T. E. PRAY.

MINING LOCOMOTIVE.

APPLICATION FILED JULY 19, 1919.

1,410,596.

Patented Mar. 28, 1922.

4 SHEETS—SHEET 1.

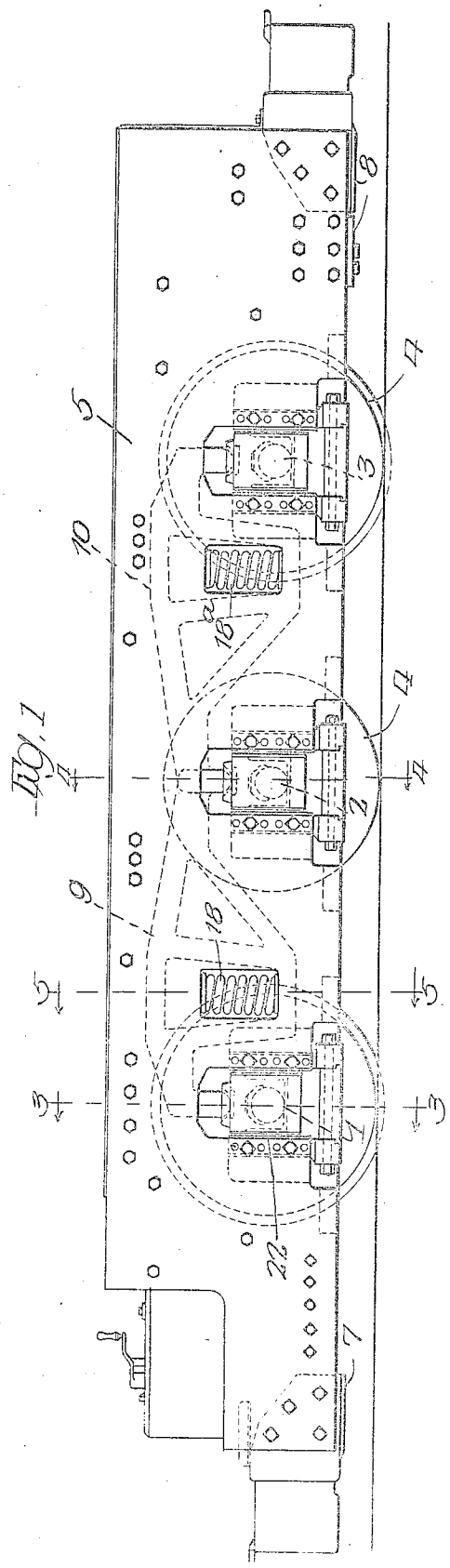


Fig. 1

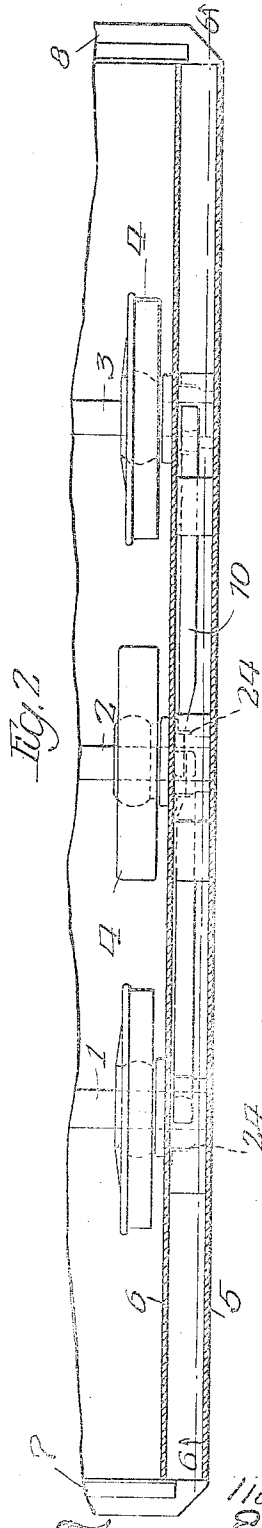


Fig. 2

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4 SHEETS—SHEET 2.

