H. B. DUNCAN.

PINCH-BAR FOR MOVING CARS.

No. 175,678. Patented April 4, 1876.

fig. 1.

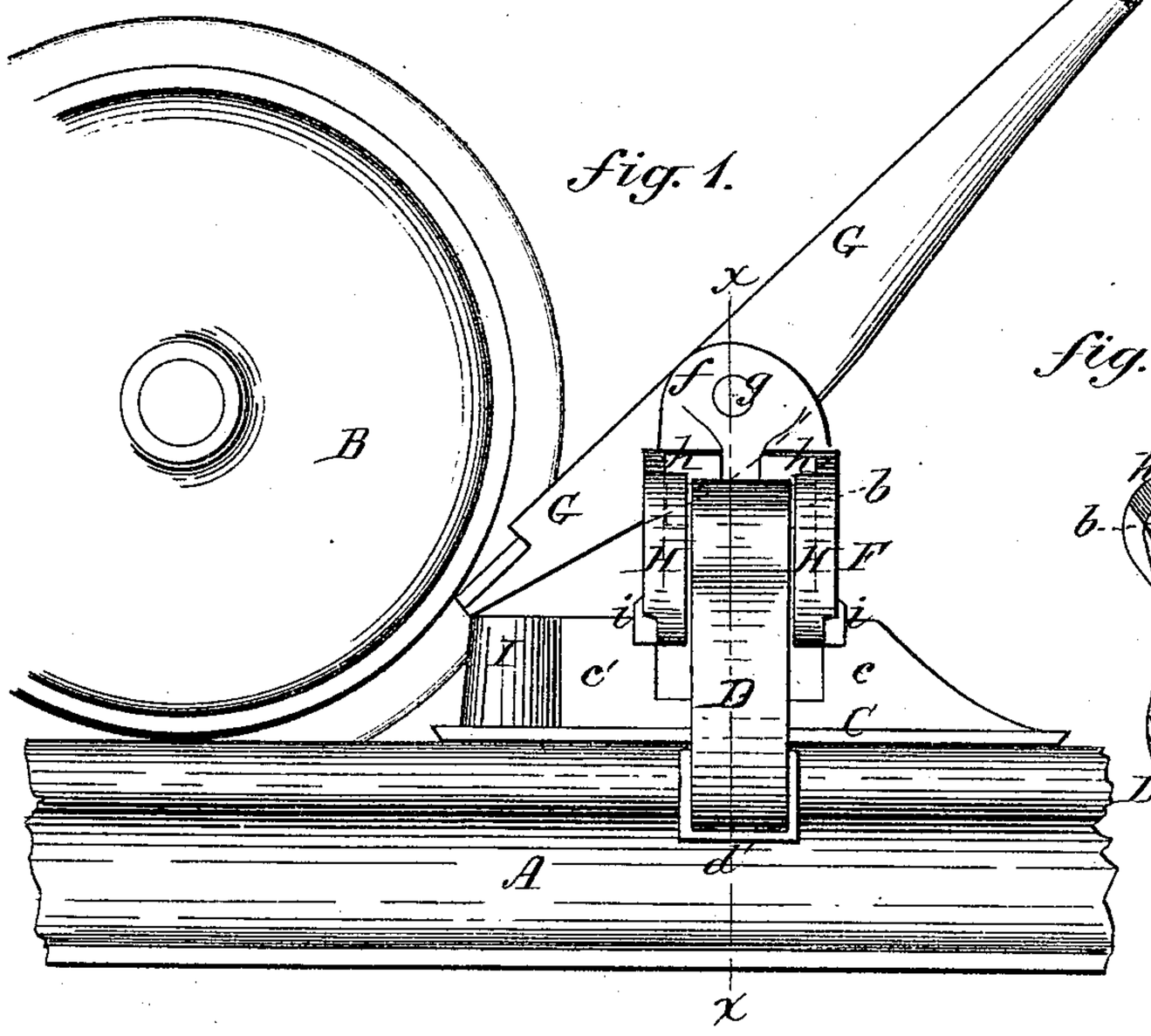


fig. 2.

