June 8, 1954 G. CAPELLAZZI ET AL 2,680,344

MACHINE FOR HANDLING AND CLOSING COSTUME JEWELRY LINKS

Filed March 14, 1951 3 Sheets-Sheet 1

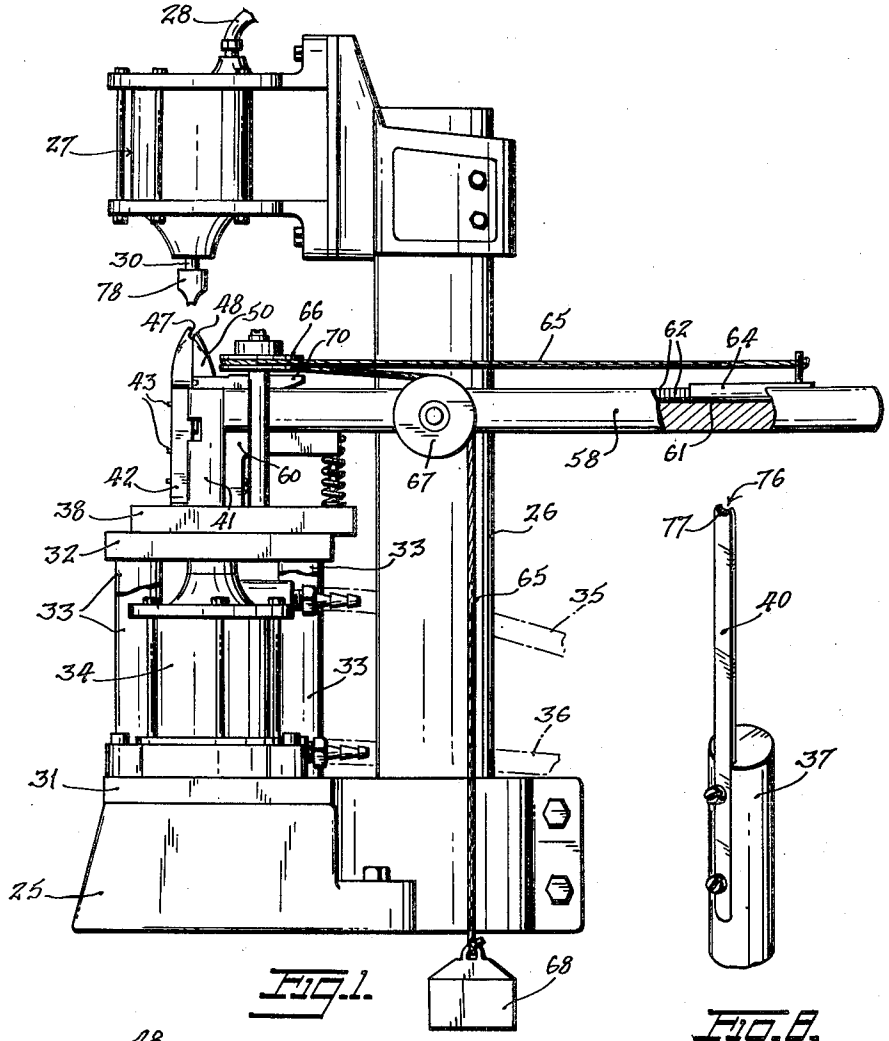


Fig. 1.

Fig. 8.

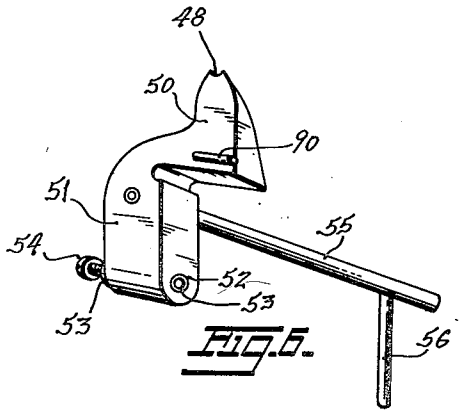


Fig. 6.

