

No. 862,106.

PATENTED JULY 30, 1907.

F. P. RICHARDS.
FLOOR POLISHER.

APPLICATION FILED DEC. 16, 1905.

2 SHEETS—SHEET 1.

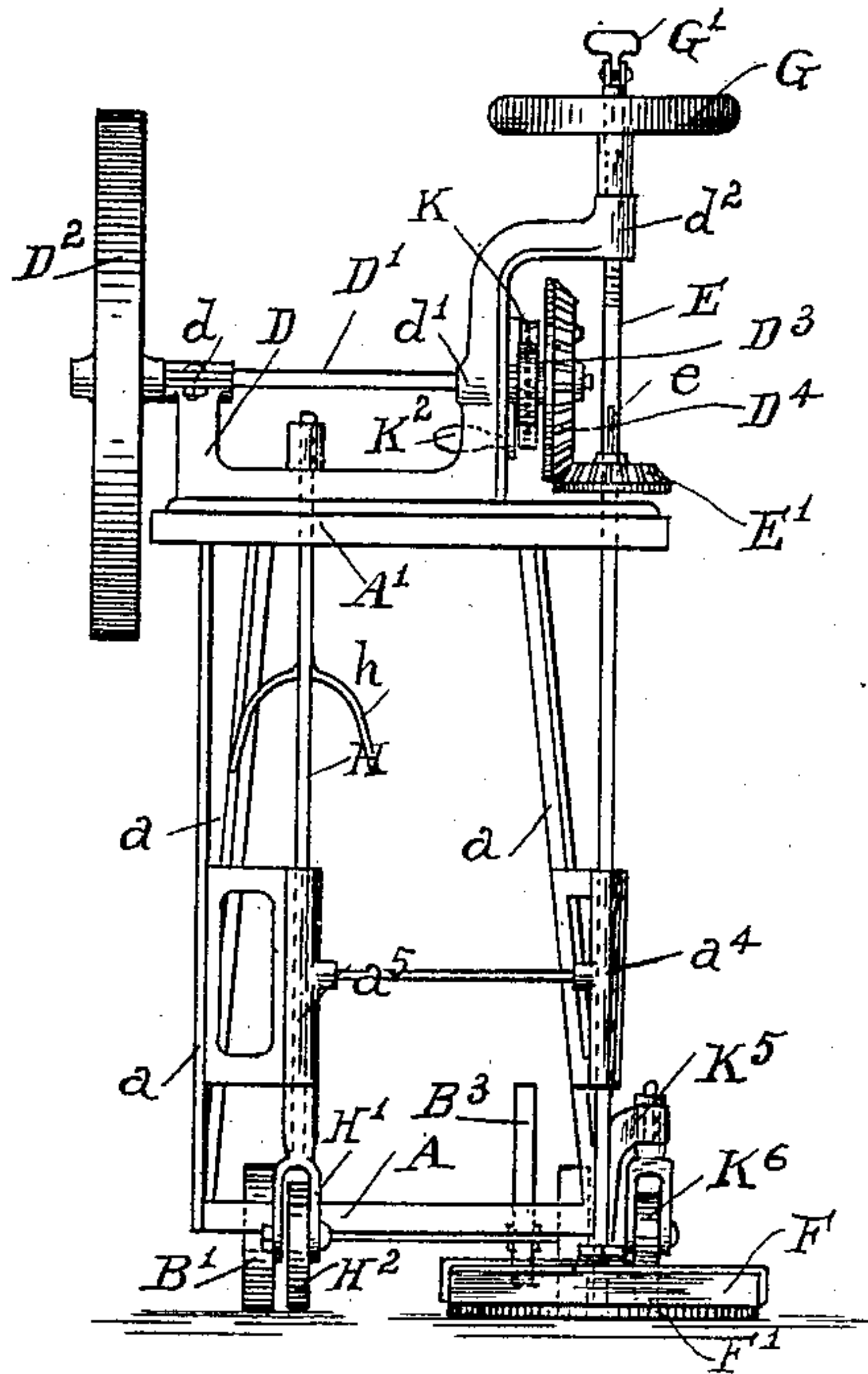


Fig. 1.

