April 26, 1949. C. H. CHEESEMAN 2,468,427

MACHINE FOR PRINTING ON CYLINDRICAL ARTICLES

Filed Feb. 13, 1945 2 Sheets-Sheet 1

Fig. 1.

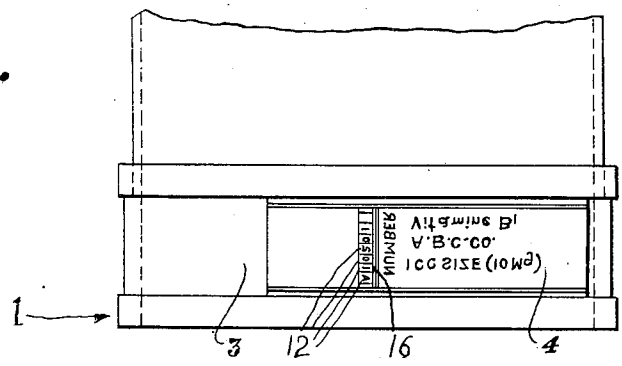


Fig. 3.

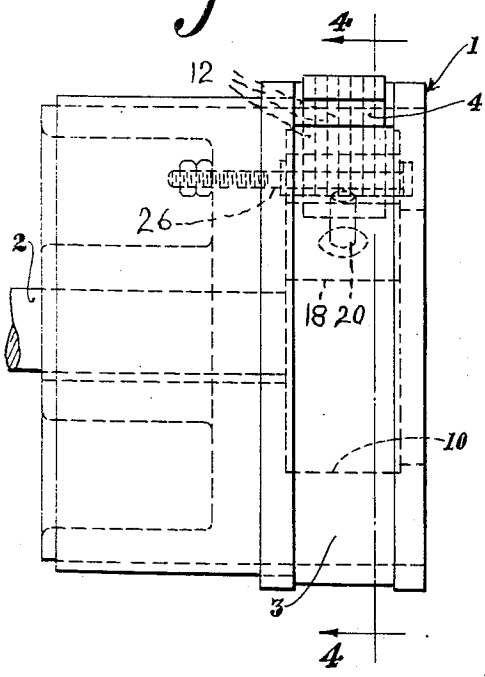
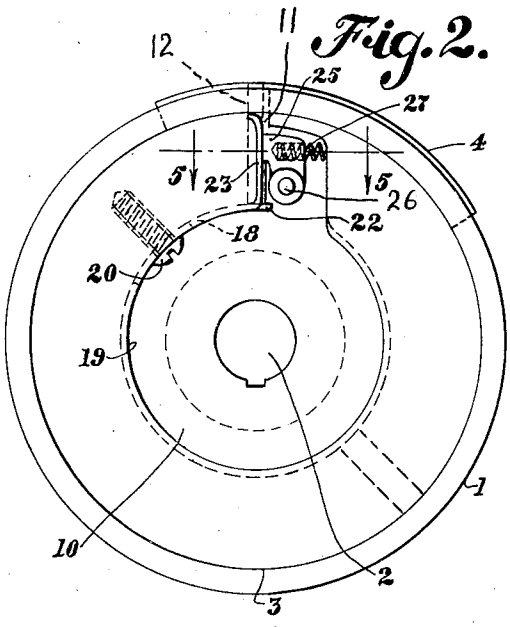


Fig. 2.



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Filed Feb. 13, 1945 2 Sheets-Sheet 2

Fig. 4.

