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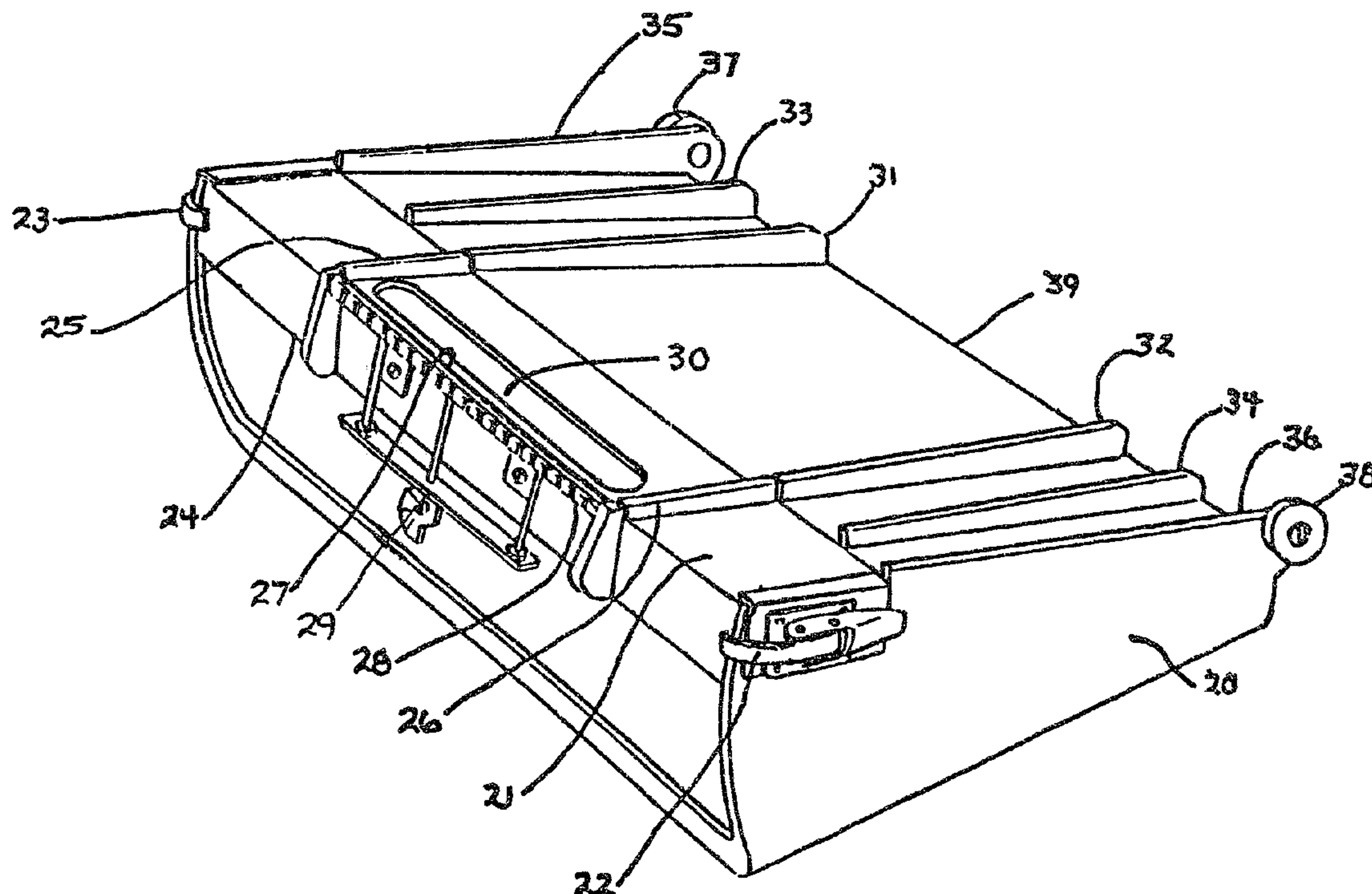
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(54) Titre : BOITE DE FINITION A PLAT COMPRENANT DES TETES INTERCHANGEABLES

(54) Title: FLAT FINISHING BOX APPARATUS COMPRISING INTERCHANGEABLE HEADS



(57) Abrégé/Abstract:

The flat finishing box has an attachable/detachable head which comprises a structural part incorporating the mouth and to which the edge assembly and edge assembly adjustment apparatus are attached. Heads are provided for dispensing mud in each of the three standard swath widths, 7", 10" and 12", so that any swath width can be dispensed from one box by interchanging heads attached to the box. The box cover is one extrusion and the bottom and back are another. The hinged edge of the cover has a cylindrical segment along the edge which fits into a partial cylindrical groove in the back, providing a leak proof hinge.



ABSTRACT OF THE DISCLOSURE

The flat finishing box has an attachable/detachable head which comprises a structural part incorporating the mouth and to which the edge assembly and edge assembly adjustment apparatus are attached. Heads are provided for dispensing mud in each of the three standard swath widths, 7", 10" and 12", so that any swath width can be dispensed from one box by interchanging heads attached to the box. The box cover is one extrusion and the bottom and back are another. The hinged edge of the cover has a cylindrical segment along the edge which fits into a partial cylindrical groove in the back, providing a leak proof hinge.