Fig. 4

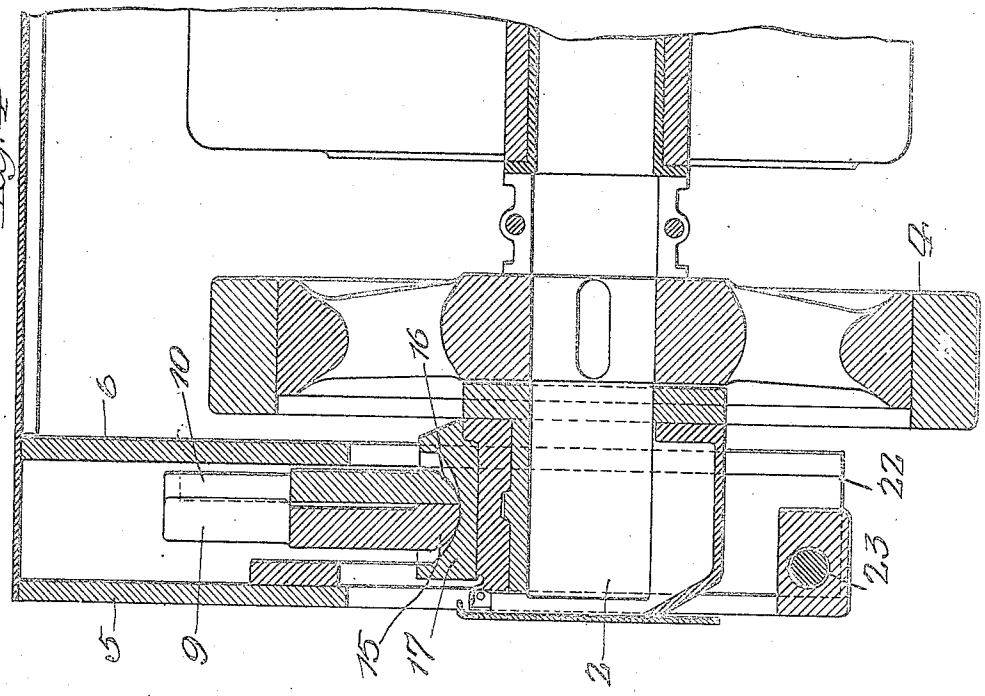
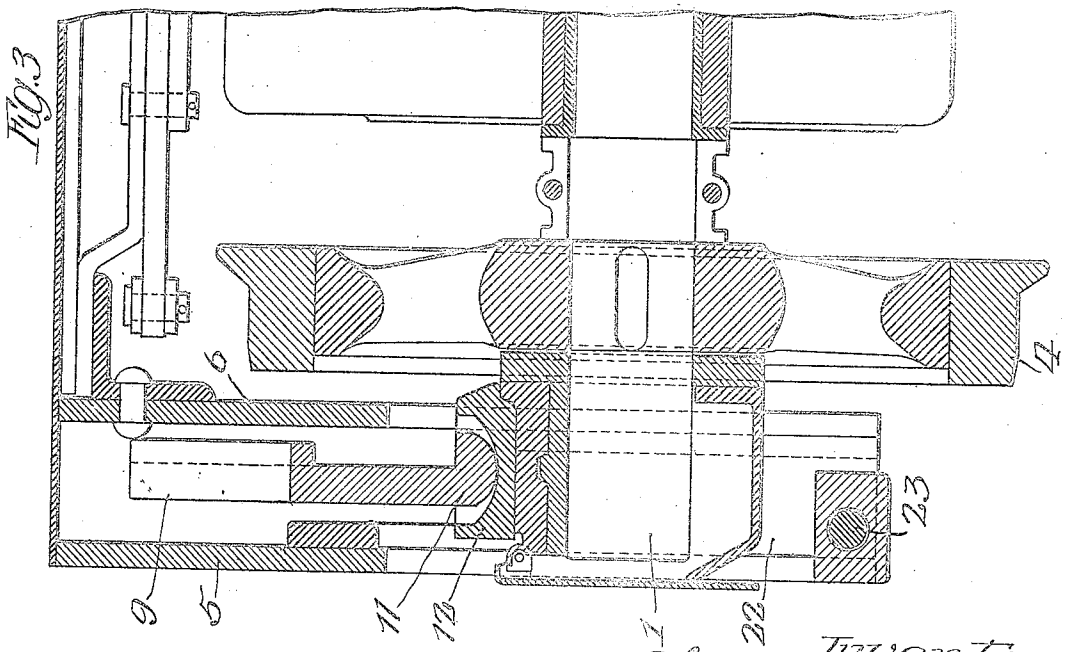


