

No. 637,725.

Patented Nov. 21, 1899.

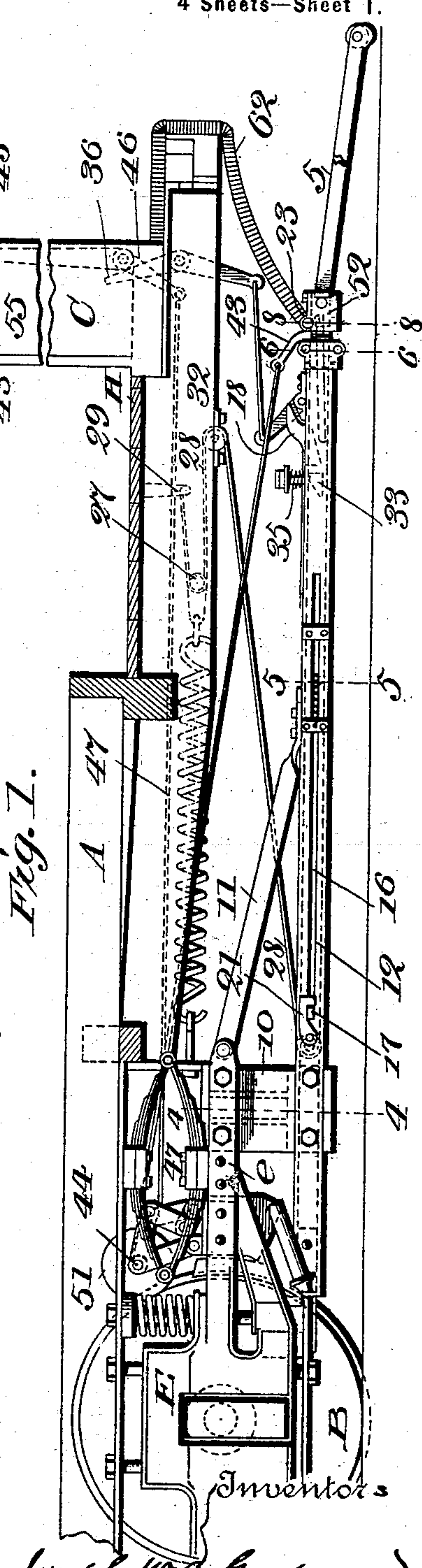
J. W. A. GARDAM & F. J. HULL.

CAR FENDER.

(Application filed Sept. 7, 1899.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
L. C. Hills.
Geo. J. May Jr

By Joseph W. A. Gardam and
Foster J. Hull
J. S. Barker this morning.

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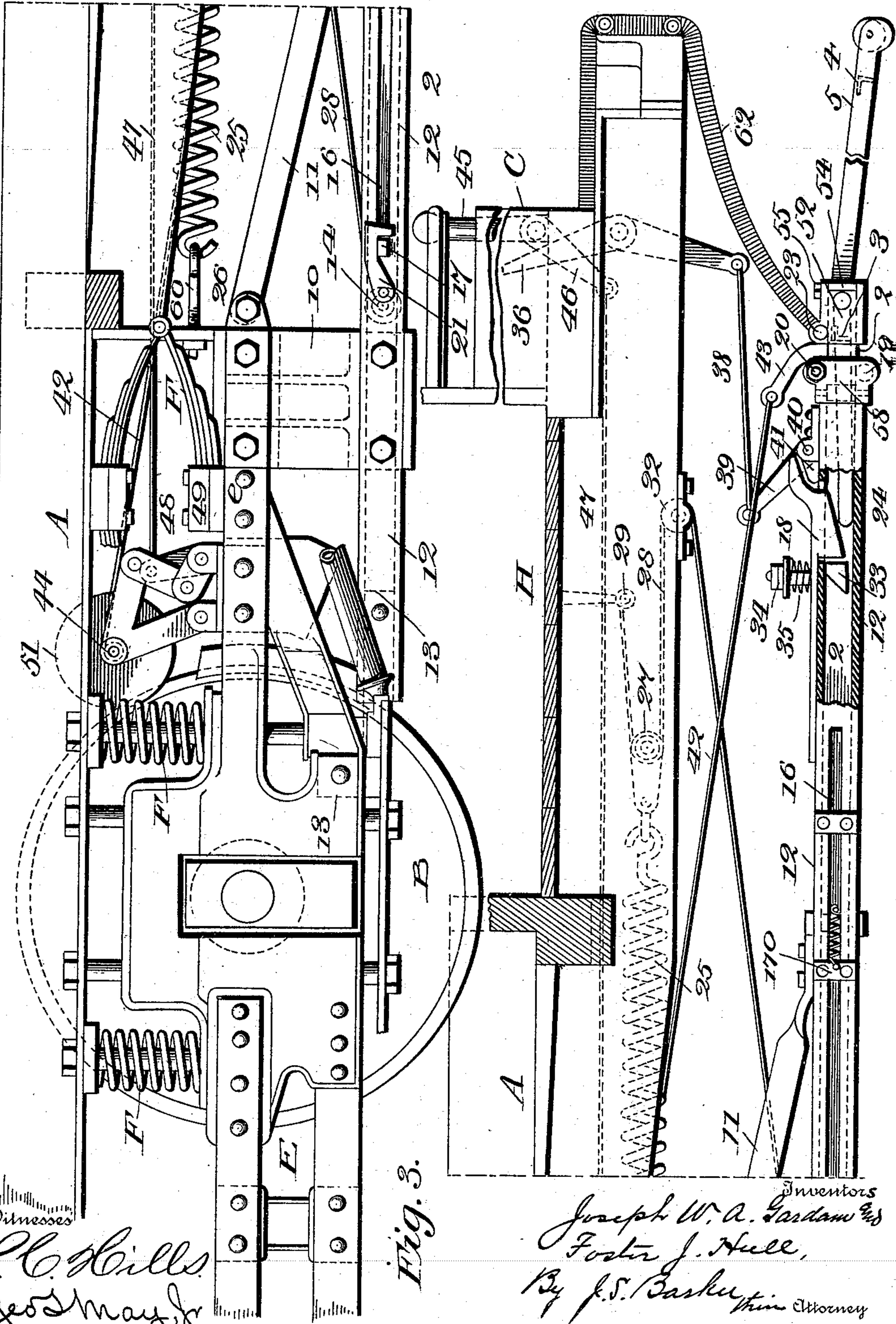
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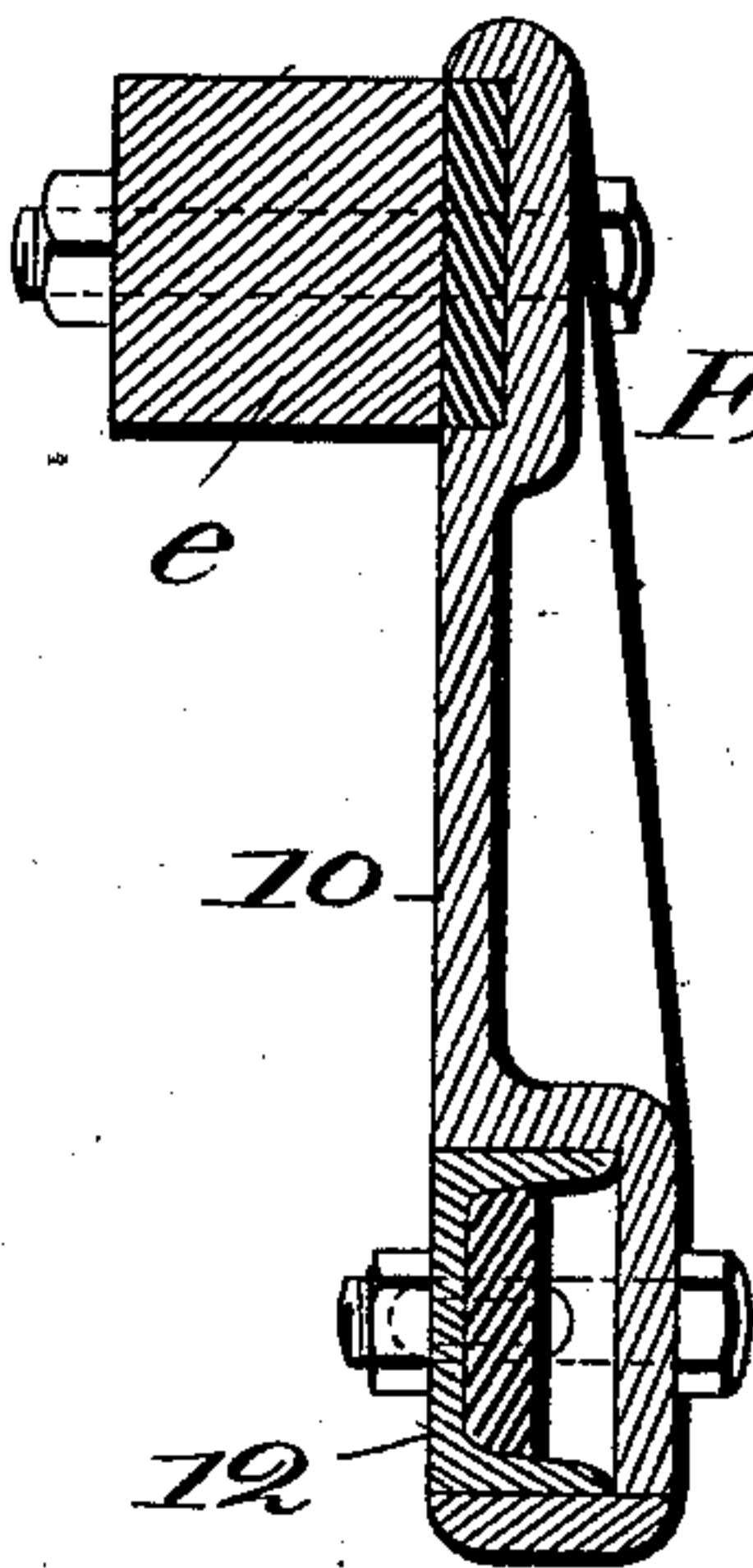


