No. 707,326. Patented Aug. 19, 1902.

J. HORMBY.

GRIP CARRIER FOR BUTTON MAKING MACHINES.

(Application filed Apr. 4, 1902.)

(No Model.) 2 Sheets—Sheet 1.

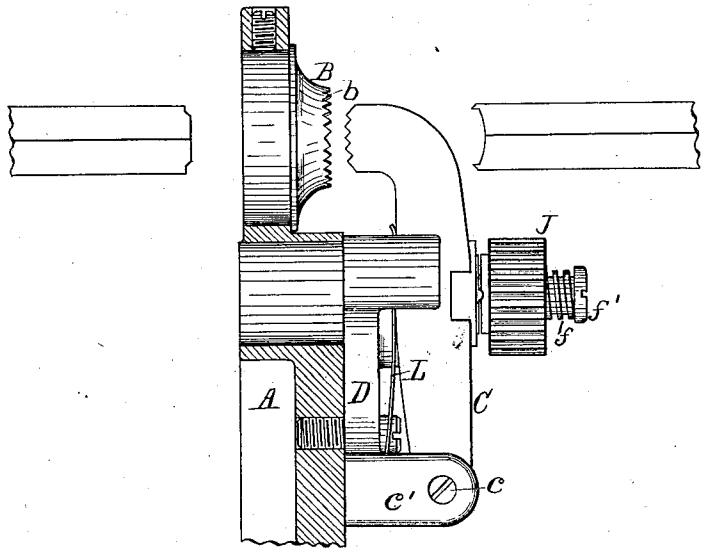


FIG. 1.

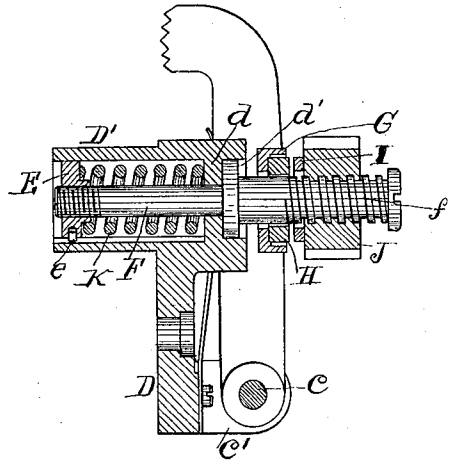


FIG. 2.

WITNESSES:
Ernest H. Boyce.
S. J. Cox.

INVENTOR
John Hormby
BY William R. Baird
ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 707,326. Patented Aug. 19, 1902.

J. HORMBY.

GRIP CARRIER FOR BUTTON MAKING MACHINES.

(Application filed Apr. 4, 1902.)

(No Model.) 2 Sheets—Sheet 2.