Fig. 3



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4 SHEETS—SHEET 3.

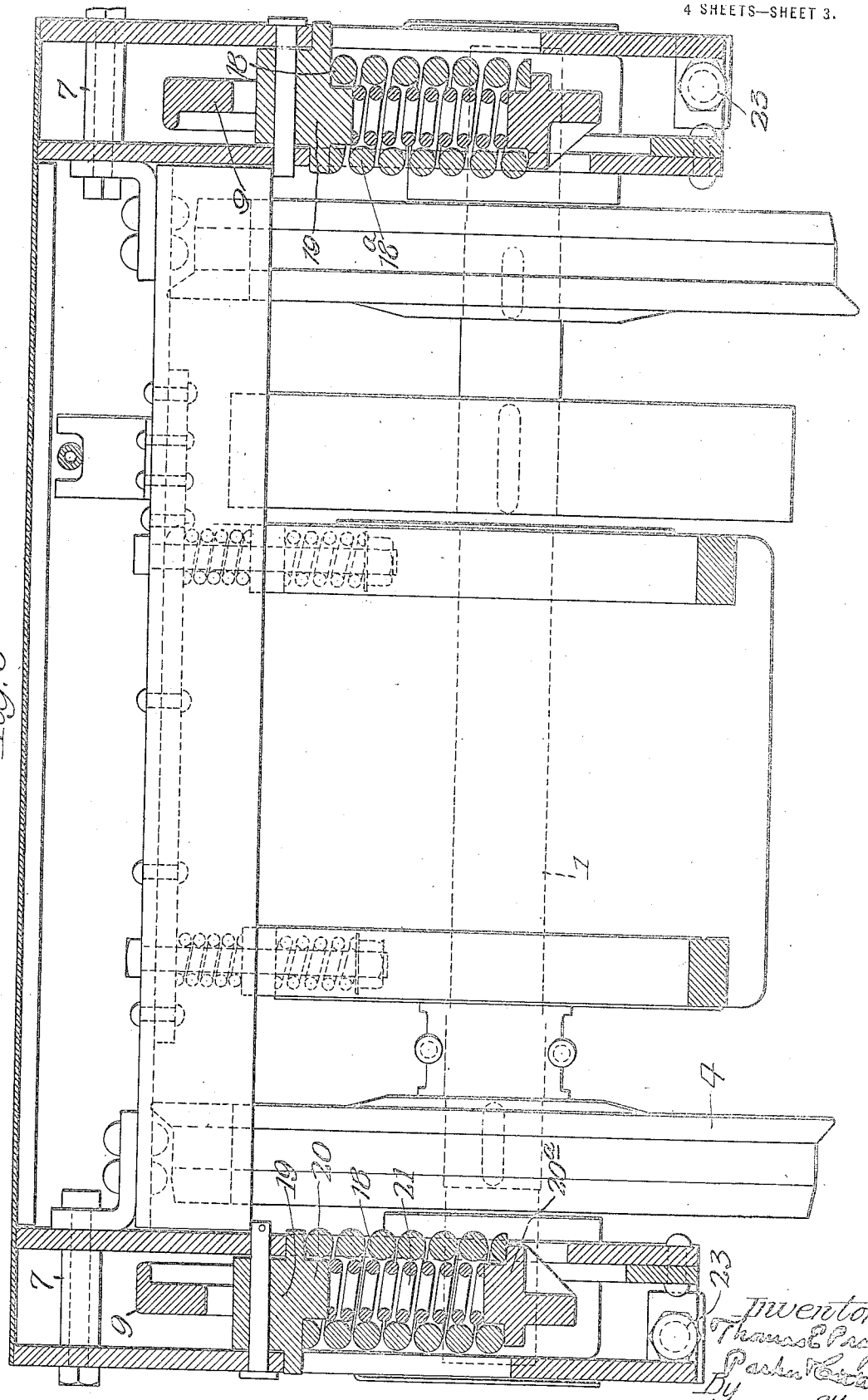


Fig. 5

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4 SHEETS—SHEET 4.

