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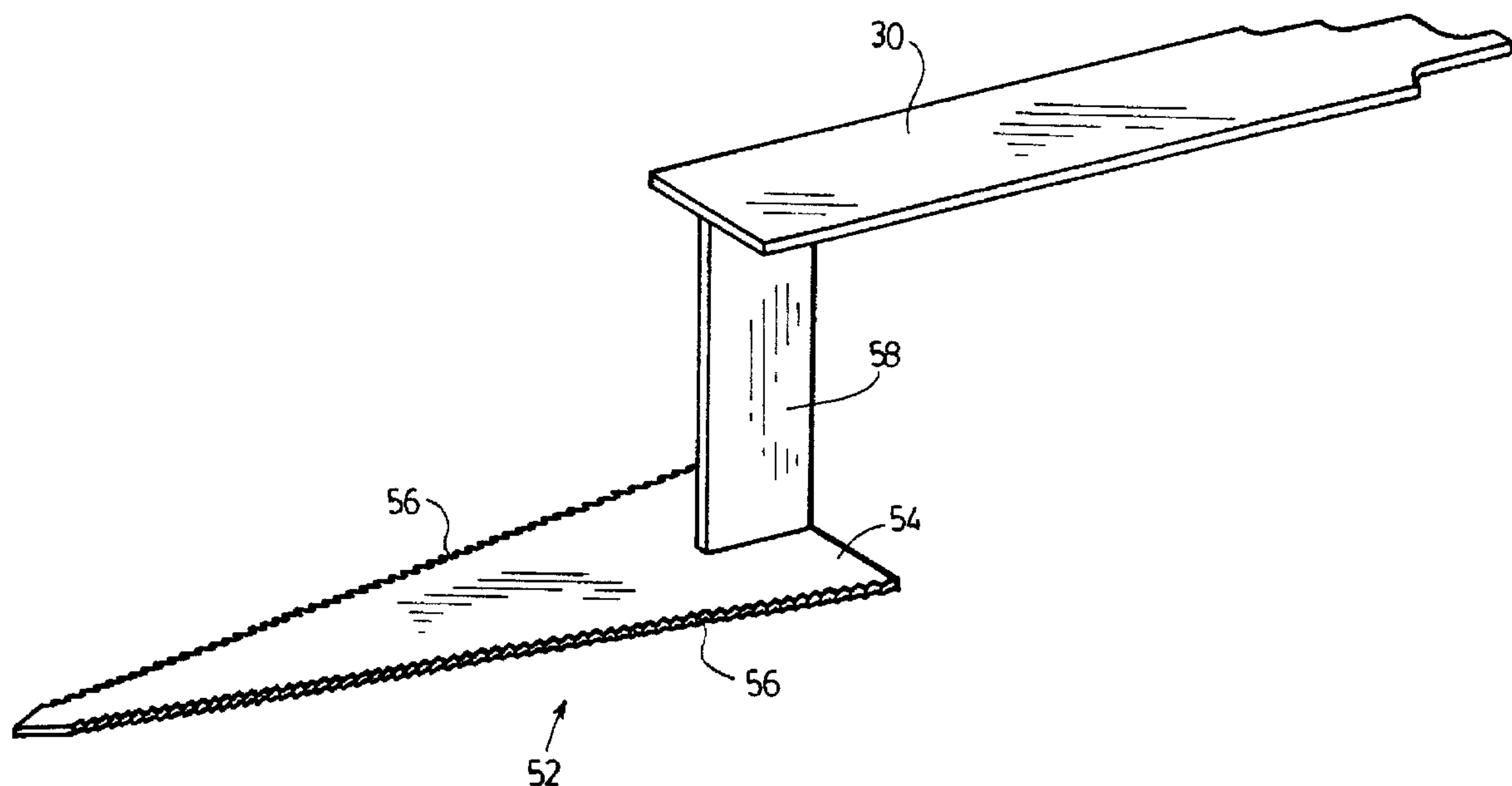
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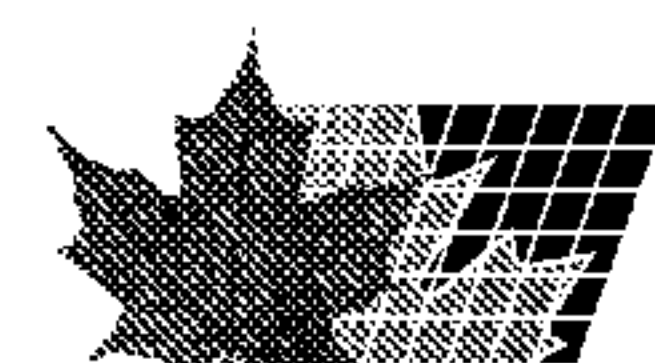
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(54) Title: A RECIPROCATABLE SAW BLADE AND MOTOR ASSEMBLY



(57) Abrégé/Abstract:

A reciprocable saw blade and motor assembly comprising: (a) a reciprocable saw blade having (i) a planar body having a blade reciprocating axis; and (ii) at least one cutting edge on the body; and a blade connecting member; and (b) a motor having a housing and reciprocable shaft having a shaft reciprocating axis and cooperable with the blade connecting member as to operably effect reciprocation of the saw blade; the improvement wherein the blade reciprocating axis and the shaft reciprocating axis are non co-axial. The saw blade can advantageously cut flush adjacent an object when desired.



