Nov. 25, 1930. J. COYLE 1,783,109

MARKING DEVICE FOR CAN CLOSING MACHINES

Filed May 21, 1927 4 Sheets-Sheet 1

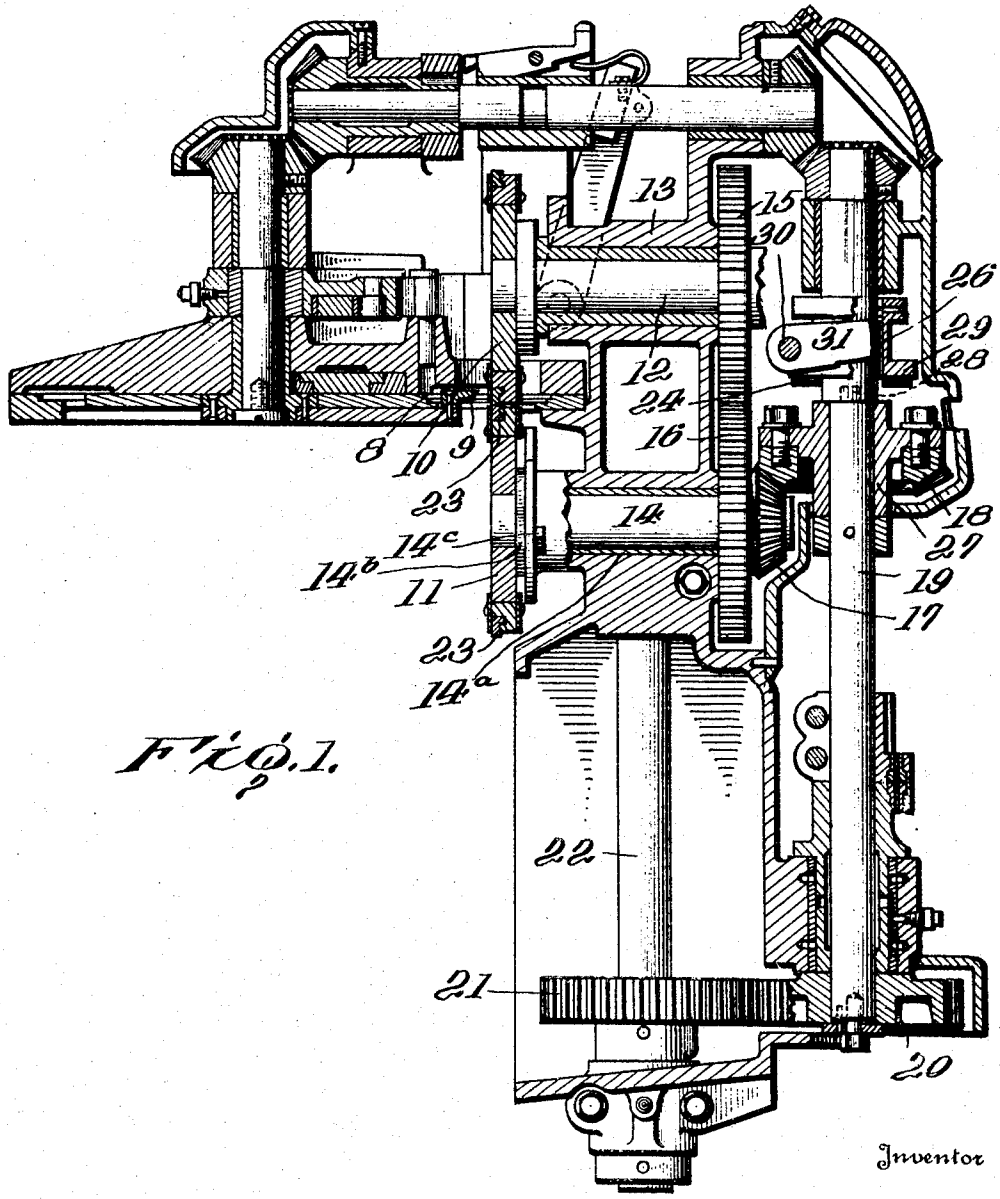


FIG. 1.

