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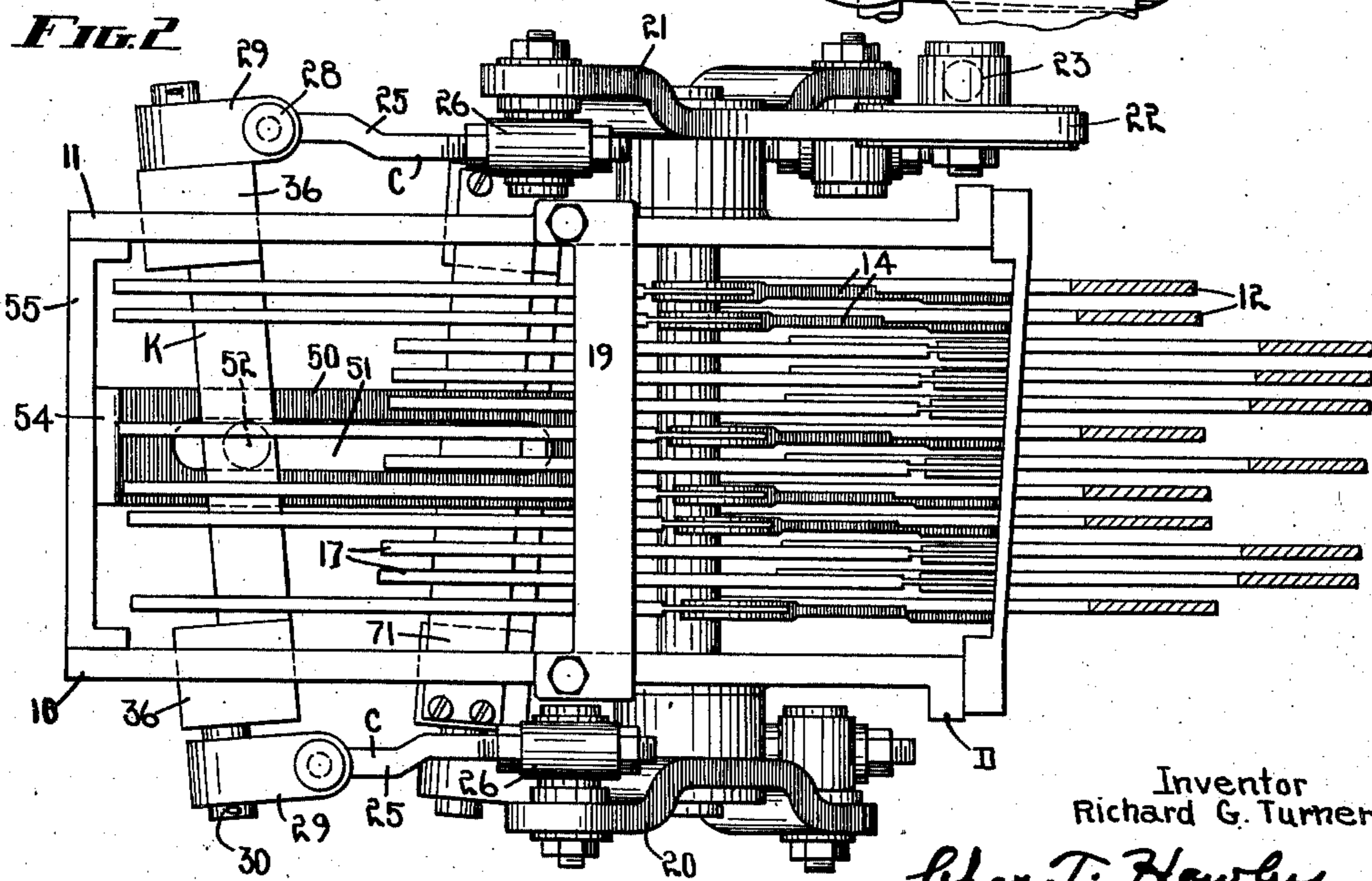
