

C. A. LINDSTRÖM.
DRAFT GEAR.
APPLICATION FILED AUG. 3, 1908.

950,570.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

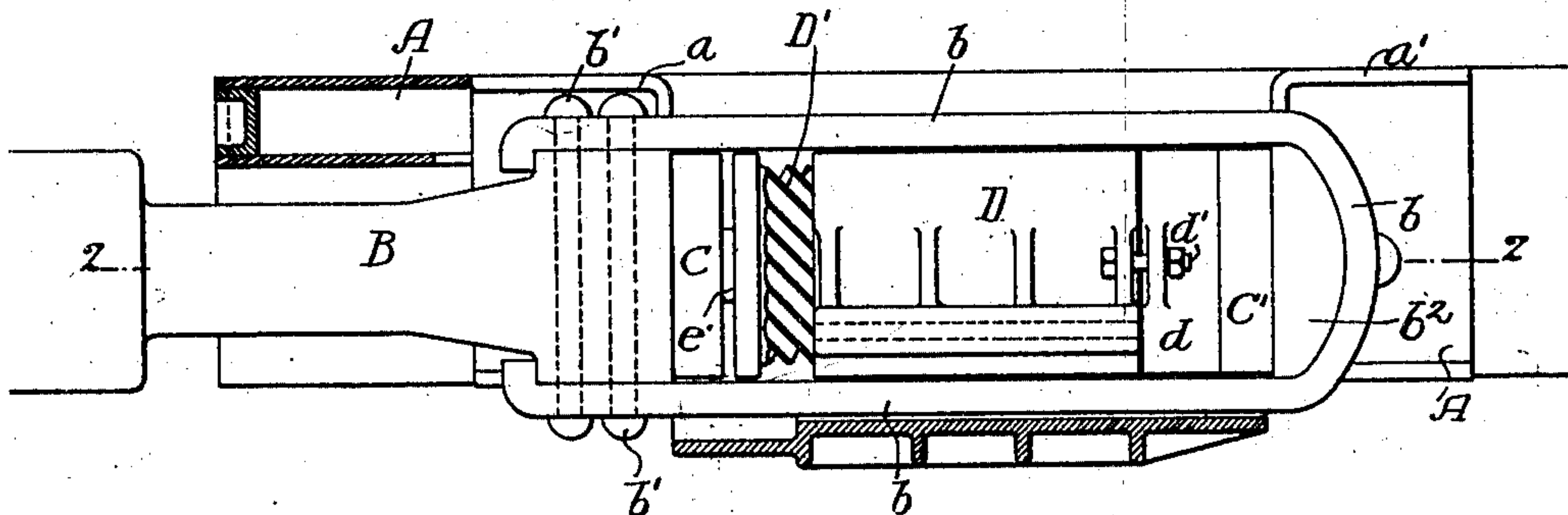


Fig. 6.