Inventor

John Coyle

By Sturtevant & Mason

Attorney

Nov. 25, 1930. J. COYLE 1,783,109

MARKING DEVICE FOR CAN CLOSING MACHINES

Filed May 21, 1927 4 Sheets-Sheet 2

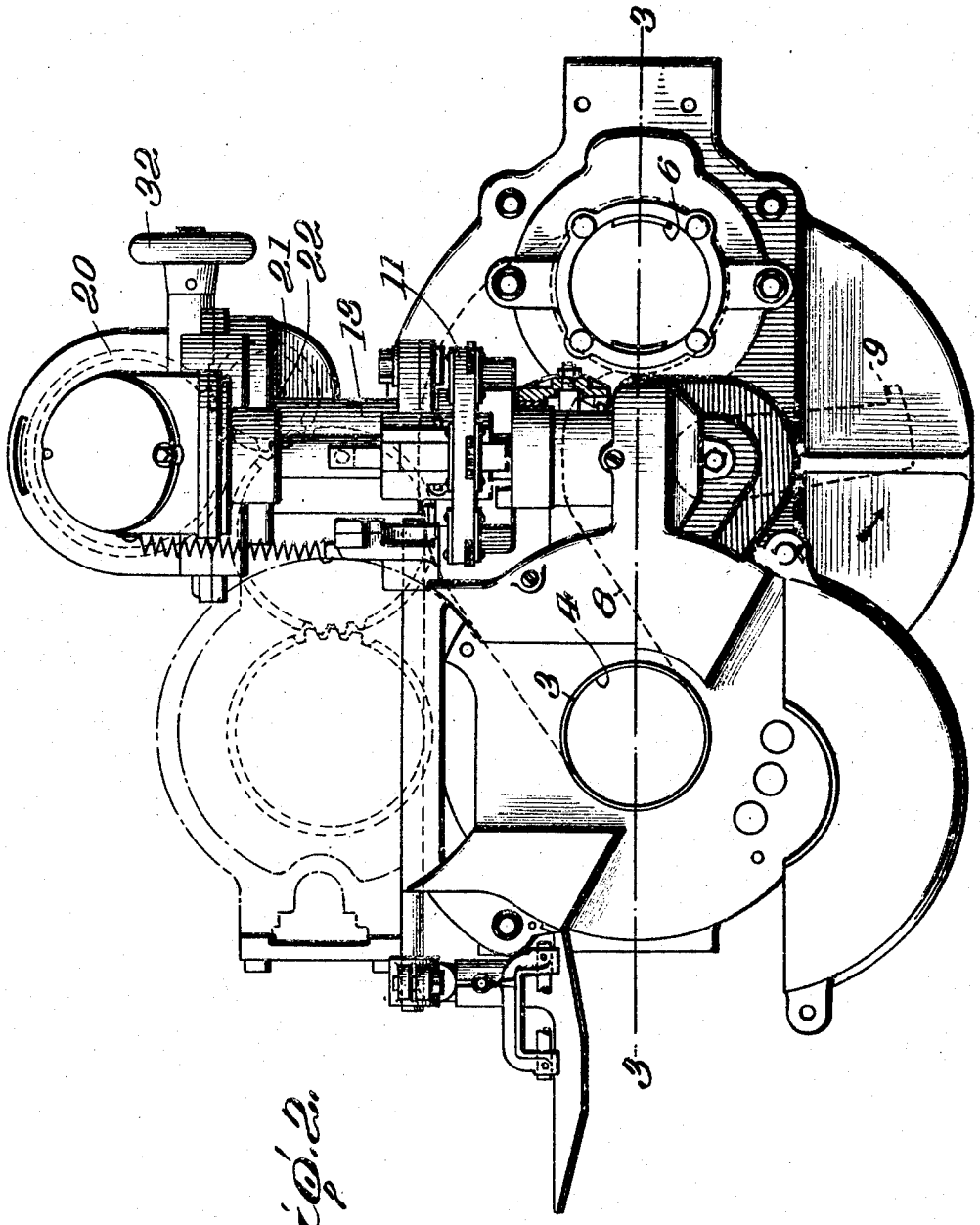


FIG. 2.

