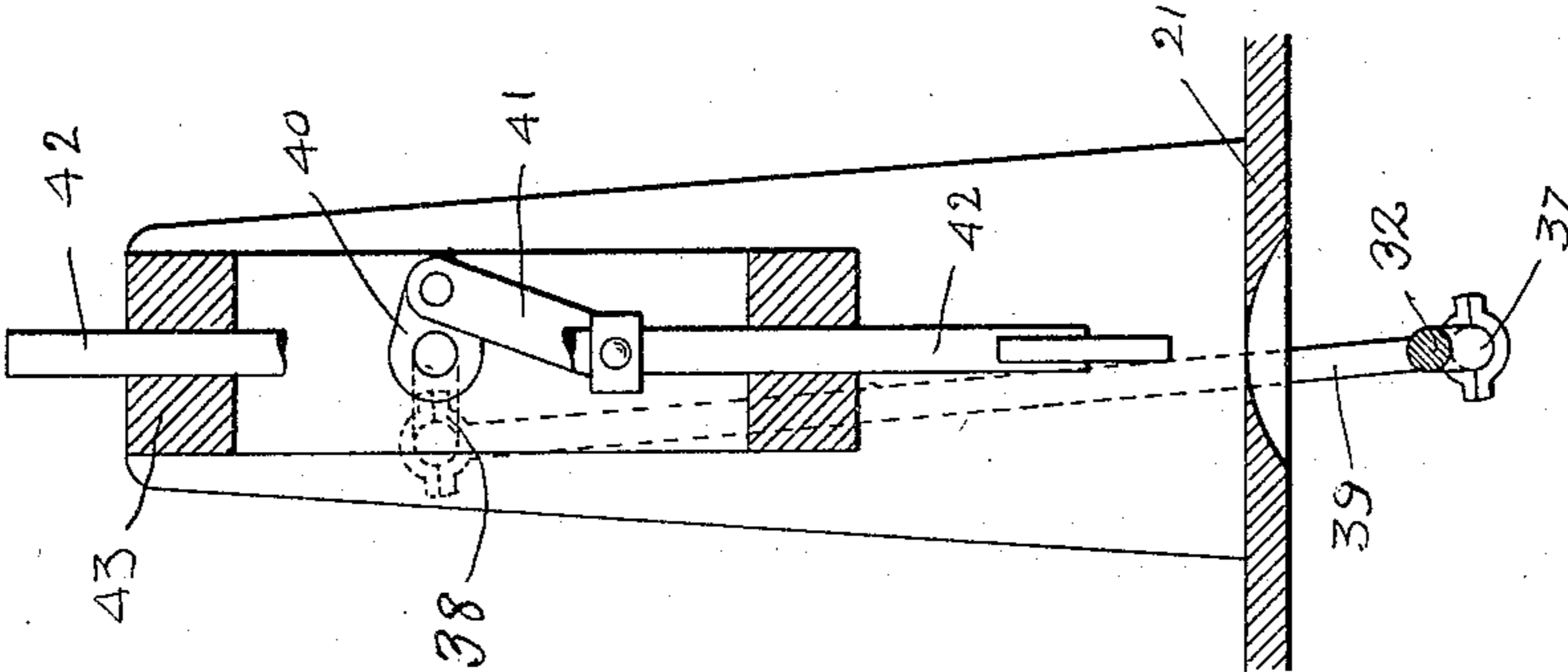


Fig-10-



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UNITED STATES PATENT OFFICE.

GEORGE W. BINGHAM, OF NEW YORK, N. Y.

SPANGLE-MACHINE.

No. 885,012.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed September 14, 1906. Serial No. 334,586.

To all whom it may concern:

Be it known that I, GEORGE W. BINGHAM, a citizen of the United States of America, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Spangle-Machines, of which the following is a specification.

The present invention relates to what I shall term a spangle machine; that is, a machine for shaping and attaching pronged metallic ornaments or spangles to various materials or cloths, as scarfs, sashes or the like, and is an improvement on the invention disclosed in my application filed June 15, 1906. Ser. No. 321,893.

The object of this improvement is to simplify and reduce the cost of construction of the structure shown in my said prior application.

To this end the invention consists in the features of construction, combination of parts and arrangement of elements hereinafter set forth.

In the accompanying drawings, the invention is embodied in a concrete and preferred form, but it is evident that change of construction may be made without departing from the legitimate and intended scope of the invention.