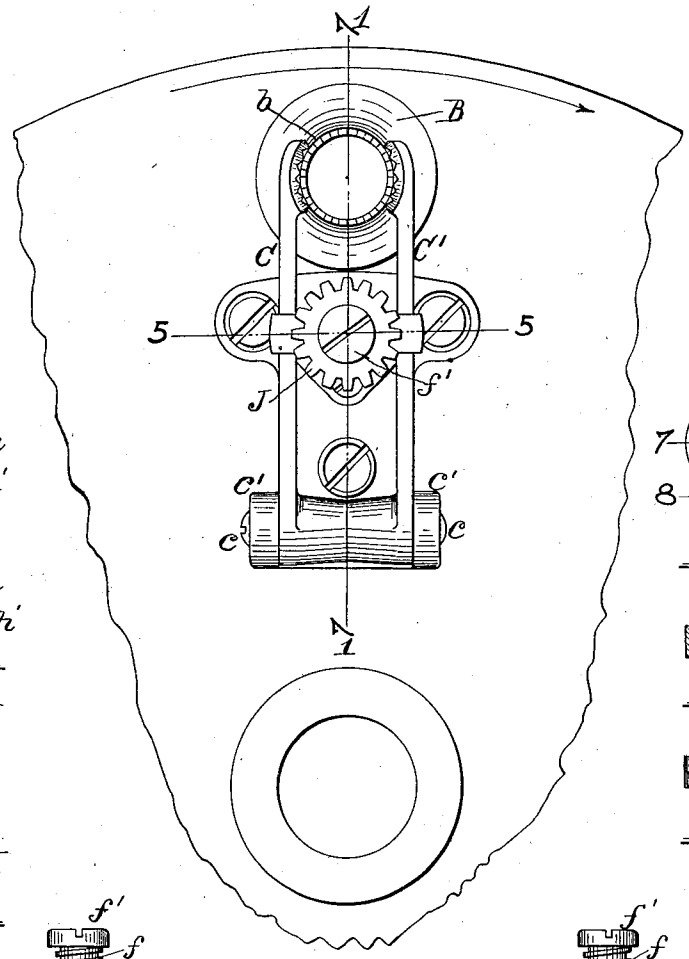


FIG. 3

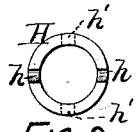


FIG. 9



FIG. 10

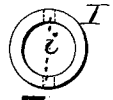


FIG. 11.

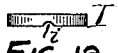


FIG. 12

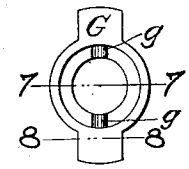


FIG. 6

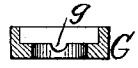


FIG. 7.



FIG. 8

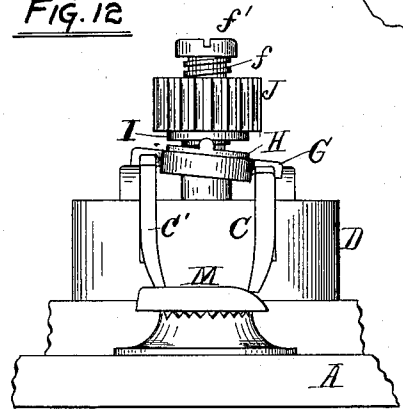


FIG. 4.

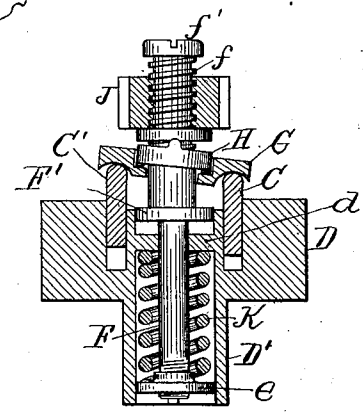


FIG. 5.

WITNESSES:

Ernest H. Boyce

S. J. Coy.

INVENTOR

John Hormby

BY William R. Baird

His ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN HORMBY, OF WOONSOCKET, RHODE ISLAND.

GRIP-CARRIER FOR BUTTON-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 707,326, dated August 19, 1902.

Application filed April 4, 1902. Serial No. 101,436. (No model.)

To all whom it may concern:

Be it known that I, JOHN HORMBY, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Grip-Carriers for Button-Making Machines, of which the following is a specification.

My invention relates to grip devices or carriers for button-making machines, and especially for that class of machines for making buttons from slabs or slices of the ivory-nut, such as that shown and described in my prior patent, No. 611,811, dated October 4, 1898. In that machine certain difficulties were encountered in the operation of the grip devices, which were to a large extent overcome by the mechanism shown and described in my Patent No. 629,997, dated August 1, 1899, the principal improvement being the making of the movable jaw of the grip-carrier of a plurality of separately-movable members and the provision of means for moving said members simultaneously but independently toward the fixed jaw, whereby slabs of irregular form were more firmly held and prevented from slipping from the carrier. In the practical use of the machine as thus improved I have found that there was a tendency in the forward motion of the tool to drive the stock against the work-carrier, thus loosening it, so that in the succeeding operation it might be thrown out.

The object of the present invention is to provide means for avoiding this difficulty; and with this object in view the invention consists in the improved construction, arrangement, and combination of parts of the grip-carrier, which will be hereinafter fully described and afterward specifically claimed.

In the accompanying drawings, Figure 1 is a view of the grip-carrier, partly in elevation and partly sectional, on the plane of the line 1 1 of Fig. 3. Fig. 2 is a sectional view on the same plane. Fig. 3 is a view in elevation of part of the turret or multiple grip-carrier and one complete grip mechanism. Fig. 4 is a detail view, in top plan, of substantially the same parts shown in Fig. 3. Fig. 5 is a view in section on the plane of the line 5 5 of Fig. 3. Fig. 6 is a face view of the saddle. Figs. 7 and 8 are sectional detail views on the lines 7 7 and 8 8 of Fig. 6. Fig. 9 is a face view of the teetering-ring. Fig. 10 is a side elevation of the same. Fig. 11 is a face view of the washer or ring next to the locking-pinion. Fig. 12 is a side elevation of the same.