Inventor

John Coyle

By Sturtevant Mason

Attorney

Nov. 25, 1930. J. COYLE 1,783,109

MARKING DEVICE FOR CAN CLOSING MACHINES

Filed May 21, 1927 4 Sheets-Sheet 3

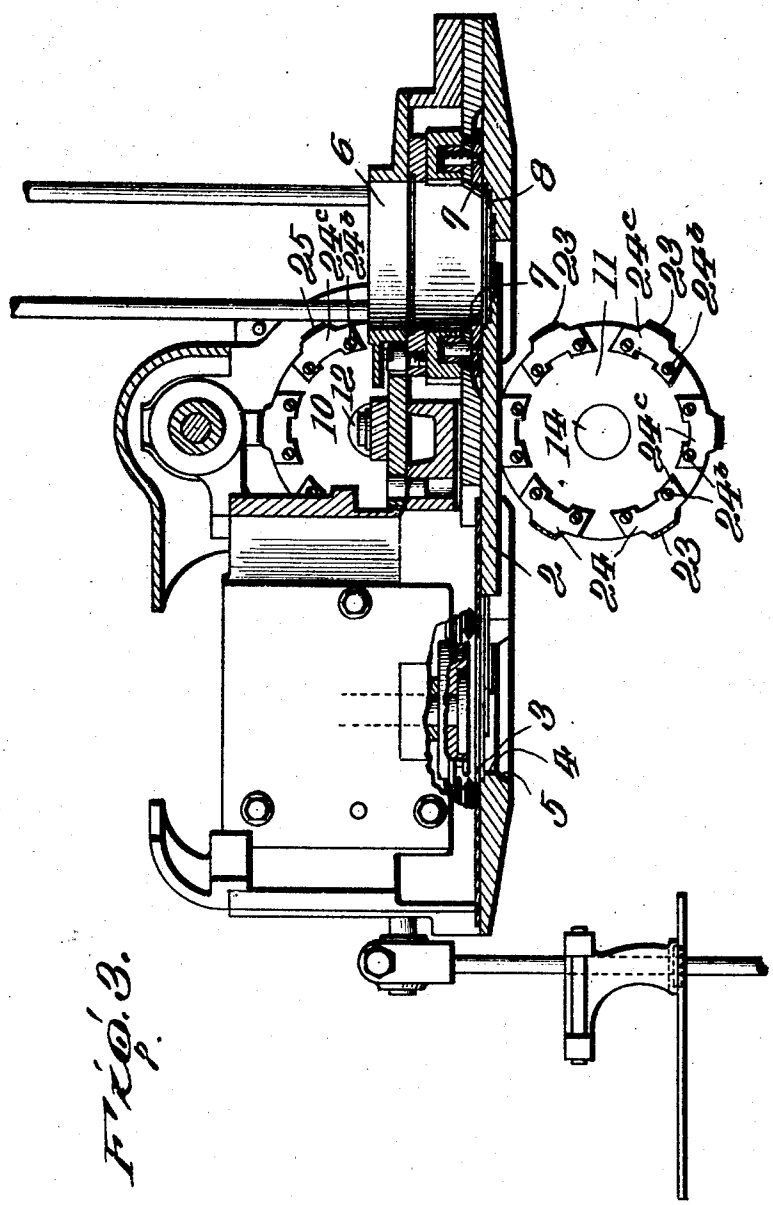


FIG. 3.

Inventor

John Coyle

By Sturtevant & Mason

Attorneys

Nov. 25, 1930. J. COYLE 1,783,109

MARKING DEVICE FOR CAN CLOSING MACHINES

Filed May 21, 1927 4 Sheets-Sheet 4

FIG. 4.

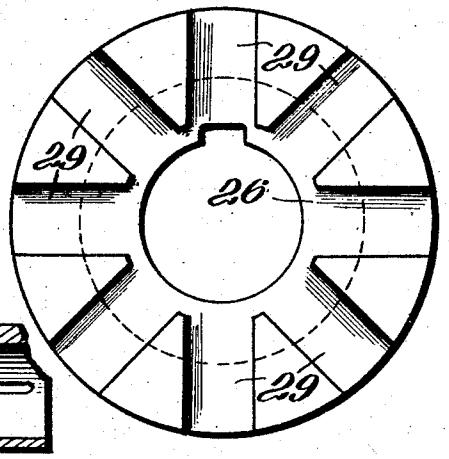


FIG. 9.

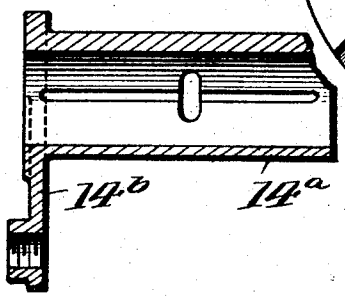


FIG. 10.

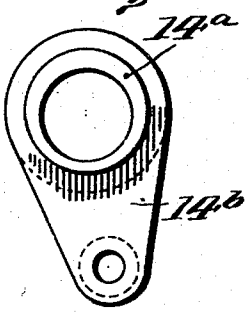


FIG. 5.