ABSTRACT OF THE DISCLOSURE

A reciprocable saw blade and motor assembly comprising: (a) a reciprocable saw blade having (i) a planar body having a blade reciprocating axis; and (ii) at least one cutting
5 edge on the body; and a blade connecting member; and (b) a motor having a housing and reciprocable shaft having a shaft reciprocating axis and cooperable with the blade connecting member as to operably effect reciprocation of the saw blade; the improvement wherein the blade reciprocating axis and the shaft reciprocating axis are non co-axial. The saw blade can advantageously cut flush adjacent an object when desired.

5 A RECIPROCATABLE SAW BLADE AND MOTOR ASSEMBLY

FIELD OF THE INVENTION

10 This invention relates to a reciprocable saw blade and motor assembly of use in
sawing articles, particularly, wood, plastics, drywall, metal and the like, in the construction
and renovation industries.

BACKGROUND TO THE INVENTION

15 Reciprocating saws comprising a saw blade and motor assembly are of extensive use
as regular saws and jigsaws in the construction and renovation industries. However, the
width of the motor body, generally the housing, but may also include the handle gripped by
the hand of the operator, prevents the blade from cutting an article flush or desirably close to
20 a desired vertical or horizontal surface, such as for example, a floor wall and ceiling. This
causes operators, such as carpenters, plumbers, electricians and the like, to waste time, effort
and expense to remove structural elements such as, for example, moldings to correct a
problem or amend a structure as desired.

 Further, typical reciprocating saw operators tend to bend operating blades in striving
25 to achieve a flush-like cut. This is hazardous because the blade can easily snap and produce
injuries.

 There is, therefore, a need for a reciprocating blade and motor assembly which does
not suffer from the aforesaid disadvantages of not being able to produce a cut flush with an
intended object.

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SUMMARY OF THE INVENTION

 It is an object of the present invention to provide a reciprocable saw blade and
motor assembly that allows of a cut that is flush adjacent a desired object.

35 It is a further object to provide a saw blade of use in the aforesaid assembly.

 Accordingly, in one aspect, the invention provides a reciprocable saw blade and
motor assembly comprising:

- (a) a reciprocable saw blade having
 - (i) a planar body having a blade reciprocating axis;

(ii) cutting edge means on said body; and

blade connecting means; and

(b) a motor having a housing and reciprocable shaft means having a shaft reciprocating axis and cooperable with said blade connecting means as to operably effect reciprocation of said saw blade; the improvement wherein said blade reciprocating axis and said shaft reciprocating axis are non co-axial.

Preferably, the invention further comprises an intervening member having an intervening length and connecting said planar body to said blade connecting means at a subtended angle as to cause said blade reciprocating axis and said shaft reciprocating axis to be non co-axial.

Preferably, the invention provides an assembly as hereinabove defined wherein said planar body, said intervening member and said blade connecting means are integrally formed.

The blade reciprocating axis and the shaft axis preferably subtend an angle α° selected from $45 - 135^\circ$, more preferably, $70 - 110^\circ$, and still more preferably 90° .

Although the advantages of the assembly according to the invention can be otherwise achieved to some degree, it is most preferred that the blade reciprocating axis does not pass through the motor, handle, associated fittings and the like assembly.

A preferred blade has a planar body which preferably is triangular, elongate or of other suitable shape.

The cutting edge of the blade preferably comprises said cutting edge means comprises a row of serrated or tooth saw teeth on at least one edge of said body.

Preferably, the blade comprises rows of teeth on both edges of the blade.

In a further embodiment, the invention provides an assembly as hereinabove defined wherein the plane of said planar saw blade is non-planar with the plane of said motor, which motor plane is operably perpendicular to the member being sawed. The motor plane is preferably operably vertical or horizontal.

In a further aspect, the invention provides a saw blade of use in the assembly as hereinabove defined.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be better understood, preferred embodiments will now be described by way of example only, with reference to the accompanying drawings, wherein

Fig. 1 is a diagrammatic side view of a saw blade and assembly according to the prior art;

Fig. 2 is a diagrammatic side view of a saw blade and motor assembly according to the invention;

5 Fig. 3 is a perspective view of a saw blade according to the invention;

Figs. 4A and 4B are diagrammatic side views, in part, of a saw blade and motor assembly showing sub-headed angles α° of embodiments according to the invention;

Fig. 5 is a diagrammatic vertical side view of a saw blade according to the invention as a jigsaw blade for use with a jigsaw motor, in an operable mode;

10 Fig. 6 is a diagrammatic vertical side view of a saw blade and motor assembly 70 according to the invention having an angled saw blade;

Figs. 7A, 7B and 7C are front vertical views of a saw blade and motor assembly according to the prior art (7A) and to the invention (7B; 7C), respectively; and wherein the same numerals denote like parts.