Fig. 4. Fig. 5.

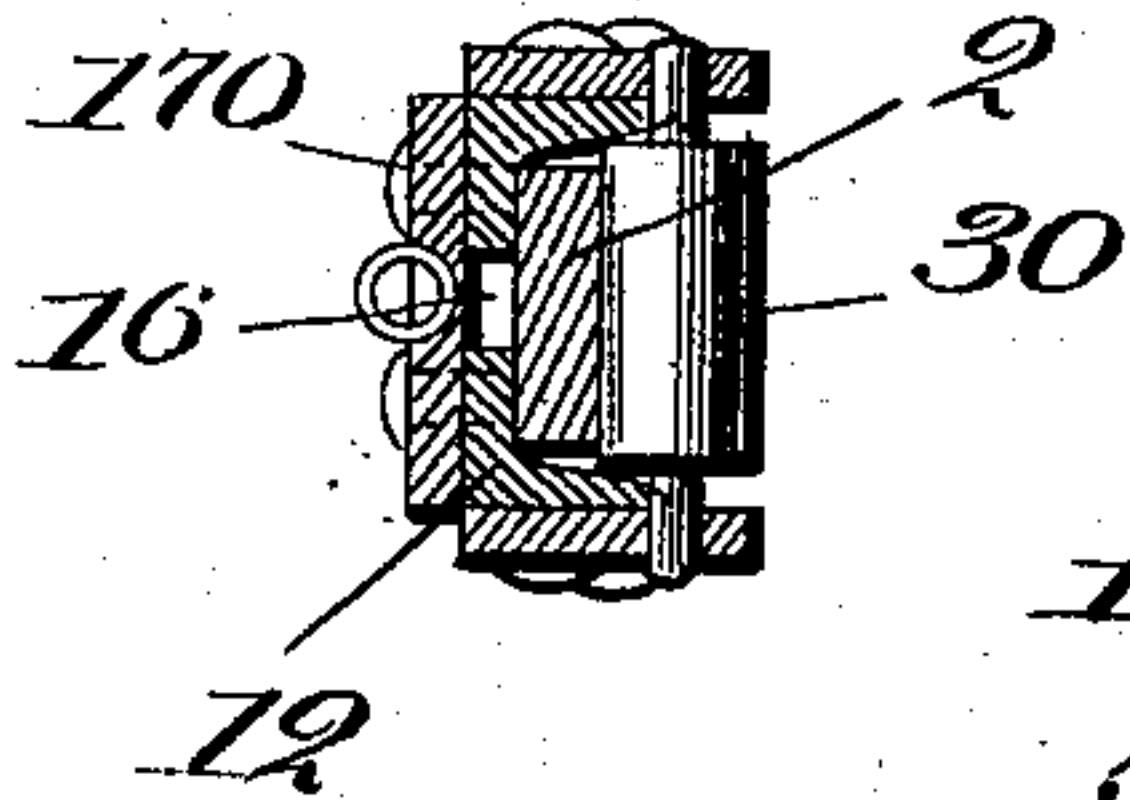


Fig. 6.