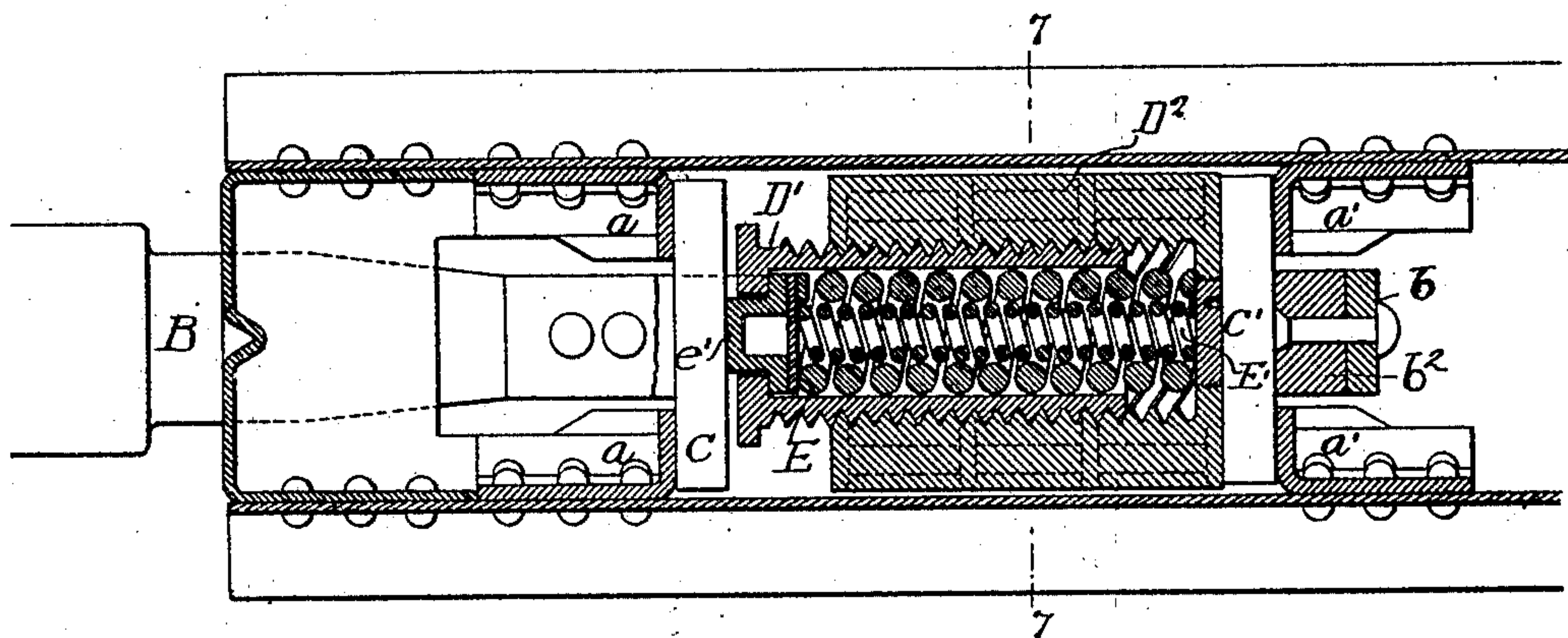
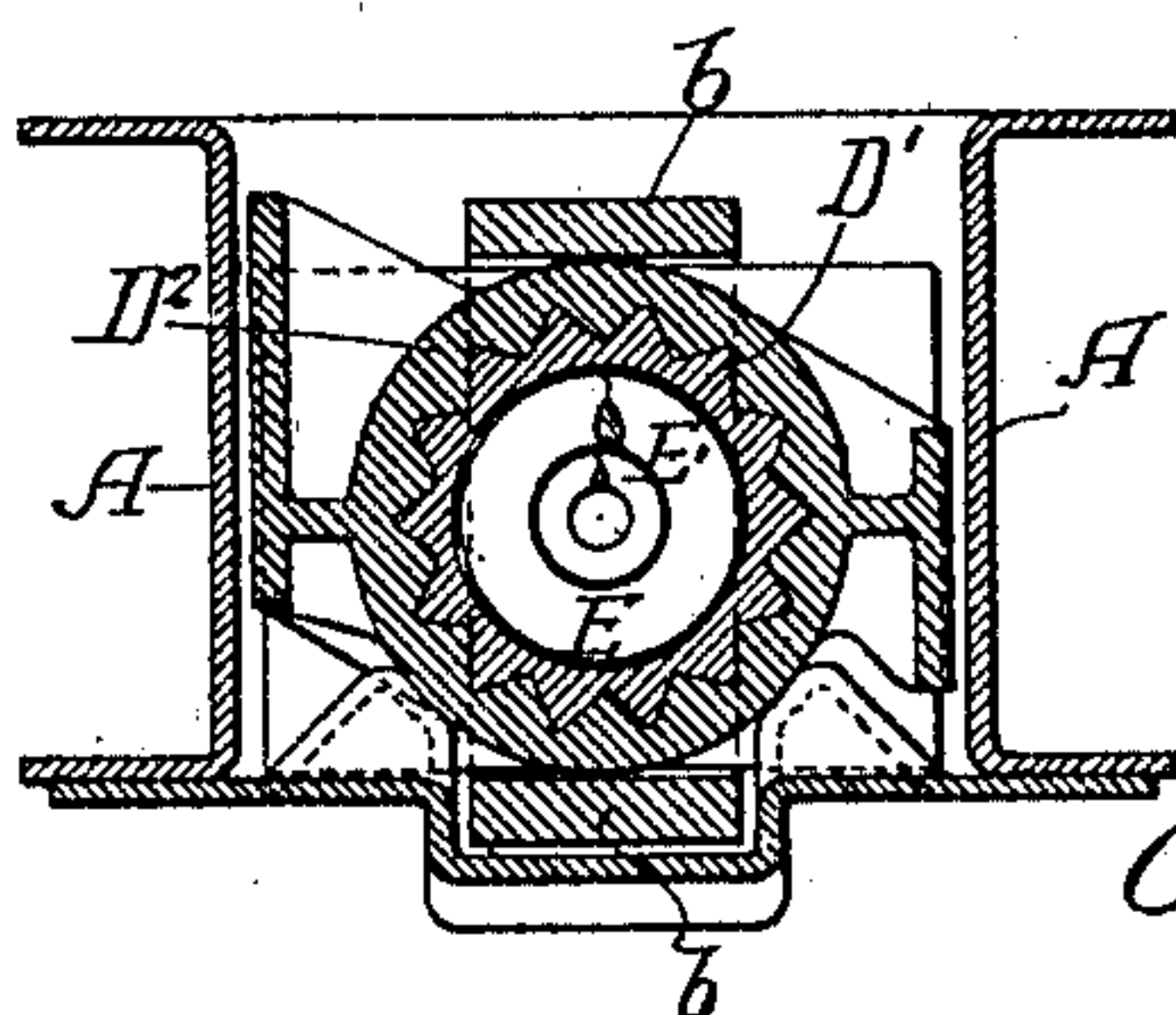