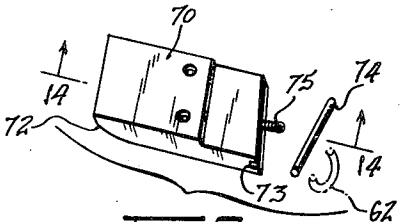


Fig. 7.

INVENTORS
GILDO CAPELLAZZI
HERMANN STEGMAIER
BY
ATTORNEY

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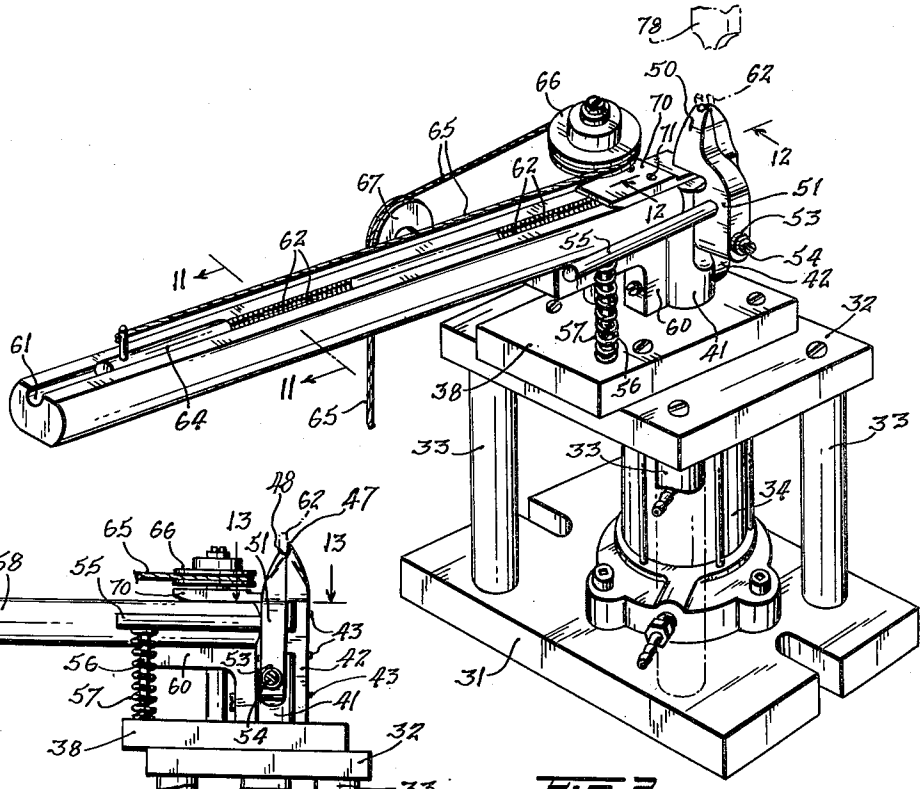


FIG. 2.

FIG. 3.

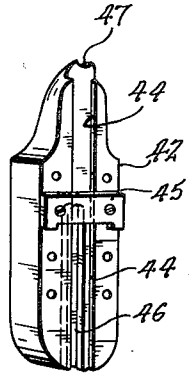


FIG. 5.

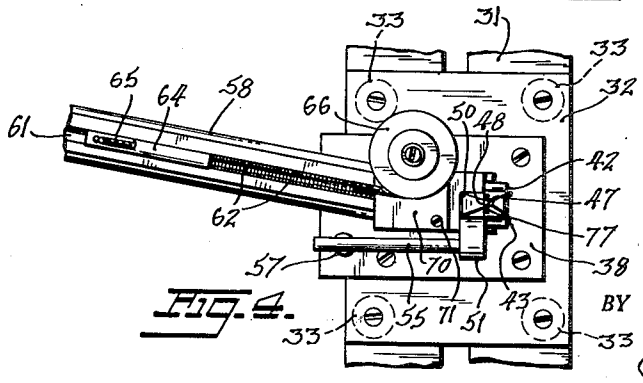


FIG. 4.

