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A. J. DAWSON, P. ROBERTSON & A. E. BRADSHAW.

APPLIANCE FOR HOLDING SECURELY ARTICLES OF UNEQUAL LENGTH AND THICKNESS.

APPLICATION FILED FEB. 25, 1904.

NO MODEL.

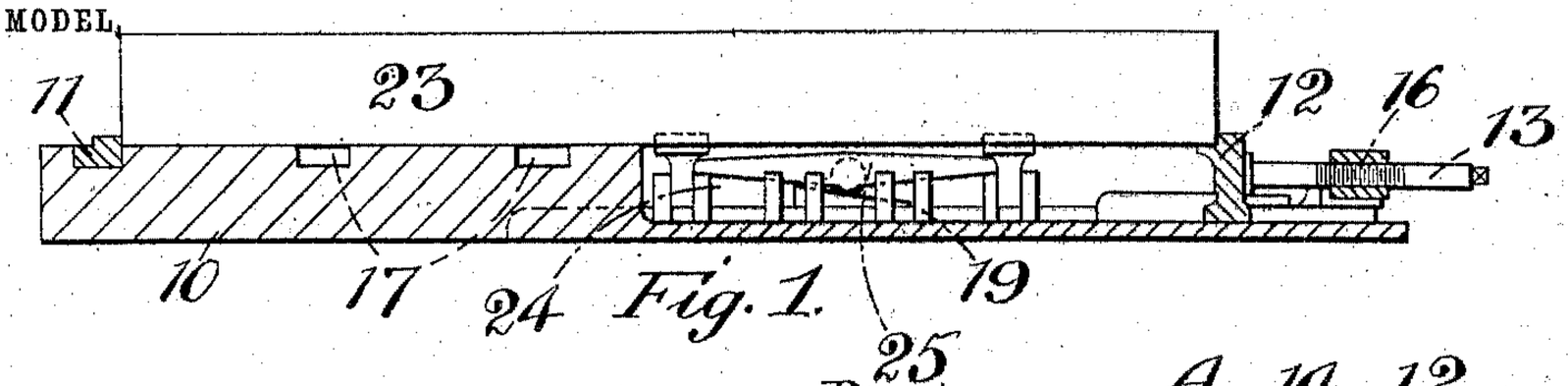

Fig. 1.

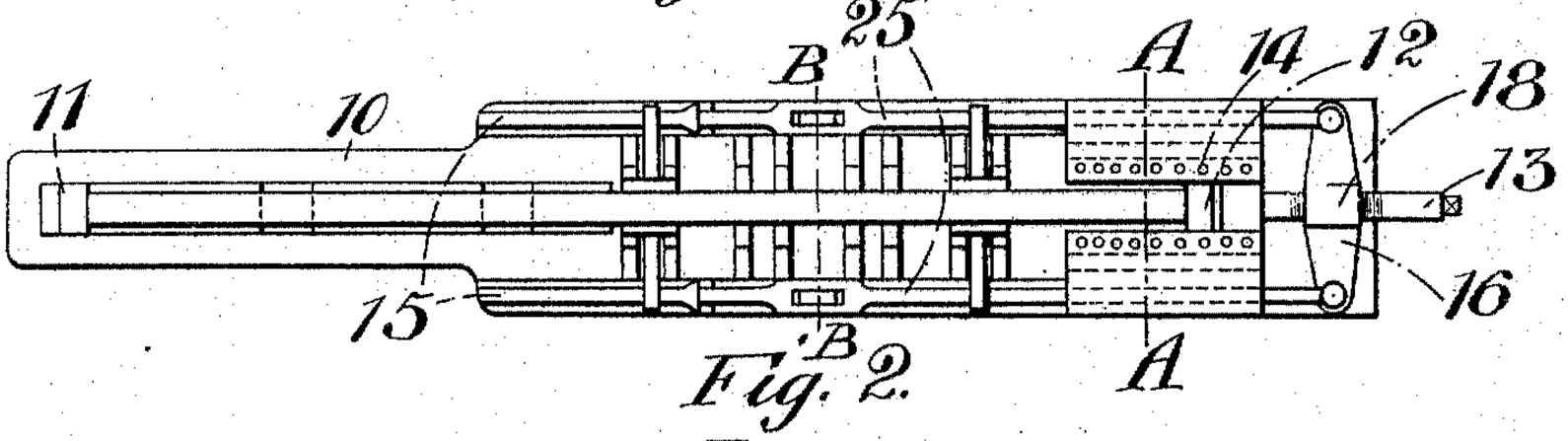

Fig. 2.

