April 24, 1928. 1,667,563

F. PERRIN

SEALING DEVICE

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Fig. 1.

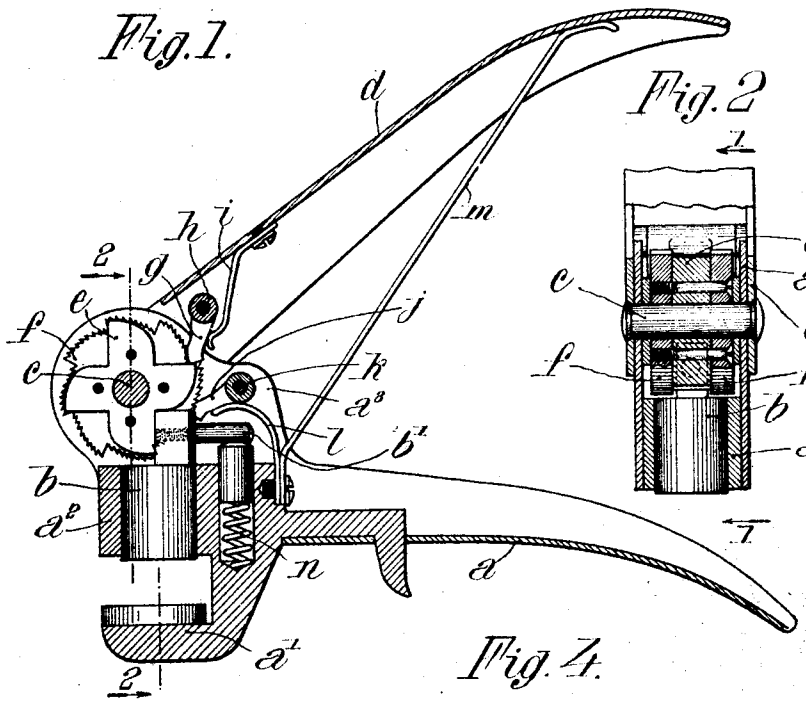
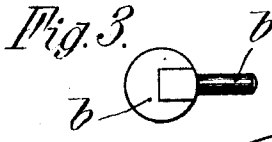


Fig. 2

Fig. 4.

Fig. 3.



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Fig. 5.

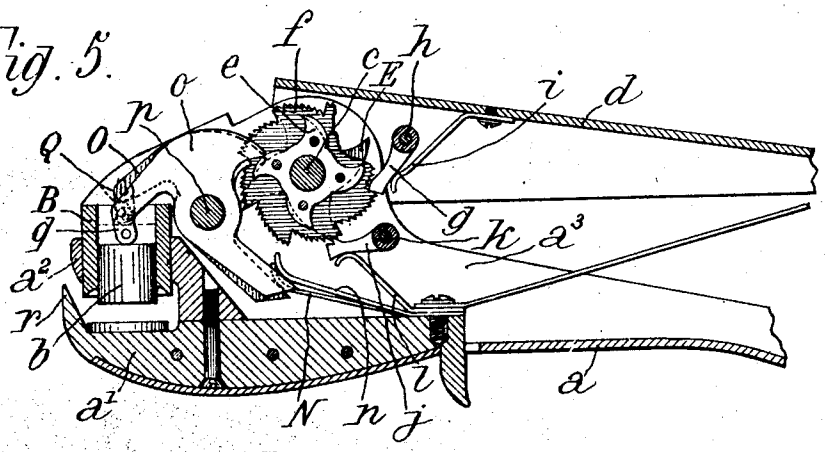


Fig. 6

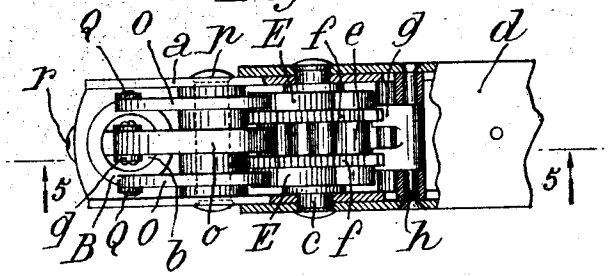


Fig. 7

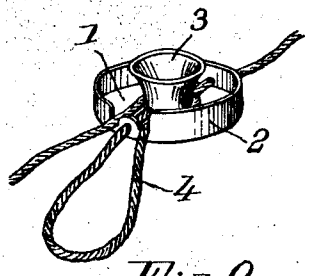


Fig. 8

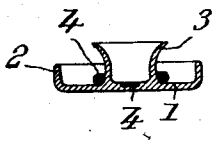


Fig. 9

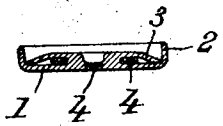
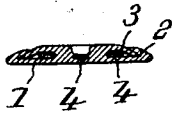


Fig. 10



Francis Perrin, Inventor
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UNITED STATES PATENT OFFICE.

FRANCIS PERRIN, OF PARIS, FRANCE.

SEALING DEVICE.

Application filed May 20, 1927, Serial No. 192,943, and in Belgium May 31, 1926.

This invention relates to sealing devices and more particularly to hand presses adapted to be used on lead seals and the like.

One of the objects of the invention is to provide a cam operated press capable of being actuated by the movement of one handle or lever toward another.

Another object is to provide ratchet means cooperating with a cam pressure member in such manner that the movement of the cam is rendered irreversible during the whole period of its pressure stroke.

Still another object is to provide means preventing reversal of the cam during its pressure stroke while permitting a plurality of reciprocations or oscillations of the pressure handle or lever.

A further object of the invention is to provide means for positioning the sealing cord while the lead seal is being compressed.