INVENTORS
GILDO CAPELLAZZI
HERMANN STEGMAIER
BY Zoltan Polcsek
ATTORNEY

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Filed March 14, 1951

3 Sheets-Sheet 3

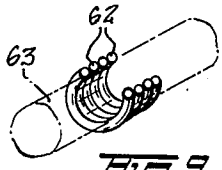


FIG. 9.

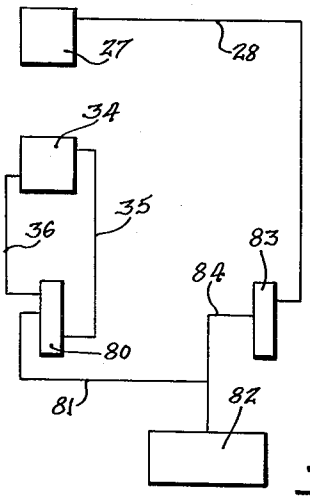


FIG. 10.

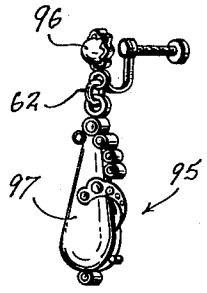


FIG. 15.

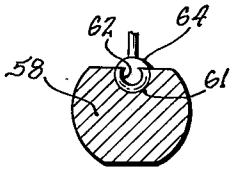


FIG. 11.

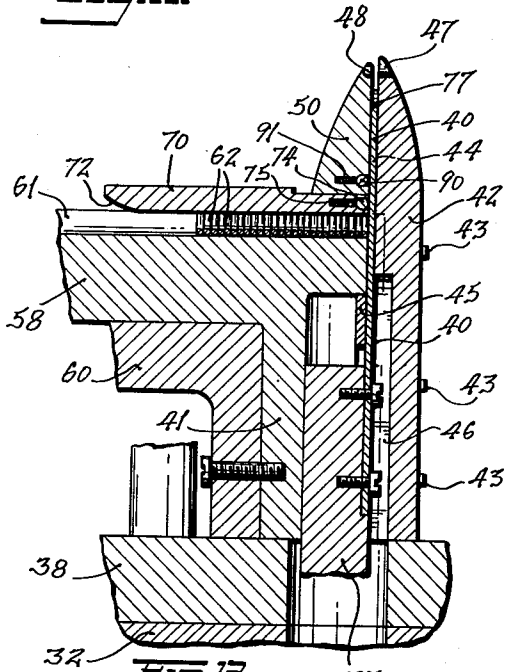


FIG. 12.

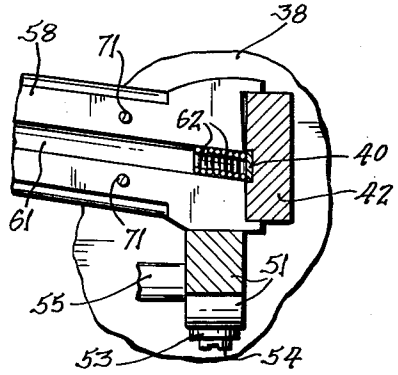


FIG. 13.

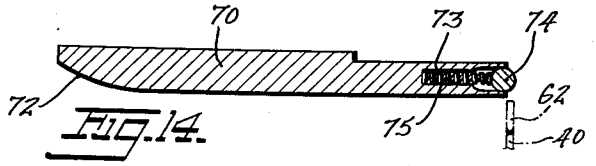


FIG. 14.

INVENTORS
GILDO CAPELLAZZI
BY HERMANN STEGMAIER

ATTORNEY

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2,680,344

UNITED STATES PATENT OFFICE

2,680,344

MACHINE FOR HANDLING AND CLOSING COSTUME JEWELRY LINKS

Gildo Capellazzi, Brooklyn, and Hermann Stegmaier, Flushing, N. Y., assignors to Rhine-Craft Company, Inc., Brooklyn, N. Y., a corporation of New York

Application March 14, 1951, Serial No. 215,542

3 Claims. (Cl. 59—27)

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This invention relates to a machine for linking together costume jewelry pieces, and, more particularly, to a machine for handling and closing costume jewelry links of the type disclosed in our co-pending application Serial No. 215,541, filed March 14, 1951.

