April 27, 1965 J. B. McGINN 3,180,489

SEAL ASSEMBLY

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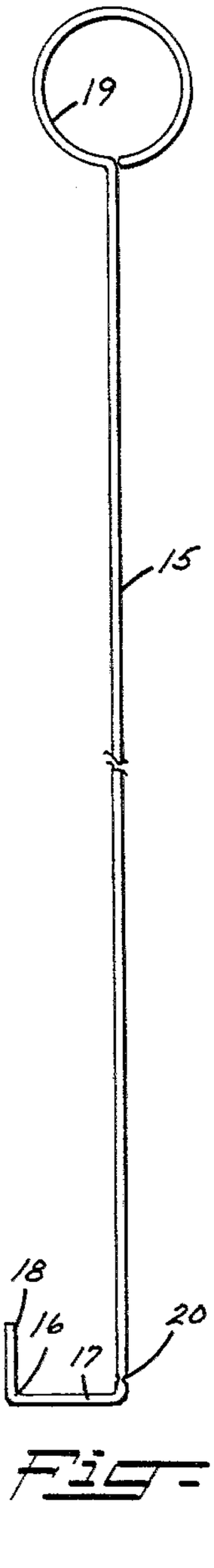

Fig. 1

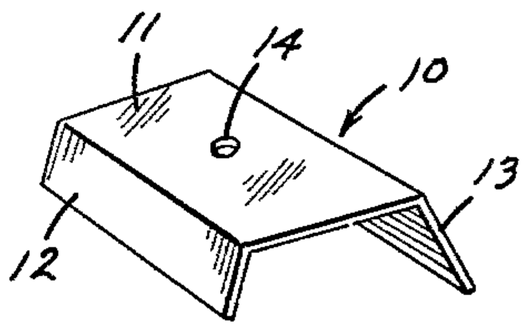

Fig. 2

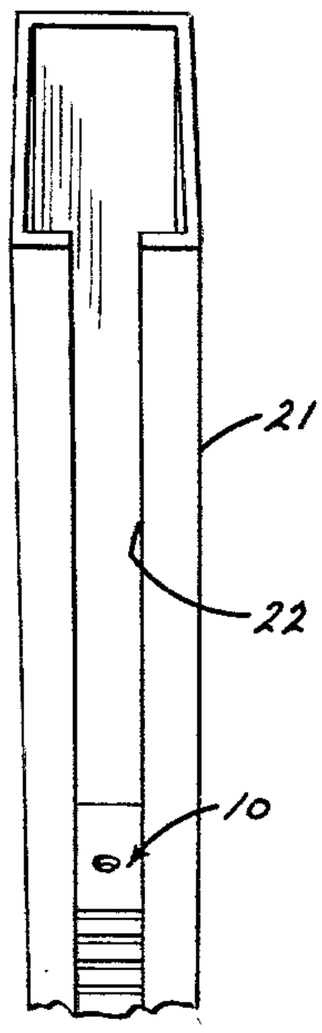

Fig. 5

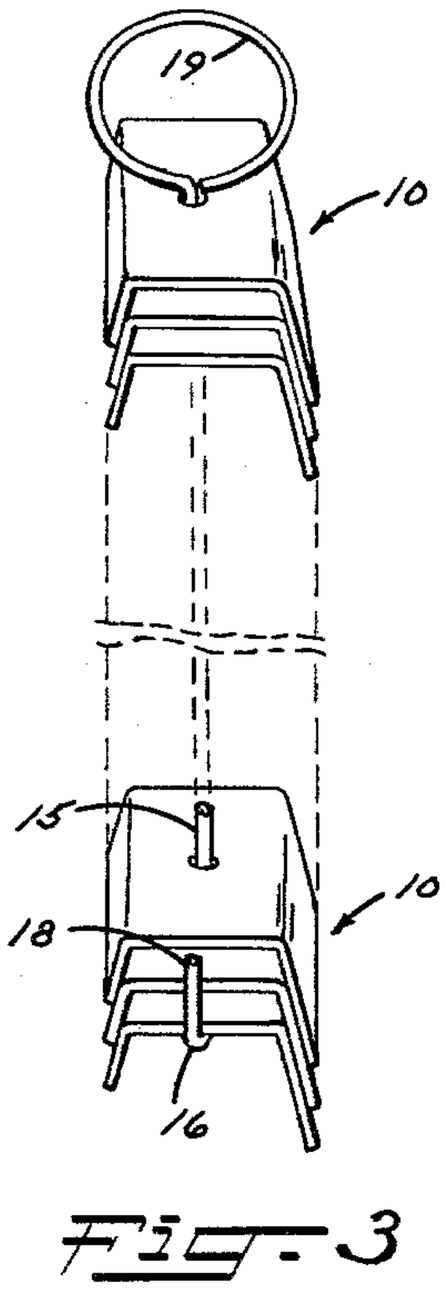

Fig. 3

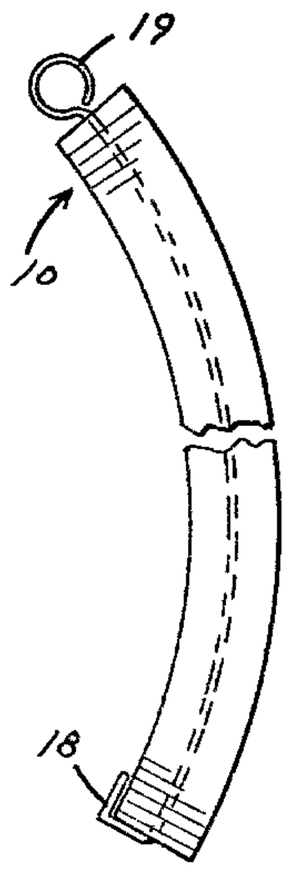

Fig. 4

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SEAL ASSEMBLY

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6 Claims. (Cl. 206—65)

This invention relates to an assembly or package of seals for use in connection with a strapping machine.

The strapping of packages with steel or other types of bands is often accomplished with the aid of machinery and sometimes entirely by machine. In the strapping operation, the ends of the band or strap are normally overlapped and held together by means of a metal seal which is deformed or compressed around the overlapping portions of the band. In some types of strapping apparatus the seals are formed by the apparatus as needed, often being cut and shaped from a roll or coil of flat strip stock. Other types of strapping apparatus employ preformed seals which are generally held in a nested relationship in a magazine and fed one at a time into position of use. It is toward an assembly of seals for use in connection with this latter type of equipment that the present invention is directed.

In order to facilitate the loading of the seal supporting magazine, that is so that the seals do not have to be inserted one at a time, the seals are often supplied as a nested stack so that a multiplicity of them may be inserted as a unit. One way of holding the seals together has been to provide each seal with a hole and extend a loop of soft wire through the aligned holes. The wire extends through the stack of seals and the two ends of the wire are twisted together and after the seals are loaded into the magazine the wire is untwisted or cut and withdrawn. With these prior art seal assemblies, removal of the wire is awkward and often results in some of the seals becoming skewed in the magazine with subsequent improper feeding to the sealing position.

