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W. C. ROBINSON
SPACING TOOL

2,686,959

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2 Sheets-Sheet 1

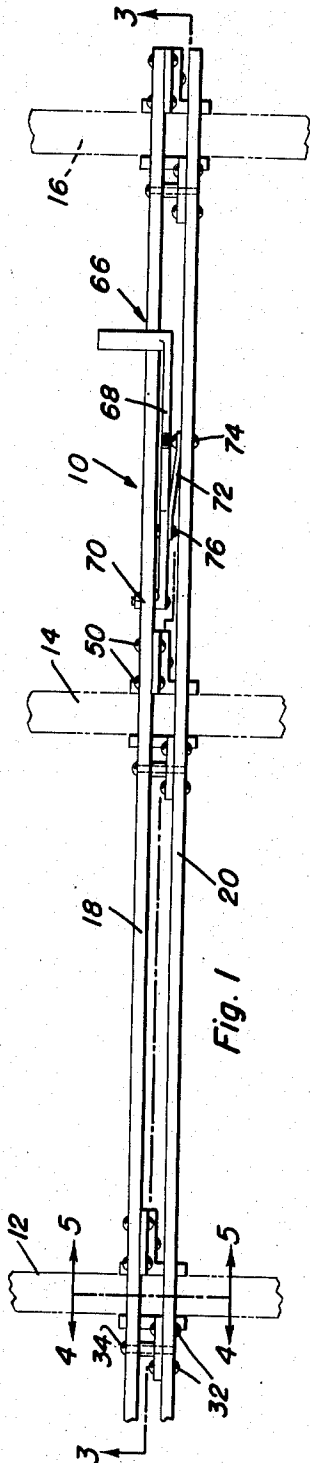


Fig. 1

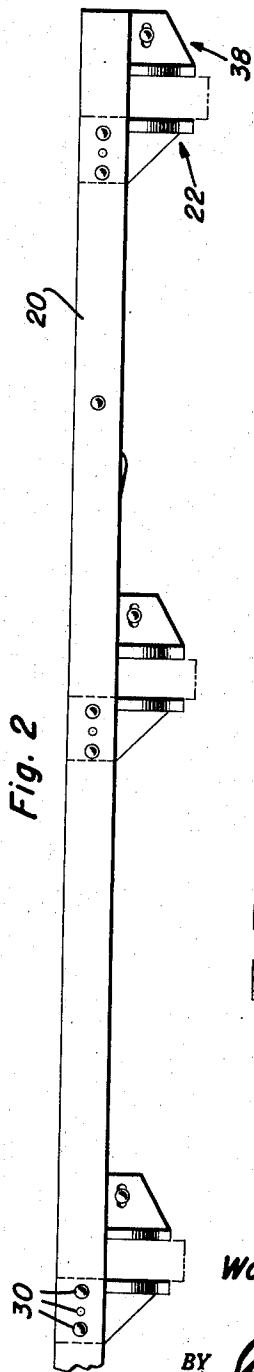


Fig. 2

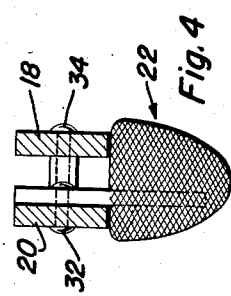


Fig. 4

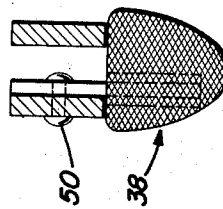


Fig. 5

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Fig. 3

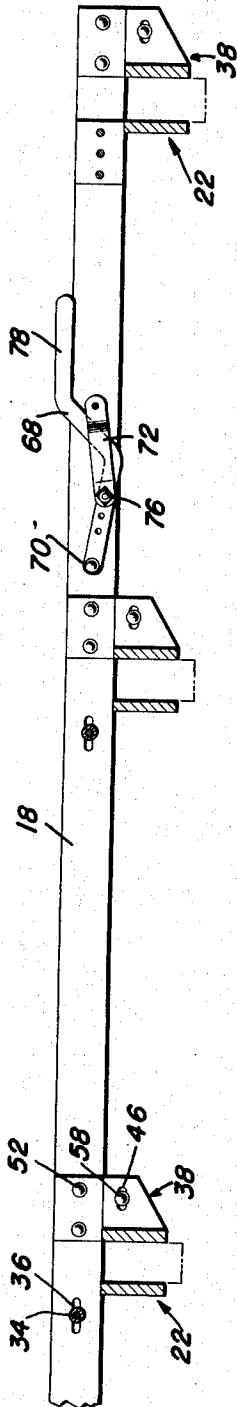


Fig. 7

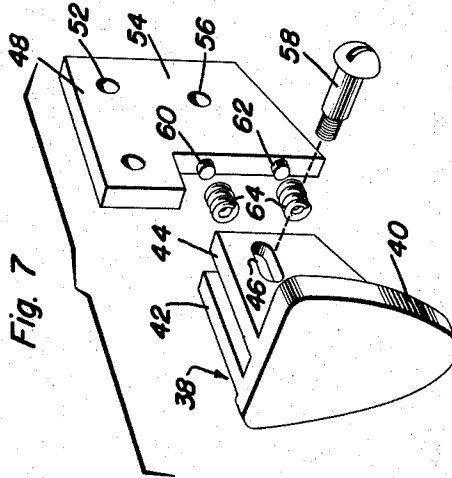
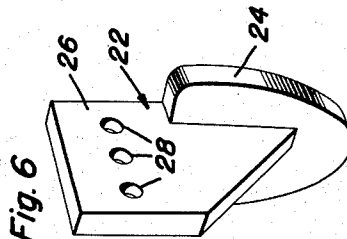


Fig. 6



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SPACING TOOL

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3 Claims. (Cl. 29—285)

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The present invention relates to improvements in tools and more particularly the type of tool which is adapted to be employed for spacing objects for various purposes.

An object of the present invention is to provide a spacing tool whereby a plurality of objects may be fixedly disposed in preselected spaced relation.

A further object of the present invention resides in the provision of novel means for clamping each of the individual objects to be positioned in spaced relation to each other whereby the inaccuracies of construction of the objects to be spaced is taken up by the means of the present invention.

Still another object of the present invention resides in the provision of novel means for resiliently clamping the individual elements for maintaining the same in spaced relation.

Another object of the present invention resides in the provision of novel resilient means for effecting relative longitudinal movement between the pair of elongated elements forming the spacing tool whereby the clamping elements carried by the individual elongated elements will be resiliently urged towards each other for clamping the objects therebetween.

Various other objects and advantages will become apparent from the detailed description to follow. Among these advantages are the simplicity and moderate construction costs of the apparatus, the extreme portability of the apparatus and its ability to withstand rough usage without damage. The best form in which I have contemplated applying my invention is clearly illustrated in the accompanying drawings, wherein:

Figure 1 is a top plan view of the spacing tool showing a plurality of objects maintained in spaced relation;

Figure 2 is a front elevational view of Figure 1;

Figure 3 is a longitudinal vertical sectional view taken substantially along the plane of line 3—3 of Figure 1;

Figure 4 is a vertical transverse sectional view taken substantially along the plane of line 4—4 of Figure 1;