The links disclosed in our said co-pending application consist of breached wire circles which are held together in bar form by a suitable cement and which are readily removable from the bar seriatim to be closed to join together a pair of costume jewelry pieces.

One object of the invention is the provision of a machine for removing the links from a said bar seriatim for feeding the links to a gripping means and for closing the links as they are held in said gripping means.

Another object of the invention is the provision of dual means for shifting the links angularly accurately to position the links in said gripping means.

Still another object of the invention is to construct the means for feeding the links to the gripping means in such manner that the accurate angular positioning thereof is maintained.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevational view of the machine of the invention.

Fig. 2 is a perspective view of the feeding and gripping portion of the machine.

Fig. 3 is a side elevational view of said feeding and gripping means.

Fig. 4 is a plan view of said feeding and gripping means.

Fig. 5 is a perspective view of one jaw of the gripping means.

Fig. 6 is a perspective view of the other jaw of the gripping means.

Fig. 7 is a perspective view of link straightening means.

Fig. 8 is a perspective view of a link feeding device.

Fig. 9 is a perspective view of a unified bar of said links.

Fig. 10 is a diagrammatic view showing the air lines for operating the compressed air cylinders of the device.

Fig. 11 is an enlarged sectional view on line 11—11 of Fig. 2.

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Fig. 12 is a vertical sectional view on line 12—12 of Fig. 2.

Fig. 13 is a horizontal sectional view on line 13—13 of Fig. 3.

Fig. 14 is an enlarged sectional view on line 14—14 of Fig. 7.

Fig. 15 is a perspective view of an earring having its portions connected together by a link pressed to a closed position by a machine constructed in accordance with the present invention.

The machine for closing costume jewelry links, according to the present invention, includes a base 25 from one end of which a post 26 projects vertically. Fixed on the post 26 near its upper single acting spring is a return compressed air press 27 having an intake line or hose 28 and a piston rod 30 which is forced downward by compressed air and restored upward by a spring in known manner.

Mounted on base 25 is a frame plate 31 above which a second plate 32 is spaced by corner posts 33, said plates 31 and 32 having mounted between them a double acting compressed air press 34. The press 34 is provided with upper and lower air intake tubes 35 and 36, respectively, which provide for positive movement of the cylinder's piston rod 37 in either vertical directions, see Figs. 8 and 12.

Compressed air presses such as those indicated at 27 and 34 are extremely well known and available in many different sizes from Air-Mite of Chicago, Illinois, and, therefore, it is not deemed necessary to illustrate or describe their internal construction.

The piston rod 37 of the press 34 extends upward through aligned openings in the plate 32 and in a plate 38 secured atop the latter and has an upwardly extending feeder bar 40 secured to the upper end thereof in any suitable manner, said feeder bar extending upward within a housing block 41 fixed in the opening of plate 38. Housing block 41 is suitably hollowed out and cut away as shown to receive a facing block 42 which is secured thereto by screws 43 and which has in its inner face an accurately cut vertical groove 44 in which feeder bar 40 slides. Preferably a plate 45 is extended across groove 44 above its center to prevent lateral movements of feeder bar 40, see also Fig. 5. Below plate 45 the longitudinal center groove 44 is deepened to form a lubrication wall 46. At its upper end block 42 tapers somewhat and has its upper edge formed into a concave arc as at 47. Also the stock at either side of the upper end of groove 44 is cut away so that the nose 47 forms one jaw of a gripping device whose other jaw is the concavely

arcuate upper edged nose 48 of a lateral and upward extension 50 of a block 51 pivoted to housing 41 at its lower end, as will be described presently.

As best shown in Fig. 12, the face of extension 50 abuts the groove 44 and the nose 48 thereof is positioned to cooperate with nose 47 to grip an article fed up through said groove by feeder bar 40, see also Fig. 6.