Fig. 7.



Witnesses,

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2 SHEETS—SHEET 2.

Fig. 2.

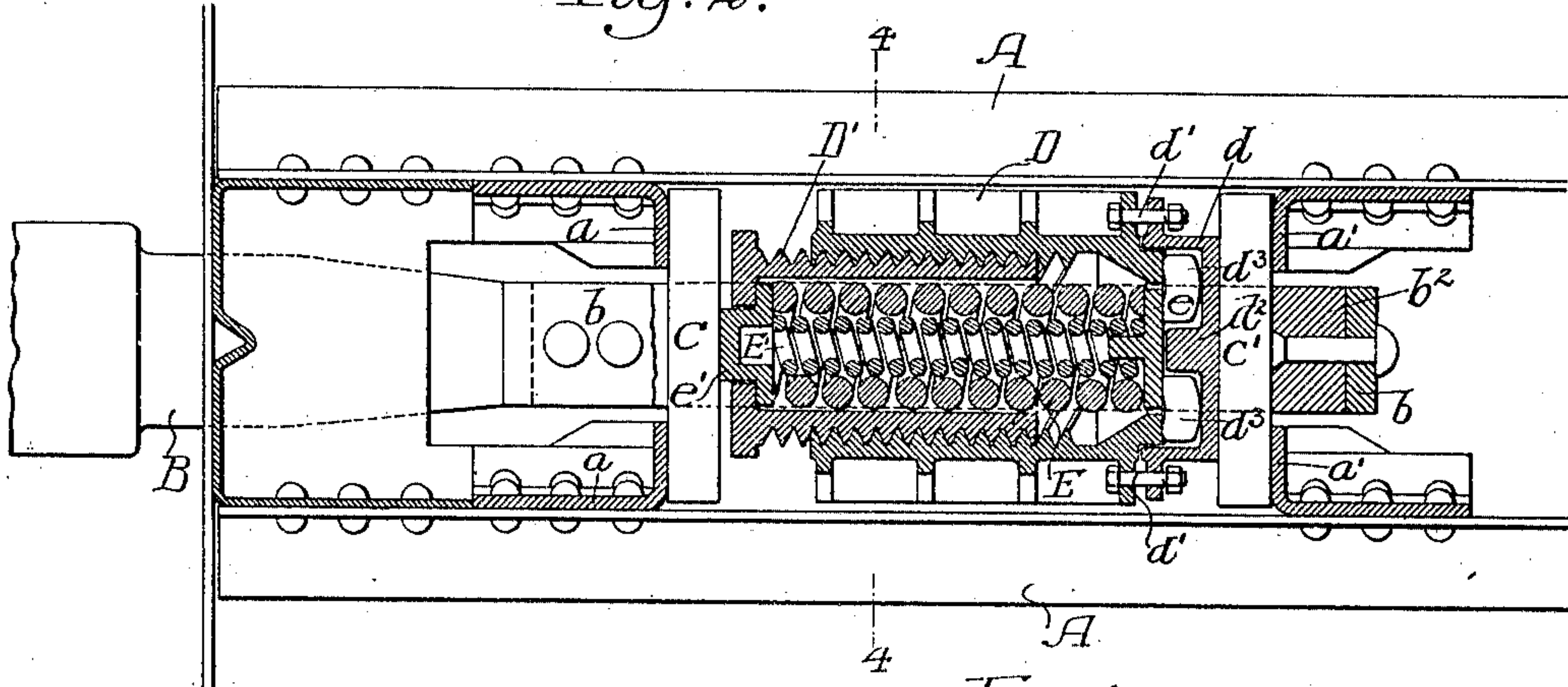


Fig. 3.