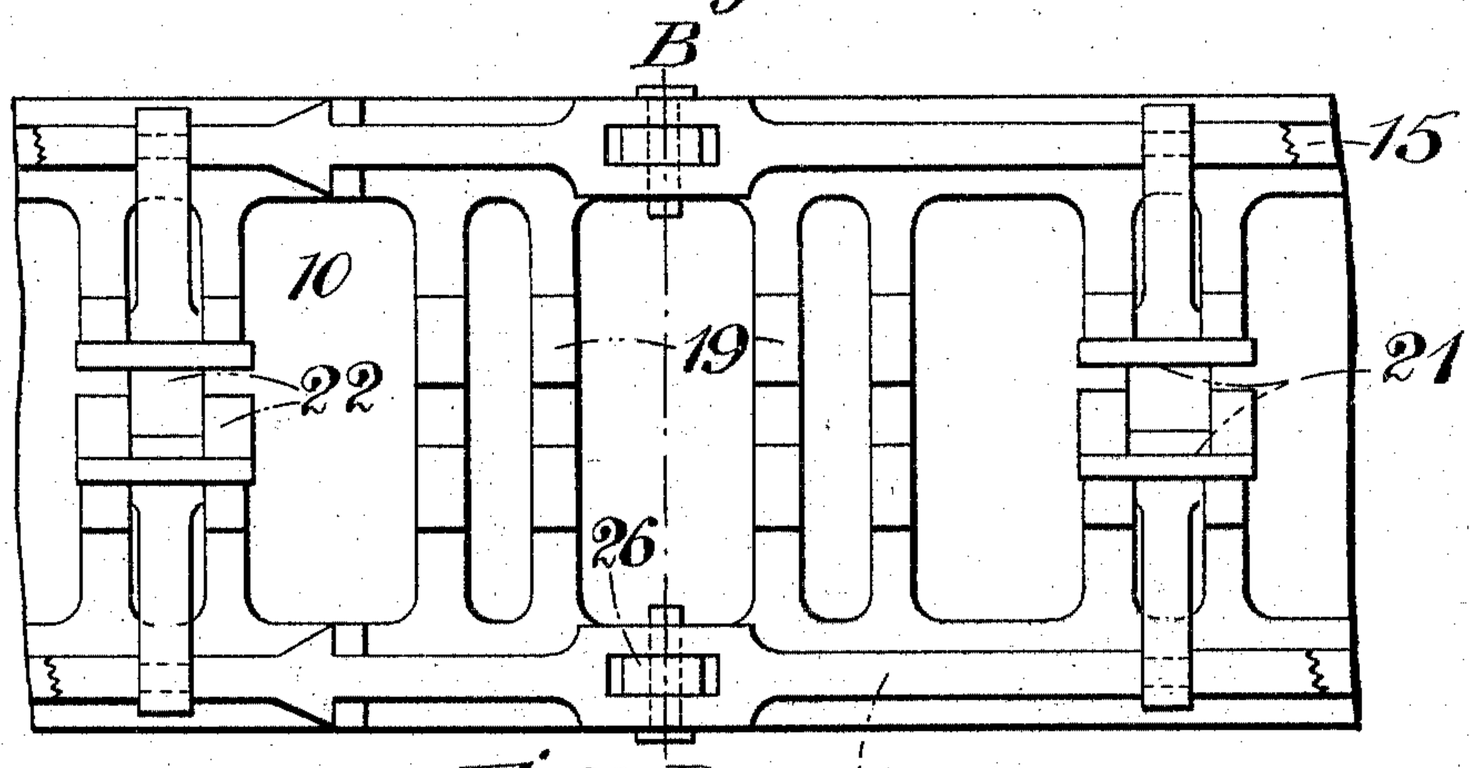

Fig. 3.