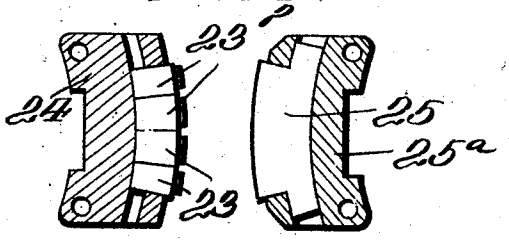


FIG. 6.

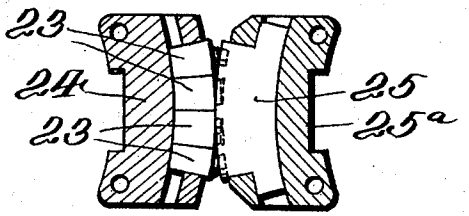


FIG. 7.

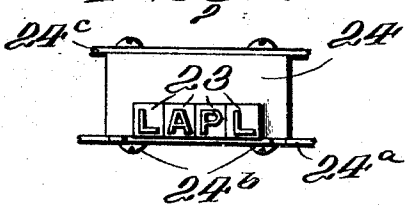


FIG. 8.



Inventor

John Coyle

By Sturtevant & Mason

Attorneys

Patented Nov. 25, 1930 1,783,109

UNITED STATES PATENT OFFICE

JOHN COYLE, OF BALTIMORE, MARYLAND, ASSIGNOR TO CONTINENTAL CAN CO. INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

MARKING DEVICE FOR CAN-CLOSING MACHINES

Application filed May 21, 1927. Serial No. 193,350.

The invention relates to new and useful improvements in marking devices for can closing machines, and more particularly to a marking device wherein a male die member is used for forming raised characters in the can end prior to the attaching of the end to the can body.

Markers have been used for this purpose which include cooperating male and female dies. These marking devices are used in conjunction with closing machines operated by a packer. The marking dies are changed whenever the character of the package changes. A great deal of difficulty has been experienced in properly lining up the male and female dies and maintaining them in proper alinement for marking the can ends.

An object of the present invention is to provide a member which will cooperate with the male die in the marking of the can end to produce a raised letter, which member does not require any nicety of adjustment, and which member will maintain its proper relation relative to the male marking die during its continued use in the machine.

Another object of the invention is to provide a marking device of the above type wherein the member which cooperates with the male die has an impression formed thereafter the marking members are placed in the machine.

A further object of the invention is to provide a marking device of the above character wherein the member co-operating with the male die is formed of material which is deformable under the action of the male die, so that said member may be placed in the machine, and as the machine is operated, without any can end being fed therethrough, said member takes the impression of the male die, and thus is put into condition to cooperate with the male die in the marking of the can ends.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a vertical sectional view through a portion of a closing machine taken centrally of the marking device;

Fig. 2 is a view partly in section and partly in plan showing more or less diagrammatically a portion of a closing machine with the improved marker embodied therein;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a face view of the clutch collar;

Fig. 5 is a sectional view through the cooperating marking devices and the holders therefor, said parts being separated to show the structure, and showing the soft metal or fiber member as smooth;

Fig. 6 is a similar view showing the parts as positioned and the impressions made in the metal or fiber member;

Fig. 7 is a face view of the die member;

Fig. 8 is a face view of the soft metal or fiber member after the impressions have been formed therein;

Fig. 9 is a sectional view through the eccentric bearing for the shaft supporting the lower rotating head, and

Fig. 10 is an end view thereof.

The invention is directed broadly to a marking device for a can closing machine and includes a male die member and a cooperating member made of a deformable material, such as fiber or soft metal. This deformable material must be of such a character that the male die member will produce a permanent impression in said cooperating member. These marking members are so mounted in the machine that they are movable relative to each other for engaging a can end therebetween, and preferably so positioned in the machine as to engage a can end on its way from the cover end stack to the seaming station. The marking members may rotate in the plane of travel of the can end, or they may reciprocate toward and from each other. After they are placed in the machine, they are set sufficiently close together that when the machine is turned over idly without any can end being fed therethrough, the male die member will form its impression in this deformable material, after which the marking device is re-adjusted, if found necessary, so as to permit a can end to

be placed between the marking devices whereby when the marking devices are brought into cooperative relation with each other, the male die member will form a raised identifying mark on the can end.