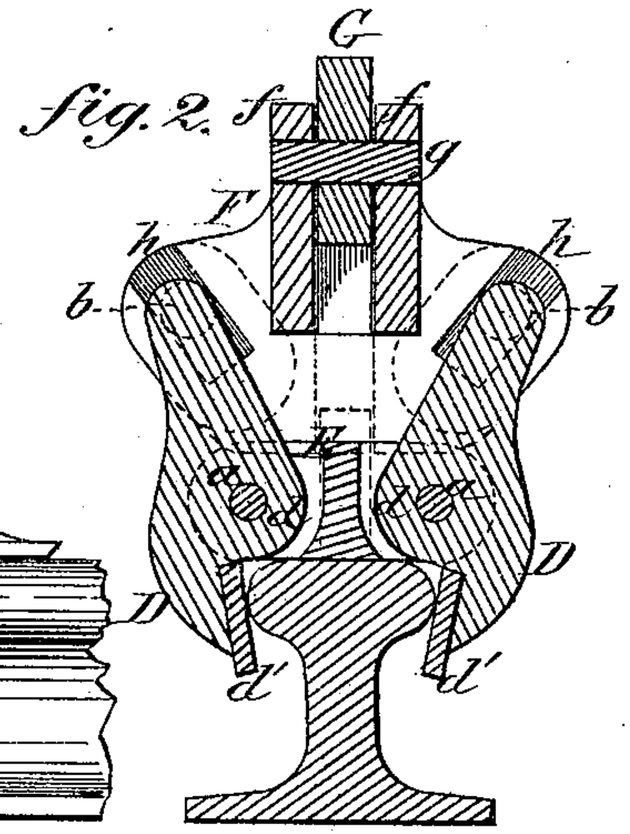


fig. 3.

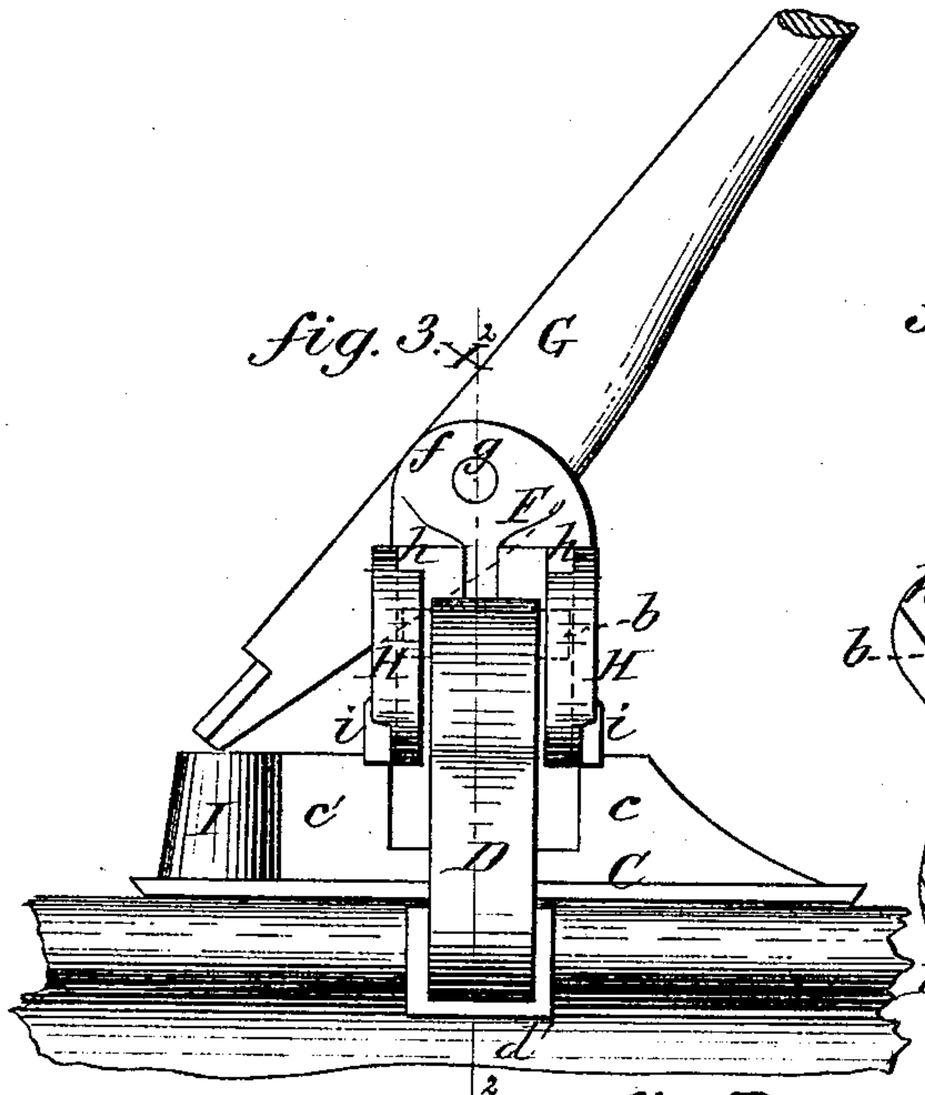


fig. 4.