1 FLAT FINISHING BOX APPARATUS COMPRISING INTERCHANGEABLE HEADS

2 BACKGROUND OF THE INVENTION

3 FIELD: The subject apparatus is in the field of hand tools,
4 specifically tools used on the end of a handle. More specifically it is
5 in the field of such tools used in drywall construction for finishing
6 the joints between panels of plasterboard. Still more specifically it
7 is in the field of flat finishing boxes used to dispense a compound,
8 termed mud in the trade, onto the joints and provide a smooth,
9 specifically contoured surface.

10 PRIOR ART: There is prior art in this field known to the subject
11 inventor and relating to flat finishing boxes as such but no prior art
12 is known for a flat finishing box which can be fitted with any of a
13 plurality of heads. As is well known in the art, finishing boxes are
14 made in three widths. The narrowest boxes dispense mud in a swath 7"
15 wide; the medium width boxes dispense in a swath width of 10 inches and
16 the widest boxes provide a swath 12 inches wide. A box is filled with
17 mud and used until refilling is required. In use a box is attached to
18 the end of a special handle by which it is held against and moved along
19 a joint. It is common procedure to first cover a joint with a 7 inch
20 swath, then a 10" swath and finally a 12" swath, although the 10" or 12"
21 swaths may be omitted under certain circumstances. Each swath requires
22 a volume of mud per foot of joint or swath length. Because the 7" swath
23 is applied first, the volume per foot for the 7" width is greater than
24 for the 10" and 12" widths. This fact, coupled with the fact that the
25 box for the 7" width has the least mud capacity of the three boxes,
26 makes it necessary to refill the 7" box most frequently. In order to
27 apply swaths in sequence as described it is necessary to have boxes of

1 the various widths and handles for each or, if not, change handles from
2 box to box. In any case, it is well known that at any given time on a
3 job, approximately two out of three boxes are partially filled with mud
4 and idle and time is used changing handles from box to box.

5 In view of the above the objectives of the subject invention are to
6 reduce the frequency of refilling boxes providing 7" wide swaths, reduce
7 the number of idle, partially filled boxes, reduce the number of boxes
8 needed to provide a given work capacity, and either reduce the frequency
9 of the need to change handles from box to box or the number of handles
10 required for given work capacity.

11 SUMMARY OF THE INVENTION

12 Description of the subject invention requires description of a
13 conventional flat finishing box. Such a box has two sides, a front, a
14 back, a bottom, termed a working surface for purposes of this
15 disclosure, and a top, termed a cover for purposes of this disclosure.
16 The dimension of the box from front to back is less than the dimension
17 from side to side, the dimension from side to side being the width of
18 the box. The back is narrow compared to the front, giving the box a
19 wedge shaped crosssection perpendicular to the width. The working
20 surface is provided with a slot, termed a mouth, at the juncture between
21 it and the front of the box and, in use, the mud is dispensed through
22 the mouth. The cover is hinged at the back (or removable) so that it
23 may be opened to permit clearing out the box and so that when it is
24 forced toward the bottom (working surface), the volume of the space
25 enclosed is decreased, forcing the mud through the mouth. The front is
26 arced so that the cover stays in close proximity to it as it moves and
27

1 seals are provided between the cover and the front and sides to prevent
2 mud leaks at the junctures of the cover and front and sides. Apparatus
3 termed an edge assembly is attached to the box and includes an edge
4 extending across the front nearest the mouth. Parts called shoes are
5 attached to the working face, at the ends of the edge and mouth and aligned
6 perpen- dicularly to the long dimension of the edge. Adjoining the
7 shoes are guards, extending from the shoes toward the back edge of the
8 working surface. The exposed surfaces of the guards, shoes and edge lie
9 in a plane except that the edge can be bent, i.e. arced, out of the
10 plane away from the working surface. A handle is attached to the cover.
11 In use the box, filled with mud, is first held against the plasterboard
12 astride a joint, with the tips of the shoes nearest the edge assembly
13 and the ends of the edge in contact with the plasterboard and the center
14 of the edge arced away from the plasterboard. The handle is then
15 manipulated so that the box is moved along the joint and as it moves the
16 cover is closed to force mud out of the mouth to be spread by the edge
17 into a swath having an arced crosssectional shape. Apparatus is provided
18 to mechanically adjust the radius of the arc of the edge. In
19 conventional apparatus the mouth and edge extend essentially across the
20 full width of the box.

21 In the subject apparatus the shoes, edge and edge adjustment
22 apparatus are assembled to structure incorporating the mouth and the
23 assembly is termed the head and the heads are interchangeable on the
24 boxes. The width of the box accommodates a head for making a 12" wide
25 swath of mud, the edge and mouth in this head extending essentially from
26 side to side of the box. In alternate heads, the mouth and edge are
27 centered lengthwise in the head and sized to provide either a 7" wide

1 swath or a 10" wide swath. The width of the swath being produced is
2 adjusted by interchanging heads on a box rather than boxes on a handle.
3 Guards are provided for all mouth widths.