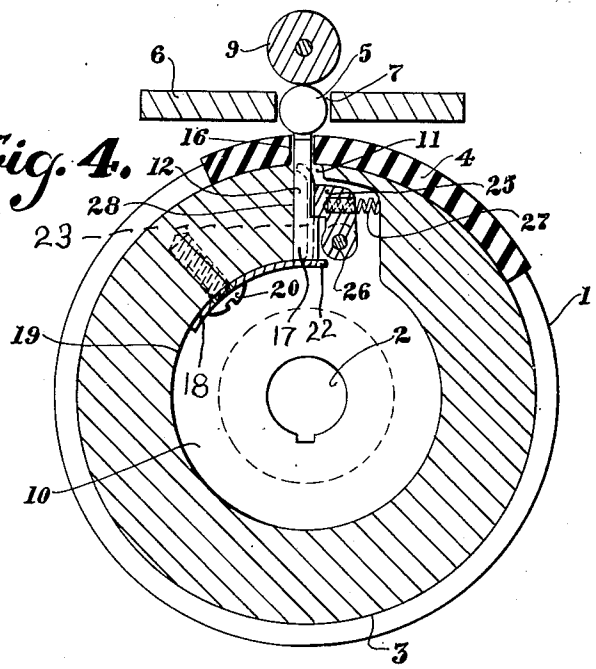


Fig. 6.

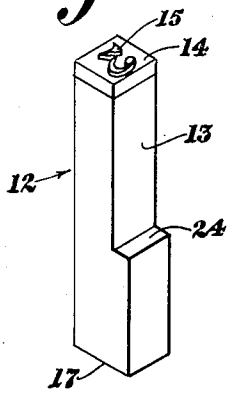


Fig. 5.

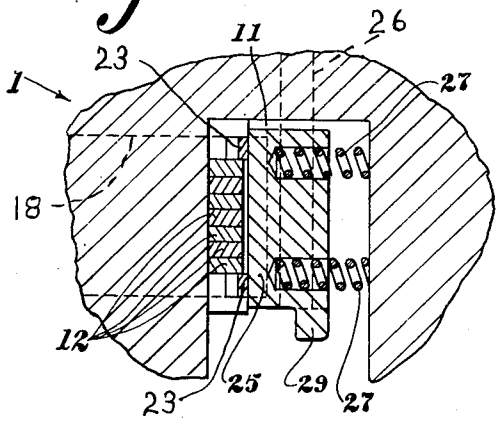


Fig. 7.

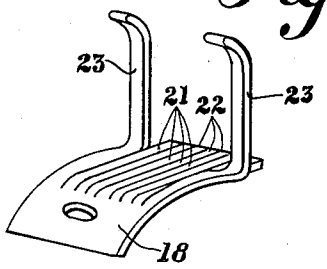
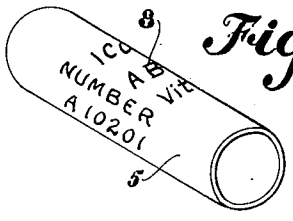


Fig. 8.



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UNITED STATES PATENT OFFICE

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MACHINE FOR PRINTING ON CYLINDRICAL ARTICLES

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Application February 13, 1945, Serial No. 577,617

3 Claims. (Cl. 101—36)

1

This invention relates to marking machines and particularly to marking machines designed for making an imprint on articles having a hard non-yielding surface which may not be perfectly true but which may have some irregularities.

For making an imprint on articles of this type, it is common practice to use a printing plate of rubber or some other yielding material which carries on its face the proper type characters for making the desired imprint, the yielding material of the type plate enabling the type characters to readily conform to any irregularities in the surface of the articles, thereby producing an even imprint regardless of such irregularities.

As an illustration of articles of this type, reference may be made to glass ampules, vials and similar small cylindrical articles. The surface of such articles is very apt to depart somewhat from a true cylindrical surface.

In marking a lot of articles of this type, it is sometimes desirable that certain groups of the lot should be provided with some special imprint in the way of an identifying number or letter in addition to the imprint which is made on all the articles of the lot.

It is one of the objects of my invention to provide a novel printing wheel for making an imprint on articles of the type above referred to and which is equipped not only with the printing plate of rubber or other yielding material but is also equipped with special interchangeable type by which the identifying numbers or letters can be imprinted on the article in addition to the imprint made by the printing plate.

A further object of the invention is to provide novel means for yieldingly supporting the individual type so that during the printing operation, each type may yield as necessary to conform to any irregularities in the surface on which the imprint is made, whereby an even imprint of the identifying number or letters will be made, notwithstanding any irregularities in the surface receiving the imprint.