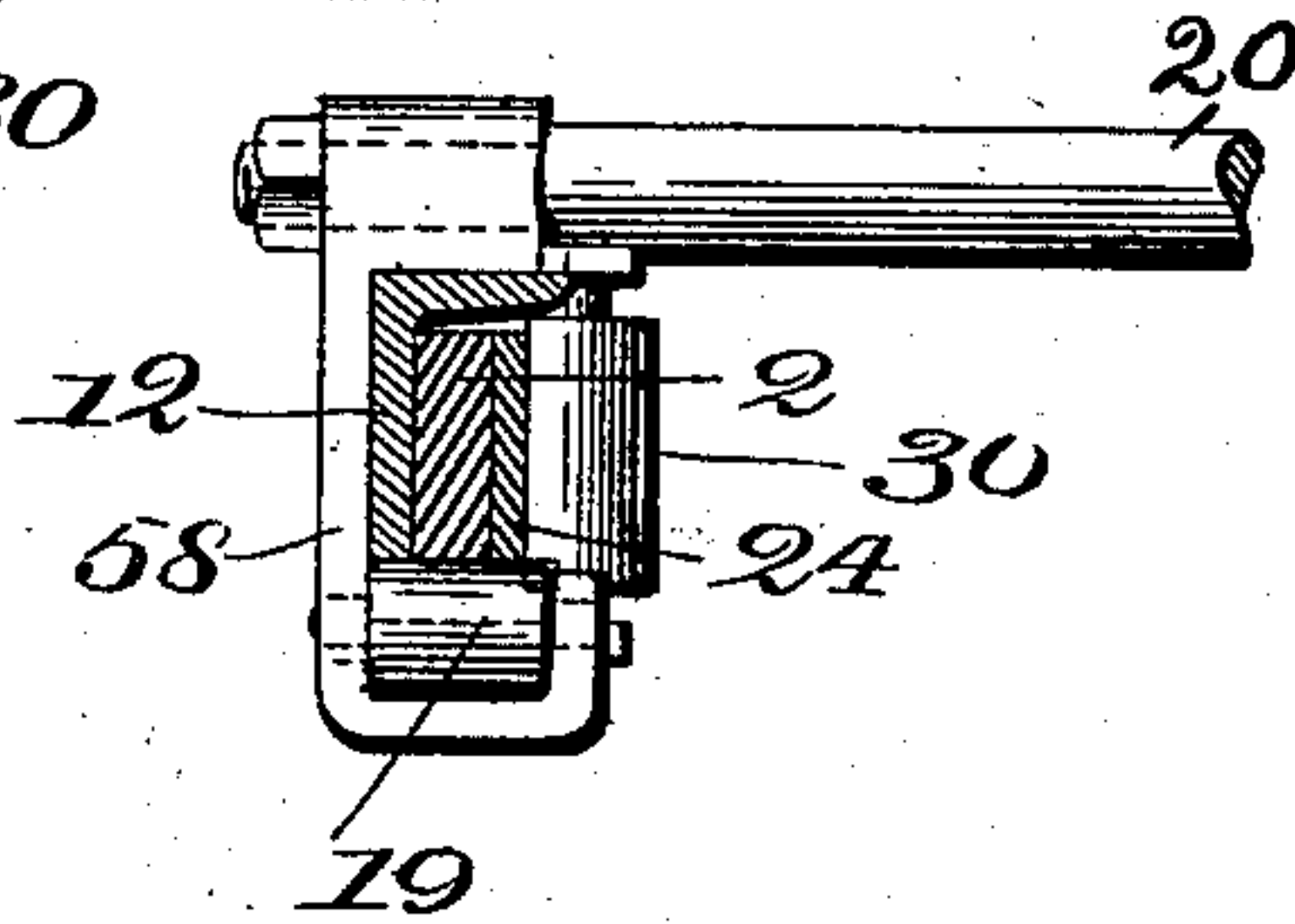


Fig. 7.

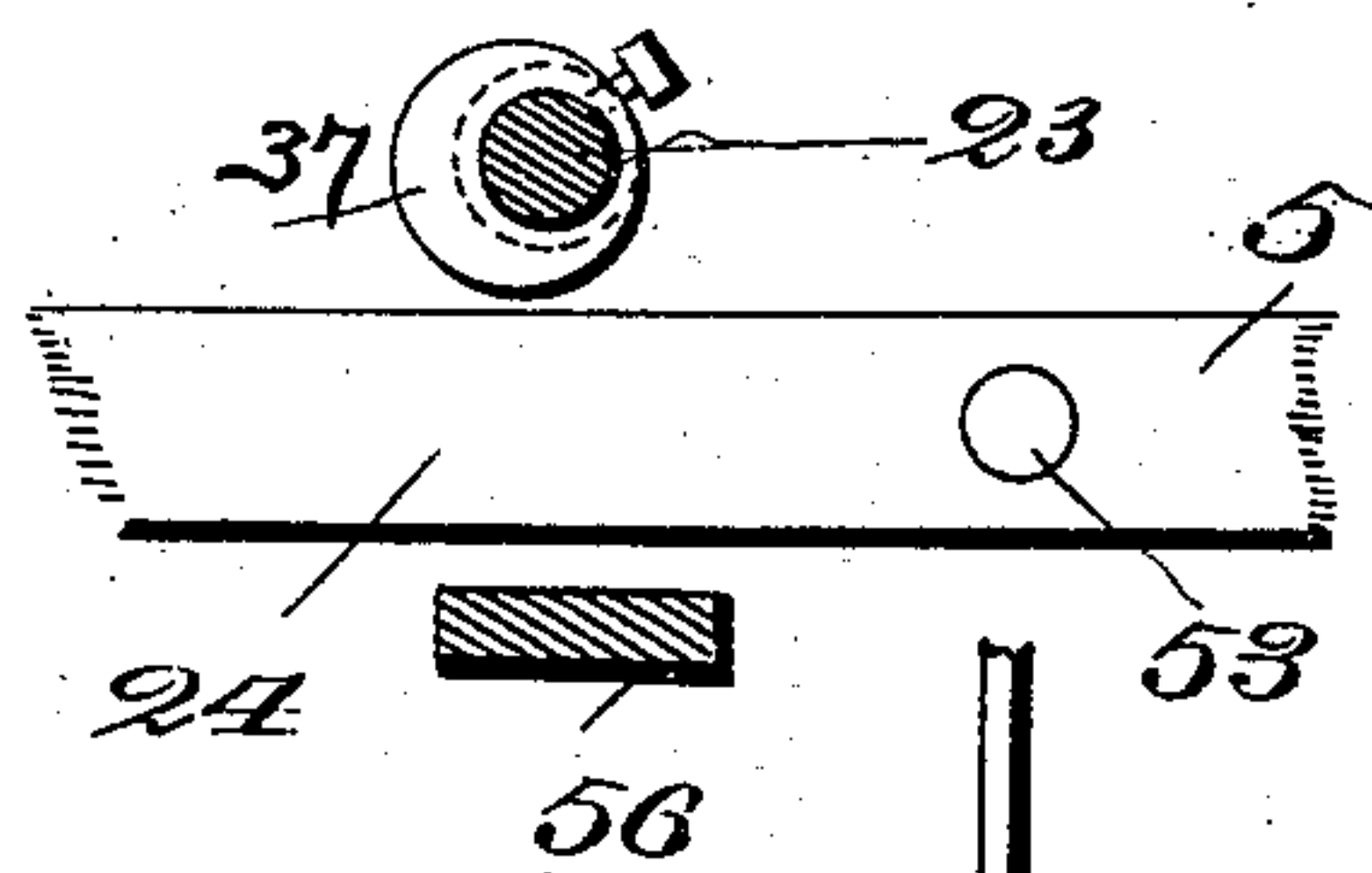


Fig. 9.