4 It is considered to be understandable from this summary that the
5 invention meets its objectives. No box need ever be idle and partly
6 filled until the last use of the work period. The seven inch width
7 swath requiring the highest volume of mud per foot of joint length is
8 provided from a 12 inch wide box instead of a 7 inch wide box, thus
9 increasing the time between refills by 70%. The number of boxes needed
10 for given work capacity is reduced to 1/3 with corresponding reduction
11 of the number of handles required.

12 The invention is described in more detail below with reference to
13 the accompanying drawings.

14 BRIEF DESCRIPTION OF THE DRAWINGS

15
16 FIG. 1 is a perspective view of a prior art flat finishing box with a
17 handle attached and ready for use on a joint between plasterboard
18 panels.

19
20 FIG. 2 is a perspective view of the subject invention showing the front,
21 side, working face and the head for producing a 7" wide swath.

22
23 FIG. 3 is a perspective view of a head.

24
25 FIG. 4 is a perspective view of the box with no head in place.

26
27 FIG. 5 is a perspective view of the box from the cover side.

1 FIG 6 is a sectional view taken at 6-6 in FIG 5 illustrating the cover hinge
2 configuration.

3
4 DETAILED DESCRIPTION OF THE INVENTION
5

6 The subject invention is flat finishing apparatus comprising a box assembly
7 which can be fitted with any of a plurality of heads. There are preferably 3 heads,
8 each configured to provide one of the three standard width swaths of the plastering
9 compound termed mud in the trade, the standard widths being 7", 10" and 12". FIG
10 1 illustrates a prior art box 10 being supported and operated by handle 11 attached
11 to the cover 12 of the box. The box has two sides 13 and 14, a front 15, a back 16
12 and a bottom termed, for purposes of this disclosure, the working surface held in this
13 view astride joint 17 between plasterboard panels 18 and 19 and ready to dispense
14 mud to fill in and smooth over the joint. Prior art boxes each provide one of the three
15 standard swath widths of dispensed mud, a different box being required for each
16 swath width applied to each joint finished.

17
18 With the subject application, shown in FIG. 2, one box can be used to
19 dispense mud in all three swath widths by using three different heads on the box
20 assembly. In FIG. 2 box 20 is fitted with head 21 held in place by clips 22 and 23.
21 Head 21 is configured to dispense a 7" swath width. The head is an assembly of
22 parts and comprises a base 24, shoes 25 and 26, edge 27 in edge assembly 28 and
23 the edge support and adjustment mechanism 29. The edge and its support and
24 adjustment mechanism are commercially available apparatus attached to the base.
25 The length of the edge assembly is termed its width for purposes of this disclosure.
26 Opening 30 in the base is the mouth, through which the box is filled

1 with mud and through which the mud is dispensed to be shaped and
2 smoothed by the edge. The long dimension of the mouth is termed its
3 width for purposes of this disclosure. The shoes and guards 31, 32, 33
4 and 34 keep the dispensed mud within the swath width produced by a
5 particular head, guards 31 and 32 being for a 7 inch head. To change
6 swath widths one head is removed by releasing clips 22 and 23 and
7 another head installed and clipped into place. The shoes of a head for a
8 10" swath width will align with guards 33 and 34. In the head for a 12"
9 swath width the edge assembly and mouth extend from side to side of the
10 box and sides 35 and 36 serve as the guards. In all cases contact
11 between the box and the plasterboard is confined to the ends of the shoes
12 in contact with the edge assembly and rollers 37 and 38, attached to the
13 sides near the back 39 of the box. There is enough clearance between
14 the guards and the plasterboard to prevent marking of a wider swath by
15 the guards for a narrower swath.

16 FIG. 3 illustrates a head removed from the box and a box assembly
17 with the head removed is shown in FIG. 4. Front 15 of the box assembly
18 is bowed slightly at its edge 40 in the direction of arrow A. This assures a
19 tighter fit between edge 40 and the base 21 of the head to prevent
20 leakage of the mud. Angle plates 41 and 42 are held in place by the
21 fasteners which attach clips 22 and 23 and the ends of the base of the
22 head are held between lips 43 and 44 of the angle plates and the sides of
23 the box assembly. The sides are notched so that the lips are flush with
24 edges 45 and 46 of the sides.

25 FIG. 5 illustrates the box from the cover side, showing cover 47
26 and cover return springs 48 and 49, connected as fasteners 50 and 51 on
27 the sides 35 and 36 and at pins 52 and 53 on the cover. Threaded studs

1 54 and 55 are for the attachment of the handle. Seal 56 extends around
2 the front and sides of the cover. Thumbscrews 57 and 58 limit the
3 travel of the cover which can be opened when the thumbscrews are backed
4 out clear of the seal. Opening the cover expedites cleaning the box.