Near its lower end, block 51 is provided with a bore 52 in which is journably mounted a sleeve 53 through which a bolt 54 extends into the housing. Block 51 and its extension 50 are thus pivoted to said housing and nose 48 is capable of being swung away from nose 47 to free an article held between the two. In order to maintain nose 47 in gripping position a rod 55 extends rearward from the block 51 and near its free end has a depending rod 56 secured thereto. Coiled about depending rod 56 is a coiled spring 57 which acts against plate 38 and against the rod 55 to rock block 51 to normal position, that is, the position in which gripping nose 48 is adapted to cooperate with nose 47.

Extending rearwardly from housing 41 at a slight angle is a bar 58 which is supported by an L-bracket 60 and has a generally circular cross-section with the upper portion thereof cut away in a horizontal plane. Located in the upper edge of said bar 58 is a longitudinal groove 61 which is circular in form and has substantially less than 180° of its periphery opening on said upper edge, see Figs. 1–4 and 8. Adapted to the groove 61 are long series of wire links 62 having the same configuration as the groove and arranged in cemented together relationship, see also Fig. 9. The bars of links 62 preferably are carried on a rod 63 with which they are inserted into the open end of groove 61, after which the rod 63 is removed.

After removal of the rod 63, a follower 64 is inserted into the groove 61 behind said links and acts to move the latter toward the housing 41. Follower 64 is pulled along by a string or cord 65 which is threaded over suitably mounted pulleys 66 and 67 and is secured to a counterweight 68 which provides the motive power for the follower. The groove 61 extends clear to the groove 44 in facing block 42 described above so that as follower 64 pushes them forward, the links 62 are detached one by one and raised to the gripping noses 47 and 48 by the feeder bar 40.

In order to assure that the breach of each link 62 is positioned vertically for feeding by bar 40 the following means are provided, see Figs. 2, 12 and 14. A plate 70 is secured atop bar 58 at the forward end thereof by screws 71 and has the rear edge 72 thereof undercut on an incline. Thus, as the links 62 are fed along in groove 61 they pass beneath said incline and if the breach therein is not centered vertically, the links are cammed to the proper angular position. The plate 70 extends beneath the extension 50 of block 51 and has its forward edge cut at an angle to parallel the same with the grooved face of facing block 42. Said angled edge is provided with a longitudinal groove 73 in which a thin rod or pin 74 is located. A spring 75 located in a well at the base of groove 73 tends to project the rod out of the groove. As best shown in Fig. 12, the action of spring 75 forces rod 74 partly out of the groove and against facing block 42, said rod spanning feed groove 44. At this point it is to be remarked that groove 44 is slightly shallower than the thickness of the links 62 so that as the former are fed upward by feeder bar 40 they must of necessity contact the rod 74.

The construction is such that a link 62 fed into groove 44 by follower 64 is moved upward by feeder bar 40, during which movement it engages rod 74 and forces the same back into groove 73 against the tension of spring 75; and if the link is not positioned with its breach centered vertically, the engagement thereof with said rod rotates the link to the proper position.

To further insure that the links 62 move upward with their breach centered vertically, the side of the extension 50 facing the block 42 is formed midway of its height with a transverse groove in which a short rod 90 is positioned, see Figs. 6 and 12, and which is resiliently urged into an extended position by a spring 91 housed in a well formed in the extension 50. Thus, the rod 90 functions exactly as the rod 74 does to turn the links 62 to center their breach vertically in the event any rotation of the links should take place between the time that they leave the rod 74 and reach the rod 90.

Referring again to Fig. 8, the upper edge of feeder bar 40 is cut away to form a concave seat 76 for engaging the links 62. Also to prevent inadvertent rotative movements of the links after they pass the rod 74 and 90, seat 76 is provided with serrations or teeth 77.

The construction is such that feeder bar 40 moves the links upward one by one to the gripping noses 47 and 48 which hold the same under tension of spring 57. The face of extension 50 is, of course, suitably formed to allow a link 62 moving upward in groove 44 to cam the same outwardly a short distance. While a link is held between gripping noses 47 and 48 with the feeder bar 40 still engaging the same, the pair of jewelry pieces that are to be connected by the link are engaged over opposite sides of the latter and the press 27 is actuated to close the same. The means operated by the press 27 to close the links consists of a chuck 78 which is mounted on the piston rod 30 of the press as shown in Figs. 1 and 2. In obvious manner depression of chuck 78 onto a link 62 held by noses 47 and 48 closes the same.