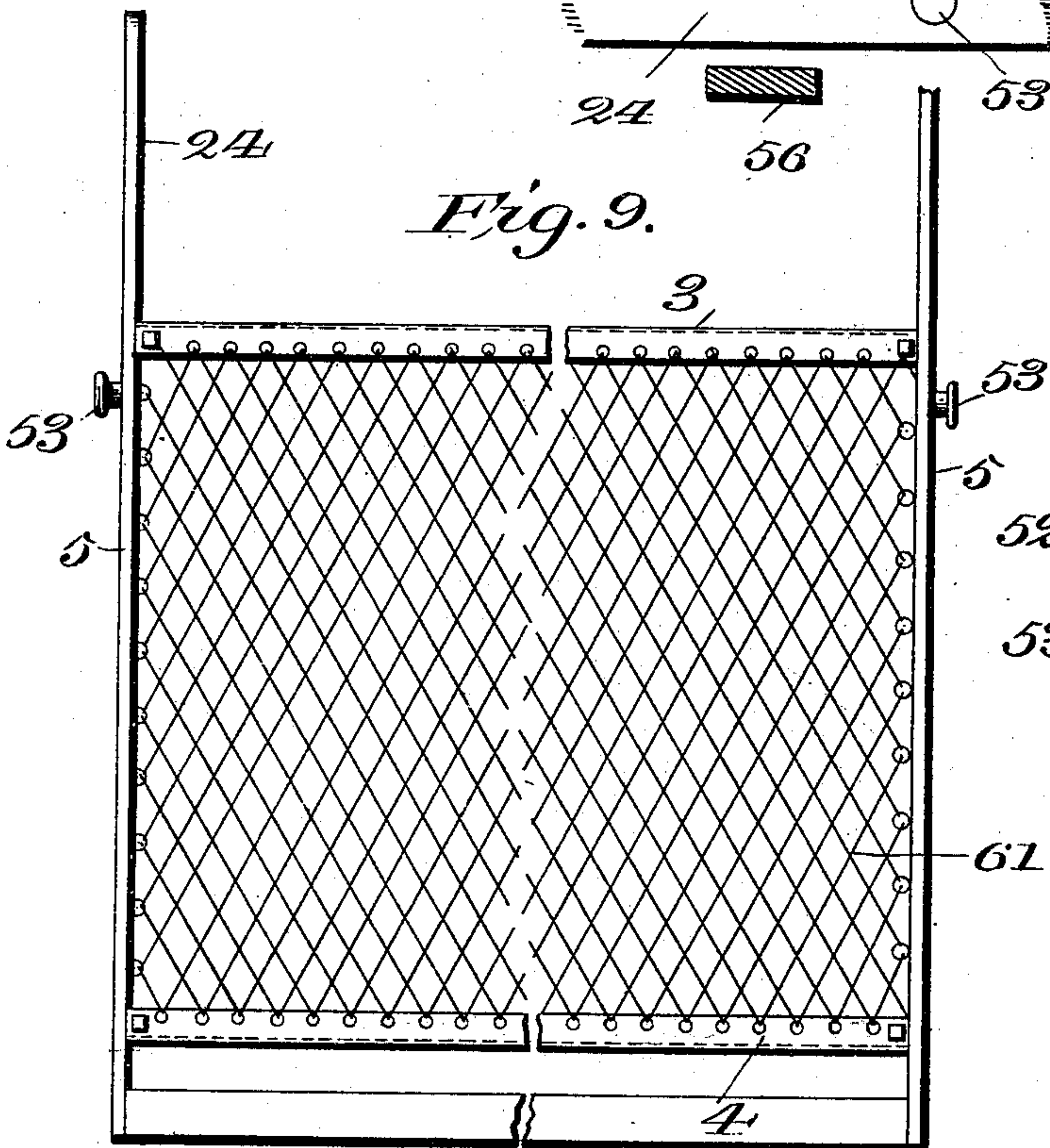
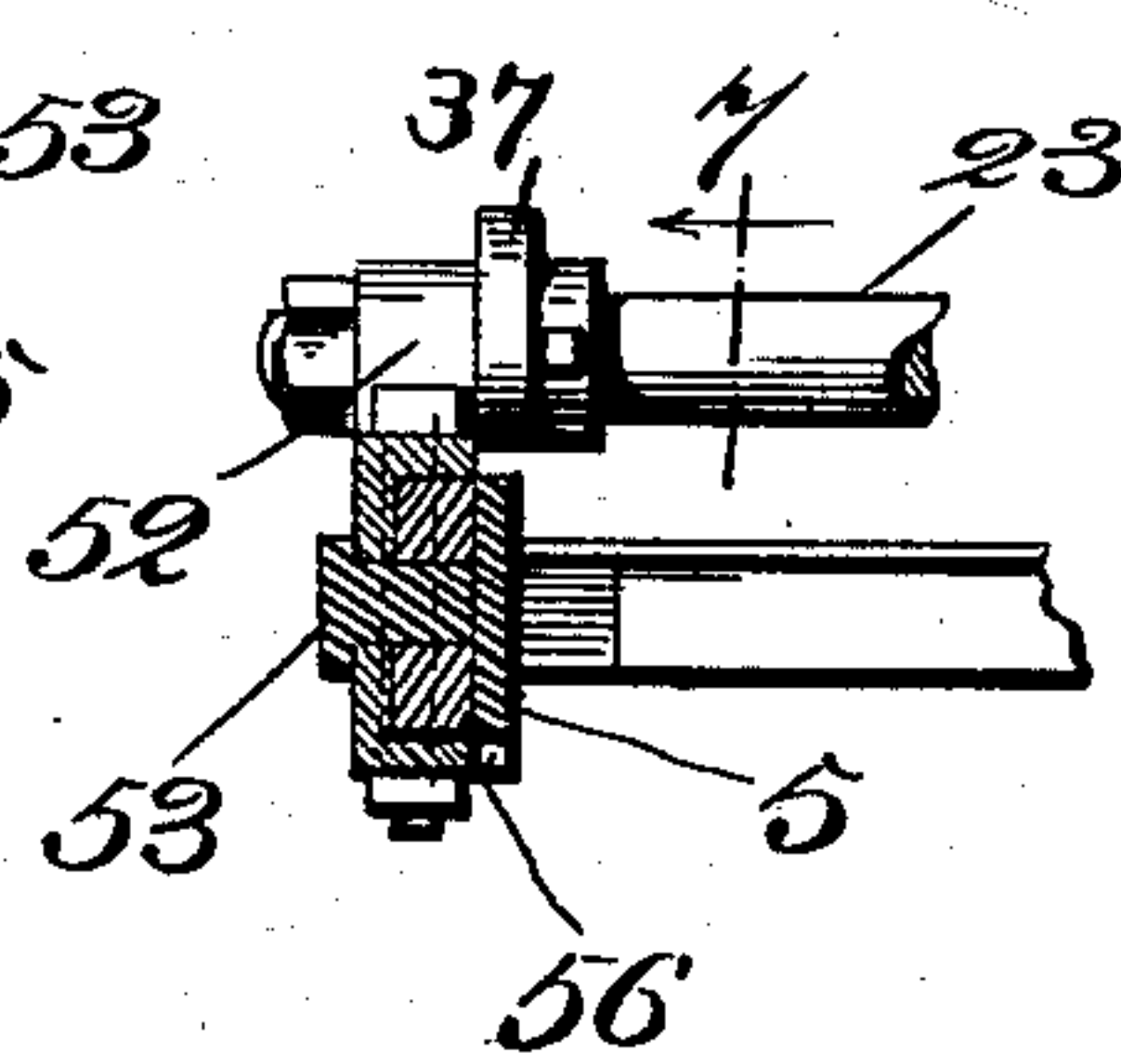


Fig. 8.