5 The cover is hinged to the back 39 of the box assembly as shown in
6 FIG. 6, a section taken at 6-6 in FIG. 5. The cover 47 is an extrusion
7 with a partial cylindrical segment 59 at its back edge 60. The back 39
8 and working surface 61 are segments of an extrusion and the back has a
9 partial cylindrical groove 62 into which segment 59 of the cover is
10 fitted. This hinging technique prevents leakage through or around the
11 connection of the cover to the back.

12 It is considered understandable from this description that the
13 invention meets its objectives. The frequency of refilling boxes
14 providing a seven inch swath width is reduced because a box 12 inches
15 wide instead of seven inches wide is used. Also, since one box can be
16 used to provide all swath widths, each box can be used until it is
17 empty, reducing the number of boxes needed for given work capacity and
18 the number of boxes left partially filled and reducing also either the
19 number of handles needed or the frequency of the need to change handles
20 from box to box, relative to work capacity.

21 It is considered that it will also be understood that while one
22 embodiment of the invention is described, other embodiments and modifi-
23 cations of the one described are possible within the scope of the
24 invention which is limited only by the attached claims.

CLAIMS

1. A flat finishing apparatus comprising, in combination, a box assembly and a plurality of attachable/detachable heads, each of said plurality of heads comprising a base, an edge assembly and an edge assembly adjustment apparatus,
- said base incorporating a mouth having a first width,
- said edge assembly having a second width corresponding to said first width,
- said edge assembly and edge assembly adjustment apparatus being attached to said base,
- said first and second widths being different in each of said plurality of heads,
- whereby said apparatus is adapted to dispense material in a variety of swath widths from said box assembly,
- said box assembly further having a third width, first and second extremities of said third width, a center portion, a first portion near said first extremity of said third width, a second portion near said second extremity of said third width and a first channel interconnecting said first portion to said center portion and a second channel interconnecting said second portion to said center portion.
2. The flat finishing apparatus of Claim 1 whereby said apparatus is used to dispense mud and each of said plurality of heads is configured to produce a specific swath width of mud dispensed by said apparatus and said mouth has a first end and a second end and said apparatus further comprises shoes and guards permanently positioned on said heads and said base at said first and second mouth ends whereby said dispensed mud is kept within said swath width.