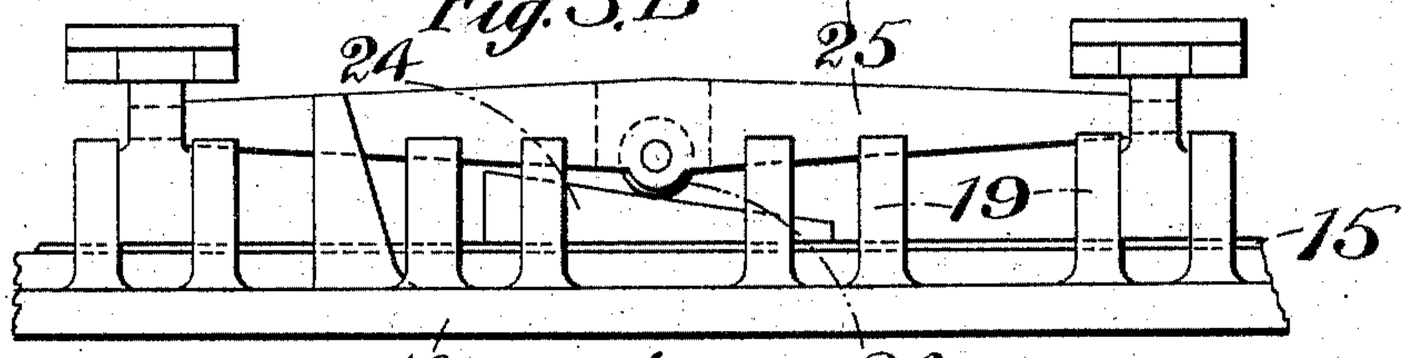

Fig. 4.

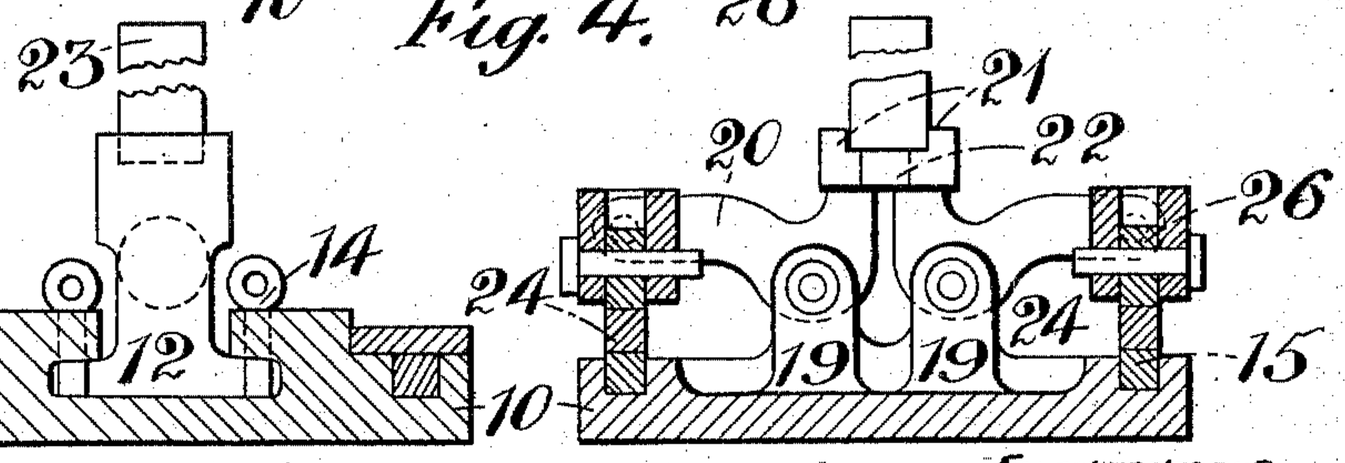

Fig. 5.

Fig. 6.

Witnesses.
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No. 764,563. Patented July 12, 1904.

UNITED STATES PATENT OFFICE.

ALFRED JOSEPH DAWSON, OF DUNDEE, SCOTLAND, AND PETER ROBERTSON, OF LEYTON, AND ALFRED ERNEST BRADSHAW, OF LONDON, ENGLAND.

APPLIANCE FOR HOLDING SECURELY ARTICLES OF UNEQUAL LENGTH AND THICKNESS.

SPECIFICATION forming part of Letters Patent No. 764,563, dated July 12, 1904.

Application filed February 25, 1904. Serial No. 195,251. (No model.)

To all whom it may concern:

Be it known that we, ALFRED JOSEPH DAWSON, a resident of Dundee, in the county of Forfar, Scotland, (whose post-office address is Rosemount Cycle Works, West Esplanade,) and PETER ROBERTSON, a resident of Leyton, in the county of Essex, (whose post-office address is Worsley Villa, Dawlish road,) and ALFRED ERNEST BRADSHAW, a resident of London, England, (whose post-office address is 13 Radnor Place, Gloucester Square, Hyde Park, W.,) all subjects of the King of Great Britain and Ireland, have invented a certain new and useful Improvement in Appliances for Securely Holding Articles of Unequal Length and Thickness, (for which we have applied for a patent in Great Britain, No. 2,845, bearing date February 6, 1903,) of which the following is a specification.