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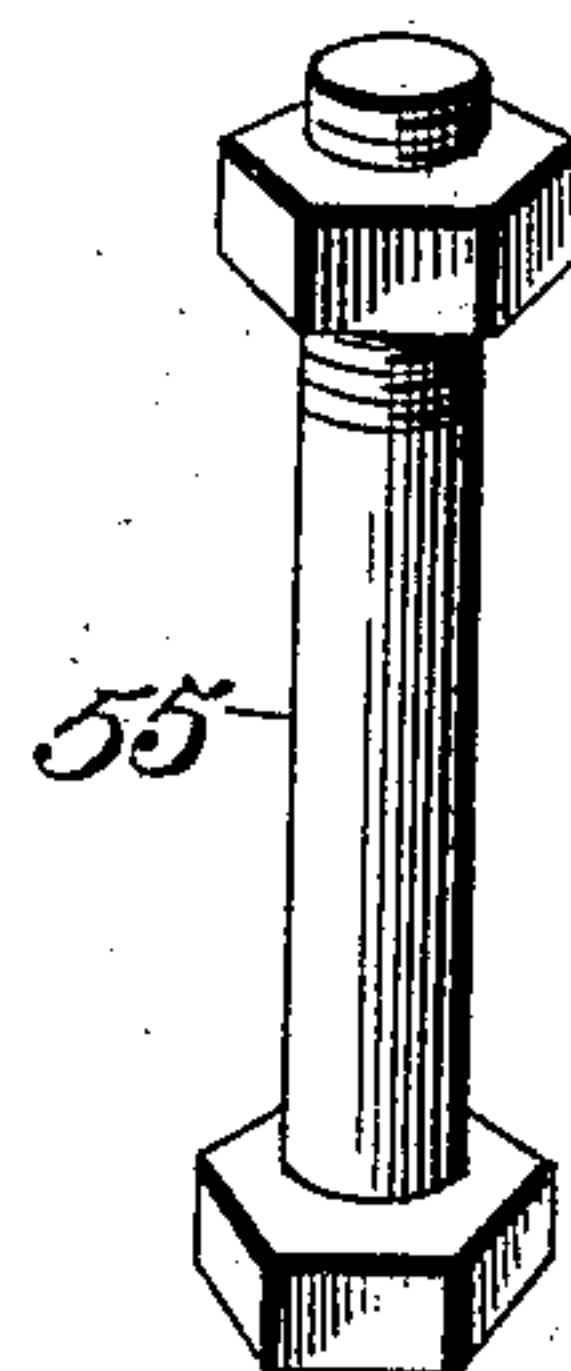
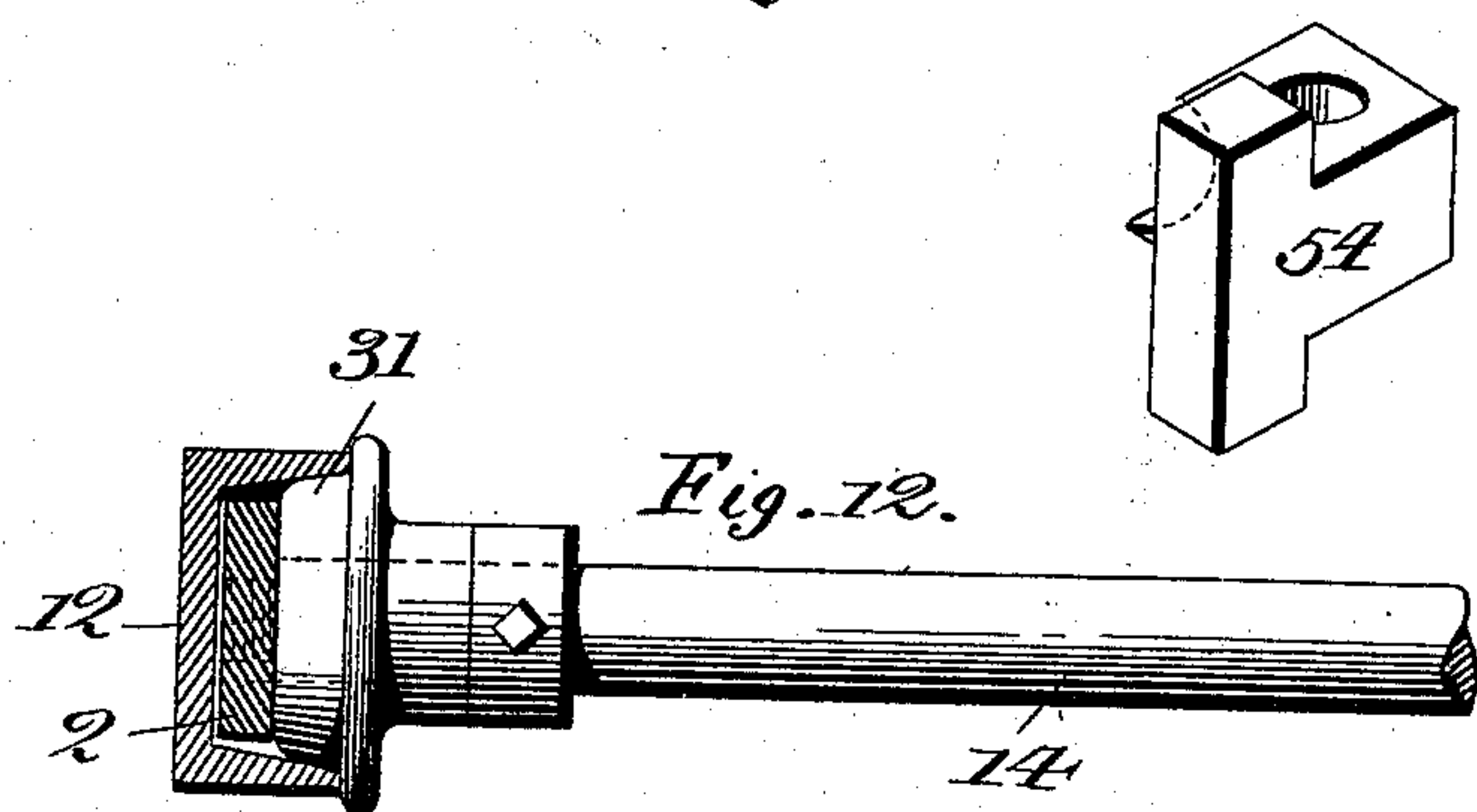
