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MOLDING APPARATUS FOR BATTERY STRAP POSTS.

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Fig. 1

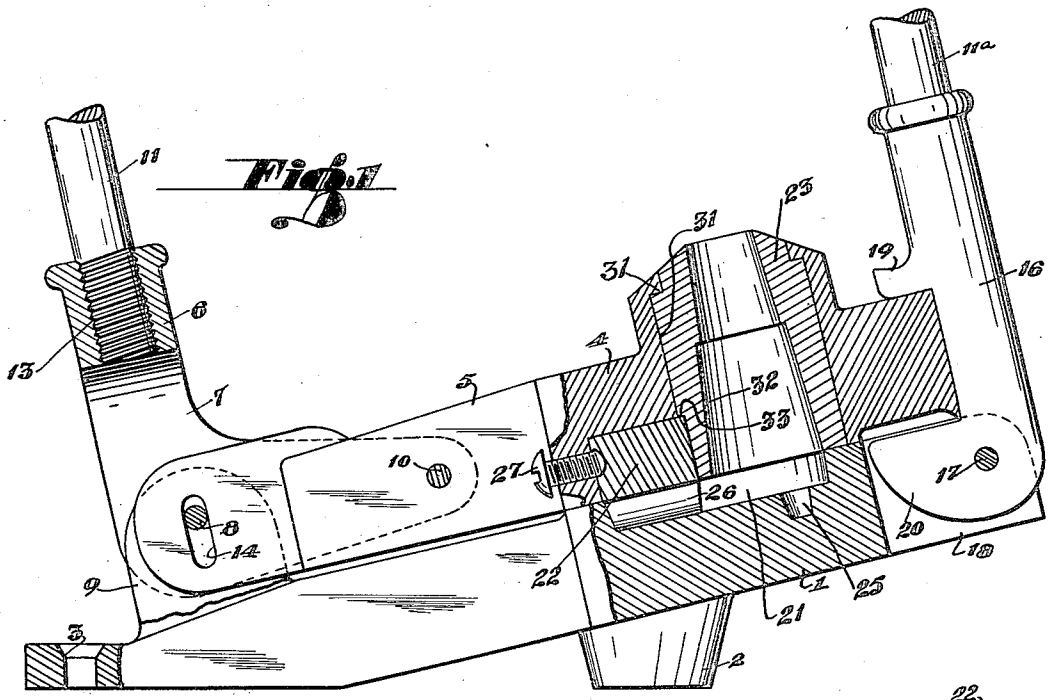


Fig. 3

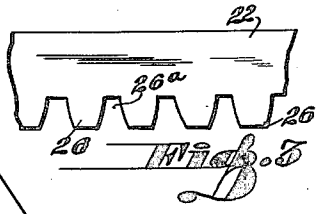


Fig. 2

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MOLDING APPARATUS FOR BATTERY STRAP-POSTS.

1,392,884. Specification of Letters Patent. Patented Oct. 4, 1921.

Application filed August 25, 1920. Serial No. 405,785.

To all whom it may concern:

Be it known that I, GEORGE P. WASHBURN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Molding Apparatus for Battery Strap-Posts, of which the following is a specification.

It is the object of this invention to provide a molding apparatus of simplified construction and efficient operation.

The device is, preferably, applicable to the molding of battery strap posts and the like, where it is desirable to mold articles which may be arranged with projections of one of said articles arranged between projections of a coöperating one of said articles. Thus for example, in the production of battery strap posts it is necessary to form certain of said strap posts with projections one more in number than the projections of others of said strap posts. By this arrangement two of the strap posts having the different number of projections are adapted to be brought together in the battery with the projections of the respective strap posts received within the spaces formed between the projections of the other strap posts.

The present invention contemplates means whereby shifting of a die in the molding apparatus will readily adapt the same to the production of battery strap posts having either of the different number of projections.

The invention will be readily understood from the following description of the accompanying drawings, in which—

Figure 1 is a side elevation of the molding apparatus partially in vertical section.

Fig. 2 is a plan view of the same partly broken away.

Fig. 3 is a fragmentary front elevation of the molding die.

The molding apparatus consists of a bed plate 1, preferably, supported in an inclined position as by means of the lugs 2. These lugs may be provided with screw openings 3 for mounting the apparatus upon a suitable base.

A movable plate 4 coöperates with bed plate 1 and is provided with a rearward extension 5 to which the pivotal support for the plate is connected. This pivotal support, preferably, comprises a bell crank lever formed as a yoke having the shank 6 and the arms 7 positioned at opposite sides of projection 5. The bell crank lever is fulcrumed upon a pin 8 extending through spaced bearing lugs 9 projecting from bed plate 1. The forward ends of the arms forming the bell crank lever are pivoted to projection 5 as by a pin 10. The shank 6 at the opposite end of the bell crank lever is provided with an operating lever 11, preferably, having a threaded engagement 13 within said shank.

The end of projection 5 is received between lugs 9 and is provided with an elongated slot 14 through which pin 8 extends. By this arrangement it will be seen that when the bell crank lever is swung upon pivot 8 from the position shown in Fig. 1, the plate 4 will be elevated by the connection between the bell crank lever and the plate at pivot 10, the end of projection 5 at the same time sliding relative to pivot pin 8 by means of slot 14. When plate 4 has thus been elevated a sufficient distance to cause the lower end of slot 14 to abut against pivot pin 8, the continued swinging of the bell crank lever will swing said plate upon a pivot provided by pin 8. It is thus possible to initiate the movement of plate 4 away from bed plate 1 perpendicular to the meeting surfaces of said plates.