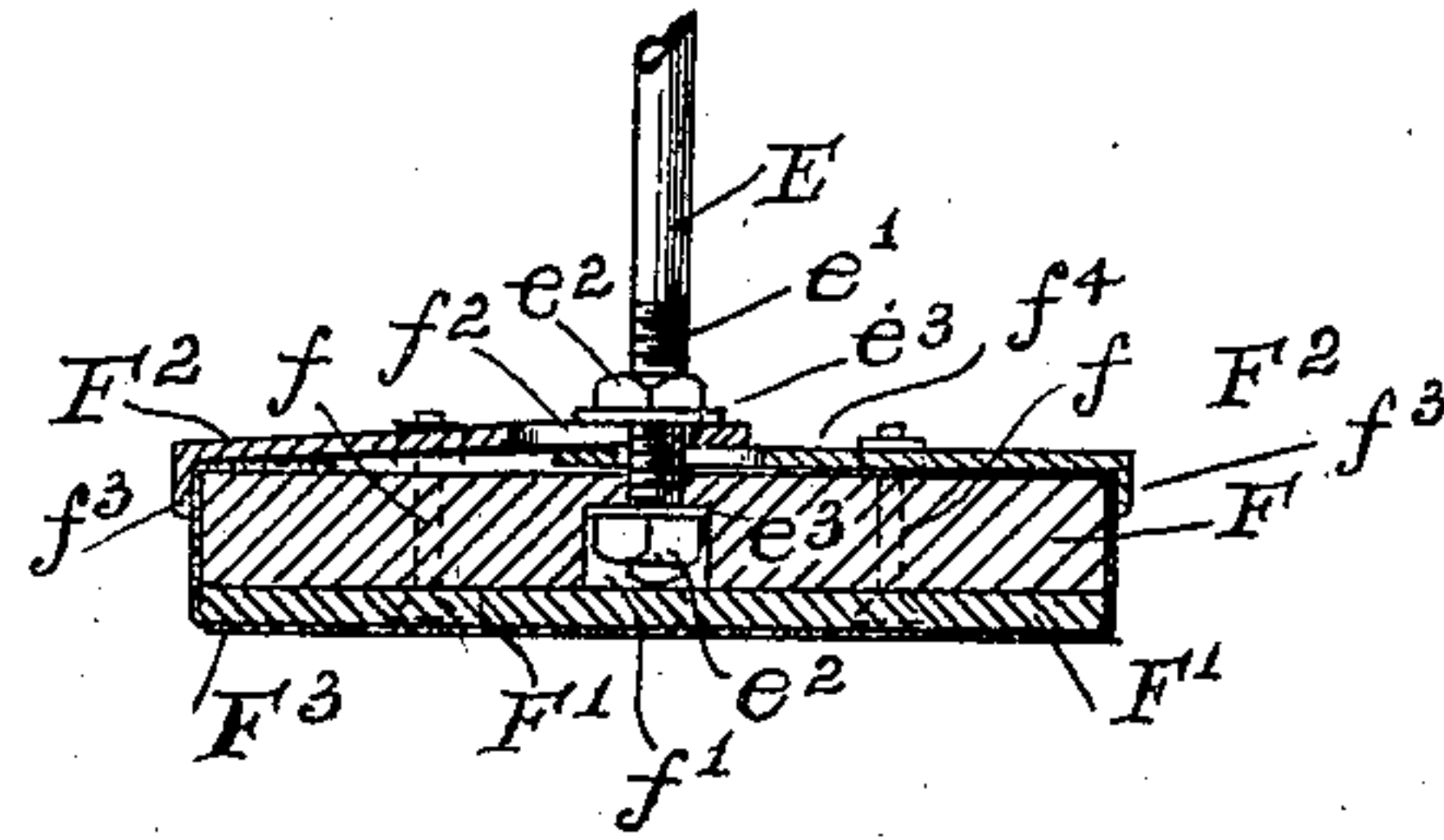


Fig. 6.