In the drawings I have chosen to illustrate my invention as it might be applied to a marking machine of the type illustrated in application Serial No. 563,329, filed November 14, 1944 by Charles F. Robbins. The machine in said application comprises a printing wheel having a type-plate of rubber circumferentially mounted thereon and a holder for the cylindrical article located above the printing wheel and provided with a through opening in which the cylindrical article may be placed so that it rests on the printing wheel. The rotation of the printing wheel causes the article to rotate in said opening, and thereby the printed impression is made on the cylindrical article.

2

Inasmuch as the present invention relates to the printing wheel with the printed plate mounted thereon and having associated therewith the individual yieldingly mounted type, I have not thought it necessary to illustrate herein the complete marking machine and have, therefore, contented myself with illustrating the printing wheel itself.

In the drawings:

Fig. 1 is a top plan view with part broken out showing a printing wheel embodying my invention.

Fig. 2 is an end view of Fig. 3.

Fig. 3 is a side view of the printing wheel shown in Fig. 2.

Fig. 4 is a section on the line 4—4, Fig. 3.

Fig. 5 is a section on the line 5—5, Fig. 2.

Fig. 6 is a view of one of the interchangeable type which is used in connection with the printing plate.

Fig. 7 is a perspective view of the means for yieldingly supporting the type.

Fig. 8 is a perspective view of a cylindrical article which has received its imprint from the type wheel herein illustrated.

The type wheel embodying my invention is indicated generally at 1 and it is shown as mounted on a shaft 2 by which it is rotated. The type wheel is formed with a body portion that is provided with a cylindrical surface 3 on which is mounted a type plate 4 carrying on its surface appropriate type characters for making the desired imprint on the article, which in the present case is a small cylindrical article 5 in the form of a glass ampule or a glass vial. One way of holding the small cylindrical article 5 while the imprint is being made thereon is by means of a holder 6 which is located above the printing wheel and is provided with a through opening 7 of a size to freely receive the article 5 so that when the article is placed in the opening 7, it will rest on the printing wheel as shown in Fig. 4. With

the article thus positioned, rotation of the printing wheel will cause the article to rotate and during such rotation the printing plate 4 will make the imprint on the article as shown at 8 in Fig. 8.

9 illustrates a hold-down roll which may be mounted to move toward and from the holder 6 and constructed to apply sufficient pressure to the article 5 during the printing operation to insure the making of a satisfactory imprint. The parts thus far described may have the construction of similar parts referred to in said co-pending application Ser. No. 563,329.

As stated above in marking a large lot of articles 5 it is sometimes desirable to have certain small portions of each lot provided with some identifying number or character in addition to the imprint which is made by the type plate 4, and to provide for this I have equipped the printing wheel with a plurality of individual interchangeable type which are associated with the printing plate 4 and are yieldingly supported so that when the printing wheel 1 is rotated to make the printed impression, said type will provide the impression with the desired identifying number or letters.

The type wheel 1 is shown as having a central recess or chamber 10 in its outer end which is enclosed by the portion of the type wheel that carries the cylindrical surface 3 on which the type plate or printing plate 4 is mounted, and it is also provided with a radial opening 11 leading from the periphery into said chamber. This radial opening is for the purpose of receiving a plurality of type inserts 12 such as shown in Fig. 6 and by which the identifying number or letters can be printed on the article 5. Each type insert 12 is preferably provided with a metal body 13 and is type high, and on its outer end is mounted a rubber block 14 carrying a type character 15.

The printing plate 4 is provided with an opening 16 through which the type inserts project. Said type inserts are yieldingly supported in position so that the type characters 15 thereon register with the type characters on the printing plate 4.

For yieldingly supporting these type inserts in the opening 11, I propose to employ spring means which is equipped with individual spring elements, one for each type insert, and which bear against the inner end 17 of the type inserts. One form of spring means for supporting the type inserts is shown in Fig. 7, and it comprises a plate 18 curved to fit the peripheral wall 19 of the recess 10 and secured to said wall by a suitable screw 20.

This plate is provided with a plurality of slits 21 which form between them fingers 22 which extend transversely of the radial opening 11, there being one such finger for each type insert. The member 18 is so secured in position that the free ends of the fingers 22 extend beneath the opening 11 in which the type inserts are located so that the inner end 17 of each type insert rests on one of the fingers 22. These fingers 22 are made with considerable resiliency and are, therefore, in the nature of spring fingers.