Figure 5 is a vertical transverse sectional view taken substantially along the plane of line 5—5 of Figure 1;

Figure 6 is a detail perspective view showing one of the clamping elements of the present invention; and

Figure 7 is a detail perspective exploded view

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of the complementary clamping element and resilient supporting means therefor.

Referring more particularly to the drawings, wherein like numerals designate like parts throughout, the numeral 10 designates generally the spacing tool of the present invention which is adapted to space a plurality of objects 12, 14 and 16 with respect to each other.

The spacing tool 10 is comprised of a pair of elongated elements 18 and 20. The elongated element 20 has a plurality of clamping elements 22 secured thereto, the individual elements being shown best in Figure 6. The clamping element 22 is comprised of a clamping face 24 with a plate 26 extending right angularly therefrom and having a plurality of apertures 28 therein. The elongated element 20 is provided with sets of apertures 30 at spaced points along its length whereby the clamping elements 22 may be secured thereto by means of the pins 32.

The pair of elongated elements 18 and 20 are secured together by a plurality of pins 34 which extend through slots 36 in the elongated element 18 and through the central apertures of the groups of apertures 28 and 30. Thus, relative longitudinal movement between the elongated members 18 and 20 is possible.

The elongated element 18 has secured thereto a plurality of complementary clamping elements 38 which are comprised of clamping faces 40 each formed with a pair of walls 42 and 44 right angularly extending therefrom and having elongated slots 46 therein. Brackets 48 are secured to the elongated member 18 by means of pins 50 through the apertures 52 and the walls 44 and 42 are adapted to be received on opposite sides of the downwardly extending portion 54 of the bracket 48. The lower portion 54 of the bracket 48 is provided with an aperture 56 which is adapted to be in alignment with the slots 46 of the walls 42 and 44. The lower portion 54 is also provided with a pair of longitudinally extending pins 60 and 62 upon which a pair of springs 64 are adapted to be received for engagement with the back side of the face 40 and between the walls 42 and 44 whereby the clamping element 38 may be resiliently urged from the supporting bracket 48. When the bracket 48 is secured to the elongated element 18, the clamping element 38 may be disposed thereon and resiliently secured thereto with the screw 58 extending through the slots 46 and through the aperture 56.