I have shown by way of illustration, the marking device as embodied in a closing machine of the type shown and described in the patent granted C. E. Bratt and G. Fluck, August 9, 1921, No. 1,387,098. Mounted on the column or standard is a bracket 2. The bracket 2 extends underneath the seaming head, and is provided with a can end seat 3. This can end seat 3 is directly above an opening 4 in the bracket 2 through which the can body is raised into contact with the can end. The opening 4 is tapered, as indicated at 5, for the purpose of rounding up and centering the can body. The can ends are placed in a can end stack 6, (see Fig. 3). The can ends are released one at a time from the stack by can end releasing devices 7. These can end releasing devices are controlled by the filled cans as they pass into the machine, so that a can end is released only in case a can body is delivered to the machine to be closed. As the can ends are released from the stack, they drop on to a can end raceway 8. This can end raceway 8 as shown in Fig. 2, extends in a curved path to the can end seat 3. The can end is moved along the raceway by means of an arm 9. The arm 9 rotates in the direction of the arrow in Fig. 2, and may be rotated continuously. Located intermediate the stack holder and the seaming head, is the marking device, which consists of an upper rotated marking head 10 and a lower rotated marking head 11. This upper rotating head is mounted on a shaft 12 which is journaled in a bracket 13 carried by the main standard or column of the machine. The lower rotating head 11 is mounted on a shaft 14 which is likewise journaled in the bracket 13. The shaft 12 carries a gear wheel 15, which meshes with a gear wheel 16 fixed to the shaft 14. The shaft 14 carries a bevel gear 17 which meshes with a bevel gear 18 on a vertical shaft 19, which is likewise journaled in the bracket 13. At the lower end of the vertical shaft 19 is a pinion 20 which meshes with a pinion 21 on a vertical shaft 22. This vertical shaft 22 has a geared connection with an actuating shaft in the standard or frame of the machine. The marking devices are rotated continuously. These rotating heads are positioned so that the can end as it travels from the stack to the seaming head, will pass between the rotating heads. Said rotating heads may be set to rotate in the path of travel of the can end, or substantially so.

The lower rotating head 11 is provided, as shown in the drawings, with six die heads. Each die head includes a series of male die members 23, one for each character in the group of characters which are to be impressed in the can end. These male die members are made of hardened steel, and are secured to the rotating head in any suitable way. These male die members are mounted in a holder 24. The holder is provided with a recess in which the type having the characters is placed and a plate 24^a secured to the holder by screws 24^b holds the type in the holder. By removing this plate, the type can be readily changed. At the back of the holder is another plate 24^c. These plates 24^a and 24^c project beyond the ends of the holder and are preferably made of spring metal so as to frictionally grip the rotating head and thus the holder is held in place.

The upper rotating head 10 is provided with a similar number of members 25, one for each group of male die members on the lower rotating head. These members on the upper rotating head are made of any suitable material, such as fiber or soft metal which is capable of being permanently deformed. There is preferably only one solid member which cooperates with the several male die members in any one group. These members 25 are mounted in a holder 25^a in a manner similar to the mounting of the type, so that they may be readily removed and replaced.

Only one group of male die members is operated at any time. That is to say, the marking heads make one complete rotation for each complete rotation of the can end feed arm, and the rotating heads are so timed that the male die will make contact with the can end and press upon the can end as it passes between the marking heads. The marking heads are capable of being disconnected from the actuating shaft 19 and positioned so that any one of the several heads may be brought into proper timing for operation. This is accomplished by a clutch collar 26 which has a splined connection with the vertical shaft 19. The bevel gear 18 is carried on a sleeve 27 which is freely mounted on the vertical shaft 19. The sleeve is provided with pins 28. The clutch collar 26 is provided with radially formed recesses 29, as shown in detail in Fig. 4 of the drawings. The clutch collar 26 is raised and lowered by means of a shaft 30 which carries a cam plate 31 which is connected to the clutch collar so that when the shaft 30 is oscillated, this clutch collar will be raised and lowered. The shaft 30 is provided with a hand wheel 32. The operator, through the hand wheel 32, may raise the clutch sleeve 26, so as to release the marking head from the actuating shaft 19, and then the heads may be rotated through the proper angle to bring into action the desired marking die, after which the clutch collar is lowered into engagement with the pins on the sleeve 27.