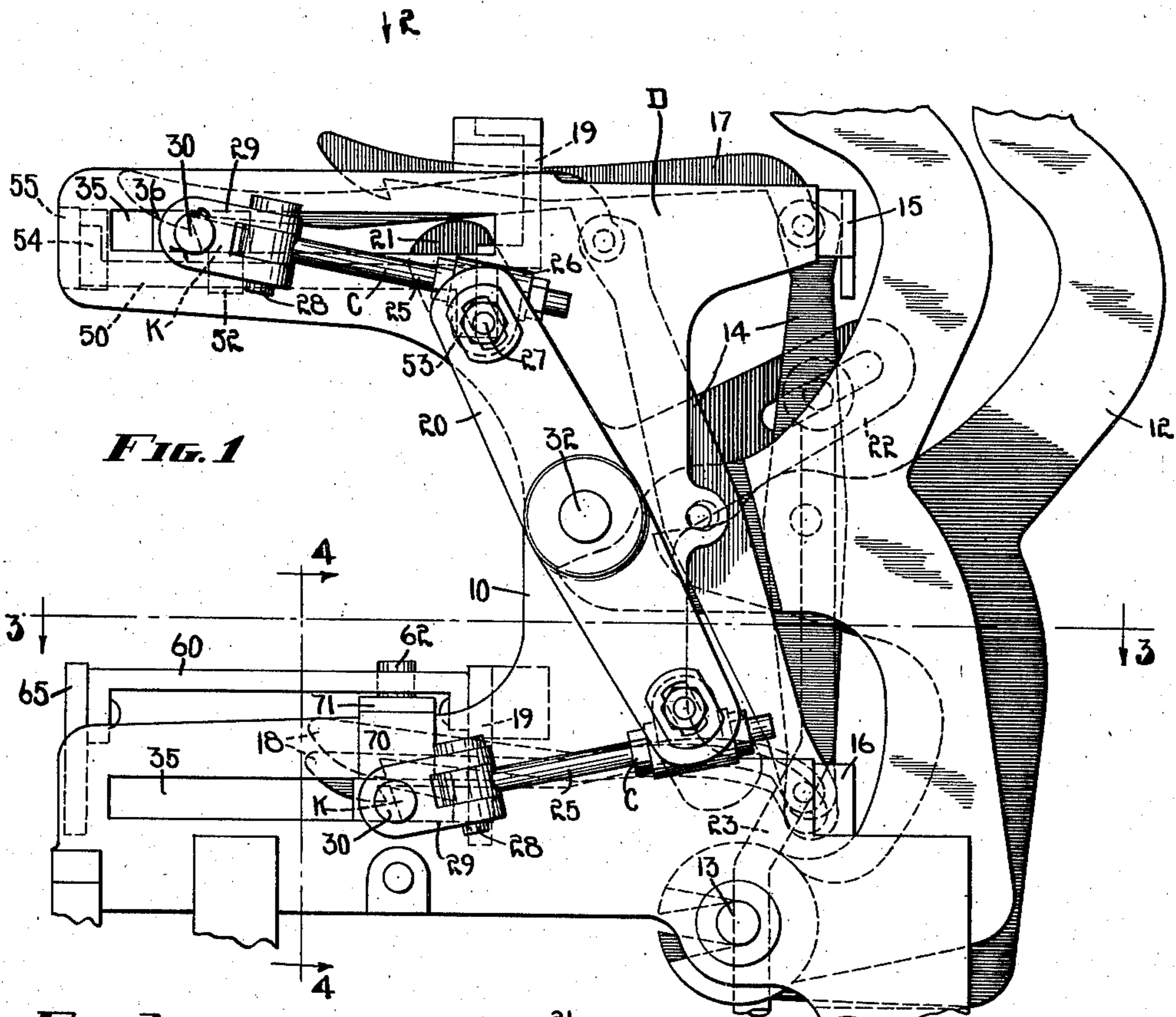
R. G. TURNER