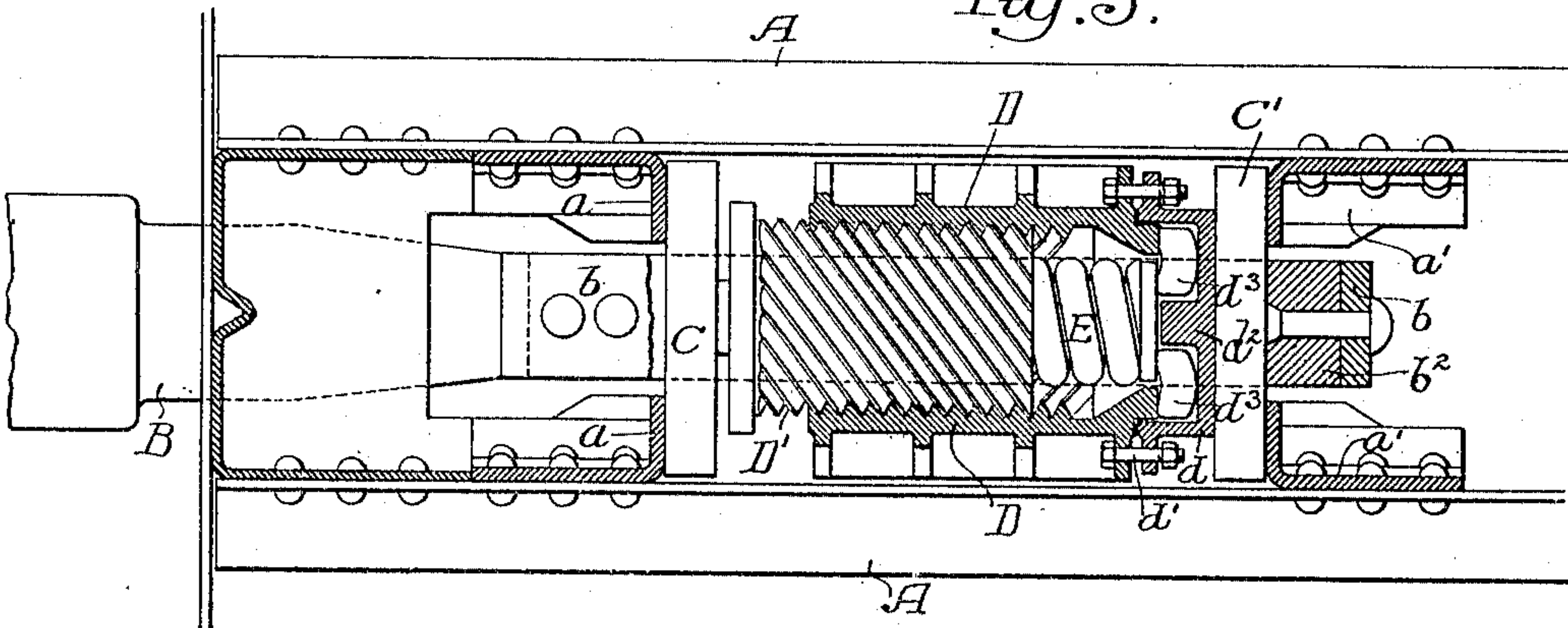


Fig. 5.