The member 18 is also provided with two upstanding type-positioning arms 23 between which the type inserts 12 are located, said arms being located in the opening 11 and extending radially of the printing wheel and serving to retain the type inserts in proper position.

There is also provided means for limiting the outward radial movement of each type insert

while permitting its inward yielding movement against the action of its spring 22.

As herein shown each type insert is made with an outwardly facing shoulder 24 and the type wheel is equipped with a stop member 25 adapted to engage the shoulders 24 of the type 12 and thus prevent outward movement thereof.

This stop member 25 is illustrated as pivotally mounted on a stud 26, and it is acted upon by springs 27 which yieldingly urge it towards the type member and into engagement with the upright arms 23. These arms are so positioned that when the stop member 25 is resting against them as shown in Fig. 4, said member is spaced slightly from the side of the type inserts so that the latter are free to move inwardly against the action of the springs 22.

The stop member 25 is shown as having a projection 29 on its outer side by which the operator may swing said stop member backwardly against the springs 27 in order to release said member from the shoulders 24.

When the type inserts are to be installed in the type wheel, the operator will press on the projection 29 and thus swing the stop member backwardly against the action of the springs 27, and while the member is so held in its retracted position, the desired type inserts may be dropped into the opening 11 onto the springs 22. When such type inserts are in place, then the operator will release the stop member 25 and the springs 27 will urge it forwardly into operative position in contact with the upright arms 23, thus bringing it over the shoulders 24 of the type inserts and locking them in place.

With the type inserts thus installed in the type wheel, the machine is ready for operation. The operator will then place a cylindrical article in the opening 7 of the holder 6 and as the type wheel is rotated both the printing plate 4 and the type inserts will make a printed impression on the article. If the surface of the article is irregular in any way, each type insert will yield inwardly against the action of its spring 22 as necessary to conform to such irregularities and thereby the imprint which the type inserts make on the article will be an even one notwithstanding any irregularities in the surface of the article.

I claim:

1. A rotary printing wheel for a marking machine having a cylindrical type-holding portion, a central chamber enclosed by said type-holding portion and a radial opening extending through said type-holding portion and communicating with said chamber, a printing plate carried by said type-holding portion, a plurality of individual type inserts occupying said radial opening, and a type-supporting member within said central chamber, said type-supporting member presenting a plurality of spring fingers, one for each type insert, which extend transversely of said opening and on which the inner end of the type inserts rest, said type-supporting member also presenting two radially-extending positioning fingers between which the type inserts are received.

2. A rotary printing wheel for a marking machine, said printing wheel having a cylindrical type-holding portion, a central chamber enclosed by said type-holding portion and a radial opening extending through said type-holding portion and communicating with the chamber, a printing plate carried by the type-holding portion and provided with an opening registering with said radial opening, a plurality of individual type inserts occupying said radial opening and said open-

ing of the printing plate, a type-supporting member within said central chamber and secured to the peripheral wall thereof, said type-supporting member having a plurality of spring fingers, one for each type insert, which extend transversely of said radial opening and on which the inner ends of the type inserts rest, and by which they are yieldingly supported.

3. A rotary cylindrical printing wheel for a marking machine having an interior chamber extending axially thereof from one end, the portion of the wheel surrounding said chamber constituting a type-holding portion and having a radial opening extending therethrough, a printing plate carried by said type-holding portion, a plurality of individual type inserts occupying said radial opening, a type supporting member within said chamber and provided with a plurality of independently yieldable type supporting fingers, one for each type insert, which fingers extend transversely of said opening in a direction circumferentially of the printing wheel, each type insert having an outwardly facing shoulder adjacent its inner end, a stop member within said radial opening and pivotally mounted on the printing wheel for swinging movement toward and from the type inserts and situated to be engaged by the outwardly facing shoulders of said type inserts thereby to limit their outward radial movement, and a spring yieldingly holding the stop member in its operative position.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
624,932	Heany	May 16, 1899
1,572,062	Ahlburg	Feb. 9, 1926
1,769,583	Lamb et al.	July 1, 1930
2,184,510	Adams	Dec. 26, 1939
2,263,893	Schulman	Nov. 25, 1941