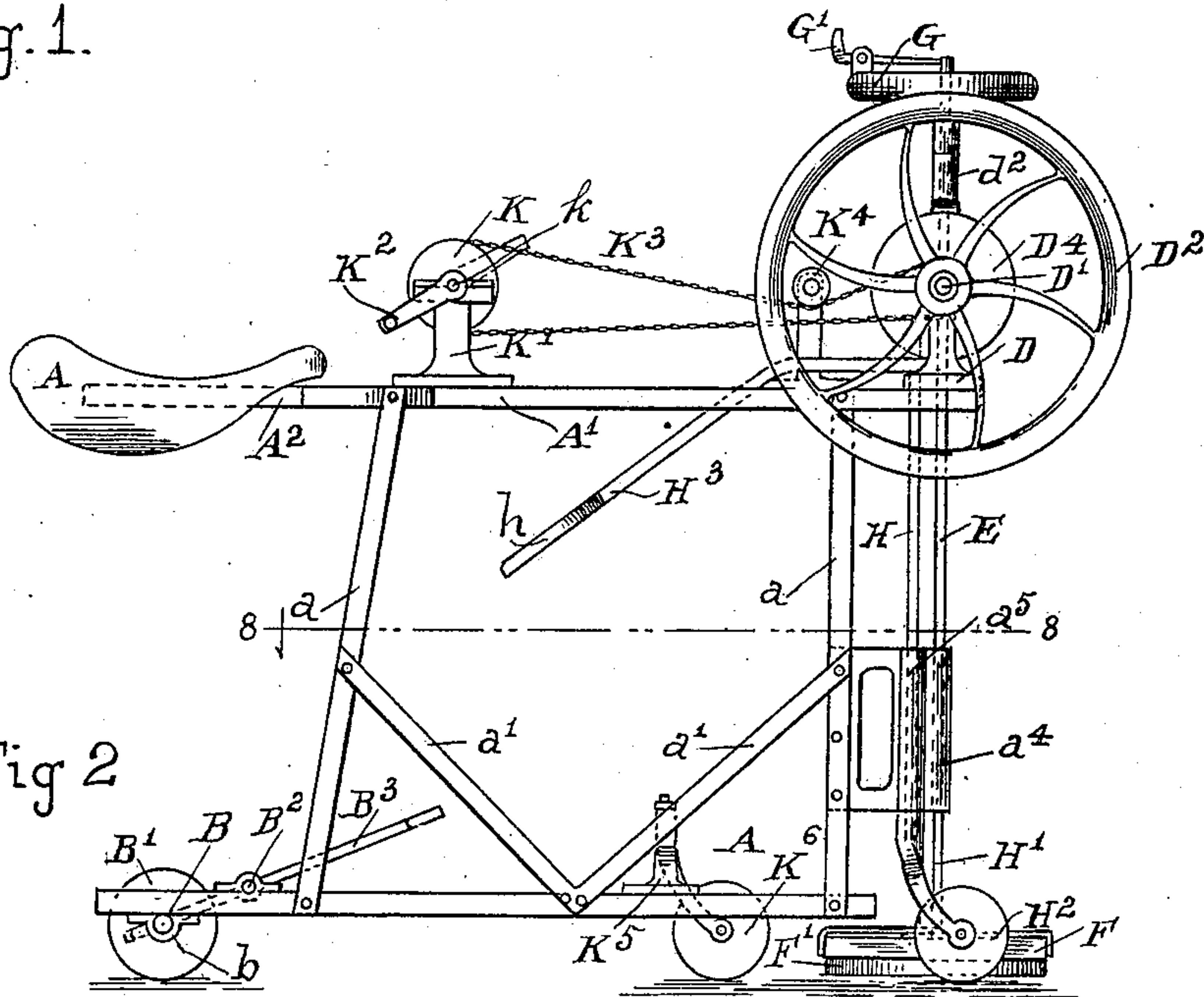


Fig 2

Witnesses.
Clara McKee.
James Lunsden.

Inventor.
FRANK P. RICHARDS.
By Atty N. DuBois.

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2 SHEETS—SHEET 2.