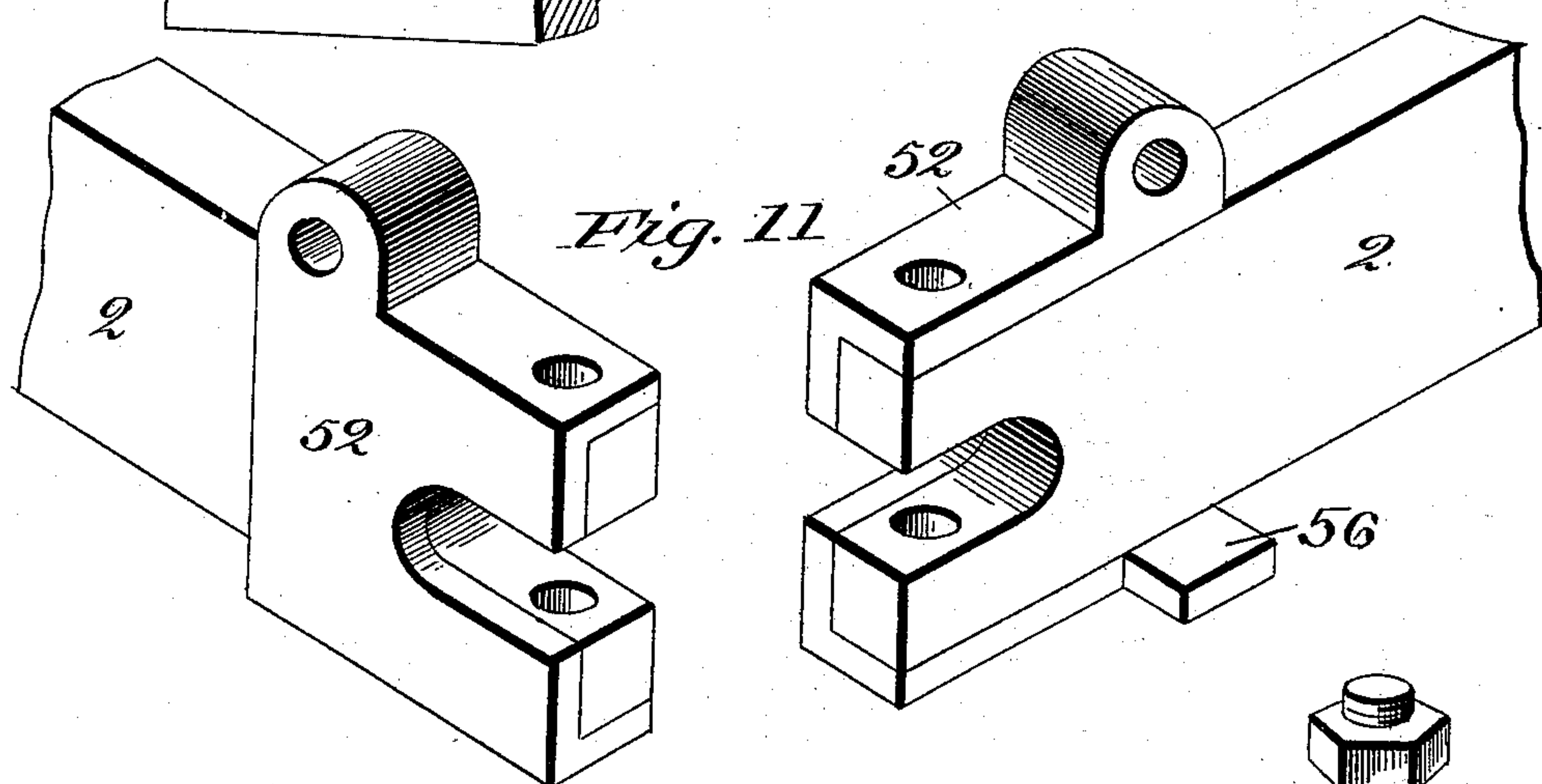
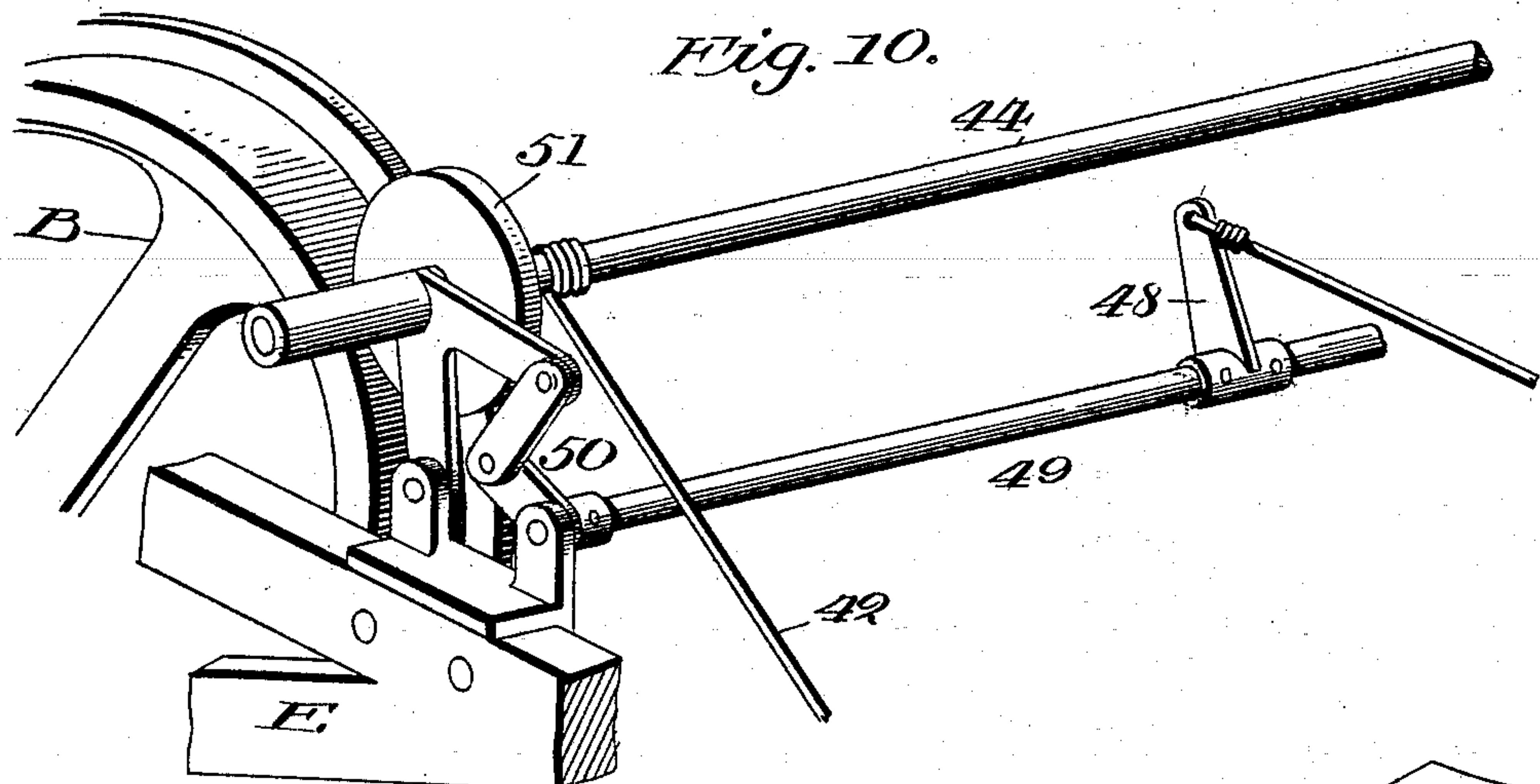
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4 Sheets—Sheet 4