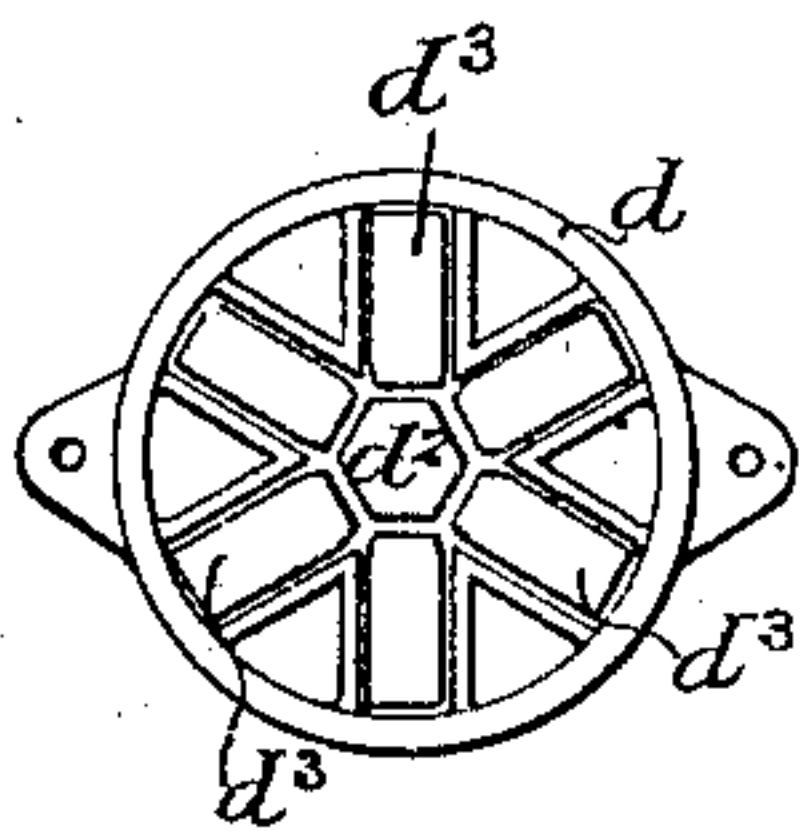
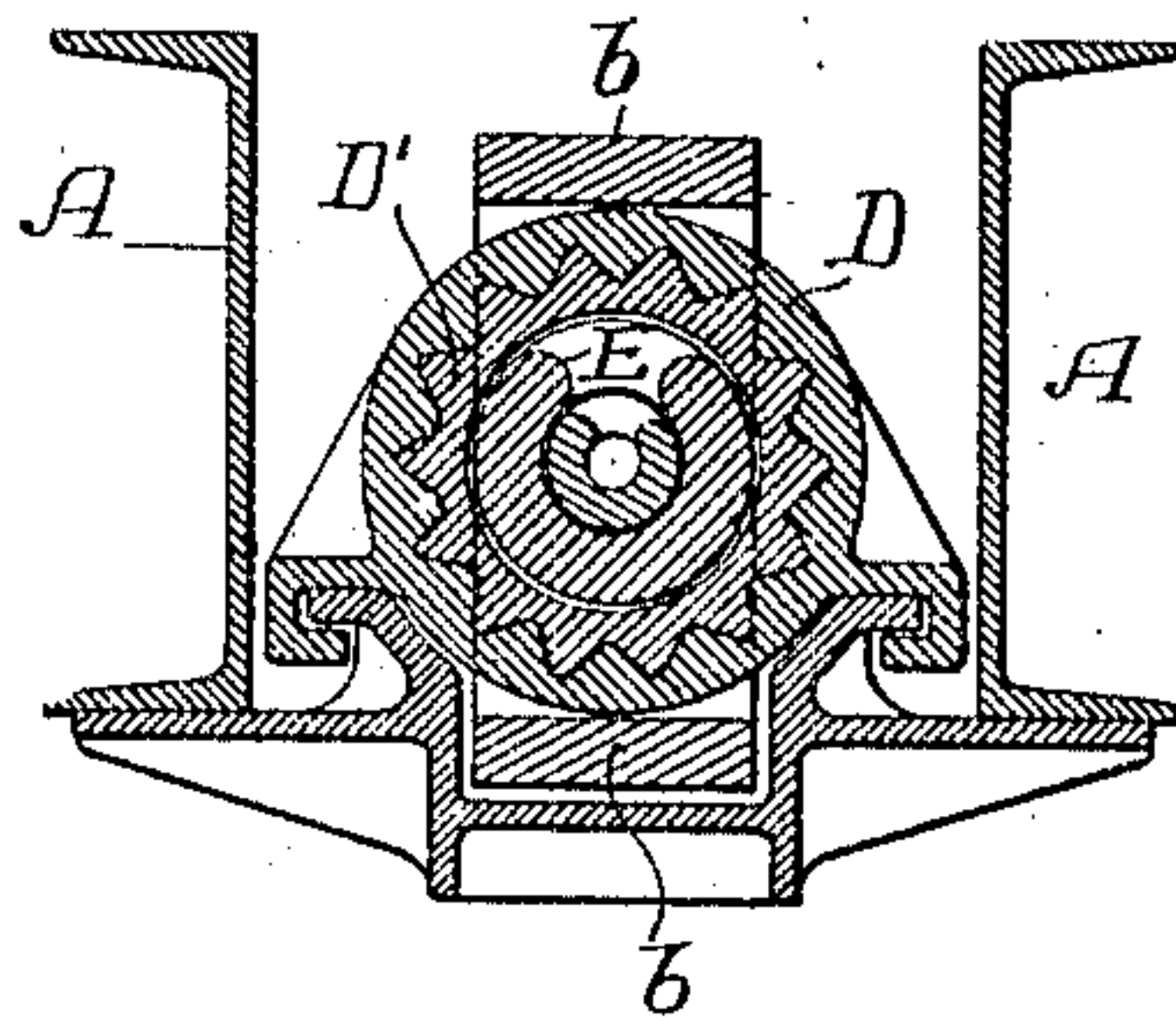