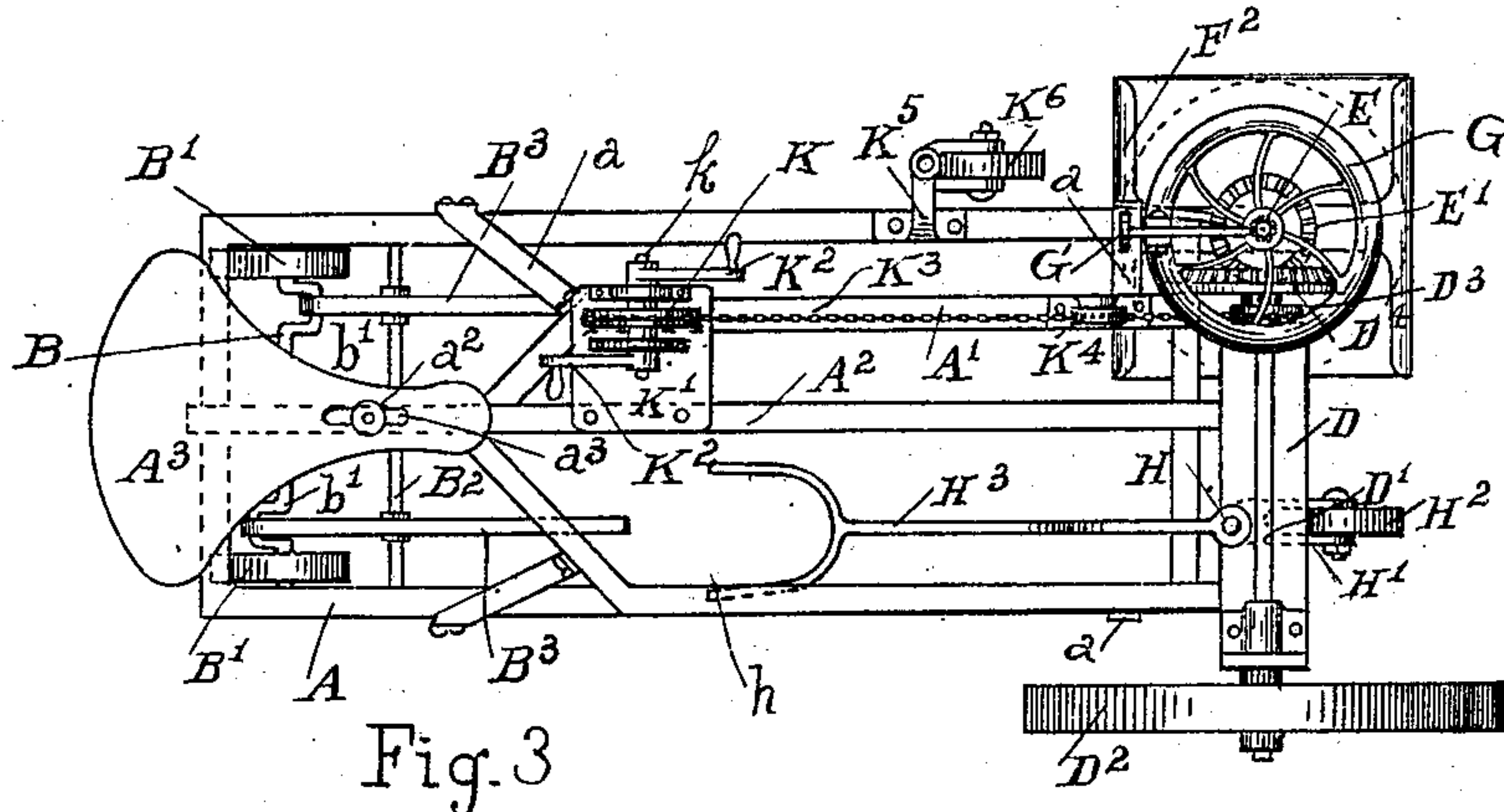


Fig. 3

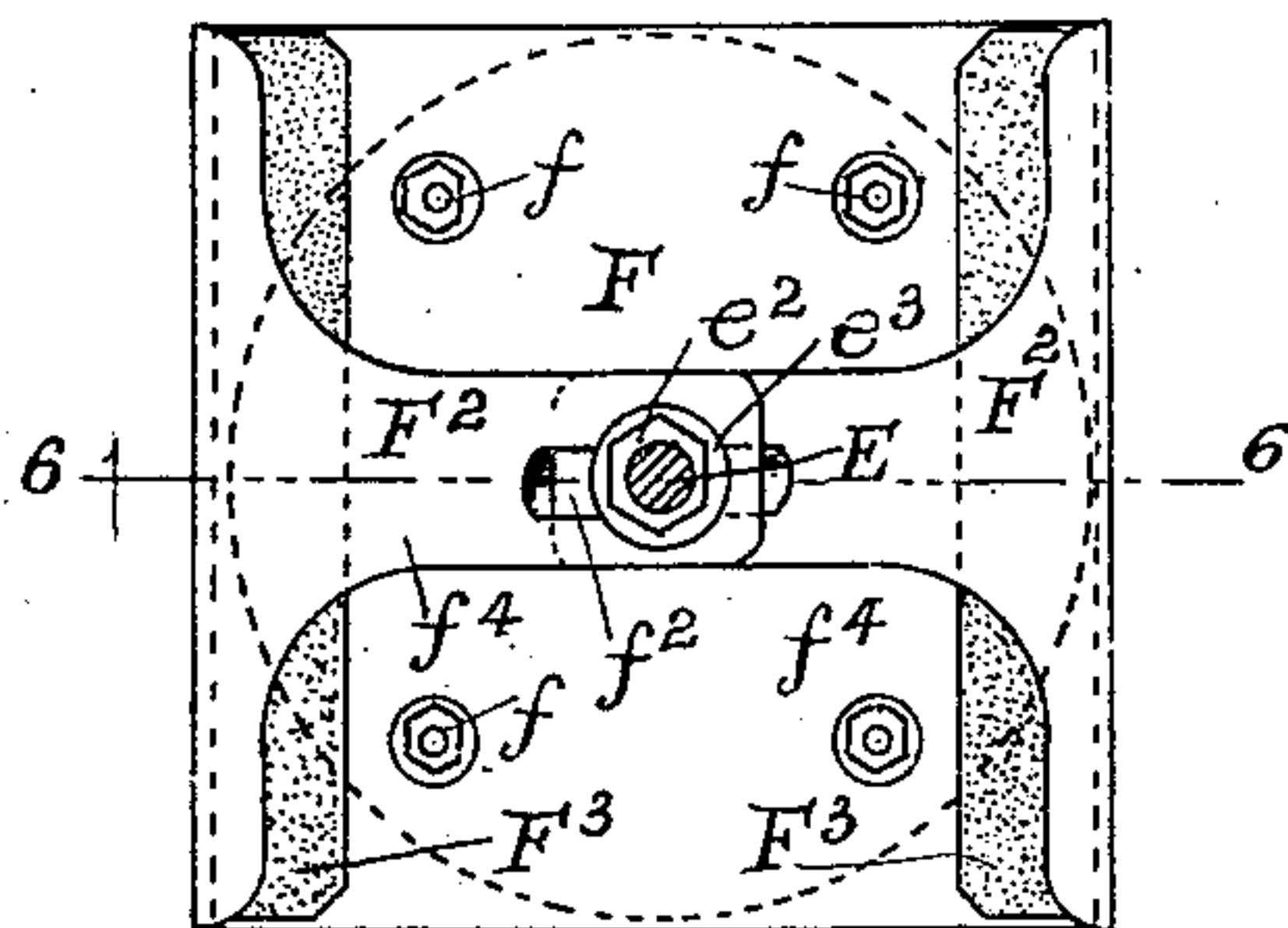


Fig. 4.