A still further object is to provide means for actuating a plurality of pressure cams in predetermined order, each cam being prevented from reversing until its pressure stroke is completed.

Additional objects will appear in the course of the detailed description which will now be given with reference to the accompanying drawings in which:—

Fig. 1 is a section passing through the axis of symmetry of one form of the device;

Fig. 2 is a partial transverse section of the apparatus shown in Fig. 1;

Fig. 3 is an enlarged detail of part of the pressure member illustrated in Fig. 1;

Fig. 4 is an enlarged detail of the ratchet assembly shown in Fig. 1;

Fig. 5 represents a second form of the invention in a section taken similarly to that of Fig. 1;

Fig. 6 is a partial horizontal section of the form of device shown in Fig. 5;

Fig. 7 illustrates a lead seal prepared for insertion in the press;

Figs. 8, 9 and 10 show the state of the seal during successive stages of the pressure operation.

Referring to Figures 1 to 4 of the drawings, there is shown an inactive handle a formed integral with or connected to an aperture block comprising an anvil portion a^1, a cylindrical guideway a^2, and a pair of lateral ears a^3. Slidably mounted in a^2 is a hammer or pressure element b formed with a projecting cam-contacting portion and fitted with a pin b^1 extending at right angles thereto. A pin c is mounted on ears a^3 and carries (1) movable handle d and (2) an assembly comprising a cam e and a pair of parallel ratchets of special form f, preferably, all fastened together, and mounted to freely rotate on pin c. Cam e may be formed with a plurality of bosses, each of sufficient length to actuate pressure element b through any desired distance. Ratchets f carry N times as many large teeth as cam e has bosses (N being any integer such as 1, 2, 3, 4, etc.) and each large tooth is formed so as to present a series of smaller teeth. Pairs of detents g and j are pivotally mounted on handles d and a respectively by means of pins h and k. Detents g are formed with a rounded nose (Fig. 4) so as to engage with only the large teeth of the ratchets. Detents j, contrariwise, have a spurred extremity and are capable of engaging with either (or both) the large and small ratchet teeth. The apparatus is completed by a spring actuated assembly n tending to return element b to its original or retracted position and a spring element m having the same function relatively to movable handle d.

The manner in which the device operates is as follows:—A seal is placed between a^1 and b and handle d actuated to exert compression. Assuming the device to have started from the position shown in Fig. 1, the pressure on handle d will be transmitted through detent g to the face of a large ratchet tooth and will rotate cam e. The latter will bear on the top surface of pressure element b and compress the seal. If the downward movement of handle d is interrupted for any reason, detent j will engage with a small ratchet tooth and prevent the cam from reversing. If the compressing operation takes place in the normal way, handle d will make N excursions to complete each downward movement of element b (N being the ratio of large ratchet teeth to cam bosses i. e. two, in the form of device shown in Fig. 1).

The apparatus shown in Figs. 5 and 6 is designed primarily to operate on seals of the type shown in Figs. 7 to 10 i. e. those having two upstanding edges of different diameter. The principle of operation is identical with that of the device already described except that two concentric "hammers" or compression elements b and B are provided which are actuated in timed relation by two separate cam surfaces e and E

arranged to be out of step with one another. Ratchets *f*, as in the device shown in Fig. 1, are arranged to operate together on each side of cam *e* and cam surfaces E adjoin ratchets *f*. A power transmitting assembly consisting of a pin *p*, cam actuated levers *o* and O, links *q* and Q and springs *n* and N, permits "hammers" *b* and B to be independently actuated in any desired time relation, detents *g* and *j* operating on ratchets *f*, exactly as in the device having a single "hammer". From the foregoing, it will be evident that if the seal shown in Figs. 6 to 10 be placed in the press with surface 1 resting on a^1 and cord 4 in proper position, edges 3 and 2 may be bent over as shown in Figs. 9 and 10 by the successive action of *b* and B.

If desired, the press may be provided with a beak or projection *r* adapted to engage with the loop of cord 4 so as to facilitate insertion of the seal in the press.

As will be obvious, to those skilled in the art, the invention need not take the form of the structures hereinbefore described but may vary within the broad limits of the general inventive principle. Thus, the orientation of the cam, the ratchet, the detents, etc., may be varied, the number of compression "hammers" may be multiplied at will, the number of large teeth on the ratchet may be increased indefinitely or reduced to one per cam boss, elements *b* and B or *b* alone may be made to exert an actual hammering action, etc., etc.

What I claim is:—

1. A device of the class described comprising in combination a supporting element, a pressure element, an assembly including a bossed cam and a toothed ratchet, said ratchet having a plurality of large teeth to a number equal to some whole multiple of the number of bosses on the cam, said large teeth having smaller teeth formed thereon, a detent formed to engage with the small teeth of said ratchet, a second detent formed to engage only with the large teeth of said ratchet, and means for transmitting pressure to said second detent.

2. A device of the class described comprising in combination a block formed to provide a pressure supporting surface, a guideway and a pair of ears, a pin supported by said ears, a pressure element slidably mounted in said guideway, a cam, a ratchet and a manually operable lever mounted on said pin, said cam being rigidly connected to said ratchet and arranged so as to actuate said pressure element, said ratchet having a plurality of large teeth formed thereon and a plurality of small teeth formed on said large teeth, resilient means associated with the pressure element and opposing the action of the cam, a detent pivotally mounted on said block and formed so as to engage with the small teeth of the ratchet, resilient means for maintaining said detent in contact with the ratchet, a second detent pivotally mounted on the manually operable lever and formed to engage only with the large teeth of the ratchet, resilient means for maintaining said second detent in contact with the ratchet, and resilient means opposing the movement of the manually operated lever toward the block.

In testimony whereof I affixed my signature.

FRANCIS PERRIN.