This invention relates to appliances for securely holding articles of unequal length and thickness, the object being to grip each article by a series of pairs of opposing jaws so arranged that the actuation of one hand wheel or lever will cause all the jaws to seize it with practically equal force or pressure.

Referring to the drawings which form a part of this specification, Figure 1 is a longitudinal sectional elevation of the appliance, showing the article being held. Fig. 2 is a plan of same. Fig. 3 is a part plan on an enlarged scale, showing more particularly the side grippers and longitudinal or compensating levers. Fig. 4 is a side elevation of Fig. 3. Fig. 5 is a cross-sectional elevation at A A, Fig. 2. Fig. 6 is a cross-sectional elevation at B B, Figs. 2 and 3.

In carrying out our invention we employ a frame or casting 10, on which are two jaws 11 and 12, one fixed and the other capable of being actuated by a screw 13 and hand wheel or lever, which is not shown in the drawings, such jaws being preferably placed facing each other along the longitudinal axis or center line. Parallel to longitudinal axis or center line are two sliding rods 15, one on one side and the other on the other side. These rods are coupled together at those extremities which are beyond the movable jaw and preferably between this movable jaw and the hand wheel or lever above referred to by a cross-bar 16, and such cross-bar carries the screw 13 and nut 18, which may be pivoted, although we have not shown it so. At each side of the longitudinal axis and forming part of the casting 10 are a series of brackets 19 in pairs, and each bracket carries or may carry a bent lever 20, whose innermost extremity terminates in a jaw 21. Each pair of jaws is preferably provided with fingers 22, which overlap or interlace, in order that the article 23 to be held may not fall between them when being fixed in position or when being released. On the side rods, which may sometimes not move equally, owing to the irregular shape of the article and the nut 18 being slightly slack or pivoted, are inclined planes 24, one for each bent lever, although in some cases an inclined plane may lie between each pair of side jaws, as shown in the drawings, in which case a longitudinal compensating lever 25, provided with a friction-roller 26, engages with the two outer extremities of the levers 20—that is to say, in the first-mentioned arrangement there is one inclined plane 24 for each bent lever 20, which in such a case may be fitted with independent antifriction-rollers, and in the latter there is one inclined plane for each pair of adjacent bent levers. 14 are pins which act as an adjustable fulcrum for the movable jaw 12. 17 are recesses for receiving the fixed jaw 11 should short pieces of the article be dealt with.

The appliance operates in the following manner: The article 23 to be gripped is held over the framing and between the longitudinal and the side jaws. The screw 13 is then actuated, causing the movable longitudinal jaw 12 to engage with the article, thus pressing such article against the fixed jaw 11. While this action is taking place, the side rods 15 are moving equally or unequally in the opposite direction, also by the action of the screw, and they in their movement carry the inclined planes 24 along with them. These inclined planes, being under their respective

bent levers or pairs of bent levers, cause the outer extremities of such levers to rise, thus making each set of side jaws to approach each other. By this means all the jaws simultaneously approach the article and grasp it firmly at the ends and sides. When the arrangement is used in which one inclined plane 24 actuates a pair of adjacent bent levers by means of its longitudinal compensating lever 25, the irregularity in shape of the article 23 may be greater than in that previously referred to, as each extremity of such longitudinal levers need not rise to the same extent, with the result that each pair of jaws may be at different distances apart, and they may not be symmetrical to the longitudinal axis, as in the first arrangement.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an appliance for securely holding articles the combination of a frame carrying a fixable and a movable jaw placed opposite to one another with one or more sets of hinged jaws actuated by sliding rods and wedges, the movable and hinged jaws being simultaneously actuated preferably or in part by a screw working in a nut carried by a cross-bar, all substantially as set forth.

2. The combination, in an appliance for securely holding articles of a frame carrying a fixable and a movable jaw placed opposite to one another, one or more sets of hinged jaws actuated by sliding rods, wedges and compensating levers, the movable and hinged jaws being simultaneously actuated, preferably or in part by a screw working in a nut carried by a cross-bar, all substantially as set forth.

3. In an appliance for securely holding articles the combination of a frame carrying a fixable and a movable and adjustable jaw placed opposite to one another with one or more sets of hinged jaws actuated by sliding rods—one at each side—provided with wedges for actuating such jaws, compensating levers for each pair provided with antifriction-rollers, a screw carried by a cross-head whose purpose is to simultaneously push the movable jaw toward the fixed jaw and draw the rods with their wedges in the opposite direction all substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

ALFRED JOSEPH DAWSON.
PETER ROBERTSON.
ALFRED ERNEST BRADSHAW.

Witnesses:
EDWIN SMITH,
C. R. MASTER.