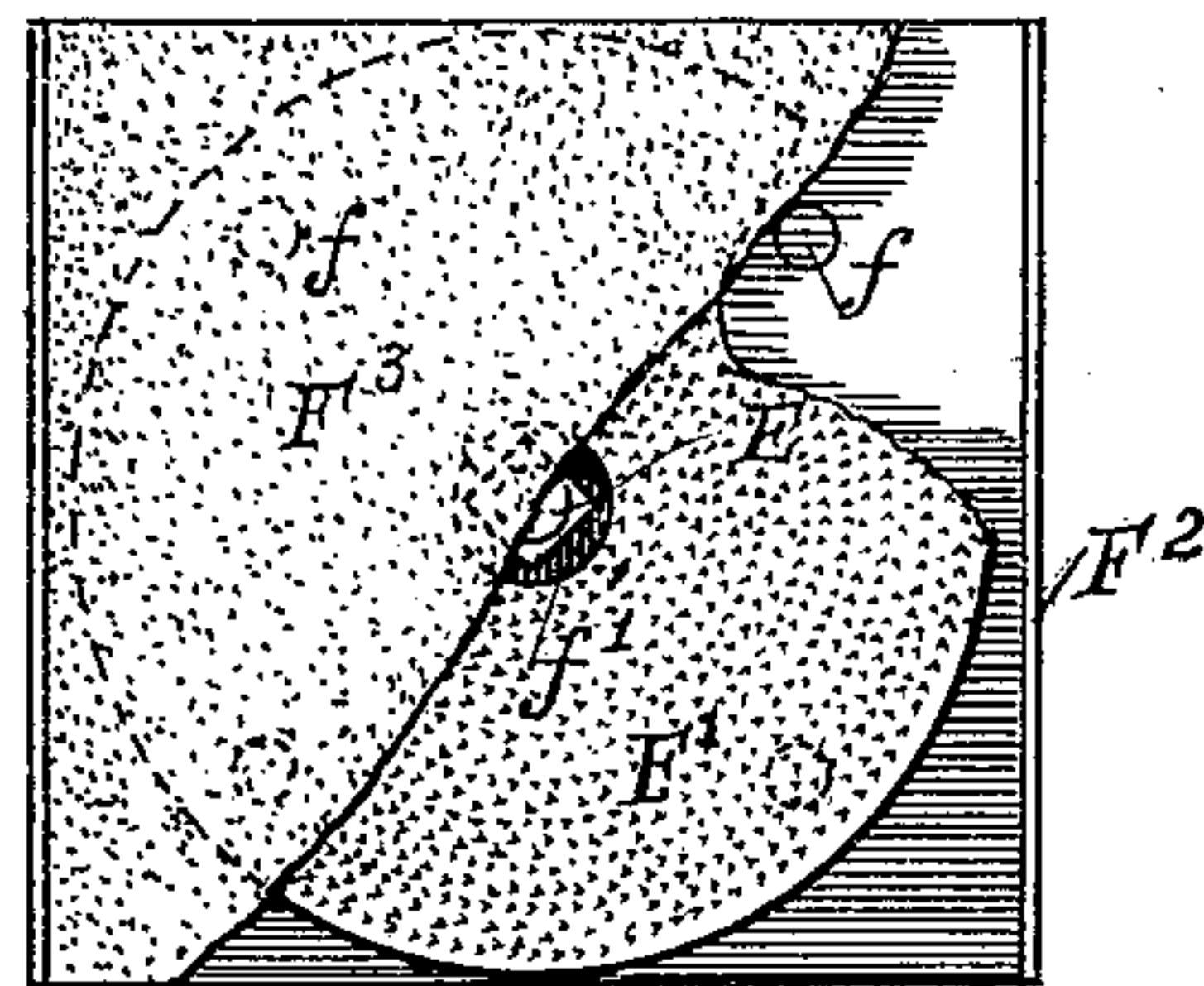


Fig. 5.