15 Fig. 1 shows generally as 10 a reciprocable hand-held saw blade and motor assembly for use in cutting upright wood wall stud 12 adjacent a floor 14. Assembly has an electric motor 16 and reciprocable saw blade 18 held by bayonet fitting engagement in motor 16 having standard reciprocating means (not shown). Motor 16 has a housing 20 with handle 22, gripped by hand 24, and which provides this prior art assembly with a vertical
20 width sufficient to prevent blade 18 when parallel to floor 14 of cutting stud 12 at adjacent floor level. Saw blade 18 has a planar body 26 having a cutting edge 28 and connecting member 30 held in reciprocable engagement by aforesaid bayonet fitting 32 to a reciprocable shaft 34 within motor housing 20.

In this embodiment, blade 18 has a reciprocating axis B – B' and shaft 34 has a
25 reciprocable axis S – S' wherein axes B – B' and S – S' are co-axial.

Fig. 2 shows generally as 50 an assembly having a reciprocable saw blade 52 having a planar body 54, a cutting edge 56 and blade intervening member 58 integrally connected to blade connecting member 30.

In this embodiment, blade reciprocating axis B – B' is parallel to but not co-axial with
30 shaft reciprocating axis S – S' and so separated at a sufficient distance one axis from the other that axis B – B' clears and does not pass through motor 16 or handle 22. In this specification, the term “does not pass through the motor” includes any handle, housing,

fitting or other protrusion associated with the motor per se that does not impede, interfere or cut the B – B' axis.

In more detail, Fig. 3 shows saw blade 52 as a triangular-shaped planar body 54 housing double cutting edges 56 and intervening elongate rectangular planar member 58 integrally formed perpendicularly with elongate rectangular planar blade connecting member 30. Since the reciprocating axis M – M' of member 30 is co-axial with shaft reciprocating axis S – S', the blade reciprocating axis B – B' and shaft reciprocating axis S – S' subtend an angle of 90°. Figs. 4A and 4B show a practical range of subtended angles ranging from 45 – 135°.

Distance "D" between body 52 and connecting member 30 which is determined by the length of intervening member 58 and subtended angle α° , may be selected as desired, but most preferably, for maximum benefit if sufficient for axis B – B' to clear motor 16. Clearly, some benefit of the invention is gained even if full clearance is not possible, provided non-axial alignment is present.

Fig. 5 shows saw blade 52 positioned in a vertical alignment for use in a jigsaw position. Arrows R denote the vertical reciprocable direction.

In alternative embodiments, with reference to Fig. 6, the assemblies as hereinabove described and defined, may be modified for planar blade 54, while B – B' is non-axial with shaft reciprocating axis S – S', to provide an angle β° between the plane H – H' of motor 16, typically parallel to the adjacent surface F – F' of, for example, the floor, ceiling, wall or like areas, and the planar plane of blade 54.

Figs. 7A, 7B and 7C illustrate the comparative features between prior art and invention embodiments, respectively. The relative alignment of reciprocating blade 58 and its edge 28 to the shaft reciprocating axis, i.e. angle β° , allows for a more controlled angled cut.

Although this disclosure has described and illustrated certain preferred embodiments of the invention, it is to be understood that the invention is not restricted to those particular embodiments. Rather, the invention includes all embodiments which are functional or mechanical equivalents of the specific embodiments and features that have been described and illustrated.

Claims:

1. A reciprocable saw blade and motor assembly comprising:
 - 5 (a) a reciprocable saw blade having
 - (i) a planar body having a blade reciprocating axis;
 - (ii) cutting edge means on said body; and
 - blade connecting means; and
 - (b) a motor having a housing and reciprocable shaft means having a shaft
 10 reciprocating axis and cooperable with said blade connecting means as to operably effect reciprocation of said saw blade; the improvement wherein said blade reciprocating axis and said shaft reciprocating axis are non co-axial.
2. An assembly as defined in claim 1 further comprising an intervening member having an intervening length and connecting said planar body to said blade connecting means at a
 15 subtended angle as to cause said blade reciprocating axis and said shaft reciprocating axis to be non co-axial.
3. An assembly as defined in claim 2 wherein said planar body, said intervening member and said blade connecting means are integrally formed.
4. An assembly as defined in claim 2 or claim 3 wherein said blade reciprocating axis
 20 and said shaft reciprocating axis subtend an angle α selected from 45-135°.
5. An assembly as defined in claim 2 or claim 3 wherein said subtended angle α is selected from 70-110°.
6. An assembly as defined in claim 2 or claim 3 wherein said subtended angle α is selected from 90°.
- 25 7. An assembly as defined in any one of claims 2 to 6 wherein said blade reciprocating axis does not pass through said motor.
8. An assembly as defined in any one of claims 1 to 7 wherein said cutting edge means comprises a row of serrated or tooth saw teeth on at least one edge of said body.
9. An assembly as defined in claim 8 wherein each of both edges has a row of said teeth.
- 30 10. An assembly as defined in any one of claims 1 to 9 wherein said planar body is triangular.
11. An assembly as defined in any one of claims 1 to 9 wherein said planar body is elongate.