Referring to the drawings by reference characters, A indicates the turret or multiple grip-carrier, which is mounted to rotate intermittently, as in my Patent No. 611,811, before referred to, and to which is secured in a circular series the fixed jaw B, the latter being provided with an annular toothed edge b and an opening b' to admit of the access of the operating-tools. The movable jaw is composed of two parts or members C C', alike in size and proportions and positioned opposite each other, being provided at their inner ends with sleeve-bearings journaled on a pin c, mounted in lugs c', formed on a casting D, rigidly secured to the turret A by screws or other suitable fastening means. The casting D is formed at its outer end as a sleeve D', in which is a centrally-perforated diaphragm d, thus forming at one end a seat or recess d' separate from the main sleeve-opening. In the sleeve D' is a groove or key-seat to accommodate a key lug or pin e on one side of an annular nut E, thus holding it against turning in the sleeve.

F indicates a pin which passes through the central opening of the diaphragm d and is threaded into the nut E, this pin F being enlarged beyond the diaphragm and provided with an annular flange F', seated in the recess d', the enlarged end of the pin being also threaded at f and provided with a slotted screw-head f'.

Loosely mounted on the pin F is a saddle G, which bears at its rounded outer ends G' upon the two members C C' of the movable jaw and forms the inner bearing for a teetering-ring H, which latter has two lugs h, diametrically opposite each other, seated in similarly-located notches g of the saddle. On the opposite face of the ring H are diametrically opposite lugs h' at positions at right angles to the lugs h, seated in correspondingly-placed notches i in a washer I, which serves to receive the impact of a pinion J, threaded on the enlarged end of the pin F.

In the sleeve D', coiled about the pin F, is a strong expansive spring K, having bearings

at its ends upon the nut E and diaphragm *d*, respectively. This spring may be adjusted in tension by turning the pin F. Suitable springs L serve to normally press the movable jaw members outward or to their open positions.

The operation of the invention is to a large extent the same as in the grip-carrier of my Patent No. 629,997, before referred to, and may be described as follows: A slab of material, as at M in Fig. 4, being placed with one of its flat surfaces against the teeth of the fixed jaw, the pinion J is rotated by a segmental pinion or any other suitable connection with the machine, and thus caused to advance on the thread of the pin F and press upon the washer I, teetering-ring H, saddle G, and the members C C′ of the movable jaw, such pressure of the parts, owing to the universal joint formed by the teetering-ring, being equally distributed upon each member and causing it to press equally with its fellow member against the slab no matter how irregular in form the slab may be. In my former patent, No. 629,997, this pressure was positive; but in the present instance the pressure is against the force of the spring K, which, as before stated, is very strong, and its force is exerted upon the members of the movable jaw with sufficient strength to securely hold the slab, while at the same time the jaws being held with spring-pressure will always maintain contact and cannot be loosened by jarring of the machine or on account of the tendency of the tool to drive the stock against the work, as before mentioned. The advantage of such a uniform tension on the jaws and their automatic tightening due to the present structure will be obvious, and it has proved a great success in practical operation.

Having thus described my invention, what I claim as new is—

1. In a grip-carrier, the combination with a fixed jaw of a movable jaw composed of a plurality of separately-movable members, of means for moving said members simultaneously but independently toward said fixed jaw, with a yielding pressure.

2. In a grip-carrier, the combination with a fixed jaw of a movable jaw composed of a plurality of separately-movable members, of means for moving said members simultaneously but independently toward said fixed jaw, with a yielding pressure, said means consisting of a pinion mounted upon a screw, a universally-jointed bearing intermediate the pinion and the members of the movable jaw and a spring acting against the pressure of the pinion.

3. In a grip-carrier the combination with a fixed jaw, of a movable jaw consisting of separate members, means for opening and closing the jaws consisting of a pinion mounted upon a screw, a spring acting against the thrust of the pinion, and bearing-pieces interposed between the pinion and the movable jaw adapted to freely oscillate with relation to the jaw, the pinion and each other.

4. In a grip-carrier, the combination with a fixed jaw and a movable jaw consisting of separate members, of means for opening and closing the jaws consisting of a screw, means for moving it yieldingly in the direction of the closing of the jaws, means for moving it positively in the opposite direction and a universally-jointed bearing between the positive means and the movable jaw.

Witness my hand this 17th day of March, 1902, in the presence of two subscribing witnesses.

JOHN HORMBY.

Witnesses:
EDWIN J. PERIN, Jr.,
RALPH F. BUNKER.