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES A. LINDSTRÖM, OF PITTSBURG, PENNSYLVANIA.

DRAFT-GEAR.

950,570.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed August 3, 1908. Serial No. 446,771.

To all whom it may concern:

Be it known that I, CHARLES A. LINDSTRÖM, a citizen of the United States, residing in Pittsburg, Pennsylvania, have invented certain Improvements in Draft-Gears, of which the following is a specification.

One object of my invention is to provide a draft gear having its parts so arranged that after a predetermined amount of strain has been applied to the draw bar, one member of the device will be caused to turn relatively to another against a relatively great frictional resistance.

I further desire to provide a draft gear of the friction type which shall include a spring so placed that after the device has been exposed to a certain predetermined stress so as to compress the spring to a definite amount, one of its parts shall be caused to screw into another against a relatively high frictional resistance.

Another object of the invention is to provide a draft gear whose parts shall be so constructed and arranged that after a spring has been compressed to a predetermined extent, the pressure shall be automatically divided between said spring and a pair of frictionally connected members, one of which is free to turn relatively to the other.

A further object of the invention is to provide a draft gear with relatively large frictional surfaces so arranged that there shall be a minimum of injurious recoil, when the gear is released, in order to avoid breaking of the parts.

I also desire to provide a friction draft gear in which the various parts are so constructed that there will be practically no bursting pressure when it is compressed.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a side elevation of one form of my invention, part of the framework of the car being illustrated in section; Fig. 2, is a horizontal section taken on the line 2—2, Fig. 1; Fig. 3, is a horizontal section similar to that of Fig. 2, but with part of the spring and the inside threaded member shown in elevation; Fig. 4, is a transverse vertical section on the line 4—4, Fig. 2; Fig. 5, is an end elevation of the rockers and their containing casing as employed in the device illustrated in the previous figures; Fig. 6, is a horizontal section of a modified form of my invention,

and Fig. 7, is a vertical section taken on the line 7—7, Fig. 6.

In the above drawings A—A represent the draft beams of the car to which my invention is applied, and B represents the draw bar which is provided with a strap *b* held to it by rivets *b'* as well as by its own turned over ends. The draft beams have riveted or otherwise attached to them suitable sets of draft lugs *a* and *a'*, serving as abutments for two followers C and C', there being a filling block *b²* interposed between the latter of these followers and the strap *b*.

In the space between the followers is mounted a casing having two members D and D', of which the first is held in any desired manner by the draft beams so that it cannot turn and is provided with internal threads having a relatively steep pitch. The part D' is externally threaded so as to fit within the part D and is internally flanged at one end; being constructed to be capable of flatly engaging the adjacent face of the follower. The part D has interposed between it and the follower C' a head *d* to which it is more or less loosely connected by means of bolts *d'*, and these latter serve to permit said parts to move toward and from one another to a limited extent. Said head is formed with a number of recesses, in the present instance six, which radiate from a central projection *d²*, and each one of these recesses contains a rocker *d³* engaging at one end with the adjacent edge of the part D of the casing. A plate *e* engages the inner ends of the rockers, upon which it is supported so as to be a short distance away from the central projection *d²* and it serves as an abutment for one end of a pair of concentric cylindrical springs E and E', whose opposite ends engage a plunger *e'*. The stem of this plunger engages the follower C and its head is flanged so as to not only receive the two springs but also so as to rest upon the internal flange of the part D' of the casing.