12. An assembly as defined in any one of claims 1 to 11 wherein the plane of said planar saw blade is non-planar with the plane of said motor, which motor plane is operably perpendicular to the member being sawed.

13. An assembly as defined in claim 12 wherein said motor plane is operably vertical or
5 horizontal.

14. A saw blade of use in an assembly as defined in any one of claims 1 to 13.

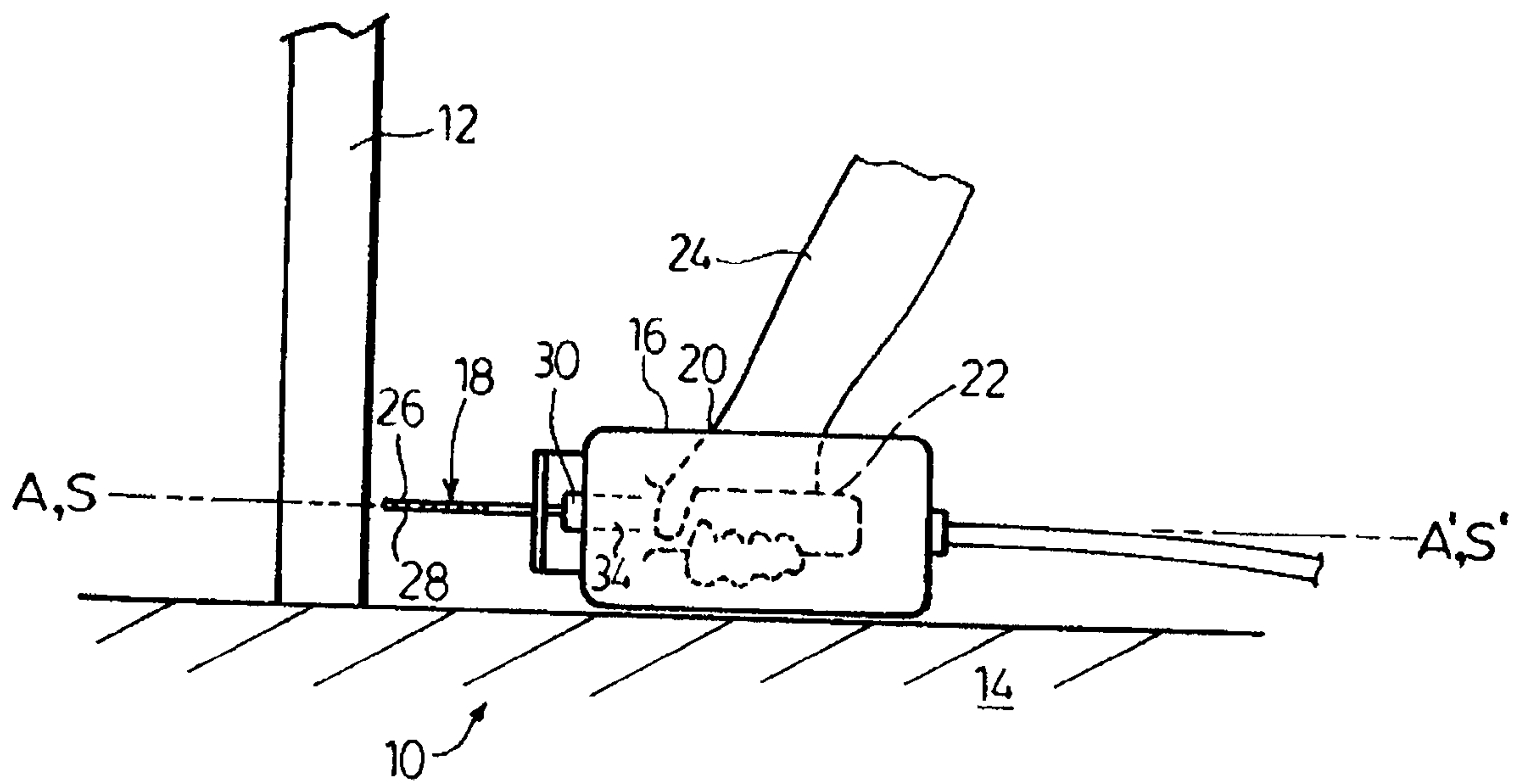


FIG. 1 (PRIOR ART)