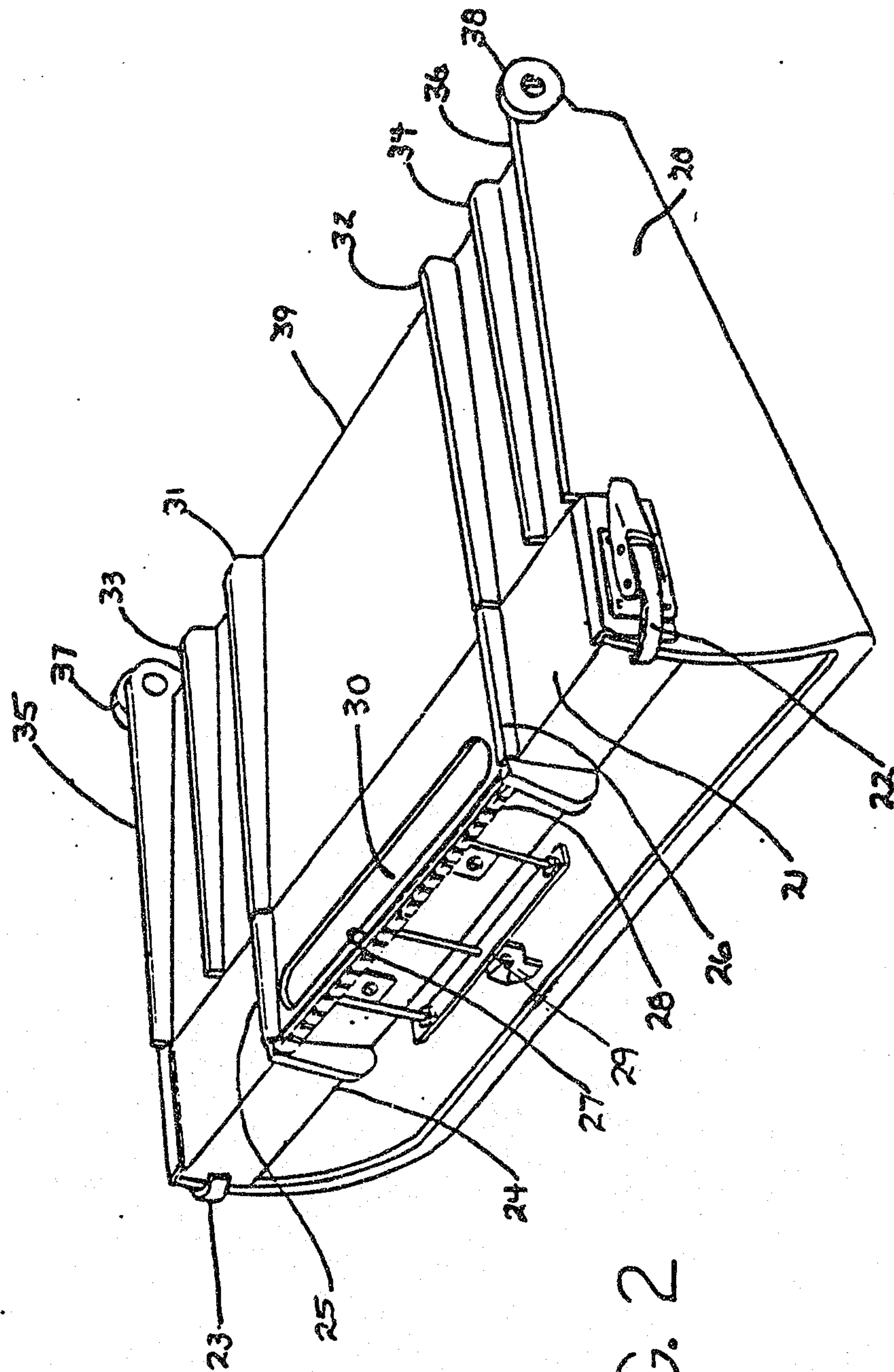
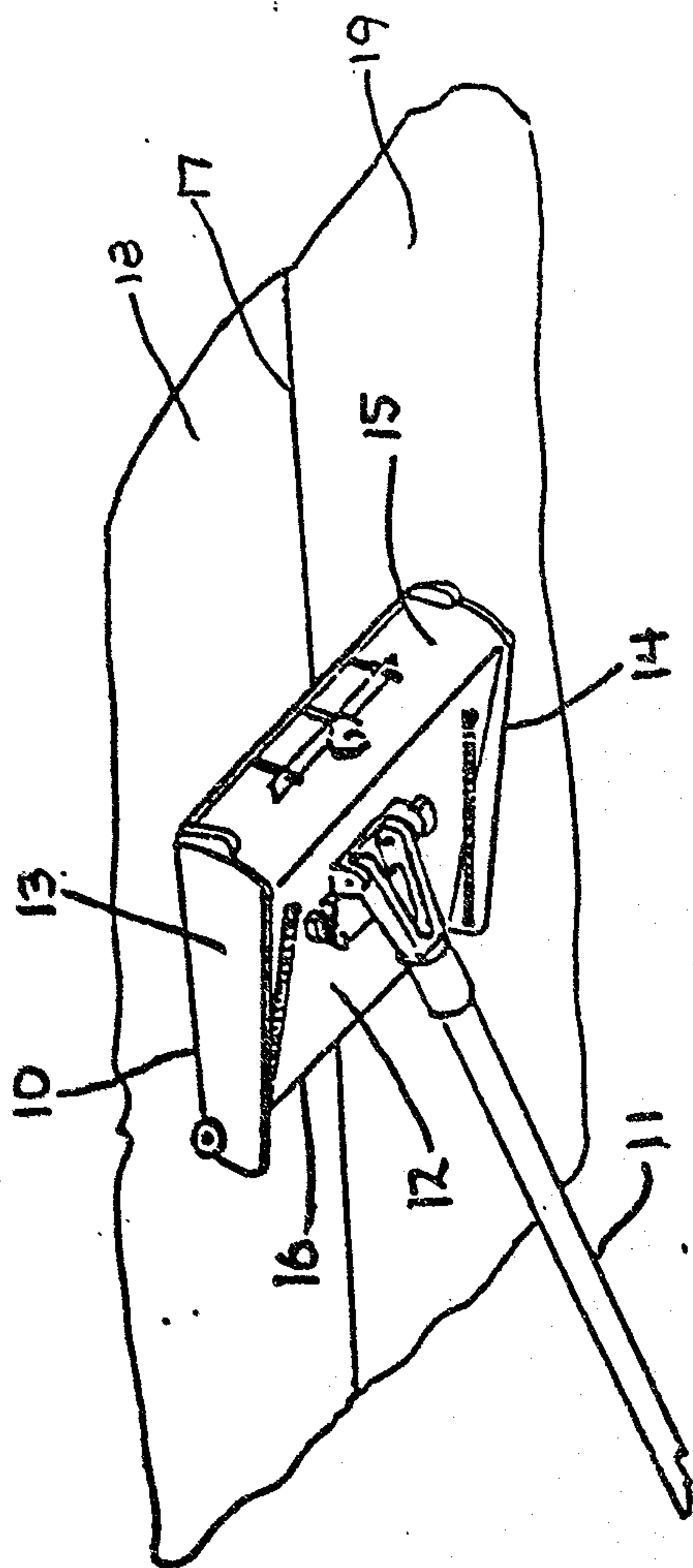
FIG. 1
PRIOR ART