When plate 4 is closed upon bed plate 1, as shown in Fig. 1, a latching member is arranged to retain the swinging end of plate 4 relative to the bed plate. As an instance of this arrangement the latching member is shown as comprising a shank 16 pivoted by means of a pin 17 between lugs 18 formed at the end of bed plate 1. The latching member when in latching position is arranged with its shank in substantially upright position, said shank having a lug 19 projecting therefrom so as to engage over the end of bed plate 4. The shank is, preferably, provided with a lever 11^a for actuating the same, said lever, preferably, having a threaded connection with the shank as previously described for the lever 11.

When it is desired to release bed plate 4, the shank 16 is swung outwardly upon its pivot 17 so as to swing lug 19 beyond the plate 4. The shank is, preferably, provided with means for elevating plate 4 from bed plate 1 as the shank is thus swung outwardly. As an instance of this arrange-

ment a finger 20 is shown projecting from shank 16 beneath plate 4 and in such position as to abut against and lift plate 4 when the shank is swung upon its pivot.

It will thus be seen that when it is desired to separate plate 4 from bed plate 1 it is only necessary to grasp handles 11 and 11ª and swing the same away from one another. As a result plate 4 will be released and the lifting of the swinging end of plate 4 through the abutment of finger 20 and the simultaneous elevation of the rear portion of plate 4 by the connection between arms 7 and projection 5 at pivot 10, will cause the initial movement of plate 4 away from bed plate 1 in a direction perpendicular to the meeting surfaces of said plates. By this arrangement the article molded between the plates will be undisturbed by the molding die as the plates are separated.

The mold provided between the coöperating meeting surfaces of plates 1 and 4 comprises a recess 21 in bed plate 1 and a die 22 carried by plate 4 and projecting into said recess. A removable die 23 formed as a bore is also carried by plate 4 in order to form the projecting supporting rod of a battery plate molded by the apparatus. The recess 21 extends across bed plate 1 and is arranged to mold the base of a battery strap post. This recess is, preferably, provided with a counter sunk recess 25 arranged to mold a usual projection upon the base of the battery strap post.

The die 22 comprises spaced teeth 26 arranged to extend within recess 21 in order to form the spaced projections of the battery strap post which project from the base thereof. This die is arranged to be shifted transversely relative to recess 21 and to be held in one or the other of its operatable positions by means of set screws 27 extending through plate 4 and engaging in one or the other of recesses 28—29 formed in the die. With the die in one of its operatable positions, say the position shown in Fig. 2, the teeth 26 of the die are so arranged relative to recess 21 as to mold a battery strap post having its base projections spaced inwardly from the ends of the base of said battery strap post. A battery strap post having a certain number of projections will thus be formed.

When, now, it is desired to mold battery strap posts having a one greater number of projections in order to form battery strap posts which will coöperate with the battery strap posts first formed, the die 22 is shifted to the other of its operative positions. This shift is just sufficient to move teeth 26 to the points formerly occupied by the recesses 26ª formed between said teeth. With the die in this position a battery strap post will be molded having its base projections at the ends of the base of the battery strap post and the number of said projections will be equal to the number of the spaces upon the battery strap post first formed, or in other words the number of projections upon the second battery strap post will be one greater than the number of projections upon the first battery strap post. The second battery strap posts thus formed are accordingly arranged to be positioned with the projections of one strap post received within the spaces provided between the projections of the other strap post as in the usual practice.

The die 23 forming the supporting projection for the battery strap post, preferably, consists of a cylinder extending through a suitable bore 31 of plate 4. This die cylinder is provided with a bore 32 adapted to mold the supporting projection of the battery strap post extending from the base of the same. The die cylinder is, preferably, retained in position by a lip 33 upon the outer surface thereof engaged over the edge of the die 22 when the latter is in position within plate 4. The die cylinder may be held against longitudinal movement in the opposite direction by means of the shoulder 34 upon the same.

It will thus be seen that the die may be readily removed and as quickly placed in position. In practice the bore 32 of the die may be of any desired size and shape to mold a battery strap post having any desired type of supporting projection, and by providing interchangeable dies having different types of bores, any desired battery strap may be readily manufactured.

Various changes may be made without departing from the spirit of the invention as claimed.

What is claimed is:

1. A molding apparatus for articles having spaced projections including a die shiftable to form said articles with different numbers of teeth.

2. A molding apparatus for articles having spaced projections including a die shiftable to form said articles with one of two different numbers of teeth differing by one.

3. A molding apparatus for articles having spaced projections including a die shiftable to form said articles differing so that their spaced projections may intermesh.

4. A molding apparatus including spaced molding plates, said plates having a separable connection arranged to cause initial perpendicular movement of said plates away from one another and subsequent angular movement of said plates away from one another.

5. A molding apparatus including spaced molding plates, said plates having a sliding pivoted connection at one end, and means for elevating one of said plates, said means engaging the plate intermediate of its ends so as to perpendicularly lift the same away

from the other plate and subsequently swing said plate upon its pivot.

6. A molding apparatus including spaced molding plates, said plates having a sliding pivoted connection at one end, means for elevating one of said plates, said means adapted to perpendicularly lift the plate away from the other plate and subsequently swing said plate upon its pivot, and a pivoted shank arranged to force the swinging ends of said plates away from one another.

In testimony whereof I have signed my name to this specification.

GEORGE P. WASHBURN.