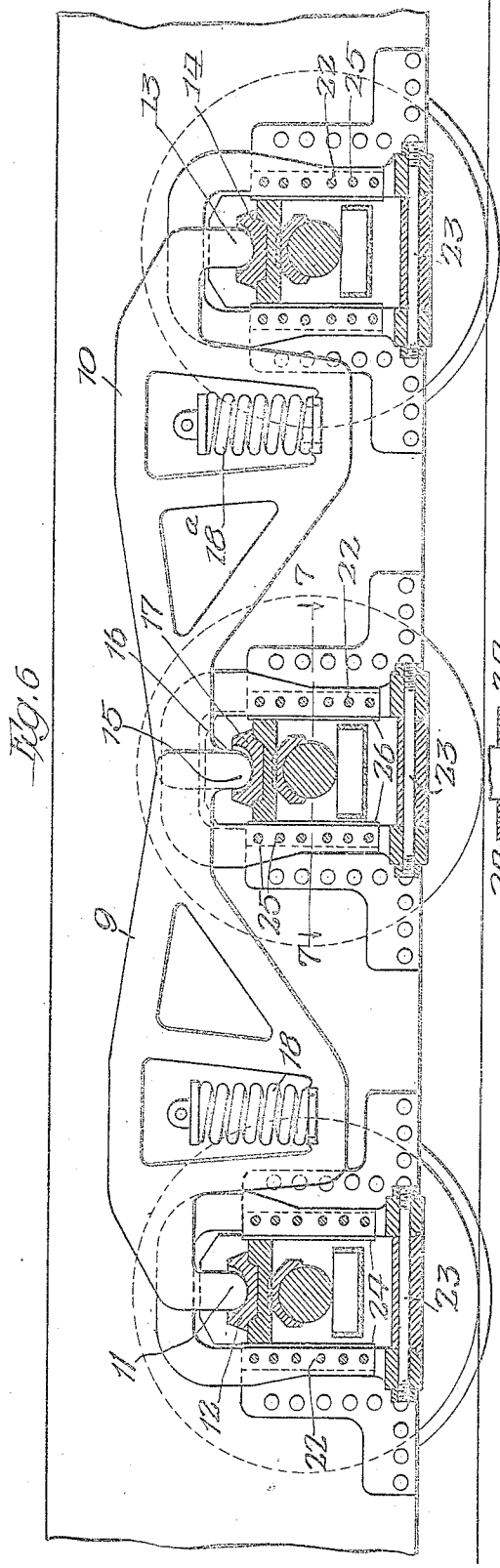


Fig. 6

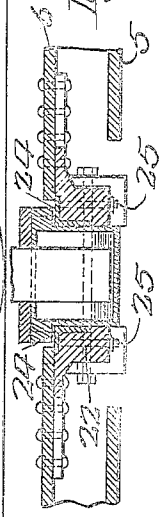


Fig. 7

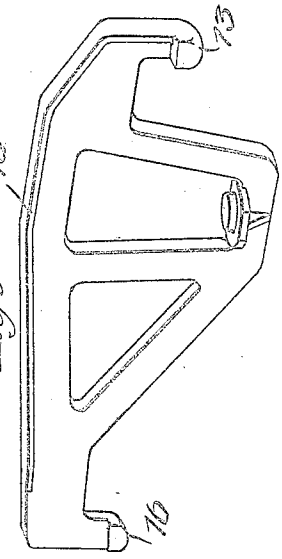


Fig. 9

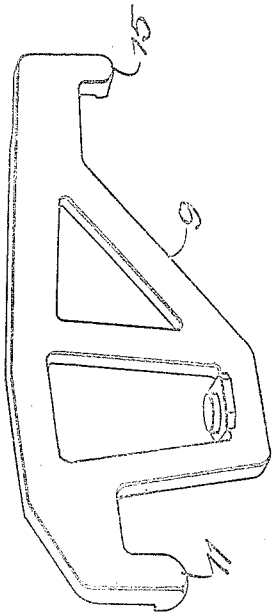


Fig. 8

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UNITED STATES PATENT OFFICE.

THOMAS E. PRAY, OF CHICAGO, ILLINOIS, ASSIGNOR TO GOODMAN MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MINING LOCOMOTIVE.

1,410,596. Specification of Letters Patent. Patented Mar. 28, 1922.

Application filed July 19, 1919. Serial No. 311,941.

To all whom it may concern:

Be it known that I, THOMAS E. PRAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Mining Locomotives, of which the following is a specification.

This invention relates to improvements in locomotives and has for its object to provide a new and improved locomotive particularly adapted for use in mines, and wherein the frame is such as to secure an efficient distribution of the material required for weight and strength and the connection between the frame and the parts carried thereby and the axle is such that the weight of the locomotive comes central on the axle boxes. The invention has other objects which are more fully set out in the following description. The invention is illustrated in the accompanying drawings, wherein—

Fig. 1 is a side elevation of a locomotive embodying the invention;

Fig. 2 is a plan view showing one of the side frames of the locomotive;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1;

Fig. 6 is a sectional view taken on line 6—6 of Fig. 2;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 6;

Figs. 8 and 9 are perspective views of the two connecting bars.

Like numerals refer to like parts throughout the several figures.