2,123,322

DOBBY KNIFE GUIDE

Filed Sept. 24, 1937

2 Sheets-Sheet 1



Inventor
Richard G. Turner

Charles T. Hawley
Attorney

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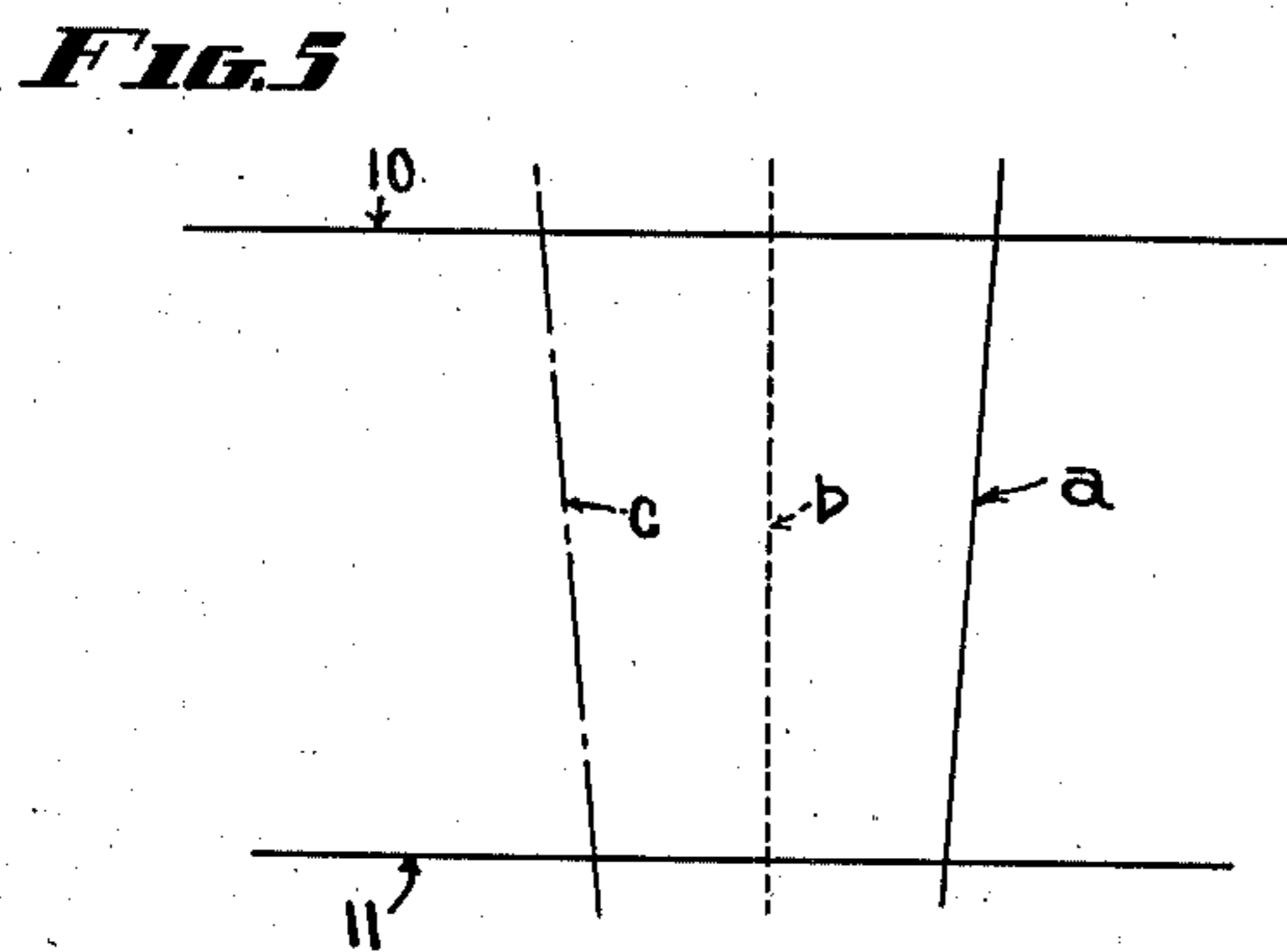
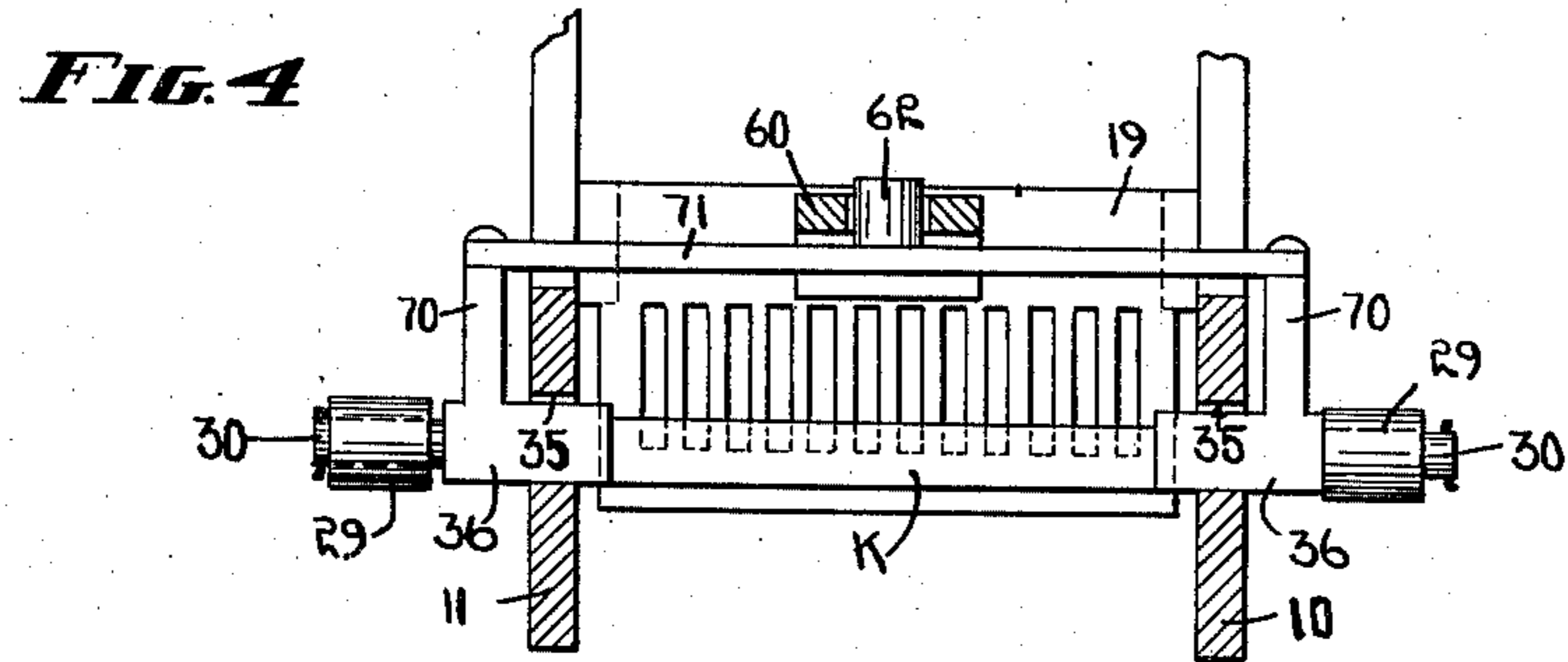
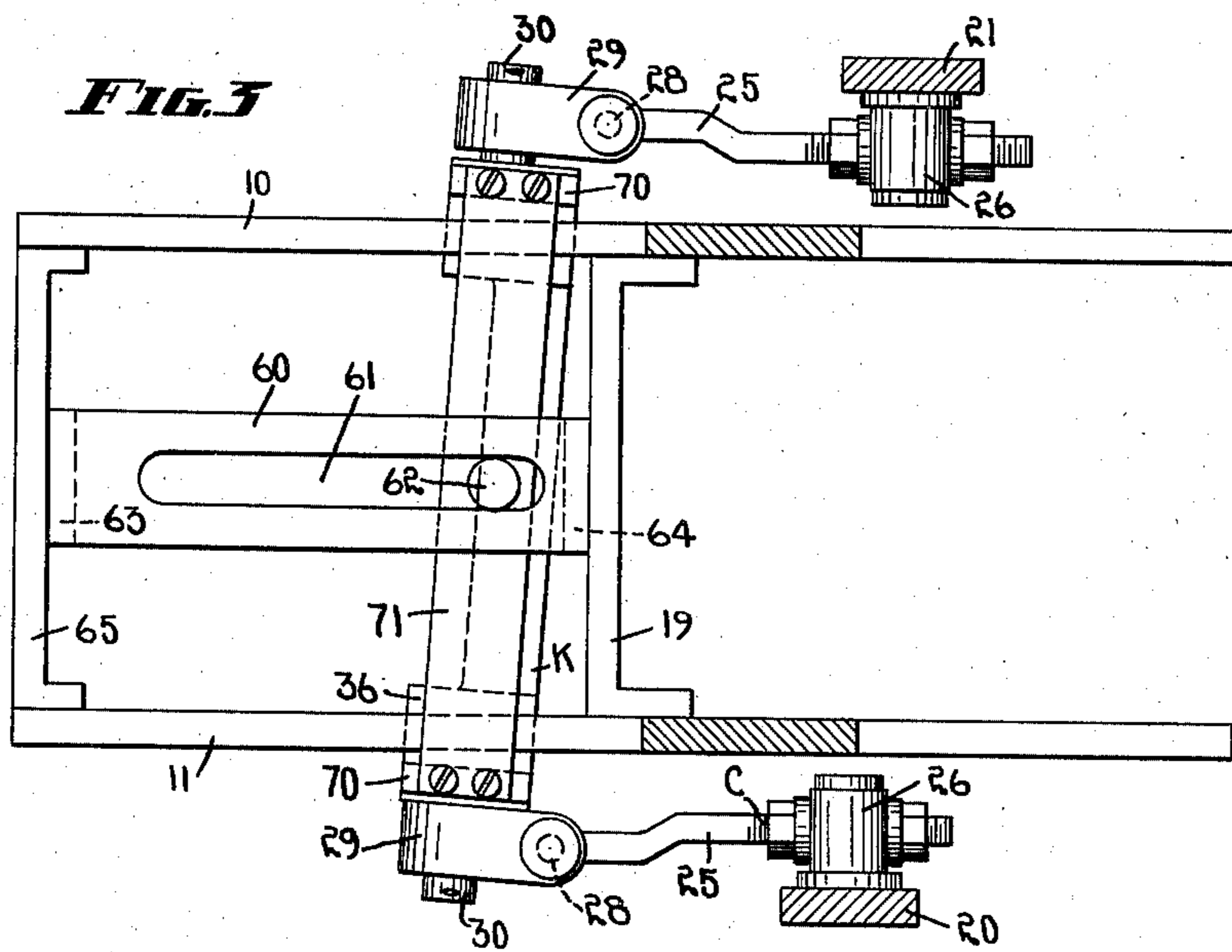
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DOBBY KNIFE GUIDE