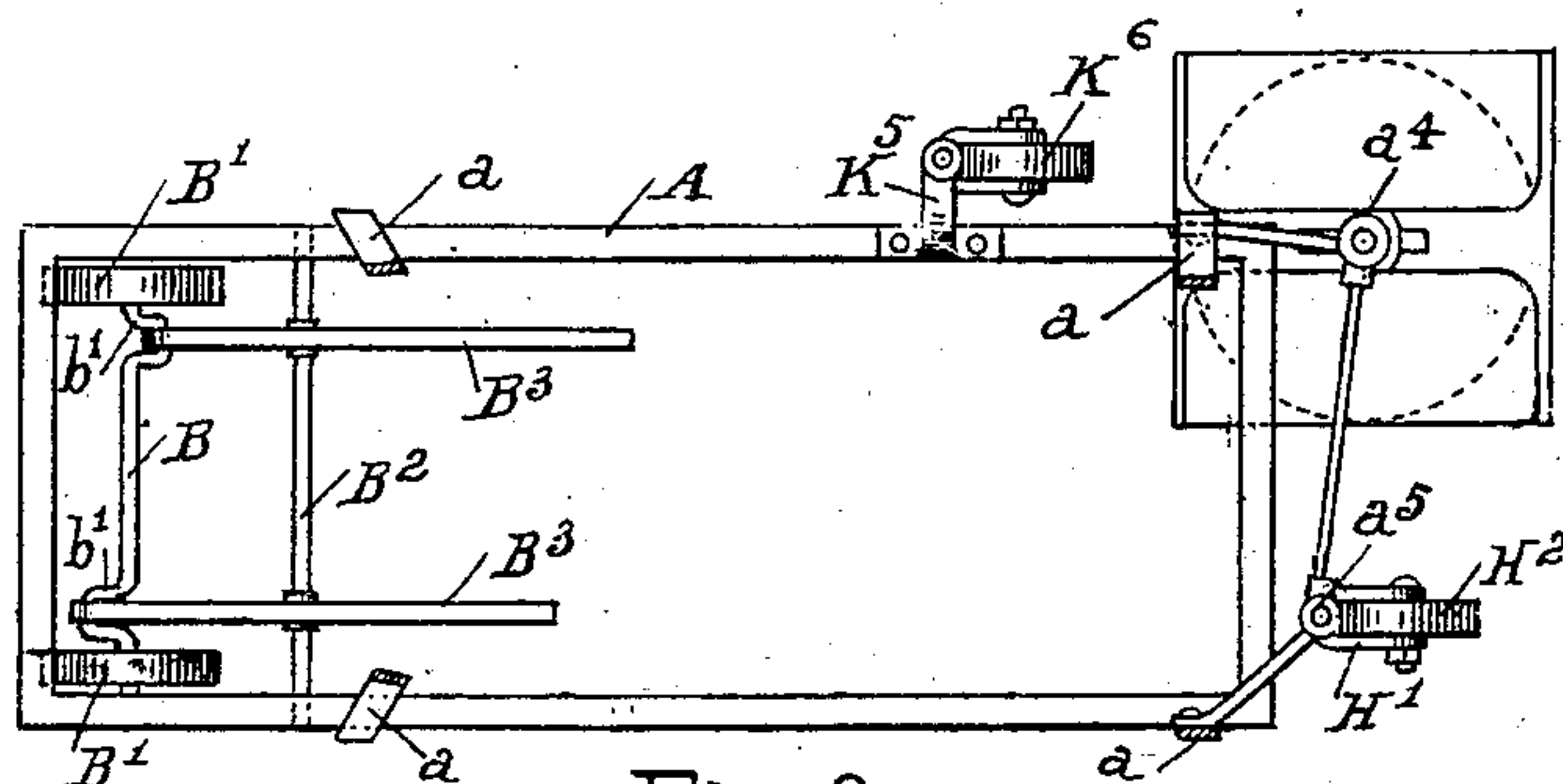


Fig. 8.