It is the primary object of the present invention to provide a seal assembly which greatly facilitates the loading of the seals into the seal magazine of a strapping machine.

A more particular object of the invention is to provide a seal assembly wherein a multiplicity of seals are held in nested stacked relationship by a hard wire member so arranged that by proper manipulation it may be readily severed or broken as or after the seals are loaded into the seal magazine of a strapping machine.

Other objects, as well as the details of construction leading to the attainment thereof, will become apparent as the description of a preferred embodiment of the invention proceeds.

Referring now to the drawing:

FIG. 1 is a plan view of the novel member employed for holding a multiplicity of seals in nested relationship;

FIG. 2 is a perspective view of one of the seals;

FIG. 3 is a perspective view of the seal assembly, some of the seals being omitted for simplicity of illustration;

FIG. 4 is a plan view of the seal assembly on a reduced scale showing the manner of flexing or bending the assembly prior to insertion into the seal magazine of a strapping machine; and

FIG. 5 is a perspcetive view of the upper end of the seal magazine.

While the present invention may be practiced with a number of specifically different forms of seals, said seals will generally have certain common characteristics. In the drawing the seal shown in FIG. 2 is indicated generally at **10** and comprises a substantially rectangular face portion **11** having a pair of wings or legs **12** and **13** extending angularly from opposed edges of the face portion. In the seal illustrated, wing **13** is longer than wing **12** but it will be apparent that the invention is equally applicable to seals having wing portions of equal length. The two wings extend away from the same side of the face portion, that is the underside as illustrated, and an opening **14** is provided in face portion **11** substantially centrally thereof.

A multiplicity of seals **10** are nested as shown in FIG. 3 with the wings of each seal juxtaposed the wings of the adjacent seals and with the openings **14** of the individual seals aligned with one another. The seals are held in this nested relationship by member **15** which extends through the aligned openings.