FIG. 2

FIG. 3

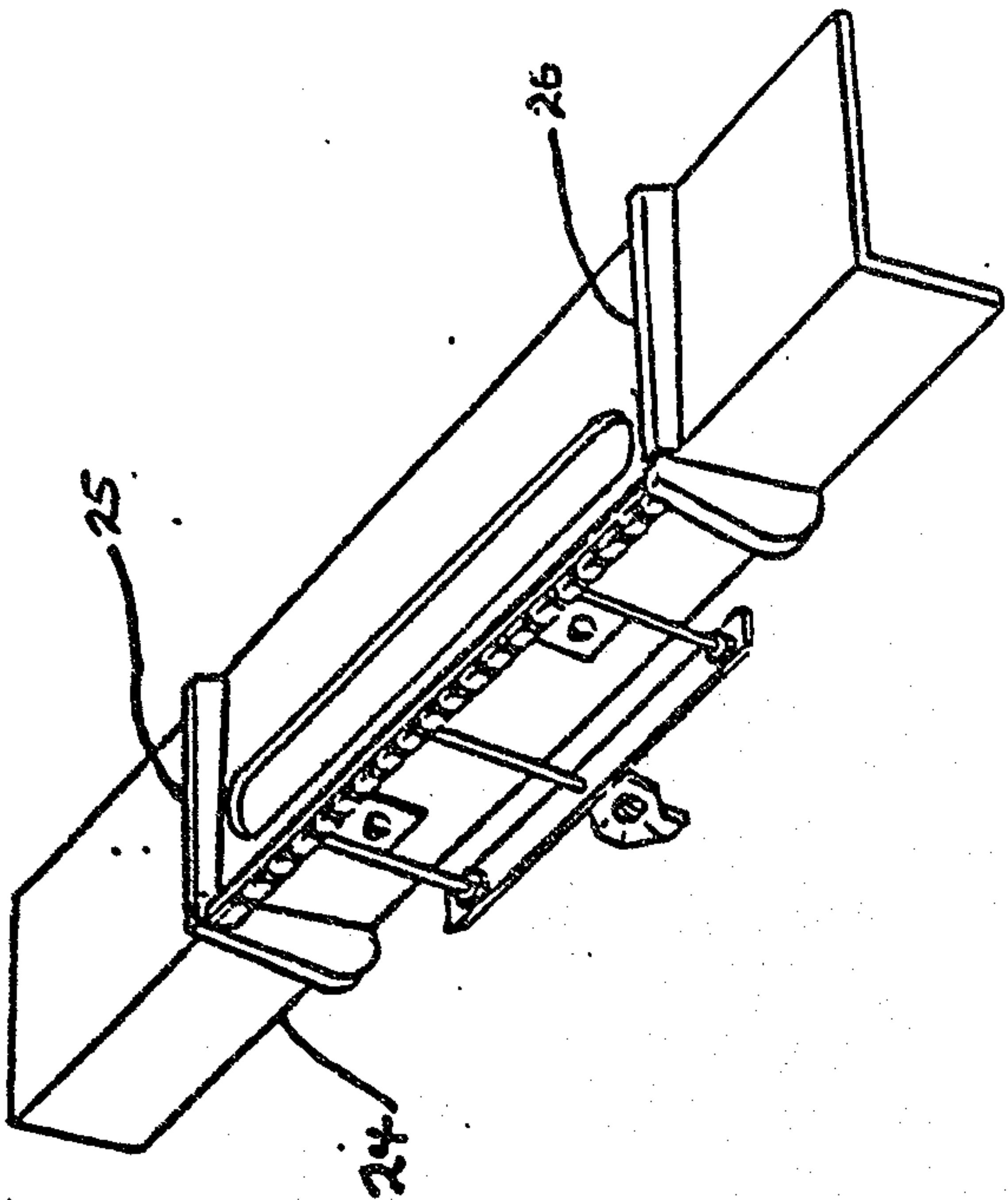


FIG. 4