Figure 1 is a vertical longitudinal section of a machine embodying the invention. Fig. 2, is a transverse longitudinal sectional view on the line 2-2 of Fig. 1. Figs. 3, 4 and 5 show the development of the blank. Fig. 6 is a transverse vertical sectional view on the line 6-6 of Fig. 1. Fig. 7 is a view similar to Fig. 6 but with the parts in a different position. Figs. 8 and 9 are detail views of some of the gearing. Figs. 10, 11 and 12 are views similar to Fig. 6, with some of the parts omitted for the sake of clearness, showing the cranks 37, 38 and 40 in their varying positions.

Similar characters of reference indicate corresponding parts in the several views.

1 indicates a fixed cutting die suitably formed in the framework and open at both ends as shown in the drawings. Adjacent to this and in the present instance above the said fixed die, is mounted a movable member 3, which in its preferred form and as shown, is in the form of a cylinder. This cylinder is provided on one side with a drawing-up die 4 while the opposite side forms a supporting

surface 5, whose object will appear later. This supporting surface, in the present instance, forms a part of a continuous cylindrical surface. This cylinder is operated to present periodically the drawing up die in alinement with the cutting die. To effect this motion the cylinder may be oscillated, or as shown in this case and as will be more fully described later, it is rotated intermittently half a revolution in one direction only.

Adjacent to the other open end of the fixed die are two punches which are adapted to alternately coact with the dies, one to cut the blank and the other to move the blank out of the cutting die and into the drawing up die thereby drawing up the prongs on the blanks.

A convenient arrangement consists in having two punches formed into a double ended punch 6, one end 7 of which forms a cutting punch and the other end 8 forms a drawing punch. These punches slide in the guide 9 of the movable member 10. This movable member is also preferably in the form of a cylinder and may be either oscillated or rotated in order to present the two punches alternately to the dies.

A metal sheet 11 is fed in under the fixed die and the punch 7 will coact with the said die to cut a blank 12, the blank remaining in the die opening. In order to insure perfect register of the punch 7 with the die opening 1, there is provided a flaring guide 13 formed by a lower plate 14 as shown which plate also acts as a lower support for the sheet.

The movable member 3 is now given a one-half turn and the drawing up die is presented in line with the cutting die. The movable member 10 is also at the same time given a one-half turn thereby bringing the drawing up punch 8 in line with the dies 1 and 4.

The action of the said drawing up punch will cause the blank to be moved out of the die 1 and into the die 4 thereby drawing up the prongs 15 on the blank.

The drawing up die is formed with a continuation 16 serving as a guide for the reception of the expelling punch 17.

Above the member 3 are provided suitable means for flattening down the prongs. These may take the form of the clenching punch 18 and guide 19.

When the member 3 is again turned to bring the drawing up die adjacent to the clenching punch 18, the expelling punch 17 will act to drive the prongs of the blank

through the material 20 placed on the work table 21. At this moment the clenching punch 18 will be in its lowermost position and the guides 19 will be expanded, so that the prongs of the blank are driven in between the clenching punch and the guide. The clenching punch now recedes, thereby allowing the guide to close and partially fold the prongs. In the present instance, these guides are made of resilient material and close by their own action when the punch withdraws. The clenching punch now descends again, moving the guides out of the way by acting on the cam surfaces 22, and clenches the prongs on the material. In so doing the blank will be supported by the surface 5, the member 3 having meanwhile been turned around.

Any suitable means may of course be used for driving the machine, but in the preferred construction followed, the parts will be arranged as follows:

23 indicates a power shaft to which motion is suitably imparted, preferably continuously, as by the pulley 24. From this shaft motion is preferably imparted to the operating elements of the machine in such a way that the machine goes through its cycle of operations and then stops for a period automatically, in order to give the operator an opportunity to shift the material which is to be ornamented. Any well known stop motion may be employed for this purpose, but, in this instance, I prefer to use the following means.