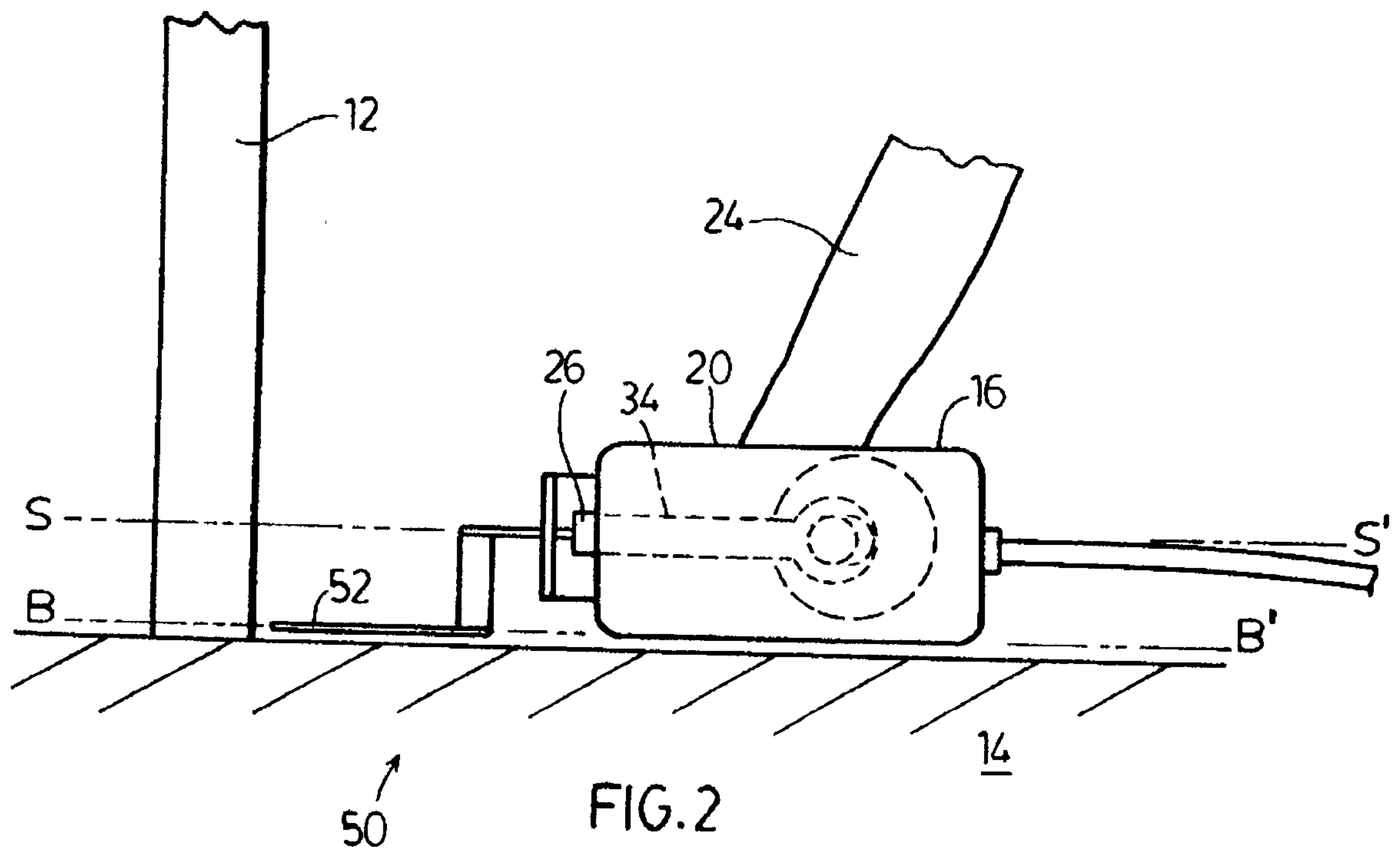
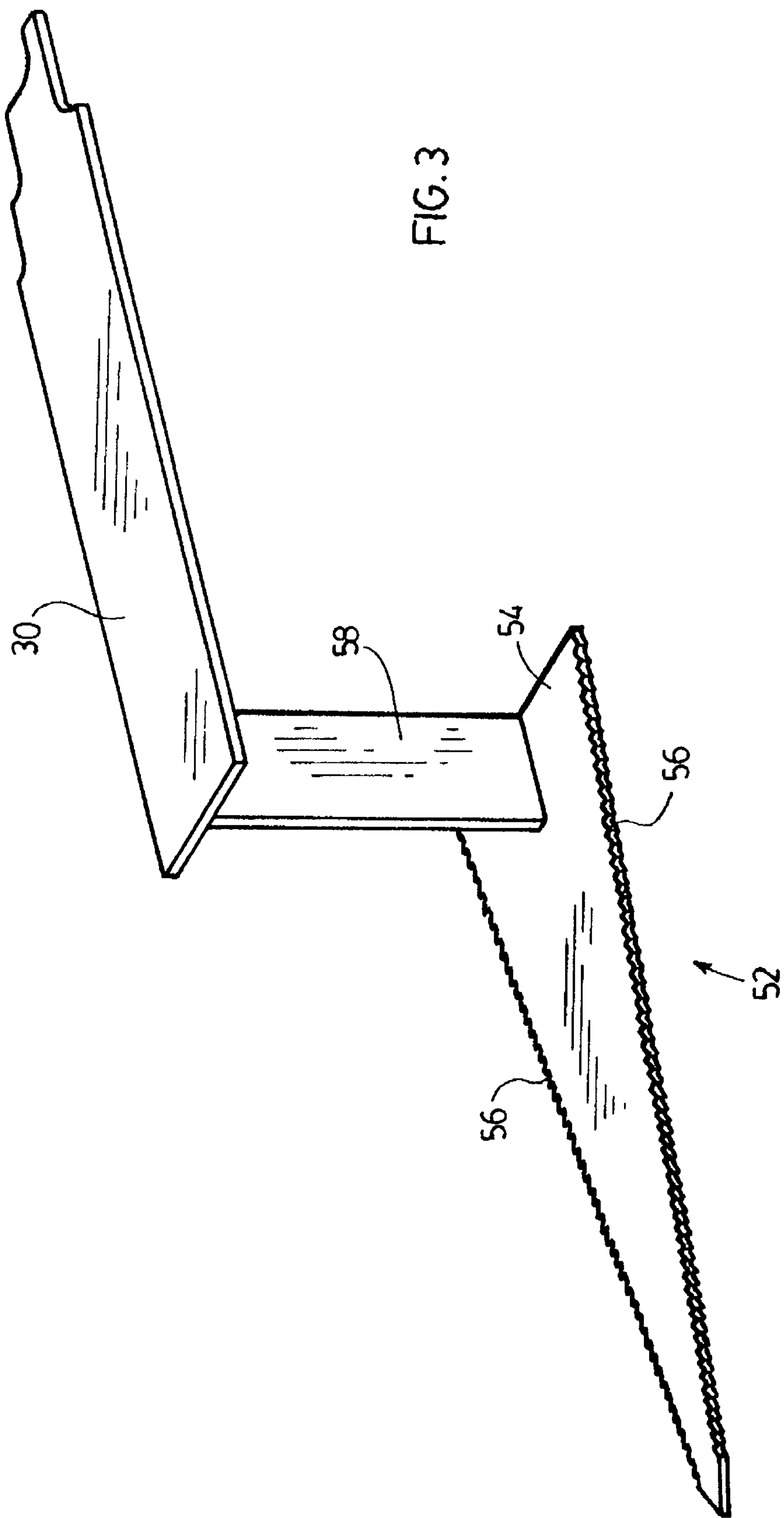