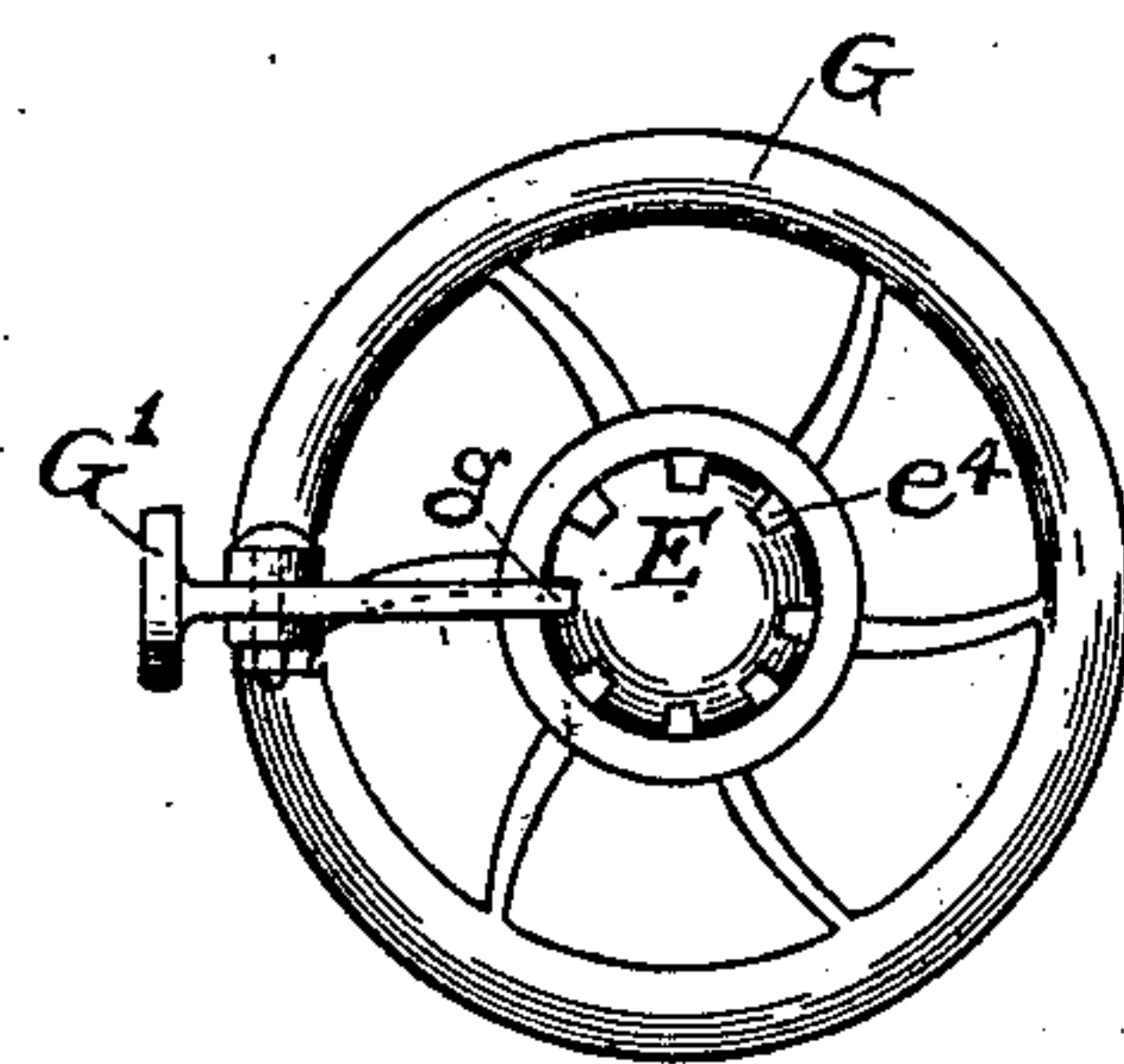


Fig. 7.

Witnesses.

Clara M. Kee.
James Linnock.

Inventor.

FRANK P. RICHARDS.
By Atty. N. DuBois.

UNITED STATES PATENT OFFICE.

FRANK P. RICHARDS, OF SPRINGFIELD, ILLINOIS.

FLOOR-POLISHER.

No. 862,106.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed December 16, 1905. Serial No. 292,021.

To all whom it may concern:

Be it known that I, FRANK P. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Floor-Polishers, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

My invention relates to machines of that class which are used to give a smooth and even finish and polish to wood floors.

The purposes of my invention are to provide a frame of light and rigid construction; to provide means enabling the operator seated on the machine, to propel the machine; to provide means for guiding the movement of the machine; to provide a grinding and polishing wheel of improved construction; to provide simple and effective means for detachably connecting with the grinding wheel sand paper crocus cloth or other finishing or polishing material used on the grinding wheel; to provide means for vertical adjustment of the grinding wheel and to provide means for preventing accidental vertical displacement of the grinding wheel.

With these ends in view my invention consists in the novel features of construction and combinations of parts shown in the annexed drawings to which reference is hereby made and hereinafter particularly described and finally recited in the claim.

Referring to the drawings Figure 1 is an end elevation of the machine; Fig. 2 is a side elevation; Fig. 3 is a top plan of the machine; Fig. 4 is an enlarged top plan of the grinding wheel; Fig. 5 is an enlarged bottom plan of the grinding wheel; Fig. 6 is a vertical section on the line 6 6 of Fig. 4. Fig. 7 is a top plan of the hand wheel and Fig. 8 is a horizontal section on the line 8, 8, of Fig. 2.

Similar reference letters designate like parts in the several views.

The main structure which is preferably of bar iron consists of a rectangular lower frame A an upper frame A¹ (of substantially the form shown in Fig 3); uprights a connecting the frame A¹ with the frame A and braces a¹ connecting the uprights with the frame A. A shaft B turns in bearings b on the frame A and has double cranks b¹. Wheels B¹ on which the rear part of the machine is supported are secured on the shaft B. A stationary shaft B² extends across the frame A. Pedals B³ oscillate on the shaft B² and the ends of the pedals are connected with the cranks b¹. A bar A² is secured on and extends lengthwise of the frame A¹. A seat A³ is connected with the bar A² by a bolt a² fitting in a slot a³ in the seat. The seat may be adjusted on the bar A² by loosening the nut of the bolt a² and then sliding the seat forward or rearward as

may be desired and then screwing down the nut to hold the seat in position.

A base plate D extends transversely across the front end of the frame A¹ and is secured thereon and has integral upwardly projecting standards having bearings d and d¹ in which the horizontal shaft D¹ turns and a bearing d² in which the vertical shaft E turns. A fly wheel D², a sprocket wheel D³ and a beveled cog wheel D⁴ are secured on the shaft D¹. A beveled cog pinion E¹ meshes with and is driven by the cog wheel D⁴.

The shaft E has a longitudinal groove e in which a stationary pin on the pinion E¹ fits so that the shaft will turn with the pinion and will also move up and down through the pinion. The grinding and polishing wheel F is secured at the lower end of the shaft E as hereinafter explained. The shaft E turns and slides in a bearing a⁴ secured on one of the uprights a. The upper part of the shaft E is screw threaded and fits in a female screw in the hub of the hand wheel G, so that by turning the hand wheel to the right or left the shaft E may be raised or lowered as the case may be. A vertical shaft H turns in a bearing in the plate D and a bearing a⁵ on one of the uprights a. A yoke H¹ is secured on the shaft H. A wheel H² turns in the fork of the yoke H¹. A lever H³ secured on the shaft H extends downwardly in such position that the operator may move the lever to the right or left by placing his knee in the fork h at the lower end of the lever and may thereby turn the shaft H to guide the movements of the machine as he may wish. A sprocket wheel K is secured on a shaft k which turns in bearings on a stationary standard K¹ on the frame A¹. Cranks K² are secured on a shaft k and served to turn the sprocket wheel. A sprocket chain K³ connects the wheel K with the wheel D³. The chain K³ runs under a tightener K⁴.