The block of deformable material, when placed in the rotating head, has a plane, smooth surface. The machine is operated

after the male die members have been placed to give the desired mark, without passing any can end through the machine. The rotating heads are set so that the male die members will make contact with this deformable material, and form an impression therein corresponding to the male die characters. These may be in the form of letters, numbers, or any other desired character. Just a few rotations of the machine will cause the material in the platens or blocks of the upper rotating head to be permanently deformed, so as to provide a depression having the outline of the characters of the male die. If metal is used, this is done while the metal is cold. It may not form a sharp depression in the metal any more than it would form a sharp depression in the fiber, if fiber is used. Nevertheless, a sufficient depression is formed which permits the male die member when operating upon a can end, to form a clear-cut raised character similar to the male die member. After these platens have been properly deformed, then the machine is ready for operation. When a can end passes between the rotating characters, the male die member will make contact therewith and form its mark in the can end after the manner stated above.

The shaft 14 carrying the lower rotating head is mounted in the bearing sleeve 14^a which is eccentric. This bearing sleeve has a projecting arm 14^b. A bolt 14^c passes through the end of the arm and a slot in the bracket supporting the rotating head. By adjusting the bearing sleeve 14^a, the position of the rotating head may be raised or lowered. If there is not sufficient room for the heads to rotate when a new soft metal block is put into the upper rotating head, the sleeve may be adjusted to give proper clearance, but the heads are set at such a distance relative to each other that the die on the lower rotating head will make its permanent impression in the soft metal or fiber block in the upper head. If necessary, the lower head can then be adjusted to a position so as to allow a can end to pass between the two rotating heads and have a proper impression made therein.

When it is desired to change the character of the mark, new male die members may be placed in the lower rotating head, and when this is done, then a new platen should be placed in the upper rotating head, in order that it may be deformed through contact with the replaced male die members, and form a suitable cooperating member therefor. Inasmuch as the upper deformable platen is deformed after it is placed in the machine, no nicety of alinement is necessary between the male member and this cooperating platen. If the upper and lower rotating heads should be slightly out of timing, this does not in any way, interfere with the proper marking of the can end, as the deformable metal in the platen will at once have its depression properly formed to cooperate with the male die member.

While I have shown the marker as embodied in a closing machine having rotating marking heads, it will be understood that it may be used in other types of marking devices. In fact, in any marking device where there are two cooperating members moved toward and from each other for impressing a mark in a can end. It is essential, however, that the steel male die member be used, as this is the active element in the producing of the mark in the can end, while the platen of deformable material merely co-acts with the male member in the forming of the impression in the can end.

While I have described my invention as directed to the marking device, it is also directed to a method of marking can ends, which consists in the use of a steel male die member and a deformable platen, which are placed in the machine and operated prior to the marking of the can ends so that the deformable metal is provided with the necessary depressions to cooperate with the male die member in the marking of the can ends. In other words, the method not only includes the marking of the can end, but in a certain sense, the completing of the marking devices after they are positioned in the closing machine as they are to be used in the marking of the can ends. When the marking device is made up in this manner, then all defects which come from the use of non-alined cooperating marking devices, or out-of-time marking devices, are avoided.

Having thus described the invention, what I claim as new and desire to secure by Letters-Patent, is—

1. In a closing machine, the combination with a seaming head, a stack holder, means for feeding can ends from the stack holder to the seaming head; of mechanism intermediate the stack holder and the seaming head for marking the can ends including steel male die members, a platen of deformable material adapted to be permanently impressed by the male die member after said members are assembled in the closing machine, and means for moving said members relative to each other for marking a can end.

2. In a closing machine, the combination with a seaming head, a stack holder, means for feeding can ends from the stack holder to the seaming head; of mechanism intermediate the stack holder and seaming head for marking the can ends including cooperating rotating heads, steel die members carried by one of said heads, and a cooperating platen of deformable material secured to the other rotating head.

3. In a closing machine, the combination of a seaming head, a stack holder, means for feeding can ends from the stack holder to the seaming head; of mechanism interme-

diate the stack holder and the seaming head for marking the can ends including a lower rotating head having a series of steel male die members, and an upper cooperating rotating head having a platen of deformable material adapted to be permanently impressed by the male die member after the members are assembled in the closing machine.

4. In a closing machine, the combination with a seaming head, a stack holder, means for feeding can ends from the stack holder to the seaming head; of mechanism intermediate the stack holder and seaming head for marking the can ends including a lower rotating marking head having a series of groups of steel male die members, an upper rotating head having a series of corresponding cooperating platens of deformable material adapted to be permanently impressed by the male die members after said members are assembled in the closing machine and positioned for use in said machine, and means whereby the rotating marking heads may be shifted so as to bring any one of the groups of marking dies into action.

In testimony whereof, I affix my signature.

JOHN COYLE.