FIG. 2



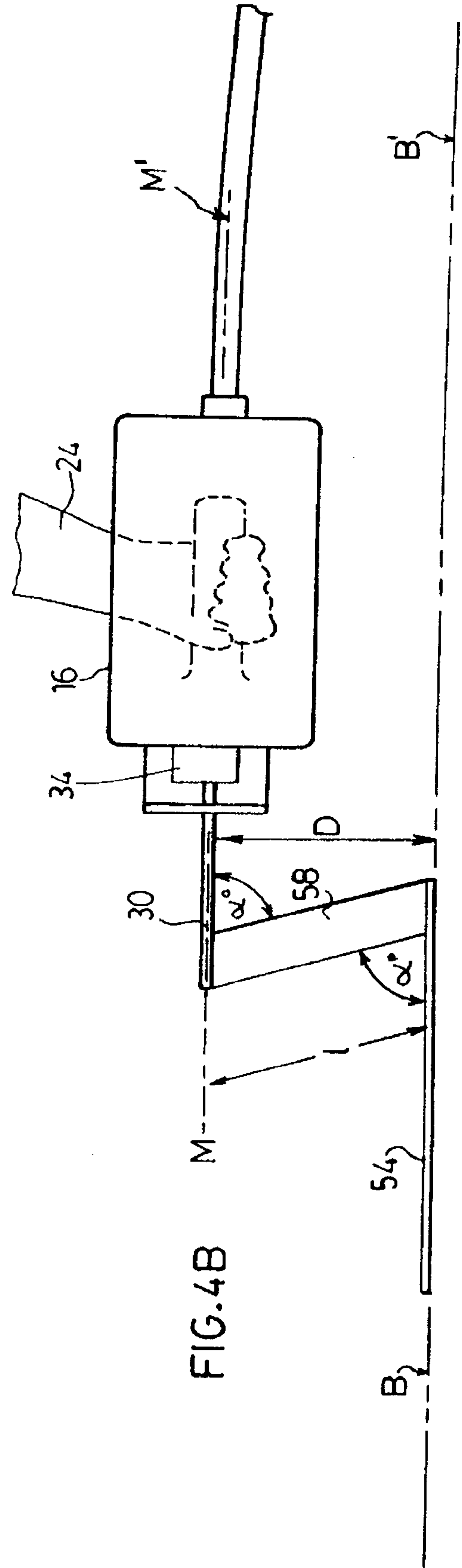