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH W. A. GARDAM AND FOSTER J. HULL, OF NEW YORK, N. Y.,
ASSIGNORS TO OBEDIAH CULLISON, OF YORK, PENNSYLVANIA.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 637,725, dated November 21, 1899.

Application filed September 7, 1899. Serial No. 729,750. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH W. A. GARDAM and FOSTER J. HULL, citizens of the United States, residing at New York, in the county
5 and State of New York, have invented certain new and useful Improvements in Car-Fenders, of which the following is a specification.

Our invention consists in improvements in car-fenders, and has particularly for its object
10 to improve automatic fenders of the type shown in the patents granted to Obe. Cullison, No. 536,853, dated April 2, 1895, and No. 625,834, dated May 30, 1899, though it should be understood that our invention is not lim-
15 ited in its useful applications to fenders of that particular type and that one or another or all of the features of such invention are applicable to car-fenders of many different kinds, as will be understood by those skilled
20 in the art.

In the drawings, Figure 1 is a side elevation of our improvements applied to a flat-car. Fig. 2 is a top plan view of the fender devices at one side of the car, the car-flooring being
25 removed. Fig. 3 is a sectional elevation of the fender applied to a car, the view being on a larger scale than Figs. 1 and 2 and being in two parts, the lower part being a continuation of the upper part. Fig. 4 is a vertical
30 section taken on the line 4 4 of Fig. 1. Figs. 5, 6, and 8 are vertical sectional views taken, respectively, on the lines 5 5, 6 6, and 8 8 of Fig. 1. Fig. 7 is a sectional view taken on the line 7 of Fig. 8. Fig. 9 is a top plan view
35 of the horizontal portion of the fender proper detached. Fig. 10 is a perspective view of a portion of the mechanism for retracting the fender. Fig. 11 shows in perspective the several parts which together form the bearing-
40 supports for the horizontal portion of the fender, the parts being separated from one another. Fig. 12 is a sectional view taken on the line 12, Fig. 2.

In the drawings, A represents the body of the car; E, one of the truck-frames thereof;
45 F, the springs between the truck-frame and the car-body; B, one of the wheels; H, the car-platform, and C the dashboard, these parts being of any usual or preferred construction.

50 Our fender is preferably supported directly from the truck instead of being suspended

from the car-body. We therefore prefer to construct the truck with forward-extending arms *e*, to which are secured brackets 10, in which are mounted the fender-supporting
55 bars 12, which bars are preferably channel-shaped and constitute ways in which are mounted the sliding bars 2, that carry the fender proper. In order to render the sup-
60 porting-bars 12 sufficiently rigid, we brace them by means of the brace or connecting bars 11, which are secured to the arms *e* of the truck-frame and extend thence forward and downward to the supporting-bars, to which they are secured. The bars 12 extend
65 rearward beyond the brackets 10 and are there connected with the truck-frames by means of castings or connecting-pieces 13. By thus mounting and supporting the bars 12 we render it practically impossible for the bars to
70 become bent or to get out of proper alinement under any conditions of practical or ordinary use, with the result that the sliding bars 2 travel freely in the supporting-bars. The supporting channel-bars 12 are connected at
75 their forward ends by a tie-rod 20, the ends of which are supported in brackets or castings 58, which are in turn bolted or otherwise secured to the bars 12, as represented in detail in Fig. 6. The castings 58 are extended be-
80 low the sliding bars 2 and arranged to constitute bearings for the horizontally-disposed antifriction-rollers 19, upon which such sliding bars bear.

30 30 indicate vertically-disposed antifric- 85
tion-rollers arranged to bear against the vertical sides or faces of the sliding bars 2 and operating to hold them in the ways in the channel-bars 12 and at the same time permit them to move therein without undue friction. 90
The rear ends of the sliding bars are connected by a tie-rod 14, and 31 indicate anti-friction-rollers journaled upon the tie-rod 14 and bearing against the ways of the channel-
95 bars. They operate to confine the sliding bars 2 in the channels or ways of the supporting-bars 12 and permit them to move therein without undue friction.

The vertically-disposed webs of the channel-bars are slotted throughout a portion of
100 their length, as indicated at 16, and lugs 17 on the sliding bars 2 extend outward through

these slots. Spring-buffers 170 are preferably arranged in the forward portions of the slots to take up the shock incident to the automatic forward movement of the fender.

21 indicates a pivoted hook or latch adapted to engage with one of the lugs 17 of the sliding bar and to operate to retain the sliding bars and the fender in their rearward position, as when the cars are stored in the barn. It will be understood that there may be one of these hooks or latches on each side of the car, if found desirable.

The sliding bars 2, which carry the fender proper, are connected at or near their forward ends by the tie-rod 23. Instead of attaching this tie-rod directly to the sliding bars we prefer to mount it in castings 52, which are bolted or otherwise secured to the forward ends of the sliding bars. These castings 52 are preferably bifurcated toward their forward ends, Fig. 11, to receive the pivots or trunnions 53, which project outward from the side bars 5 of the fender proper. By bifurcating the casting 52, as stated, an open bearing for the trunnion 53 is provided, in which bearing it may be secured by means of a block 54, which is held in place by means of pins or bolts 55.

By means of the construction just described the fender proper is made easily removable from its supporting and operating parts, it being only necessary to loosen the pins or bolts 55 and remove the block 54, after which the fender may be freely removed.

The fender proper consists, preferably, of the side bars 5 and cross-bars 3 and 4, of angle-iron, uniting them. The horizontal netting 61 is supported between these bars 3, 4, and 5, as represented in Figs. 2 and 9, and is preferably entirely independent of the upward-extending part of the netting 62. This latter is preferably connected at its lower end to the cross or tie rod 23 and extends upward in front of the forward end of the platform H, where it may be secured in any desired way. By making the fender-netting of two independently-mounted parts we are enabled to remove the fender proper and the horizontal netting without disturbing the upward-extending portion 62 of the netting.

The side bars 5 of the fender proper are extended rearward beyond the pivots or trunnions 53 to constitute trip-arms 24. When the fender is retracted, as indicated in Figs. 1 and 3, the ends of these trip-arms are arranged directly below the spring-catches 18, which are arranged to engage with lugs or projections 33 on the sliding bars and hold the fender in its retracted or rearward position. As these features are fully described in the hereinbefore-referred-to Cullison patents, the manner in which they operate as an automatic trip when the fender meets an obstruction need not be described herein.

It is desirable that the spring force of the catches 18 should be capable of adjustment or variation, and to permit of this we provide

the springs 35, which are arranged to bear upon the spring-catches 18 and the adjusting-nuts 34, by which the tension of the springs 35 may be varied. These spring adjusting parts are mounted upon the supporting-bars 12, upon which are also mounted the spring-catches 18.

It is desirable that the fender should be not only automatic in its operations, but that it should be also so under the control of the motorman that he can cause it to be projected or shot forward at will. To permit this, we have devised means whereby the fender may be released from the holding-catches 18 at the pleasure of the motorman. 36 indicates a lever arranged in convenient position to be operated by the motorman when in his place upon the platform H. This lever is suitably connected, as by means of a chain or other flexible connection 38, with a lever 39, secured to a rock-shaft 40, to which are secured cams or short arms 41, adapted to engage with the spring-catches 18 and so move them as to release the sliding bars and fender and permit them to be automatically projected.

It will be understood that when the fender is tripped and projected forward its forward end drops toward the track, the fender rocking slightly upon the trunnions 53. It has been found desirable to provide means whereby the position to which the forward end of the fender drops with reference to nearness to the track may be determined. We have devised novel means for thus controlling the movement of the fender toward the track. They consist of eccentric-shaped stops 37, Figs. 7 and 8, which are bolted to the cross-rod 26. It will be seen by reference to Fig. 1 that when the forward end of the fender drops the portions of the side bars 5 in rear of the trunnions 53 come into engagement with these stops, and the fender is thereby held from further downward movement. The stops 37 can be adjusted to different positions and secured, as will be understood.

56 represents a projection carried by the casting 52 and arranged opposite the stop 37. It serves as a stop to limit the extent to which the fender may be thrown upward at its forward end. It will be understood that in practice the stops 37 and 56 will be duplicated at the opposite sides of the car, as indeed are most of the parts of the fender which have thus far been described.