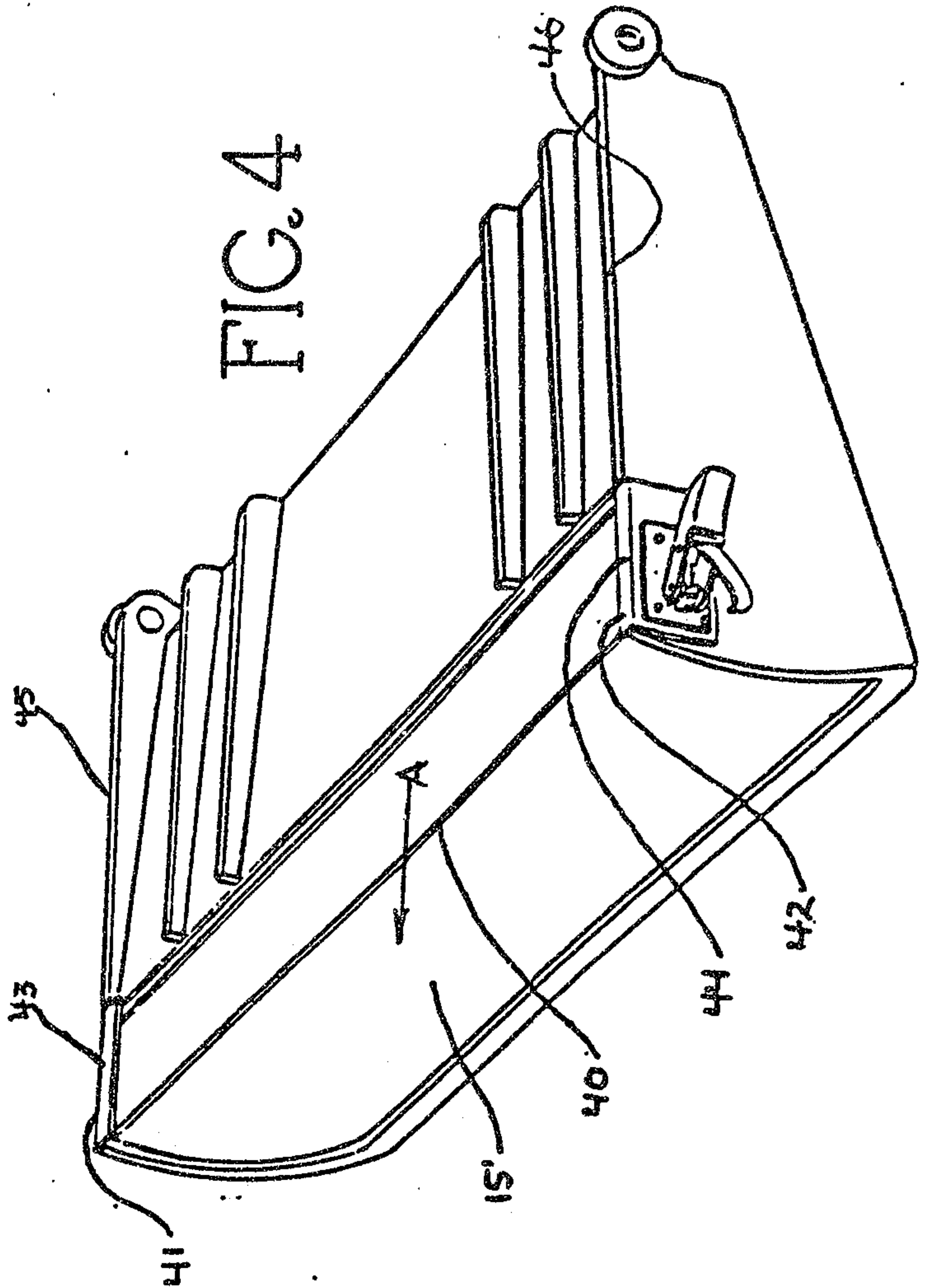


FIG. 5

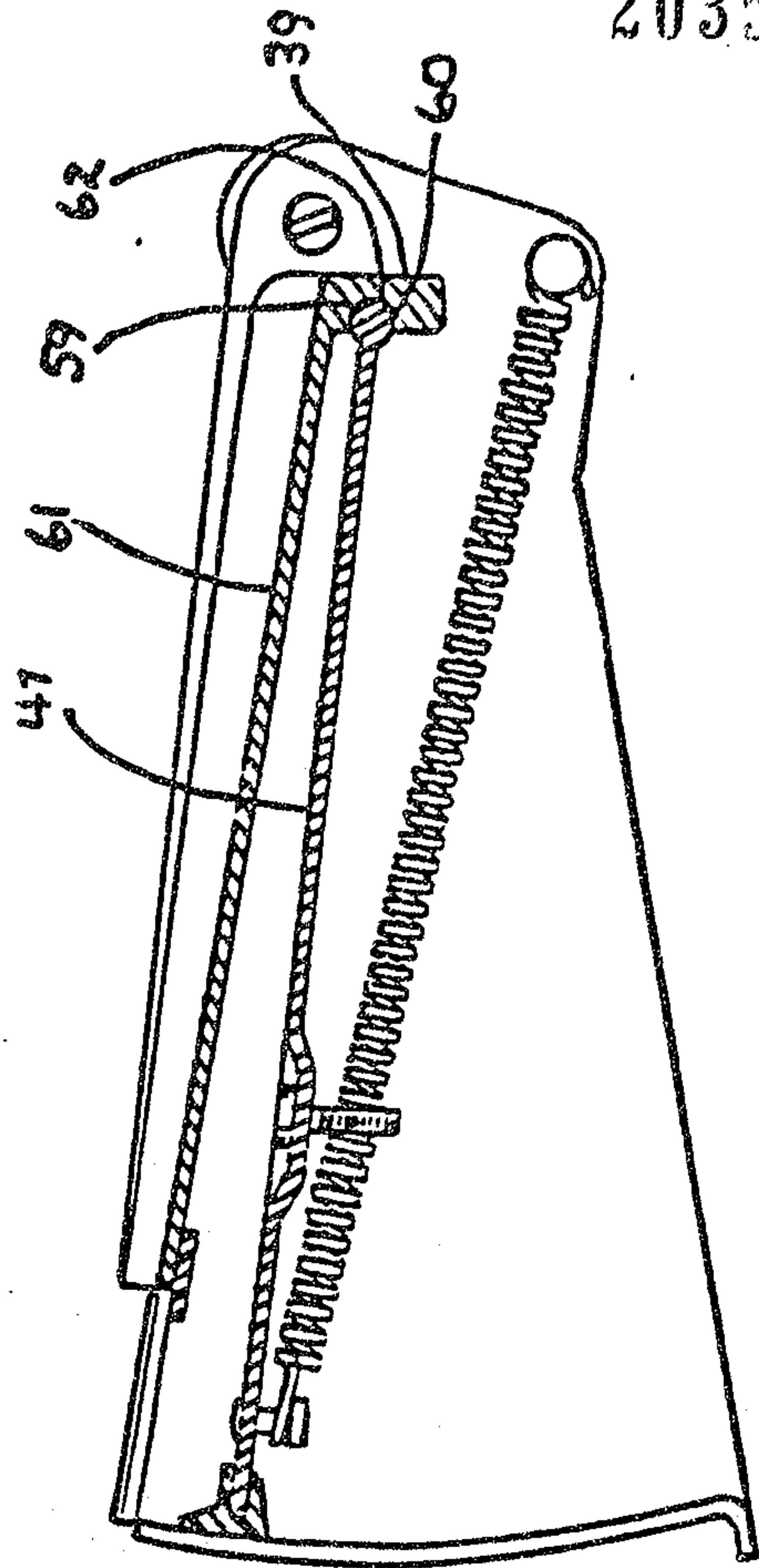