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2 Sheets-Sheet 2



Inventor
Richard G. Turner

Chas. T. Hawley
Attorney

UNITED STATES PATENT OFFICE

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DOBBY KNIFE GUIDE

Richard G. Turner, Worcester, Mass., assignor to
Crompton & Knowles Loom Works, Worcester,
Mass., a corporation of Massachusetts

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6 Claims. (Cl. 139—67)

This invention relates to improvements in loom
dobbies and it is the general object of the inven-
tion to prevent objectionable endwise motion of
the harness lifting knives relatively to the hooks
during the working and return strokes of the
knives.

Loom dobbies customarily include a pair of
spaced oppositely reciprocating knives which co-
operate with hooks pivoted to dobby levers and
controlled by pattern mechanism. The levers in
turn are connected to harness jacks which lift
the corresponding harness when the associated
hook is moved outwardly by a knife. Because of
the shedding conditions necessary for the warp
threads the rear harness frames are moved
through a greater vertical distance than are the
front frames and in order to effect this difference
in motion the dobby knives swing from one oblique
position at the beginning of their working stroke
to an oppositely inclined oblique position at the
end of their working stroke, the greater travel
being at the rear end of the knife.

When the load on the dobby is considerable due
to an increased shed or a heavy warp the pres-
sures existing between the hooks and the knives
is sufficient to cause an end motion of the knives
transversely of the hooks. This end motion
strains the connectors between the knives and
their rocking levers and interferes with efficient
running of the dobby.

It is an important object of my present inven-
tion to provide guides for the dobby knives effec-
tive preferably throughout the working and re-
turning strokes of the knives to prevent sub-
stantial end motion thereof by means of cooperat-
ing parts certain of which are on the knives and
others of which are fixed to the dobby frame. In
the preferred form of my invention I provide
slotted guides substantially parallel to the hooks
to receive lugs or the like on the knives.

With these and other objects in view which will
appear as the description proceeds, my invention
resides in the combination and arrangement of
parts hereinafter described and set forth.

In the accompanying drawings, wherein a con-
venient embodiment of my invention is set forth,

Fig. 1 is a front elevation of a dobby made
according to my present invention,

Fig. 2 is a plan view looking in the direction of
arrow 2, Fig. 1, showing the guide for the top
knife,

Fig. 3 is a horizontal section on line 3—3 of
Fig. 1 showing the guide for the lower knife,

Fig. 4 is a vertical section on line 4—4 of Fig. 1
showing the guide for the lower knife, and

Fig. 5 is a diagrammatic plan showing the
various angular relations of the knife with respect
to the dobby parts.