Member **15** is most fully shown in FIG. 1 and includes an elongated straight portion for extending through the aligned openings **14** of the nested seals. A hook portion **16** is provided at one end of member **15**, said hook portion comprising a straight section **17** which in the seal assembly engages the underside of face portion **11** of an end one of the nested seals. Hook portion **16** includes a second straight portion **18** which in the seal assembly lies against the edges of the face portions of a plurality of the seals at the bottom of the nest, as best illustrated in FIGS. 3 and 4. At the opposite end of member **15** from the hook portion said member has an offset portion in the form of a loop **19**. Loop or offset portion **19** is juxtaposed the face of the uppermost seal whereby the seals are confined in nested relationship between hook portion **16** and offset portion **19**.

Member **15**, in the preferred form of the invention, is formed of hard wire such as baling wire, this type of wire being made of what is technically known as bright basic steel and said wire is nicked or notched at **20** adjacent hook portion **16** to provide an area of reduced cross section or zone of weakness whereby when the wire is twisted as presently to be explained, it will break at the nick **20**.

Member **15** is provided with hook **16** and nick **20** prior to stringing the seals thereon and is bent to provide loop **19** after the desired number of seals have been put in place. In this manner loop **19** may be located fairly close to the face of the uppermost seal. These seals will usually be formed of steel and since a considerable period of time may elapse between the manufacture of the seals and the ultimate use thereof said seals are coated with a lubricant. Particularly because of the lubricant, the juxtaposed wing of the nested seals tend to become adhered together and in order to free the individual seals the nest may be bent or flexed as shown in FIG. 4 before loading into the strapping machine. In order to permit this flexing and consequent shifting and spreading apart of the seals, loop **19** is spaced slightly above the face of the uppermost seal so that the seals are not tightly confined.

The upper end of a seal carrying magazine of a strapping machine is shown in FIG. 5 at **21**, said magazine comprising a channel member having an open slot **22** in one of the faces thereof. The interior of the magazine is of such shape and size as to guidingly and slidably accommodate the nested seals. When the seals have been used to the extent that the seal magazine will accommodate a complete nested stack of new seals the nested assembly is slid in through the open end of the magazine with section **18** of the hook portion of member **15** extending through the open slot **22**. When the new seals have been confined within the magazine the operator manipulates loop **19** so as to impart a twisting motion to the member **15**. Hook portion **16** cannot move because of its contact with the lowermost seals and therefore the turning or twisting of loop **19** and the consequent twisting of major portion of member **15** causes the member to be severed or break at the zone of weakness created

by nick **20**. When member **15** is formed of hard wire as aforesaid only about a half turn is required to break it and the break is clean, that is there is no jagged end to catch on the seals. A soft wire is unsatisfactory because it will not break readily and when twisted sufficient to break it, it leaves a sharp curled end. The operator then grasps the segment **18** of the loop and removes it from the magazine and slides the straight portion of the wire out of the aligned openings of the seals. Preferably loop **19** is no larger than the distance between the tips of the wings of the seals so that in loading the magazine the seal nest may be lowered to the point where the loop **19** is within the magazine and yet the loop can still be turned.

Having thus described a preferred embodiment of the invention, what is claimed is:

1. An assembly of strapping seals comprising a multiplicity of seals, said seals each having a substantially rectangular face portion and a pair of wings extending angularly from opposed edges of the face portion, said seals being nested with the wings of each seal juxtaposed the wings of the adjacent seals, an opening through the face portion of each seal, said openings being aligned with one another, a member extending through the aligned openings and holding said seals in nested relationship, said member having a zone of weakness adjacent one end of the seal assembly, and manipulatable means on said member for severing said member in the zone of weakness whereby said member may be readily disengaged from the seals.

2. The seal assembly set forth in claim 1 wherein said member is a hard wire and said zone of weakness comprises an area of reduced cross section of the wire.

3. The seal assembly set worth in claim 2 wherein said manipulatable means comprises a longitudinally offset portion of the wire by means of which the wire may be twisted.

4. An assembly of strapping seals comprising a multiplicity of seals, said seals each having a substantially rectangular face portion and a pair of wings extending angularly from opposed edges of the face portion, said wings extending away from the same side of the face portion, said seals being nested with the wings of each seal juxtaposed the wings of the adjacent seals, an opening through the face portion of each seal, said openings being aligned with one another, a hard wire extending through the aligned openings of the seals, said wire having a hook portion engaging the face portion of an end one of the nested seals on that side of the seal between the wings, said wire having a nick therein adjacent the hook portion, and said wire having an offset portion juxtaposed the face portion of the other end one of the nested seals.

5. The seal assembly set forth in claim 4 wherein the hook portion of said wire includes a section lying against the edges of the face portions of a plurality of seals at the said one end of the nest.

6. The seal assembly set forth in claim 4 wherein the individual seals are coated with a lubricant and said wire between said hook portion and said offset portion is long enough to permit the nest of seals to be flexed in order to free the individual seals.

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