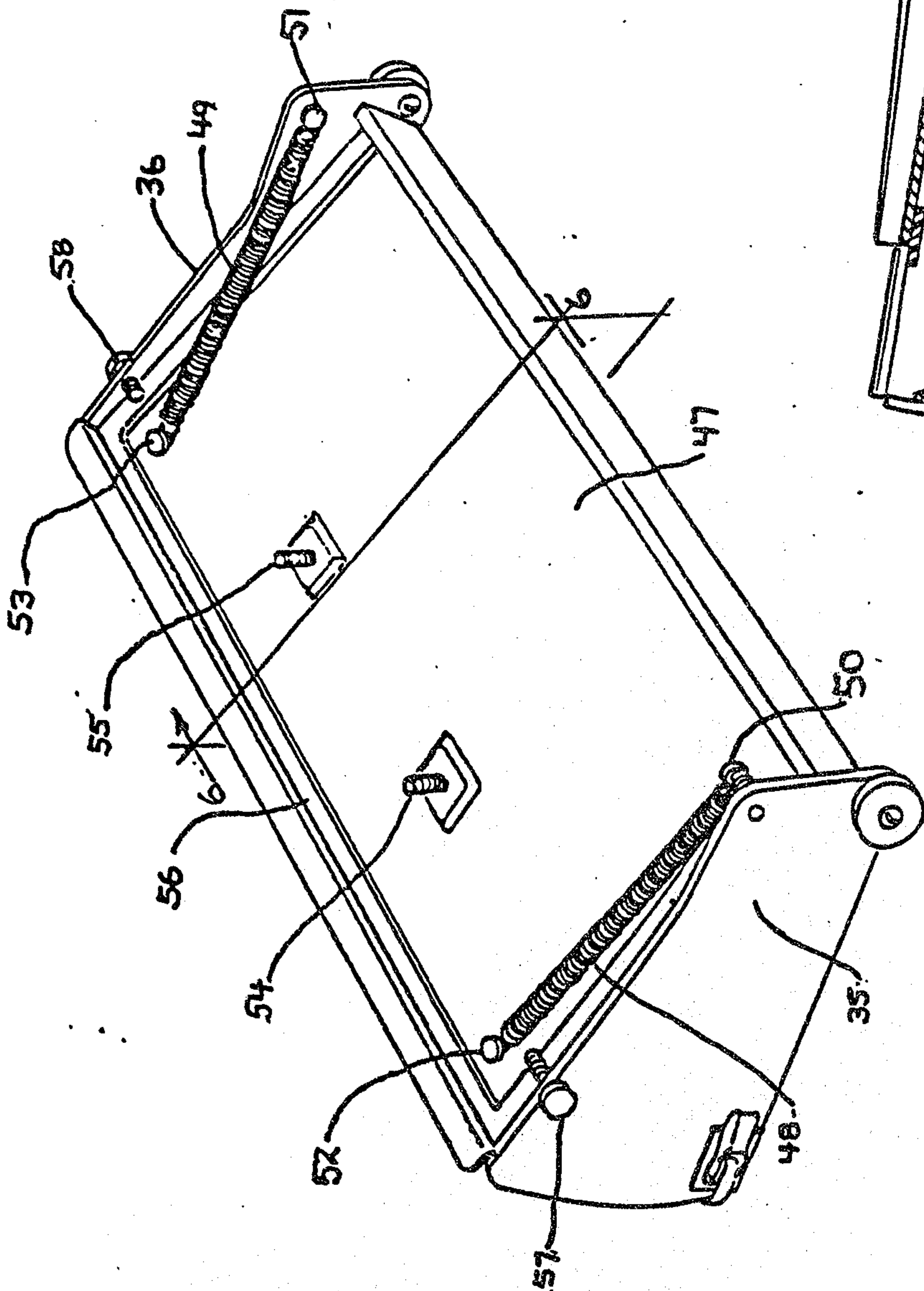


FIG. 6