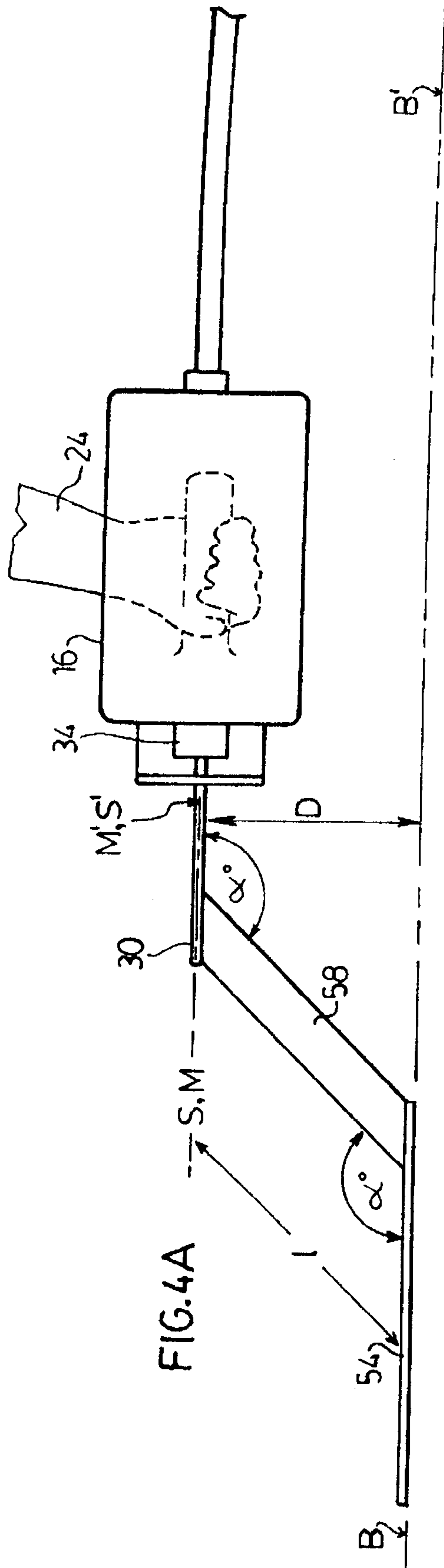
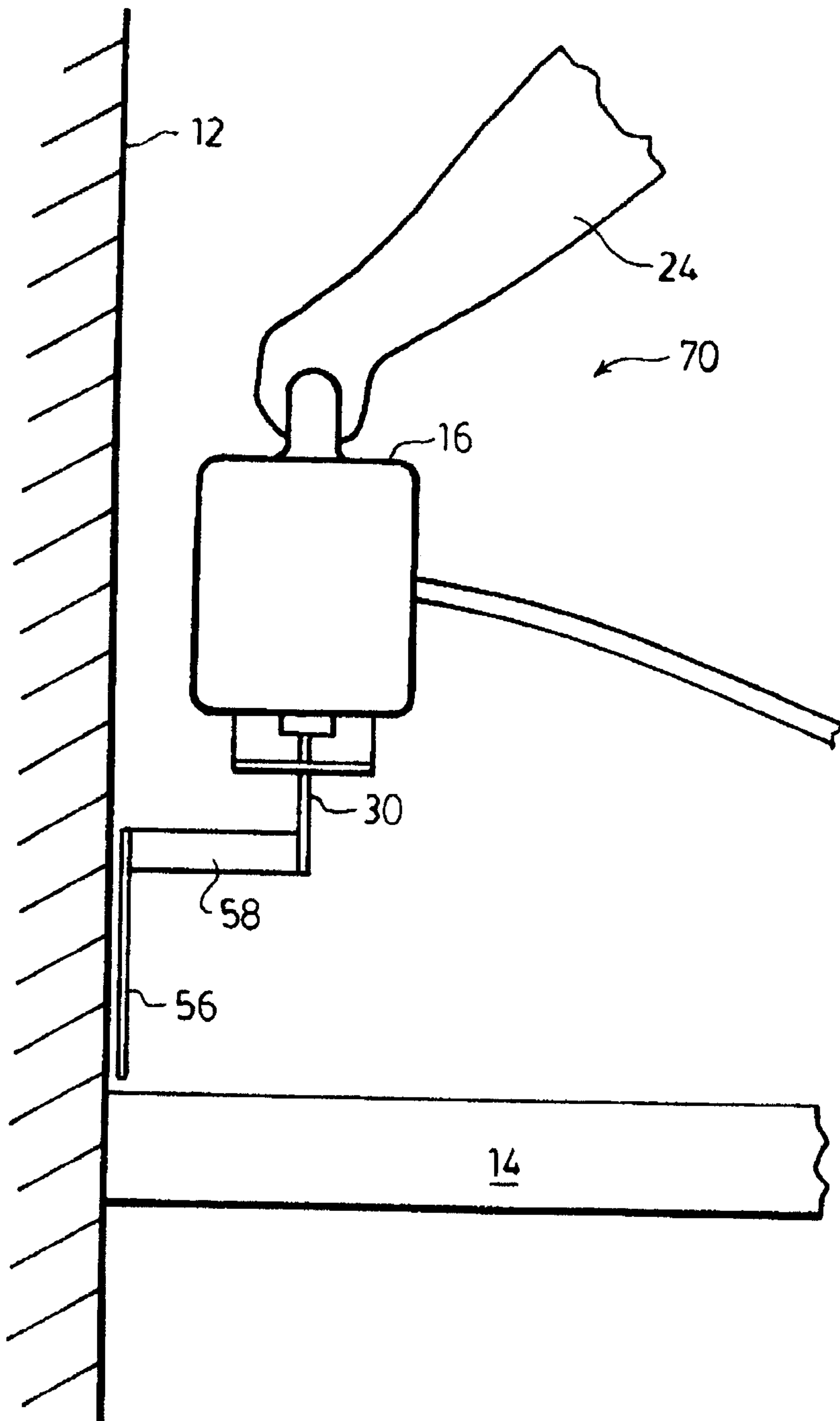