Referring to the drawings, the dobby D has
front and back side plates 10 and 11, respectively,
and is provided with a set of harness lifting
jacks 12 pivoted as at 13. Each jack is pivoted
to a dobby lever 14 positioned by upper and lower
back girts 15 and 16, respectively. Each lever
14 has pivoted at the upper end thereof a top
hook 17 while the lower end is pivoted to a bot-
tom hook 18. Guide racks or combs 19 space
the hooks and hold them in proper position rela-
tively to hook lifters not shown.

The dobby is provided with front and back
rocker or actuator levers 20 and 21, respectively,
the rear lever having a third arm 22 which re-
ceives a rocking motion from a vertically recip-
rocating rod 23. The latter may be driven in any
approved manner and receives an up stroke on
one beat of the loom and a down stroke on the
next beat so that two complete beats of the loom
are necessary for the cycle of the dobby.

The upper and lower ends of each of the levers
20 and 21 is attached to a connector C which
has a rod 25 having a hub 26 to receive a stud 27
carried by the lever. The outer end of the con-
nector has passing therethrough a pin 28 which
also passes through a bearing block 29 through
which extends the gudgeon 30 of a knife K. The
connection between the pin 28, bearing 29 and
connector 25 is such as to permit relative move-
ment of the knife in a horizontal plane with re-
spect to the plane of action of the rocker levers,
while the hub 26 accommodates the rise and fall
of the levers 20 and 21 as they rock about their
common axis 32. Bearing 29 may also slide off
gudgeon 30 to a limited extent. The frames 10
and 11 have guide slots 35 which receive slide
bearings 36 formed on the knives K, the slots 35
being sufficiently long to permit the knives to
have their outward working and inward return
strokes.

During the operation of the dobby as thus far
described rising of the rod 23 will cause the upper
knife to move outwardly away from the jacks 12
at which time any of the upper hooks 17 which
have been indicated for engagement with said
knife will be moved outwardly to have a harness
lifting motion. At the same time the lower knife
will move inwardly or toward the jacks 12. On
the next beat the direction of knife motion will
be reversed and any of the lower hooks 18 which
have been indicated for engagement with the
bottom knife will be moved outwardly to lift or

maintain in raised position the associated harness frame.

The matter thus far described is of common construction and operates as does the usual 5
dobby. It is found as a result of heavy loading of the dobbie that the knives have a tendency to move endwise or laterally with respect to the hooks 17 and 18. This is particularly true at the ends of the stroke as will be seen from Fig. 5 10
where position *a* represents the knife as inclined rearwardly and toward the center of the loom at the beginning of its working stroke, the upper part of Fig. 5 being toward the rear of the loom. Position *b* shown in dotted lines represents an 15
intermediate position of the knife when the same is substantially perpendicular to the hooks, while position *c* shown in dot and dash lines represents the end of the outward or working stroke of the knife at which time the latter is inclined rearwardly 20
and away from the center of the loom. Then the knives are in the position shown at *a* or *c* in Fig. 5 they are subjected to an end thrust because of their angular position, this thrust exerting side strains on the connectors *C* and also tending to 25
move the hooks against the racks 19.

In carrying my present invention into effect I provide guide means for the top and bottom knives so constructed as to provide a guide slot extending in a direction generally parallel to the 30
hooks and fit into said slot a lug or the like carried by the associated knife.

As shown in Figs. 1 and 2 the guide 50 for the upper knife has a slot 51 into which fits a depending lug 52 carried by the top knife. Guide 35
50 has inner and outer feet 53 and 54, respectively, which are secured to cross girts one of which is a part of the upper rack 19 and the other of which is provided for the purpose and designated at 55. These cross girts hold the guide 40
50 so that the slot 51 is substantially parallel to the working stroke of the knife *K*.

The guide for the lower knife is shown particularly in Figs. 3 and 4. As in the case of the upper knife there is a guide 60 similar to guide 45
50 and having a guide slot 61 to receive a lug 62 which, however, in this instance is not connected directly to the bottom knife. The guide 60 has inner and outer feet 63 and 64 which are connected to the lower rack 19 and an auxiliary 50
girt 65 provided for the purpose and extending between the side plates 10 and 11 and secured thereto.