With the above described arrangement of parts a pull on the draw bar results in the follower C' being moved away from its draft lugs *a'* so as to compress the springs E and E' between the plunger *e'* and the plate *e* which is engaged by the central projection *d²*. As soon, however, as the pressure upon the spring exceeds a predetermined amount, this latter is compressed sufficiently to permit one end of the part D' of the casing to directly engage the follower C. Any addi-

tional load will now force said part D' of the casing into the part D or will tend to cause such action, and I so design the threads of the parts D and D' that their relative movement is accompanied by great friction. This action is due to the retarding friction of the faces of the parts D' and *e* against the face of the follower C. Finally when the pull or push on the draw bar has been still further increased so that the part D' has been screwed into the part D sufficiently to nearly compress the spring to the limit, the ends of the casing D will engage the end of the part D' and the pull or push is transmitted directly to the followers.

Owing to the loose connection between the part D of the casing and the head *d*, pressure from the springs upon the plate *e* causes the rockers *d*³ to act as levers and move the part D in the opposite direction toward the follower C, thereby taking up any clearance in the thread and insuring that when the follower C has been forced against the part D', the pressure from the draw bar on the springs and on the part D' acts in the same direction on the thread.

With the parts arranged as shown, it is obvious that any light or normal pull on the draw bar is transmitted to the frame of the car solely through the springs, while any abnormal strain is divided between the springs and the friction devices provided by the two part casing, being restricted also by the friction between the faces of the parts *e* and D' and the face of the follower C. By permitting one part of this casing to turn relatively to the other, I not only avoid the transmission of shocks but also render possible the transmission of abnormal loads without danger of injury to any of the parts. Moreover the means whereby these ends are attained are relatively uncomplicated and are not likely to require attention or be easily put out of order.

In some instances, I may, if desired, omit the rockers from the construction without departing from the main features thereof, and in this case I arrange the parts as shown in Figs. 6 and 7, where the internally threaded part D² of the casing bears upon the face of the follower C' and is entered by the part D' as before. Both of the springs E and E' in this case extend between the plunger *e'* and the inner face of the end of the part D² of the casing. As before, a pull less than a certain amount exerted upon the draw bar B merely compresses the two members E and E' between the head of the part D², which bears against the follower C', and the plunger *e'*. When, however, this pull exceeds a definite amount, the part D' of the casing engages the follower C, and thereafter the force transmitted from the draw bar to the

frame of the car is divided between the two springs and the friction device formed by the two part casing, and is resisted by the friction between the faces of the plunger *e*, the part D' and the face of the follower C.

It is obvious that while in my preferred construction as shown in the drawings, the outside parts D or D² are held from revolving and the inside part D' is caused to turn, the construction may be so changed that the inside part D' is held by one of the follower plates from revolving and the outside parts D or D² are allowed to revolve. It is also evident that the type of threads used may be either bastard or square or any other shape instead of the V shape shown in the drawings and that the pitch of the threads may be made to any desired angle. It is also obvious that numerous other changes may be made in details without departing from my invention.

I claim:—

1. The combination of two followers, a series of rockers mounted to receive pressure therefrom, a spring acting at one end upon the rockers, and a two part casing between the followers, one part of the casing being placed to act upon the rockers and the other being free to turn relatively to the other part when pressure is exerted upon it.

2. The combination in a draft gear, of two followers, a casing having two parts threaded together, a spring mounted between the followers, and rockers connecting the spring and one part of the casing.

3. A draft gear interposed between the draw bar and the frame of a car, the same consisting of a spring, two members free to turn relatively to each other when under pressure, and a series of rockers for transmitting pressure to one of said members and to the spring after said spring has been stressed to a predetermined extent.

4. The combination with the frame of a car, and a draw bar, of two followers interposed between said parts, a head having mounted on it a series of rockers and being placed to bear upon one of the followers, a two part casing loosely connected to said head and having its parts threaded one into the other, one part bearing upon the rockers, a spring acting at one end upon the rockers and at its other end acting upon one of the followers, so that one part moves relatively to the other after the spring has been stressed to a predetermined extent.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES A. LINDSTRÖM.

Witnesses:

P. NEESAN,

H. R. GREENE.