In the before-mentioned patent, No. 625,834, the springs which operate to project the fender are represented as being connected directly with some sliding part of the fender mechanism. This arrangement is disadvantageous in that it subjects the spring to too great stretch or distention, the stretch of the spring being equal to the full movement of the fender. It is better to use a more powerful spring and have it subjected to less longitudinal distention than would be incident in a construction like that shown in the said patent, as the danger of breakage will thereby

be lessened and the effectiveness of the springs prolonged. Such an arrangement we have invented. 25 indicates the spring for projecting the fender, and there may be one or more such springs, as may be required. It is secured at one end to some stationary part of the car, such as the bracket 26, and at the other end is secured to a floating pulley 27, through which is threaded a cable 28. One end of this cable is secured to the car-body, as at 29, and the other end, after passing the floating pulley 27 and a second stationary pulley 32, is attached to some sliding part of the fender mechanism, as to the tie-bar 14. It will be readily seen that by means of a construction such as that described the movement of the end of the spring which is secured to the floating pulley is but one-half as great in extent as are the movements of the sliding parts of the fender. The rear or stationary end of the spring 25 is preferably secured to an eyebolt 60, which eyebolt is adjustably mounted in the bracket 26, by which means the tension of the spring may be increased or decreased, as required.

We have also invented improved means whereby the fender may be automatically retracted and set while the car is in motion and without the necessity of first bringing the car to a standstill, and we will now describe such means.

42 indicates a flexible connection, such as a chain or rope, secured at one end to an upward-extending arm or bracket 43, carried by one of the side bars of the fender proper and extending thence backward to a suitable shaft 44, around which it is wound. This shaft is provided with friction rolls or pulleys 51, adapted to be moved into engagement with the car-wheels B, by which they will be turned in order to wind the rope or chain 42 upon the shaft 44.

45 indicates an operating-lever arranged adjacent to the platform H in convenient position to be operated by the motorman and having its lower end 46 connected by a chain or other suitable connection 47 with a lever 48, keyed to a rock-shaft 49. 50 indicates a toggle-lever connection between the shaft 49 and the supports for the shaft 44, carrying the friction-pulleys 51. It will be understood that whenever the motorman moves the lever 45 so as to force the friction wheels or pulleys 51 into engagement with the car-wheels the shaft 44 will be turned and the flexible connection 42 wound thereon and the fender retracted. The fender-retracting devices which have just been described are preferably duplicated on opposite sides of the car.

The upward-extending arms or brackets 43, to which the flexible connections 42 are secured, are so arranged that when there is a rearward pull upon the said flexible connection the forward end of the fender will be raised before the fender as a whole is retracted.

Having thus described our invention, what

we claim, and desire to secure by Letters Patent, is—

1. The combination with a truck-frame of a car, of a supporting-bracket carried thereby, a supporting-bar mounted in said bracket and extending both forward and rearward from the bracket, a fender supported by the forward-projecting part of said bar, and a connecting-piece, 13, between the rearward-extending portion of the bar and the truck-frame, substantially as set forth.

2. The combination with a truck-frame of a car, having forward-extending arms, *e*, of a bracket, 10, secured to such arm, a fender-supporting bar supported in such bracket and extending both forward and rearward therefrom, a brace-rod, 11, between the framework of the truck and the forward-extending portion of the supporting-bar, and a casting or connecting-piece, 13, uniting the rearward-extending portion of the bar to the truck-frame, substantially as set forth.

3. The combination with the supporting-bars arranged on opposite sides of a car, of the castings, 58, at the forward ends of such bars, a cross tie-rod mounted in such castings, antifriction-rollers also mounted in said castings, and the sliding fender-bars mounted in the said supporting-bars, and arranged to bear upon the said antifriction-rollers, substantially as set forth.

4. The combination with the supporting channel-bars, 12, and the sliding fender-bars mounted therein, of the cross tie-rod, 14, between the rear portions of the sliding bars, and antifriction-rollers, 31, journaled upon the said tie-rod and arranged to run in engagement with the said channel-bars, substantially as set forth.

5. The combination of the supporting channel-bars provided with longitudinal slots, 16, the sliding bars, 2, provided with lugs, 17, which extend outward through the slots in the supporting-bars, and the pivoted latches, 21, adapted to engage with the said lugs when the sliding bars are moved inward or retracted, and to hold them in such retracted position, substantially as set forth.

6. In a car-fender, the combination of a netting-carrying frame having side bars provided with outward-extending projections, 53, the bars in which the said frame is supported provided with open bearings for the said projections 53, and means for securing the said projections in the said open bearings, substantially as set forth.

7. In a car-fender, the combination of sliding bars arranged on opposite sides of the car and provided at their forward ends with open bearings, a frame carrying the fender-netting having side bars, 5, provided with outward-extending projections, 53, which are adapted to rest in the said open bearings, means for securing the said projections in such bearings, and an upward-extending netting, 62, extending upward from said sliding bars, substantially as set forth.

8. In a car-fender, the combination of the sliding bars, a fender carried thereby, means for projecting the fender and sliding bars, catches for holding the fender and sliding bars in a retracted position, tripping means for releasing the catches, the springs, 35, bearing upon the spring-catches and the means for adjusting the tension of such spring, substantially as set forth.

9. An automatic car-fender comprising the sliding bars, a fender carried thereby, means for projecting the sliding bars and fender, a catch for holding the fender in retracted position, means for tripping the catch automatically when the fender meets with an obstruction, a rock-shaft provided with a cam or short arm, 41, adapted to engage with and trip the said catch, and means for operating the said rock-shaft extending to the platform occupied by the motorman, substantially as set forth.

10. In an automatic car-fender, the combination of the sliding bars, 2, means for moving them forward, means for holding them in retracted position, the fender proper pivotally supported in the sliding bars, means for holding the forward end of the fender elevated above the track when in its retracted position and the eccentric-shaped, adjustable stops, 37, arranged to control the extent to which the forward end of the fender moves toward the track when the fender is projected forward, substantially as set forth.

11. The combination of a sliding fender, a spring for projecting or moving forward the fender, a stationary attachment for one end of the spring, a floating or movable attachment for the other end of the spring, and power-transmitting connections between such floating or movable spring attachment and the fender, whereby the movement imparted by the spring to the said floating attachment is transmitted to the fender, and is multiplied or increased in extent, substantially as set forth.

12. The combination of a sliding fender, a spring for projecting or moving it forward, a stationary attachment for one end of the

spring, a floating pulley to which the other end of the spring is connected, and a cable interposed between the said floating pulley and the fender, substantially as set forth.

13. In a car-fender, the combination of sliding bars, 2, a fender proper pivoted in the forward end of the bars, the upward-extending arms, 43, secured to the fender proper, and means for retracting or drawing back the fender connected with such arms; whereby when power is applied to such means to retract the fender, it is first turned on its pivots to elevate its forward end, and is then retracted, substantially as set forth.

14. The combination of the sliding bars, 2, the fender proper carried thereby, means for projecting the fender and the bars, means for holding them in a retracted position, a trip device for releasing the fender so it may be projected, a friction-wheel adapted to engage with one of the supporting-wheels of the car, a shaft in which said wheel is mounted, flexible connections between such shaft and the sliding parts of the fender mechanism, and means under the control of the motorman for moving the said friction-wheel into engagement with the wheel of the car, whereby the fender may be retracted while the car is moving forward, substantially as set forth.

15. The combination of a sliding fender, a cross-shaft, 44, carrying friction-wheels adapted to be made to engage with the supporting-wheels of the car, flexible connections between the said shaft and the sliding fender, a toggle-lever arrangement adapted to move the said shaft, 44, to bring its friction-wheels into contact with the wheels of the car, and operating mechanism under the control of the motorman for working the said toggle-lever, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two witnesses.

JOSEPH W. A. GARDAM.
FOSTER J. HULL.

Witnesses:

W. P. HAMMOND,
E. C. ADAMS.