The locomotive is made up of a frame and associated parts mounted upon axles and wheels. In the accompanying drawings I have shown the construction where there are three axles 1, 2 and 3, each having two wheels 4. The frame is provided with two side portions each of which is made up of separated plates or sections 5 and 6 (see Fig. 2), with a space between them. These side portions are connected together at the ends in any suitable manner as by the end pieces 7 and 8. The frame of the locomotive is connected to the axles by means of springs and bars located in the space between the plates 5 and 6. As illustrated in the drawings each side portion has within the plates the bars 9 and 10. The bar 9 has a rounded end 11 which engages a supporting piece 12 on the axle box of the axle 1. The bar 10 has a similar rounded end 13 which engages a supporting piece 14 on the axle box of the axle 3, the adjacent ends of the bars 9 and 10 overlapping, (see Fig. 4), and the bar 9 has a rounded end 15, and the bar 10 a rounded end 16, the two rounded ends engaging the support 17 on the axle box of the axle 2. These supports 12, 14 and 17 have recesses into which the ends of the bars are received as illustrated. Each side portion of the frame is connected with the bar 9 by a spring 18. This spring engages at its upper end a cross piece 19 extending between the plates 5 and 6, said cross piece having a projection 20 which projects into the coil of the spring. The other end of the spring engages the bar 9, said bar being provided with a projection 20^a which projects into the coil of the spring as illustrated. I may provide an interior coil spring 21 inside of the spring 18 as shown. Each of the side portions is connected with the bar 10 in a similar manner by the spring 18^a. The ends of the bars 9 and 10, it will be noted, are central over the axles and hence the weight of the locomotive comes central on the axle boxes. The side portions being made up of separated plates enclose the bars 9 and 10, thus increasing the safety factor and preventing injury to the men, and at the same time gives an efficient distribution of the material required to secure the proper weight and strength. This construction requires less material for the desired strength.