The clamping elements 38 are secured to the member 18 in such a manner that each complementary clamping element 38 is adjacent to a

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clamping element 22. Thus, as may be most clearly observed in Figure 3, adjacent pairs of clamping elements 22, 38 are spaced throughout the length of the spacing tool.

The means 66 for effecting relative longitudinal movement between the elongated elements 18 and 20 is comprised of a handle element 68 which is pivotally secured to the elongated element 18 at 70 and a resilient link 72 which is pivotally connected to the elongated element 20 at 74 and to an intermediate portion of the handle element 68 at 76. As seen best in Figure 3, the handle element 68 is angulated to provide the offset portion 78 above the upper edges of the elongated elements 18 and 20 for manipulation thereby. When the handle 78 is in its uppermost position, the clamping elements will be spaced farthest apart and when the handle 78 is moved downwardly, the clamping elements 22 and 38 engage the various objects 12, 14 and 16 and resiliently maintain the objects in spaced relation until they have been secured by other means.

Having described the invention, what is claimed as new is:

1. A spacing tool comprising a pair of elongated elements, a plurality of clamping elements supported by one of said elongated elements, a plurality of complementary clamping elements resiliently supported on the other of said elongated elements, the clamping elements of the one elongated element opposing the clamping elements of the other elongated element, first means loosely interconnecting said elongated elements, and second means for effecting relative longitudinal movement between the elongated elements whereby the clamping elements are urged toward each other for maintaining the objects clamped thereby in spaced relation, means resiliently supporting said complementary clamping elements including brackets fixedly secured to said other elongated element, said complementary clamping elements being formed with a pair of walls extending perpendicularly from the clamping wall and adapted to engage opposite sides of said bracket, means for resiliently urging said complementary clamping elements from said brackets, and means for limiting the relative movement between the complementary clamping elements and brackets.

2. A spacing tool comprising a pair of elongated elements, a plurality of clamping elements supported by one of said elongated elements, a plurality of complementary clamping elements resiliently supported on the other of said elongated elements, the clamping elements of the one elongated element opposing the clamping elements of the other elongated element, first means loosely interconnecting said elongated elements, and second means for effecting relative longitudinal movement between the elongated ele-

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ments whereby the clamping elements are urged toward each other for maintaining the objects clamped thereby in spaced relation, means resiliently supporting said complementary clamping elements including brackets fixedly secured to said other elongated element, said complementary clamping elements being formed with a pair of walls extending perpendicularly from the clamping wall and adapted to engage opposite sides of said bracket, means for resiliently urging said complementary clamping elements from said brackets, and means for limiting the relative movement between the complementary clamping elements and brackets, said means for resiliently urging said complementary clamping elements from said brackets including a pair of pins integrally formed on each of said brackets, and coil springs disposed on said pins.

3. A spacing tool comprising a pair of elongated elements, a plurality of clamping elements supported by one of said elongated elements, a plurality of complementary clamping elements resiliently supported on the other of said elongated elements, the clamping elements of the one elongated element opposing the clamping elements of the other elongated element, first means loosely interconnecting said elongated elements, and second means for effecting relative longitudinal movement between the elongated elements whereby the clamping elements are urged toward each other for maintaining the objects clamped thereby in spaced relation, means resiliently supporting said complementary clamping elements including brackets fixedly secured to said other elongated element, said complementary clamping elements being formed with a pair of walls extending perpendicularly from the clamping wall and adapted to engage opposite sides of said bracket, means for resiliently urging said complementary clamping elements from said brackets, and means for limiting the relative movement between the complementary clamping elements and brackets, said last named means including an aperture formed in each of said brackets and slots formed in each of said pairs of walls and adapted to be aligned with the apertures in said brackets, and a locking pin disposed through each set of apertures and slots.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
688,106	Lynd	Dec. 3, 1901
930,287	Henry	Aug. 3, 1909
1,057,799	Bowerman	Apr. 1, 1913
1,492,126	Fernald	Apr. 29, 1924
2,127,734	Hill	Aug. 23, 1938
2,153,893	Johanson	Apr. 11, 1939