A closed link is removed from gripping noses 47 and 48 by the next link fed upward by the feeder bar 40.

It will readily be seen, therefore, that means is required to operate the lower press 34 to raise feeder bar 40 and maintain the same in raised position, to operate cylinder 27 to depress chuck 78, and to operate the press 34 in reverse to lower feed bar 40 to pick up another link 62.

Means to these ends are extremely well known and the diagrammatic showing thereof in Fig. 10 is deemed sufficient for a full knowledge of the invention. The air tubes 35 and 36 for operating the press 34 in opposite directions, are connected to a foot switch or valve 80 which is operable in either of two directions to connect one or the other of said tubes to a main tube 81 leading to a source of compressed air such as a tank 82. Tube 28 for upper press 27 is connected to a foot switch or valve 83 which in turn is connected to tank 82 by a tube 84.

It will readily be seen that to obtain the required sequence of operations described above, all that is required is to operate valve 80 in one direction, operate the valve 83 and then operate valve 80 in the opposite direction.

In Fig. 15, there is illustrated an earring 95 which has its upper ear engaging portion 96 connected to a lower pendant portion 97 by means

of a link 62 pressed to a closed position by a machine constructed in accordance with the present invention.

While we have illustrated and described the preferred embodiment of our invention, it is to be understood that we do not limit ourselves to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described our invention, what we claim as new, and desire to secure by United States Letters Patent is:

1. In a machine for closing round breached costume jewelry links, the combination of gripping means for holding a round, open link in a position to be closed, said gripping means having a vertically extended groove in which said links are to be fed to said holding position, a chuck for closing the breach of a link held at said position, power means for operating said chuck, a feed bar vertically slidable in said groove to feed a link vertically in said groove to said holding position, means for operating said feed bar, and means for feeding links one after another into said groove to be fed upward therein by said feed bar, said gripping means comprising a fixedly mounted block having said groove, and a yieldable pivotally mounted block facing said fixed block and having an extension for closing the top portion of said groove and a pair of spring operated rods positioned in said pivoted block and adapted to correctly orient said links.

2. In a machine for closing round breached costume jewelry links, the combination of gripping means for holding a round, open link in a position to be closed, said gripping means having a vertically extended groove in which said links are to be fed to said holding position, a chuck for closing the breach of a link held at said position, power means for operating said chuck, a feed bar vertically slidable in said groove to feed a link vertically in said groove to said holding position, means for operating said feed bar, and means for feeding links one after another into saird groove to be fed upward therein by said feed bar, said gripping means comprising a fixedly mounted block having said groove, and a yieldable pivotally mounted block facing said

fixed black and having an extension for closing the top portion of said groove, and resilient means urging said pivotally mounted block into an operative position and a pair of spring operated rods positioned in said pivoted block and adapted to correctly orient said links.

3. In a machine for closing round breached costume jewelry links, the combination of gripping means for holding a round, open link in a position to be closed, said gripping means having a vertically extended groove in which said links are to be fed to said holding position, a chuck for closing the breach of a link held at said position, power means for operating said chuck, a feed bar vertically slidable in said groove to feed a link vertically in said groove to said holding position, means for operating said feed bar, and means for feeding links one after another into said groove to be fed upward therein by said feed bar, said gripping means comprising a fixedly mounted block having said groove, and a yieldable pivotally mounted block facing said fixed block and having an extension for closing the top portion of said groove, and resilient means urging said pivotally mounted block into an operative position, said pivotally mounted block being pivoted to a fixed part of the machine, said resilient means comprising an expansion spring operating between said fixed part of the machine and a rod extending from said pivotally mounted block and a pair of spring operated rods positioned in said pivoted block and adapted to correctly orient said links.

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