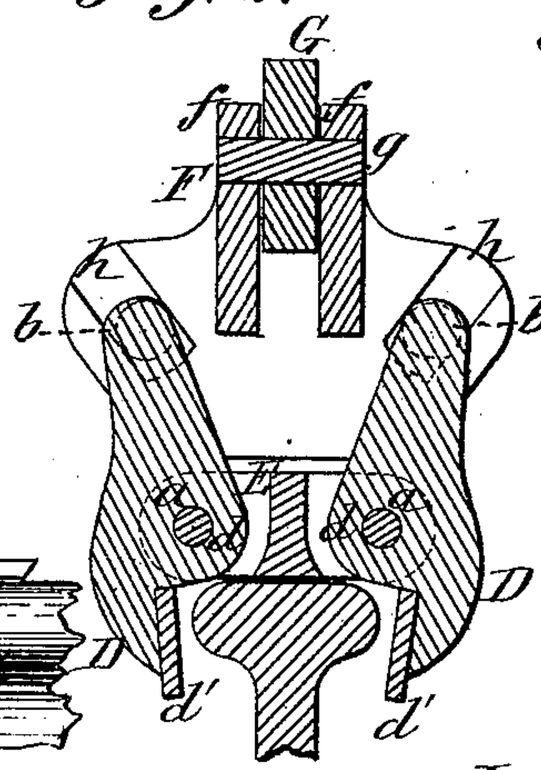


fig. 6.

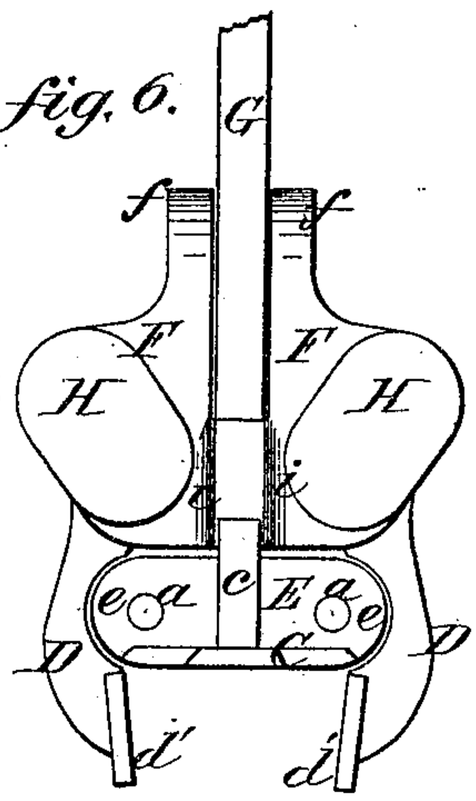
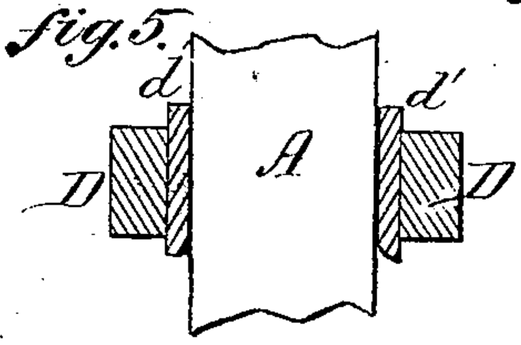


fig. 5.



Witnesses:

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Atty's.

UNITED STATES PATENT OFFICE.

HENRY B. DUNCAN, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN PINCH-BARS FOR MOVING CARS.

Specification forming part of Letters Patent No. **175,678**, dated April 4, 1876; application filed March 15, 1876.

To all whom it may concern:

Be it known that I, HENRY B. DUNCAN, of Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Pinch-Bars for Moving Cars, of which the following is a specification:

My invention relates to an improved pinch-bar for moving single railway-cars upon the track, when it is desired to shift them short distances—as, for example, upon switches and side tracks at railway-stations and other places—the particular and novel features in which will be fully understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of the pinch-bar in position it occupies upon the rail, and of being applied to the car-wheel for the purpose of moving the car. Fig. 2 is a transverse sectional view taken through the line *x x* of Fig. 1, showing the position of the parts of the clamping device and its operating mechanism during the act of pushing the car. Fig. 3 is a side view of the pinch-bar, showing the position of the lever and other parts when the clamping-jaws are released in order to be shifted along the rail. Fig. 4 is a transverse section through x^2 x^2 of Fig. 3, showing the position of the clamping device and its operating mechanism when it is released to be shifted upon the rail. Fig. 5 is a detail longitudinal sectional view, showing the form of the face-plates upon the clamping-jaws; and Fig. 6, an end elevation.