FIG. 5



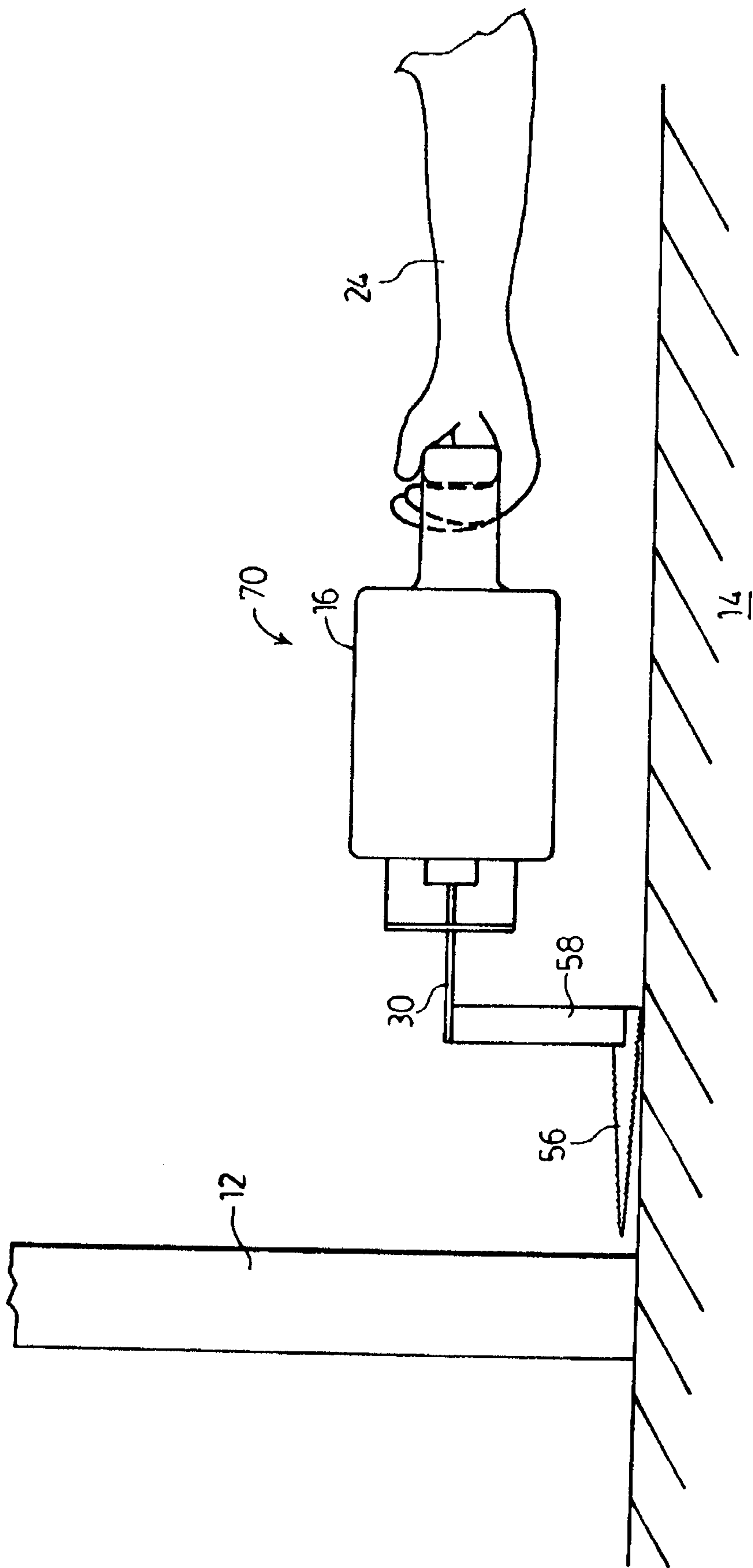


FIG. 6