Mounted on the shaft 23 is a mutilated gear 25, one portion of which is provided with a toothed segment 26 of a certain thickness, while the remainder of its periphery is in the form of a circular disk 28 of one half the thickness of the toothed portion. Engaging with this mutilated gear is a mutilated pinion 28 in the present instance provided with seven teeth plus one more tooth 29 mutilated to the extent that one half of the thickness is cut away. The gear 25 is provided with fifteen teeth, and by its rotation will cause the pinion 28 to make two revolutions after which it will dwell while the disk portion of the gear 25 moves by the pinion. The parts are so arranged that the mutilated tooth 29 of the pinion will project in over the disk portion of the gear, and the two adjacent teeth 30 and 31 will serve to form a stop for the parts so that no rotation of the pinion will take place until the first tooth of the toothed segment comes around again. The pinion 28 is mounted on the shaft 32 which at one end is provided with the crank 33, which serves to cause the reciprocation of the punch members acting in connection with the dies. These punches are preferably mounted on the reciprocating slide 34 connected to the crank 33 by a pin and slot connection. In this way, the said punches are reciprocated twice to each cycle of the ma-

chine. The means for flattening down the blank may also conveniently be operated from the shaft 32, although it would only be necessary to operate the clenching punch once to each cycle of the machine. In the present instance, however, the clenching punch is operated twice to each cycle of the machine by the following means.

36 indicates a rock shaft to which motion is imparted by means of the cranks 37 and 38 and pitman 39 the crank 37 being shorter than the crank 38. Motion is transmitted to the clenching punch from the rock shaft 36 through the instrumentality of the arm 40 and connection 41 attached to the vertical member 42 carrying the clenching punch and reciprocating in the guides 43 of the framework.

Inasmuch as the movable members 3 and 10 are given two half turns to each cycle of the machine, with a period of rest in between, there is embodied another stop motion of a suitable construction to impart a proper intermittent rotation to the said members. In the present instance this takes the form of a mutilated gear 44 mounted on the shaft 32 and in engagement with the mutilated pinion 45 on the countershaft 46. These parts are so capacitated that the pinion 45 will turn only half way around to each complete revolution of the gear 44. The gear 44 is therefore provided with a toothed portion 47 consisting of three teeth and of a certain thickness, while the remainder is in the form of a disk portion 48 of one half the thickness of the toothed portion. The pinion 45 is provided with six teeth and two mutilated teeth 49 and 50 spaced an equal distance apart and mutilated to the extent that one half of the thickness of each of said teeth is cut away. Each of the members 3 and 10 is provided with a spur gear 51 and 52, one of which engages with the spur gear 53 on the counter shaft 46. In order to cause the punch members to follow the rotation of the members 3 and 10, they are journaled on the pivots 54 and 55 on the reciprocating member 34.

I wish it to be understood that I do not limit myself to a machine for applying spangles exclusively as I am aware that the features of construction shown, may be employed for other purposes.

In Figs. 3, 4 and 5, I have shown the development of the spangle blank. Fig. 3 shows the flat blank as it is stamped or cut and before it is drawn up. Fig. 4 shows the prongs drawn up so that they may pierce the material to which the blank is to be attached, and Fig. 5 shows the prongs flattened down.

What I claim is:

1. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a movable member carrying said drawing up die and adapted to

cause it to register with one of the open ends of the first mentioned die, a double punch member, means for alternately presenting the opposite ends of the double punch member in register with the other of the open ends of the fixed die, and means for actuating said punch member thereby cutting a blank by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member.

2. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a rotatable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, means for alternately presenting the opposite ends of the double punch member in register with the other of the open ends of the fixed die, and means for actuating said punch member thereby cutting a blank by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member.

3. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a movable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, a rotatable member carrying the said punch member, means for rotating the said member to alternately present opposite ends of the double punch member in register with the other open end of the fixed die, and means for reciprocating the said double punch member thereby cutting a blank by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member.

4. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a rotatable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, a rotatable member carrying the said punch member, means for rotating the said member to alternately present opposite ends of the double punch member in register with the other open ends of the fixed die, and means for reciprocating the said double punch member thereby cutting a blank by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member.

5. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a movable member carrying said drawing up die and adapted to cause it to register with one of the open ends

of the first mentioned die, a double punch member, means for alternately presenting the opposite ends of the double punch member in register with the other of the open ends of the fixed die, and means for actuating said punch member thereby cutting a blank with prongs, by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, means for driving the prongs through the material, and means for flattening down the prongs against the material.

6. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a rotatable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, means for alternately presenting the opposite ends of the double punch member in register with the other of the open ends of the fixed die, and means for actuating said punch member, thereby cutting a blank with prongs by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, means for driving the prongs through the material, and means for flattening down the prongs against the material.

7. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a movable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, a rotatable member carrying the said punch member, means for rotating the said member to alternately present opposite ends of the double punch member in register with the other open end of the fixed die, and means for reciprocating the said double punch member thereby cutting a blank with prongs by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, means for driving the prongs through the material, and means for flattening down the prongs against the material.

8. In a machine of the character set forth, the combination of a fixed die, open at both

ends, a drawing up die, a rotatable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, a rotatable member carrying the said punch member, means for rotating the said member to alternately present opposite ends of the double punch member in register with the other open end of the fixed die, and means for reciprocating the said double punch member thereby cutting a blank with prongs by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, means for driving the prongs through the material, and means for flattening down the prongs against the material.

9. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a movable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, means for alternately presenting the opposite ends of the double punch member in register with the other of the open ends of the fixed die, and means for actuating said punch member thereby cutting a blank with prongs, by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, and a punch located in the drawing up die for driving the prongs through the material, and means for flattening down the prongs against the material.

10. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a rotatable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member means for alternately presenting the opposite ends of the double punch member in register with the other of the open ends of the fixed die, and means for actuating said punch member, thereby cutting a blank with prongs by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, a punch located in the draw-

ing up die for driving the prongs through the material and means for flattening down the prongs against the material.

11. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a movable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, a rotatable member carrying the said punch member, means for rotating the said member to alternately present opposite ends of the double punch member in register with the other open end of the fixed die, and means for reciprocating the said double punch member thereby cutting a blank with prongs by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, a punch located in the drawing up die for driving the prongs through the material and means for flattening down the prongs against the material.

12. In a machine of the character set forth, the combination of a fixed die, open at both ends, a drawing up die, a rotatable member carrying said drawing up die and adapted to cause it to register with one of the open ends of the first mentioned die, a double punch member, a rotatable member carrying the said punch member, means for rotating the said member to alternately present opposite ends of the double punch member in register with the other open end of the fixed die, and means for reciprocating the said double punch member thereby cutting a blank with prongs by the action of one end of the double punch member, and moving the blank into the drawing up die by the action of the other end of the punch member, thereby drawing up the prongs, and means for actuating the said movable member so as to cause the blank to be presented with its prongs against the material to which it is to be attached, a punch located in the drawing up die for driving the prongs through the material and means for flattening down the prongs against the material.

13. In a machine of the character set forth, the combination of means for cutting a blank with prongs, a movable member, a drawing up die formed in said movable member on one side, a supporting surface on the opposite side of the movable member, a punch adapted to cooperate with the said drawing up die to draw up the prongs, means for flattening down the prongs, on the material, means for actuating the movable member so as to alternately present the drawing up die and supporting surface to the means for flat-

tening down the prongs, a punch located in the drawing up die for driving the prongs through the material, and means for actuating the flattening means to operate when the supporting surface is under the blank.

14. In a machine of the character set forth, the combination of a fixed cutting die, a drawing up die, means for intermittently rotating the drawing up die one half of a revolution twice to each cycle of the machine, a double punch member, one end of which coacts with the cutting die, and the other end of which serves to remove the blank from the cutting die into the drawing up die and to draw it up therein, means for rotating the double punch member one half of a revolution twice to each cycle of the machine, so as to alternately present the punches to the die, and means for reciprocating the punch member twice to each cycle of the machine.

15. In a machine of the character set forth, the combination of a rotatable die, a punch rotating in unison therewith and adapted to be brought into register with the same at intervals, and means for reciprocating the punch, when the latter and the die come into register, so as to cause the said punch to coact with the said die.

16. In a machine of the character set forth, a reciprocating member, a punch adapted to follow the reciprocating movement of the said member, a pivotal support on the said reciprocating member on which the punch is mounted, means for rotating the punch, a die cooperating with the punch, and means for rotating the die to intermittently cause the said punch and die to register.

17. In a machine of the character set forth, a reciprocating member, a punch adapted to follow the reciprocating movement of the said member, a pivotal support on the said reciprocating member on which the punch is mounted, means for intermittently turning the punch around its pivotal support, a die cooperating with the punch mounted on a pivotal support, and means for intermittently turning the die around its pivotal support so as to cause it to register with the punch.

Signed at New York city this 12th day of September, 1906.

GEORGE W. BINGHAM.

Witnesses:

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GEO. A. MARSHALL.