The grinding and polishing wheel consists of a rectangular plate F preferably of wood and a steel disk F¹ secured on the plate F by bolts f. (Figs. 4 and 6.) The plate F has a central hole through which the lower screw threaded part e¹ passes and a central recess f¹ adapted to accommodate a nut and washer.

The lower surface of the plate F¹ is serrated or cut in the form of a rasp and as the plate revolves the serrations or file teeth cut away inequalities in the surface of the floor on which the disk is operated.

In practice the floor is first surfaced by the teeth of the disk cutting away the raised parts of the floor and is afterwards finished with sand paper mounted on the disk as hereinafter described and may be polished in like manner by a rubber of cloth or other suitable material substituted for the sand paper and secured on the disk in the same manner.

In the drawings (Figs. 5 and 6) I have shown sand paper F³ secured on the polishing wheel but it will be understood that buff-leather cloth or any other suitable

finishing or polishing material may be substituted for the sand paper without departure from my invention.

The sand paper is secured on the polishing wheel by clamping plates F^2 as clearly shown in Figs. 4 and 6.

5 The plates F^2 have downwardly extending flanges f^3 and centrally extending members f^4 . Slots f^2 in the members f^4 accommodate the lower part of the shaft E.

In assembling the parts the sand paper is placed around the disk and turned upward and inward and
10 the plates F^2 are then placed on top of the paper and drawn tightly toward each other so that the flanges f^3 will, bear firmly on the paper. The member f^4 of one plate over-laps the corresponding member of the other plate. The screw threaded part e^1 of the shaft E
15 extends downward through the slots f^2 in the members f^4 . A washer e^3 and a nut e^2 above the plates secure them firmly in position. In practice it is necessary to provide means for slightly raising or lowering the grinding wheel. This is accomplished by means
20 which I will now describe.

The wheel G fits on the upper screw threaded part of the shaft E. The upper screw threaded part of the shaft has longitudinal channels e^4 . (See Fig. 7.)

A latch G^1 oscillates on a suitable support on the
25 wheel G and has a finger g which fits in the channels e^4 to prevent the turning of the wheel on the shafts. When the latch is disengaged the wheel may be turned to the right or the left to raise or lower the shaft and when the shaft is set at the desired height the finger
30 g entering the nearest groove e^4 will lock the wheel against further turning. A caster wheel K^6 turns in a bracket K^5 secured on the frame A and prevents tilting of the frame.

In operating the machine the operator sits on the seat
35 A^3 and with his feet operates the pedals B^3 to propel the machine forward or rearward and turns the machine to the right or left by placing his knee in the fork h of the lever H^3 and moving the knee to the right or left to

turn the tiller shaft and cause the machine to travel to the right or left as the case may be. He turns the
40 cranks K^2 to drive the polishing wheel and adjusts the polishing wheel vertically by turning the wheel G as already described.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is: 45

In a floor polisher, the combination of a main frame, propelling wheels and a caster wheel supporting said main frame in a horizontal position, a revoluble vertical shaft mounted on the main frame, means for vertical adjustment
50 of said vertical shaft, a horizontally rotative grinding and polishing wheel connected with said vertical shaft, a seat adjustable longitudinally on the main frame, pedals operative by the feet of an operator occupying the seat, said pedals being connected to operate said propelling wheels,
55 a crank shaft supported on the main frame and having cranks within the reach of the operator occupying said seat, a horizontal shaft turning in bearings on said main frame, a sprocket wheel, a bevel cog wheel and a fly wheel on said horizontal shaft, a bevel cog pinion on said vertical shaft and driven by the cog wheel on said horizontal
60 shaft, a sprocket wheel on said crank shaft, a chain connecting the sprocket wheel on said crank shaft with the sprocket wheel on said horizontal shaft, a vertically oscillative tiller shaft mounted on the main frame, a tiller wheel mounted on said tiller shaft, a rearwardly extending
65 lever connected with said tiller wheel and having a fork adapted to accommodate the knee of the operator occupying the seat and operating the pedals; all so constructed and arranged that the operator occupying the
70 seat may with his hands turn the crank actuating the grinding and polishing wheel, may with his hands operate the means for vertical adjustment of the grinding and polishing wheel; may with his feet operate the pedal to actuate the propelling wheels and may with his knee operate the lever for turning the tiller shaft. 75

In witness whereof I have hereunto subscribed my name at Springfield, Illinois this 8th day of November 1905.

FRANK P. RICHARDS.

Witnesses:

C. R. SPICER,
MARGARET McDONALD.