The axle boxes for the various axles are slidably mounted in pedestals 22, the plates of the side portions being cut away to receive these pedestals. The lower ends of the pedestals are connected together by a binder bolt 23. By having the separated plates 5 and 6 it will be seen that the binder bolt 23 may be located within the boundaries of the side plates, as they can be withdrawn between the side plates. If a single plate were used for the side portions, this binder bolt would have to be below this plate, thus either increasing the height of the locomotive or decreasing the distance

between the frame and the ground or track. The pedestals are provided with angle iron shoes 24 which act as the guides for the axle boxes. By this construction these angle iron guides are kept within the inside line of the side plates, thus decreasing the width of the locomotive. These guides wear out and must be replaced, and they are held in place by means of bolts 25 which can be removed so that new guides may be inserted.

When locomotives are used in mines they must be compact because the entries are narrow, and there must be room at the sides of the locomotive when in the entries for a man. This construction makes it possible to make a compact locomotive of the required strength. This construction gives the maximum strength for a given weight. The plates 5 and 6 hold the bars 5 and 10 against lateral displacement.

The locomotive may be run by any desired motor, preferably one or more electric motors, and is provided with suitable brake mechanism, but as these parts are no part of my present invention, I have omitted them in order to make clear just what the invention covers.

I have shown in detail a particular construction embodying the invention, but it is of course evident that the parts may be varied in many particulars, without departing from the spirit of the invention as embodied in the claims hereto appended, and I therefore do not limit myself to the particular construction shown.

I claim:

1. A locomotive comprising a frame having side portions, the side portions being made up of separated sections with a space between them, wheels and axles for said locomotive, and connections between said frame and said axles, said connections comprising rigid bars located between the separated sections of the side portions.

2. A locomotive comprising a frame having side portions, the side portions being made up of separated sheet metal plates with a space between them, wheels and axles for said locomotive, bars in the spaces between the plates of said side portions, connections between said bars and said axles, and connections between said bars and said side portions.

3. A locomotive comprising a frame having side portions, the side portions being made up of separated sheet metal plates with a space between them, wheels and axles for said locomotive, bars in the spaces between the plates of said side portions, connections between said bars and said axles, and connections between said bars and said side portions, said latter connections consisting of springs connected with the bars and the side portions.

4. A locomotive comprising a frame having side portions, each side portion made up of two sections separated by a space, wheels and axles for said locomotive, pedestals connected with said side portions, axle boxes connected with said axles and movably mounted in said pedestals, recessed supports at the top of said axle boxes, bars between the sections of said side portions, said bars having ends which engage said recessed supports the adjacent ends of said bars overlapping, springs connected with said side portions and engaging said bars so as to elastically support the frame on the bars, the bars separating the frame on the axles.

5. A locomotive comprising a frame having side portions made up of substantially parallel sections separated by a space, three axles for said locomotive, said axles provided with wheels, axle boxes for said axles, a recessed support associated with each axle box, two bars at each side of the locomotive and located in the space between the sections of each side portion, the adjacent ends of the two bars overlapping and engaging one of the recessed supports, the other ends of said bars engaging the other recessed supports, springs located between the sections of each side portion and connected therewith, said springs being also connected with said bars.

6. A locomotive comprising a frame having two side portions, each of which is made up of substantially parallel sheet metal plates separated by a space, wheels and axles for said locomotive, pedestals connected with said side portions, removable guides removably fastened to said plates and connected with said pedestals, axle boxes connected with said axles and slidably mounted between said guides.

7. A locomotive comprising a frame having two side portions, each of which is made up of substantially parallel sections separated by a space, wheels and axles for said locomotive, pedestals connected with said side portions, removable guides connected with said pedestals, axle boxes connected with said axles and slidably mounted between said guides, said guides consisting of angle iron, one angle of which engages the axle boxes, the other angle being fastened to the pedestal by removable fastening devices.

In testimony whereof, I affix my signature in the presence of two witnesses this 17th day of July 1919.

THOMAS E. PRAY.

Witnesses:
LYLA DONOVAN,
EDITH L. POTTER.