A is an ordinary railroad-rail. B is one of the wheels of a car-truck. On the rail slides a metallic plate, C, oblong in form, corresponding in width to the rail, and serving as a bearing for the clamping-jaws D. These jaws are pivoted or journaled upon or rigidly secured to the rounded ends of a block, E, formed upon the top face of the plate C, transversely of the middle thereof. I prefer to journal these jaws by forming upon their inner faces rounded lugs *d*, which set into corresponding concave recesses in the ends of the block E, between two rounded lugs, *e e*, on each end, fitting into corresponding recesses on each side of the lugs *d* upon the jaws, securing them with pivot-pins *a a*, and forming a bearing for the jaws, of suitable strength and compactness. The jaws themselves are formed with round studs or projections, *b b*, at each side of their upper ends, for operating them, as hereinafter described, and upon their lower ends I secure steel or other hard face-plates *d'*, adapted to withstand wear. These are chamfered at their front edges, as shown in Fig. 5, so as to slide freely over joints and roughnesses in the rails in the desired direction, and squared at the butts to prevent their sliding backward when in use. F is the block through which are simultaneously operated both clamping-jaws D. This block is, independent of the bearing-plate C, deeply recessed across the middle, in line with the plate C, for the reception of the lever G and its pivot-pin *g*, which is passed through two upwardly-projecting lugs, *f f*, transversely of the plate C.

Projecting laterally of the lug *f* of the lever G are guides H H, two on each side, deeply grooved at *h h* upon their adjacent faces, between which sufficient interval is left for the play of the clamping-jaws D. The grooves *h h* are of sufficient depth to admit the studs *b b*, and are symmetrically-inclined toward the median line of plate C and the block F, so that, if continued, they would form V's. The round shape of the studs *b b* permits them to assume different positions in the grooves *h h*, according to the angles made by the jaws with each other.

The block F has formed upon each of its sides little shoulders, *i i*, (or a groove in each side will answer the same purpose,) which shoulders fit upon the adjacent ends of ribs or guides *c c'*, raised upon the upper face of the plate C, longitudinally thereof and in the median line, which guides compel the block F to move vertically, and also strengthen the plate C. When the block is raised the pivoted jaws are forced apart by the descent of the studs *b* in the converging grooves *h h*. When the block is forced down, the upper arms of the pivoted jaws are forced apart, and the rail is clamped by the face-plates *d*.

At the forward end of plate C and of guide *c'*, made preferably in one solid piece with both, is a stand, I, of sufficient width and proper form and solidity to serve, when re-

quired, as a bearing or fulcrum for the lower and forward end of hand-lever G, pivoted, as above described, in line with the plate C and the rail upon block F, and having a wedge-formed lower end, as shown. When the operator desires to release the clamping-jaws and slide the pinch-bar along the rail, he simply lifts the lever, the lower end of which then bears upon the stand I and serves as a fulcrum, by which the independent block F is lifted and the clamping-jaws opened. He then slides the pinch-bar along the track until it is close under the car-wheel, as shown in Fig. 1. He then depresses the handle of the lever, forcing down the block F, and causing the jaws D to clamp the rail and prevent the plate C from slipping backward, at the same moment that the lower end of the lever, by its upward pressure, forces the car-wheel to roll forward. The operator then raises the handle, releases the jaws, and moves it forward until the end of the lever is again below the wheel, repeating the movements as often as desired by simply elevating and depressing the handle of the lever. The inertia of the car is thus utilized to prevent the bearing of the lever from slipping backward.

It will be seen that the clamping-jaws D are pivoted directly to the bearing-plate C to render the device firm and compact, and that the independent block F is arranged to operate these clamping-jaws directly in a line with them and the pivot of the operating-lever G, whereby the force of the lever is exerted directly in the line of the clamping-jaws.

I claim—

1. The independent block F, pivoted to the lever G, in a vertical line with the jaws D, and combined therewith and with the bearing-plate C, to have a vertical movement thereon and independent thereof, substantially in the manner and for the purpose set forth.

2. The combination, with the independent block, provided with the shoulders *i i* of the guide-ribs *c c'*, of the bearing-plate C, whereby the block is compelled to move vertically in relation to said bearing-plate and the clamping-jaws.

3. The combination, with the bearing-plate C, of the jaws D, hinged directly thereto, the independent vertically-sliding block F, having the upper converging grooves *h h* for the jaw-studs *b b*, and the lever G, substantially as and for the purpose described.

4. The steel plates *d'* of the clamping-jaws D, beveled at their front ends, and squared at their butts, as and for the purpose set forth.

5. The clamping-jaws D, provided with the round studs *b b* on opposite sides of their upper ends, and combined for operation with the opposite converging grooves *h h* in the guides H H of the independent lever-block, whereby the studs are allowed to assume different positions in the grooves, according to the angles made by the jaws with each other.

6. The clamping jaws D, arranged in vertical line with the pivot *g* of the lever G, to obtain the advantages stated.

In testimony whereof I have affixed my signature in the presence of two witnesses.

HENRY B. DUNCAN.

Witnesses:
M. S. CRAIG,
H. H. JOHNSON.