In order to provide a mounting for the lug 62 I extend upwardly from each end of the lower 55
knife a boss 70 and bridge said bosses by a cross bar 71 secured to the bosses and having the lug 62 secured thereto. The cross bar 71 is sufficiently high to permit the necessary vertical motion of the lower hooks 18 under action of the 60
pattern mechanism not shown.

In operation, the guide slots 51 and 61 are preferably located half way between and parallel to the side frames 10 and 11. As the knife starts from the position *a* in Fig. 5 the lug 52 or 62, 65
depending upon which knife is rearmost, will be at the inner end of the slot, and as the knife moves outwardly on its working stroke in a direction substantially parallel to the frames 10 and 11 it will change its angular position, passing through the position *b* and ultimately reaching the position of *c*. Through practically the whole of this motion the lugs move in the guide slots and prevent substantial end motion of the knives with the result that the strains exerted 70
between the hooks and the knives due to the

angular position of the latter are not permitted to reach the connectors 25.

From the foregoing it will be seen that I have provided a loom dobbie with guides for the knives so constructed as to prevent substantial end motion of the knives in a direction transverse of the hooks. It will further be seen that these guides may preferably lie intermediate the side plates 10 and 11 and include slots parallel to the working stroke of the knives and proportioned to 10
receive lugs or the like moving with the knives and cooperating with the guides to prevent said end motion of the knives, preferably throughout the stroke of the knives.

Having thus described my invention it will be 15
seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is: 20

1. In a loom dobbie having spaced substantially parallel side frames, a set of hooks between and substantially parallel to said frames, a knife supported by and movable along the frames, means to move said knife in a direction substantially 25
parallel to said hooks and at the same time change the angular relation of said knife relatively to the hooks, and a pair of cooperating members to resist endwise motion of the knife laterally of the hooks, one of said members having a slot substantially parallel to the side frames to receive the other member, one member being fixed to the knife and the other member being fixed with respect to the dobbie.

2. In a loom dobbie having spaced substantially 35
parallel side frames, a set of hooks between and substantially parallel to said frames, a knife supported by and movable along the frames, means to move said knife in a direction substantially parallel to said hooks and at the same time change the angular relation of said knife 40
relatively to the hooks, and a pair of members cooperating with each other continuously throughout the motion of the knife to prevent endwise motion thereof in a direction transverse of the hooks, one of said members having a slot substantially parallel to the side frames to receive the other member, one of said members being fixed with respect to the frames.

3. In a loom dobbie having spaced substantially 50
parallel side frames, a set of hooks between and substantially parallel to said frames, a knife supported by and movable along the frames, means to move said knife in a direction substantially parallel to said hooks and at the same time change the angular relation of said knife 55
relatively to the hooks, and a pair of cooperating members to prevent substantial endwise motion of the knife in a direction transverse of the hooks, one of said members carried by the knife and the other of said members supported by the frames, and one of said members having a slot which remains substantially parallel to the side frames throughout the motion of the knife and 60
receives the other member.

4. In a loom dobbie having spaced substantially 70
parallel side frames, a set of hooks between and substantially parallel to said frames, a knife supported by and movable along the frames, means to move said knife in a direction substantially parallel to said hooks and at the same time change the angular relation of said knife relatively to the hooks, a guide located between the side frames, and a second guide on the 75

knife located between the side frames, one of said guides having a slot substantially parallel to the side frames into which the other guide fits, said guides cooperating with each other to prevent substantial endwise motion of the knife laterally of the hooks as said knife moves.

5 5. In a loom dobby having spaced substantially parallel side frames, a set of hooks between and substantially parallel to said frames, a knife supported by and movable along the frames, means to move said knife in a direction substantially parallel to said hooks and at the same time change the angular relation of said knife relatively to the hooks, a guide located between the side frames and having a guide slot substantially parallel to said frames, and a member formed on the knife to enter the slot and cooperate with said guide to resist motion of the knife laterally with respect to the hooks as said knife moves.

6. In a loom dobby having spaced substantially parallel side frames, a set of hooks between and substantially parallel to said frames, a knife supported by and movable along the frames, means to move said knife in a direction substantially parallel to said hooks and at the same time change the angular relation of said knife relatively to the hooks, a guide fixed with respect to the dobby and having therein a guide slot located between and substantially parallel to the side frame, and a member projecting from the knife in a direction transverse of the plane in which the knife moves to enter said slot and cooperate with said guide to prevent endwise motion of the knife transversely of the hooks.

RICHARD G. TURNER.